Final report

July 2016

Innovating for Improvement

Quality Trauma Discharge

North Bristol NHS Trust

The Health Foundation

About the project

Project title:

Quality Trauma Discharge

Lead organisation:

North Bristol NHS Trust

Partner organisation:

N/A

Project lead/s:

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Contents

Part 1: Abstract

UK Major Trauma Networks were launched in 2012 and have reported significantly reduced mortality in the first years of operation. North Bristol NHS Trust is the adult Major Trauma Centre for the Severn Major Trauma Network, one of two in the South West serving an adult population of 2.5 million.

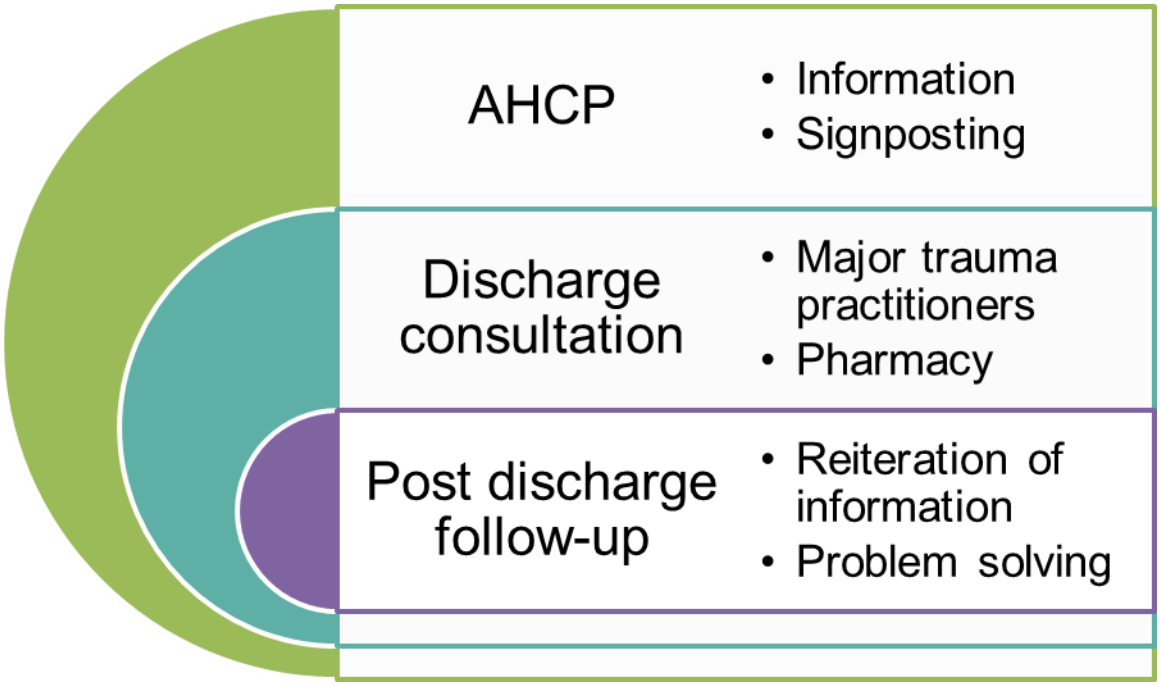
In the national service specification Major Trauma Networks are mandated to deliver a system of care from pre-hospital through to rehabilitation. Whilst mortality has reduced, post discharge and rehabilitation concerns remain the most common issues identified at annual national peer review visits. The current discharge process is focused on the patient leaving hospital rather than as an opportunity to educate and facilitate enhanced recovery. Anxiety, uncertainty about provision of care post discharge and confusion about medication are frequently described at follow up as well as unscheduled healthcare attendances.

Pre-intervention patient questionnaire responses, 2015

'There was a bit of a problem with communication… At my local hospital it feels like everyone's at a bit of a loss what to do with me… it's a bit of a shambles'

'…I felt cast adrift'

The Quality Trauma Discharge (QTD) is intended to mitigate or avoid these issues through the implementation of simple measures based on concepts described in the Re-engineered Discharge (RED) Project (Boston, USA). The delivery of a comprehensive discharge consultation with a trained trauma practitioner and pharmacy counselling, provision of a personalised discharge pack (After Hospital Care Plan- (AHCP)) and follow-up contacts are designed to reduce the identified and potential problems. These interventions are designed to educate and empower patients and their families to better manage the sometimes difficult move from hospital back to the community. Furthermore, we feel that informed patients who are placed at the centre of their care can facilitate the seamless transition of information between specialist services and primary and secondary care.



Elements of the Quality Trauma Discharge Intervention

The project commenced with the establishment of a robust system to gain consent and collect data in order to establish our baseline pre-intervention activity. Concurrently we developed the intervention taking into account previously identified areas of need, similar overseas projects, the engagement of stakeholders and the results of pre-intervention data collection.

During the initial phases of implementation, we introduced the intervention incrementally. This allowed us to review and reflect on process and effectiveness, allowing real-time refinement and learning. Early refinement was crucial to guide the transition to a patient-controlled electronic version of the AHCP. Implementation of the QTD concept in a 'future-proof' format will help to ensure the intervention is sustainable and reflects society's demand for online resources and instant messaging. We have received overwhelmingly positive feedback from our patients which has increased the enthusiasm for the project within our team and enhanced their engagement with the delivery of QTD. An unanticipated benefit to the intervention has been an improvement in patient safety and avoidance of harm (see example page 16).

There have been significant challenges in developing QTD. At times we have struggled to secure engagement with the project from stakeholders within the trust and the trauma network. We are continuing to address this by identifying key contacts, using the infrastructure of the trauma network to promote the project and where necessary meeting face to face with community stakeholders.

At times it has been challenging to create pathways and communication channels which allow effective delivery of the intervention in a pressured and resource limited environment. Regular team meetings and open communication with a flexible approach has addressed this. We have found that the delivery of the project has been influenced by unpredicted changes in the Major Trauma service and has revealed unexpected gaps in provision in related services. We have mitigated this by maintaining open dialogue with the service leads and by putting into place protocols to minimise negative influences.

The profile of the QTD project within the Trust is high and the project has been very favourably received. There has also been an expression of interest in QTD from regional commissioners.

