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NHS Digital

Clinical Triage Platform

Title: CTP Personalised Triage

External Supplier Proof of Concept

Document Management

Revision History

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## Definitions

|  |  |
| --- | --- |
| Abbreviation or Phrase | Definition |
| API | Application Programming Interface |
| AWS | Amazon Web Services |
| CDSS | Clinical Decision Support System |
| EMS | Encounter Management System |
| NHS Digital | NHS Digital, formally the Health and Social Care Information Centre |
| Market Engagement | means to inform and consult with the supplier market |
| PMPR | Predictive Modelling of Patient Risk |
| Personalised Triage (P/T) | The real-time use of relevant and accurate patient health information that could be used to enhance the service offered to a patient by minimising uncertainty, automating triage and supporting clinical consultation. |
| Role Based Access Criteria (RBAC) | Means access to certain services and information sources is restricted by policy criteria determined by a users role, experience and training. |
| Summary Care Record application (SCRa) | The National solution accessed via the Spine to records and information about a patient. |
| Supplier | Means an organisation and/or their representative that has/is providing systems or solutions to the UEC market |
| UEC | Urgent and Emergency Care |

# Introduction

## Purpose of this Specification

This document sets out the requirements and objectives of the Personalised Triage Supplier Proof of Concept (PoC) and specifies the requirements and objectives of the PoC activity. This document does not define the engagement plan or specific activities to be undertaken to meet the PoC Objectives, but rather seeks to outline the outputs and outcomes expected.

## Background and Context

As part of the Clinical Triage Platform (CTP) Programme, NHS Digital is looking to determine which aspects of functionality are to be included to meet the requirement for Personalised Triage. Integration with medical records may be relevant and have some bearing on some decisions taken on the triaging platform, so it is important for the triaging process to interface with or access patient history. Data from various sources including but not limited to SCR, GP Record, PHR, Care Plans and Records of Biomarkers could potentially improve triaging time and accuracy if the data is automatically consumed by the system to augment the triaging process. This will solve problems associated with excessive triage time, patients being asked questions which should be known to the system and will support clinicians to provide a more tailored consultation. Through previous market engagement, it has been recognised that supplier expertise should be harnessed to further refine CTP standards and specifications. This has been demonstrated by the behaviour of several Clinical Decision Support Systems (CDSS) and also through content-agnostic platforms which can take a CDSS and tailor or modify the content to consume patient record data.

An initial Proof of Concept using the incumbent CDSS is underway (June 2018) to explore which elements of personalised triage functionality would be desirable in future CTP systems. To support this activity, a test environment containing a simulated structured patient record data source has been established. Within this environment it will be possible to conduct further work to incorporate other CDSS systems to assess the practicality of the desired approach prior to NHS Digital further defining the functionality and specifications contemplated at the point of the initial PoC.

Supplier-led innovation will highlight what further development of personalised triage functionality is possible and this will be used to inform CTP standards and specifications for release to the market as a whole to develop their products.[[1]](#footnote-2)

The process flow for the development of this workstream is shown below. This PoC could incorporate a CDSS from a single supplier, or a partnership of suppliers working to deliver personalisation of a supplier CDSS or the incumbent NHS Pathways solution.



Figure 1. Personalised Triage Investigation and Development Approach

## Scope

The CTP programme intends to specify standards for personalised triage using structured patient data from health records. Currently patient health information is only used to support clinical consultation with read access by RBAC to the Summary Care Record application (SCRa), point-to-point integrations with GP Systems, Mental Health systems or integrated local care records, and commercial interoperability solutions. Uptake and usage of these solutions varies from provider to provider. The CTP programme will introduce integration of patient health information into the CDSS to provide intelligent personalisation of triage and to support clinicians by providing patient record information during consultation. This aims to deliver benefits to patients, clinicians, call-handlers, providers and the wider Health Service through streamlining of services and reduction in high acuity dispositions.

This PoC will aim to demonstrate and validate, based on the outline specifications, that a supplier CDSS can integrate with sources of simulated structured patient record data to provide triage and consultation tailored to the needs of each individual patient.

## Exclusions

The following elements are excluded from the scope of this PoC:

* CDSS or patient data usage in a live environment.
* Integration with the Directory of Service (DoS).
* CDSS decoupling from the Encounter Management System (EMS).
* Predictive Modelling of Patient Risk.

# Requirements of Personalised Triage Supplier PoC

The PoC will build on previous work developed and delivered via an initial PoC (PoC 1), to further explore and validate the expected personalised triage functionality utilising supplier expertise and innovation where available. This will identify whether the concept that a supplier CDSS can integrate with patient record data to tailor triage is viable. On conclusion of the PoC, we will solicit input from the wider supplier market to ensure the widest possible input to the final standards.

## Investigate integration between a CDSS and a source of structured patient data (CTP Reqt #83, 84, 37)

The linkages between a core triage system and sources of structured patient data are currently unproven within UEC triage settings in the England. This PoC will begin the process of testing likely integration between a CDSS and sources of structured data using a set of simulated patient data, created in accordance with the expected future use of SNOMED coded data suited to GP [Connect Open APIs](https://nhsconnect.github.io/gpconnect/).

