NHS

CHESHIRE DIGITAL ROADMAP

2016

A local digital roadmap developed by Eastern Cheshire, South Cheshire, Vale Royal and West Cheshire Clinical Commissioning Groups in conjunction with their partner organisations.

Contents

1.0   Introduction

This document describes the ambition of our regions health and social care services and how we intend to improve services for patients, citizens and staff involved in health and caring services across Cheshire.

In this document, there are many references to government programmes, upcoming legislation and targets to fulfil, but ultimately it is about how we all work together, patients public and staff and how we interact with other regions to experience and provide the best service possible within the limited resources available to us.

The area that we represent is rural, with an elderly population, relatively affluent in places but with significant areas of deprivation. This presents challenges in delivering and coordinating care, as well as developing services that acknowledge the richness of services available within the major conurbations surrounding our region. The issue is one of connectivity, how do we coordinate the logistics of health and care between different providers of care, staff, locations and services and maintain an approach that must put the individual at the heart of all that we do. We aim, through this local digital roadmap, to bring the currently diverse infrastructure up to a new baseline level of connectivity, providing seamless and simple access to digital resources across all public services in Cheshire, for workers and citizens.

Our longer term ambitions are to develop services that give control of data and therefore care, back to the citizen, making them the centre of our local care system. To achieve this we aim to procure and develop standards based services that will seamlessly interconnect with public facing digital applications that empower our citizens and allow them to control and manage their data. This in turn will remove barriers to access data crucial to supporting the best levels of care.

Our strategy to achieve this is:

- **Make the most of what we already have and connect to everything**. For example we are now linking existing networks across East, Central and West Cheshire which should allow data to flow seamlessly and provide a platform upon which new local services can develop at pace.

- **Develop a standards based care economy:** by agreeing technical and information governance standards across Cheshire we can improve connectivity and make significant economies in resources expenditure and improve the security and level of service provided.

- **Actively seek out willing partners to develop services at scale** (LDR, STP Regional and National) including the development of an EPR across a wide footprint would bring benefits in standardisation, interconnectivity, economies of scale and efficiency of investment. For example, the Cheshire Care Record was developed at an accelerated pace with a much

richer data set and a much reduced investment compared to programmes pursued by individual CCGs.

Investing in digital technology is a key enabler to integrating care, improving the experience our citizens have of the services available to them, and ensuring the care system operates at the greatest level of productivity and efficiency. Investments must however be managed within an increasingly challenged economic environment and therefore investments will be made responsibly, maximising economies of scale and through ensuring we access support through Nationally supported digital funding streams.

Technology enabled transformation will be a key part of our future and I hope through our Local Digital Roadmap we can collectively start that journey.

1.1 Digital Roadmap Drivers

[1]The Five Year Forward View recognised the need for the NHS and social care to exploit the information revolution to meet the fundamental challenges facing us – the health and wellbeing gap, the care and quality gap, and the funding and efficiency gap. Recognising the need for sector-wide leadership to deliver this agenda the National Information Board (NIB) has brought together organisations from across the NHS, public health, clinical science, social care, local government and representatives of the public. In November 2014, the NIB produced '[2]Personalised Health and Care 2020, Using Data and Technology to Transform Outcomes for Patients and Citizens - A framework for action'. This document committed that local health and care economies would, by June 2016:

• produce detailed roadmaps highlighting how, amongst a range of digital service capabilities, they will ensure clinicians in all care settings will be operating without the need to find or complete paper records by 2018; and

• that by 2020 all patient and care records will be digital, real-time and interoperable.

An important element of this strategy is the production of local digital road maps, led by local commissioners in conjunction with local authorities, local providers, local citizens and other stakeholders. The citizen will release benefits in every aspect of care evolving over the years of deployment of the digital roadmap. These will be a blend of clinical outcome benefits and efficiency gains. As and when the digital roadmap becomes fully deployed every aspect of care as viewed by the citizen will have been transformed from

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[1] Paper PB 150326/09 BOARD PAPER - NHS ENGLAND Title: Digital Health Services by 2020: Delivering Interoperability at Point of Care to Support Safe, Effective, Efficient and High Quality Care

[2] Personalised Health and Care 2020... - A Framework for Action Pub. Nov 2014

our current baseline. The end goal of this is the introduction of fully interoperable digital records, including primary, secondary, social, mental health, community and specialised care.

In addition the local health systems are required to develop Sustainability and Transformation Plans (STP) which will incorporate the Local Digital Roadmaps. NHS England is asking every health and care system to come together, to create its own <u>ambitious</u> local blueprint for accelerating its implementation of the Forward View. STPs will cover the period between October 2016 and March 2021.

The Spending Review provided additional dedicated funding streams for transformational change, building up over the next five years. This protected funding is for initiatives such as the spread of new care models through and beyond the Vanguards, primary care access and infrastructure, technology roll-out, and to drive clinical priorities such as diabetes prevention, learning disability, cancer and mental health. Many of these streams of transformation funding form part of the new wider national Sustainability and Transformation Fund (STF). The most compelling and credible STPs will secure the earliest additional funding from April 2017 onwards.

This document encompasses the first iteration of the Cheshire Local Digital Roadmap and represents a first significant step to delivering joined up solutions to the current challenges faced by the NHS and recognition and structure around the excellent cooperative work that is already taking place within Health and Social Care across Cheshire. We recognise fully the need to scale up the Local Digital ambitions to integrate with those contained in the STP and to this end we expect to join with other areas in developing cooperative programmes of work, deployed at scale, to overcome our most significant challenges.

1.2 Digital Roadmap Development and Footprint

The Cheshire Digital Roadmap (LDR) footprint covers the Central, Eastern and Western areas of Cheshire represented by four CCGs and two local authorities. The area which is largely rural, borders Merseyside and Greater Manchester, Derbyshire, Staffordshire and Shropshire and Wales. Cheshire's county town is Chester and major towns include Congleton, Crewe, Macclesfield, Northwich, Wilmslow, and Winsford. (Note: this excludes Stockport, Warrington and the Wirral)

The population covers some of the richest and poorest parts of the county across a varied geography that impacts on how health and care services are accessed, delivered and financed. This brings its own challenges for workers in the community and patients in terms of connectivity to digital resources, and whilst we benefit from the close proximity of major conurbations, with access to additional acute and specialist services, this has a penalty in terms

of distances travelled and a disaggregation of management and technical standards across the region.

A further challenge is the local financial position within the digital footprint as each of the CCG's are planning a deficit and all 4 of the providers are in deficit. This picture translates to the wider Sustainability and Transformation Plan footprint of Cheshire and Merseyside, with 6 out of the 12 CCG's planning a deficit and 12 out of the 19 providers in deficit. Significant external investment is required to deliver our ambitions in meeting the challenge and successfully delivering the Five Year Forward View and the Lord Carter of Coles review, without this the levels of success will be diminished.
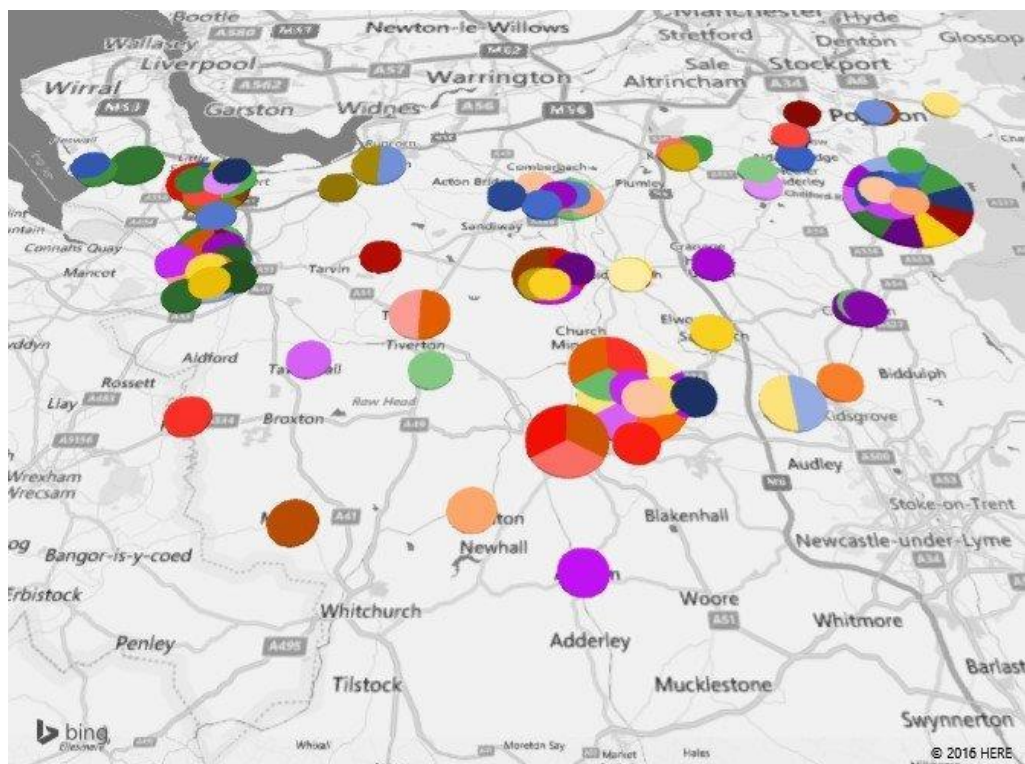

Figure 1 Distribution of health centres

Whilst there are a range of potential directions in terms of cooperative development, the Local CCGs involved in the development of the Roadmap have a history of working together, including most recently the Cheshire Care Record and Cheshire Shared IT network programmes. These programmes of work were sponsored by the following transformation programmes:

- Caring Together – Eastern Cheshire
- Connecting Care – South and Vale Royal
- West Cheshire Way – West Cheshire

The three transformation programmes have a collective vision to deliver the highest quality of life and wellbeing for our population, through partnership working, service integration, patient empowerment and local consultation.

These collective transformation programmes are being delivered successfully as part of the Cheshire Integrated Care Programme which is governed by the Cheshire Pioneer Panel and are the foundation of the LDR, which feeds into the Sustainability and Transformation Plans.

The diagrams below provide an indication of how the various Transformation Programmes, Responsible Bodies and the STP interlink.
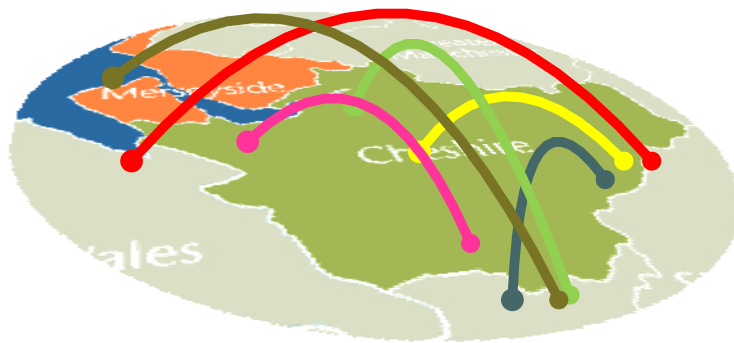

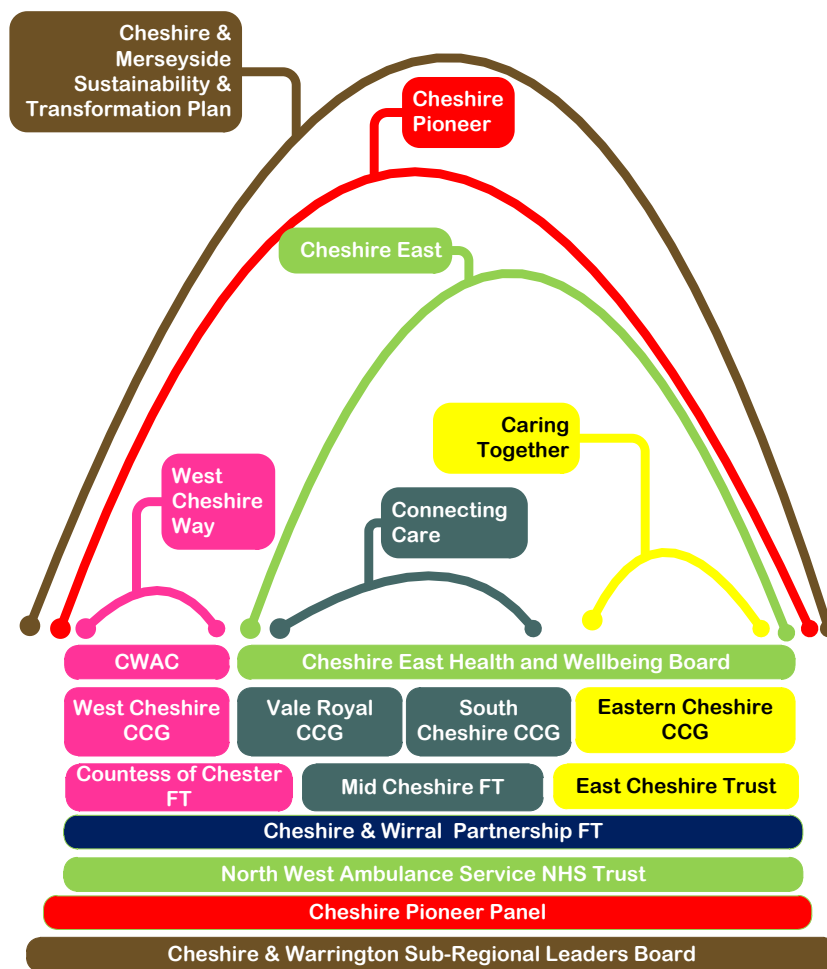**Figure 2 Visual summary of integrated care programmes**

Figure 3 STP footprint connections

The Cheshire Integrated Care programme was formed as part of the Pioneer programme of which Cheshire Pioneer was one of the first 14 areas across England (now 25), that are leading in delivering better joined up health and social care.

The Cheshire Pioneer Panel is responsible to the Health and Wellbeing Boards in Cheshire East and Cheshire West and is supported by the local authorities of Cheshire West and Chester and Cheshire East, along with the constituent Clinical Commissioning Groups of Eastern Cheshire, South Cheshire, Vale Royal, and West Cheshire, who combined, have 90 GP practices serving a population of 750,000.