QTD Key Outcomes

- Reduced unscheduled GP attendances following discharge
- Increased patient activation to manage their own healthcare needs
- Improved patient satisfaction

The key learning thus far has been that identification of and engagement with key stakeholders and integration with existing services and systems is vital to the successful implementation and sustainability of the project. We are confident that the project has improved the quality of our service.

Identifying quantifiable or financial benefit to the healthcare community continues to be our major challenge as the project moves forward. Other clinical services, our executive team and commissioners are very aware of the project and its potential benefits and we are keen to demonstrate cost effective process improvement that can be reproduced in other patient groups.

Excerpt from a complimentary letter sent to the Trust CEO by a patient who had received the QTD intervention and used the 'Patients Know Best' electronic messaging function:

'I should also like to highlight the additional aftercare I have received from Amanda in the pharmacy and Annie… Knowing I have someone who can respond quickly and expertly to a concern when I have left the hospital is both useful and comforting.' **(January, 2016)**

Part 2: Progress and outcomes

2.1 The course of the intervention to date

In the set-up phase, baseline data was collected on patients discharged without the QTD intervention. We recognised early in the project that to demonstrate the impact of the project, adequate pre-intervention data was vital and we reached our target sample of 100 pre-intervention patients.

During the set-up phase and initial implementation of QTD we adopted a Plan-Do-Study-Act (PDSA) approach to development of the AHCP and the content and delivery of the discharge education consultation (see appendix 3, resource 2). After the first month of intervention, we performed an 'after-action' review, allowing the identification of good practice and challenges to implementation. We also reviewed collected data for any negative impact on service delivery or patient experience.

In response to output from the PDSA cycles and after-action reviews, small adjustments have been made to the process of delivery and content of the AHCP and discharge consultation:

Process of delivery

Overall QTD intervention

The most significant development in the early part of the project was the decision to use IT solutions to deliver the AHCP (Patients Know Best (PKB)) and streamline the pharmacy process (Medicines: a patient profile summary (MaPPs- see Resource 10 for summary)). These methodological changes were implemented early in the set-up phase of the project because they were felt to have the potential for us to deliver a patient-centred, responsive resource. Our solutions suited the requirement for patient information to be securely accessible to the patient and selected clinicians in multiple care environments and locations and have allowed us to deliver the project more effectively.

As a team, we decided to introduce the QTD intervention early in admission rather than immediately prior to discharge. We felt this would be advantageous as it would help to prevent us missing a QTD eligible patient and also it allowed the patients to familiarise themselves with PKB prior to discharge. An unexpected benefit of this was that some patients began to use PKB as a means of communication with the Major Trauma team whilst still in hospital:

Example of in-patient communication with Major Trauma team using QTD project PKB software:

'I am scheduled for surgery tomorrow (Wednesday), but I'm third on the list and well aware of the fact that I am low risk/low priority as I am stable and recovering well. There has been talk of taking down the dressings, and stitching me up on the ward. I am really nervous about this and would like to avoid it happening. Being a first aider I used to be very capable of dealing with blood, injuries, the sight of needles etc. but over the last month I have seen and felt enough, and am becoming very wary of my own limits. I hope and pray that this final piece of surgery can be done in theatre and whilst I am under general anaesthetic!'

The team received this message early on the morning of the surgery and encouraged the patient to share their concerns with the surgical team during the morning ward round. This enabled the surgical team and patient together to create a treatment plan that reflected the individual needs of the patient.

We now routinely invite patients to have access to PKB early in their inpatient stay in order to open another channel of communication with the Major Trauma team and also to allow patients to begin to engage with the process of QTD. Early engagement also enhances patient empowerment, preparing them for a seamless transition to the home environment with minimal stress.

During the process of data collection and implementation we have identified a number of challenges and risks to successful and safe delivery of QTD (Table 1). We have introduced a number of changes and solutions to ameliorate these.

Problem	Solution
14 day follow-up phone call generating high volume workload due to recurrent problems	Risk assessment and subsequently SOP created to streamline MTP involvement
Inconsistent delivery of discharge counselling	Education and regular individual after-action reviews
Patient communication with Major Trauma service following discharge	Dedicated patient phone line established
New workload generated through requirement for 14 day follow-up telephone call	Telephone follow-up delivered as a non-face to face clinic allowing income generation for the service

Table 1: Challenges to QTD implementation

Since we have begun to use PKB as our method of delivery for the AHCP we have identified a consistent increase in the number of online messages that the team are receiving (Figure 1). It is clear that patients are using the messaging service to communicate concerns and problems to the team. Although the numbers haven't been formally recorded, the trauma practitioners agree that there has been a reduction in the number of telephone calls made to the patient helpline over the same time period. This allows the team to interact with their patients and resolve their queries more efficiently. The written messages also provide both a reliable record of advice for the patient to refer back to and also a clinical audit trail.

