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Bristol, North Somerset  
and South Gloucestershire  
Clinical Commissioning Group



# Connecting Care and Patients Know Best

Bristol Major Trauma Centre  
Benefits Analysis and Case Study

Natasha Needs, 2019

connecting  
care

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## 1. Background

Bristol, North Somerset and South Gloucestershire Clinical Commissioning Group (BNSSG) and the Connecting Care Programme successfully placed a bid for the Estates and Technology Transformation Fund (ETTF) to implement six Personal Health Record (PHR) Proof of Concepts (POCs).

Following a review of the Bristol, North Somerset and South Gloucestershire Personal Health Record landscape in 2017, the Connecting Care Programme Team were approached by North Bristol Trusts Major Trauma Centre (NBT MTC) to improve the efficiency of using the PHR solution - Patients Know Best (PKB) and explore additional information sharing.

The process to set up a PKB record was completely manual and involved duplication of entry in the various PKB sections by the health and care professional. The existence of the PKB record and the hospital care plan was also not shared with the wider health and care community in BNSSG.

In a speech by Matt Hancock, Secretary of State for Health and Social Care, the significance of a more integrated approach was highlighted:



“

*Last year my sister suffered a severe head injury. Her life was saved by the ICU at Southmead hospital in Bristol. She spent days in a coma, and over the weeks and months that followed gradually recovered.*

*When she went to her GP, who is a brilliant GP, six months later, to apply to get her driving licence back, the GP asked: “But why was it suspended?” Her GP had no information at all about her near-fatal accident or any of the treatment she had received.*

*I wish this was an isolated case. But I’ve seen in so many other cases just how bad the systems are at talking to each other.*

*We need to move to a world in which a citizen’s patient record can be securely accessed by themselves and staff according to clinical need.*

”

Matt Hancock  
Secretary of State for Health and Social Care, 2018

## 2. Purpose

This document outlines the MTC POC. It identifies the technical approach taken:

- to register a patient on PKB and pre-populate the demographics and appointments in PKB
- to use a standards based approach to enable the solution to be reused with other PHRs.

The document also explores the benefits that are starting to be realised by the MTC professional team and the wider health and care system, how the quality of care is being increased for patients under the care of this centre and what opportunities will be taken forward in the next stage.

A more comprehensive analysis of the benefits of the MTC PHR supported by PKB will be carried out by NBT in the next financial year.

## 3. National and local context

### 3.1. Long-term plan

The 'empower the person' section of [chapter five of the Long Term Plan](#)<sup>1</sup> states:

*"Patients' Personal Health Records will hold a care plan that incorporates information added by the patient themselves, or their authorised carer."*

<sup>1</sup><https://www.longtermplan.nhs.uk/online-version/chapter-5-digitally-enabled-care-will-go-mainstream-across-the-nhs/1-empowering-people/>  
<sup>2</sup><https://www.nbt.nhs.uk/sites/default/files/North%20Bristol%20NHS%20Trust%20Digital%20Vision.pdf>

Making care plans available to the patient and all clinicians caring for them will help ensure care is not duplicated, tests are not repeated and appropriate actions are taken in a timely manner.

NHS Long Term Plan

### 3.2. One NBT Digital Vision

In 2008, NBT published a digital vision<sup>2</sup> in which they outlined the "ambitious strategy that presents the need for changing the culture through digitally enabled transformation combined with an opportunity for accelerated delivery and a focus on collaboration."

Throughout this case study we will evidence how this project supports this vision and strategy.

NBT use Lorenzo as their electronic patient administration system (PAS); and currently, have 3 PKB projects running. The Major Trauma Centre (MTC) was the first PKB project in the hospital and was chosen for the POC.

Personal Health Record facilities are a crucial enabler that will allow our citizens to view their treatments and information in a seamless way across the BNSSG community, regardless of provider

One NBT Digital Vision

### 3.3. Connecting Care

Connecting Care is the Bristol, North Somerset and South Gloucestershire (BNSSG) programme dedicated to using technology to support:

- Joining up information to ensure care is focused around the individual and their needs
- Improving better, safer and more joined-up care
- Increasing efficiency in the delivery of health and social care services
- Supporting more seamless transfers of care between care settings
- Better information sharing between local health and social care organisations - ensuring that the people who are providing care have the information they need, when they need it.

