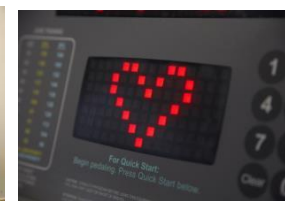# From Going Digital to Going Virtual

to be an outstanding provider of healthcare, research and education and a great place to work

Virtualising care and working, within the Trust and with our partners.

2018 – 2023
Approved 13 September 2018

Together, putting patients first

The Trust is in a unique position in England with the success of our Electronic Patient Record and state-of-the-art tools. The high degree of digitisation, technologically-literate staff, and strong working relationships in our Bradford District and Craven Place provide an enviable position. This position allows us to use our data, tools, and skills for even safer care to our patients, learn and teach, conduct research, and drive innovation for our populations of citizens.

This new digital strategy aims to see technology and information used intelligently, and along with our partners, to keep our communities well and out of hospital – for example

- *by analysing community-based data from all the providers in near real-time we can coordinate care better and target interventions;*

- *by using artificial intelligence to analyse our data we can assist in determining when patients would do better with other interventions then coming into the hospital;*

- *by using tele-medicine and technology to 'see' patients where they are and help them manage their conditions better outside of hospital with and without our virtual help;*

- *by using home monitoring instead of in-hospital monitoring to keep people at home.*

This strategy also has the complementary aims of improving the staff working experience through continued development and upgrading of our tools.

Executive Summary

- Supporting the Trust's Vision and enabling the Strategic Objectives

- Largely completed previous strategy now with a strong foundation from which to build

- New strategic work focuses on innovation, although there will always be upgrades and routine work

- Strategy is arguably riskier than in the past as it uses new technology, e.g., artificial intelligence, robotics, developmental software, etc.

- Considerable focus on working with our partners in the Bradford District & Craven (BD&C) Place collectively on health/wellness and care

- Mix of safety and efficiency benefits

- Will ultimately be become part of a public BD&C Place digital strategy

- A new approach to foster innovation will be needed

- Strategic partnerships with suppliers will also be needed

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The previous strategies have been achieved and the Trust is largely now digital, enabling advanced use of data/technology …

- Previous strategies (Clinical Informatics, Business Intelligence, Information Technology) have been primarily achieved (approx. 90%), exception is corporate forms automation

- Arguably paperless; definitely paper-light

- Relatively high digital maturity (approx. 86%) by NHS Digital, further work on non-email electronic letters, virtual clinics, shared records, remote monitoring, self-care

- Health Information Exchange (HIE) (bi-directional) expected autumn 2018; unique position for whole health economy to share a record

- Some legacy systems will need replacement as per plan, notably maternity/CTG, theatres

- Need to address areas excluded from previous strategies, primarily community workers, virtual wards step up/down

- Some EPR work in progress; turning off paper results, interface clean-up, Ward electronic tracking boards, Patient Portal.

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... Externally it is now expected that we work as a Place, aligned with our virtual work

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External

- Paperless/light 2020 achieved

- Interoperability to build a cohesive record across England is now expected

    - Yorkshire & Humber Care Record has been awarded exemplar status with £7.5m
    - Imaging Collaborative has been awarded £6.2m
    - Regional Pathology
    - Digital Pathology

- BD&C Place Digital 2020 priorities are system-wide Business Intelligence(/population health), Shared Care Record, Information Governance, Shared Infrastructure

- New technologies will achieve efficiencies and safer care, e.g., artificial intelligence, robotics

- Prepare for emerging technologies, e.g., Internet of Medical Things

- BD&C Place is mostly paperless; Yorkshire Ambulance Service has just implemented an EPR

- Expected second wave of 'GDE'

    - New STP funding potential £412m
    - STP-based Provider Digitisation potential £18.7m so far

Internal

- BTHFT Clinical Services Strategy

- Increasing focus on virtual care initiatives

- New step-up/step-down services working closely with BD&C Place

- Local new models of care work – Diabetes, Urgent Care, Stroke

- Mixed economy of great working experiences by most and poor experience by some services who primarily work within the BD&C Place

- Increased appetite for some riskier investment

- Appetite for transformation

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New Technologies

To take advantage of now

- Artificial intelligence could analyse our data and direct improvement

- Robotics could create administrative efficiencies

- Tele-health/medicine could improve patient experience and create service and pathway efficiencies

- Remote monitoring could care for patients in situ, a Place system goal of "Happy Healthy and at Home"

- Big & open data could utilise or wealth of data for clinical improvement, service management & planning, utilising Artificial Intelligence

- Public & private clouds could create savings, increase flexibility & reduce risk but stratifying for business continuity

- Delivering services though apps & games could improve health & wellness & deliver services more efficiently with the patient in mind

- Technology-based patient communications & own record could create a richer and more productive interaction for patients with chronic diseases

- Cyber security should protect our patients and services

To prepare for

- Advanced clinical research (precision medicine, genomics) could continually enhance care

- Advanced wearables (clinical devices/ Internet of Medical Things) could enhance timeliness and diagnosis of patients

- Block chain data & credentials could provide breadth of appropriate data sharing

