

Meeting of BNSSG ICB Board

Date: Thursday 6th April 2023

Time: 12:00 – 15:15

Location: The Ball Room, Winter Garden, The Royal Parade, Weston Super Mare, BS23 1AJ

Agenda Number:	6.4	
Title:	Care Traffic Coordination	
Confidential Papers	Commercially Sensitive	No
	Legally Sensitive	No
	Contains Patient Identifiable data	No
	Financially Sensitive	No
	Time Sensitive – not for public release at this time	No
	Other (Please state)	
Purpose: Discussion and endorsement of next steps		
Key Points for Discussion: To note the successful contract award for the provision of an Urgent and Emergency Care Intelligence System for BNSSG ICB.		
<p>BNSSG has successfully transitioned from using Alamac & Beautiful Information for our live view of UEC metrics, to our new solution: Frontier. This is delivered by Faculty our new strategic digital partner. We have a 2 phased approach for Care Traffic Co-ordination with Faculty.</p> <p>Phase 1 Deliver a like-for-like near-real time UEC dashboard. In house the capability to extract, transform and load our own system data. Release PowerBI Dashboard to visualise daily performance data.</p> <p>Phase 2 New data sets and visualisation to be deployed quickly across our system. These include some emerging opportunities to (a) Publish and visualise new data, and (B) deploy new functionality connecting our data, visualising forecasting and nowcasting, build in decision loops, and ensure system harm is visualised.</p> <p>a. <u>Incorporating and visualising new data</u> Primary Care – Twice daily flow of EMIS data (design to be defined)</p> <p>Care Home Capacity Tracker - we now have an incoming feed direct from the NECS care home capacity tracker we initial visualisations are being tested for inclusion into the CTCC.</p> <p>Integrated Urgent Care – Severnside are providing a near real time feed for 111 call information, and supplementing this with operational data from out of hours GP and the status of our validation lines. We are scheduling this deployment by the end of April within Faculty.</p>		



b. **New functionality**

• **Deployment of the predictive nowcasting capability**

The ICB modelling and analytics team have published a nowcasting suite. This worked has started with displaying live nowcasts for BNSSG using our A&E and ambulance data. This is moving our system closer to the realisation of the ability to forecast patterns of flow and impact. Visualisations of 24-hour-ahead predictions have been independently produced for urgent care related variables previously covered by the Beautiful Information system. Each prediction is obtained using only the past data for that variable. These are now available on the ICB network, updated hourly 24/7 with validated accuracy and publication pending. * https://app.bnssg.ml/BI/Nowcasting_Suite/

The next phase of the nowcasting suite is assessing our **Hospital occupancy projections**. This is projecting 10 days ahead, updated daily, one for each hospital trust site. First version release will be launched on 31 March 2023. Both of these forecast developments are to be incorporated to the Frontier system, securing ICS-wide access.

• **Decision Intelligence features**

To further develop the CTCC in phase 2, Faculty will take available data feeds and provide a 'system overview' feature to map and simulate flow across the system. The goal is to provide tactical and strategic decision makers with contextual information from outside their own organisations to make better decisions for the whole system. This includes capacity and demand, shown at a system, service and person level.

Faculty's decision architecture starts with the configuration of a computational twin. A computational twin combines human expertise with machine learning to build software representation of an end-to-end system. It is this capability which powers the ability to ask novel 'why', 'what if' and 'what next' questions when seeking to understand system performance and how to improve it.

Decision features query the computational twin and allow users intuitively engage with it. Faculty's decision features are designed to 'close decision loops' following the framework of 'Observe–Understand–Decide–Act'.

These features will also support the harm visualisations being led by Kieran and team. Building on existing user research work done to date by Faculty and within the ICB, Faculty will refine the view of which users and decisions will be supported by this feature and tailor the solution to those workflows.

Exact release milestones will be informed by initial data analysis and discovery work beginning in April, with options for SRO approval by end of April.

• **System risk of harm metrics**

A full evidence search and review is in progress, led by CTCC clinical lead Kieran Flanagan (NBT), the ICB clinical effectiveness team with support from NBT librarians. This research has been used to develop the first visualisation of risk of harm in a networked system view. Clinical and CQC engagement sessions are planned to review and refine our approach and inform the next iteration.

User research and insights

Development of an operational prototype focused on the complex discharge pathway data has now concluded. This was hosted and built by UHBW within Power BI, enabling operational, tactical and strategic level user testing to completed.

The team's research demonstrates that to meet user needs, CTCC's data must be accessible, trusted and actionable. Otherwise, decisions may be delayed, causing issues for patients, staff and providers.

Some key insights from the user testing include:

- Discharge to assess needs trusted, up-to-date and shared resource info and patient lists to become a proactive, agile and collaborative process across the whole system. Without this, it will remain a reactive process where discharge planning starts later than it could do.
- Health and social care teams need an up-to-date view of each other's capacity and capability. Without this, decisions can be delayed while people discuss and/or ring around, and short-term options may be missed.
- Patient history is essential context. Without this context, decisions may be delayed pending further observations.
- Teams need to trust the data in front of them, especially when taking a balanced risk. Otherwise, decisions can be delayed pending additional checks.

In response to these findings the project board took the decision to explore utilisation of functionality from existing system Connecting Care/ICB Orion module, and is scoping the technical work needed to link these with CTCC in order to provide a joined up, accessible and trusted view across health and social care.

Development of Single Control Centre

The developments detailed above will support BNSSG to realise the benefits set out by NHSE in 'Going further for winter: System Control Centres' [1]. The national UEC Recovery Plan for 23/24 includes requirements for ICS' to maintain System Control Centre arrangements year-round, in order to support system management beyond the winter period. The CTCC project will obtain new data feeds from system partners to increase visibility of performance and capacity across the system, which will be visualised within the Frontier tool and provide greater detail relating to pressures in the community and mental health services. This intelligence will support better operational decision-making via the SCC and inform decisions made by the SCC and on-call teams in response to surges in system pressures.