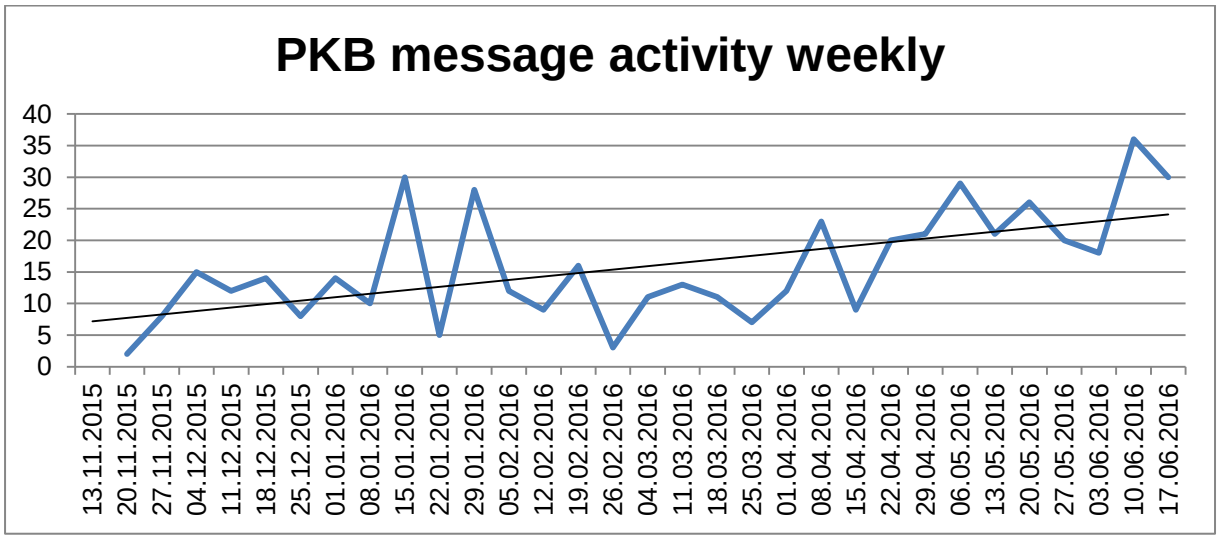


Figure 1: PKB messaging activity

Pharmacy intervention delivery

The pharmacist responsible for delivering the pharmacy intervention was a new member of the team; they delivered QTD in addition to their usual duties. To begin with the Major Trauma practitioner would identify QTD patients to the pharmacist on an ad hoc basis. On occasions this left inadequate time for the pharmacist to counsel patients and the lack of ability to plan their workload led to a negative impact on their ability to undertake their other departmental duties. Despite trialling a number of methods to address this we are still evaluating and discussing ways to improve this process.

In order to optimise communication we have trialled various means of notifying pharmacy staff of a QTD eligible patient. Text messaging is most useful when the QTD intervention requires a rapid turnaround. Practically, it remains difficult to ensure all patients receive their pharmacy consultation prior to discharge. When we have been unable to deliver this we have provided telephone counselling to patients within a week of discharge.

It's clear that there are potential benefits to counselling patients after discharge as opposed to the more traditional face-to-face consultation (Table 2). We have applied for an in-Trust research award to investigate both of these approaches and identify

which approach provides the most cost effective way of delivering this aspect of the QTD intervention.

The project has established some advantages of post-discharge pharmacy advice:

1) **Reduced burden of information prior to discharge which can be overwhelming and sometimes key information is subsequently forgotten**

2) **An additional contact with a healthcare professional whilst they are at home providing another opportunity to air concerns or issues**

3) **Requirements for pain relief differ between the hospital setting and home as patients begin to restart performing more activities of daily living. Timely pain management advice can be provided.**

4) **Recommendations have been made about obtaining additional medication. In addition, advice regarding over the counter alternatives may be given, thus reducing GP attendance and minimising the requirement to pay for prescription items.**

Table 2: Advantages of post-discharge pharmacy counselling

Additionally, after a few weeks of the project it was clear that there were commonly repeated discharge medications for this patient group. A template was produced for commonly prescribed medicines including dosing and side effects which then can be tailored where necessary at discharge. This has streamlined the pharmacy intervention. The patients were also signposted towards a pre-existing dedicated medicines information patient helpline where they could seek advice about their drug therapy.

Content of AHCP and discharge consultation

As a result of reflection on feedback from patient representatives, patients who have received the intervention and clinicians, the content of the individualised AHCP was modified during the course of the project. The following are some examples;

- Increasing basic health advice particularly with emphasis on dietary advice and lifestyle advice to promote optimal wound healing (e.g. Smoking cessation)
- Altering the structure and wording of AHCP based on input from clinical psychology. For example, discussing ‘recovering capabilities’ rather than ‘current abilities’.

- Using an electronic format to further personalise the AHCP with individualised information and signposting to relevant online resources
- Inclusion of details of family and carer details based on patient representative feedback

2.2 Outcome measures

Outcome Measure	Result
Number of unscheduled healthcare attendances within 30 days of hospital discharge	**Significant reduction** in GP attendances in the QTD group compared to pre-intervention (51% vs 71%, p=0.0037)
Major Trauma Centre length of stay	No change
Patient and Carer satisfaction scores	**Significant improvement** in mean hospital rating score in the QTD group compared to pre-intervention (9.1 vs 8.2, p< 0.0001)
Patient activation measurement	**Increased** patient activation following QTD

Adjustment to outcome measures

The original application identified the following outcome measures for post intervention measurement:

1. Reduction in unscheduled healthcare attendances after discharge.
2. Improved patient hospital rating score
3. Reduced length of stay in Major Trauma Centre

During the set-up phase additional process and outcome measures have been identified including the 'Patient Activation Measure' (PAM) and pharmacy data outlined below:

- Key Performance Indicators (KPIs) have been completed for each patient included in the project and data collection using an Microsoft Excel spreadsheet
- Patient episodes via our electronic discharge/communication system depicts length of stay
- Discharge letters (TTAs) evaluated to assess timing of TTA pharmacy authorisation and dispensing versus completion – aiming to establish the percentage of TTAs written the day before discharge and discharge delay due to processing and limitations
- TTAs also used to established number of medications continued/stopped/started to gage both patient complexity and likelihood of counselling need and time being both imperative and extensive
- Patients – if additional advice required during and post discharge, this has been documented

Detailed Outcomes

Effectiveness

Final results show a significant reduction (p=0.0037) in unscheduled GP attendances in the intervention group (Figure 2).

