The shape of things to come

IT assurance
Major trauma

Appendix 6d
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1 Introduction

The London Programme for Information Technology (LPfIT) and the Healthcare for London major trauma project have been working collaboratively. They have examined areas of IT support and infrastructure that could be developed and implemented to underpin and improve the delivery of major trauma services in London.

This paper will be presented in two parts: Part A, which will provide an outline of the description of any assurance affecting the JCPCT decision; and Part B, which will outline the additional information relating to the implementation of the proposed IT systems and infrastructure for the London trauma system.

2 Executive summary

Part A
- No factors have been identified within the proposed IT support systems and infrastructure for the trauma system, which would impact on any decision made by the JCPCT in such a way as to discount a particular decision or option of networks;
- No factors have been identified in relation to the proposals by LPfIT, which would influence any decision reached by the JCPCT.

Part B
- Two areas have been identified that will improve information sharing and management across major trauma services. These are emergency electronic imaging sharing; and Trauma Audit & Research Network (TARN) information and data collection.
- LPfIT and the Department of Health (DH) are to work collaboratively with the major trauma project to develop a business case and project plan for image-sharing that uses both picture archive communications systems (PACS) exchange and image exchange portal (IEP) for the trauma networks for London and outside London.
- Healthcare for London will continue to work with TARN to ensure that the requirements for data collection for the performance management of the London trauma system can be fulfilled by the use of TARN. It is proposed that LPfIT and Healthcare for London work collaboratively with TARN to submit a request to the Clinical Content Assurance and Approval Process for the agreed TARN dataset.

3 Scope and context

In conjunction with the clinical expert panel for trauma, LPfIT has been able to identify the key elements of IT which would support the implementation of the Healthcare for London proposals for trauma networks in London. These revolve around:

1. emergency electronic imaging sharing – the ability of trusts within a major trauma network to share high-quality images of injured patients in an emergency, enabling rapid review, referral and transfer.
2. TARN data collection – the ability to improve the TARN data collection and coverage. Work will commence with identifying the clinical content as a national standard, which will facilitate the effective collection of TARN data as new IT systems are rolled out across trusts.

4 Part A – Assurance

This section will outline the description of assurance affecting the decision to be taken by the JCPCT:

1. Any factors that determine whether a particular decision/option should be discounted.

LPfIT has engaged with the proposed major trauma centres to identify the needs and constraints of current IT systems in relation to the establishment of trauma networks, and the implementation of an IT infrastructure to support the trauma system. Within this, no factors were identified for any configuration to suggest that the proposal made by LPfIT would impact on any decision made by the JCPCT in such a way as to discount a particular decision or option of networks.

2. Any factors that influence a decision and should be considered 'in the round'.

No factors have been identified in relation to the proposals by LPfIT which would influence any decision reached by the JCPCT.

5 Part B – Supplementary information relating to workstream implementation

This section will provide a description of the proposed models of IT support available to the trauma networks and the implementation process surrounding these models.

5.1 Electronic image sharing

PACS is one of the IT successes of the NHS, with every acute trust in the country being able to take and store images digitally. However, although this has had a positive impact within individual trusts, there is currently no national system for electronic image sharing between Trusts. In some areas, specific networked solutions have been made available but these do not provide a comprehensive solution across London. Images are often physically transferred in formats that cannot be read by receiving trusts. This means that advice and referrals may be delayed and imaging may have to be repeated. Electronic image-sharing across the trauma network has been identified as an important element in enabling the rapid transfer of patients to the necessary centres for treatment.

Each proposed trauma network also includes trauma centres which are outside London. Given that there is currently no national system for image-sharing, it is proposed that by using the IEP solution alongside the PACS exchange network, trauma centres will be able to share images across networks irrespective of location. The IEP solution is supported by the DH to allow independent suppliers to transfer images to the NHS.
5.1.1 The PACS exchange

The PACS exchange is a service that will enable trusts to share images across London. All London acute trusts have signed-up to this piece of work, and the implementation roadmap indicates that they will be connected by April 2010, which is consistent with the current implementation dates for the establishment of major trauma centres. The PACS exchange has designed an emergency workflow that will allow emergency image sharing across acute trusts.

<table>
<thead>
<tr>
<th>PACS Exchange (LPfIT) Business Process</th>
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<tbody>
<tr>
<td>Trust A</td>
</tr>
<tr>
<td>Request for informal/formal review of images</td>
</tr>
<tr>
<td>Clinician pushes images to PACS Exchange</td>
</tr>
<tr>
<td>Clinical assessment/ review of image communicated</td>
</tr>
<tr>
<td>PACS Exchange Emergency Folder</td>
</tr>
<tr>
<td>Trust B</td>
</tr>
<tr>
<td>Clinician agrees informal/formal review of images</td>
</tr>
<tr>
<td>Clinician obtains image via PACS Exchange Web Browser or imports to Local PACS</td>
</tr>
<tr>
<td>Clinical assessment made</td>
</tr>
</tbody>
</table>

The speed at which the images can be downloaded from the PACS exchange to be viewed in the receiving trust is:

- 318 images = 3 min 13 sec
- 597 images = 6 min 29 sec
- 2129 images = 16 min

The image quality will reflect the system used in the receiving trust.