Recommendations:	<p>To note the successful contract award for the provision of an Urgent and Emergency Care Intelligence System for BNSSG ICB, awarded to Faculty AI.</p> <p>Each priority captured within the section above requires continued engagement from system partners to work toward full visibility of flow and harm across the whole system and a deeper understanding of each other's capacity & demand, with a focus on interdependence between our services. Therefore we are seeking continued endorsement of CTCC as a system flow project priority, and system engagement with progressing development of the Frontier system.</p>
Previously Considered By and feedback:	<p>A presentation was brought to the ICB Board in September 2022 and again in January 2023, receiving endorsement in the direction of travel and timeline for development, and confirming leadership in each organisation.</p> <p>Clinical and operational show and tell sessions have been held regularly with programme stakeholders, Digital Delivery Board, COOs, CMOs, and CEs.</p> <p>The prototype data visualisation has received support from clinical and operational colleagues. Additionally, this has been presented to the Chief Executive, other executives of NHSE and regional colleagues who were enthusiastic about the potential of CTCC.</p>
Management of Declared Interest:	Conflict of interest process managed via agreed project governance.
Risk and Assurance:	None for Board consideration at this time. Please see section 6.
Financial / Resource Implications:	None for Board consideration at this time.

<p>Legal, Policy and Regulatory Requirements:</p>	<p>Data sharing &/ processing agreements between providers and Faculty Ai to be established as required to initiate data flows and analysis.</p> <p>Data sharing requirements for the complex discharge dashboard build were identified through drafting and review of a collaborative data protection impact assessment, engagement with system partner data protection officers and Caldicott Guardians.</p> <p>Learning from this process will be taken forward into IG discussions to support ongoing development activities.</p>
<p>How does this reduce Health Inequalities:</p>	<p>Poor patient flow is a healthcare inequalities issue.</p> <p>BNSSG populations within deprived communities disproportionately rely on urgent and emergency care services to meet their healthcare needs. As such, transformation to provide enhanced visualisations of patient flow & risk of harm through our system will support the reduction in healthcare inequalities.</p> <p>Opportunities to reduce health inequality within BNSSG via CTCC tool functionality will be worked through with Faculty Ai and system engagement on an ongoing basis.</p>
<p>How does this impact on Equality & diversity</p>	<p>There are no negative impacts that have been identified at this stage. Completion of a full EqIA is in progress.</p>
<p>Patient and Public Involvement:</p>	<p>CTCC tool does not have a patient facing function, therefore explicit PPI activities are not within our roadmap. However, as described below and in section 9, extensive user engagement activities have been completed and will continue throughout CTCC development.</p>
<p>Communications and Engagement:</p>	<p><u>Engagement</u> SCW CSU have completed user testing and engagement throughout the CTCC proof of concept beta build (the complex discharge dashboard) with strategic, tactical, clinical and operational teams across the system.</p> <p>1:1s with system CEOs have been conducted to hear and share CTCC priorities, visions and ambitions.</p> <p>These activities and ongoing engagement with system wide user groups will be coordinated with the CTCC strategic partner, Faculty Ai, to inform new release features and development functionality within the tool.</p> <p><u>UEC live dashboard launch communications</u> The launch of the new UEC live dashboard will be completed by 1st April 2023. Existing users will be migrated across to the new Frontier system with communications sent to support a smooth transition. Furthermore, invitations will be sent to key stakeholder groups to announce the launch and that access has been granted.</p> <p>A press release has been shared with HSJ regarding the launch and ongoing CTCC strategic partnership with Faculty Ai.</p>
<p>Author(s):</p>	<p>Alice Beeching, Keith Robertson</p>
<p>Sponsoring Director / Clinical Lead / Lay Member:</p>	<p>Deborah El-Sayed</p>

Agenda item: 6.4

Report title: Contract Award for the Provision of an Urgent and Emergency Care Intelligence System for BNSSG ICB

1. Background

NHS Bristol, North Somerset and South Gloucestershire Integrated Care Board (BNSSG ICB) have concluded the procurement process for the provision of an Urgency and Emergency Care (UEC) intelligence system.

The ICB sought a supplier who can take and display relevant live or near real time data feeds from our partners (including and not limited to acute hospitals, community health and care providers, ambulance services, NHS 111, mental health providers, social care providers and voluntary sector organisations).

The successful contract award for the provision of a UEC Intelligence System for BNSSG ICB has now been made to Faculty Ai. Our current contract with Alamac for provision of a live dashboard and system management tool ends on 31st March 2023.

2. Strategic Aims

Additionally, the ICB will work with Faculty AI within a strategic partnership to further augment the live dashboard to deliver a platform that provides real-time visualisations of activity, patient flow, estimated harm, staffing levels, and forecasts patterns of activity. This development functionality will facilitate evidence-based decision making in BNSSG and help to optimise resource, remove barriers and improve patient outcomes for the population.