A number of significant provider organisations operate within the Cheshire Pioneer including Countess of Chester Hospital NHS FT (CoCH), East Cheshire NHS Trust (ECT), Mid Cheshire NHS FT (MCHfT), Cheshire and Wirral Partnership NHS FT (CWP) and the North West Ambulance Service (NWAS), who together provide a comprehensive range of acute, community and mental health services. A full list of the initial partners can be found in Appendix B:

The Cheshire Care Record and the Cheshire IT Shared Network programmes are endorsed by the Cheshire Pioneer Panel who oversees the provision of the funding for the project. The programme boards themselves have full representation and involvement from local CCIO (Chief Clinical Information Officer) / Clinical leads as well as Information Governance and Technical Leads for the organisations involved in delivery.

The digital road map is endorsed by the four clinical commissioning groups, the two councils and the four principal providers based within the locality (CWP, CoCH, ECT and MCHfT)

2.0 Local Digital Roadmap 5 Year Vision

The Five-Year vision is a mandated element of the Local Digital Roadmap describing how by March 2021 the LDR will support a digitally-enabled transformation to help address the three national challenges (i) closing the health and wellbeing gap, (ii) closing the care and quality gap and (iii) closing the finance and efficiency gap. In addition it is recognised that the five year vision needs to encompass the potential within the STPs for developing and funding interoperable digital solutions at scale with an expectation that some of these will not be feasible without developing programmes and funding at a regional/national level.

2.1 Closing the health and wellbeing gap:

Delivering appropriate tools to patients to support self-care and wellbeing and make the most of the ensuing data to monitor and improve their health management.

The four LDR CCGs have encouraged the use of a single clinical system provider, in order to harvest the advantages that a common technology platform delivers, such as service delivery improvements and efficiencies in change management, security and training support as well as the delivery of initiatives in common such as access to personal care records. As systems become standards based and interoperable, we would expect this to change, but through this approach, the vast majority of patients across the Cheshire's now have the potential to access their personal health record held on GP clinical systems and make and manage their GP appointments. Note: The use of the single system has now extended to the vast majority of GP Clinical Systems, East Cheshire Community and CWP.

This is a significant achievement in itself, but to realise any long term benefit we need to expand our ambition, going from a parent child model (Care provider to patient) to an interactive model where the informed and engaged patient has full control of their own care, including a the ability to interact with their own record and maintain a care diary which contains details of all appointments, primary, secondary, nursing and social care. All of this information would be available to people involved in the patient's care, with the ability for patients to manage their diary, provide direct consent for

information sharing and allow for a more integrated, efficient and secure approach to care delivery.

Step changes in technology and change management are required to realise this ambition by 2021.

- Increase the numbers of patients accessing their full GP personal health record, through a progressive communications and engagement change programme.

- Development of technical solutions to the Information Governance consent model – a single data solution holding details of data sharing agreements across an agreed footprint for health and social care and the ability for citizens to directly manage and store individual consent across broad categories. (See LPRES and NWSIS Lancashire and Cumbria Information Sharing Gateway)

- Development of technical solutions that can interact with existing data repositories to provide a comprehensive patient view of their personal care information, personal care budgets and future care provision, including appointments with all health care providers and care givers. This includes the ability to manage their appointments and directly communicate securely and efficiently with the organisations and people involved in their care.

- Development of services that can receive and monitor health metrics remotely and provide advice and support as well as health alerts and interventions where appropriate, including the development of risk stratification (population health management) services using health and social care data.

- We consider that all of these developments are best approached at scale, where efficiencies and maintenance of high standards are better achieved through a dedicated centralised function with a collective management approach. To this end willing partner organisations in Cheshire and connected areas have formed a Digital Leads sub–group of the Cheshire Pioneer Panel, which will provide the engagement, ideas, guidance and governance for producing solutions to support the Roadmap and engagement with other LDRs across the STP footprint.

2.2 Closing the care and quality gap:

Supporting new models of care, including 7 day working and effective triage by delivering real time and comprehensive patient information.

The Cheshire Care Record supported by Roadmap partners delivers one of the most comprehensive care records available in the UK and is an excellent demonstration of the high level of commitment to collaborative working across health and care organisations in Cheshire.

This provides clinicians and social care workers with access to near real time, comprehensive health and care information on a 24 hour 7 day basis, available through universal internet devices. Currently the project is in its first phase of deployment to all health and social care professionals, with further data sources being added on a continuous basis. An active programme board with cross Cheshire representation manages the delivery of the programme and this is supported by a Governance Committee with clinical, patient and executive representation at its heart. A full engagement and communication programme is underway to maximise the take up of this service.
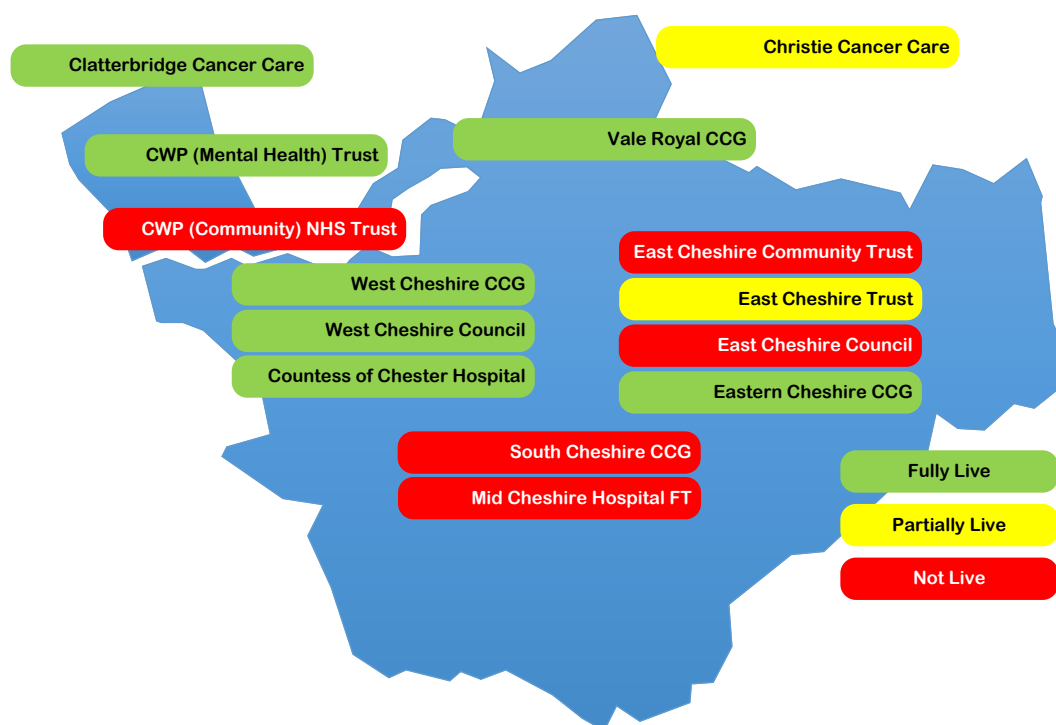
Figure 4 CCR Data sources and status June 2016

The vision for the Cheshire Care Record is one of ubiquitous use across the "Cheshire's" and further, with a longer term expectation that this will provide the basis for the development of more targeted and refined future services.

Developments in phase 2 include:

- Expanding access to organisations and services such as North West Ambulance Service (NWAS), Hospices, Continuing Care and others.

- Patient Portal Pilot

- Generating alerts

- Add GP letters

- Enhancement of existing datasets, including social care, mental health.

- Addition of a child health dataset

- Enhanced end of life data from community care

A much later phase of the programme would see the evolution from third party middle ware to procurement of platforms that are interoperable. This will allow records to be read and updated in real time, as well as reducing the substantial cost of maintaining a middle ware solution. Eventually we would expect all data will comply with agreed industry standards across all major systems, allowing it to be moved to a single repository or virtual single repository with a government standard level of security and access applied to it all. This provides opportunities for a granular level of citizen control over their data to comply with upcoming EU information governance initiatives and equally empowers the citizen to provide clear permissions to access their data for a much wider range of uses than are currently supported by legislation.

In terms of supporting 7 day working or flexible working, the development of the Cheshire Shared IT Network, encompassing health and social networks, provides the foundation to enable the economic development of new services to support extended working hours. By moving the majority of IT infrastructure out of health and social care premises and adopting a centralised support model, it becomes economical to provide extended hours support services. The ability to share and interconnect resources across health and social care, will allow the development of new services that are not tied to any specific location or team

2.3 Closing the finance and efficiency gap:

Deployment of mobile working solutions, access to real time comprehensive patient information to avoid unnecessary tests and better asset and resource management.

Different ways of working and harnessing innovation and technology will ensure the NHS works more efficiently and cost-effectively. We recognise that the existing limited infrastructure is a barrier to change and the adoption of new technologies, for example the plethora of new digital services such as "uber" have only been enabled by the universal availability of smart phones working on standardised platforms with a reliable and accessible universal communications network.

In response to this the Roadmap CCGs are in the process of deploying the Cheshire Shared IT Network programme which is the first step in bringing all of the practices in the area together on one network, which in turn will connect to existing service providers. This is an enabling piece of work, which supports mobile working, integrated teams and patient access to Wi-Fi at local health and council premises. (Currently being piloted between CWP and Cheshire East Council) Longer term the intention is to create physical links between networks that conform to the Public Services Network standards (PSN), thus allowing data and resource sharing across all public services and providers, with ubiquitous Wi-Fi access.

This foundation work also supports a greater level of security, with investment in new firewalls and security appliances, plus the opportunity to work with partners on a wider basis. For example The North West Shared Infrastructure Service (NWSIS), where there are more chances to work, specify and purchase at scale. For example in Eastern Cheshire the new network will allow local practice servers to be moved to a virtual environment where they will benefit from industry standard data security with closer to real time data recovery as well as removing the need to back up services in practice premises..

Longer term there are plans for unified communications across Cheshire (and beyond), covering voice, video, data and text, with the chance of free internal calls for health and social care, ubiquitous video and web conferencing, including consultations and opportunities to develop new methods of working and interaction with staff and citizens, including federated working.

In terms of efficiency we see considerable advantages in developing these services at scale and preferably at an STP or regional/national level. By the adoption of common standards and choices agreed at a high level there are opportunities for us to deploy new services much more quickly and efficiently with a reduced support requirement. For example: services such as data storage and support can be centralised, with the potential for significant monetary savings as well as providing much better security and resilience, which in turn helps deliver extended or out of hour's services.

2.4 The Forward View:

"At times we have tried highly centralised national procurements and implementations. When they have failed due to lack of local engagement and lack of sensitivity to local circumstances, we have veered to the opposite extreme of 'letting a thousand flowers bloom'. The result has been systems that don't talk to each other, and a failure to harness the shared benefits that come from interoperable systems."

The Digital Roadmap and associated local initiatives provide an opportunity to develop technical solutions that are sensitive to local needs but at a scale that allows efficient use of resources and an accelerated programme of development towards a "digital first" future.

A significant enabler for this collective vision is the intelligent use of technology to support the transformation of services and realise the vision of integrated services and a connected population fully involved in the management of their health and wellbeing. This includes the development of multi care providers (MCP) where any technical infrastructure has to be flexible enough to support integrated teams operating from multiple locations. We hope that the detail of our developing programmes of work will support this and the current NHS drivers.

Key NHS Drivers[3],[4],[5],[6],[7]

- Engagement with patients through digital technology including telehealth and telemedicine technologies.

- Integrated local care records

- Structured electronic messaging for transfers of care

- Health and Social Care technical integration

- Meaningful use of technology to drive transformation

- Support for new models of care

- Paper free at the point of care

- Federated working

- Efficiency through the better use of technology

- Support for better communications and collaboration

- Video consultations

- Patient self-care and diagnostics.

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[3] Five year Forward View

[4] Personalised Health and care 2020

[5] General Practice Forward View

[6] Examining new options and opportunities for providers of NHS care The Dalton Review

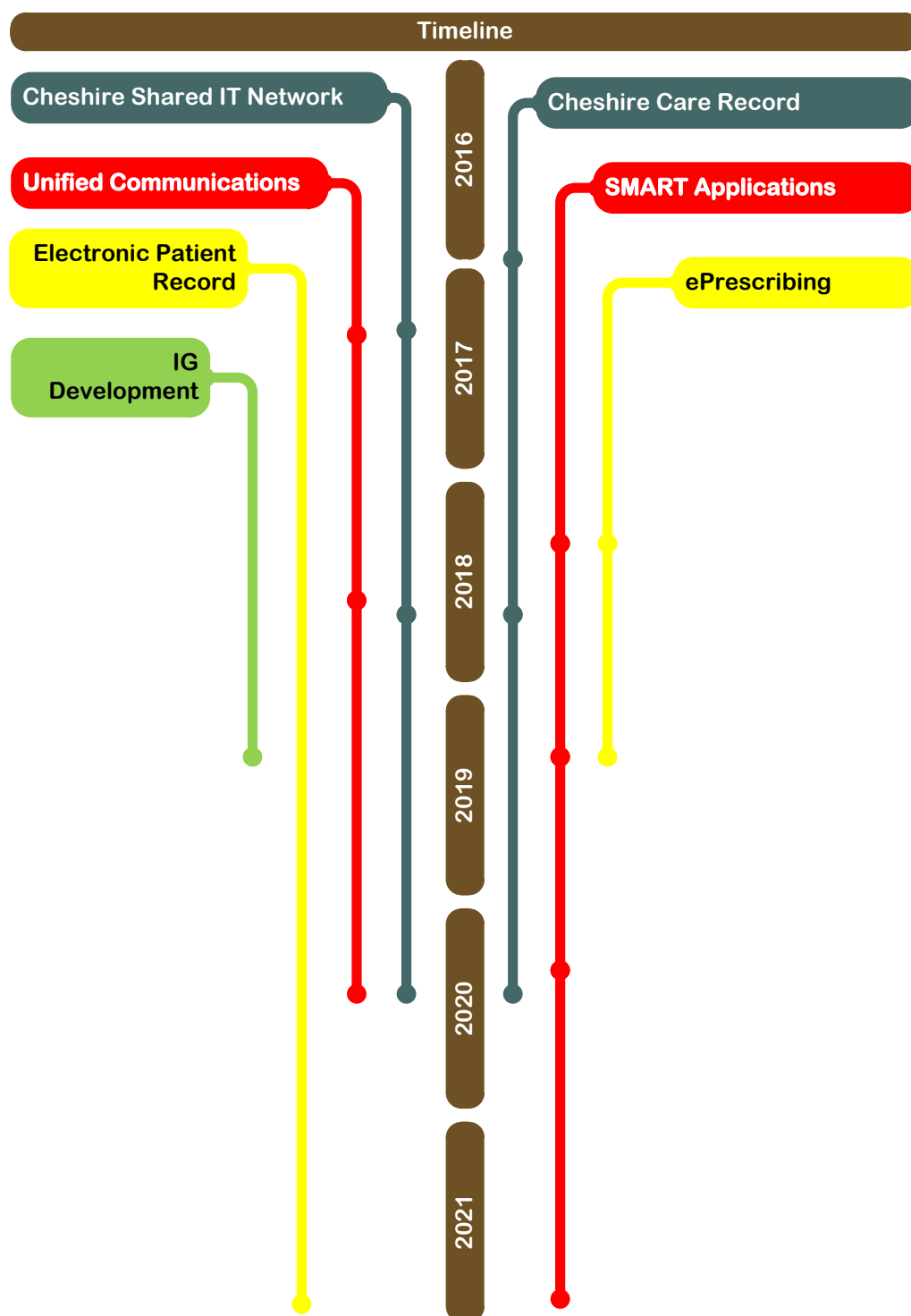[7] Operational productivity and performance in English NHS acute hospitals: Lord Carter of Coles

Figure 5 Timeline for major programmes of work, including phases.

