Norfolk County Council

NHS

Connected Digital Norfolk and Waveney

Local Digital Roadmap

Contents

The appendices for this document are available separately upon request.

1 Foreword

1.1 From the executive sponsor

The Norfolk and Waveney footprint has a great opportunity to transform the quality of care and services provided to patients. We have made **significant achievements** including a national award for change enabled by technology which **delivers digital health and care** across a large rural geography. Other achievements provide a **foundation for digital collaboration** for the future to 2020 and beyond.

Our vision is to enable people to live **longer and healthier lives** by commissioning high quality, sustainable, caring and compassionate services. The vision is of digital **technology working for patients and the public** so they can feel and be empowered by the information supporting their health and social care.

Leaders within providers, local commissioners and local authorities are working together in partnership to deliver the vision through **three digital ambitions.** There is commitment to build capability and a stronger culture of **digitally enabled individuals.** We are working on care pathways to deliver **connected quality care** with information that goes hand in hand with the patient. There is commitment to learn and share the best available **innovation through technology.**

Our ambitions are supported by our **digital top seven** initiatives to achieve a connected health and social care economy which is digitally integrated and joined up. We are realistic and recognise **areas of potential excellence** in our region and other areas where we are at the **start of our digital journey.**

There is agreement that a **step change is necessary** and a commitment to delivery through regional transformation. Our overall low maturity and baseline position strengthens the **potential benefits to the area** from adoption of a single local digital roadmap and alignment of priorities, where opportunities are even greater than in other areas where more may have already been done.

Dorothy Hosein
Chief Executive Officer
The Queen Elizabeth Hospital King's Lynn NHS Foundation Trust

Figure 1: Connected digital Norfolk and Waveney ambitions

2 Overview of the local digital roadmap

2.1 NHS strategic drivers

The NHS *Five Year Forward View*[1] sets out national challenges in relation to care and quality, health and wellbeing, and finance and efficiency. In order to deliver these challenges there is an ambition for an NHS and social care system to use data and technology to transform outcomes for patients and the public. There is a requirement from local health and care economies to "produce detailed roadmaps" which show how "by 2020 all patient and care records will be digital, real-time and interoperable".[2]

The *General Practice Forward View* includes a commitment to greater use of technology to enhance patient care and experience, as well as streamlined practice processes.[3]

This document *Connected Digital Norfolk and Waveney*, the Local Digital Roadmap sets out a five-year vision to March 2021 for digitally enabled transformation. It sets out a three year journey towards becoming "Paper-Free at the point of care", and two year plans for progressing "universal capabilities". *Connected Digital Norfolk and Waveney* does not replace individual organisational Information Management and Technology (IM&T) strategies and is intended to compliment them.

2.2 NHS sustainable transformation

As part of achieving the *Five Year Forward View*, NHS England has asked local health and care economies to develop Sustainability and Transformation Plans (STP) which incorporate the Local Digital Roadmaps. Our STP lays out how working with our partners we will work smarter to support our clinicians to work more closely together between hospital and community services, and between the NHS and social care to provide holistic support around the needs of an individual. This will be achieved by improved management of long term conditions, a step change of the support to frail and older people thereby reducing the reliance on hospital and care home admissions.

Connected Digital Norfolk and Waveney is the second version of a regional digital plan to deliver joined up solutions to the STP priorities. It recognises the positive engagement which has already taken place through over 30 workshops. It recognises the variations in digital maturity which exist between our health and social care organisations in the footprint and it seeks to emphasise and spread the existing areas of potential excellence across a footprint which has a very low overall digital maturity baseline.

There is a commitment to significantly scale up to meet the challenges in the area, this plan recognises every organisation will work together to achieve a joined up health and social care system that is very different from the one we have today. When the roadmap is fully delivered every part of patient care will have been transformed from the current baseline.

---

[1] NHS England: Five Year Forward View https://www.england.nhs.uk/wp-content/uploads/2014/10/5yfv-web.pdf (October 2014)

[2] National Information Board: Personalised Health and Care 2020 – A Framework for Action https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/384650/

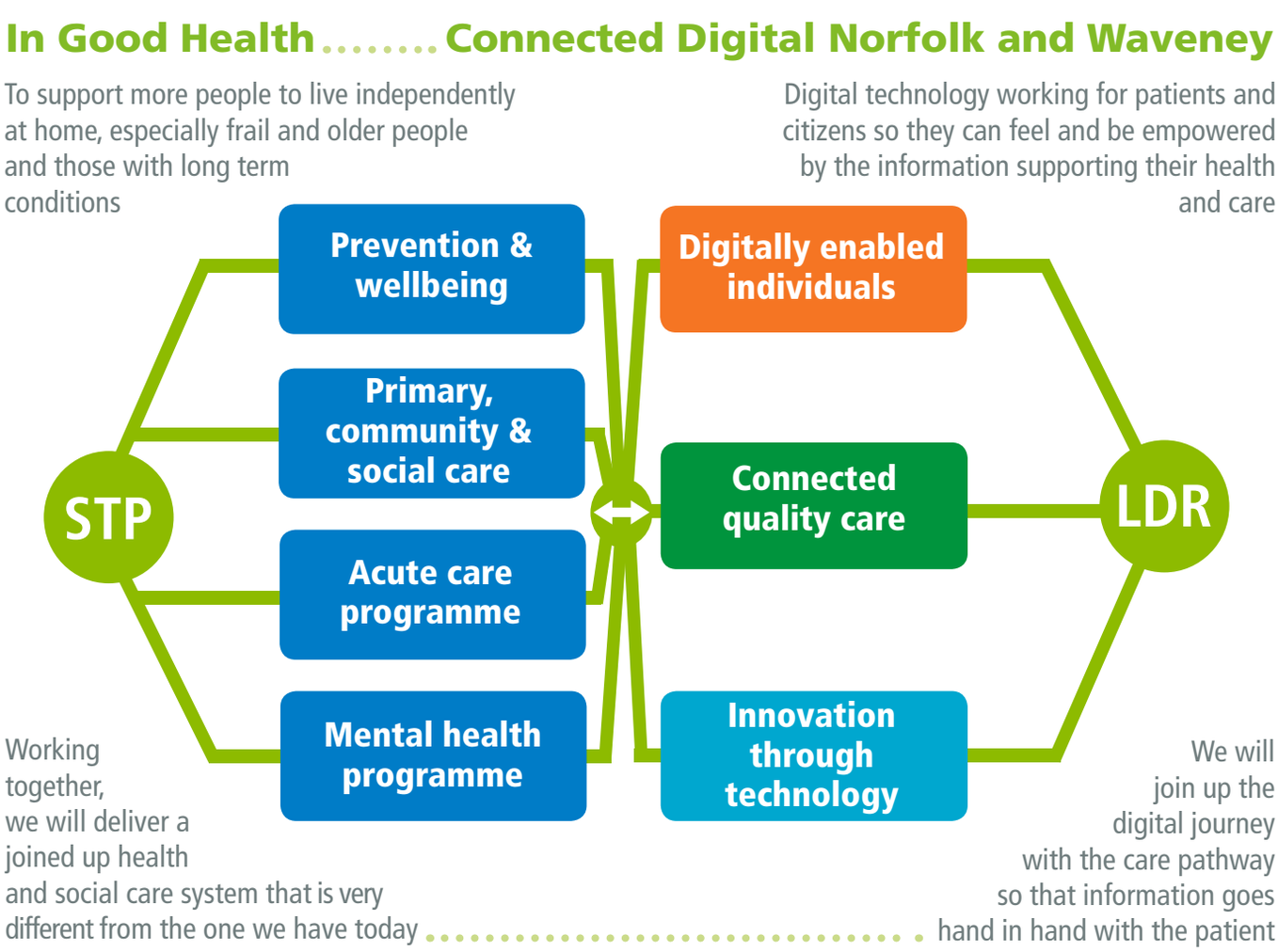
[3] NHS England: General Practice Forward View https://www.england.nhs.uk/wp-content/uploads/2016/04/gpfv.pdf (April 2016)

2.3 Vision for a connected digital Norfolk and Waveney

The vision for *Connected Digital Norfolk and Waveney* is of **digital technology working for patients and the public so they can feel and be empowered by the information supporting their health and social care.** Three ambitions shape the vision and they will be part of every digital project and service improvement in the footprint. These ambitions are digitally enabled individuals, connected quality care, and innovation through technology.

- **Digitally enabled individuals** - We will build capability and support cultural change for all individuals so that patient connectivity to digital resource is enabled and our workforce is sustainable
- **Connected quality care** - We will join up the digital journey with the care pathway so that the information goes hand in hand with the patient
- **Innovation through technology** - We will collaborate and adopt digital technology which has the potential to transform so that the health and care economy has access to the best available innovations

Figure 2: STP ambitions supported by LDR ambitions



Supporting our ambitions are our **digital top seven** initiatives to achieve a connected health and social care economy which is digitally integrated. The digital top seven identify areas of potential excellence across our footprint as well as some initiatives which need to begin. There is agreement that a **step change is necessary** and a commitment to delivery through footprint transformation.

2.4 Summary of the baseline position

In February 2016 the NHS secondary care providers within the Norfolk and Waveney system completed the first digital maturity assessment looking at grouped criteria of readiness, capabilities and infrastructure. This self-assessed baseline provides an indicator of the extent to which provider healthcare services are supported by effective use of digital technology as an enabler for Paper-Free at the Point of Care (see section 5).

Baseline data from primary care providers has been examined. Within our footprint, primary care has assessed themselves as above average and looking forward to further development of their capabilities. Local Government Association, working with Society of IT Managers (SOCITM), ADCS Performance and Information Management Group and ADASS Informatics Network has developed a social care digital maturity self-assessment. Our local authority was in the first group of around 15 authorities to complete this, and the results are expected this year. Results will be reflected in the baseline and trajectories when they are released.

Findings from the digital maturity assessment have been published and it is clear within secondary care there are significant gaps compared to the national position. The gaps need to be addressed for the footprint to deliver the transformational change for patients that is envisaged. When compared with the national average from 239 NHS providers in England and Wales, our readiness (including clinical leadership) as a footprint is 25% below the national average, our capabilities are 11% below average and our infrastructure is 15% below average, this presents a significant challenge. Within community care all areas are above the national average which reflects a **national award** for excellence in mobile working following £610k of external funding in 2014. Continued development in transforming community service is critical to STP delivery. Within the ambulance service there is significant maturity in infrastructure, although East of England Ambulance Trust works across six footprint areas. These significant achievements can help the footprint accelerate and **community working** is represented in the **digital top seven** initiatives.

2.5 Significant digital achievements

In the footprint's journey towards Paper-Free at the Point of Care there have been other recent **significant achievements** which provide a strong foundation to enhance the capabilities of digital maturity on a more collaborative basis. Along with **community working**, three initiatives known as the **digital GP, digital patient**, and **digital clinician** are key initiatives already underway. Remaining initiatives include **capability and change** for **digital unified communications** and **intelligence led healthcare**.