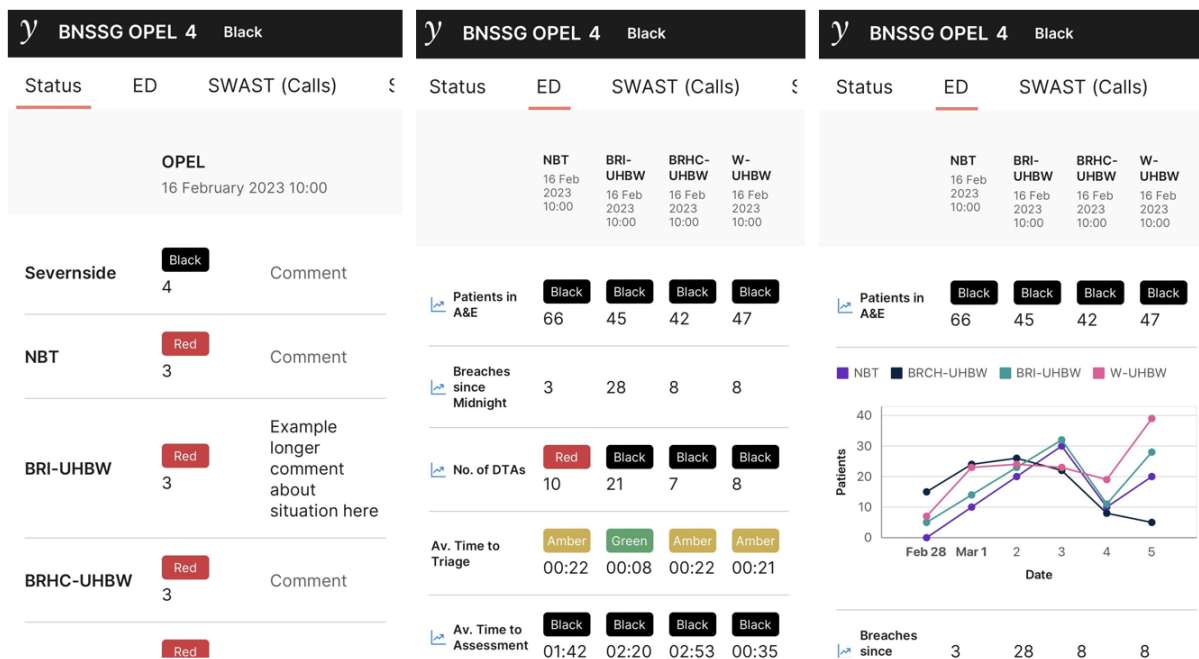
This development functionality is, in real-time (or near real-time):

- To visualise patient flow, across and between each organisation to have greater insight into each other's capacity and demand.
- To visualise and measure or estimate clinical harm that has already occurred or may already be occurring in different parts of the system.
- To visualise and estimate dynamic risk of harm across the whole system, emphasising the interdependence between different services (e.g. impact of delays in one part of the system on another part of the system).
- To forecast patterns of flow and impact, e.g. using AI and machine learning.
- To visualise staff levels and any gaps, in different parts of the system (e.g. rota fill rates).
- To be able to see accurately the impact of decisions and initiatives.

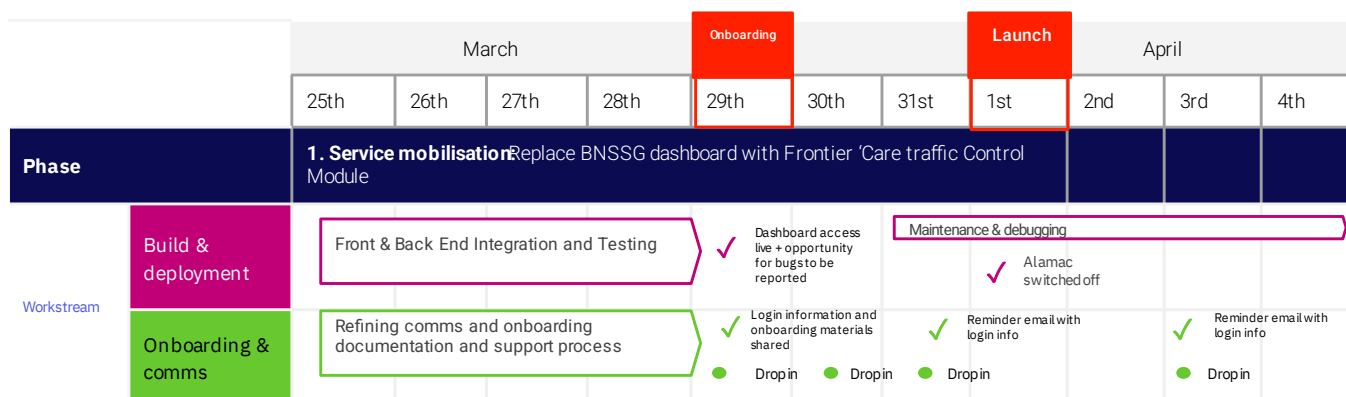
3. Timeline

Phase 1

The launch of the new UEC live dashboard will be completed by 1st April 2023. Existing service users will be migrated across to the new Frontier system with communications sent to support a smooth transition. Furthermore, invitations will be sent to key stakeholder groups to announce the launch and that access has been granted.



The process and timeline for delivering phase 1 set out below:

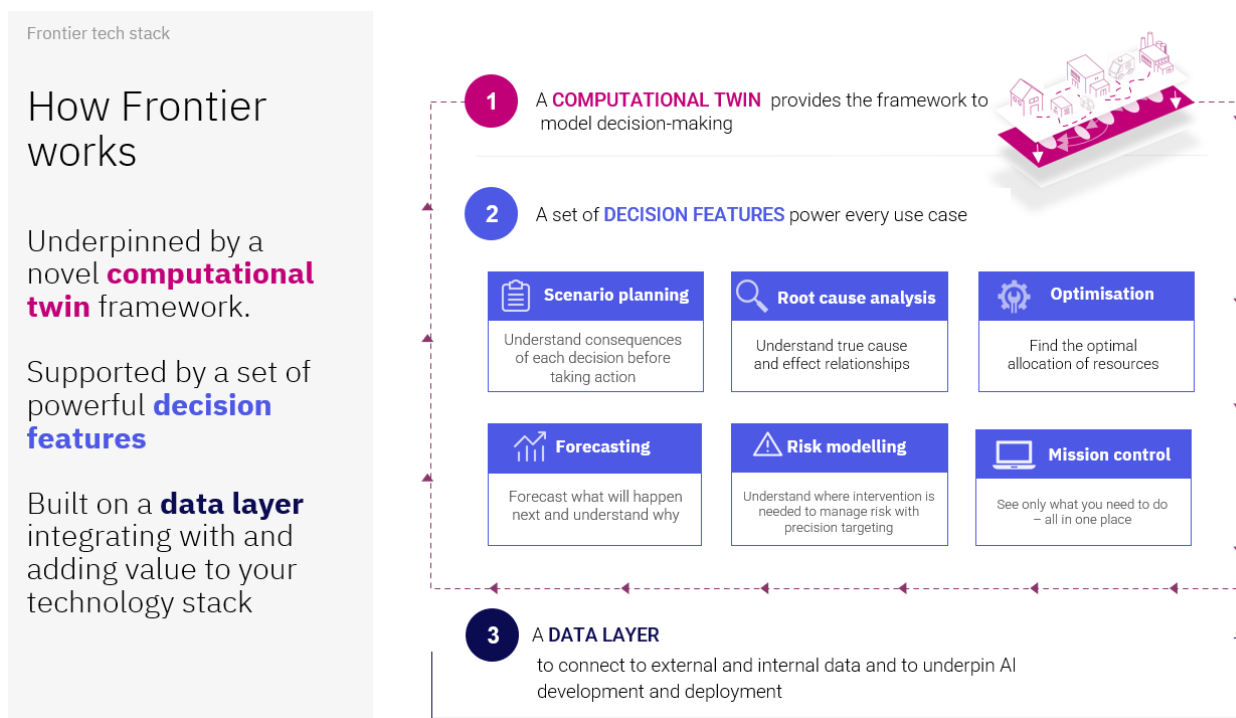


Phase 2

The ICBs vision for the CTCC is to use data to drive behaviour change and improve outcomes. Faculty's decision intelligence (DI) discovery process is designed to make sure that decisions are at the heart of the product configuration. The discovery phase to inform the timeline for integration and release of the development functionalities within Frontier is underway, due to conclude May 2023.

Development functionalities encompass:

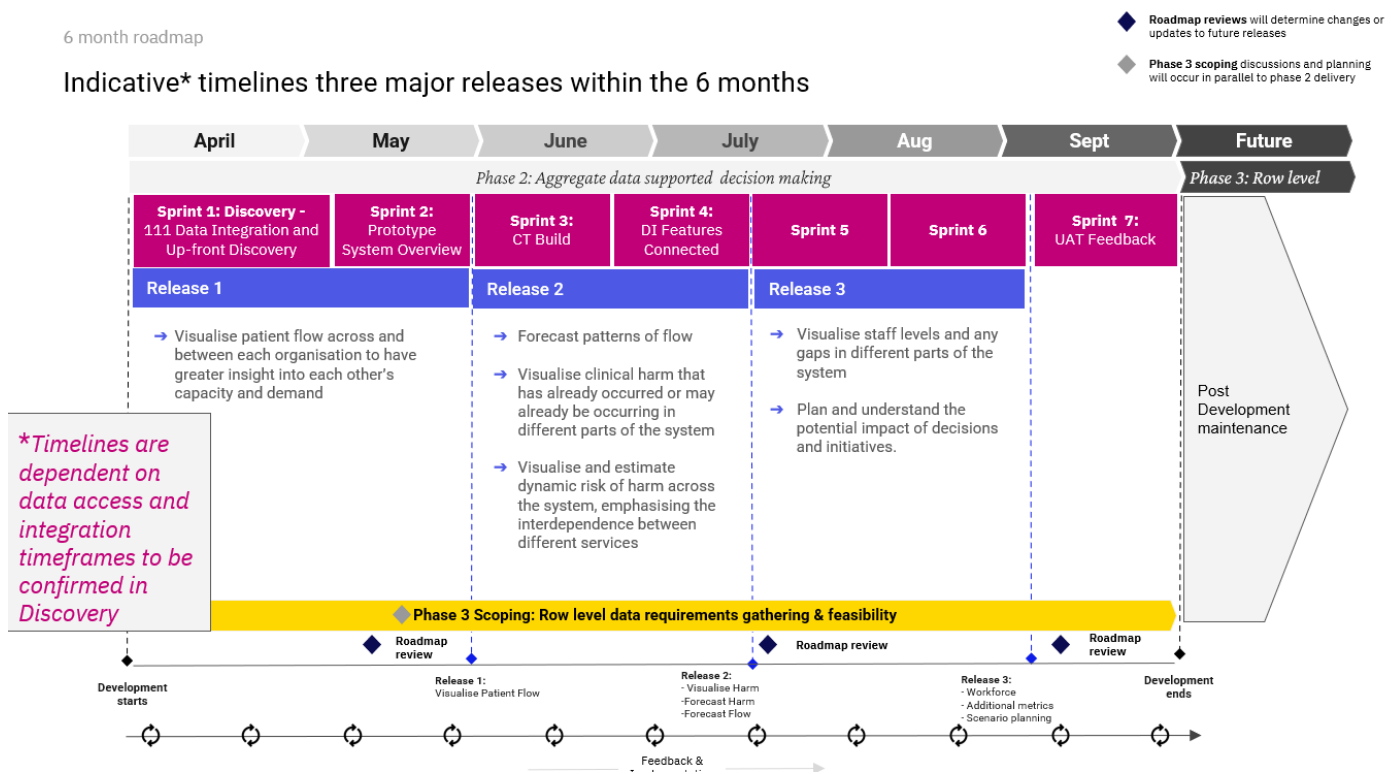
- To visualise patient flow, across and between each organisation
- To visualise and measure or estimate clinical harm that has already occurred or may already be occurring in different parts of the system.
- To visualise and estimate dynamic risk of harm across the whole system, emphasising the interdependence between different services (e.g. impact of delays in one part of the system on another part of the system).
- To forecast patterns of flow and impact, e.g. using AI and machine learning.
- To visualise staff levels and any gaps, in different parts of the system (e.g. rota fill rates).
- To be able to see accurately the impact of decisions and initiatives.