2.5 The Baseline Position

NHS Providers

- Cheshire & Wirral Partnership NHS Foundation Trust

- Countess of Chester Hospital NHS Foundation trust

- East Cheshire NHS Trust

- Mid Cheshire Hospitals NHS Foundation trust

Social Services Providers

- Cheshire East Council

- Cheshire West and Chester Council

Historically the Eastern and Central areas of Cheshire have worked together closely having strong links through their Acute trusts, local councils and at one time were managed as one Primary Care Trust. More recently these regions have joined with the West Cheshire initiative of an integrated care record, which is now known as the "Cheshire Care Record" involving organisations across the region. This initiative has increased the potential level of digital maturity, providing the opportunity for those supporting a patients care, to be able to view a comprehensive digital health record at the point of care. We intend that this record will eventually be available in all care settings and through most clinical and social care systems as well as ubiquitous internet browsers. This single programme has moved us from a position of diverse clinical systems that have not been connected to a comprehensive view of patient care, but there are still significant variations amongst providers in terms of digital maturity.

2.6 Cheshire & Wirral Partnership NHS Foundation Trust (CWP)

CWP mental health services have used an electronic patient record since 2004, in the first instance the record was used to capture individuals care plans, over time this record has evolved to be a near complete record of an individual's medical care, with the exception of Medicines management which remains on paper. In addition approximately 99% of community staff now uses an electronic patient record.

The West Cheshire Out Of Hours (OOH) service uses a robust decision support tool as part of their assessment process. This tool is part of the clinical system.

Transfer of Care

CWP currently has a defined discharge summary, which is sent to GPs electronically using the current Cheshire distribution solution in a PDF format. CWP is working to review the feasibility of using this technology to send all letters to GPs electrically. The challenge is affordability of the current solution due to discharge numbers being relatively small, in comparison to a large acute trust. With the review we will look to identify other potential delivery and costing options. The plan is to identify solutions during 16/17 and implement the chosen option during 17/18.

ePMA

An ePMA (Electronic Prescribing and Administration) system is aligned with CWP's route to the achievement of the paper lite/paperless goal by 2020, where the use of information and technology, such as electronic prescribing and electronic patient records, can improve care, allow health professionals to spend more time with patients and make savings in Service budgets. Migrating our prescribing services from paper to electronic means that secure, digital information will be fully available (barring any individual opt outs), across NHS and Social Care Services. The system would be the enabler for the Services to redesign. This implementation would also ensure CWP are compliant with NHS England's clear expectation that hospitals should plan to make information digitally and securely available by 2014/15. This means that different professionals involved in one person's care can start to safely share information on their treatment, as set out in the NHS England's recent publication 'Everyone Counts: planning for patients in 2013/14.[8]

For these reasons, CWP Broad of Directors recognise that ePMA is the next major information system the Trust should implement. This is one of the projects identified in the IT Enabled Service Transformation Programme (established in January 2014), to provide enablers for the Trust to achieve its Clinical Strategies for all localities. The programme portfolio was approved by the Trust Operational Board in March 2014 and is fully supported clinically and corporately, whilst this is still an aspiration for the trust, the financial challenges across the health economy have resulted in the need to put a hold on projects until funding can be secured.

Orders & Results

Comparing responses to the Digital Maturity Assessment (DMA) survey from the Orders & Results Management and Medicines Administration sections of the DMA insight report, it confirms that the contact points between patient identity and provider workflows remain predominantly manual; both the process of identifying patients in the context of collecting lab samples as well as identifying patients in a medicines administration context have yet to benefit, receipt of test results electronically and will in the future benefit from barcoding technology. Again CWP have the ambition to work with our partners to transfer orders and results to and from patient records, as is the norm within GP surgeries.

Again funding would be required to enable orders and results communications to flow between the 3 acute trusts and CWP.

2.7 East Cheshire NHS Trust – Baseline position

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[8] https://www.england.nhs.uk/everyonecounts/

East Cheshire Trust is typical of many organisations, in that, historically systems and solutions have been purchased to suit a specific clinical and or service need, to the point where there is in excess of 100 in use across the organisation. The Trust Board approved Informatics Technology Strategy in 2012 had the clear objective for the implementation and provision of flexible, versatile digital solutions which share information, with other care providers, and provide the user with the ability to record patients care in the 'right place, right here, right now' irrespective of their location organisationally or geographically. This objective stands true today but the necessity to widen the use of solutions is more pronounced. Progression in delivering the strategy has been slow and hampered by the challenging financial position of the Trust. This is evident from the recent digital maturity assessment which highlighted the areas of weakness.

The most recent investments based on digitalisation, transformation and benefit return. Two examples of this are the Vital Observations solution and the Clinically Mobile solution; target users for both are nurses, both schemes were possible from the allocation of external funding from the Nurse Tech Fund. Practice and processes have been transformed and outcomes and benefits have improved. The use of the mobile device for these staff is now commonplace. But this is not organisation wide.

The digital disparity of collection, access, recording and sharing of care information is illustrated against some of key capabilities below:

Records, assessments and plans

Depending on how a patient enters secondary care influences the modality of records used.

a) A patient seen in GP Out of Hours has their record captured digitally

b) A patient that self presents to A&E, has their record is captured on a blend of paper based and digital media

c) A patient brought in by ambulance, might have a digital electronic patient record or paper depending on which ambulance services brings the patient in.

As the patient moves through the hospital, the records assessments and plans are skewed towards paper based formats with some digital components e.g. recording of vital observations, radiology using PACS and bloodletting to transfusion provision using RFID functionality.   The bulk of the care record is in paper form, including care plans.

Correspondence and discharge notifications are digitally recorded, transmitted and shared and are part of the Cheshire Care Record (CCR) which will provide clinicians access to a near real time comprehensive shared clinical record.

The community staff does have a fully digital solution in use and extensively use mobile devices, care information with primary care is active.

Transfers of Care

The transfer of care from primary to secondary care is currently only digital for some of elective care. There is no digital transfer of care at the point of referral from primary to secondary care; with the exception of one of the ambulance services who have recently started providing us an EPR for that hand over and transfer of care.

Transfer of care within the acute hospital is progressing with nurse handover being digital but not yet medical hand over.

The transfer for of care from acute to intermediate care is partially digital.

The transfer of care from hospital to primary care at discharge is via an electronic notification form, typically within 24 hours.

Orders and Results management

Radiology orders are digital only when requested within secondary care; primary care processes for radiology orders are inconsistent and disparate. Laboratory orders will come on stream this financial year. Results management will also come on stream this financial year, but will not have the capability of a closed loop component to the results management, which is a clinical governance weakness of the solution.

Medicines Management and optimisation

The Cheshire Care Record provides robust up-to-date list of medications. Medicines reconciliation is then a paper based process. The Trust does not have an e-prescribing solution. This capability is scheduled for financial year 2018/19.

The electronic discharge notification form includes secondary care prescribed medicines for the primary care physician to then continue as required.

Decision Support

There is some digital clinical digital support in the application for the community staff.

Within hospital based secondary care there is ad-hoc sparse digital decision support

Remote Care

Telemedicine for clinician to patient consultations is embryonic. There is some clinician to clinician "remote care" within clinical networks using MDT meetings

The full breakdown of the initiatives required by the Trust to meet digital maturity is laid out in the capability deployment schedule. To achieve this vision external funding will be required.

2.8 Mid Cheshire Hospitals NHS Foundation Trust - Baseline Position

In February 2016, the Trust Board approved a new 'Clinical IT Strategy' which acknowledged the gaps in digital maturity the Trust currently faces. It also recommended a programme of work to meet this shortfall and address the clinical IT gaps they present.

These digital gaps identified in the Strategy were confirmed in the results of the digital maturity survey, whilst acknowledging that we had strong strategic alignment, leadership and governance.

Business cases have been developed and approved for systems which will dramatically increase quality and safety of care, collaboration across the health and social care economy and improve patient experience.

However, whilst the plans and appetite for transformation exist in the organisation, funding does not.

Records, assessments and plans

Any patient that presents at the Trust has their record is captured on our Patient Administration system, however clinical notes and guidance is paper based. Exceptions are those who present through the GP Out of Hours Service or those brought in by West Midland Ambulance Service who give us access to their EPR.

At the Trust, the records assessments and plans are primarily paper based formats with some small digital components e.g. Endoscopy, Ophthalmology, Rheumatology and Maternity.

The background history of a patient is typically being provided by a blend of paper based notes and electronic (outpatient) letters. However the rollout of the Cheshire Care Record (CCR) and Stronger Together portal provide clinicians access to a near real time comprehensive shared clinical record.

The Trust currently has no system to record clinical observations, and only a small percentage of care plans and clinical notes are available digitally (see digital components above).

A business case has been approved for a Trust-Wide EDMS system, although local funding is not available to progress this.

Transfers of Care

The Trust is working with the local CCG to increase referrals into the Trust via the national e-Referral system to 80% by the end of 16/17. Currently, referrals into the Trust using e-Referral are at 30%, however, a large number are received via nhs.net e-mail (46%).

There is no digital transfer of care at the point of referral from primary to secondary care; with the exception of West Midlands Ambulance Service (not North West Ambulance Service) providing us an EPR for that hand over and transfer of care.

Currently, a handover solution is partly deployed at the Trust for medical handover. This is being extended across the Trust and due to be completed

by the end of the current financial year. We have no nursing handover solution.

All hospital discharges are sent digitally to primary care on discharge.

Orders and Results management

Currently, Pathology orders at the Trust are digitally requested by primary and secondary care and the results are also sent back digitally.

Radiology orders are currently paper based but a project is underway to make these digital for primary and secondary care and this will be completed by the end of financial year 16/17.

For other diagnostic areas, Endoscopy orders are 95% digital and cardiac tests 30%.

The Trust's Order Communications system has the potential to expand to provide ordering for other services including ECG and Therapy Services.

Medicines Management and optimisation

The Cheshire Care Record provides robust up-to-date list of medications for patients within Cheshire. Patients outside the area have medications available in the Summary Care Record, but this is only partially used.

Medicines reconciliation is then a paper based process.

Mid Cheshire Hospitals NHS Foundation Trust have electronic prescribing solely for Chemotherapy medication which accounts for less than 1% of prescribed medication at the Trust. A business case has been approved for a Trust-Wide e-prescribing system, although local funding is not available to progress this.

Prescribing is recorded digitally at discharge using the Trusts discharge system rather than a prescribing system. This system has no decision support or drug templates available.

Reference sources are available for staff at the Trust, but these are stand-alone and so not seamless.

Decision support

Clinicians currently receive no decision support from our IT Systems:

- We have no systems to alert clinicians to patients whose clinical observations or EWS are deteriorating.

- We have no system that alerts healthcare professionals outside our organisation to relevant operational information about their patients.

- We have no systems that provide evidence based reference material as part of a clinical workflow or care pathway.

- We have no system which prompts clinicians for next actions required.

The Trust are currently developing a business case for an EPR and have been in discussions with other secondary care organisations who are in a similar situation around a collaborative EPR solution.

Remote Care

Video-conferencing is available across the health community for clinician to clinician MDT meetings. The Trust currently has no other Telemedicine solutions.

A business case for a new VoIP telephony system is currently progressing, which, if successful, will have an element of video capabilities.

2.9 Summary of Recent Achievements

2.9.1 Cheshire Shared It Network

The Cheshire Shared IT Network (MPLS) is a programme of work supported by the following CCGs:

- Eastern Cheshire
- South Cheshire
- West Cheshire
- Vale Royal

The Cheshire Shared IT Network takes the existing N3 network infrastructure and using new technology (MPLS) allows technically isolated organisations, such as practices, to connect to each other. In the first phase all of the partnership practices will be brought together in one network and instead of working in isolation will be able to share information and ICT resources between practices and secondary care sites. This does not provide immediate connectivity, but puts in place the foundations to allow systems to connect and data to be shared. Further phases of the programme will encompass community sites, social care and other locations such as Nursing Homes, where additional access would improve services to patients and citizens.

The network provides a platform which will support the work streams and initiatives that will bring us much closer to the 2020 goals: This includes:

- Developing efficient paper free services and connectivity between organisations
- Improved access through universal access via Wi-Fi
- Improved security for patient and citizen data through investment in technology and centralised management systems.
- Enabling access to data flows across organisations
- Enabling the purchase of ICT solutions at scale, with improved efficiencies in terms of cost, licencing, management and deployment.

- Enabling the sharing of existing resources, which have been confined to single organisation domains.