The partnership is made up of approximately 20 health and social care organisations across the BNSSG geography. The initial focus for the programme was the delivery of a shared 'view only' electronic care record however, the remit of the programme is much wider than this.

The local shared care record is being used by health and social care professionals across the region and is an important part of the Sustainability and Transformation Partnership (STP), 'Healthier Together'.

NBT is a member of the Connecting

Care Partnership and provides HL7 feeds to the Connecting Care infrastructure in order to display information in the Connecting Care shared record/ portal. It also provides documents for display in the portal and onward distribution to providers including GPs using industry-standard approved ITK standards.

### 3.4. NBT Major Trauma Centre

The NBT MTC is the Major Trauma Centre for the Severn Major Trauma Network in the South West.

The Department of Health set up trauma networks across England. Each trauma network consists of a one major trauma centre and a number of trauma units, supported by ambulance service providers.

The Severn Major Trauma Network covers the former Avon area as well as parts of Wiltshire, Gloucestershire and Somerset. There are seven trauma units within the Severn Network: NBT, University Hospital Bristol, Royal United Hospital Bath, Musgrove Park in Taunton, Yeovil, Great Western Hospital in Swindon and Gloucestershire Royal Hospital.

We have successfully piloted the use of a Personal Health Record for major trauma patients allowing them to have access to notes and information regarding their care after they have left the Trust.

One NBT Digital Vision

Major trauma is multiple life-threatening or life-changing serious, physical injuries. These might include injuries such as:

- severe head injury
- multiple fractures
- severe knife or gunshot wounds.

A major trauma centre is a specialist hospital providing trauma care services. It manages all types of injuries, providing consultant-level care 24 hours a day, 7 days a week.

The major trauma centre takes responsibility for the care of all patients with major trauma in the area covered by the network and will mean that those patients with the most serious of injuries will be brought directly or via a trauma unit to the major trauma centre for treatment.

The MTC is using PHRs to support the care of patients that are under the care of this centre. The South West Severn MTC oversees approximately 1,200 patients a year.

As part of [Quality Trauma Discharge \(QTD\)](#),<sup>3</sup> the MTC [introduced a PKB PHR to hold each patient's hospital care plan](#).<sup>4</sup> This gives patients control to invite clinicians and allows them to access their information.

3. <https://www.nbt.nhs.uk/clinicians/services-referral/quality-patient-discharge-qpd-clinicians/quality-patient-discharge-a>

4. <https://blog.patientsknowbest.com/2019/03/29/pioneering-aftercare-for-trauma-patients/>

5. <https://www.patientsknowbest.com/>

### 3.5. Patients Know Best

Through a web-based application, the [PKB solution](#)<sup>5</sup> puts the patient in control of their health records and by granting access to professionals at different care providers, it creates a single instance of the relevant care record that is available wherever the patient receives treatment. It is also securely hosted within the NHS N3 network.

The MTC team made the decision that the patient's care plan and the Rehabilitation Prescription should be stored in the PHR. They are using PKB to do this.

By allowing patients to securely access their own health information and providing them with the ability to connect health professionals and carers together in 'one place', they are better equipped to take control of aspects of their own healthcare.



Care plans and rehabilitation needs assessments stored in PKB



#### 4. Proof of concepts objectives

The objective of the POC with PKB was to:

- **Demonstrate that we could flow information to PKB to support direct care and patient access to their record** - Providing patients with details of their NBT appointments (including updates and cancellations) within PKB.
- **To minimise the amount of manual entry by clinicians into the PKB record** - Registering the patient in PKB, pre populating demographics (and updating demographics) within PKB.
- **Advising other health and care professionals in BNSSG that a patient has a PKB record** – Displaying this as an organisation involved within the Connecting Care shared record/ portal (in preparation for the 'Record Locator Service').