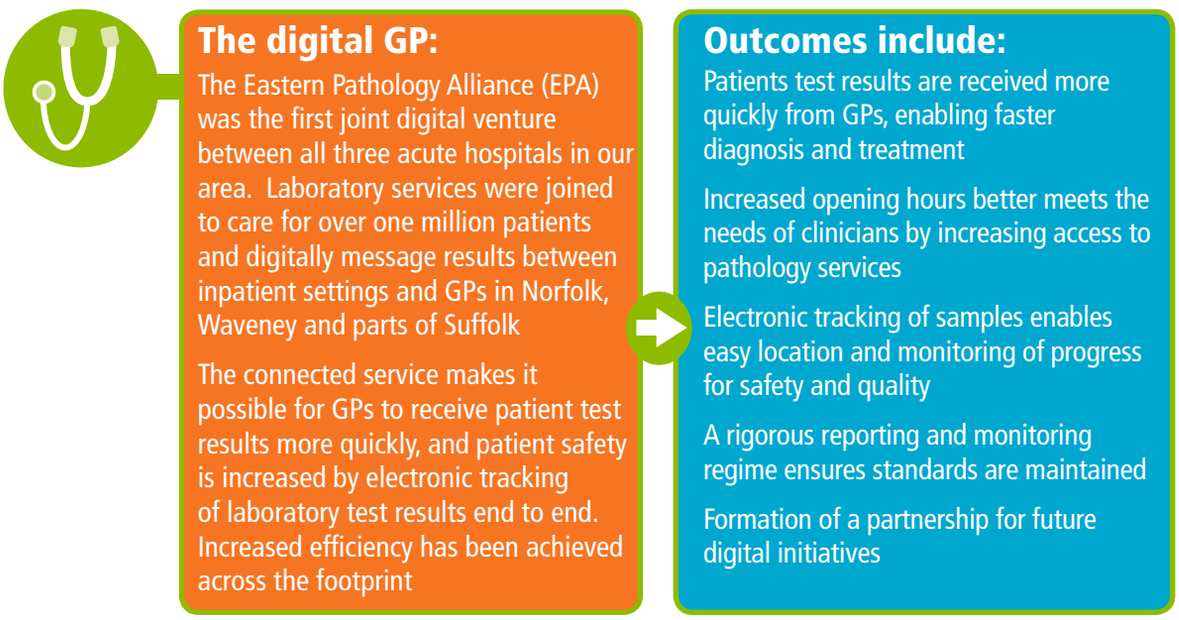
To illustrate the strong foundation already in place the following four case studies provide some insight into the digital journey. They articulate what it already begins to look and feel like and they aspire forward to when **digital technology is working for patients and the public so they can feel and be empowered by the information supporting their health and social care.**

[4] NHS England: https://www.england.nhs.uk/digitaltechnology/info-revolution/maturity-index/ (accessed 4 October 2016).

2.5.1 Case study 1: Eastern Pathology Alliance - the digital GP

In the East of England the Eastern Pathology Alliance was created in 2012 as part of the NHS England National Pathology Programme, *Digital First Clinical Innovation*[5]. This collaboration between commissioners and three hospital trusts involved trust chief executives working with pathology managers, staff, PCT commissioners, clinical commissioners and patients. Quality and efficiency was increased across the footprint in line with the Carter Review.[6]

Figure 3: Case study (1) - Eastern Pathology Alliance - the digital GP



2.5.2 Case study 2: mobile working - the digital community clinician

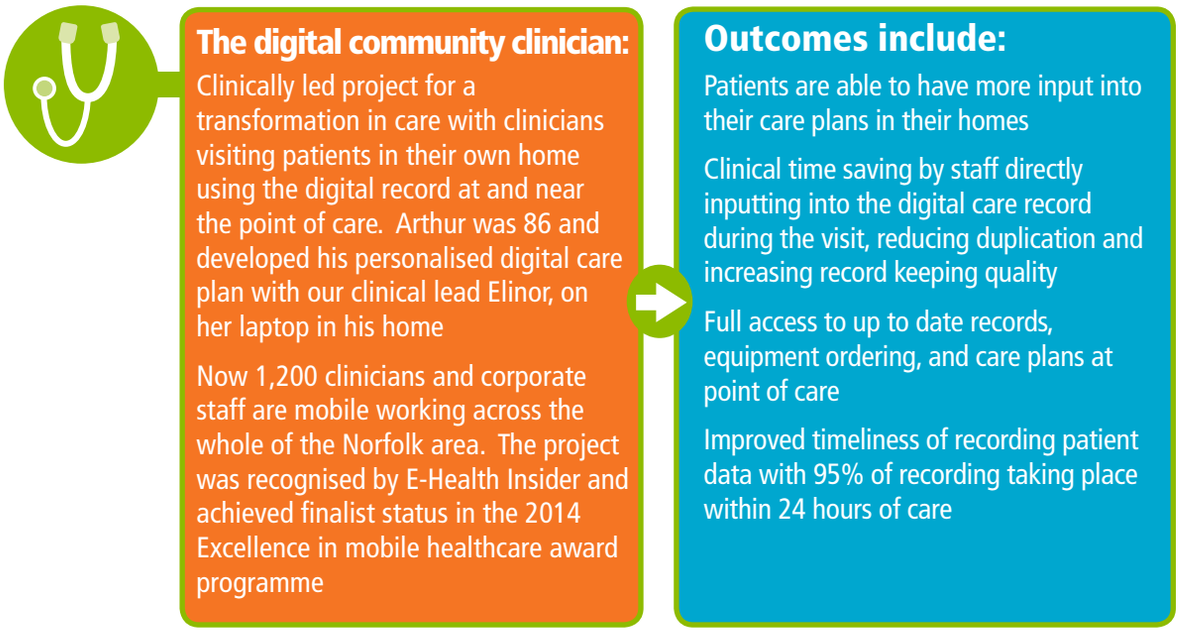
The community trust had a vision for transforming community nursing and therapy workforce to mobile working as part of the strategy for care closer to home.

Successful bids for investment via the eastern region *Strategic Health Authority Workforce Transformation Fund* (£150k) and the *Safer Hospitals Safer Wards Fund* (£469k) enabled two clinicians, a dedicated IT technician and project manager to be seconded to IM&T for 18 months to help test, procure, implement and champion the solution to expand and accelerate the deployment of a mobile working solution to community nurses.

The solution involved the deployment of ultra-light laptops with 3G connectivity, applications persistence software and an offline solution to enable clinicians to update electronic patient records in real-time and near real-time whilst on patient visits.

[5] NHS England: Digital First: Clinical Transformation though Pathology Innovation https://www.england.nhs.uk/wp-content/uploads/2014/02/pathol-dig-first.pdf (February 2014).
[6] Lord Carter of Coles, Operational Productivity and Performance in English NHS Acute Hospitals: Unwarranted Variations https://www.gov.uk/government/publications/productivity-in-nhs-hospitals (February 2016).

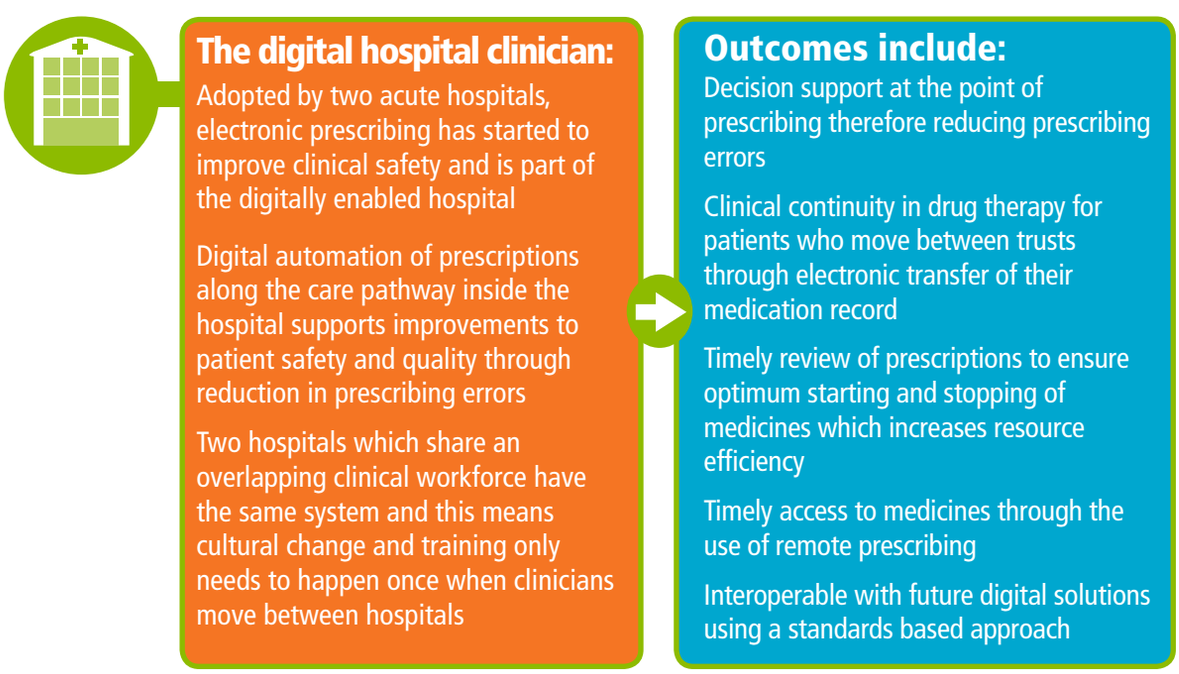
Figure 4: Case study (2) - Mobile working - the digital community clinician



2.5.3 Case study 3: electronic prescribing – the digital hospital clinician

Two of the acute hospitals have implemented the same electronic prescribing service in a joint initiative. Investment as part of the *Integrated Digital Care Fund* (£1.75m) enabled E-Prescribing to become a key step towards the trusts' vision of a digitally enabled hospital.

