



Business Case

[SUPPORTING DOCUMENT]

Contents

| | |
|------------------------------|----|
| Contents | 2 |
| 1. Executive Summary | 3 |
| 2. The Trauma App | 3 |
| 3. Purpose | 4 |
| 3.1 Context | 4 |
| 3.2 Product Overview | 4 |
| 4. Strategic Context | 5 |
| 5. Case for change | 5 |
| 5.1 Business Needs | 5 |
| 5.2 Health Impact | 6 |
| 5.3 Quality Impact | 6 |
| 5.4 Benefits | 7 |
| 5.5 Evidence | 8 |
| 5.6 Risk | 9 |
| 6. Available Options | 10 |
| Options currently available: | 10 |
| 7. Preferred Option | 12 |
| 8. Funding and Affordability | 12 |
| 8.1 Cost of solution | 12 |
| 9. Measurable Benefits | 13 |

1. Executive Summary

When assessing and treating Trauma Patients, the Major Trauma Service/ED department wishes to introduce an innovative digital solution to replace existing paper-based scribing processes. The process of documenting a Trauma patient is difficult and multi-faceted and therefore an easy to use and intuitive solution is required to improve patient outcomes through enhancing clinical decision making and reducing administrative burden.

In a lot of current Trauma Care practices, the scribing process, at the point of care, is usually done on paper. *[if scribing practice is done digitally then specify how and the challenges here instead]* This requires the Trauma Team Leader (TTL) to collate all the paper at the end of the Trauma case and retrospectively input this into any EPR documentation or transcribe it formally into a written proforma. This is a time-consuming task which lacks standardisation in terms of what information is collated, the time in which it is collated, and it often poses a risk of missed / lack of information and context. In the case of NHS England, this consequently can have a negative impact on the patient and can have some financial implications for the organisation in lost National Major Trauma Registry (NMTR) Best Practice Tariff.

In 2017, NHS Scotland initiated an innovation project to explore options to digitise their current paper processes to support clinical data entry within the four Major Trauma Centres (MTCs) in Scotland. Clinical representatives from all four regional MTC's in Scotland partnered with Daysix Ltd (through a series of funded projects, including InnovateUK under NHS Glasgow and Greater Clyde (NHSGGC) Innovation governance) to co-design and co-develop the Trauma App.

The solution is the Trauma App which is an iPad application designed for Major Trauma Care clinicians, working within a hospital's Emergency Department (ED), to digitally document patient care in major trauma cases. The app, which is connected to the hospital's server, allows for data collection through an iPad App user interface.

The Trauma App aims to streamline this process by replacing paper forms and retrospective note-taking, tracking the full trauma case, and capturing and monitoring interventions in real-time. It seeks to improve adherence to the Advanced Trauma Life Support (ATLS) protocols, which is an international standardised approach to trauma care, addressing the acknowledged variations in trauma care.

The scope of the project is that it will be used by the Emergency Departments (ED) with the support of the NHS Organisations Major Trauma Service teams, which will give access to various professionals (i.e., surgeons, orthopaedics, neuro, anaesthetics, ODP's and medics) to support the care and management of the patient.

The cost of implementing the 'Trauma App' is made up of setup, annual licence and integration costs and is outlined in the pricing document found via thetraumaapp.com/onboarding

2. The Trauma App

The Trauma App has been co-developed between Daysix and NHS Scotland to improve how patient care, interventions and clinical decisions are documented during Trauma calls in an Emergency Department (ED). It is intended to be mainly used by trauma scribes and has been designed based on ATLS best practice and so can be used by any Clinical organisation that cares for trauma patients. The app has been designed to digitally enable trauma scribes to document the cares of a trauma patient live, whilst allowing a collaborative approach to documentation from the wider trauma team. The other benefits of the app include surfacing of data via the use of NEWs/PEWs as well as Power BI.

The app offers multi-user support allowing other team members to view and input data concurrently meaning that multiple users can interact with the one patient case all at the same time. This is intended to support other members of the trauma team who also currently have documentation duties, such as the person managing blood transfusions. DaySix Ltd can provide an audit trail of when information has been accessed and by whom, for data protection and quality measures, however, they are working towards building this functionality into the app to allow individual users with the appropriate permissions to access simplified logs from the dashboard.