#### 5. Technical solution

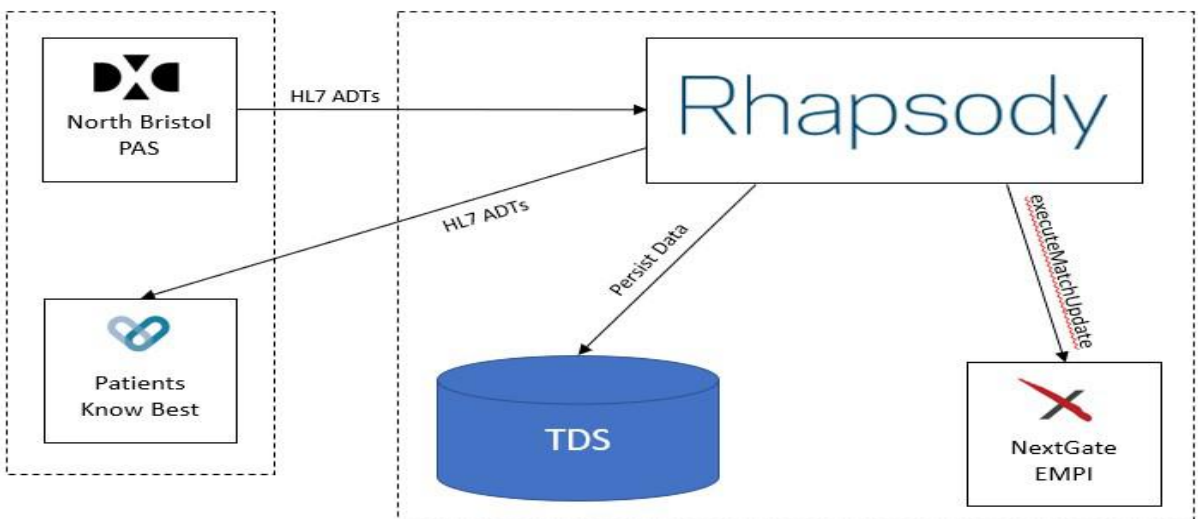
##### 5.1 Overview

This was a POC for both Connecting Care and PKB. It was the first time that PKB have registered and populated the PKB record by the use of an integration solution. It was also the first time that Connecting Care had sent information directly to a PHR for patient use.

An integrated record enabling direct care and patient access



Table 1: PHR Process Solution Overview



The functionality of the technical solution can be broken down into distinct parts:

- **Trigger API** from Lorenzo
- **PKB record creation** following registration to the MTC in the Lorenzo PAS
- **Data flow from the Connecting Care Portal to the PKB record** – demographics and appointments
- **Data flow from the PKB record to the Connecting Care Portal** – PKB record ID.

## **5.2. Standards-based approach to enable re-use**

Connecting Care will be introducing other PHR solutions to BNSSG to support direct care. The technical solution has been configured to enable reuse of the configuration for implementing other PHR systems to “subscribe” to the Lorenzo PAS – or any other system feeding into the Connecting Care shared record/portal.

## **5.3. PKB interface standards**

The long term vision of Connecting Care is to use FHIR standards for all interfaces. These interfaces are not yet supported by PKB therefore, industry standard HL7v2 was used.

## **5.4. Information shared with PKB**

In the first phase, the data sent to the PKB record was:

- Demographics and demographics changes/ updates
- Appointment bookings, updates and cancellations

This same set of data will be sent for any selected patient regardless of the hospital service the patient record is created for.

## **5.5. Patient selection and conditions to send data to PKB**

Not all patients treated by NBT will have data sent to the PKB PHR. There are two scenarios that will “trigger” a patient’s data to flow into PKB:

1. The Patient has a PHR trigger alert added to their record in Lorenzo. This will be identified in the HL7 ADT feed from Lorenzo and will trigger the creation of a new patient record in the PKB platform.
2. The Patient has a record created for them in the PKB PHR. This will be identified using a scheduled query to PKB to return newly added patients.