Figure 5 – Case study (3) - Electronic prescribing - the digital hospital clinician

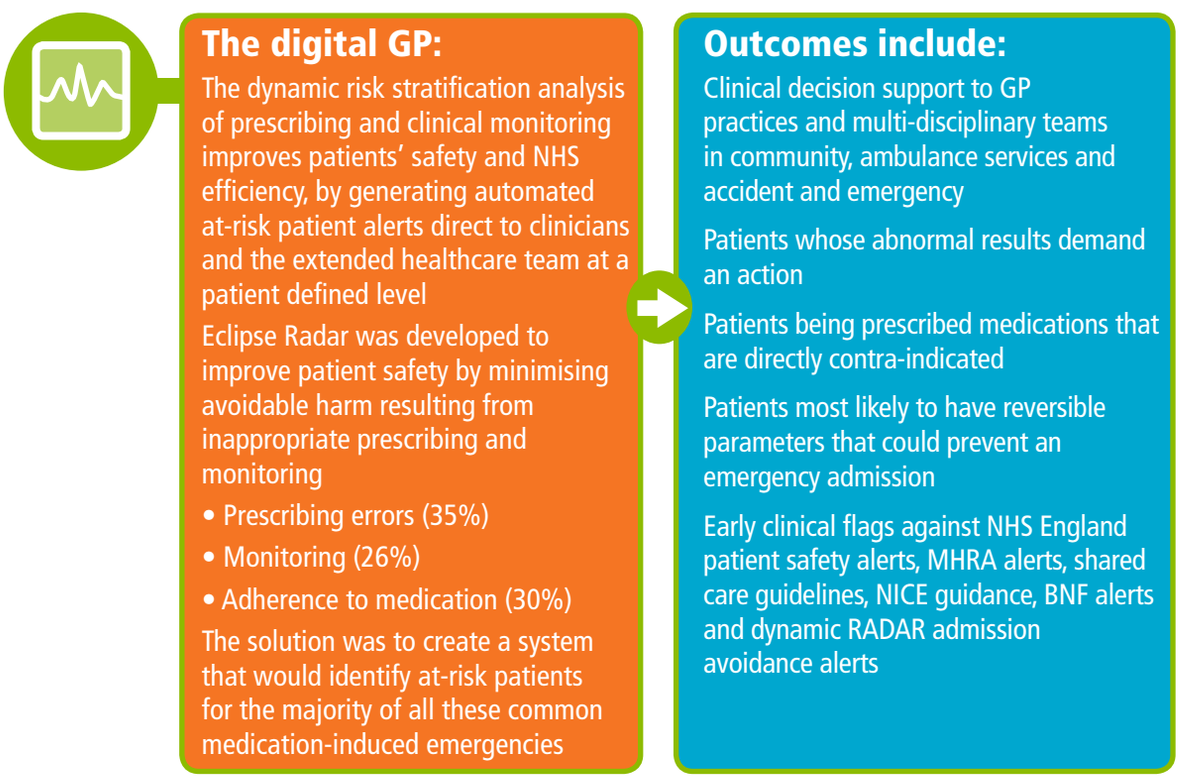


2.5.4 Case study 4: ECLIPSE radar - the digital GP

Eclipse is a GP Systems of Choice, clinically led system which can improve patient safety and medicine optimisation. Using integrated data from a number of health and care systems, Eclipse identifies patients at risk who would benefit from an early intervention in order to avoid unnecessary emergency hospital admissions. National statistics show that up to 7% of all emergency admissions are due to prescribing errors, monitoring and adherence to medication, 70% being avoidable.

The information will enable health professionals to manage these patients more proactively and in keeping with their personalised care-plan. The system identifies patients at risk from their medications or lack of monitoring providing real time data analytics at the point of care.

Figure 6: Case study (4) - ECLIPSE radar - the digital GP



2.5.5 Case study 5: analysis of frailty - intelligence led healthcare

This study aims to inform understanding on the changing nature of frailty in Norfolk and support strategic planning. Datasets are linked using the NHS number to create a single, anonymised provider dataset for inpatients aged over 65 years. Analysis of this linked dataset will help to:

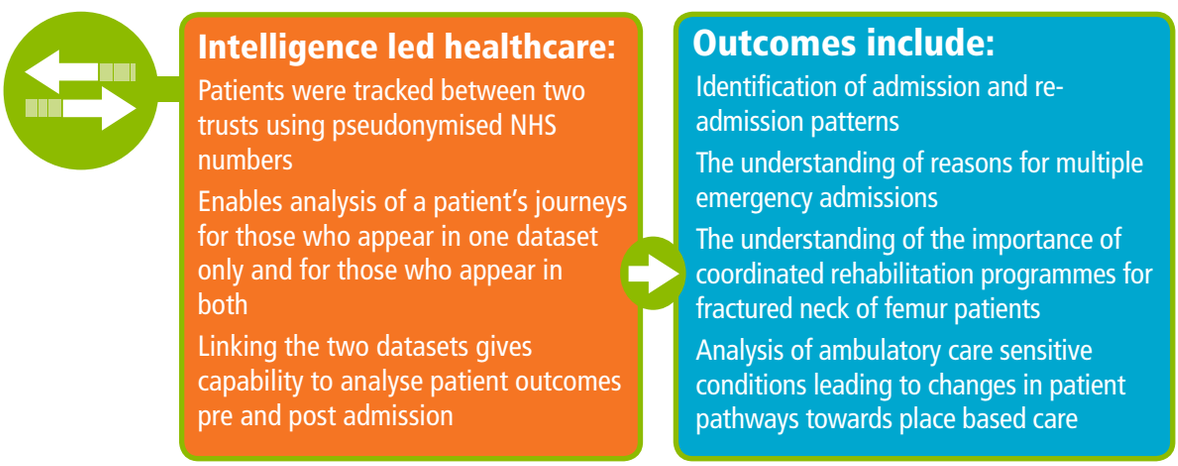
- Determine gaps in information and intelligence
- Identify high risk/high usage patients
- Clarify patient flows though the acute and intermediate care system for selected patient pathways

Looking forward this project will act as a proof of concept to scale up to a more complete anonymised and linked health and social care provider dataset. This will involve bringing in other provider data and adult social care data. This will allow the Norfolk and Waveney system to better understand people and flows within the system.

For example, using population analytics to:

- generate local predictive models to understand risk of admission to hospital
- generate local predictive models to understand likely changes in need for adult social care
- segment the population into groups such as people with multi-morbidity, those who are mostly healthy and fully understand the system costs of those groups
- understand unwarranted variation and highlight areas of good practice for system learning

Figure 7: Case study (5) - Analysis of frailty in Norfolk - intelligence-led healthcare



2.6 Summary of constraints

Of the five case studies which illustrate the footprint capabilities, two (mobile working and e-prescribing) were significantly accelerated through a combined total of £2.7m external funding. These case studies carry forward into the digital top seven providing strong foundations to enhance digital maturity across the footprint. To achieve a step change and achieve Paper-Free at the Point of Care more quickly, additional funding will be required.

Within the last two years community has procured a replacement Electronic Patient Record, local authority has procured a social care case management system with capability to integrate with health systems, and mental health has procured an Electronic Patient Record. However the region contains three acute hospitals with a low digital maturity baseline for whom the required deployment of an updated Electronic Patient Record is a funding challenge within the timescales of this roadmap. Across the footprint the finance gap to fully deliver a cultural and digital step change requires a **significant increase** in current investment levels.

In February, the Secretary of State for Health announced £4.2bn of funding for NHS technology, including £1.8bn to create a paper-free health and care system. In addition the *Estates and Technology Transformation Fund* [7] is a £1.0bn capital investment programme that commenced in 2015/16. Potential sources of investment are listed (see section 4.5).

[7] NHS England, Estates and Technology Transformation Fund (Primary Care) https://www.england.nhs.uk/commissioning/primary-care-comm/infrastructure-fund (accessed 4 October 2016)

3 Towards a connected digital Norfolk and Waveney

3.1 Footprint for the local digital roadmap

The Norfolk and Waveney footprint covers the areas of North Norfolk, West Norfolk, Norwich, South Norfolk and Great Yarmouth and Waveney. The area is largely rural and is bordered by sea on two sides – the North Norfolk coast and the Norfolk Broads are Areas of Outstanding National Beauty.[8] For years people have been retiring here which means there is a growing population over 65 years old. Across the footprint the average number of years a man can expect to live in good health is about 64 and for women it is about 66.[9]

The main centres of population are King's Lynn, Thetford, Lowestoft, Great Yarmouth and the city of Norwich. In 2015 more than 150,000 people lived in areas described as the most deprived 20% in England and these are mainly located in the urban areas. One of the challenges we face in the large rural area is geographical spread, between Thetford and Norwich is 30 miles, and between King's Lynn and Great Yarmouth is 70 miles.

3.2 Developing a plan in partnership

The footprint has the same geography as the STP which is a significant advantage for delivering the ambitions of the LDR. Within the LDR, seventeen organisations have a plan to deliver transformational change together. The group is made up of five clinical commissioning groups, six providers, two local authorities, a commissioning support unit, a social enterprise, a community interest company and an advocacy group for independent and voluntary sector providers.

Within the group there is a coalition of willing providers known as the Norfolk Provider Partnership (NPP). The core IT leaders from within this partnership have provided much of the momentum around developing *Connected Digital Norfolk and Waveney*. The NPP will continue to be a key part of the transformational change going forward.

[8] Norfolk Coast Partnership, http://www.norfolkcoastaonb.org.uk (accessed 4 October 2016)

[9] Public Health England, Recent Trends in Life Expectancy in Older Ages https://www.gove.uk/government/uploads/system/uploads/attachment_data/file/499252/Recent_trends_in_life (February 2016)

Table 1: Connected Digital Norfolk and Waveney - local health economy partners

NHS Clinical Commissioning Group	NHS Provider	Partnership Group
North Norfolk CCG	Norfolk and Norwich University Hospitals NHS Foundation Trust ++	Norfolk Independent Care
West Norfolk CCG	The Queen Elizabeth Hospital Kings Lynn NHS Foundation Trust ++	Integrated Care 24 NHS *
Norwich CCG	James Paget University Hospitals NHS Foundation Trust ++	East Coast Community Healthcare CIC
South Norfolk CCG	Norfolk Community Health and Care NHS Trust * ++	Norfolk County Council
Great Yarmouth and Waveney CCG *	Norfolk and Suffolk NHS Foundation Trust *	Suffolk County Council *
	East of England Ambulance Service *	North East London CSU *

** Where local health economy partners are also present in this geographical footprint and another geographical footprint, we are working together without boundaries to collaborate.*

++ Part of the collaborative group within the footprint called the Norfolk Provider Partnership.

The first plan was developed by North East London Commissioning Support Unit in June 2016. This second plan supersedes the first and is this document *Connected Digital Norfolk and Waveney.* The roadmap lays out a five-year plan to enable digital transformation and deliver joined up solutions to the current challenges faced by the NHS.

These national challenges as outlined in the *Five Year Forward View* are:

- The health and wellbeing gap
- The care and quality gap
- The finance and efficiency gap

Planning has been undertaken in line with national guidance[10] on the Local Digital Roadmaps which incorporates:

- Paper-free at the point of care
- Digitally enabled self-care
- Real-time analytics at the point of care
- Whole systems intelligence to support population health management and effective commissioning, clinical surveillance and research

[10] NHS England, https://www.england.nhs.uk/digitaltechnology/info-revolution/digital-roadmaps (accessed 4 October 2016)

Endorsement has been hand in hand with the Strategic Transformation Plan through individual organisation trust boards during September and October 2016 and the Norfolk Health and Wellbeing Board. A full list of approvals and endorsements is provided in section 11.1.