The outputs from investigation of integration options will inform future interoperability specifications and enable CTP to understand which approaches are feasible and best suited to the needs of the UEC environment.

## Investigate and Develop functionality options.

The POC will determine potential areas for development of the requirements for personalised triage and inform the future requirements which will be consulted upon prior to publication to the wider market through the developed specifications. The functionality to be investigated as part of the PoC is summarised within the CTP Requirements. A summary is given below and further detail will be provided as part of discussions with suppliers after the conclusion of Non-Disclosure arrangements.

## Present Needed Information (CTP Reqt #19)

When a patient is triaged, information that is potentially relevant to the patient's condition must be accessible to the appropriate level of detail to the relevant audience. Information that may be useful to the triage decision needs to be presented automatically, such as Early Warning Scores (EWS) and Care Plans.

## Auto-populating / auto-answering of triage questions using data from patient records (CTP Reqt #66, 83)

Whilst UEC triage focusses on the immediate reason for contact, under certain circumstances it is important to establish the impact of existing conditions. The triage journey therefore contains numerous questions which refer to a patient’s previous medical history. The intent is to answer these questions automatically using structured data from patient records where it is considered clinically safe to do so avoiding asking repetitive or already known information of the patient. Data drawn from the medical records could also be used to pre-populate the relevant answer where the user would benefit from retaining the context of the question and answer, rather than a simple auto-answering mechanism.

## Present relevant information alongside the question (CTP Reqt #19, 83)

As part of the clinical consultation, the user should be able to refer to patient information that is relevant to the question in context to inform their clinical decision making during the triage and consultation process. Such information should be presented as an on-screen alert, prompt or text field alongside the main triage consultation to assist the user where information exists which might be pertinent and could potentially improve the triage or consultation outcome, with the ability to ‘click through’ to a full record to obtain further details and context. The user experience should be seamless, avoiding unnecessary and time consuming extra log-ins and pop-up windows to obtain the required information.

## Personalising of the Question Wording (CTP Reqt #24, 83)

Patients want to feel reassured that their medical information is being considered as part of their interaction, and providers want staff to have natural conversations with patients to increase patient satisfaction in their service. The system should personalise the wording of questions to reflect the patient history, give patients confidence that their personal circumstances are understood, and improve the patient experience of using UEC services.

## Clinical Safety in Patient Data Usage (CTP Reqt #86)

The system shall include measures to validate the relevance and clinical safety of historical patient record data before it is consumed by the CDSS.

## Intelligent Condition / Health management (CTP Reqt #312)

Patients with long-standing health issues are less likely to present to UEC where these conditions are managed effectively. Proactive intervention will reduce pressure on high cost services so that funds and resources can be managed effectively. The system should make use of a patient’s medical history to determine where long-standing health issues could benefit from a different triage or consultation approach with proactive support and considerations for managing underlying patient conditions. The detail of the consultation could be broad ranging, for example it could be informed by information that a patient is overdue a routine investigation, treatment, vaccination, check-up etc, and may be linked to or separate from the presenting complaint.

## PoC Scenarios

PoC Scenarios should seek to utilise the full range of patient record categories (such as medications, conditions, allergies, investigations etc.) whilst also demonstrating the functionality described above. The scenarios will be developed in conjunction with the supplier and should include the demonstration of functionality which at a minimum addresses the requirements in 2.2 but can include other recommendations based on supplier innovation. These scenarios could encompass creating additional simulated patient data where this would benefit the PoC.

# Methodology

The methodology for this PoC will be a combination of evidenced-backed discovery through engagement with supplier expertise, building on outcomes from end-user engagement already conducted as part of the Personalised Triage Discovery work, and the outcomes of the initial PoC using the incumbent CDSS. This will then be applied to the supplier CDSS integrated with simulated structured patient datasets within the CTP Test Environment to produce a working instance of the CDSS, supported by demonstration scripts.

# Success Criteria

The Personalised Triage PoC will deliver findings and demonstration of the extent of supplier ability to deliver requirements listed in section 2 of this document. The outcomes will not include or prejudice any future supplier involvement in CTP activity or commercial opportunities.

## Personalised Triage Functionality Specifications

The primary success criteria for the PoC will be establishing which of the requirements listed in Section 2 of this document are possible within CDSS solutions. All requirements should be considered in scope for development and further discovery but will be discussed with suppliers on a case-by-case basis.

## Personalised Triage Data Specifications

The PoC, once concluded and after wider consultation, should allow us to establish the Data Specifications baseline for CTP against which future CDSS should be implemented. These data specifications will incorporate the learning from integrating structured records within the test environment and the modification of triage pathways or consultations based on patient data within the supplier CDSS. Further details on the format for this specification will be contained within the CTP Data Specification documentation.

## Personalised Triage Pathways

The PoC should look to demonstrate which care pathways and consultation scenarios exhibit the best examples for the incorporation of personalised data to directly inform triage. There is no quantity associated with this success criteria although it is expected there will be a number of pathways identified for each of the areas in Section 2 above, which can then be either examined in future PoCs or built upon by suppliers as part of their product offering. Identifying the care pathways amenable to personalisation will drive market innovation and the development of new products.