## 5.6. Testing

Testing was carried out in conjunction with Orion Health and NBT as per the Connecting Care Test strategy.

## 5.7. Information Governance

A data privacy impact assessment was completed at the beginning of the POC by the Connecting Care Programme. This showed reduced information risks using APIs/ integration services to flow the data to PKB rather than duplicating the data input by the clinical professional. There is also expected to be an improvement in data quality and timeliness.

Existing Data Sharing Agreements were in place between:

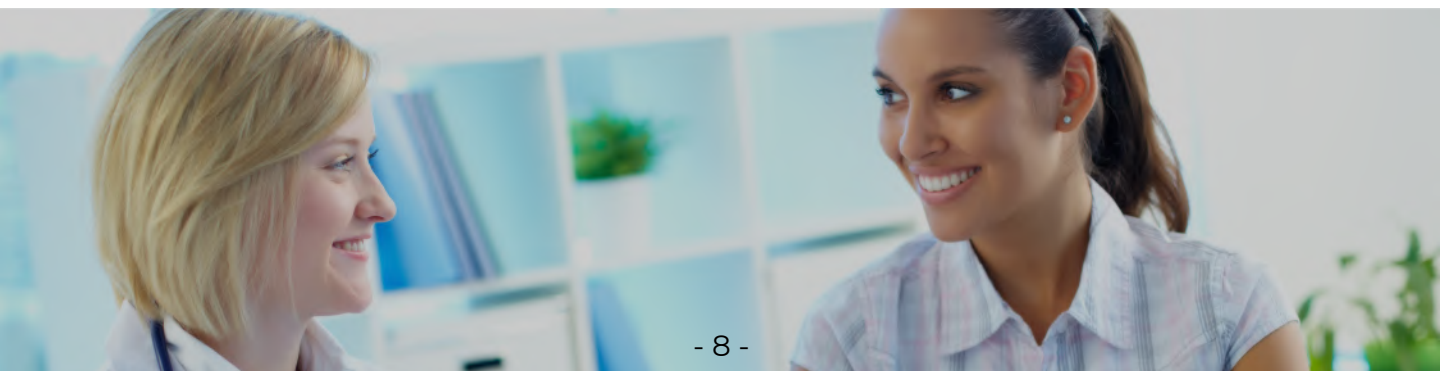
- North Bristol Trust and Patients Know Best
- North Bristol Trust and Connecting Care.

No further Data Sharing Agreements were required. However, the Connecting Care Data Sharing Agreement was updated to show PKB receives data from Connecting Care.

## 6. Outcome

Between October 2018 and October 2019, over 1500 patients have been registered in PKB from the MTC and information is flowing to the PHR from Connecting Care. This POC has:

- Removed the need for the MTC team to create the PKB account and enter demographics into the PKB PHR.
- Increased the level of information sharing in the PHR – future and historic appointments are now shared.
- Ensured that the health and care system via the exemplar Connecting Care shared record/ portal know that a patient is under the care of the MTC and that they have a PHR. This information will also be able to be shared with the LHCRE in the One South West and other regions once they are established via the planned Record Locator Service.