3.3 Leadership

Executive sponsorship is provided by the Chief Executive Officer of the Queen Elizabeth Hospital King's Lynn NHS Foundation Trust. A programme director has been appointed to provide leadership, strategic input, and guidance to the STP programme and to deliver the Local Digital Roadmap.

In line with recommendations from the recent *Wachter Review*[11] which looked at the successful adoption of health information systems in secondary and tertiary care in England and drew relevant comparisons with the US experience, the footprint is looking at Chief Clinical Information Officer roles.

Clinical leadership is recognised as a key component in the successful transformation across the Norfolk and Waveney footprint. The Norfolk and Waveney Local Medical Committee (LMC) have a place on meetings at all levels within the structure and to facilitate primary care involvement.

3.4 Agreement to implement

The seventeen organisations in the footprint must agree to implement the *Connected Digital Norfolk and Waveney*. The potential for the step change in digitally enabled transformation is significant and after agreement has been reached and the organisations are working together in collaboration the potential benefits from delivery are huge.

[11] Dr Robert Wachter, Making IT Work: Harnessing the Power of Health IT to Improve Care in England, https://www.gov.uk/government/publications/using-information-technology-to-improve-the-nhs/making-it-work-harnessing-the-power-of-health-information-technology-to-improve-care-in-england
(accessed 4 October 2016)

4 Delivering a connected digital Norfolk and Waveney

4.1 Vision and ambitions

The vision for *Connected Digital Norfolk and Waveney* is of **digital technology working for patients and the public so they can feel and be empowered by the information supporting their health and social care.** Three ambitions shape the vision and they will be part of every digital project and service improvement in the footprint. These ambitions are **digitally enabled individuals, quality improved care, and innovation through technology.**

Figure 8: Achieving the ambitions

Ambition	Look and feel by 2021
Digitally enabled individuals - We will build capability and support cultural change for all individuals so that patient connectivity to digital resource is enabled and our workforce is sustainable	There is equity of access through digital channels to patients and the public Patients and the public can access digital technology to help manage their own health and care conditions Patients can access expert advice at the point of care Using cultural change to work together differently across the region Provide digital skills for a sustainable workforce Staff are trained and on board with new ways of working so that digital is part of everyday Clinicians are supported by digital decision making tools and real time connections to clinical support networks
Connected quality care - We will join up the digital journey with the care pathway so that the information goes hand in hand with the patient	The patient tells their story once Care is delivered closer to home through targeted early interventions based on data driven decisions Using technology to transform our ability to predict, diagnose and treat disease Improved health and care pathways through the information flows along them happening in a way which is safe and in real time or near real time Whole system intelligence to support population health management and effective commissioning, clinical surveillance and research
Innovation through technology - We will collaborate and adopt digital technology which has the potential to transform so that the health and care economy has access to the best available innovations	Improved care, quality and experience through the delivery of paper free at point of care Enable the timely exchange of data and information across health and social care Ensure captured information is available for subsequent use by others. Reduce fragmentation and duplication, increase effectiveness of care coordination Using technology to transform our ability to predict, diagnose and treat disease Summarise care episodes and be able to place orders to or with other care professionals. Proactively monitor patient metrics to be alerted to a needed change in care

4.2 Digital top seven

Underpinning these three ambitions, which will carry into every programme and initiative in the digital health and social care in the footprint, are a supporting **digital top seven.** These are drawn from areas of potential excellence across our footprint combined with other initiatives which we need to begin.

In the footprint's journey towards Paper-Free at the Point of Care there have been other recent **significant achievements** which provide a strong foundation to enhance the capabilities of digital maturity and measure benefits on a more collaborative basis. These are:

1. **Digital patient** - Patients and where appropriate their families or carers have access to their care record. They are partners in their own care and able to self-manage where appropriate.

2. **Digital GP** - GPs have timely access to electronic data regarding any health and social care interventions which take place outside the immediate primary care setting. The digital GP is fully enabled with clinical decision support tools.

3. **Digital clinician** - The clinician and healthcare professional is working in an e-hospital where paper and data flows have been optimised, and the patient record is part of a wider shared record accessed by acute hospitals and the wider health economy.

4. **Community working** - The community healthcare professional, social care, and mental health therapist have access to real time or near real time data at and near the point of care. A different type of care is enabled through digital collaboration.

5. **Capability and change for digital** - Create a sustainable workforce which is attracting and retaining digital natives who will build health and social care for the future.

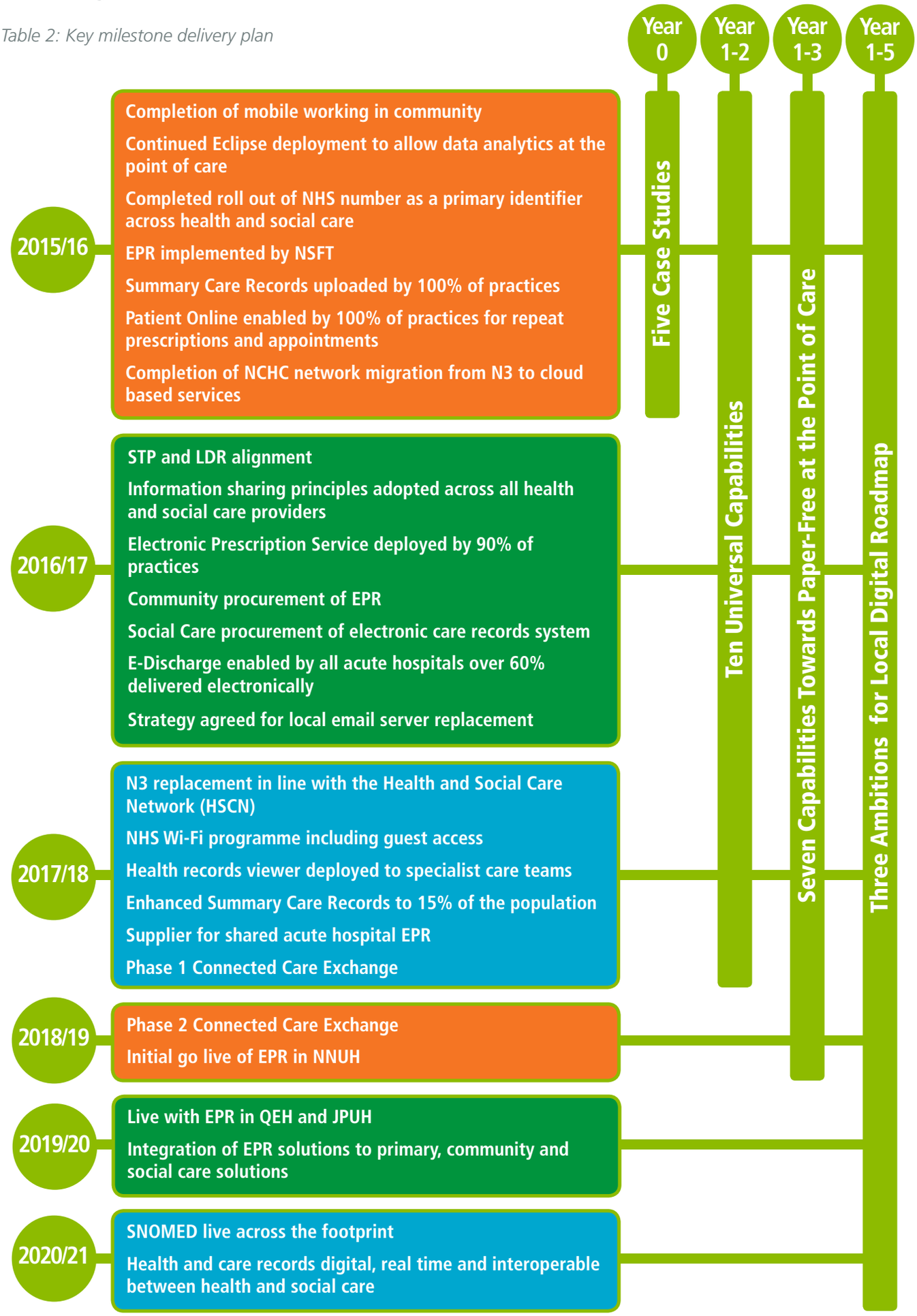
6. **Intelligence led healthcare** - There is whole systems intelligence to support population health management and effective commissioning, clinical surveillance and research. Real time analytics at the point of care support decision, and innovative research.

7. **Unified digital communications** - There is a standards based approach to infrastructure including, networks, email and digital innovation applications, to enable the workforce to log in and connect anywhere, and hold digital interactions using communication technology online.

Figure 9: LDR vision, ambitions, initiatives

4.3 Key milestones

Table 2: Key milestone delivery plan



4.4 Specific priorities for STP

In support of the STP there are specific enablers which are required to facilitate the shift to care closer to home. To support a healthy and robust acute service, the **e-hospital** will transform the way care is delivered from the acute hospitals. Meanwhile to support an increase in out of hospital care a **connected care exchange** will link up multiple care organisations using interoperability. **Intelligence led healthcare** is underpinned by business intelligence.

- **E-hospital** - There is a three acute EPR, running on up to date infrastructure, and operating cohesively with other shared and individual clinical systems. Medical imaging is consolidated where possible and the highest levels of specialist support are enabled through technology
- **Connected care exchange** - There are out of hospital hubs to support health and wellbeing where care can be delivered closer to the home. Connected Care Exchange which is an interoperable platform supporting access to multiple care records. Access to records is available to health and care individuals from multiple care settings
- **Intelligence-led healthcare** - There is a focus on digital which can support prevention and wellbeing, using business analytics to inform integrated commissioning. A shared business intelligence service can be accessed by multiple organisations. Access is through an appropriate view of the provider, commissioner, social care, academic researcher or patient level data across the footprint

Solutions are supported by underpinning infrastructure through **unified digital communications**. This includes buildings which are are digital by design. The opportunity will be assessed to deploy telehealth and telemonitoring into clinical specialties where appropriate, for example in dermatology services and acute residential care settings.

4.5 Investment

To ensure that *Connected Digital Norfolk and Waveney* and the three year aspiration to become Paper-Free at the Point of Care remain deliverable, **significant investment** is required. Section 5.1 sets out the digital baseline and the step change required.

Local provision, contracting and capital investment will deliver the steady state for the footprint. With additional funding we will be able to ensure significant progress towards digital maturity. Some local reinvestment of efficiency gains is anticipated however due to the scale of the footprint challenge additional sources of investment will need to be found to meet the step change.