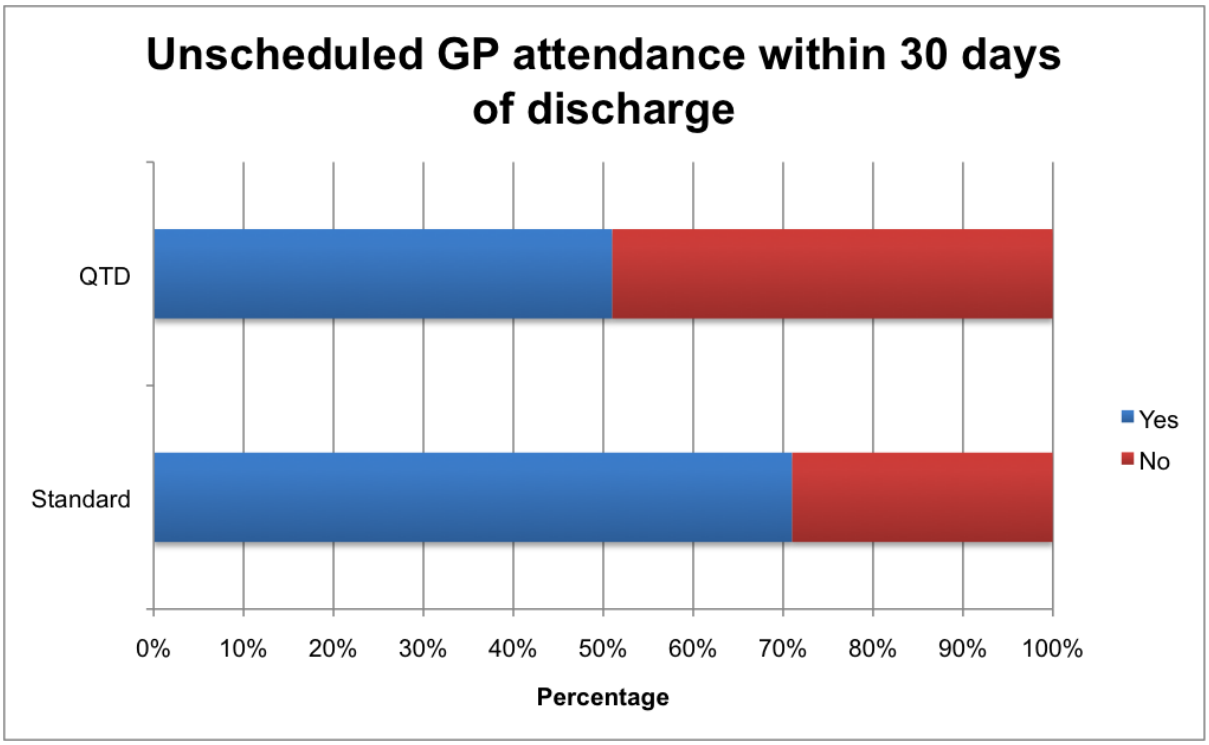


Figure 2: Unscheduled GP attendance within 30 days of hospital discharge

During pre-intervention data collection patients reported multiple GP visits. On further questioning common reasons for attendance were; seeking information about injuries and their medical management and what they should expect to happen next. Regularly, the GPs were not able to answer these queries due to delayed or incomplete information transfer from the Major Trauma Centre. It was clear to us that these unscheduled attendances are best avoided through empowering patients by educating and informing them regarding their injuries and expected post discharge issues. Additionally, the after hospital care plan can be used by the patient to share information with selected clinicians in different healthcare environments.

There has been no change in the number of post-discharge Emergency Department attendances or overnight hospital stays between the pre-intervention and QTD groups.

Person-centredness

Patient Activation Measurement (PAM)

One of the secondary outcome measures used to assess the efficacy of the intervention is the ‘Patient activation measure’ (PAM).

39% of patients demonstrated a higher level of activation following delivery of QTD (Figure 3). Targeted interventions have been shown to change individual levels of activation and influence outcome (Mitchell et al, 2013) and this may empower them to manage their own health more effectively and at lower cost (Kings Fund, 2014).