## 7. Benefits

### 7.1 Patient benefits

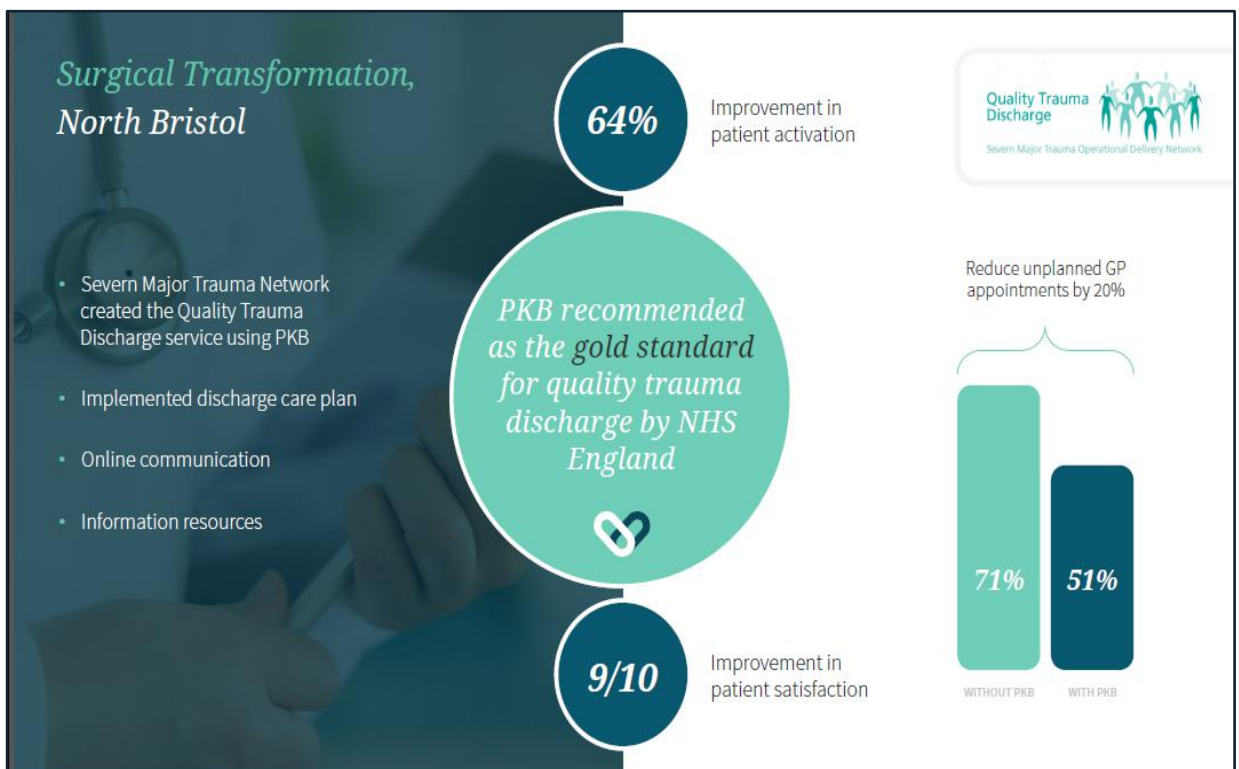
Studies have proven that through the use of citizen-facing digital health apps and personal health records, citizens' digital health literacy, and 'patient activation' increases, which has been shown to improve health outcomes. The PKB PHR in the Major Trauma Centre has already delivered a **64% improvement in patient activation and reduced unplanned GP appointments by 20%.**

The POC has been an enabler to allow further information sharing with PKB from the Connecting Care infrastructure.

The POC has not provided significant additional patient benefits to those that were already in place by the use of the PKB PHR by the MTC.

Further stages of the project will realise more patient benefits. The patient benefits that are directly attributable to this POC are:

- **Adds information to an existing PHR record including the PKB record** - One of the benefits to patient is the technical solution searches for an existing PHR including a PKB record and adds the agreed information to that record.
- **Additional Information provided** - Prior to the new solution being in place, the appointments were not shared with patient in a digital format. Sharing in this way means a patient is able to check future appointments are and have a record of previous appointments.



## 7.2. Health professional benefits

Prior to the POC, the health and care professionals out of area could see the MTC patient's care plan via the PKB PHR. The health and care professional had access to a consolidated view of the MTC health and care records in the citizen's PKB PHR. The additional benefits to the health professional that are directly attributable to this POC are:

- **Information is collected/ recorded once** - This POC has evidenced that we are able to support health and care professionals in collecting information and recording once. They do not have to copy or re-enter information from their primary healthcare system to a PHR. Information can be recorded in the PKB PHR by either the citizen or the health and care professionals and that information can be propagated (as needed) to other systems electronically; in this POC the information was propagated to the Connecting Care shared record/ portal. For the POC the information was fairly simple – demographics and appointments, but the MTC now have the confidence to be more ambitious and share more care plans and include information from different sources e.g. GP practices.