Investment sources include:

- STP funding
- Driving Digital Maturity Fund £4.2 bn nationally
- Estates and Technology Transformation Fund £1bn nationally
- Local provider and commissioner IT budgets
- Better Broadband for Norfolk

4.6 Workforce capability to deliver

Norfolk and Waveney health and social care staff and the public are the people who will implement *Connected Digital Norfolk and Waveney*. There is an existing team of clinicians, allied health professionals, nurses, care staff, managerial and qualified staff, many of whom have been recognised for delivering good or excellent services across the footprint. Patients and the public are active through the voluntary sector which plays an active role, and as families, carers and individuals who self-manage their health and social care.

This footprint will continue to develop and train the health and care workforce in digital technologies, building capabilities to support patients and staff wherever possible. This means supporting individuals by building a sustainable workforce, through training in digital, and through more widely using technology where it can improve patient wellbeing, health and social care.

The LDR will create fantastic opportunities to create economies of scale within our deployment resources by making bigger teams with a wider requirement of skill sets.

With the help of the National Information Board and Health Education East of England, we will look to create a programme of pan-organisational secondments and delivery teams that build capability and resilience whilst creating more attractive opportunities.

4.7 Benefits and change

In order to achieve the step change effective leadership, change management and benefits identification and realisation is essential. The NHS Change Method[12] will be used for change management supported by NHS Improving Quality. We acknowledge delivering the STP will require significant change in culture and work practice. By working together across the system much can be achieved and digital has a key role to play as a high impact enabler for transformational change and integration.

Each initiative within *Connected Digital Norfolk and Waveney* will identify benefits before commencement as a condition of starting in the programme. A comprehensive set of tools is available to assist with this from NHS Improving Quality. The benefits of many of the digital changes will be felt beyond five years for example an Electronic Patient Record has a typical benefit timeline of twelve years.

4.8 Governance to deliver

The Digital Strategic Steering Group is responsible for delivery of this roadmap and has been meeting since October 2015. The group exists to share best practice in digital across primary and secondary care, social care, mental health, community and specialised care. Terms of reference have been signed off by the STP Executive Programme Board.

Within the East of England, other area footprints are part of the Digital Strategic Steering Group. Membership and inclusion across borders facilitates stronger links to other areas forums such as the Suffolk Informatics Partnership and builds resilience across the East of England.

[12] NHS Improving Quality: http://www.nhsiq.nhs.uk/media/2402127/nhs_change_model_july2013.pdf (accessed 9 October 2016)

The existing structure has served a purpose to date in developing the plans for the LDR. As we move to delivery it is anticipated other workstreams will emerge. Current (shown as blue) and indicative (shown as green) future workstreams are illustrated in the table and diagram below:

Figure 10: Connected Digital Norfolk and Waveney - structure for delivery

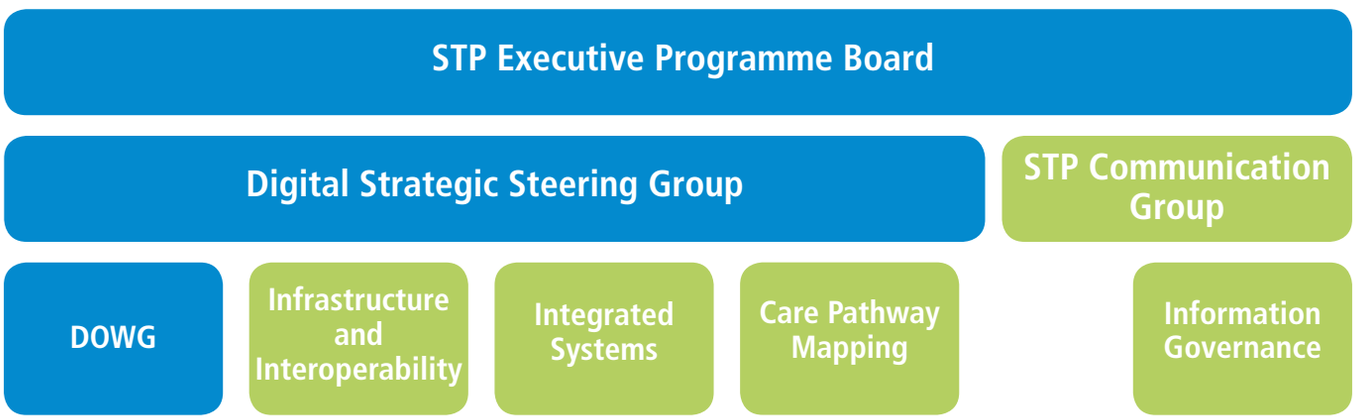


Table 3: Connected Digital Norfolk and Waveney - boards for delivery

Board or committee	Local digital roadmap delivery role
STP Executive Programme Board	Provide overarching leadership and governance at CEO and CAO level across the footprint for STP level where there are a portfolio of programmes, one of which is the LDR
Digital Strategic Steering Group	Provides CIO, Head of IM&T and CCIO level leadership and strategic oversight of the footprint digital transformation programme
STP Communications Group	Provides patient and public engagement as part of the footprint transformation programme
Digital Operational Working Group (DOWG)	Operational group to input in to the five year transformation journey, and deliver the two year Universal Capabilities which are part of the LDR
Infrastructure and Interoperability	The technical standards group responsible for initiatives converging over five years
Integrated Systems	The group responsible for synergies in applications and systems including EPR
Care Pathway Mapping	The business analyst group responsible for mapping and redesigning the information journey along the care pathway between organisations
Information Governance	Closely linked with the Communications Group, this group is responsible for information sharing which is safe

In addition to these boards other committees have a key role. The Norfolk Health and Wellbeing Board, and the Suffolk Health and Wellbeing Board (for Waveney) are important regional forums for engagement and endorsement. District Councils have a key role to play too.

It should be noted the Digital Strategic Steering Group is a footprint wide forum including social care and third sector. It does not replace individual provider boards or CCG governing bodies and their internal IM&T steering groups, which exist for ongoing delivery.

5 Capability for paper-free

5.1 Paper-free at the point of care

The NHS providers in Norfolk and Waveney have historically approached digital strategies separately, with the result that our care settings and providers are at varying stages in levels of digital maturity. However the overall position for the footprint as a whole is not favourable compared to the national position, as illustrated in the Digital Maturity Self-Assessment completed in 2016[14]. This assesses the current position in respect of readiness, capabilities and infrastructure, and in all categories Norfolk and Waveney footprint is below the national average levels.

Table 4: Norfolk and Waveney NHS provider baseline (Feb 2016)

		Score / 100 self-assessment		
		Readiness	Capabilities	Infrastructure
East of England Ambulance Service NHS Trust	EEAST	41	34	88
James Paget University Hospitals NHS FT	JPUH	57	20	36
Norfolk and Norwich University Hospitals NHS FT	NNUH	51	33	61
Norfolk and Suffolk NHS FT	NSFT	34	31	30
Norfolk Community Health and Care NHS Trust	NCH&C	72	45	70
The Queen Elizabeth Hospital King's Lynn NHS FT	QEH	35	14	32
Footprint average:		48	29	53
National average:		73	40	68
Gap to national average:		25	11	15

Key
- above national average
- less than 10% below national average
- more than 10% below national average

Whilst these self-assessments are subjective, the picture does indicate a level of under-investment in technology across the footprint in recent years. There is significant work required to ensure that organisations have the capabilities to optimise digital services; however it is clear that the innovative use of technology is critical to bringing care closer to the patient, and to enable the sharing of information between clinical professionals to support that care.

Some steps have been taken in recent years to improve the digital infrastructure and inter-operability, for instance:

- Primary care services across the footprint use two clinical systems
- Community services for a significant part of the footprint utilise a clinical information system that interoperates with primary care (SystmOne)
- The mental health provider has recently implement and new clinical information system, and the local authority has also recently completed a procurement for a social care system

[14] NHS England: https://data.england.nhs.uk/organization/nhs-england-technology-strategy (accessed 9 October 2016)

5.2 Rate limiting factors

Some key rate-limiting factors within the existing digital infrastructure have been identified as follows:

Acute trust infrastructure - Currently the three acute trusts do not have systems that are fully fit for interoperability, and have a legacy of separate and multiple departmental systems, a shortage of end user equipment (particularly in unscheduled care settings), and heavy reliance on paper and aging infrastructure. This does not allow clinicians to view any type of shared record, and an increase in availability of access to IT systems could lead to a better uptake of SystmOne viewer outside of pharmacy teams. The need for effective business and clinical transformation cannot be underestimated, as from experience this can be the difference between success and failure and the resource costs for this transformation need to be included in the overall programme costs. Resourcing and funding for digital system deployment within the acute trusts is of a high concern as it is generally accepted that an acute EPR will take at least 100 people at least 2 years to implement.

Mobile working - Providers and general practices are looking at using mobile data so that their information can be accessed and used at the point of care. However we know that parts of Norfolk and Waveney suffer from poor mobile signal that may impact on the solutions available. This should not stop mobile solutions as most of the population is covered, with mostly rural lower population areas having less connectivity.

5.3 Analysis by capability group

Paper-free at the Point of Care by 2020 is a national NHS ambition about ensuring that health and care professionals have access to digital information that is more comprehensive, more timely and better quality, both within and across care settings. In other words, it is about eliminating paper processes and records that cause inefficiency and delays in the provision of patient care.
The scope is defined by seven groups of capabilities.

The baseline position of most providers measured against the seven groups of capabilities of most providers within the Norfolk and Waveney footprint was determined within the national digital maturity self-assessments conducted in February 2016. Results for primary care and social care are fundamental component parts of the LDR. Results will be reflected in the baseline and trajectories when they are released (see section 2.4). For each capability group the provider scores and footprint average are compared to the national average levels.