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We are well placed to advance digitally inside the Trust and in our Place, but need to shore up areas we did not transform …

STRENGTHS

Staff & team working

Digital confidence

EPR & shared patient records

Best practice internally

Clinical programmes involving technology

Infrastructure & technical resilience

Single source of data truth, ownership & accountability

WEAKNESSES

Understanding data & enabling understanding

Data quality

Intranet and internal communication tools

Feasibility of some clinical data integration

OPPORTUNITIES

Wealth of clinical data for improvement work

New models of care in health economy

STP funding

More clinical decision support

Real time information – front line, management, system clinical & operational

Improving internal communications

Data linking to create 'cubed' pictures

New technology

THREATS

Increasing demand and expectations, internally & externally

Legacy technology & technology that does interoperate

Scarce resources

Financial constraints

Aims

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Themes

- ❖ Improving the quality of care and the health of our population via big and small data

- ❖ Enabling breaking down traditional care boundaries and developing a Place-based patient record

- ❖ Improving the richness & breadth of patient interaction from wellness through recovery

- ❖ Preparing for citizen-centric health & care

- ❖ Enabling multi-way communication for administrative & clinical care

- ❖ Joining up financial, resource, performance, and quality information for timely, holistic use

- ❖ Continuing the digitisation/upgrade roadmap

Aims – for the Trust and working with our Place system partners

- ❑ *We will provide information on the safety of our patients right now*

- ❑ *We will use big data to inform front-line care & drive improvement*

- ❑ *We will join up information for a holistic view of services*

- ❑ *We will provide one, transparent record across the care continuum*

- ❑ *We will reduce duplicate record keeping across organisations*

- ❑ *We will provide the facilities to coordinate care across organisations*

- ❑ *We will provide richer patient communications*

- ❑ *We will enable self-coordination of care, including a Patient Portal*

- ❑ *We will enable interactive patient communications*

- ❑ *We will prepare for the consumerisation of diagnostic devices*

- ❑ *We will use technology for health promotion and monitoring*

- ❑ *We will use artificial intelligence and machine learning to learn*

- ❑ *We will improve staff experience by further streamlining tools and adding to the tools available to staff*

- ❑ *We will ensure all legacy systems are upgraded to the EPR standard*

- ❑ *We will ensure remaining functionality in the EPR is turned on*

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1. To provide outstanding care for patients

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We will:

❑ *Provide information on the safety of our patients right now*

❑ *Enable interactive patient communications to care for cohorts of long term patients in different ways and see patients in virtual settings or not at all*

❑ *Provide a richer patient communications to respect the diversity of our population*

❑ *Use technology for health promotion and monitoring to keep patients well and avoid coming into the hospital for care*

❑ *Enable self-coordination of care, including a Patient Portal*

❑ *Prepare for the consumerisation of diagnostic devices, recognising more and more monitoring will be done in the home*

Potential projects - Strategic

- Real time quality dashboards
- Non-letter based patient communications
- Tele-consultations
- Online Check-Ins
- Patient secure communication
- Self care starting with COPD and Cardiology
- Patients' own integrated record
- Home monitoring
- BTHFT-premise on the spot wayfinding

- Ongoing development

- Sepsis Trigger
- NEWS2
- Standardised use
- ePrescription to external pharmacies
- Maternity & CTG upgrade & Intrapartum automation
- ICU monitoring devices' flow sheet upgrade

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2. To deliver our financial plan and key performance targets

We will:

❑ *Join up information for a holistic view of services*

❑ *Use artificial intelligence and machine learning to learn about the need for follow-up visits, among other topics*

Potential projects - Strategic

- Intelligently reducing follow ups
- A number of proposed projects that are aligned to the other Corporate Objectives also positively impact on finance and performance targets, for example:
  - Primary Care Diagnostic Ordering & Management [BD&C]
  - Nursing Home & Hospice Records Access [BD&C]
  - Regional Imaging
  - Electronic referrals across Place [BD&C]
  - Non-letter based patient communications
  - Tele-consultations [BD&C]
  - Online Check-Ins
  - Patient secure communication
  - Intelligently reducing follow-ups
  - Self Care starting with COPD & Cardiology
  - Home monitoring
  - Voice Recognition
  - Electronic tagging of everything
  - Public cloud
  - Automated (robotic) booking

- Ongoing development

- Data quality ongoing improvement
- A number of proposed projects that are aligned to the other Corporate Objectives also positively impact on finance and performance targets, for example:
  - Turning off paper results
  - ePrescription to external pharmacies
  - Population Health module [BD&C]

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3. To be in the top 20% of employers in the NHS

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We will:

❑ *Improve staff experience by further streamlining tools and adding to the tools available to staff*

❑ *Ensure remaining functionality in the EPR is turned on*

❑ *Ensure all legacy systems are upgraded to the EPR standard*

Potential projects - Strategic

- Voice Recognition
- Electronic tagging of everything
- Public cloud
- Community building wifi [BD&C]
- Secure messaging & 'conversation' for clinicians
- Automated (robotic) booking
- Leveraging MDT infrastructure
- Addition of key data streams to data warehouse
- Automation of administrative forms and processes