We strongly believe that this will revolutionise how a trauma patient's journey is documented from the point of standby call, right through to discharge. This will provide a more streamlined, structured, standardised process for clinicians, offering multiple benefits and ultimately provide patients with better care, in line with the NHS values. There is also an urgent requirement for the NHS to meet the standards set by NMTR (National Major Trauma Registry) and STAG (Scottish Trauma Audit Group), for which NHS organisations collate data relating to the best practice tariff. Due to historic issues with documentation, organisations have not always met these standards, which in some cases has resulted in financial loss.

3. Purpose

3.1 Context

The Trauma App solution is the primary recording tool for clinical cases within NHSGGC and Alder Hey Children's Hospital, led by the Major Trauma co-coordinators with case data uploaded into the hospital's Electronic Patient Record (EPR).

The remaining MTC's in Scotland are in trial/piloting phases with a number of MTCs and Trauma Units (TU) in NHS England embarking in a trial/piloting phase.

Clinicians at NHSGGC and Alder Hey are available upon request for references.

3.2 Product Overview

The Trauma App (App) is an iPad application designed for Major Trauma Care clinicians in a Hospital Emergency Department (ED) to digitally document patient care in major trauma cases. The app, which is connected to the hospital's cloud server, allows for data collection through an iPad App user interface.

Data is stored directly on the device for offline use and regularly synced to the cloud to ensure continuity, in case of device failure. Upon case closure, a clinical user verifies and signs off the data, which is then transferred to the cloud and deleted from the local device immediately.

The app captures the whole patient ED journey from team preparation, prior to patient arrival, through to the patient being moved out of the emergency department and into the onward care pathway. The app covers the full spectrum of patient treatments provided in a trauma bay and has bespoke forms which allow scribes to maintain high quality documentation, despite the fast pace at which care is delivered in the "golden hour".

When the patient moves from the Emergency Department, a high fidelity PDF case report is generated, and structured data (e.g FHIR) is pushed to the hospital digital records. Signed off cases are also accessible through a web based dashboard.

4. Strategic Context

Please provide an overview of the context within which the investment will be made. In other words, the strategy, work programme, service, project or operation, which the investment supports.

Provide an overview on how it will contribute to Strategic Alignment and impact of your NHS Organisation.

The Trauma App will replace and improve on existing scribing practice [insert here], and features:

- Robust, time-stamped, real-time data collection at the point of care to enable analysis of the clinical care processes.
- Allowing for rapid documentation on an intuitive digital user interface on iPad.
- Integrated lite clinical decision support providing key prompts to clinicians.
- Surfaces existing care frameworks and internationally used ATLS protocol.
- Enables standardised automated reporting of Major Trauma Care to reduce variation to support safety, quality and clinical review.
- Hand-held wireless multi-device multi-clinician input on the same case.
- Captures more data than existing processes.
- Integrates with the hospital's existing technologies, pushing and pulling data.
- Surfaces data in Power BI analytics format for clinical review.
- Displays data in familiar formats (e.g. NEWS/PEWS observation charts).

With a continued clinical investment, the app is regularly updated and innovation into development in broadening the app's capabilities for documentation in the ED (e.g. Pre-hospital, Resus, Rehabilitation).

5. Case for change

5.1 Business Needs

Provide an overview on how it will contribute to Business needs of your NHS Organisation

NHS Scotland needed to deliver an integrated, quality tool to facilitate data collection and accessibility to support patient care. This is particularly important given the busy and time-critical nature of trauma incidents. Resource demand is significant during major trauma cases and there is a need to optimise clinical workflow and release staff to manage competing pressures.

The challenges in this however were massive:

- Trauma cases can often include a large team of multi-disciplinary clinicians, many of whom will be called in to the case at various points of the patient episode, and it is imperative that they can see clearly what has, and is, happening with the patient at that precise moment in time. Previous processes relied on verbal updates, or a great deal of time being spent searching core clinical Applications or paper forms to assess the situation. The App significantly streamlines this providing live data input.
- Treatment of trauma is highly protocolled and there are internationally accepted standards to which the clinical team must adhere. Not only should the App adhere to this, it should also lead the users through the trauma journey in a logical, standardised approach.

- Previous processes in Trauma relied on a scribe, who wrote a chronological synopsis of the case down on paper forms. The App addresses many of the risks and issues associated with that. Paper can be misplaced, misfiled or be illegible – the App aims to remove these concerns, as all data was stored in real time in a structured, legible, methodical manner, clearly visible in the App and subsequently in the current core clinical Applications instantly.
- Data audit is intrinsic to monitoring and improving the patient experience in Trauma. Prior to the introduction of the App, the clinical team had to spend a great deal of time ensuring that relevant data items were recorded in downstream Applications to ensure that KPI's and trends could be monitored. The App aimed to provide a 'single source of truth' through the trauma centre dashboard, with data relating to current and discharged patients available at the click of a button. More so, data is immediately available for audit and monitoring purposes, removing the requirement and risk associated to subsequent data re-entry.
- Trauma care is standardised throughout Scotland. The development of the app allowed clinical consensus on key areas to be developed. Trainees and specialists may have intermittent involvement in trauma cases and creation of framework supported by the app can support reduction in variation in care.