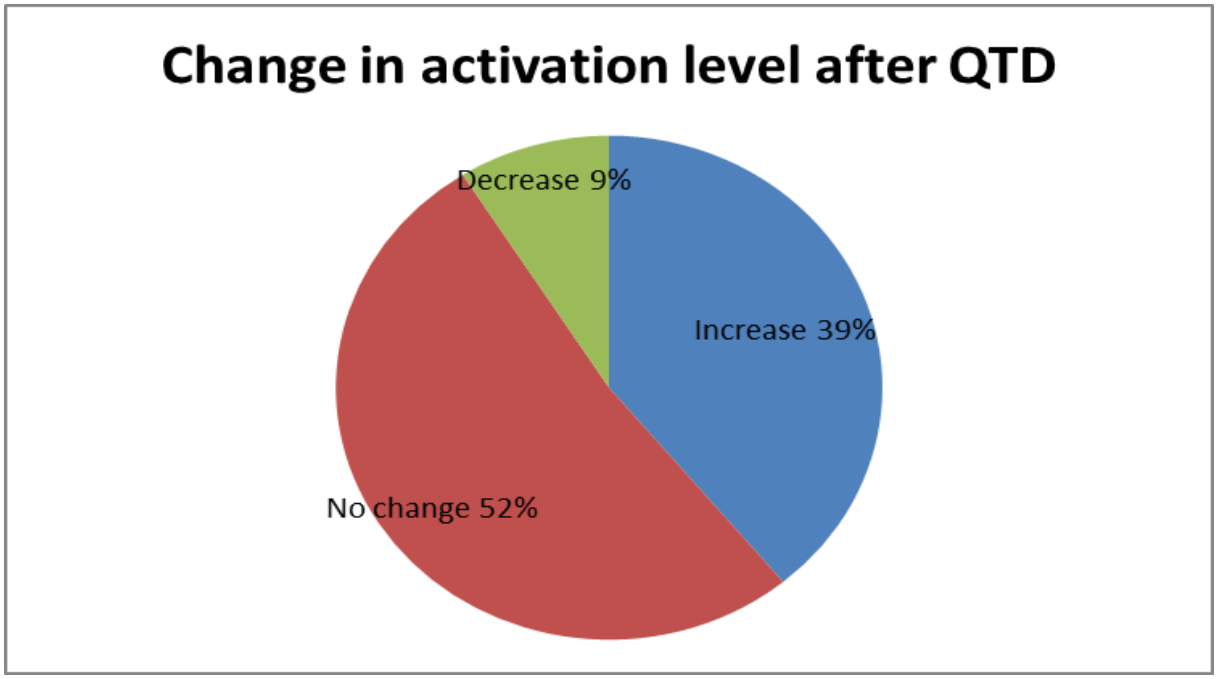


Figure 3: Change in level of activation following QTD

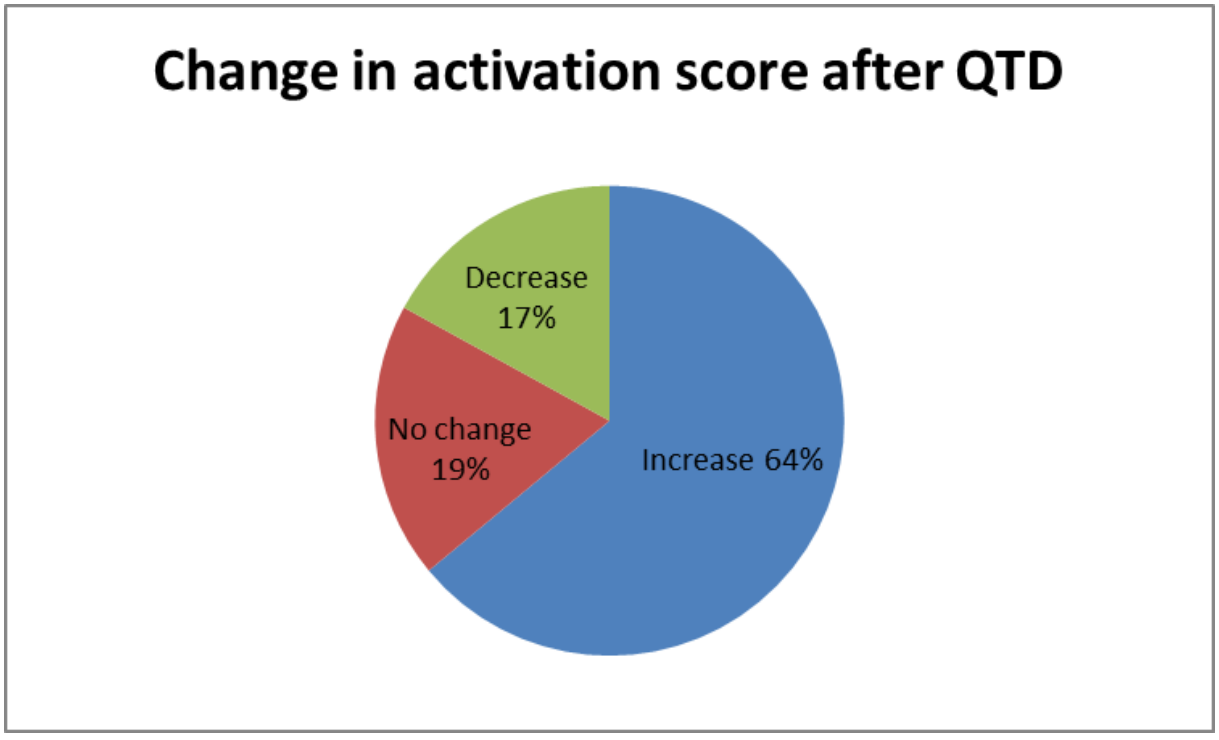


Figure 4: Change in activation score following QTD

Patient Satisfaction Scores – external validation

The intervention represents a unique opportunity in the hospital journey to deliver a consultation in which the patient's needs are the entire focus, and this is reflected in patient and carer satisfaction levels.

We believe that the timing of the AHCP consultation – just prior to discharge has a disproportionate effect on the patients' satisfaction with their overall hospital episode (Figures 5,6).