- Allowing the management of bandwidth on demand leading to a much more resilient service

The contract with the principal supplier (BT) was signed by the four CCGs in January 2016 and the programme is expected to continue into the fourth quarter of 2016 at which point all of the practices and resources identified in the first phase, will be connected to one single Cheshire IT health and social care network. This will then provide an opportunity to deploy other federated services such as Wi-Fi, Centralised Server Management and Backup and Unified Communications.

2.9.2 Cheshire Care Record

The Cheshire Care Record (CCR) is a summary care record project involving all GP, hospital, community, mental health and social care services provided in the county of Cheshire. The CCR is considered to be one of the most comprehensive care records available in the UK and is an excellent demonstration of the high level of commitment to collaborative working across health and care organisations in Cheshire.
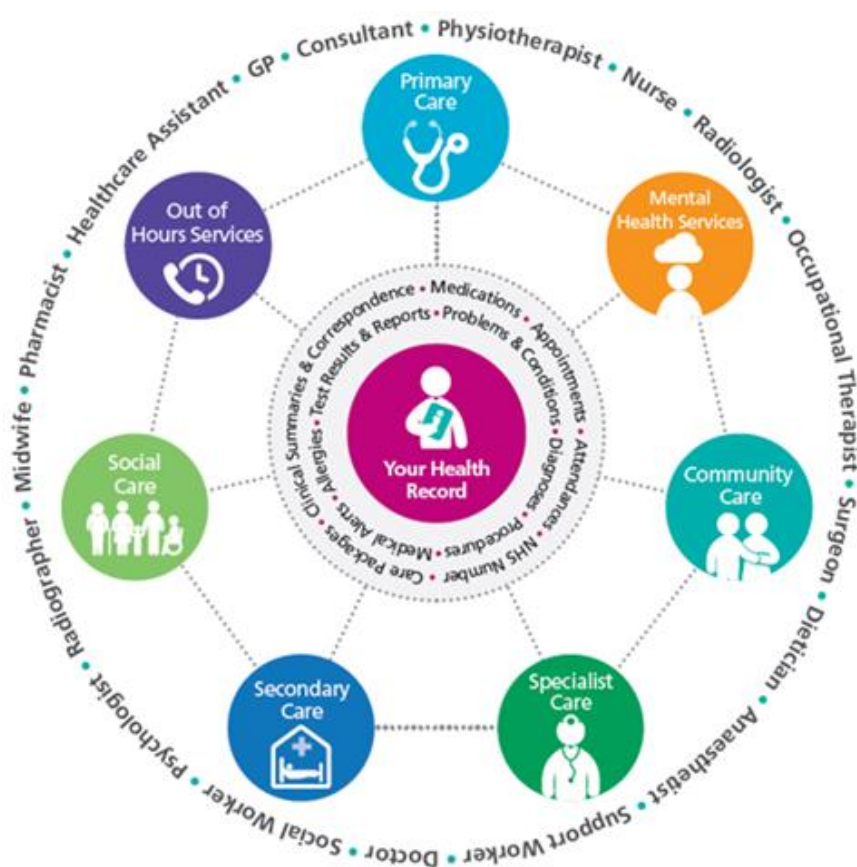
Cheshire East Council successfully secured NHS England Tech II funding to extend the West Cheshire Care Record to become the Cheshire Care Record in March 2015 and initially indicated that the project would complete within six months by October 2015. This was always recognised as an ambitious target and it became apparent quite quickly that the project required a more considered implementation rate and mid-year the Project Board agreed a revised timeline of July 2016.

The Project committed to NHS England that it would deliver £5.3m benefits over four years (circa £1.55m of benefits per annum). This equates to circa £222k per partner per annum.

Current Position and Achievement to Date

Delivery of the Cheshire Care Record comprises two components for each partner:

- 1) The delivery of nightly data feeds into the Cheshire Care Record to populate the summary record

- 2) Operational use by staff within each partner organisation to pilot access to the Cheshire Care Record and quantify benefits

To date the Cheshire Care Record holds a summary longitudinal GP record for West and Eastern Cheshire patients from 70 practices, plus acute data from the Countess and East Cheshire, all mental health data across Cheshire, social care data for clients in Cheshire West & Chester and cancer data from Clatterbridge.

2.9.3 CATCH Health App and Smart Health Apps

CATCH (Common Approach to Children's health) is a Smartphone Application – that provides parents and carers of children aged 0-5 in Cheshire East with NHS-approved information to help you know when your child needs medical attention and when self-care would be more appropriate.

This app was launched in February 2016 and its development was supported by Cheshire East Council, Eastern Cheshire and South Cheshire Clinical Commissioning Groups and NHS Choices.

2.10 Rate Limiting Factors

The East, West and Central Cheshire organisations have been successful in delivering significant levels of change and progress towards digital maturity

over a short period of time and the success of these programmes is a testament to the level of cooperation between individuals and organisations.

The rate limiting factors to our collective ambition are resources, both financial and human. All of the organisations are facing significant financial challenges without any additional funds to support change management and resources available are stretched in fulfilling existing business as usual change management programmes. In order to achieve the level of change required to meet our and national ambitions, funding is required to support fully resourced change programmes including the capturing of benefits in the long term. For some programmes of work, such as a new EPR, our expectation is that this funding would be at an STP or regional level, in order to reach a scale of deployment that makes this type of ambitious programme affordable and workable.

In addition we hope to tackle the process blockers around sharing information, through the use of cooperative, centralised and efficient data sharing processes supported by technology.

## 3.0   Readiness Assessment

The CCGs and provider organisations involved in the Roadmap have benefited from working in partnership on other projects, such as the Cheshire Care Record and Cheshire Shared IT Network programmes. These programmes are being delivered successfully as part of the Cheshire Integrated Care Programme which is governed by the Cheshire Pioneer Panel.

The Cheshire Integrated Care Programme was formed as part of the NHS England Pioneer programme and is one of 25 areas across England, that are leading in delivering better joined up health and social care.

Clinical leadership in the development and management of digital services has strength in depth across the programme boards and the Cheshire Pioneer Group. This includes a strong presence in the Information Governance groups established to support the deployment of services such as the Cheshire Care Record. We intend to make use of this extensive clinical involvement when establishing the new programme boards to realise our digital vision. Governance will be managed through the Cheshire Pioneer Group, which has high level representation (i.e. Chief Officer and Chief Finance Officer) from the organisations involved and a remit to manage our delivery of the LDR.

Within the Cheshire Pioneer Group we have the Clinical Design Group, which is a clinically led design group working in conjunction with technical leads to develop, review and recommend digital solutions. The Technical Architecture Group has a responsibility for making the most of our infrastructure, agreeing common standards for the procurement and deployment of software and hardware to realise the vision of a connected Cheshire where all public sector

employees, patients and provider partners have simple and consistent access to digital resources at all public sector premises.
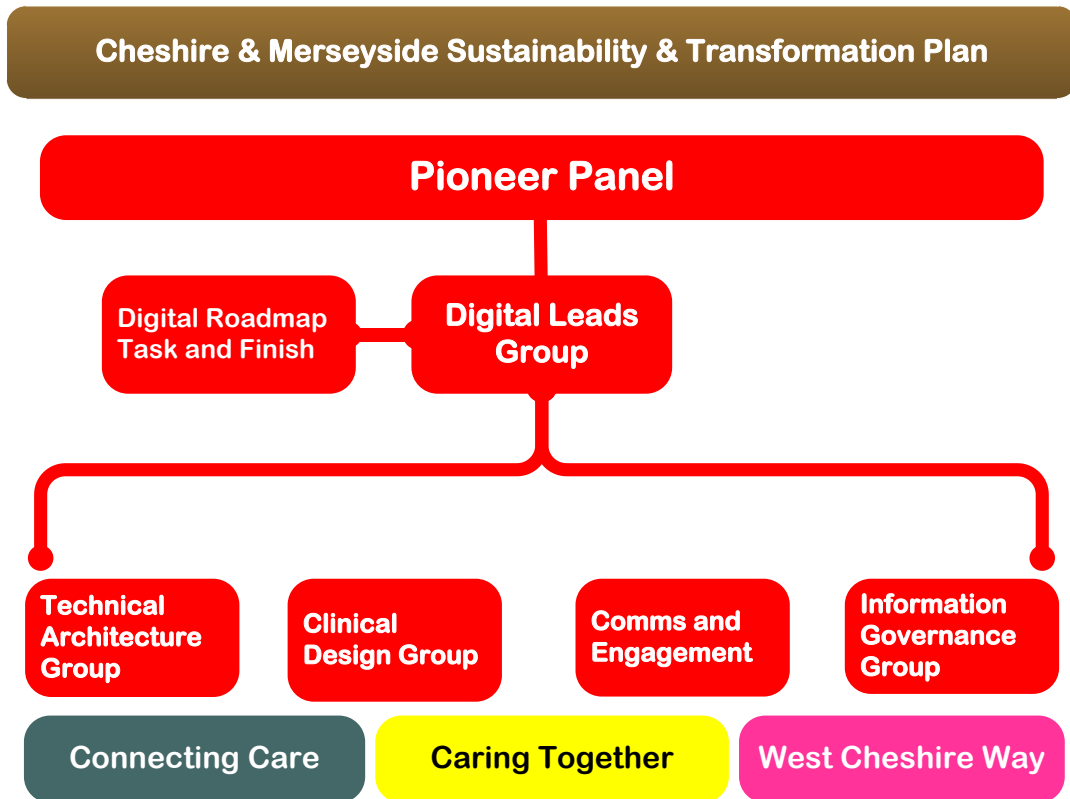
The Information Governance group is involved in the deployment of the Cheshire Care Record and the expectation is that it will encompass our ambitions around the development of a patient facing service that will allow direct control over data sharing and meet future legislative requirements.

3.1 Finance

Currently there are joint bids in place for GP IT Capital funding for expansion of the Cheshire Shared IT Network and Wi-Fi programme, as well as connectivity to the Council PSN networks. Further bids are being developed through the Estates and Technology Transformation Fund (Primary Care) to develop patient facing digital services and innovative digital solutions for remote health monitoring, consultation and access to specialist services. Major programmes of work such as the development of an EPR and Unified Communications will require funding at an STP, regional or national level, in order to realise any benefits.

3.2 Change Management:

In order to achieve effective change it is essential to have processes in place that ensure engagement with all parties involved and effective leadership to successfully deliver the desired outcomes. The Cheshire Care Record (CCR) represents a successful model of change management that has delivered

change across a wide footprint with a supporting programme of benefits management to ensure delivery of the programme objectives.

As part of the Cheshire Care record bid, a significant amount of work is required to accurately quantify the benefits, in order to fulfil the requirements of the Tech II fund and this is a model that has proved successful and we would continue to follow. In summary:

- Each partner organisation appointed a Benefits Manager to lead on benefits identification.

- Operational use of the CCR record was contingent on the delivery of stated quantified benefits by each partner organisation before they were given access to the shared records. To achieve this, the following more specific work stream were identified and acted upon:
    - Objective 1: Identify the quantifiable financial benefits that the Programme will deliver.
    - Objective 2: Identify the clinical benefits that the Programme will deliver.
    - Objective 3: Determine the expected profiling of when benefits will accrue.
    - Objective 4: Establish baseline calculations and measurement mechanisms for benefits.

- The outputs to support these objectives included a benefits framework, planned statement of benefits and templates to support the process.

We intend to continue to follow this model which is now embedded within the local PMOs involved in the CCR project. In future programmes, Programme Management Office arrangements will be developed and budgeted for each programme of work and we will utilise existing capacity where available. Governance and reporting will be through the Programme Boards to the Cheshire Pioneer Panel and the PMO functions within the individual transformation programmes allied to individual CCGs.

3.3   Plans for 2016 – 2017

Programme Delivery 2016 -2017	Q1	Q2	Q3	Q4
Cheshire Shared IT Network Phase 1	🔴	🔴	🔴	🔴
Cheshire Care Record Phase 1	🔴	🔴		
CATCH App	🔴			

Summary Care Record (Pharmacies)	●	●	●	●
Orders and Results (ECT)	●	●	●	●
Orders and results (MCHT - radiology)	●	●	●	●
EPaCCS Acute and GP OOH	●	●	●	●
Unified Communications Phase 1	●	●	●	●
eReferrals – increase uptake		●	●	
eReferrals – increase provider slots		●	●	●
Clinical Correspondence Options Paper			●	●
Update Discharge Summaries against Academy of Medical Royal Colleges Headings		●	●	●

4.0　Capability Deployment Schedule and Trajectory

The Local Digital Roadmap Guidance and commentary identified 7 key capabilities to support the delivery of Paper Free at the Point of Care, listed below:

- Records, assessments and plans
- Transfers of Care
- Orders and results management
- Medicines management and optimisation
- Asset and resource optimisation
- Transfers of Care
- Remote Care

4.1　Digital Maturity

The Digital Maturity Self-Assessment has been completed by four local NHS providers and collated into a digital maturity index. As a first step this index is being used as the basis of a conversation to identify areas of strength and

presents opportunities for shared learning and coordinated improvement plans. It has the potential to assist organisations across Cheshire, setting out on common journeys to explore whether common technical solutions or a consistent approach will pay dividends.

Organisations can understand and learn from those who have optimised and exploited what is often the same core technology to deliver a higher level of benefit

It is worth noting that the results recorded in the Digital Maturity Index will also inform key lines of enquiry and the determination of overall ratings within the revised CQC inspection regime.

4.2 Current Capability Scores

The following table provides the capability scores determined through completion of the Digital Maturity Index Return in February 2016

Capability	Countess of Chester Foundation Hospital Trust	East Cheshire NHS Trust	Mid Cheshire NHS Foundation Trust	Cheshire and Wirral Partnership Trust	NWAS	Average
Records, assessments and plans	64	28	27	88	16	44.6
Transfers of Care	47	38	55	42	2	36.8
Order and results management	84	31	60	18	n/a	48.3
Medicines management and optimisation	50	22	31	21	n/a	31
Decision support	44	23	25	58	13	32.6
Remote Care	50	8	25	50	n/a	33.3
Asset and resource optimisation	25	40	25	50	n/a	35

4.3 Deployment schedule

The following table highlights the key deliverables to 20/21 for Provider organisations. It should be noted that whilst this shows the current plans against the key capabilities funding has not yet been secured against a large

number of ambitions. Further work is required to identify where and how organisations can work collaboratively to implement shared single or best of breed systems to provide common functionality and to close the finance and efficiencies gaps that currently exist within the health economy.