5.2 Health Impact

Provide an overview on how it will contribute to improving the impact on health of Patients for your NHS Organisation

- This patient centred app will improve the quality, consistency and accuracy of data recorded for patients receiving care creating an efficient and accurate set of notes.
- The data collection aspect will accurately monitor standards of care creating a safer patient journey and ultimately aim to improve outcomes e.g. timely imaging, appropriate level of specialty in attendance and accurate documentation of procedures and prescriptions.
- The ease of data reflection can help promote improvements in practice also improving a more effective delivery of high specialty care. There is an associated business intelligence dashboard that enables analysis of key performance indicators to monitor processes such as time to CT.
- It is hoped that the App will radically improve trauma care delivery as a reduced variation standardised care, improves outcomes and saves lives.

5.3 Quality Impact

Provide an overview on how it will contribute to improving the quality of care/quality of service for your NHS Organisation

A new app for inputting patient information from the point of standby call in the ED Department will create a positive digital future for Clinicians and Patients. It will lead to a higher quality of work, a faster turnaround time and better communication within the teams. It will also lead to a much higher quality of care that is given to patients as the information is inputted in 'real time'.

Over several years, we have heard that many clinicians within ED Departments within NHS Scotland and NHS England, have worked with their IT colleagues to try and create a more robust process of documenting a trauma patient; however due to how multifaceted the process and care of these types of patients are, the outcomes have never quite fit the purpose. This problem has resulted in a time difficulty for the ED Department, as it takes a long time to sufficiently document all the data required and does not provide ease of communication between the trauma team and the wider hospital. The hospitals have also been financially

disadvantaged in relation to lost STAG/TARN/NMTR Trauma Tariffs, as some data has not been captured or the information is not easily made available for viewing which has meant the trauma tariff could not be awarded.

The 'Trauma App' allows more control over the patient information, as the information that is required/essential, is already inputted and therefore prompts the user to add all necessary information required to make a clinical decision. Previously, most of this information was missed/ limited/ illegible or obtained in a different order. The Trauma App provides a standardised patient record of information, allowing for real-time information to be seen by clinical staff and therefore, providing a higher standard of care for the patient in a faster turnaround time. This will provide the utmost support for our clinical teams in delivering the best service possible as well as reinforcing the NHS vision of world-leading healthcare.

The Trauma App is a constantly evolving project, with the hopes of ongoing development to the app, as we listen to the wants and needs of the clinical staff to aid and facilitate their roles and to provide the best care to all their patients.

5.4 Benefits

Provide an overview on the benefits you perceive will arise at for your NHS Organisation

Overview:

- Enables closer analysis of the clinical care processes.
- Reduces variation and standardises care, improving patient outcomes.
- Enhances accuracy of reporting to Trauma audit bodies.
- Improves access to any available uplift tariff with audit bodies.
- Reduces administration requirements saving time and money.
- Reduces length of stay by improving pathways of care.
- Real-time metric against KPIs, surfacing Power BI tools, enhancing analysis.
- Prompts to help deliver specific care elements safer with assurance.
- Provides learning opportunities for clinicians with access to performance data.
- Identify and spread examples of excellent practice.

For Clinicians:

- Helps them perform at their best - Active decision support at the point of care increases their ability to deliver safe and consistent care (especially helpful when nearing the end of long shifts where tiredness is a proven issue). The Trauma App actively evaluates all data points and reviews against the ATLS protocol to lightly prompt clinicians with excerpts/references when relevant.
- Time saving / Reduce admin - Automated reporting, reducing paperwork and validation to ensure completeness. (No case admin after the clinical episode, no illegible handwriting, reduction in follow-ups from colleagues and no loss of key data.)
- Immediate performance data - Surfacing of appropriate key performance indicators provide instant validation of the care delivered. Additionally, metrics provide a growth target and a means to analyse personal performance.