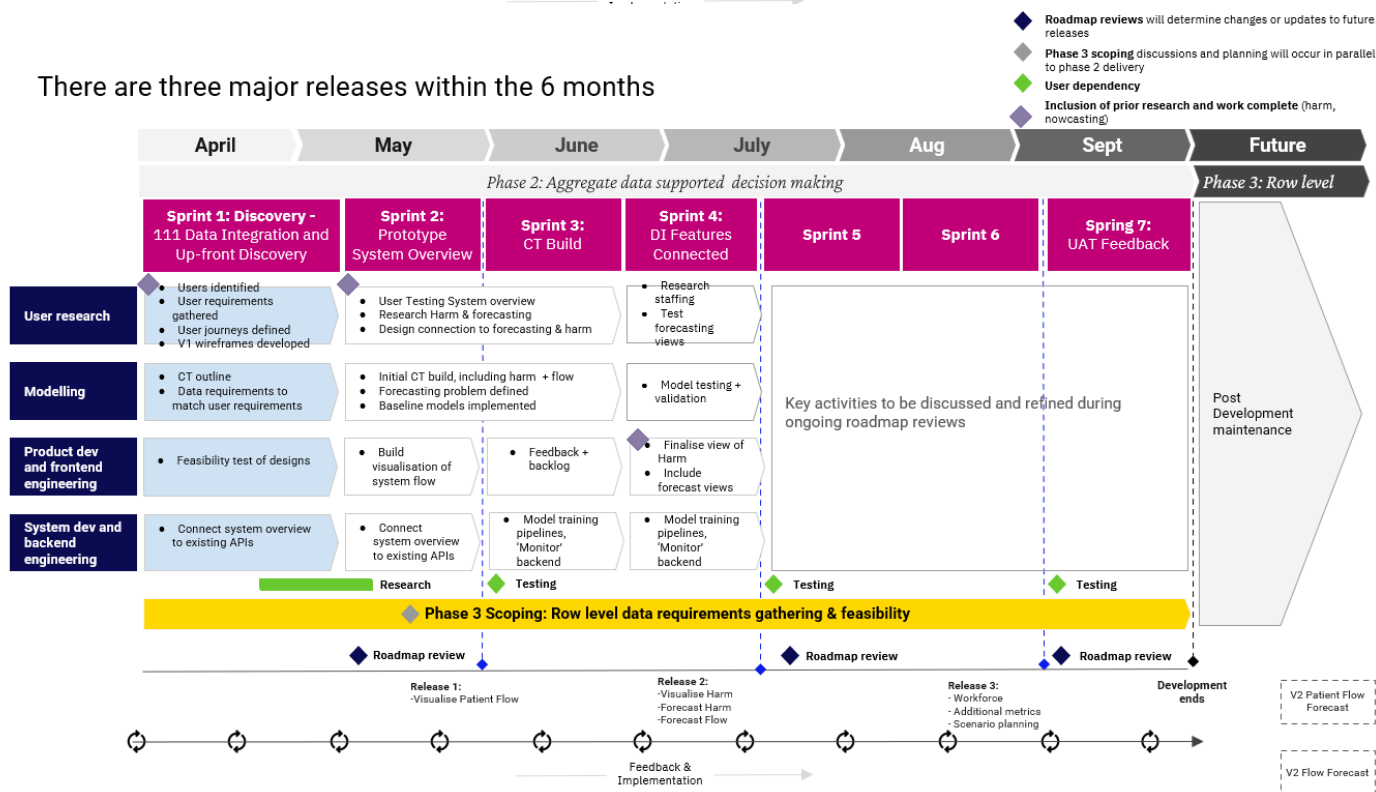
Exact release milestones will be informed by initial data analysis and discovery work beginning in April, with options for SRO approval by end of April. Our timeline below has been proposed and will be refined.