Improvements within the capability deployment trajectories will be affected by the availability of funding to support ambitions.

Capability	Plans	Funding secured	Aspiration funding required
Records, assessments and plans	• All Mental Health clinicians able to access Cheshire Care Record (CWP) 16/17	Y	
	• A&E and Urgent Care Clinicians able to access Cheshire Care record (all acute Trusts) 16/17	Y	
	• Community nursing and clinical staff able to access Cheshire Care Record (CWP and ECNT) 16/17 – 17/18	Y	
	• GPs able to view agreed acute, mental health, community health and social care data sets 16/17	Y	
	• Implementation of Electronic Document Management System (MCHfT). Business case approved, funding being sought – 16/17		Y
	• Implementation of clinical portal for secondary and primary care clinicians (MCHfT) 17/18		Y
	• Extend use of SCR for Mental Health Clinicians (CWP) 16/17		Y
	• Extend use of SCR to acute clinicians for out of area patients (All acute trust) 17/18		Y
	• Commence implementation		

	of EPR to support structured clinical notes and ability to capture information at the point of care (MCHfT). Currently at business case development stage 18/19		Y
	• Commence implementation of EPR with integration to EMIS Web to support real time updating and availability of clinical records (ECNT) 18/19		Y
	• Provide access for patients to view their digital record (ECNT) 19/20		Y
	• Increase utilisation of e-template and electronic medical records by Community staff (ECNT) 16/17	Y	
Transfers of Care	• Enable Carenotes system to support e-referral. Including purchase of hosted solution and develop solution/training of staff for deployment (CWP) 17/18		Y
	• Implementation of E-handover (MCHfT) 16/17	Y	
	• Enable digital handover of patients between wards with Extramed (ECNT) 16/17	Y	
	• Increase uptake of directly bookable appointments in EMIS Web and sending and storage of eReferrals against patient record (ECNT) 16/17	Y	
Order and results management	• Deployment of Patient Centre to support orders and results management (ECNT) 16/17	Y	
	• Deployment of Radiology Orders and results for secondary and primary care clinicians 16/17(MCHfT)	Y	
	• Deployment of digital orders and diagnostic tests for		

	secondary and primary care clinicians (MCHfT) 17/18 • Extender orders and results functionality through implementation of EPR. (MCHfT) Business case in development for EPR implementation from 18/19 • Commence implementation of EPR (ECNT) 18/19		Y Y Y
Medicines management and optimisation	• Implementation of e-prescribing solution (MCHfT) 17/18 • Implementation of e-prescribing solution (ECNT) 18/19 • Cheshire Care Record for complete view of patients existing medication and prescriptions (all Acute Trusts) 16/17 • Implement EPMA solution (CWP) 16/17 - 18/19	Y	Y Y Y
Decision support	• Access to end of life EPaaCs templates – *All Trusts 16/17* • Provision of access to Child Protection Data through CP-IS 17/18 • Implementation of EPR to support digital alerts and patient observations and support warning scores (MCHfT) Business case in development for 18/19 implementation • Implementation of EPR to support digital alerts and patient observations and support warning scores (ECNT) 18/19 • Increased utilisation of digital patient information through greater deployment of VitalPac, Extramed, Adastra, CCR, SCR and CP-IS		Y Y

	(ECNT) 16/17 & 17/18	Y	
Remote Care	• Continued deployment of digital devices to support delivery of care at point of contact utilising existing Clinically Mobile solution (ECNT) 16/17 – 17/18	Y	
	• Telecare deployment to support care at home (ECNT) 16/17		
	• Unified communications including additional functionality through NHSmail2 (ECNT) 17/18 & 18/19		
	• Rollout of hand held devices to support access to and input of clinical data at the point of care (MCHfT) 16/17-18/19	Y	Y
	• Implementation of virtual clinical consultations, contribution to MDTs and provision of remote clinical advice through Skype, video, etc. (MCHfT). Business case approved 17/18	Y	
	• Remote Care Home Monitoring System (MCHfT) 18/19		Y
Asset and resource optimisation	• Extend use of digital asset tracking for key clinical assets (ECNT) 17/18Extend digital staff rostering functionality through all Trust clinicians (ECNT) 17/18		Y
	• EPR and medical device integration (ECNT) 18/19	Y	Y
	• Track patient flow through EPR functionality. Business case in development of EPR (MCHfT) 18/19		Y
	• Track assets through RFID (MCHfT)18/19		Y
	• Implementation of e-rostering		Y

Infrastructure	system (MCHfT) 18/19	Y	
	• Public Wi-Fi (MCHfT) 16/17		Y
	• Public Wi-Fi (ECNT) 17/18		
	• Single Sign On functionality implementation (ECNT) 17/18		Y
	• Multi-site redundancy (ECNT & MCHfT) 18/19		Y

4.4 Deployment trajectory

The following provides the projected improvement in Digital Maturity Indexes if funding is secured for all planned projects and the deployment schedule in 5.3 is implementation

Capability 2016/17	Countess of Chester Foundation Hospital Trust	East Cheshire NHS Trust	Mid Cheshire NHS Foundation Trust	Cheshire and Wirral Partnership Trust	NWAS	Average
Records, assessments and plans	75	40	40	93	65	62.6
Transfers of Care	47	50	55	42	10	40.8
Order and results management	18	50	80	84	n/a	58
Medicines management and optimisation	50	25	31	21	n/a	31.8
Decision support	50	30	25	58	25	37.6
Remote Care	50	20	60	50	n/a	45
Asset and resource optimisation	50	40	25	25	n/a	35.

Capability 2017/18	Countess of Chester Foundation Hospital Trust	East Cheshire NHS Trust	Mid Cheshire NHS Foundation Trust	Cheshire and Wirral Partnership Trust	NWAS	Average
Records, assessments and plans	75	50	60	95	75	71
Transfers of Care	65	60	55	60	80	64
Order and results management	18	50	90	84	n/a	60.5
Medicines management and optimisation	50	25	65	70	n/a	52.5
Decision support	60	40	25	65	50	48
Remote Care	60	40	70	50	n/a	55
Asset and resource optimisation	50	60	40	25	n/a	43.8

Capability 2018/19	Countess of Chester Foundation Hospital Trust	East Cheshire NHS Trust	Mid Cheshire NHS Foundation Trust	Cheshire and Wirral Partnership Trust	NWAS	Average
Records, assessments and plans	85	80	95	95	90	89
Transfers of Care	65	85	95	60	95	80
Order and results management	18	90	95	84	n/a	71.8
Medicines management and optimisation	50	90	95	90	n/a	81.3
Decision support	70	80	85	65	90	78
Remote Care	75	60	70	50	n/a	61.3
Asset and	50	80	60	25	n/a	53.8

resource optimisation						

4.5 Electronic Patient Record

The Electronic Patient Record programme – In Primary Care there is a higher and more consistent level of digital maturity and presence of a cohesive EPR. However there is considerable disparity and variance in the digital maturity of secondary care providers, such that interoperability within secondary care and with Primary Care is challenging and therefore an enterprise wide EPR would bring considerable benefits on a Cheshire wide digital footprint for the provider organisations.

By tackling the EPR at scale there is an opportunity to procure an agreed standards based EPR system, that is interoperable with existing GP clinical and other compatible systems and will provide an efficient and cost effective path to a real time, editable, comprehensive, reliable and safe single view of a patients record across all care settings. This would provide a significant boost to achieving the goal of patient centred care supported by integrated and flexible teams and accelerate the deployment of electronic messaging to support patient discharge and transfer.

All of the acute provider organisations are either at the point where they need to replace or will shortly need to replace their existing Patient Administration Systems (PAS) and will not be able to fund these programmes without joining a development programme operated and externally funded at scale i.e. STP or regional/national footprint. Note this is an opportunity to go beyond an acute centred service, other organisations and smaller concerns e.g. AHPs would benefit from access to and contribution to a single EPR. By taking a wider approach, this would also ensure that data held by smaller or private care organisations would no longer be lost, but accessible to all those involved in a patients care and data locked in large hospital systems inaccessible to outside organisations, would now be a valuable accessible resource, resulting in much safer and better joined up patient centred care.

As part of fulfilling this aim we will actively seek out willing partners within the LDR area as well as other LDRs within the STP footprint and beyond, where objectives and potential benefits align. Without funding at this level, it is unlikely that a local deployment of an EPR would be sufficiently robust to fulfil the ambitions around our digital future and compromise on the "going paperless" target.

4.6 CDP Complex Dependency Programme

The CDP programme vision is to establish a new multi-agency approach to tackling issues of complex dependency for children, families and vulnerable adults across Warrington, Cheshire West and Chester, Halton and Cheshire East.

This new development is supported by an award of £5m in December 2014 from the Department of Communities of Local government and involves local council, health and care organisations across the public sector.

- The programme is looking to support in excess of 10,000 people - cohort drawn from:

- adults and children involved in crime or anti-social behaviour

- children who have problems at school

- children who need help

- adults out of work or at risk of financial exclusion

- individuals and families affected by domestic violence and abuse

- individuals with a range of (non-age related) health problems - young people affected by homelessness/rough sleeping

5.0 Universal Capability Delivery Plans

Local Health economies are expected to make progress against 10 universal capabilities which are defined as:

- A - Professionals across care settings can access GP-held information on GP-prescribed medications, patient allergies and adverse reactions

- B - Clinicians in urgent and emergency care settings can access key GP-held information for those patients previously identified by GPs as most likely to present (in U&EC)

- C - Patients can access their GP record

- D - GPs can refer electronically to secondary care

- E - GPs receive timely electronic discharge summaries from secondary care

- F - Social care receive timely electronic Assessment, Discharge and Withdrawal Notices from acute care

- G - Clinicians in unscheduled care settings can access child protection information with social care professionals notified accordingly

- H - Professionals across care settings made aware of end-of-life preference information

- I - GPs and community pharmacists can utilise electronic prescriptions

- J - Patients can book appointments and order repeat prescriptions from their GP Practice.

5.1 Grouping the Universal Capabilities

In terms of delivery within the Cheshire area the Universal Capabilities can be grouped as follows:

Group	Universal Capability
Shared Electronic Patient Record(s)	A - Professionals across care settings can access GP-held information on GP-prescribed medications, patient allergies and adverse reactions
	B - Clinicians in urgent and emergency care settings can access key GP-held information for those patients previously identified by GPs as most likely to present (in U&EC)
	F - Social care receive timely electronic Assessment, Discharge and Withdrawal Notices from acute care
	G - Clinicians in unscheduled care settings can access child protection information with social care professionals notified accordingly
	H - Professionals across care settings made aware of end-of-life preference information
Clinical Correspondence	D - GPs can refer electronically to secondary care
	E - GPs receive timely electronic discharge summaries from secondary care
	I - GPs and community pharmacists can utilise electronic prescriptions
Digital Enabled Self Care	C - Patients can access their GP record
	J - Patients can book appointments and order repeat prescriptions from their GP Practice.

5.2 Shared Electronic Patient Record(s) – Cheshire Care Record

Cheshire has invested through receipt of Tech II Funding from NHSE in the development and implementation of a shared electronic patient record 'The Cheshire Care Record' which is supported by all of the partners included within the digital roadmap and also receives additional data from Clatterbridge Cancer Hospital with a feed from Christies Cancer Hospital to be delivered during 16/17. It will deliver a rich health and social care record for people living in Cheshire which is currently being made available to health and social care staff within Cheshire named in the digital roadmap footprint.

Data feeds are taken into the record nightly from GP Practices and Acute and Mental Health Trusts within the Cheshire area.

The Cheshire Care Record includes or within 2016/17 is planned to include a Primary Care summary record; information on medications; diagnostic results and reports; procedure details for the acute Trusts; allergies/alerts; clinical correspondence, summaries and assessments; appointment/event details (IP/OP/A&E); cancer summary; mental health summary; key contacts; summary social care records and details of care plans and service providers; community appointments and details of care plans and services provided.

The Cheshire Care Record meets a number of the Universal Capabilities A, B, F, G and H but provides a much richer data set to assist health and social care professions with access to data to support the delivery of care, without the need for duplication of effort or inefficiencies of needing to chase up information about a person in their care.

The Cheshire Care Record is already delivering against the early progress on a number of the universal capabilities as outlined below:

Professionals across care settings can access GP-held information on GP-prescribed medications, patient allergies and adverse reactions ✔ *Data present for 70 GP Practices, with the remaining 20 scheduled for June and accessible by all social and health care professionals treating the patient from across 12 Cheshire partners.*

Clinicians in urgent and emergency care settings can access key GP-held information for those patients previously identified by GPs as most likely to present(in U&EC) ✔ *In use at Countess and Macclesfield Emergency Departments and will be accessible at Mid Cheshire; Leighton Emergency Department by July*

Social care receive timely electronic Assessment, Discharge and Withdrawal Notices from acute care ✔ *Discharge letters available in the Cheshire Care Record.*

Clinicians in unscheduled care settings can access child protection information with social care professionals notified accordingly ✔ *Child protection data is part of the Cheshire Care Record social care dataset and can be accessed by clinicians now for West Cheshire. East Cheshire social care data will be added over the summer. The alerting option that is planned as part of phase 3 will enable notification to social care professionals.*

Professionals across care settings made aware of end-of-life preference information ✔ *The full EPACCs end of life preferences dataset is being added to the Cheshire Care record in July and key data such as DNRs will be displayed in the summary hub and will be one of the areas that alerting will notify professionals of. This will be invaluable to the Ambulance Services, Out of Hours and Hospices.*

The following table shows the current baseline of use of the Cheshire Care Record based upon the period January to March 2016:

Organisation	Total access attempts	No of individuals' records viewed	Number of active users
GP Practices – West Cheshire	370	131	35
GP Practices East Cheshire	63	11	16
Countess of Chester Hospital	2093	811	142
Cheshire & Wirral Partnership Trust	489	182	101
Social Care Teams	121	21	8
Total	3,136	1,156	302

During 2016/17 it is planned that the following data will also be included within the patient record

- GP primary care data from Vale Royal and South Cheshire GP Practices (30 GP practices),

- acute data from Mid Cheshire NHS Foundation Trust

- Cancer data from Christie's Hospital.