Table 5: Combined NHS provider baseline (February 2016)

Capability group	Score / 100 self-assessment							
	National Average	Footprint Average	NNUH	JPUH	QEH	NCH&C	NSFT	EEAST
Records, assessments and plans	44	33	23	20	13	61	35	43
Transfers of care	49	42	37	22	0	58	31	62
Orders and results management	52	43	62	38	27	53	35	0
Medicines management and optimisation	29	20	46	2	16	21	23	9
Decision support	36	25	14	6	6	53	33	38
Remote care	33	20	25	25	17	17	17	0
Asset and resource optimisation	42	29	25	30	15	20	25	56

above national average
below national average but above footprint average
below national average and footprint average

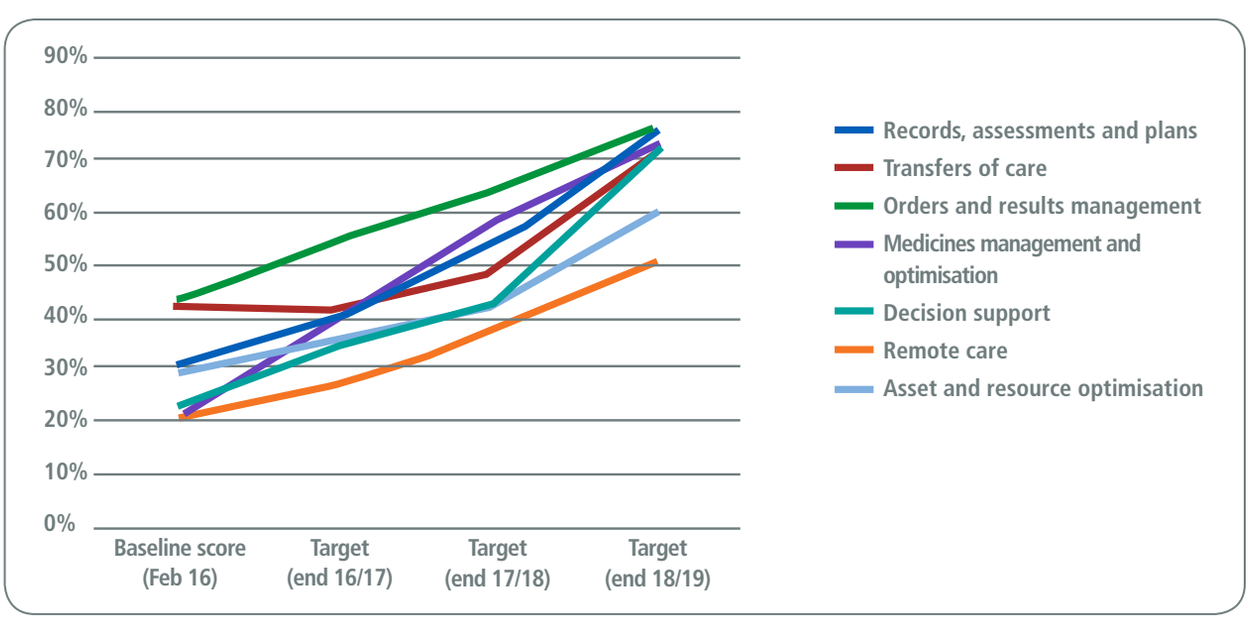
5.4 Planned trajectory and deployment schedule

This position is expected to improve significantly for each capability over the period to 2020 as shown in the following summary trajectory for the whole footprint:

Table 6: Footprint trajectory to 2019

Capability group	Score / 100 self-assessment			
	Baseline score (Feb16)	Target (end 16/17)	Target (end 17/18)	Target (end 18/19)
Records, assessments and plans	33	40	54	76
Transfers of care	42	36	49	71
Orders and results management	33	55	64	77
Medicines management and optimisation	20	39	59	73
Decision support	20	34	43	72
Remote care	20	27	37	51
Asset and resource optimisation	29	33	42	60

Figure 11: Footprint trajectory to 2019



Individual organisations plan to progress at different rates over the next three years in the respective capabilities and these have been summarised in the capability tables 7 to 13 as shown below.

5.4.1 Capability - records, assessments and plans

Table 7: Capability - records, assessments and plans

The ability to record patient / client / service user information in a structured electronic format which can be shared		
Current baseline at February 2016 - 33%		**To be by March 2019 - 76%**
	Current Initiatives	**Planned Initiatives**
In Hospital	Linking key electronic records to the Spine, and enabling midwives to view ultrasound records within their clinical system	With the implementation of a shared EPR by 2020, acute clinicians will be able to manage and plan care using an integrated suite of electronic care records systems
Out of Hospital	Social Care teams will be able to view the mental health electronic record	Social care teams will utilise NHS Patient Demographic Service integration to align social care recording more closely with NHS data. NHS staff can access a portal to view and update parts of the social care record NHS unscheduled care settings will be able to access child protection information
Digital patient **Digital GP** **Digital clinician and healthcare professional**		**Community working** **Intelligence led healthcare**

5.4.2 Capability - transfers of care

Table 8: Capability - transfers of care

To facilitate the transfer if a patient's care between health and social care settings in an electronic form		
Current baseline at February 2016 - 42%		**To be by March 2019 - 71%**
	Current Initiatives	**Planned Initiatives**
In Hospital	Urgent and emergency care clinicians will be able to view child protection information for vulnerable children	PACS expansion to include enhanced image sharing and reporting. With an EPR comes summarised views of acute patient information to acute and community clinicians and GPs
Out of Hospital	GPs will be able to make electronic referrals and receive majority of discharges electronically from acute and community providers	The social care case management system enables integration with health systems through interoperability Data sharing between systems has been developed with new open standards
Digital patient **Digital GP** **Digital clinician and healthcare professional**		**Community working** **Intelligence led healthcare**

5.4.3 Capability - orders and results management

Table 9: Capability - orders and results management

The ability to electronically order diagnostic tests for an individual with results being reported to the requester in an electronic format		
Current baseline at February 2016 - 43%		To be by March 2019 - 77%
	Current Initiatives	**Planned Initiatives**
In Hospital	Acute clinicians will be able to order and receive pathology test results electronically and receive notifications on mobile devices	With an EPR comes the ability to be able to order pathology and radiology tests and view results across the system
Out of Hospital	GPs will be able to order and receive radiology results electronically. mental health clinicians can order and see results as part of the integrated patient record	Through the connected care exchange messages can be passed along clinical care pathways
Digital patient Digital GP Digital clinician and healthcare professional		Community working Intelligence led healthcare

5.4.4 Capability - medicines management and optimisation

Table 10: Capability - medicines management and optimisation

Utilising capabilities to safely and effectively prescribe and dispense medications through the use of technology		
Current baseline at February 2016 - 20%		To be by March 2019 - 73%
	Current Initiatives	**Planned Initiatives**
In Hospital	Clinicians will be able to prescribe electronically, including Oncology medications	With the implementation of a shared EPR comes potential for acute clinicians, GPs, OOH and 111 and community staff to prescribe electronically and view prescribing histories for patients online
Out of Hospital	Clinicians will be able to prescribe electronically across mental health services and GP practices	Mental health therapists will be able to prescribe electronically across the Suffolk footprint too
Digital patient Digital GP Digital clinician and healthcare professional		Community working Intelligence led healthcare

5.4.5 Capability - decision support

Table 11: Capability - decision support

Providing health and social care professionals with the access they need at the point of care (both patient level and professional evidence based resources) with capability to alert based upon risk		
Current baseline at February 2016 - 25%		To be by March 2019 - 72%
	Current Initiatives	**Planned Initiatives**
In Hospital	All clinicians will be able to view the Summary Care Records (including enhanced records) and use SystmOne viewer to see primary care records	Electronic observations solutions will gather patient information and provide alerting and decision support for acute clinicians
Out of Hospital	Mental health clinicians will be able to view Summary Care Records and use electronic patient record decision support tools	NHS staff will be able to access a professional portal allowing them to view and update parts of the social care record
Digital patient **Digital GP** **Digital clinician and healthcare professional**		**Community working** **Intelligence led healthcare**

5.4.6 Capability - remote care

Table 12: Capability - remote care

Provide patients with the ability to remotely access their records, book appointments and take control of their care via the use of technology		
Current baseline at February 2016 - 20%		To be by March 2019 - 51%
	Current Initiatives	**Planned Initiatives**
In Hospital	Clinicians will be able to use Wi-Fi everywhere, and contact each other and patients with Skype for MDTs	Mental health therapists will be able to support patients remotely to manage their own conditions, using telehealth solutions and mood diary apps
Out of Hospital	Community midwives and dieticians will be able to access systems remotely in patient homes and clinics	Citizens will be able to access a citizen portal allowing patients more control of their own care through resources and guidance, on-line interaction with social care processes, and access to their social care record Social care staff will be able to work more flexibly with mobile devices, connectivity and applications Citizens will be able to access the internet more easily through high-speed broadband
Digital patient **Digital GP** **Digital clinician and healthcare professional**		**Community working** **Intelligence led healthcare** **Unified digital communications**

5.4.7 Capability - asset resource optimisation

Table 13: Capability - asset and resource optimisation

Utilising technology to support the management of the effective use of resources (eg staff, bed status, assets)		
Current baseline at February 2016 - 29%		To be by March 2019 - 60%
	Current Initiatives	Planned Initiatives
In Hospital	Clinicians will be able to use e-Rostering systems so best manage resources, access Wi-Fi for remote access to records, and improve patient flow using a clinical utilisation review system Bed management systems will optimise the use of beds and patient flow, using real time data	Through converging unified digital communications and use of Wi-Fi in any NHS premises, there is potential for asset tracking to ensure efficiency and locate equipment
Out of Hospital	Visiting staff will be able to use acute hospitals' Wi-Fi. Mental health staff will have bed management tools to improve bed usage	Norfolk First Response service, which helps with short term planned and unplanned needs, will be able to use electronic rostering via mobile devices
Digital patient Digital GP Digital clinician and healthcare professional		Community working Intelligence led healthcare Unified digital communications

The approaches to improving these capabilities are reflected in the following sections that describe the key deployment activities across the footprint.

6 Universal capabilities

6.1 Ten national universal capabilities

As part of the LDR guidance there are ten digital universal capabilities which apply to every area covered by NHS England. These represent a two year plan up to March 2018 designed to facilitate progress in joining up the local health and social care economy through better use of the existing digital services already available. The universal capabilities are:

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

B. **Clinicians in urgent care settings can access key GP-held information for those patients previously identified by GPs as those likely to present**

C. **Patients can access their GP records**

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 are 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**

6.2 Universal capabilities mapping

For the purposes of local planning and implementation, the universal capabilities have been aligned to the three *Connected Digital Norfolk and Waveney* ambitions which they help to enable; digitally enabled individuals, connected quality care and innovation through technology. More effective use of information underpins delivery of the universal capabilities and this section groups them into themes, with a summary of the key information in each.

Table 14: Mapping universal capabilities to ambitions

UC	Delivery Method	Information Contained	Enabler for Ambition
A	Summary Care Record	Medications Allergies Adverse reactions	Connected quality care
B	Enhanced Summary Care Record	Significant medical history Reason for medication Anticipatory care information Communication preferences End of life care information Immunisations	Connected quality care
C	Digitally enabled self-care	Patient access GP record	Digitally enabled individuals
D	Electronic Referrals Service	Referral information	Innovation through technology
E&F	Digital Clinical communications	Discharge Summaries, assessment, withdrawal notices	Innovation through technology
G	Child Protection Information Sharing (CP-IS)	Child protection information	Connected quality care
H	Enhanced Summary Care Record	End of life preferences	Connected quality care
I	Digital Clinical communications	Electronic prescriptions	Innovation through technology
J	Digitally enabled self-care	Online appointments and repeat prescriptions	Digitally enabled individuals

The three groups are taken one by one in the sub-sections below which describe the baseline and aims for March 2018.