## Non-Functional Criteria

The PoC environment will be hosted within Amazon Web Services.

## Test Environment functionality (CTP Reqt #269)

The test environment requirements are managed across the Digital Urgent and Emergency Care Portfolio and form part of a wider piece of work to accommodate all UEC PoCs. The CTP test environment containing the simulated structured patient records and the previous Personalised Triage PoC is the preferred solution for this PoC as it provides commonality across PoCs and meets wider NHS D platform security standards.

## Integration

The PoC CDSS will integrate with simulated patient data mimicking a structured data source which might be received from the GP Connect service (for example). No other integrations are planned for this PoC but can be discussed with suppliers on a case-by-case basis should there be a specific requirement.

## Scalability (CTP Reqt #76)

Previous PoCs have dealt with a small data set and limited care pathways in order to demonstrate the full range of desired functionality within the Personalised Triage workstream. These simulated patient records can be modified and increased in order to cater for specific CDSS features or specialisms. However, this will be limited to the actual scope and function of the individual PoC

## Performance (CTP Reqt #78)

Performance of any final integrated solution should replicate as closely as possible, that which might be expected within the live environment in terms of time taken to render question format, perform patient search, return records etc. The PoC solutions should seek to demonstrate efficient approaches that do not introduce undue latency or hamper the system performance and responsiveness typically experienced by UEC patient encounter management systems. Where possible quantitative measures will be agreed with CDSS suppliers and measured against system performance metrics. The overall performance of the wider CTP test environment is out of scope for this document.

# Outputs

This PoC will create the following outputs:

## PoC Closure Report and Recommendations

A PoC Closure report and Recommendations will be produced by NHS Digital and shared with CTP PoC and wider Programme Stakeholders. This will report on the objectives of the PoC, which have been achieved against our intended standards and how, and which have not been achieved. The report will set out the implications to the programme of the PoC outcome and any recommendations for further work or activity. The report will also cover the clinical safety, hazards and mitigations to be considered as part of the future system. If the PoC activity identifies further work required to achieve the objectives then these will be either carried over to future PoCs or left as items of further discovery or development within supplier systems.

The PoC report will be made available to the supplier market as a whole once any necessary redactions are implemented.

## CTP Document updates

Based on the findings of the PoC, the CTP Interoperability, Data and Functional Specifications documents and future PoC documentation will be updated to reflect the PoC outcome as required.

The CTP specifications documentation will be shared widely with potential suppliers and existing providers to provide an opportunity for comment and review and this feedback will inform further iterations.  The specifications created as a result of this PoC will form part of this review process and will then inform future PoCs and potentially pilots of the system.

# Partner Engagement Plan

## Roles & Responsibilities

Project Management resource will be required by both the supplier and NHS Digital.

Business Analysis support to be provided by NHS Digital

Support to test environment to be provided by NHS Digital (exact resource TBC)

Modification and updates to simulated structured data sources to be delivered in partnership by both NHS D and the supplier (TBC)

Development of the triage (CDSS) solution to be delivered by the supplier.

## Engagement Schedule

CTP have begun engagements with suppliers through Webinars and one-to-one discussion on supplier appetite for participation in PoCs. On completion of these one-to-one discussions, this document will be circulated for supplier approval and to inform further discussions. This is expected to take place within 2 weeks of the approval of this document by NHS Digital.

After completion of legal and commercial documentation to include the protection of intellectual property, a schedule for future engagement will be laid down. This is likely to incorporate an initial project kick-off meeting expected in July 2018 followed by detailed examination of the work required to meet the requirements laid down in this document. It is expected this work will begin in July 2018 with the main bulk of the PoC work beginning delivery in August.

The PoC will be delivered in partnership between CTP and the supplier with regular weekly engagements to inform on progress towards Milestones to be laid down as part of the PoC Agreement.

## Escalation

To be defined as part of the PoC Agreement. An escalation process will be implemented to support and run in parallel with the regular engagement to deliver the PoC.

## Governance and Sign Off

A Project board will be established to monitor the progress and delivery of the PoC and for signing off milestones as they are delivered. Final authority for sign off will rest with the CTP Programme board in conjunction with the supplier.

## Key Contacts

|  |  |  |  |
| --- | --- | --- | --- |
| Name | Organisation | Contact Details | Role |
| [To be completed] |  |  |  |

# Commercial and Legal

## Agreement

[To be agreed with partner – could be NDA, partnership agreement, MoU or formal contract]

## Stop Criteria

A process and criteria for stopping the PoC will be agreed between the supplier and NHS Digital. Such criteria are likely to include, where it becomes clear that delivery of the requirements listed in this PoC documentation are not feasible within the timescales agreed between NHS D and the supplier.,

1. NHS Digital will take supplier input into account to determine the desirability of potential functionality but will do so in a manner agnostic to any particular supplier system so as not to infer direct and unfair competitive advantage to any particular supplier. [↑](#footnote-ref-2)