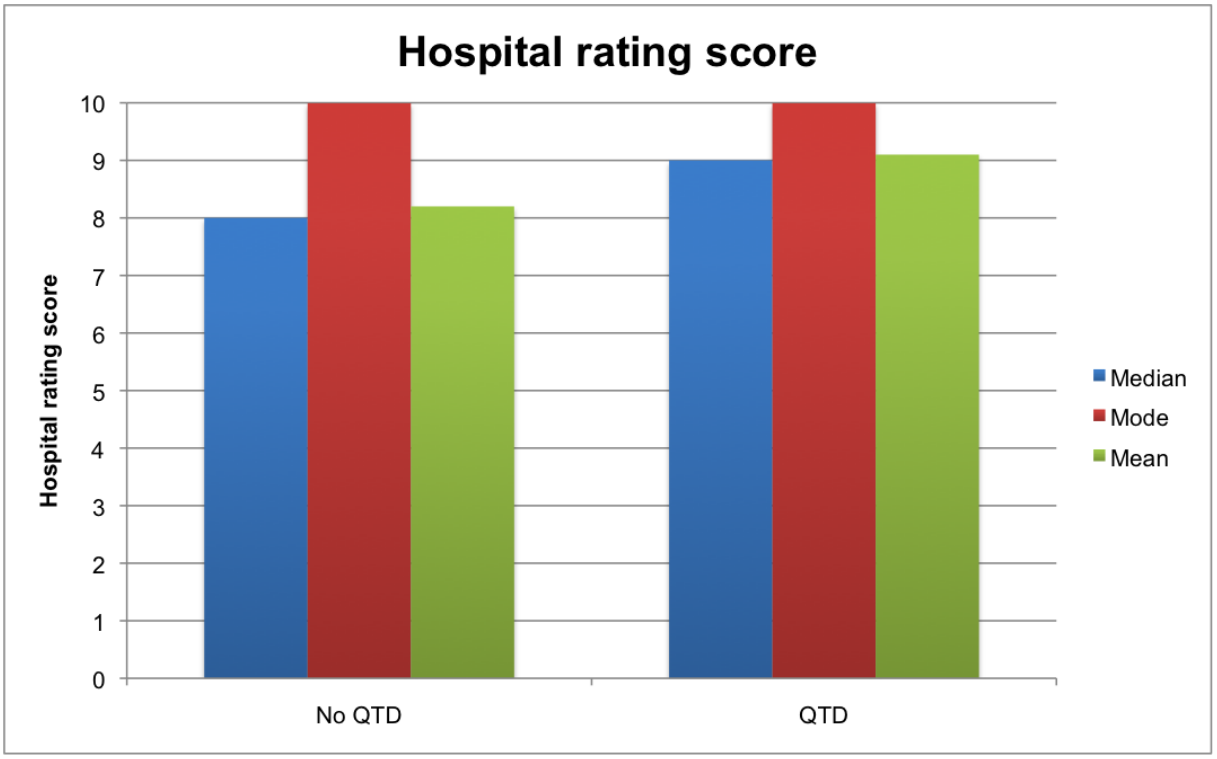


Figure 5: Hospital rating score

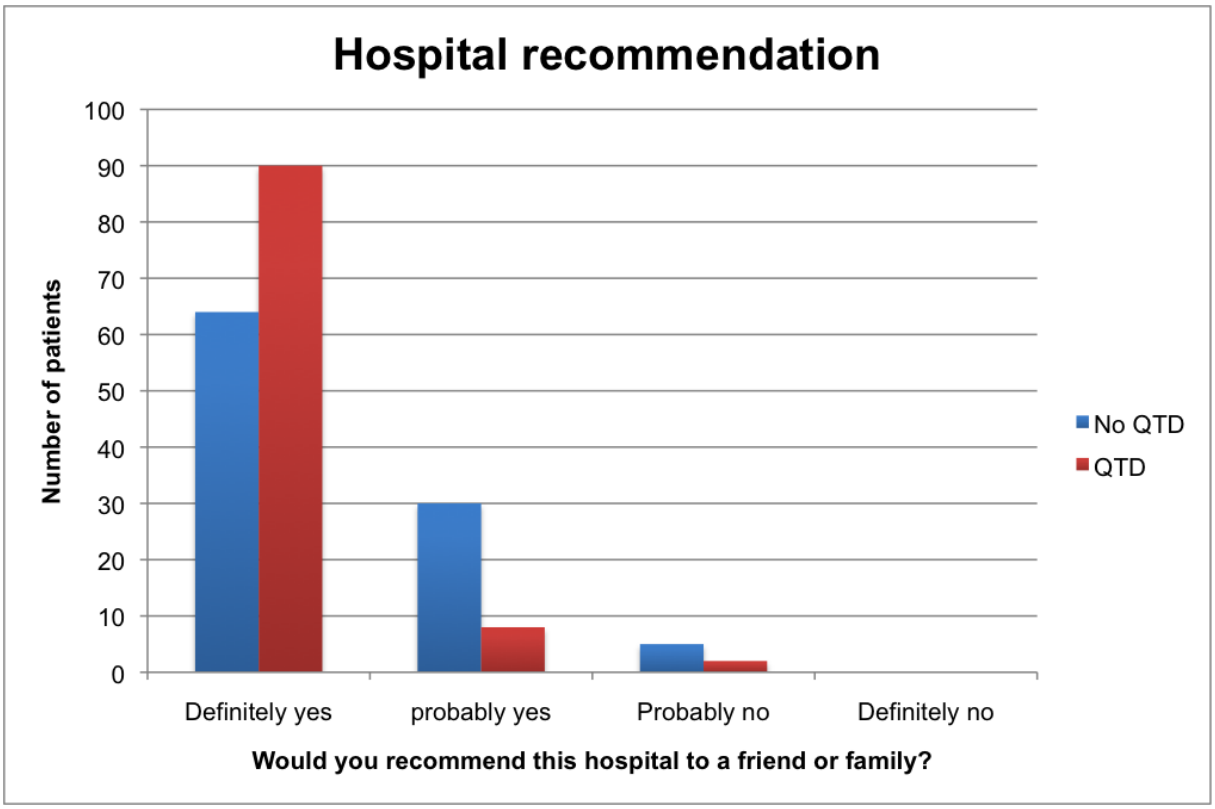


Figure 6: Would you recommend this hospital to a family member or friend?

Example of discharged patient message via PKB to Major Trauma team:

'as you advised we have a doctors appointment this week, and will put all these points to him when we get a slot! we have a meeting this thursday but it doesnt say for what, so not sure if you can enlighten us, or should i call the number on the letter ?? we are booked in for 1.15 pm ? thanks for your time, its really much appreciated'

The Major Trauma team were able to interrogate Trust systems directly and resolve the patient's uncertainty. This was a satisfactory and efficient resolution allowing the patient to focus on rehabilitation and recovery.

Team and professional satisfaction – internal validation

Feedback from the Major Trauma practitioners also reflects satisfaction with the process and the quality which is being offered to their patients:

Examples of feedback from Major Trauma practitioners on implementation of the project:

"Reduces anxiety about being "forgotten" within the hospital system as major trauma provide a point of contact."
"Gives you an excellent overview of the patient, their injuries and treatments."
"Allows the patient and their family time to ask questions and voice concerns"
"Builds rapport so gives the patient an opportunity to be truthful or open up."
"Helps patients and families feel at ease about being discharged from hospital."
"Allows for clarification of follow up plans and appointments."
"Having someone there to speak to for longer than 5 minutes."

The QTD project was presented at the national Traumacare conference in April 2016 and received a very positive response. In particular one delegate, a nurse, spoke to the team at length about her own personal experience of trauma discharge and how much the QTD intervention would help people in the same position. She sent an email reiterating this after the event, an excerpt is quoted below.

'I mentioned briefly that I survived (unexpectedly) a poly trauma in 2006 and spent a month in ITU, then months and months on a trauma ward, with fantastic physio and other AHP support and review. Then I was discharged home….. I am so impressed with your project - I've not heard anything like it before - it makes common sense… Its such a scary place to be - sat at home, tablets in a plastic bag - and no one to be there if you fall or need anything, or to tell you what you can or cannot do'

Safety

There have already been several examples of the QTD project infrastructure allowing identification of risks to patients and enabling timely intervention to reduce risk and prevent harm. For example, using the online messaging and telephone helplines, patients have contacted the Major Trauma team following discharge with symptoms suggestive of deep venous thrombosis. The team have been able to signpost them to appropriate care settings and allow investigation and treatment to be instigated in a timely manner. These incidents have helped to illustrate the improvements made to the QTD process – educating patients on when to seek help, providing them with a clear point of contact and then signposting them to appropriate services**.** The following excerpts were taken from a message exchange on PKB:

> ***'Following the phone call from your wife this morning concerning your swollen leg the advice given was, GP urgent appointment needed today to rule out complication such as blood clot. Continue to elevate as you have been doing. Call us again if you require any further advice. Best Wishes'*** **(Major Trauma Practitioner)**
>
> **'*Further to the last entry concerning the above a GP … made a home visit. As a result of this I went immediately to Ambulatory Care at ...(local hospital) where a scan of my right leg was performed.***
>
> ***A partial clot was detected in the upper artery and I was subsequently seen … I was prescribed Fragmin 15,000 IU/0.6ml for self injection once a day.***
>
> ***An appointment was made for a review … for Monday 30 November. I was then discharged home.'*** **(Patient response)**

After identifying the DVT and treatment being initiated, it was evident through messaging on PKB that the patient had not had appropriate counselling by the initiating hospital on their new anticoagulant. Subsequently, the pharmacist contacted the patient and undertook the counselling that should been provided prior to initiation. Furthermore, PKB enabled the pharmacist to upload the necessary information the patient should have also been provided about their new treatment.