6.2.1 UC - connected quality care - shared electronic patient record

Table 15: UC - shared electronic patient record

Shared Electronic Patient Record	Universal Capabilities A, B, G, H

Footprint context

The five CCG's and providers within the Norfolk and Waveney LDR have a firm track record of information sharing. Considerable time has been spent to develop a single information sharing framework, and there are plans in place in 2016 to develop a single information sharing agreement, to cover all information sharing needs including patient records where needed

Baseline

Across Norfolk and Waveney 100% of consented patient records have been uploaded to the Summary Care Record (SCR), 1.2 % of patients have opted out of SCR. All the acute hospitals, out of hours, walk in centre and ambulance service are viewing SCRs. The community providers use SystmOne and NSFT use Lorenzo both have SCR viewing embedded within the systems. 111 and the Out of Hours (OOH) service have access to SCR through the CLEO system

Across Norfolk and Waveney 28,000 patients have an enhanced summary care record. Over 80% of the GP Practices in Norfolk and Waveney use SystmOne, as do both of the community providers and integrated palliative care teams in East and West. Both have a long standing programme of sharing this information across care settings including through the use of SystmOne Viewer with the acute hospitals. Take up of the use of this facility by the acute hospitals has been slow, a programme has been planned to increase the use of SystmOne Viewer

Palliative care information is shared by enhanced summary care records, SystmOne Viewer and "Share my Care" in to the CLEO system for out of hours. The integrated palliative care team in West Norfolk holds a record of all current palliative care patients that is available by a single point of contact phone number

West Norfolk, North Norfolk and Great Yarmouth & Waveney CCG's use "Eclipse" which hold a subset of the patient's GP record, this is used to look for opportunities to reduce adverse outcomes. This includes; risk stratification software that identifies patients at risk of exacerbations and a prescribing analytical interface to identify potential harm from prescription drugs

Child protection information is currently recorded in SystmOne by health visitors and school nurses and available to view via the SystmOne viewer. Currently seeking out of this information by care professionals is a manual process not an automated technical solution

Aim

While acknowledging that Norfolk and Waveney have a considerable journey to create a comprehensive integrated digital care record, moving forward we have significant ambitions in this area. We are working on improving digital interactions between primary and secondary care

A test is being carried out in West Norfolk using Eclipse, this has an enhanced summary of a patients GP record: diagnoses, medications, test results, procedures, any medical interaction that has been coded, including end of life care and DNAR status. This information is currently being used by the diabetes, COPD, heart failure and foot care teams at the local acute hospital. North Norfolk and Great Yarmouth CCG's also have Eclipse and if the West Norfolk test is successful further roll-out would be considered in to these areas

Enhanced Summary Care Records will be targeted for specific cohorts of patients, focussing initially on end of life and avoiding unplanned admissions registers. Further work will then identify those patients with long term conditions and complex care needs. A team of GP IT facilitators work across Norfolk & Waveney with practices to assist and support them in the process of creating enhanced Summary Care Records

6.2.2 UC - innovation through technology - digital clinical communications

Table 16: UC - digital clinical communications (part 1)

Digital Clinical Communications	Universal Capabilities D, E, F, I
Footprint context There is significant benefit in increasing the use of digital clinical communications, improving the timeliness and quality of digital communications between different settings of care We see this improvement as essential in helping to close the "care and quality gap" as well as the "funding and efficiency gap", resulting in increased safety and reducing duplication. We plan to achieve this through a number of ways, including digital communications in a coded and structured way, linked to clinical systems used by frontline staff The areas of focus are, e-discharge summaries, e-referrals, messaging between the acute trusts and social care to support safe and timely discharge and electronic messaging between primary care and others, including e-prescribing	
Baseline Across Norfolk and Waveney e-discharge is established and progressing well, the acute trusts have begun working within their systems to deliver discharges from inpatients and day cases. Extending to paediatrics and obstetrics as the year progresses. The discharges contain the agreed data set, which complies with the Academy of Medical Royal Colleges headings. Fax is still used by several providers, though the discharge itself is generated electronically, automatic solutions are being investigated	
Aim By March 2018 our aim is for 80% of paper in the discharge and outpatient notification process to be removed, with all communications to be done digitally, structured, coded and linked into clinical systems The benefits we see from accomplishing this would be: • Timely availability of consistent information at the point of use due to increased interoperability between systems would lead to improved patient care • Reduction in risk of not having appropriate clinical information. i.e. drug changes on discharge • Reduction in costs by removing administrative burden of scanning/re-keying/attaching information • Reduction in maintenance and space for paper records	

Within this theme there are further sub-sections as follows:

6.2.3 UC - digital clinical communications - e-referral

Table 17: UC - digital clinical communications (part 2)

Digital Clinical Communications	Universal Capabilities D
E-referral	
Footprint context Our aim is for every referral from primary care to be created and transferred electronically. Every patient will be presented with information to support their choice of provider and appointment date and time	
Baseline Across Norfolk and Waveney e-referral is used across the health care system, more than 75% of all referrals are made using e-referral. Whilst there is a high rate of electronic referrals within the footprint, the number of appointments booked via this route is substantially lower due to lack of capacity within providers. Every patient is presented with information to support their choice of provider. Mental health have not had a previous requirement to implement e-referrals but are looking at this within future plans	

continued over page

Aim

Our ambitions for e-referrals are:

- 75% of referrals to be made electronically by 16/17 and 85% by 17/18
- Increase in the number of directly bookable slots across all providers
- Adoption of NHS digital transfer of care CDA message specification by 17/18

6.2.4 UC - digital clinical communications: between acute trusts and social care

Table 18: UC - digital clinical communications (part 3)

Digital Clinical Communications
Between Acute Trusts and Social Care
Footprint context Norfolk County Council has recently completed a procurement exercise for a new social care system. Specification for the system was jointly developed by NCC and a panel representing health care providers, this was to ensure the functionality of the new system would match the needs of both social care and health care
Baseline Norfolk County Council is replacing their existing social care system which will increase the ability for health and social care integration. All three of the acute hospitals are scheduled to replace their EPR systems, which will give a modern, stable platform for health and social care integration. In the interim Norfolk and Waveney are looking to optimise the use of existing systems to provide some digital integration for health and social care
Aim Our aim for digital communications between acute trusts and social care is to enable the sharing of hospital admission and discharge information to replace assessment notifications and social care discharge notifications. This ambition will: • Support closer working with the community care team and hospital teams in planning for patient discharge • Testing the daily uploading of admission and discharge information for the Queen Elizabeth Hospital into a SQL database. This provides a searchable data segmented by patient. We have built up 9 months of data which is now being able to deliver a picture of those patients that are high users of the service. This is being shared with the integrated care coordinators provided by the community provider and social care, this will allow them to target the most appropriate people in the MDT meetings with the GPs • We are investigating the possibility of capturing the same data from the remaining 2 acute hospitals. We would then link this information to the patients GP record and hospital SUS data to provide a better picture of the needs of the patient, as well as measurement of outcomes of interventions • Migrate all providers to NHSmail2 or similar to facilitate safe secure transfer of electronic patient information

6.2.5 UC - digital clinical communications - between GP practices and community pharmacies

Table 19: UC - digital clinical communications (part 4)

Digital Clinical Communications	Universal Capabilities I
Between GP Practices and Community Pharmacies	
Footprint context Our aim for e-prescribing between GP practices and community pharmacies is for all prescriptions to be sent using the national Electronic Prescribing Service (EPS)	
Baseline At February 2016, 100% of practices in Great Yarmouth & Waveney CCG and 30% of Norwich CCG practices were enabled with EPS	
Aim Our ambitions for e-prescribing are for: • 80% of practices will be enabled to transfer repeat prescriptions electronically by March 2017 and 100% by March 2018 • Working with medicines management teams to increase the uptake of EPS, currently 65% of non-dispensing repeat prescriptions are electronic. We would work to increase this to 80% by March 2018 • Enable repeat dispensing for all practices • EPS integration for 111 and OOH will be enabled as soon as functionality is available	

6.2.6 Digitally enabled individuals - digital enabled self-care

Table 20: UC - digital clinical communications (part 5)

Digital Enabled Self-Care	Universal Capabilities C, J
Footprint context Our digital aim of enabling our citizens includes interacting with services online, patients can manage their care through electronic booking of appointments, ordering repeat prescriptions, and to access their GP record	
Baseline • All GP practices in Norfolk and Waveney have enabled their clinical systems to allow patient access to their detailed care record • All Norfolk and Waveney GP practices have enabled patients to book or cancel, appointments online	
Aim • By March 2017 10% of registered patients within each practice will have a patient online account. This will increase to 25% by March 2018 • All the GP practices will allow online ordering of repeat prescriptions • Use our 4 GP IT facilitators to work with practices and patient groups to increase patient online activity	

6.3 Universal capabilities summary

Together these themes of universal capabilities provide a two year timeframe for the NHS and social care to maximise the value from current initiatives and investment. Through such optimisation much can be achieved to add value quickly and even more so with a co-ordinated footprint approach.

7 Information sharing for a connected digital Norfolk and Waveney

7.1 Information sharing context

In order to deliver *Connected Digital Norfolk and Waveney*, commissioners, providers and others will need to share relevant information about patients within an appropriate governance framework.

Across the Norfolk and Waveney footprint, providers hold patient information in a range of different systems, each of which has its own capabilities in respect of information sharing.

Information sharing is essential to support integration of services and the implementation of new models of care. Within Norfolk and Waveney the need to have robust, timely and good quality driven information about an individual or cohort of individuals is vital.

7.2 Norfolk information sharing protocol

Within Norfolk and Waveney we have developed a Norfolk information sharing protocol which sets out the principles for information sharing between partner organisations. There are currently over 30 partner organisations signed up to the protocol, covering all the participants in the LDR. The protocol identifies the rules that all partner organisations must follow when using and sharing information this is summarised below:

- Role based access: levels of access to information is based on roles or service profile
- Consent and opt out: information is shared following the guidance in the Caldicott 2 and 3 guidance as is the right to opt out of sharing information
- Exclusions: sensitive information is excluded from the sharing model
- Mandatory training: information governance training is included in the mandatory training for all staff
- Contractual terms for employees: information governance compliance is a contractual condition within their employment
- Monitoring and evaluation: ongoing monitoring and evaluation of both the framework and its effectiveness is undertaken
- Patient and public involvement: Patients and the public have been given an opportunity to consult, debate and inform the approach to sharing for the purposes of providing direct care

This enables the parameters for the safe and secure sharing of information and will be reviewed regularly to ensure latest guidance is embedded.