6 month roadmap

Indicative* timelines three major releases within the 6 months



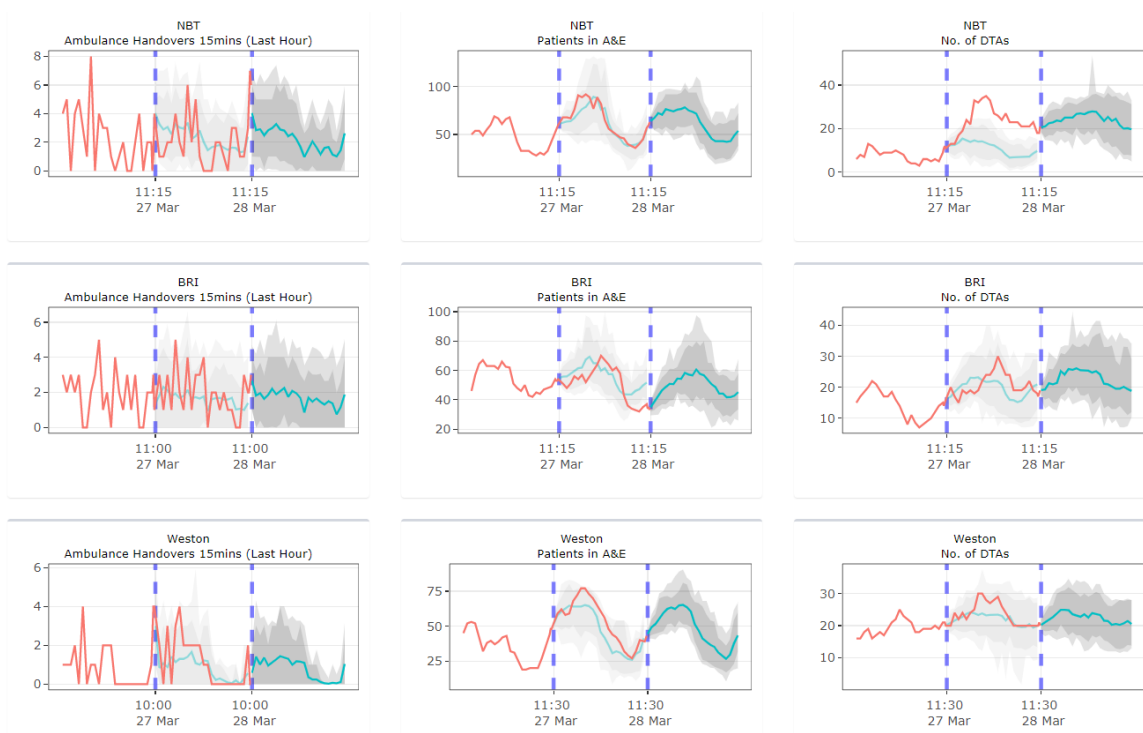
There are three major releases within the 6 months



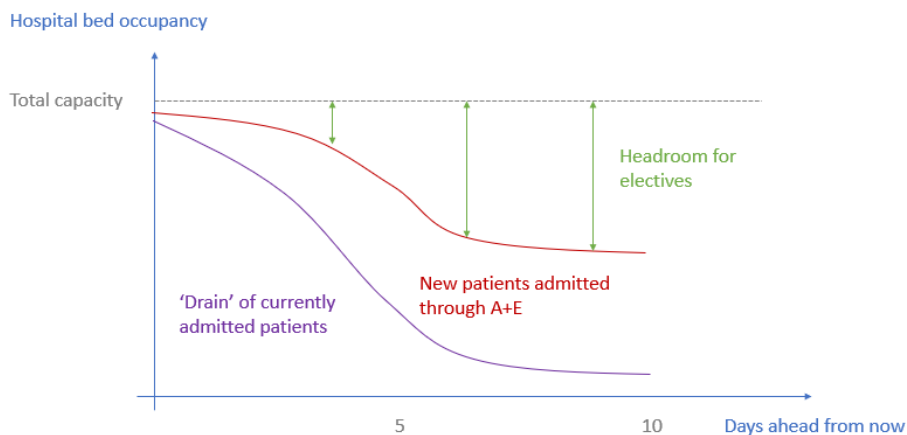
The CTCC engagement with the system has gathered feedback from clinical, strategic, and operational colleagues. Insights have been gained from system chief executives, board members, user centred design with complex discharges through the CSU from complex discharges. These insights will continue to drive our priorities, and faculty and the CTCC will collate this intelligence to ensure our solution facilitates actions.

Predictive Nowcasting Capability

The ICB modelling and analytics team have published a nowcasting suite. This worked has started with displaying live nowcasts for BNSSG using our A&E and ambulance data. This is moving our system closer to the realisation of the ability to forecast patterns of flow and impact. Visualisations of 24-hour-ahead predictions have been independently produced for urgent care related variables previously covered by the Beautiful Information system. Each prediction is obtained using only the past data for that variable. These are now available on the ICB network, updated hourly 24/7 with validated accuracy and publication pending. * https://app.bnssg.m/BI/Nowcasting_Suite/. We are beginning to embed this into our daily system management practices.



The next phase of the nowcasting suite is assessing our hospital occupancy projections. This is projecting 10 days ahead, updated daily, one for each hospital trust site. First version release for EPRR functions will be launched on 31-Mar-23, this will be shared through system flow meetings.

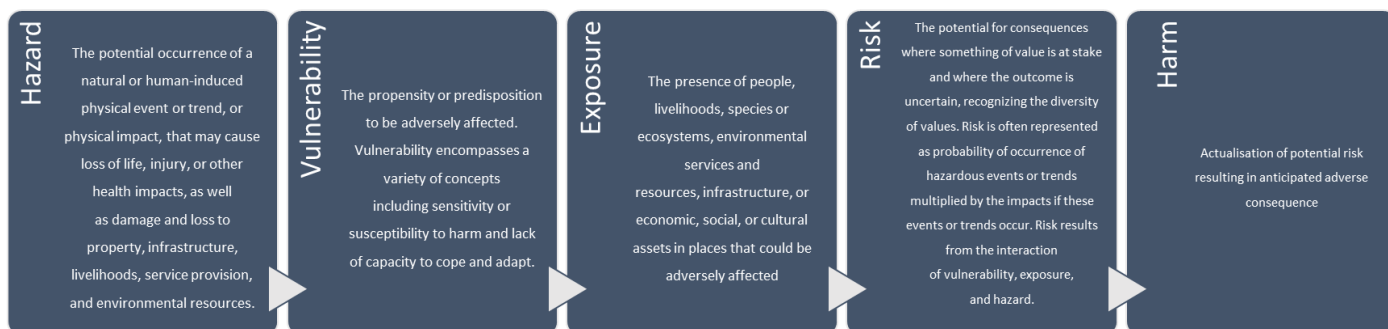


Both of these forecast developments are to be incorporated to the Frontier system, securing ICS-wide access.