- Ongoing development

- Turning off paper results
- Interface clean up post EPR
- PACS Viewer embedded post EPR
- Health Information Exchange to Place EPR [BD&C]
- Board whiteboards on wards
- Cardiology ECGs interface
- Endoscopy interface
- Scanned record revisit
- Laboratory Information Management System upgrade
- Infection Control upgrade
- Cancer Prescribing upgrade
- Theatres upgrade
- EPR upgrades including patient administration system
- Consent management
- Resource scheduler

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4. To be a continually learning organisation

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We will:

❑ *Use big data to inform front-line care & drive improvement*

❑ *Use artificial intelligence and machine learning to learn about how we provide services and about the care we provide*

Potential projects - Strategic

- Digital Safety Research Group projects TBD
- Quest Artificial Intelligence & Standardised Care
- Artificial Intelligence with University of Bradford TBD

- Ongoing development

- EPR near real time data access

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5. To work effectively with local and regional providers

We will:

❑ *Provide one, transparent record across the care continuum*

❑ *Reduce duplicate record keeping across organisations*

❑ *Provide the facilities to coordinate care across organisations*

❑ *Provide the tools for real time population health management with our partners*

Potential projects - Strategic

- Population health applied in near real time [BD&C]
- System-wide management information [BD&C]
- Primary Care Diagnostic Ordering & Management [BD&C]
- Nursing Home & Hospice Records Access [BD&C]
- Regional Imaging
- New Models of Care based on HIE [BD&C]
- Yorkshire & Humber Care Record
- Electronic referrals across Place & inside BTHFT [BD&C]
- Electronic tasks & care recording across [BD&C]
- Place-wide care plans [BD&C]

- Ongoing development

- HIE for Place EPR into EPR [BD&C]
- Regional Cancer
- Population Health module [BD&C]

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Alignment

Bradford Improvement Programme

Elective Care	Reduce Delays	√
	Specialty Productivity	
	Cancellations	√
	Organisation Development	
Out-Patient	Scheduling	√
	New initiatives	√
Emergency Care	Emergency Access & AED Flow	√
Going Digital/EPR	Upgrades	√
	Business Cases	√
	Annual Projects	√
	EPR Benefits	√
Workforce		√
Cancer Care	2 Week to See a Specialist	
	31 Day to Subsequent Treatment	
	62 Day Treatment	
Activity, Demand & Capacity, Data Quality		√
Clinical Record Keeping		√
Medical Productivity		√
Bank & Agency		
Estates & Facilities		
Finance		
Pharmacy		√
Procurement		
Neonatal Staffing Model Implementation		
Home Tube Feeding Embedding		√

Annual Operating Plans 2018/19

Anaesthesia, Diagnostics & Surgery	Vascular Interventional Service	
	Radiology Space & Planned Investigations Unit	
	Pathology Office Relocations & Refurbishment	
	Urological Investigations Unit	
	Hybrid Theatre	
	Expand SAU	
	ENT & Ophthalmology Space	
	Maxs Facs Collaborative working	√
Medicine & Integrated Care	Day Care Unit Development	
	Hot Clinic Appropriateness	√
	Specialty Performance Dashboard	√
	Maximise RTT Activity	√
	Market share & income generation	√
	Staff Development	
	Neurology & Stroke Collaborations	√
Women & Children	Airedale W&C Collaborative Services	√
	Business Cases for services - Children's Out-Patient, Paediatric Orthopaedics, Paediatric Allergies, Paediatric Urology	√
	Paediatric Nurse Staffing Model	
	Women's Health Unit Transformation	
	Gynaecology Bed Base Reconfiguration	
	Out-Patient Cystoscopy Service Business Case	
	Maternity Improvement Plan	
	Reconfigure Maternity & Ambulatory Services	√
	Community Paediatrics Transformation	√
	SEND & EHCP	

Schedule

- Draft Schedule in place for all potential projects
- Projects are prioritised clinically and operationally
- High opportunity work early & lower priority later
- Roughly half of the work is progressive versus ongoing development
- Each year proposes delivering initiatives & preparing for next initiatives
- Each of the 7 themes have projects staged over the years
- 12 projects initiating this year
- Further projects to be defined for later years

Resource Needs

- Depending on project, resources may be absorbed or include supplier costs, additional internal capacity and specialised contractors

- Routine & ongoing work
  - Ongoing operational work
  - Upgrades/changes on contract termination dates with options appraisals/business cases, including consideration for clinical record integrity, other benefits, risk and cost
  - Will use upgrades capital account
  - 5 year cost profile to be added and considered via business cases

- Strategic work
  - Major projects to be assessed via business case
  - Innovation funding account proposed for smaller proof-of-concept projects
  - Proposed cost profile to be considered post strategy approval and follow approval process

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Next Steps

- Rolling wave of workshops to flush out issues and solutions, first one scheduled for 23rd September 2018

- Rolling wave Artificial Intelligence workshops, first one scheduled in November 2018

- Agree and instantiate innovation approach

- Solidify strategic supplier relationships

- Approve and publicise a BD&C Place Digital 2020 Strategy, incorporating the Trust's digital strategy

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