Additionally, pharmacy screening prior to hospital discharge has identified defects in current discharge process allowing identification of areas for improvement in other systems and to reduce risk in the short–term. This demonstrates how the project has enabled clinical teams to identify areas for improvement and make timely corrections.

One example involves a patient who had required splenectomy who had been discharged prior to receiving the mandatory vaccination programme published by the Department of Health. The patient was contacted post discharge by our QTD pharmacist to emphasise the importance of receiving these vaccinations. A second contact identified a problem regarding the patient receiving a booster injection. Accommodation has been made for the patient to return to the Major Trauma Centre to receive his final vaccination.

Timeliness

QTD provides a vehicle for delivery of essential components of the national service specification for all Major Trauma Centres and the retention of the associated best practice tariff – particularly the rehabilitation prescription:

'*All patients will have a patient held record which continues their clinical information and treatment plan from admission through to specialised or local rehabilitation (supported by the prescription for rehabilitation). In the case of paediatrics, this can be an age related hand held record for the patient and a full hand held record for the parent or career.* '*(D15/S/a, NHS Standard contract for Major Trauma service, 2013)*

Additionally, QTD is very much in line with current discussions in the major trauma arena which have moved away from the 'front end' and are now considering issues later in the patient pathway: the transition from the Major Trauma Centre to the Trauma Unit and the community. The key areas being considered are accessing services, communication, 'making the rehabilitation prescription work' and the role of audit in the gap analysis. The project has already been presented at the annual major trauma meeting in November 2015 which had representatives from all UK trauma networks present.

The use of PKB has allowed the QTD project to provide solutions to common problems across a number of work streams. We believe that this has important implications for drivers for spread of QTD throughout the National Major Trauma service and our regional network. We also hope to apply for the Health Foundation's 'Spreading Improvement' award to spread this learning across local and national networks.

Efficiency

We have captured the key performance indicators for the delivery of QTD (Table 3). This allows an estimation of the impact on the team for the delivery of QTD, particularly in terms of time. The Major Trauma team has been expanded and QTD has been identified as a key component of the service:

Site	Efficiency	Outcome
North Bristol NHS Trust	Improved patient flow	No significant change
	Reduced re-admission	No significant change
	Avoidance of harm	See examples above
Severn Major Trauma Network	Information flow	Not yet assessed
Local healthcare community	Reduced GP attendances	Significant reduction
	Information sharing	Not yet assessed
Wider economy	Return to work	Not yet assessed

Table 3: QTD key performance indicators

Equity

There has been a gradual increase in the capture of patients who have received the QTD intervention during the project (Figure 7). Our target capture rate for delivery of QTD was 75% of patients who were discharge home from the Major Trauma Centre.

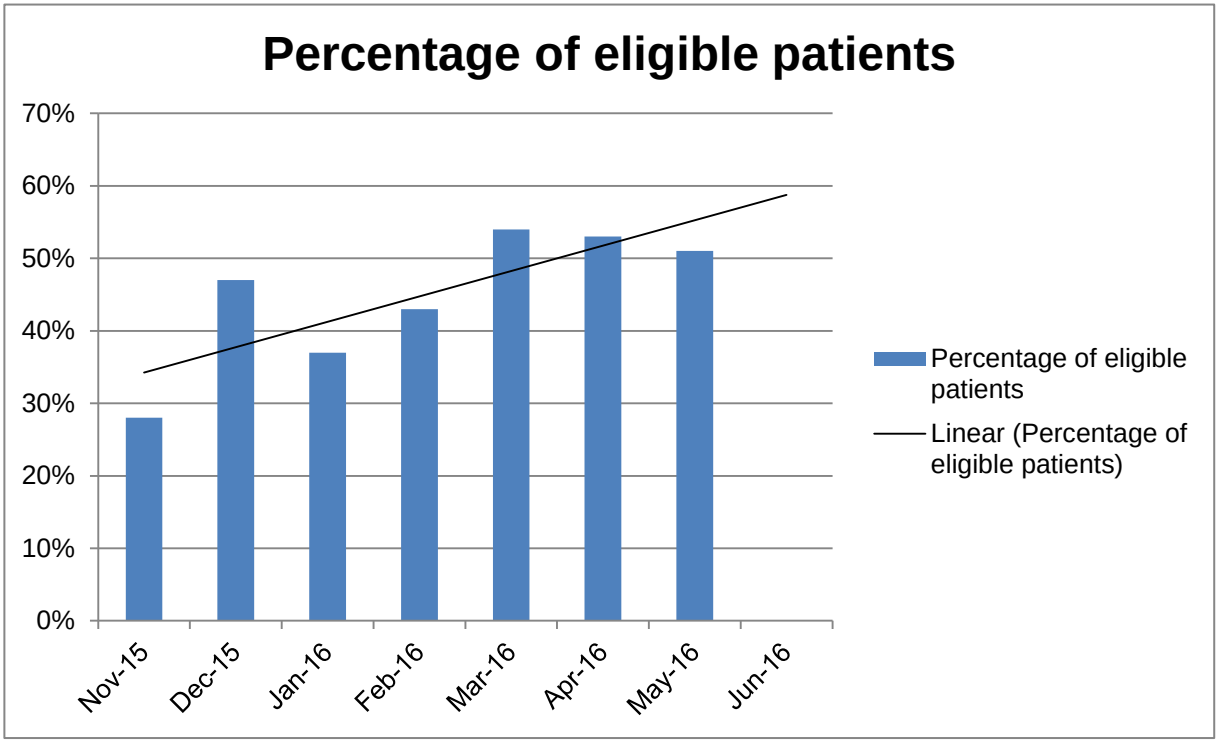


Figure 7: Patient capture for QTD intervention

Barriers to delivering this have been:

- Pressures on patient flow and beds within a busy acute trust. The project sits within a complex system in which there is a high volume of patients with complex discharge requirements, in a context of increasing demand for inpatient beds and complicated multidisciplinary planning.