- Community data for all of Cheshire,

- social care data from Cheshire East Council

5.3 Cheshire Health Record Ambitions

During 2016/17 planning and development will be undertaken for future phases of the Cheshire shared record to include

- Extending the record into Hospices, North West Ambulance Service and NHS 111

- Incorporating the End of Life Care template (EPPACs)

- Determining the requirements for sharing of care plans

- Provision of data to support timely electronic Assessment, Discharge and Withdrawal Notices from acute care to Social Care

- enhancement to datasets:
  - Adding further information to the CWP mental health dataset such as discharge letters or prescription summaries
  - Adding EPACCs from community care
  - Adding assessment summaries for social care
  - Adding a child health dataset.

It is anticipated that these Phase 2 requirements will be completed during 2016/17 – Q1 17/18.
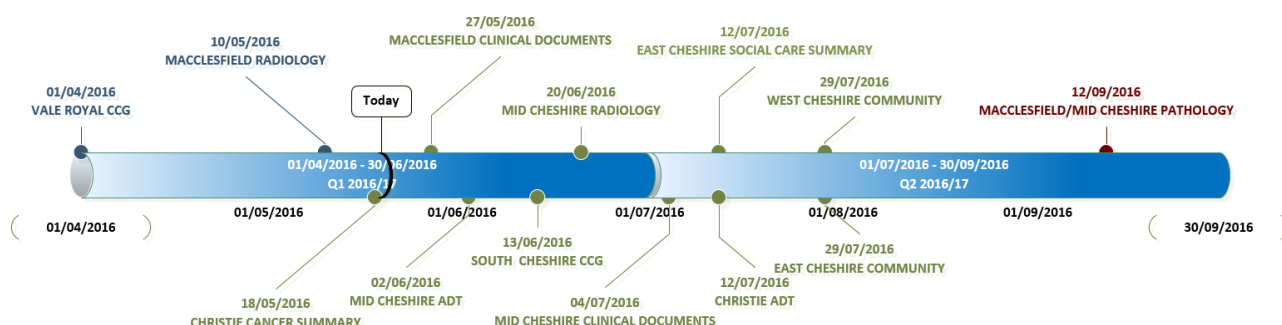
Future phases will look to extend the Cheshire Care Record to

- support read and write capabilities for clinical staff.

- provide capabilities for citizen access to a comprehensive care record

- Linking with neighbouring localities with local shared records such as Wirral, North Staffordshire and Stockport...

5.4 Shared Electronic Patient Record(s) - National Summary Care Record

Whilst the Cheshire Care Record will provide a rich health and social care data set for use in all health and social care settings it is recognised that access to clinical data for patients visiting Cheshire from out of the area will still be required and to this end we propose to make better use of the National Summary Care Record (SCR).

Whilst the SCR is in use in areas of all acute trusts within Cheshire the extent to which this has been rolled out or is utilised varies. Acute Trusts within Cheshire have plans to review functionality and undertake engagement with clinicians to demonstrate benefits and increase take up of SCR this will need to be linked with rollout of smartcards to clinical users.

The Mental Health Trust also plan to undertake a review of the functionality and use of the SCR in OOH services with a view to increasing take up as well as reviewing how access can be provided directly through EMIS Community for community staff and the Care Notes clinical system used by Mental Health Clinicians.

NHSE are also funding a project being delivered across Cheshire and Merseyside to extend the use of SCR to Pharmacies.

Provider Trusts recognise the need to ensure review of future EPR solutions or best of breed systems to replace current PAS should consider SPINE compliancy within system requirements.

Ambitions for SCR in Cheshire include:

- Review functionality and usage in acute trust and delivery of engagement plans during 2016/17 to increase use.

- Review and increased take up in OOH during 16/17;

- Extending use to Community and Mental Health clinicians during 17/18.

- SCR to be made available to 80% of pharmacies in Cheshire by the end of 2016/17 and 85% of pharmacies in Cheshire by 2017/18.

5.5   Child Protection Information

Currently information is provided by the two local authorities through secure means to provider organisations to ensure that they have an awareness of children who are on child protection plans. Alerts are made available to clinicians in unscheduled care settings but there is no common approach and clinicians in some areas have to rely on manual checks and in all cases do not have access to Child Protection plans.

Some progress has been made in West Cheshire with Child protection data being part of the Cheshire Care Record social care dataset and can be accessed by clinicians now for West Cheshire. East Cheshire social care data will be added over the summer. The alerting option that is planned as part of phase 3 will enable notification to social care professionals.

Current acute PAS/EPR solution versions do not support the national CP-IS solution in all organisations. Community services across Cheshire utilise EMIS Web which is spine compliant and capable of receiving CP-IS alerts and there are plans for the Child Health Service to also move to EMIS Web during 16/17.

In addition Cheshire East Council are in the process of raising a change notification to support implementation of the CP-IS module into their current Liquid Logic Social Care System during 2017/18 and timescales for implementation in Cheshire West and Chester local authority will also need to

be agreed. As they also use Liquid Logic then addition of the CP-IS module would be the preferred approach.

The Health Economy recognises that a single project across Cheshire to implement CP-IS and ensure availability of alerting into healthcare settings would provide an efficient and consistent approach, making the most of available resources to drive delivery.

Project scoping will need to take place in 16/17 with comparison against functionality within the Cheshire Care Record. Implementation of national solutions would take place through 17/18.

To support improved access to Child Protection Information the health economy will

- Include Cheshire East social care data including Child Protection data set into the Cheshire Care Record 16/17

- Cheshire Care Record alerting for children with a Child Protection Plan in Phase 3

- Project scoping/ comparison of data in Cheshire Care Record and CP-IS will need to take place in 16/17

- CP-IS Module to be implemented into Social Care systems in 17/18

- CP-IS implementation in Community Services 16/17-17/18

- CP-IS implementation in acute trusts through 17/18.

- CP-IS integration in primary care settings 18/19

5.6   EPaCCS and End of life Care Templates

The 4 Cheshire CCGs are all using the EMIS EPaCCS template, and will continue to use this and the national ICDO10 codes. The template will be added to the Cheshire Care Record during 16/17 with the ambition for information to be pulled from all EPaCCS records, rather than just the GP record.

The need is to increase the use of EPaCCS across all 4 CCGs and this has been included in the Eastern Cheshire CCG GP contract for 2016/17.

Current baseline figures for 15/16 quarter four are:

CCG	Percentage of Practices Actively Using the Template	Number of Patients with EPaCCS Record

NHS Eastern Cheshire CCG	95%	450
NHS South Cheshire CCG	100%	686
NHS Vale Royal CCG	100%	348
NHS Western Cheshire CCG	86%	468

EPaCCS Ambitions include

- Inclusion of data / sharing of EPaCCS templates from and with local Hospices across Cheshire 16/17

- provision of read only access to NWAS and 111 service through the Cheshire Care Record in 16/17

- Ensuring availability of EPaCCS in acute trusts and GP OOH services either through EMIS Viewer or Cheshire Care Record 16/17

Future ambitions include

- The ability for provider organisations to have read and write access to the EPaCCS 17/18

- For patients to access the EPaCCS information and to be able to update their own records, adding care plans as required. 18/19

- To achieve 80% (of the expected 1% of the population) having an EPaCCS template.

5.7 Clinical Correspondence

Across Cheshire significant investment has been made over a number of years to improve the delivery of clinical correspondence by electronic means. This includes not just discharge summaries but outpatient letters and support of electronic referrals through the e-referral system (formerly Choose and Book) or by e-mail to reduce the reliance on paper.

Work is taking place across the health community to increase the uptake of e-Referral and to identify other digital solutions to reduce the amount of referrals coming from 'other sources'.

5.7.1 Discharge Summaries and Out Patient Letters

Whilst provider organisations may use different solutions to create their electronic correspondence a single method of delivery from acute providers is in place to GP Practices in Cheshire. The Health economy has two electronic distribution hubs in place using the same technology to ensure delivery of clinical correspondence from acute Trusts to GP Practices who then use "docman" document management solution to attach documents to the patient record.

Discharge summaries are already shared as structured electronic documents and plans are in place to ensure all summaries meet the Academy of Medical Royal Colleges standards.

Proof of concept has previously taken place to support the delivery and receipt off clinical correspondence from out of area.

The Mental Health Trust currently has a defined discharge summary, which is sent to GPs electronically using the current Cheshire distribution solution in a PDF format. Other letters are sent through emailing via NHS Mail. CWP is working to review the feasibility of using this technology to extend to sending all letters to GPs electronically. The plan is to identify solutions during 16/17 and implement chosen option during 17/18.

Currently of discharge summaries and outpatient letters are distributed electronically through the distribution hubs including electronic correspondence from North Staffordshire.

In addition The Cheshire Care Record displays clinical letters in near real time so that as soon as they are authorised by the hospital they can be viewed and in some cases GPs have found that the letters are accessible more quickly via the Cheshire Care Record.

5.7.2 E-Referral

Current use of E-referral across Cheshire is at 60% across all CCG localities. There are a number of contributing factors to this not just take up within GP Practices but availability of appointment slots across specialities within provider organisations. Whilst recognising the e-referral system is unable to support referrals to Urgent and emergency care referrals, our ambition is to increase the use of electronic referrals so that 80% of referrals are made electronically.

Investigation into the capabilities of the Cheshire Care Record and utilisation of the "write" functionality to develop an electronic referral with a common shared initial section which can be reused and have tailored specialty components will be undertaken in 17/18...

Other solutions that can support electronic referrals to urgent and emergency care should also be undertaken; including reviewing the capabilities of the Cheshire Care Record. We will do this by

- Supporting GP Practices to increase use of the e-referral solution to ensure that at least 80% of patients are able to select their first appointment for a date and time of their choosing 16/17

- Increase the number of provider slots available for e-referral to over 80% in line with national targets 16/17

- Investigate 'write' functionality of Cheshire Care Record to support electronical referrals

- making better use of existing tools such as NHS mail, in a new patient centric way, to support referrals into urgent care, while also exploring other possible options

- Reduce the reliance on fax machines within organisations

5.7.3 Electronic Prescribing between GPs and Community Pharmacies

89% of GP practices have been setup to use EPSR2 across Cheshire and it is planned that the remaining practices will go live with EPSR2 during the second quarter of 2016/17

Projects have been agreed for delivery during 16/17 for extended EPS training sessions to include use of EPS and repeat dispensing and working alongside pharmacies and GP practices to facilitate breaking down barriers and encouraging closer working relations to increase usage of repeat prescribing.

The baseline in this is:

CCG	% Practices Enabled for EPSR2	Average use of EPS in Enabled Practices	Average Use of Repeat Prescriptions
NHS Eastern Cheshire CCG	87%	65%	1%
NHS South Cheshire CCG	89%	54%	2%
NHS Vale Royal CCG	100%	68%	8%
NHS West Cheshire CCG	89%	53%	4%

Our ambitions are

- All GP Practices enabled for EPSR2 by end of 16/17
- 10% increase in use of repeat prescribing in16/17
- 15% increase in use of repeat prescribing in 17/18.

5.8 Clinical Correspondence Ambitions

The health economy would like to review current methods of distribution of clinical correspondence including the current distribution hub and the Cheshire Care Record to identify where efficiencies and cost savings can be made through implementation of a single solution or as a minimum by adoption of the MESH standards and joining the two current distribution hubs to support delivery of clinical correspondence from out of area.

The Mental Health Trust will be reviewing options available to provide solutions for their current clinical systems to support electronic transfer of correspondence, recognising the cost may be prohibitive in the short term without investment from the health economy.

Plans to improve delivery of discharge summaries and outpatient letters include:

- Update acute discharge summaries to reflect Academy of Medical Royal Colleges Headings 16/17
- Mental health Trust to
    - Undertake review of available options to support extending sending of all letters electronically from current systems. 16/17
    - implement chosen solution 17/18 (subject to availability of funding)
- Review current clinical correspondence distribution system and make recommendations on future options 16/17
- Implementation of any changes to clinical correspondence distribution system across whole health economy 17/18.

Plans to support increased uptake of electronic referrals includes:

- Supporting GP Practices to increase use of the e-referral system to ensure that at least 80% of patients are able to select their first appointment for a date and time of their choosing 16/17
- Increase the number of provider slots available for e-referral to over 80% in line with national targets 16/17

- Some provider organisations to enable digital requesting of radiology examinations from primary care systems 17/18

- Some provider organisations to provide speciality email addresses to enable referral into urgent Care (A&E, acute medicine, and acute surgery)

Electronic Prescribing:

- All GP Practices enabled for EPSR2 by end of 16/17

- 10% increase in use of repeat prescribing in16/17

- 15% increase in use of repeat prescribing in 17/18.

5.9   Digital Enabled Self Care

Our ambition is to put the person at the centre of their care provision to promote choice and control over wellbeing, care and health.

> Future patient story
>
> I know what's going on, I can see my medical and care records, I can see when my appointments are no matter who with – GP, nurse, pharmacist, social worker, physiotherapist or homecare – and I can choose how and where I have those appointments. I may want to talk to my GP online, I can order repeat prescriptions whenever I need to and I can arrange for those to be delivered to me. And I can do this at 2:00am in the morning if I want to.
>
> I have my own care diary. It's mine and I can block out times when I can't or don't want to see my GP. I can also see if and when I need to go into hospital or a specialist centre for a scan or other procedure. I can see when my physio appointments are and when my carers are due to arrive. I can see when my prescriptions are due and when the next lot will be delivered. Everyone who works with me will be able to see my care diary to as I'm happy to give them access to work around and with me as my life is about more than being a patient.

Our aspirations include provision of online consultations, creation of a care calendar that incorporates all health and social care appointments, regardless of where they will be delivered, and smart applications to enable patients to

access local service directories or condition specific support as well as providing access to their GP record, booking online appointments and ordering repeat prescriptions from their GP.