For Patients:

- Improved care - Optimised care delivery in the Emergency Department, increased adherence to checklists and reduction in variation.
- Reduced morbidity and mortality
- Enhanced rehabilitation pathways

For Hospitals:

- Increased revenue - Increased accuracy of documented procedures, prescriptions and tests. More acute billing to insurance companies and increased uplift from national audit bonus schemes (e.g National Major Trauma Registry (NMTR) within NHS England).
- Cost savings - Reduced requirement for administrative staff to collate and prepare trauma documentation.
- Reduced patient stays - Improved patient outcomes leads to reduction in ongoing bed usage for major trauma patients.
- Improved documentation - Vastly improved case documentation, improving communication of patients travelling through hospital departments while affording better protection from litigation.
- Simplified national reporting - Improved adherence and reporting to national standards with much lower administrative footprint.
- Real time performance metrics - Review overall hospital performance against national KPIs in real time. (Existing paper systems see hospitals looking at data that is 6 months behind making it difficult to evaluate the overall impact of optimisations)
- Identify weaknesses early - Live data feeds enabling offering rich insights to help identify strengths and weaknesses and facilitate rapid evolution of practice.

For Boards & Trusts:

- As above for hospitals.
- Performance evaluation across the entire network - Compare hospital performance across the network to identify where support is needed early.

5.5 Evidence

Following conception and development in partnership with the 4 Major Trauma Centres in Scotland spanning a 4 year period, the App began use in live trauma cases in 2021 in NHS Scotland, NHS Glasgow and Greater Clyde (GG&C) at the Queen Elizabeth University Hospital (QEUEH). In 2023 Alder Hey Children's hospital was the first site in NHS England to begin using the App live in practice.

Published Research Studies:

- Usability & Data Completeness studies have been carried out on the App at the QEUEH and NHS GG&C.

Results show that digital real-time recording of clinical events using a tool such as the TraumaApp is comparable to completion of paper proforma. The System Usability Score for the Trauma App was above the internationally validated standard of acceptable usability.

Links to these research papers can be found at thetraumaapp.com/resources

Planned Research Studies:

- QEUEH and NHSGGC are in the planning stages for evidencing the administration time saving impact of reporting to the Scottish Trauma Audit Group (STAG).

Future Research Studies:

- Clinical teams using the App are being encouraged to support further study to evidence:
 - Speed to key KPI's (e.g. Time to CT, Time to TXA, Time to Antibiotic)
 - Reduction in Error

- Audit body uplift tariff impact as it relates to NMTR Uplift Tariff.

5.6 Risk

There are key risks below which will be mitigated with the implementation of a new Trauma application:

- Reputational / Competitors – Other Trusts will have applications/ processes that are continuously improving
- Clinicians using traditional paper scribing, do not have ease of access to patient information
- Clinical staff may miss information due to illegible writing or information may not be noted down
- The collating of patient information is not standardised across the departments
- There is a lack of / delayed communication between the departments
- Delays in decision making
- Delays in sending across clinical information
- No 'real time' documentation reporting functionalities
- NHS trusts are being financially disadvantaged in relation to lost STAG/TARN/NMTR Trauma Tariff due to lack of information.

6. Available Options

Options currently available:

| No | Option | Benefits | Constraints |
|----|-----------------------------------|--|--|
| 1 | Do Nothing | <ul style="list-style-type: none"> • No financial costs of procuring the app • No financial costs of hosting the app | <ul style="list-style-type: none"> • Remain on a paper based system which is time consuming and complex. • Challenges to reading and understanding written scribe notes due to illegible handwriting. • Missing data or information not stored together • No structured data recording for major trauma with limited capability for reporting, clinical review with resulting variation in recording of major trauma cases. • Significant resource that is now being adopted in the UK is not being used by developing centres. • Reputational damage and no realisation of benefits of delivery of project as outlined. • Continued loss/unmet targets in relation to STAG/NMTR • Patient safety is at risk. • Lack of audit trail. • No electronic patient records • Lack of communication between all members of the Major Trauma Team |
| 2 | Fund and implement the Trauma App | <ul style="list-style-type: none"> • Improve Patient care • Improved Patient safety • Improve Clinician satisfaction • Maintain the highest standards of information governance • Early identification of trauma patients allowing them to get the right care at the right time. • Reduction in variation in reporting • Enabling reporting and supporting clinical teams to review cases and manage ongoing quality improvement. | <ul style="list-style-type: none"> • Annual Licence fee for the Trauma App • Annual Hosting fee for the Trauma App |