- **Reduces friction** - The introduction of electronically creating the PHR record removes much of the manual intervention required and therefore the interaction with the digital solution improves.

We will remove the high levels of digital friction experienced by our teams when accessing patient information. We will remove multiple logons, passwords and slow authentication in order to reduce the fatigue and discontent that can build when using a high number of disparate systems.

One NBT Digital Vision

- **Time released to care** – More time is released to care, by reducing the time spent manually entering information into PKB. Improved efficiency has always been an important benefit of the Connecting Care Programme. In some cases, this may not be immediately 'cash-releasing'. Whilst the financial savings on this POC are low, it now supports the MTC in sharing more information with the patient without the need to manually re-enter the information into the PKB PHR.

The MTC are now looking at how they transform their service and the patient experience to deliver better care with more information sharing in the PKB PHR.

- **Scalable throughout North Bristol Trust** - As new services start to use PKB PHR to provide patients access to their information outside of hospital, the solution to register and prepopulate the record will be available without any additional work. NBT simply need to add the PHR alert to the patient record in Lorenzo.

The [Hospital at Home](#)<sup>6</sup> team have been mobilised to facilitate the discharge of a cohort of patients to home for on-going treatment for example IV antibiotics. It is the intention of the team that they will use the PKB PHR to support care in the home. There has also been interest in using the PKB PHR from the [Neuromuscular Operational Delivery Network](#).<sup>7</sup>

- **Increased awareness of the patients PKB record** - Those caring for citizens across BNSSG are now aware that they have a PKB account and can request the individual invites them to join and have access so they can view the

6. <https://www.nbt.nhs.uk/our-services/a-z/services/hospital-at-home>

7. <https://www.nbt.nhs.uk/south-west-neuromuscular-operational-delivery-network>

PKB record including the care plan. This is done by listing PKB as an organisation within the Connecting Care portal.

- **Drives quality** - As a result of the information automatically populating PKB the MTC have noticed errors in the information that has been entered into the PAS Lorenzo and are able to go into Lorenzo to correct these errors.
- **Improvements to the PAS and reporting** - Until the POC commenced it was not possible for the MTC to indicate on Lorenzo that a patient was under their care. Whilst building this solution an alert was also built to indicate that a patient is under the care of the MTC. This has led to improved reporting.

Time released to care



### 7.3. System-wide benefits

The POC has allowed us to evidence that the Connecting Care shared record/ portal can work with multiple vendors and different platforms in order to share information by using agreed technical standards.

Connecting Care is now working with the following PHR vendors: Sitekit and PKB.

- **Technical work reusable** - The technical work is standards-based and therefore can be reused by Connecting Care for other PHR projects.
- **Scalable throughout BNSSG** - Should another provider organisation in BNSSG wish to use PKB, work would be required for them to configure a trigger; the rest of the work would be reusable.



**System-wide benefits**  
*Re-usable and scalable*

### 8. Next steps

The POC has demonstrated to the Major Trauma Centre the 'art of the possible' and that Connecting Care can successfully flow information from the North Bristol Hospital Trust PAS or the Connecting Care Portal to the Patients Know Best PHR.

Aside from displaying the Major Trauma Centre's patients care plan in the Connecting Care shared record for other health and care providers to access, this POC has allowed the trauma centre to consider further opportunities for the Connecting Care work plan including how to send other information from Connecting Care to the Patients Know Best PHR for patients e.g. other care plans, medications and allergies, professional details, clinical correspondence etc.

With the project to share the rehabilitation information completed in June 2019, a further evaluation will be carried out and a case study will be produced.

North Bristol **NHS**  
NHS Trust

Gate	F
39	Overnight Stay
38	Medical Photography & Illustration
37	Intensive Care Unit
36	Outpatients
36	Audiology
36	Lithotripsy
36	Neurophysiology
36	Urodynamics
35	Emergency Department



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