5.9.1 Online Appointments and Repeat Prescribing

Our current baseline in this area is:

CCG	% GP Practices Can Support Electronic booking and Cancelling of Appointments	% Patients Enabled to Electronically Book and Cancel Appointments	% of GP Practices enabled for Requesting Repeat Prescriptions Online	% of Patients enabled to Request Repeat Prescriptions Online
NHS Eastern Cheshire	100%	17.6%	100%	16.5%
NHS South Cheshire	100%	16.5%	100%	17%
NHS Vale Royal	100%	28.2%	100%	28.2%
NHS West Cheshire	100%	16.8%	100%	16.7%

Our ambitions in this area include:

- By 16/17 to demonstrate a 10% increase in patient activation and by 17/18 to demonstrate a further 10% increase

- By 17/18 to facilitate access through our Care Passport

5.10 Patients Accessing Their GP Record Online

We aim to ensure that access to detailed coded GP records is actively offered to patients who would benefit the most and where it supports their active management of a long term or complex condition as well as providing access to those patients who request access.

We recognise that further work will be required to support GP Practices to understand the benefit of sharing GP records with patients and to understand the cohort of patients who would benefit from access to enable self-care of their medical condition.

In addition in *16/17 a patient portal will be piloted in the Cheshire Care Record for patients with gestational diabetes to enable access to the summary view of all of their records across social care, mental health, primary, acute and*

community and provide access for updating information to support self-care and reduce hospital visits during pregnancy.

CCG	% of GP Practices enabled to give access to online records	% of patients enabled to access their GP Record
NHS Eastern Cheshire CCG	95%	0.19%
NHS South Cheshire CCG	100%	0.61%
NHS Vale Royal CCG	100%	2%
NHS West Cheshire CCG	95%	0.27%

Our ambitions in relation to this are:

- By 16/17 to increase patient activation by 10% and by 17/18 to demonstrate a further 10% increase

- 16/17 pilot access to summary view for patients with gestational diabetes to all of their records across social care, mental health, primary, acute and community through Cheshire Care Record and provide access for updating information to support self-care and reduce hospital visits during pregnancy.

- By 17/18 to facilitate access through the Digital Passport

5.10.1 SMART Apps

Recognising the success of CATCH and similar apps, local CCGs have applied for capital funding around the development of more general health directory applications for smart phones. It is recognised that there is considerable development in this area which is expanding rapidly, but this particular category of app appears to be digitally mature, stable and provides a useful platform upon which to deliver many of the patient and citizen ambitions outlined in the Governments [9]Five Year Forward View and [10]2020 Vision

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[9].https://www.england.nhs.uk/wp-content/uploads/2014/10/5yfv-web.pdf

The app will give users rapid and easy access to more up-to-date local health and social care information including a directory of pharmacies, GPs, hospitals, clinics, care homes and other services. At a touch of a button users will be able to find the services that are nearest to them at any time. For example, if you're trying to find a late night chemist, the app will automatically sort out which are the closest to you and then give you the opening hours, address and contact details.

It will also signpost patients and citizens to other resources, such as access to their own health record or the ability to book appointments on line. These apps are also used to deliver information about waiting times at local A&E centres and health campaigns.

If the bid is successful the intention is to run this as a procurement exercise across a wide footprint. Information is provided on a geo location basis, so there are considerable advantages to operating this at a Cheshire wide as opposed to a local level. Information can be maintained centrally with any changes deployed across the whole footprint, leading to a well maintained, useful and consistent service.

5.10.2 Patient Centred Access and Care Calendar

This scheme articulates an ambition for using technology and information so that people who want to manage their own care can do so via access to joined up information and systems, whilst clinicians and care professionals are freed to focus on their practice rather than administration.

We are also proposing reclaiming time and attention of our public – patients and other local people who use care and support services. An example is test results. Rather than calling during a two hour window, we propose that people have secure access to their own care information and are alerted if new information becomes available.

We want to reshape that relationship, using the gifts and opportunities of ubiquitous technologies and tools already used by millions, to unlock true and authentic choice and control. The building blocks are both technical and cultural – as although technology opens the door – we need a reason to walk through it. The building blocks of our scheme are:

- To articulate, champion and support a positive, pragmatic risk approach to information governance that prioritises supporting and meeting the needs of local people throughout commissioner and provider organisations in Cheshire including agreed consent and privacy models.

- Working in partnership with adult social care, we will support the care home market to progress into the digital realm. Through Wi-Fi connectivity

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[10].https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/384650/NIB_Report.pdf

in care homes, accreditation of provider organisations via the IIG toolkit (for those who meet the necessary criteria) and seamless continuous access for visiting GPs, nurses and social workers, the practice or support base will travel with the professional including the ability to conduct remote consultations.

- To develop a system to provide patients with direct control over their data and enable local people to unlock their information and advice. We will do this by establishing a trusted and accredited identity registration service in Cheshire which will enable the sharing of confidential information not just between professionals but also between the patient and clinician or practitioner enabled by a transparent trust relationship.

- To set up digitally based systems that will provide patients with direct access to information such as test results, assessments, alerts and letters, available in one place.

- With our patient representatives, voluntary, community and faith sector organisations as well as others who receive care and support, their families and carers, we will design a rollout model and a pipeline for the secure, robust and prioritised take on of additional digital services. This is to enable the benefits of other digital services – be that online social care assessments, healthy weight advice, mobile health solutions such as diabetes monitoring or video consultations – to be realised at pace and scale.

The financial benefits are likely to be derived from whole system efficiencies. However key lines of enquiry for the financial benefits modelling work stream include:

- Efficiency savings due to reducing missed appointments for both health and social care

- Reduced travel time due to video calling and other remote consultation / monitoring options

- Reduced hospital stays and visits

- Reduction in social isolation and associated costs

Benefits for patients of the direct access to care information include:

- Reduced complexities of accessing their care and health information via a single, trusted authentication process

- Reduced anxieties waiting to find out information about themselves

- Reduced likelihood of losing or misplacing care information

- Improved quality of care as no longer need to tell their story more than once

- Increased signposting and smart directing to support in their area

Benefits for clinicians include:

- Reduction in missed appointments

- Reduction in administrative tasks

- Fewer G.P. appointments due to social isolation

- Increased visibility of relevant information

- Being able to focus on having conversations with those patients who really need support

- Improved quality of data as patients point out inaccuracies

- Forward compliance with 2018 EU data protection directive

6.0   Information Sharing Framework

The Cheshire Care Record programme established an information sharing framework and governance body to manage the information sharing issues and agreements between the different parties involved in supporting the care record and invested a considerable amount in finance and resources establishing a legal process.

The demand for information sharing and data agreements continues unabated outside of the CCR. Specialist services that require access have limited choices in terms of gaining access to data that would improve the quality of treatment and patient safety. Currently they can make a data sharing agreement with each practice, which may run into hundreds, or send out a general request for their service to be added. This is not a tenable process going forward, as it creates an unsustainable administrative burden on both the practice and the organisation requiring access, this in turn will lead to either no access to records or a lack of effective governance.

Other health areas have taken a more organised approach, for example [11]iLinks Information Sharing Framework based around North Mersey, which used the collaborative approach pioneered in the CCR to establish a methodology and process for managing the sharing of information across the region's health and social care organisations.

Using models of best practice such as iLinks there is an opportunity to develop technical solutions to the Information Governance consent model – a single data solution holding details of data sharing agreements across an agreed footprint for health and social care and the ability for citizens to directly manage and store individual consent across broad categories. (See LPRES and NWSIS Lancashire and Cumbria Information Sharing Gateway)

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[11]

http://www.ilinksinnovationsmersey.nhs.uk/media/1128/ilinks_informatics_transformation_strategy_2014_2017.pdf

This solution would encompass the new requirements for the General Data Protection regulations, due to come into force in mid-2018.

6.1 NHS Number

Use of the NHS number: [12]To date, the performance of providers of publically-funded care in this context has fallen short of expectations in many instances. Whilst a recent national survey has indicated that the NHS Number is now being used as a consistent unique identifier in the vast majority of settings, it is still not being adopted universally... To help respond to this challenge, the 2015/16 Planning Guidance referenced that the NHS number will be used as the primary identifier in all settings when sharing information. Commissioners have additional powers proposed through the NHS Standard Contract for 2015/16, to withhold funding from providers unless these conditions are met.

99% of services within CWP use an electronic patient record to review and capture information pertaining to an individual's treatment. As a trust CWP run regular NHS batch number tracing exercises to ensure our records are accurate. Our current compliance with NHS number capture is around 90%. To further improve our NHS number compliance, we are extending the use of the summary care record in 16/17.

This is typical of our provider organisations across Cheshire, East Cheshire Trust reporting a compliance rate in excess of 95% and Mid Cheshire in excess of 97% for "Verified" NHS Number and Cheshire East Council have adopted the NHS Number as their primary identifier. On-going issues are around patients who are either non-residents or who present at the Emergency Department and cannot provide accurate registration information. We are aware that there are a small minority of legacy systems that do not have NHS Number as a primary identifier, but providers are addressing this directly with system suppliers.

In terms of the SUS data quality dashboard at the Countess of Chester , NHS Number compliance is as follows:

- 99.8%   IP
- 99.8%   OP
- 98.5%   A&E

Reasons for the absence of NHS Number include:

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[12] BOARD PAPER - NHS ENGLAND Title: Digital Health Services by 2020: Delivering Interoperability at Point of Care to Support Safe, Effective, Efficient and High Quality Care

- Overseas visitor
- Patient not registered with a GP
- Scottish patient
- No fixed abode
- Military Personnel

NHS Number, where available, is present in all CoCH clinical systems and documentation as the primary identifier and is used in conjunction with the Countess number along with other partner organisation identifiers, when provided to us. In response to the recent Digital Maturity Index question 'For what proportion of patients is a verified NHS number included on all information shared with any other care provider or organisation directly involved in a patients care and treatment?' the CoCH recorded the highest level of compliance (96-100%). As a result of our current levels of compliance we do not perceive there to be any further steps to take at this time that would further increase our compliance rates.

7.0   Infrastructure Approach

The network infrastructure across the health services in Cheshire has been diverse in its connectivity and maturity. Some areas such as South and Vale Royal have an established Community of Interest Network with the ability to manage resources centrally and share information. Elsewhere in Eastern Cheshire, the majority of practices work in isolation. Each practice manages their own domain, but is unable to access resources at other practices and most of the provider organisations work within their own infrastructure with limitations to their connectivity to the wider world.

By contrast the councils CEC and CWaC have a well-established PSN compliant network, actively seeking linkages to other public sector networks. In order to redress the imbalance the four CCGs developing this roadmap instigated the Cheshire Shared IT Network programme.

The Cheshire Shared IT network encompasses our vision of an agnostic network, delivered as a managed utility. The ultimate aim of secure access to all resources on the network by anybody who is involved in patient care and has a legitimate need to access and share relevant information and digital resources.

It will be managed centrally to ensure efficient management, procurement efficiencies and significant and consistent investment in security. This will free up individual organisations (e.g. practices, providers) from the everyday administrative burden of managing and backing up servers and will ensure a consistent approach to security across the piece.

Layered over this are programmes of work to provide a universal mobile infrastructure using Wi-Fi and federated Wi-Fi access to allow health and social care workers access to their own digital resources wherever they are located. This is to be achieved through the deployment of universal SSIDs across Cheshire.

Relevant initiatives include:

- Federated Wi-Fi programme which is expanding simple connectivity to professional ICT services across health and social care premises.

- Active Directory restructures, to provide connectivity and improve system management and service deployment.

- Public Sector Network connectivity between the Health and Social Care networks, providing new opportunities for resource and data sharing.

- EPR Electronic Patient Record

- Out of Hours and End of Life EPR programmes

- CDP Complex Dependency Programme

NHS Number normalisation –

NHS number will be used as the primary identifier in all settings when sharing information with other social and healthcare providers.

- A programme of work to roll out the use of NHS Number as the unique identifier when sharing information across health and social care.

- Common adoption of secure government approved email systems such as NHS mail and GSXI across all public service organisations involved in patient care.

7.1 Federated Wi-Fi

The development of an efficient communications network is fundamental to the delivery of care in a paperless system. Currently Wi-Fi is seen as the technology of choice for providing efficient and simple to use access to digital resources and this underpins many of the current plans supporting whole system change.

Wi-Fi is a preferred solution for supporting integrated working in the short to medium term as it provides a method whereby teams from health and social care can be physically located together and access their own technical resources, without having to engage in a costly network re-engineering programme. The [13]Stockport Together programme sees WI-FI as the

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[13] http://www.stockport-together.co.uk/

foundation for bringing services together and improving on the current reality of paper, faxing, telephones and disconnected IT, resulting in lack of continuity, repeating tests and information.

In Cheshire Wi-Fi system availability is patchy across the region and the Cheshire Federated Wi-Fi project is an informal collection of existing work streams, which by cooperation amongst commissioners, councils and providers is seeking to achieve the following mutually beneficial goals:

- Adoption of a common SSID (Unique identifier broadcast by the network for users to connect to) for health and council workers. This means that any council or health worker will be able to connect automatically to their resources at any location that is transmitting the common SSIDs.

- Connection of Wi-Fi networks to allow reciprocal connectivity between council and health. Currently CWP and Eastern Cheshire are trialling a connection between their Wi-Fi systems which allow each to connect securely to the other where common technical standards are already in place.

- Expansion and standardisation of Wi-Fi connectivity. This is currently being rolled out in Eastern Cheshire to all practices, but at an LDR level we are seeking funds to expand and upgrade / standardise the infrastructure, in order that Wi-Fi is universally available and deployed and managed as efficiently as possible i.e. centrally.

The ultimate aim is for a Cheshire Public Service employee to be able to work from any public building in the region and automatically log on to their own digital resources, such as shared files. This requires a single cross organisation programme to:

- Agree common standards for ubiquitous SSIDs and then deploy this across the estate

- Identify the gaps in Wi-Fi access and develop finance and roll out plans to fill those gaps.

- Agree future common standards for the purchasing of networking and IT equipment to leverage better and more efficient access across Cheshire.

- Develop a programme to provide Public Wi-Fi (plus Guest Wi-Fi) to support patients and citizen access to their [14]care records and accredited health and social care applications and digital information services.

- Create a permanent group to manage and develop the network to achieve common goals and to horizon scan for new communication methods, as

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[14] Personalised Health and Care 2020 Using Data and Technology to Transform Outcomes for Patients and Citizens – National Information Board - November 2014

technologies such as 4G evolve and replace the need for existing fixed infrastructures.