Risk of Harm

A core requirement of the CTCC system has been to consider the implications of harm across our system, we have used the definitions below to scope this work.

Hazard to Harm Definition



This work has been clinically led by Dr Kieran Flanagan and has been a collaborative and iterative development process. The approach covers the following phases:

- Research, and discovery
- Proof of concept (Current stage)
- Engagement through collaborative development cycles
- “Team of teams” bringing expertise from all parts of the system (and beyond)
- Start with a single pathway – e.g. frailty
- Data schematic design
- Alpha product development

We have considered the following risk decisions:

- What pathway is best for my patient? *Admit vs don't admit*
- What alternatives are there? *discharge with P1 or P2?*
- Where are the bottlenecks in the system?

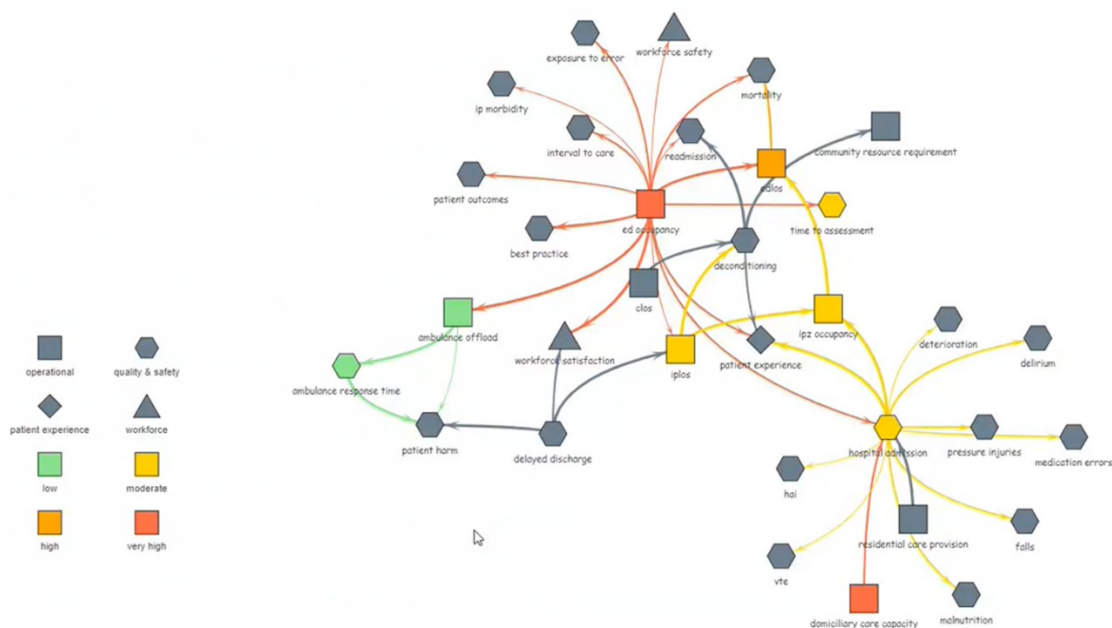
- How do we balance risk across the system?
- Where should I best deploy my team?
- Where should we invest to make the biggest difference?
- Where is risk the highest?
- Where do we need to plan for the future?

It is acknowledged that these decisions are rarely clear cut, and part of the process is to improve confidence through data, that we are making the best possible decisions.

Risk Frameworks

As part of the work, the team have explored a range of risk frameworks across different sectors including impact chains, standard models and probability and interconnection models. Building on this research a proof of concept for a BNSSG dynamic risk model has been drafted. This is currently being socialised and iterated with groups of clinical and professional stakeholders. The intention being to be able to match data against the model once this is optimised and include in the next stage of development with Faculty as an alpha product. Timelines are TBC as this will depend on the level of complexity.

CTCC Risk of Harm Proof of Concept Visualization



4. Financial resource implications

There are no financial or resource implications to raise at this point.

5. Legal implications

There are no legal implications to raise at this point.

Data sharing &/ processing agreements between providers and Faculty Ai are to be established as required to initiate data flows and analysis within the tool.

Data sharing requirements for the complex discharge dashboard build were identified through collaborative drafting and review of a data protection impact assessment, and engagement with system partner data protection officers and Caldicott Guardians. Learning from this process will be taken forward into IG discussions to support ongoing development activities with the CTCC strategic partner Faculty, including security and sharing requirements to enable the flow of patient level data.



6. Risk implications

Phase 1: Mobilisation			
Risk	Impact	Likelihood	Mitigation
Users cannot login to the dashboard.	Med	Low	<ul style="list-style-type: none"> → Soft launch on the 29th whilst Alamac service is still live to allow for login assistance and bug reporting. → Drop in sessions pre and post live date for immediate help with any access issues. → Onboarding materials to be shared with sign up
Users do not sign up to the new dashboard.	Low	High	<ul style="list-style-type: none"> → 4x comms emails drafted and to be sent to core user list to encourage sign up. → User logs will be tracked and reminders sent to individuals who have not signed up.
Bugs are reported that interrupt workflows	Medium	Low	<ul style="list-style-type: none"> → Soft launch to allow initial review ahead of Alamac switch off. → 1hr SLA turnaround for critical issues
Phase 2: Dev Functionality Pre-phase & Initial Priorities			
Risk	Impact	Likelihood	Mitigation
There is a risk that maximal operational utility and system impact will not be realised if clinical risk and financial implications on providers limits engagement and buy in to embedding new ways of working enabled via the tool.	Medium	Medium	<ul style="list-style-type: none"> → User engagement activities throughout the CTCC tool development period → Learning from the complex discharge build, testing and key user insights

7. How does this reduce health inequalities?

Poor patient flow is a healthcare inequalities issue.