7.3 Information sharing through universal capabilities

Furthermore the universal capabilities currently deliver limited information sharing notably;

Table 21: Provider access to information enabled by universal capabilities

UC	Delivery Method	Information Contained
A	Summary Care Record	Medications Allergies Adverse reactions
B	Enhanced Summary Care Records	Significant medical history Reason for medication Anticipatory care information Communication preferences End of life care information Immunisations
D	Electronic Referrals Service	Referral information
E&F	Various	Discharge Summaries
G	CP-IS	Child protection information
H	Enhanced Summary Care Records	End of life preferences

This profile remains limited however, for several reasons;

- Providers - the universal capabilities do not extend to all providers within the footprint, limiting their effectiveness
- Information - the patient information, whilst valuable, is not an exhaustive list of required data for clinicians to be as effective as possible
- Timeliness - the patient information is either provided as part of a triggered workflow (eg on referral) or requires the clinician to actively check a secondary source (eg SCR). This does not provide a 'live' view of a holistic patient record and does not lend itself to use for proactive decision support tools
- Direction - most of the patient information provided within the universal capabilities is 'one-way', providing a view of data within another system. The SCR, for example, only allows a view for secondary care providers of primary care information, the reverse is not true
- Read only - most of the universal capabilities provide a view of patient information, but not the ability to write back to originating systems

7.4 Detail of the way forward

The demand for information sharing and data agreements will only accelerate as new models of care come to be in place. This could create a significant administrative burden to keep track of and implement data sharing agreements. Hand in hand with national work, Norfolk and Waveney will adopt a comprehensive data sharing agreement between all relevant partner organisations.

Norfolk and Waveney will work with its citizens to ensure that their views are at the centre of the work to create an integrated digital care record. Involving citizens in the discussion will help inform the project as to the structure and consent models used. Early engagement is underway with the public at individual partner organisations, we will collate this information and use it to help communicate the recorded outcomes. Communications will continue to follow the multi-platform approach of online presence, social media, local press, public meetings, posters and leaflets to promote our work to as wide as audience as possible. This activity will be supported via the Information Governance group.

7.5 NHS numbers and standards

Across Norfolk and Waveney the current adoption of the NHS number as a primary means of identification for patients under the care of health providers is universal. Health organisations have adopted the requirements set out in ISBO149-01 and ISBO149-02 information standard boards.

Across social care a high percentage of clients NHS numbers are known and being recorded, greater than 95% of clients' records now have NHS numbers. Progress will continue to be made to increase NHS number adoption.

- NHS Number – critical to the accurate identification of patients, this is currently well adopted across the LDR footprint
- Ambulance services development programme over the next 12 months include viewing of Summary Care Records which will result in the identification of the NHS number for this purpose

7.6 SNOMED CT

Our understanding of SNOMED CT :

- A standardised, multilingual vocabulary of terms relating to the care of the individual
- Enables the representation of care information consistently, reliably and comprehensively as an integral part of the electronic care record
- Will support the recording of information to enable decision support such as care pathway management and drug alerts
- Will support effective detailed analysis of care information to support care of individuals and of populations

Norfolk and Waveney has the ambition to embed the communication for the planned move to adopt a single terminology, SNOMED CT. We will confirm there is a plan that the primary care systems adopt SNOMED CT by the end of December 2016 contained within GPSoC contract. We will work towards the goal that the entire health system should adopt SNOMED CT by April 2020, and work with local authorities to understand and address the implications of this for social care.

8 Infrastructure NHS and social care unified digital communications

8.1 Baseline

This section looks at the adoption and adherence of NHS and social care technology standards across the Norfolk and Waveney footprint by reference to case study examples of successful initiatives which embrace collaborative working and are enablers to wider transformation towards digital maturity.

The network infrastructure across Norfolk and Waveney has been diverse in both its nature and maturity. Currently within Norfolk and Waveney health and social care there are varied approaches with the current infrastructure footprint comprising of N3 Community of Interest Network (COIN) and traditional N3 catalogue network services, with well-established Public Services Network compliant networks.

One specific current initiative already underway is to jointly adopt a secure email solution across the main providers which would be a significant contribution in delivering elements of the LDR themes.

8.2 Moving forward

The infrastructure strategy will align to support the **digital top seven**. All elements will provide a best in class data network for connected services. The infrastructure strategy will focus on user requirements rather than physical locations and not be tied to organisational boundaries; a connect anywhere approach for a connected care area network (CCAN). This is a core principle which will ensure technologies can cater for organisational changes in the future, whilst driving down implementation timescales and costs. It will build on existing integration activities already in place.

The infrastructure will be capable of supporting existing and future requirements. Each and every network element will be resilient, highly available and deliver data in a secure and accessible way to ensure that care of patients and service users is not compromised. By developing an infrastructure strategy, which adheres to a common interoperable standard, we can ensure all health and social care practitioners can:

- Access all appropriate clinical and corporate systems for their role from any social care or health care building using Wi-Fi on any device
- Access all appropriate clinical and corporate systems for their role from a non-work setting e.g. patient or staff homes
- Utilise secure communications such as email and cross organisation calendar sharing
- Access integrated infrastructure for video and audio, instant messaging and flexible telephony

A modern infrastructure must also cater for interactions with patients and public. This will empower the individuals and help drive increased engagement in health and self-care. For the engagement to be successful it must be sufficiently simple, interesting and convenient to become a regular activity e.g. public access to records and the ability to carry out common health care transactions.

8.3 Infrastructure enablers

Table 22: Infrastructure strategy key enablers

Initiative	Description
N3 networks aligned to HSCN developments	Providing Norfolk and Waveney with next generation network connectivity, using virtual networking for interoperable secure connections to social care networks and broader public sector services
Shared Wi-Fi Access	Enabling health and social care staff to connect to corporate Wi-Fi across Norfolk and Waveney. Agreed common standards for ubiquitous SSID using federated security
Public/Guest Wi-Fi	Develop a programme to provide public/guest Wi-Fi for patient and citizen access
Secure Email	Support common email platforms for secure communication
Integrated Infrastructure	Innovative means of communication for staff and patients using collaborative tools. Use of video and voice conferencing for 1:1 or multi-discipline consultations. Instant messaging and VoIP from any site
Cybersecurity	A common approach to protecting NHS digital assets from the threat of cyber attack. Use of CareCert

9 Risks

9.1 Minimise risks of digital

In order to minimise risks arising from digital, Norfolk and Waveney will adopt key principles in order to achieve a position where robust plans, policies and procedures are in place for organisations across the local health and care system to minimise risks to patient safety and organisational reputation associated with the use of technology. An example of this is a current programme to train clinical safety officers across the footprint. By having clinical safety officers engaged in the development and implementation of our digital ambitions, focussing on clinical process redesign, patient safety and clinical governance, will ensure digital technologies are fit for purpose.

Features of the risk minimisation:

a) Confidentiality

i. Use of N3 and health and social care network
ii. Virtual Private Network (VPN) technology where secure remote access is needed.
iii. Encryption (for example, as provided with NHSmail 2)
iv. Ensuring all web portals use https (padlock)

b) Integrity

i. Use of national systems already built/procured to necessary standards
ii. Adherence to national standards such as GS1 incorporated within barcodes and Radio Frequency Identification (RFID) are increasingly used to provide improved patient safety, deliver greater regulatory compliance and drive operational efficiencies
iii. Adherence to National Data Guardian review that will provide a set of leadership responsibilities and data security standards – for example, that a strategy is in place for protecting systems from cyber-threats based on a proven framework such as Cyber Essentials, and that unsupported operating systems, software or internet browsers are not being used within the IT estate
iv. Upskilling staff in cyber security awareness and resilience, for example through industry standard best practice training to help organisations improve their cyber resilience and protect themselves from cyber-attack – this training is closely aligned to IT Infrastructure Library (ITIL) service management good practice and therefore will be a natural extension of existing good practice learning and development

c) Availability

i. Interoperability across the entire Local Digital Roadmap
ii. Organisations use of approved hosted solutions meeting NHS security standards
iii. Sharing infrastructure, facilities and resources particularly where the latter are hard to recruit and retain within public sector constraints

10 Summary

This LDR represents a significant cultural and technological transformation plan. As with other industries, it will liberate and disrupt our health and social care economy. Whilst it represents huge recent collaborative efforts, we recognise this LDR demands a scale, pace and impact of a magnitude yet seen in the NHS.

The shape of the health and social care economy over the lifetime of the digital roadmap will change. The transformation work through the STP builds on work undertaken by local economies. This work is co-designed with front line clinicians and has a relentless focus on patient benefits.

The development of the LDR has been a collaborative approach with significant contributions made by all local health and social care organisations in the footprint outlined in section three of this document.

The LDR is a cornerstone of our service transformation work. Without high quality digital care, our system simply will not be able to operate or achieve the level of transformational change we aspire to. Our fundamental aim is to improve the health and wellbeing of the population we serve. The LDR gives us the opportunity to create digitally enabled individuals, connected quality care and innovation through technology.

11 Governance

11.1 Approval and endorsement

As required by NHS England and local agreement, this Local Digital Roadmap has been approved at provider trust boards and the CCG governing bodies as part of the governance. Other governance partners have endorsed the principles of the document.

The shape of the health and social care economy over the lifetime of the digital roadmap will change. The transformation work through the STP builds on work undertaken by local economies. This work is co-designed with front line clinicians and has a relentless focus on patient benefit.

Table 23: Trust, CCG and partner endorsement

Main Providers	Action	Date
James Paget University Hospital	Approve	21 October 2016
Norfolk Community Health and Care	Approve	19 October 2016
Queen Elizabeth Hospital, Kings Lynn	Approve	18 October 2016
Norfolk and Norwich University Hospital	Approve	18 October 2016
Norfolk and Suffolk Foundation Trust	Approve	20 October 2016
East Coast Community Health	Endorse	18 October 2016
Integrated Care 24	Endorse	
Governance Partners		
Norfolk County Council	Approve	17 October 2016
STP Executive Board	Approve	12 October 2016
STP Clinical Reference Group	Endorse	18 October 2016
Norfolk Independent Care	Endorse	23 September 2016
Local Medical Committee	Endorse	
Norfolk Health and Wellbeing Board	Endorse	18 October 2016
Suffolk Health Informatics Partnership	Endorse	
Suffolk Health and Wellbeing Board	Endorse	17 November 2016
North East London Commissioning Support Unit	Endorse	
Clinical Commissioning Groups		
Great Yarmouth & Waveney CCG	Approve	19 October 2016
North Norfolk CCG	Approve	18 October 2016
Norwich CCG	Approve	18 October 2016
South Norfolk CCG	Approve	18 October 2016
West Norfolk CCG	Approve	19 October 2016

12 Appendix A

Checklist for submission

This page is intentionally left blank

13 Appendix B

Capability deployment schedule

This page is intentionally left blank

14 Appendix C

Capability trajectory

This page is intentionally left blank

15 Appendix D

Universal capabilities delivery plan

This page is intentionally left blank

16 Appendix E

Information sharing approach

This page is intentionally left blank

16 Appendix F

Strategic universal capabilities mapping

This page is intentionally left blank