- Engage with new partners such as Midlands and Lancashire CSU with a view to using their existing expertise in this area and seek out other provider organisations to adopt these common Wi-Fi standards (e.g. Hospices, Nursing Homes, Private Hospitals and other providers operating adjacent to the current footprint)

Funding

The realisation of the goals of the Cheshire Wi-Fi project is dependent on a number of resource streams, some are business as usual, changing internal processes to align to a common model and others require external financing. To date we have applied for Capital GP IT funding to support patient / guest access to Wi-Fi services in practices and elsewhere and an expansion of the network and Wi-Fi access to nursing homes and community premises. The progress of this latter aspect of the programme is entirely dependent on the funding available.

7.2 Mobile Working and Virtual Desktop Infrastructure (VDI)

The Virtual Desktop Infrastructure (VDI) solution is key in developing further federated working across organisations and will also enable the workforce to become more agile and mobile.

Implementation of a fully managed VDI service requires a stable centralised technical infrastructure to be deployed on which fits with intentions around the following initiatives:

- Single COIN network Infrastructure (Cheshire Shared IT network)

- Centralised domain and document storage

- Managed N3 Wi-Fi provision

It will provide the ability to standardise on software that is used to support both clinical and non-clinical functions, centralising functionality and software, change the way that support services are currently provided and also the provision of IT hardware replacement and software purchases. 'Dumb terminals' would replace PCs increasing its lifespan over the recommended 5 years.

VDI enables users to have a true mobile solution using either wireless or 3G/4G connectivity. It provides access to all desktop applications from any device (iPad, laptop, Android, smartphone) including full access to clinical solutions, including diagnostic requesting, referrals and the patients full medical history. Within some GP clusters there are plans for combining back office functionalities and this infrastructure would facilitate the achievement of this goal.

Once established the VDI infrastructure will support and expand a number of local initiatives e.g. Home Visiting Services, Nursing Home visits, enabling full

access to the patients' hospital, community and social care records. It will also enable new technologies to be implemented e.g. Softphones –enabling connectivity to the user's device via a single number, mobile Skype consultations, ability to work from any location to provide full health care services.

West Cheshire CCG have accessed funding and are piloting VDI with a cluster of GP practices, with the intention of rolling this across their boundary.

Elsewhere, community service providers have invested in the use of technology to support access to patient information at the point of care. One provider utilises mobile devices and EMIS Web mobile the other provider has invested in Virtual Desktop Infrastructure (VDI) technology to support the use of mobile devices and provide remote access to the full EMIS Web client and other applications. Both solutions support mobility of workers and access to the patient record at the point of care.

Extending the use of VDI across the health economy is a future ambition to support the delivery of new care models and improve information flows and access to IT systems to improve staff productivity

7.3 Active Directory Restructure

The Active Directory service is a distributed database that stores and manages information about network resources and other application related data. This allows administrators to organise users, computers and devices into a hierarchical collection of containers. The top level container is the "forest". Within a forest are domain containers and within domains organisational units. The relationship between these determines what can or cannot be done in a network such as delegation of authority to access or restriction to access certain resources.

The structure affects how services can be deployed – moving to a centralised hierarchy makes it easier to cascade changes throughout the network and roll out new services. Security can be improved as it is centralised and will benefit from more efficient investment and consistency. Resources can also be shared and it benefits mobile working across the network.

Currently within Health Care and with some notable exceptions, we have traditionally developed on an individual organisation basis, with domains that are not connected to an external hierarchy.

The deployment of the Cheshire Shared IT Infrastructure will require the redesign of the existing Active Directory structure, leading to opportunities for centralising data storage, moving servers out of practices to reduce the practice workload and improving security, data integrity and resilience. It is also an opportunity for other organisations that are part of the Roadmap to review their structures and consider the advantages of being part of a larger structure.

This also a propitious time to consider a restructure as there is considerable expertise available within some partner organisations, having completed similar exercises elsewhere.

The opportunity here is to take the existing work stream within the Cheshire Shared IT Network programme and expand it out to the rest of the partner organisations that are willing or able to engage.

7.4 PSN Connectivity

One of the benefits of the Cheshire Shared IT Network programme is that it will support the Public Service Network (PSN) standard. This in theory will allow the Cheshire Shared IT Network to connect to other PSN accredited networks such as the local councils Cheshire East and Cheshire West and Chester.

The principal advantages are:

- Ability to connect the network to allow cross organisation working and access to resources

- More efficient use of resources – the Councils and the NHS often duplicate the network connections into buildings and provide duplicate resources such as printers and computers in the same location.

- Ability to share and link data resources.

Eastern Cheshire CCG has bid for capital monies to support a linkage of the two networks and this will require a programme of work and organising body to ensure compliance to the PSN standards, so that other parts of the Roadmap group can be linked across Cheshire and accelerate growth and participation.

7.5 Unified Communications

The Eastern Cheshire Unified Communication programme is the next phase in the Cheshire Shared IT Network which brings Eastern, South and West Cheshire and Vale Royal CCGs on to a common network. The Unified Communications programme is designed to exploit the potential of the new network by leveraging its ability to share resources, realise efficiencies and connect with other services that were previously out of reach. The deployment of the Unified Communications structure is dependent on the successful implementation of the programmes outlined earlier, including active directory restructure, move to single domain, PSN connectivity and federated Wi-Fi and expansion of the MPLS network.

The principle elements are:

Create a unified communications infrastructure across the whole Cheshire footprint and beyond, encompassing all care organisations, including links to provider organisations and other public services.

Run an options appraisal , specification and procurement exercise to purchase and deploy a unified or single technology platform to deliver:

- o Voice services including VOIP and IVR
- o Web and tele conferencing
- o Shared data, including calendars
- o Text
- o email management
- o Instant messaging
- o Video conferencing and consultation

This unified infrastructure would have potential benefits in the development of integrated teams, mobile working, free inter service voice calls and access to simple web and tele conferencing systems optimised for use on our network. Systems resilience would be much improved by the ability to shift resources around the network and better security through a consistent and measured approach to management and investment.

These programmes of work will be planned in conjunction with our partner organisations with a view to deployment at scale across Cheshire with the possibility of joining other existing infrastructures. Funding would be at an LDR / STP level with some specific areas financed through ETTF.

7.6   Minimising Risk Arising from Technology

The organisations across the Cheshire Footprint have robust plans, policies and procedures in place to minimise risks to patient safety and organisational reputation associated with the use of technology.

For example the Cheshire CCGs have cooperated and invested in the Cheshire Shared IT Network, which provides connectivity across Cheshire and a higher level of data security, protection and privacy by adopting PSN standards and investing in new firewall technology. This service also provides a greater level of resilience by offering consistent access to services regardless of location and multiple points of failure. To develop consistent standards across all NHS organisations in Cheshire the CCGs are in the process of committing to joining NWSIS (North West Infrastructure Service) which covers a much larger footprint and access to additional resources which will improve business resilience. Cheshire East and Cheshire West and Chester Councils have invested in a PSN network across Cheshire and both the CCGs and the councils have been involved in enabling talks to look at PSN connectivity (this will now be replaced by the HSC Network)

The Midlands and Lancashire CSU which supports the majority of organisations in the area have been investing in improved network infrastructure development such as network connected uninterruptable power supplies, ensuring that any potential faults are resolved at an early stage.

The Cheshire Pioneer Panel are expanding the role of the Cheshire Care Record Clinical Design Authority to bring together Clinical and Digital leaders who will collectively own the clinical and technical design of the Local Digital

Roadmap and supporting technology initiatives. This will be known as the Cheshire Clinical Design Authority and its purpose is defined as follows:

To support and own the clinical and technical design of the LDR so that personal information can be shared safely, securely, appropriately and confidentially to enable the delivery of health and care services wherever and whenever they are provided.

The CDDA (until full STP arrangements are in place) will report directly to the Cheshire Pioneer Panel and be responsible for developing and maintaining collective agreement on:

- The design for deploying digital technology

- Common clinical processes underpinned by technology

- Common or compatible technical architecture

- Expert clinical and technical advice given to organisation

- Assurance related to patient safety and technical security

- Liaison with national and local external agencies

- Common interoperability standards

Terms of reference for the CCR Clinical design Authority are available on request

7.7 GS1 (AIDC) Standards Compliance

The Department of Health has mandated that every service and product procured by an NHS Acute Trust in England must be compliant with GS1 Automatic Identification Systems (AIDC) standards. The current deadline for compliance is 2019/20.

AIDC systems (barcode or RFID) have very wide applications, including point-of-care scanning to match product data to patient data, verification of patient identity via a wristband, enabling the introduction of robotic dispensing systems, recording implant serial numbers in patient records and central registries, tracking and tracing of individual instruments through decontamination, stock control and supplies management, tracking assets throughout a network of facilities, …[15]

The GS1 compliance table below indicates the current state of adoption of this new technology standard across our principal providers:

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[15] http://www.gs1.org/healthcare/standards

Provider	Commentary
East Cheshire NHS Trust	We are beginning the process to look at the implications, and the next step for the Trust is to appoint a lead. We aim to do this by the end of September 2016.
Mid Cheshire Hospitals NHS FT	At Mid Cheshire Hospitals NHS Foundation Trust, the Director of Finance presented a strategic options paper to the Trust Board in October 2015 around GS1 and the Pan-European Public Procurement Online (PEPPOL) standards. The Trust's GS1 vision is "To improve patient outcomes, drive efficiency and reduce risk by providing visibility of the full patient pathway through GS1 standardisation" The Trust's preferred approach is to coordinate activities relating to the adoption of GS1 and PEPPOL standards through a single programme operating across all relevant departments. The trust nominated GS1 lead would head up the programme reporting progress to the board. Individual elements of activity would be subject to specific business cases / justifications. Parts of this programme have been discussed, particularly the RFID element, which is due to be presented to the IT Strategy Group in October 2016.
Countess of Chester NHS FT	At the Countess we are in the process of reviewing GS1 roll out and currently utilise barcodes to support the following processes: • Blood Transfusion Tracking • Pathology Sample Tracking/Management • Drug Dispensing • Case note Tracking

	• Patient Identification
	The next key area of usage would be in terms of medicines management but this won't progress until we replace our EPR due to current system constraints of the Electronic Prescribing/Administration module.
Cheshire and Wirral Partnership NHS FT	The procurement department have been aware of the likelihood of GS 1 being introduced. The preparation work to enable GS 1 introduces and improves good procurement practice which should be in place anyway. It is also an area where significant efficiencies can be achieved. This therefore forms a significant part of the procurement department work plan and is undertaken in a series of logical stages.

Authors:

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Kevin Carbery: West Cheshire CCG

Kevin Highfield: South Cheshire and Vale Royal CCGs

Mandy Skelding-Jones: Cheshire and Wirral Partnership

Matt Palmer: Mid Cheshire FT

Torin Glazer: East Cheshire Trust

We recognise the contribution and collaboration between all members of the health and social care economy in developing the Cheshire Local Digital Roadmap

8.0 Appendix A – Local Digital Roadmaps –

Copy of Footprint and Governance Template A - for Lead CCG

Information Requested	Guidance	Response
Lead CCG	State the name of the CCG who will act as the 'lead' for communicating with NHS England on behalf of the organisations in the footprint. (Note - this does not imply that they take the leading role above other CCGs in the roadmap development process)	NHS Eastern Cheshire CCG
Partner CCGs	Identify any other CCGs who will be partners in the local digital roadmap footprint. (Note - this may be a null response if the CCG identified above has chosen not to work within a cluster)	NHS South Cheshire CCG NHS Vale Royal CCG NHS West Cheshire CCG
Providers	Identify the providers who have agreed to play an active role in the development of the local digital roadmap. It is anticipated that all providers with a lead commissioning relationship with any CCG identified above would be listed here. Please also identify any Providers that you anticipate would have been involved at this stage but were not, and provide any explanation as to why this is the case.(Note - we are not asking for a list of all providers who are contracted by the CCGs above)	East Cheshire NHS Trust Mid Cheshire Hospitals NHS Foundation Trust Countess of Chester NHS Foundation Trust Cheshire & Wirral Partnership NHS Foundation Trust Cheshire West & Chester Council (social care provider) Cheshire East Council (social care provider) Primary Care Cheshire East Cheshire Hospice St Luke's (Cheshire) Hospice

Local authorities	Identify any local authorities who have agreed to play an active role in the development of the local digital roadmap. (Note - this may be a null response if the overlapping local authority is a member of another footprint)	Cheshire West & Chester Council Cheshire East Council
Footprint rationale	Please provide a statement of why the footprint and partners set out above are appropriate. For CCGs working in clusters, please reference (as appropriate) common key providers, common Health and Wellbeing Boards, track record of working together, joint informatics roles.	The partners form part of the Cheshire Pioneer Programme which encompasses the integrated care programmes: Caring Together; Connecting Care and the West Cheshire Way. They are also collectively engaged in the development of the Cheshire Care Record.
Organisations providing support in the development of the roadmap	This might be a Commissioning Support Unit, an Academic Health Science Network, academic institution or independent organisation. A null response indicates that support arrangements have not yet been identified.	Midlands and Lancashire Commissioning Support Unit
Governance	Please outline the proposed governance and sign-off arrangements for the local digital roadmap. Indicate to what degree these governance arrangements are already established	It is intended to use the existing Cheshire Pioneer Programme governance arrangements.
Contact details for the individual who will be leading the roadmap development	Please provide name, job title, organisation, e-mail address and phone number.	Jerry Hawker, Chief Officer – ECCCG, jerry.hawker@nhs.net, Tel: 01625 663477

9.0 Appendix B List of Initial Pioneer Panel Partner Organisations

- North West Ambulance Service NHS Trust (NWAS)
- Cheshire West & Chester Council (CWaC)
- Cheshire East Borough Council (CEC)
- Eastern Cheshire CCG (ECCCG)
- South Cheshire CCG (SCCCG)
- West Cheshire CCG (WCCCG)
- Vale Royal CCG (VRCCG)
- Cheshire & Wirral Partnership NHS FT (CWP)
- Midlands and Lancashire Commissioning Support Unit
- Mid Cheshire Hospitals NHS FT (MCHfT)
- East Cheshire NHS Trust (ECT)
- Countess of Chester NHS FT (CoCH)
- Bridgewater Community Healthcare NHS Trust
- Health Education England