BNSSG populations within deprived communities disproportionately rely on urgent and emergency care services to meet their healthcare needs. As such, transformation to provide enhanced visualisations of patient flow & risk of harm through our system will support the reduction in healthcare inequalities.

Opportunities to reduce health inequality within BNSSG via CTCC tool functionality will be worked through with Faculty Ai and system engagement on an ongoing basis.

8. How does this impact on Equality and Diversity?

There are no negative impacts that have been identified at this stage. Completion of a full EqIA is in progress to inform phase 2 mobilisation planning.

9. Consultation and Communication including Public Involvement

There has been no patient or public involvement throughout the procurement for the provision of an Urgent and Emergency Care (UEC) Intelligence System for BNSSG ICB as the live dashboard does not have a patient facing function. However, as described below, extensive user engagement activities have been completed and will continue throughout CTCC development.

User researchers from SCW CSU worked as part of the CTCC team, carrying out contextual user research, testing and stakeholder engagement throughout the CTCC proof of concept beta build (the complex discharge dashboard). This involved observations, workshops and interviews with strategic, tactical, clinical and operational teams across the system.

The team developed a series of user personas (a composite, differentiated view of users identified through research) to support CTCC's ongoing development:

 Clinical lead	 Team facilitator	 Troubleshooter	 Strategist
<p>Part of a frailty team in an acute hospital, Shona is directly involved with patients' care. She needs a complete picture of the patient's history and context so she can help achieve the right outcome for them.</p> <p>Goals Shona's priority is to ensure her patient gets the best care outcome, at the hospital and in the community</p> <p>Data & tools Mobile and laptop, mostly operational (patient level) from Careflow, hospital EPRs, Orion, Connecting Care, EMIS, spreadsheets, email, meetings</p> <p>Frustrations Lack of visibility of available capacity in community and social care, limited support to take risks in decision-making, pathway switching, having to use multiple systems to get the data needed</p>	<p>An MDT coordinator in a busy hospital, Clare needs to make best use of the combined knowledge, skills and experience of her MDT to flag and resolve issues and blocks in a time-compressed environment</p> <p>Goals Clare needs to access reliable, up-to-date information to help her MDT make timely, evidence-based decisions</p> <p>Data & tools Laptop; operational data from Careflow, Capacity Tracker, hospital EPRs, Orion, Connecting Care, EMIS, spreadsheets, email, meetings</p> <p>Frustrations Patients getting 'lost in the system', wasted time, systems that don't talk to one another, having to rearrange MDT meetings, too many phone calls, being asked for data she doesn't have to hand</p>	<p>Jan works across the system, helping to resolve problems with patient flow and access. Jan has a deep tacit understanding of the data and its limitations, and how problems in one area affect another</p> <p>Goals Jan addresses problems with patient flow across the system, particularly for stranded and super stranded patients</p> <p>Data & tools Alamac (for system data) MIDOS, EMIS (read only) Tableau Analytics Azure, Liquid Logic (LAs), Orion, spreadsheets, email, meetings</p> <p>Frustrations Lack of visibility of available capacity in community and social care, limited support to take risks in decision-making, pathway switching, having to use multiple systems to get the data needed</p>	<p>Anika is the Urgent and Emergency Lead for a major trust. She works closely with UEC leads at other trusts and the ICS, commissioning services and monitoring supplier and Trust performance</p> <p>Goals Anika needs to assure care quality, supporting UEC teams to provide integrated patient-centred services</p> <p>Data & tools Alamac/Beautiful Information (for system data in OPEL), spreadsheets, BI team (NCTR) and weekly community NCTR, MIDOS, SWAST, national data</p> <p>Frustrations Inappropriate levels of data, lack of comparative benchmarking, inconsistency in data capture, gaps in data, siloes, manual data entry taking time and introducing potential for errors</p>

Further ongoing research and engagement with system wide user groups will now be coordinated with the CTCC strategic partner, Faculty Ai, to inform new release features and development functionality within the tool.

Deborah El-Sayed has conducted 1:1s with system CEOs to hear and share CTCC priorities, visions and ambitions.

UEC live dashboard launch communications

We have issued the following emails to all system partners.

NEW ACCESS GRANTED: Frontier Dashboard

The current BNSSG UEC live dashboard (right) will be migrating to a new provider, **Faculty**.

All users will receive login information and onboarding materials via email for the new system: Frontier, on the 29th of March.

1st April all access to the current Alamac (Beautiful Information) dashboard will EXPIRE and will no longer be accessible.

The replacement dashboard will have very similar functionality to the existing dashboard and migration should be simple. Optional drop-in sessions will be provided from Thursday 30th March at 09:30 following the 9am System Flow meetings for the first week after launch, if additional support is needed.

Diary invitations for drop-in sessions will be sent out shortly.

Coming soon: The introduction of near real time data from our Integrated Urgent Care colleagues at Severnside, and the inclusion of near real time mental health data.

The Care Traffic Co-ordination Centre will be working with our partner: Faculty to evolve and develop our system dashboard.

faculty
Bristol, North Somerset and South Gloucestershire
Please contact bnssg.cic@nhs.net if you have any queries

faculty

Hi,

You've been invited by indranildasgupta to the project UEC Dashboard on Frontier.

To accept this invitation, please follow the link below to sign up or login to an existing account.

ACCEPT INVITE

Alternatively, you can open this link in your browser:
<https://bnssg.my.faculty.ai/invitation/wPaVYCrywX49DJYZOV7Ud47yqv9tfqrC5mhgB8R>