5.1.2 Image Exchange Portal

The IEP solution is procured by the DH, and assured and deployed in conjunction with Connecting for Health. It was designed initially to allow independent sector healthcare providers to export images into acute trust PACS systems, but it also supports the functionality necessary for trust-to-trust transfer. Currently, this solution is being implemented in acute trusts across England to enable image-sharing.

There is a potential for this solution to be developed to support specific image-transfer for trauma, and additionally to work in conjunction with the PACS exchange to enable the importing and sharing of images from outside London.

Both solutions are therefore integral to image-sharing across the trauma networks and it is therefore proposed that both PACS exchange and IEP are implemented. Further work is needed to explore the potential for IEP to work in conjunction with PACS exchange to share emergency images.
Conclusion
LPfIT and DH will work collaboratively with the major trauma project, involving relevant clinicians to develop a business case and project plan for image-sharing that uses both PACS exchange and IEP for the trauma networks for both within and outside London.

5.2 TARN data collection coverage and streamlining TARN data collection

The aim of the London trauma system is to provide a high quality trauma service to the population of London and neighbouring areas. In order to measure the performance of the system, a number of metrics will need to be collected and evaluated from a number of different sources. The existing system can be used to gather the majority of relevant data on which can be collated to measure and demonstrate performance.

5.3 The TARN dataset

TARN is a UK organisation with subscribers from across the world. It gives users access to an online trauma information database. Hospitals submit data on individual patients who fulfil specific inclusion criteria, based on injury severity. Extensive data is inputted across a number of fields which is then subjected to a verification process. Following this, TARN calculates and publishes the observed and expected mortality rates for each centre online, so that trusts can compare their performance with other centres treating trauma patients.

The TARN dataset is very comprehensive, and completion of all fields would be time consuming, so there is a minimum dataset to be completed for each patient for whom data is submitted. At present, TARN collects information on an individual trust basis. Healthcare for London is working with the TARN team, as the needs of a Trauma system in relation to information collection are different to those of individual Trusts. TARN are able to adapt the way that data is collated so that it can be presented on a network and London trauma system basis to enable performance monitoring by network and across the system. Any additional fields, which will be required by the London trauma system can be added to the database to enable specific monitoring. Once the performance framework is agreed, further work will be undertaken with TARN to enable effective data collection and interpretation.

5.4 TARN coverage in London

At the start of the Healthcare for London trauma project in 2007 only one of the capital's hospital (the Royal London Hospital) had submitted a full dataset to TARN. Two other trusts submitted partial data. This has meant a historical lack of robust data on the incidence of major trauma in London. In the absence of the ability to triangulate the data received from the London Ambulance Service, analysis on the data from helicopter emergency medical service (HEMS) and the Royal London Hospital was undertaken to determine this number.

There is now improvement in the number of centres submitting data to TARN. All five potential major trauma centres which form the consultation options are submitting full data sets to TARN, and an additional 12 trauma centres from across London have subscribed and will be commencing data collection shortly. Major trauma centres will
be working with the trauma centres in their networks to support them in becoming established in their TARN data collection.

5.4.1 Streamlining TARN data collection

It is essential that all trusts within the London trauma system participate in TARN and at the current time the comprehensive TARN dataset is being completed using data that is collected from a variety of paper and electronic sources then entered online. This process is inefficient and labour intensive. In order to streamline this process it is proposed that the information required for TARN be flagged so it can be rapidly identified and inserted into TARN for patients on whom data is being collected. To achieve this, IT suppliers would have to configure the clinical IT systems with the TARN data set identified within the clinical documentation data fields.

5.5 National Clinical Content Service

The National Content Service within Connecting for Health has a process in which to assure and approve clinical content that should be used within clinical systems. The purpose of this process is to ensure that the clinical content:

- is fit for the stated clinical purpose;
- is an approved professional standard;
- has received multi-professional assurance from all relevant professions involved in using/viewing the standard;
- is supported by evidence that the standard is usable, reproducible and useful to the professionals who have to conform to it;
- is clinically safe;
- is implementable at national and or local level;
- satisfies inter-operability requirements so that information is able to move between systems without loss of meaning, integrity or context;
- is compatible with logical record architecture;
- complies with ISB HaSC specifications and has been accepted as an operational information standard.

It is proposed that LPfIT works collaboratively with the major trauma project and TARN in submitting the TARN dataset through the National Clinical Content and Assurance Process to achieve an agreed dataset that can be submitted to the National Clinical Content Repository. This will improve the efficiency of the TARN data collection by enabling rapid recognition of appropriate data within clinical IT systems.

5.6 Conclusion

TARN is an existing system which enables the collection of data on patients who have suffered major trauma. From a baseline of poor submission of data to TARN, progress has been made which means that currently approximately one third of trusts who treat trauma patients are now signed up to TARN, if not yet submitting data. Healthcare for London will continue to work with major trauma networks and TARN to ensure that the requirements for data collection for the performance management of the London trauma system can be fulfilled by the use of TARN.

Healthcare for London, LPfIT and TARN will work together in submitting a request to the Clinical Content Assurance and Approval Process for the agreed TARN dataset.