| | | | |
|--|--|---|--|
| | | <ul style="list-style-type: none"> ● Meet the requirements of the STAG/NMTR and avoid the financial loss of not meeting the standards ● Increased revenue as a result of STAG/NMTR audits ● Improved documentation ● Standardisation across the Major Trauma Service ● Improved communications across all departments and members of the Major Trauma Team ● Clear accountability ● Reduced transcription errors ● Reduced delays ● Records automatically stored in the patients EPR for ease of use ● 'Real time' patient information ● Improved visual communication between clinicians in the ED Resuscitation rooms and wider departments ● Increased performance ● Increased user experience ● Time reducing for the clinicians and non-clinical staff ● Reduction of paper use ● Reduction of additional spending on paper ● Allows a multi-user service ● Highly secure data storage for patient information ● Offline availability ● Ability to self-host with the help of the supplier if required | |
|--|--|---|--|

7. Preferred Option

Option 2 is the preferred solution, as it provides the most sustainable option to address the drivers for change identified in the case. This would benefit the Trust and provide a robust and interactive process for documenting all the care and interventions that a patient receives who have been involved in a Major Trauma Incident. This would provide a structured and standardised procedure which will positively impact both users and patients. The Trust would also benefit financially as they would meet the requirements of the Trauma Audit and Research Network, which could be successfully awarded.

8. Funding and Affordability

8.1 Cost of solution

| | |
|---|---|
| Cost of set-up | £ |
| Cost of Trauma App License (Annual) | £ |
| Cost of Integrations | £ |
| Cost of iPads and equipment | £ |
| Cost of iPad management software (if applicable) | £ |
| Cost of other resources to implement Trauma App (e.g. project management, training support, administration) | £ |

9. Measurable Benefits

| Benefit Title | Benefit Description | Benefit Type | Source of measurement | Baseline Target | Target |
|-------------------------------|---|--------------|------------------------------|-------------------------|--|
| Improved patient care | The improved documentation, reduced delays, increased adherence to checklists and reduction in variation will improve optimised care delivery within the Emergency Department for those involved in a Major Trauma Incident. The surfacing of appropriate key performance indicators provide instant validation of the care delivered. | Qualitative | STAG/NMTR | Outcome of STAG/NMTR. | To see an increase in meeting the requirements / standards for STAG/NMTR. |
| Improved documentation | The more robust, streamlined, chronological and efficient data capture will improve documentation for both clinicians and scribes to carry out their duties efficiently. | Qualitative | Internal Staff Survey | Outcome of staff survey | To see a decrease in clinicians feeling that the documentation needs improving. |
| Improved clinician experience | The efficiency of data and information capture will improve clinical experience by allowing for improved documentation inputted by scribes, allowing for a reduction in delays due to unconfigurable writing, missed information and the need to scan in paper records. | Qualitative | Internal Staff Survey | Outcome of staff survey | An increase in positive feedback from clinicians in terms of the documentation process |
| Improved scribe experience | The efficiency of robust, streamlined, rapid data entry will improve the experience for scribes as it provides a chronological order for inputting patient information therefore providing a prompt for data capture. | Qualitative | Internal Staff Survey | Outcome of staff survey | Improved scribe experience |
| Reduction in staff time | The time in which it takes staff to submit the Trauma documentation from the time of admission will be reduced due to improved documentation and negating the need for paper notes to be written and scanned on to the system. There will also be a reduction in follow ups from colleagues and no loss of key data due to flexible accessibility of the app. | Quantitative | Time in Motion Study / Audit | Outcome of audit | Reduction in staff time |

| Benefit Title | Benefit Description | Benefit Type | Source of measurement | Baseline Target | Target |
|-----------------------------------|---|--------------|------------------------|--------------------------|-----------------------------------|
| Reduction in clinician time | The time taken to complete a STAG/NMTR submission will be reduced due to more robust, streamlined, chronologic documentation. | Quantitative | Time in Motion / Audit | Outcome of audit | Reduction in clinician time |
| Increased reporting functionality | Automated reporting will allow for a higher efficiency of reporting which will improve auditing functionalities. This will reduce administrative burden when completing documentation and TARN submissions. | Qualitative | Internal Staff Survey | Outcome of staff survey | Increased reporting functionality |
| Increased revenue | The efficiency of data capture and increased accuracy of documented procedures, prescriptions and tests would lead to more accurate STAG/NMTR submission data for BPT [Best Practice Tariff] award leading to an increased revenue for the Trust. | Quantitative | Financial reporting | Outcome of STAG/NMTR BPT | Increased revenue |