- Gradual implementation strategy: the need to manage the speed of increase in implementation to realistically match the time and capacity of clinicians to absorb and implement change.

- Balance between capturing learning and refining intervention, and practical delivery. This incorporates the assessment and refinement of the intervention to ensure any changes were based on sound testing. Thus balancing the practicalities of day to day delivery and maintaining rigorous standards of care and information provision.

2.4 Data Sources

Patient data is collected using: the PAM structured questionnaire (validated tool), a structured telephone interview based upon those used in the RED project and information from patient interaction on PKB. Key performance indicators for both the Major Trauma practitioners and pharmacist have been collected contemporaneously using a Microsoft Excel spreadsheet and project diaries.

2.5 Validity and reliability of the data

Patient data

A large proportion of the data is qualitative and relies upon patient recall of events - particularly the data relating to post-discharge healthcare attendances. The data is collected by the same interviewer to minimise inter-rater variability. The changes seen in the post-intervention group are consistent across a number of domains - improvements are not just seen in single questions but consistently through the questionnaire, improvement correlates with the informal feedback that is offered to the team from patients and their families. Introduction of the Patient Activation Measure has allowed us to objectively assess the effectiveness of QTD in activating patients to manage their own healthcare needs. The validity of the PAM has been demonstrated extensively and it has been shown to correlate with ongoing healthcare demand - an improvement in PAM scores should validate the reduction in unscheduled healthcare attendances seen. Staged introduction of the intervention- resulting in selection of some patients for the intervention, but not others- may have produced some bias as it may be that the group selected has been identified as those who would derive greatest benefit. The group of patients selected is also more likely to be those meeting the ‘complex rehabilitation needs’ criteria currently set out in trauma rehabilitation prescriptions.

Process data

Data collection related to the process of the intervention is less reliable. It is collected contemporaneously but correlating how small changes in the delivery of QTD have influenced the KPIs will be difficult. Where significant changes in process are made such as the introduction of MaPPs, the impact should be more discernible.

2.6 Information on how satisfactory the baseline numbers are in terms of data quality

The baseline data has been collected by the same interviewer as the intervention group, using the same data collection tool. Aside from the accepted limitations of this form of data, as described above, the quality of the data is satisfactory and any inconsistencies should be present in both groups.

2.7 Additional learning

An incidental outcome from preliminary data collection was that very disappointingly the outpatient follow-up arrangements for this patient group (and probably others in the Trust) are sometimes inconsistent and unsatisfactory. Our analysis showed that over 30% of the patients had received inadequate follow-up: they may have had to 'chase' it themselves, it may not have been timely (delaying progression), or may have been completely absent.

These findings have been reported to the clinical and management leads for these services and are being investigated.

Several subjects identified during pre-intervention telephone calls that they had not received follow up appointments as expected. Some individuals did not feel confident to proactively seek care. This can result in them becoming isolated, with a delay in treatment and recovery and ultimately a sub-optimal functional outcome. By empowering patients through the QTD intervention, these cases may be minimised.

Part 3: Cost impact

3.1 Key cost measures

The cost implications of the QTD project are relatively straightforward. The costs of delivery are represented by increased staffing resource with the later addition of IT systems. There are no additional costs foreseen for the continued implementation of the project or rollout within the adult Major Trauma Centre. However, the project team intends to apply for 'spreading improvement' funding from the Health Foundation to facilitate local and national spread throughout the Major Trauma Networks. We have applied for local funding to assess the pharmacy component of the intervention to explore a more sustainable way to deliver this.

The staffing resource required for project delivery is within two areas; pharmacy and the Major Trauma team. An initial benchmarking exercise was undertaken using information from the 'Re-engineering discharge project'. Further modelling work examined the costs of the intervention in excess of the existing staffing resource for Major Trauma and in pharmacy. The actual costs were largely calculated from data collected during the first half of the project (see QTD midpoint report for details) and have also been used to project ongoing budget requirements. These are outlined below (Table 4).

Service	Detail	Expenditure	Income
Staff	Preparation AHCP and discharge counselling (116.5mins @ £22.50 per hour)	46.38	
	Follow-up phone call	5.63 (15mins @ £22.5 per hour)	47
	Pharmacy costs	5.67	
Information technology	Software costs per patient (at current cost)	23.03	
Totals		80.71	47
Net cost per patient			**33.71**

Table 4: Per patient cost of QTD intervention

We have a mean number of sixty-five patients discharged home each month whose injuries classify them as a 'Major Trauma' patient and who are therefore eligible for the QTD intervention under current circumstances.

The information technology solutions that we have used are Patient's Know Best (PKB) and Medicines: a patient profile (MaPPs). These are provided on an annual subscription and both contracts will be renegotiated in the period following the end of the project. It is not possible to project the ongoing costs of these as negotiations have not yet started and we are also exploring alternative providers and solutions.

We believe that these innovations are vital for future-proofing the project as outlined in Part one.

Preliminary discussions with commissioners have been positive and include a focus on commissioning, at scale, across the Severn Trauma Network and other Major Trauma Networks.

3.2 Cost of existing services- issues and limitations

There is no comparable existing service as the QTD intervention is a completely new 'add-on' to the discharge process. The cost is seen to be small and is not expected to increase post-implementation.

3.3 Implementation costs

Training and change management has been absorbed within the role of the Band 7 project manager and the existing major trauma and pharmacy teams

3.4 Cost savings

The initial funding application identified a reduction in length of stay as one of the primary outcome measures which would have represented a saving. As outlined above, this is not considered as a likely consequence of the QTD intervention until it is generalised to patients who are repatriated to Trauma units.

Other outcome measures (as outlined in Section 2.2) may represent cost saving in the wider healthcare community:

- Reduced GP attendances – this would result in the direct costing saving of the GP attendance (~ £45/visit) and reducing demand on the service, releasing resource for other patients.
- Reducing avoidable harm – It was outside of the scope of the QTD project to quantify these cost savings although it will include reduction in healthcare costs related to the complication and potentially a reduction in loss of income to the discharging hospital trust.

3.5 Service commissioning

This service is currently commissioned via specialised commissioning and income is derived from the Major Trauma best practice tariff in patients where service specification is met. This income sits with the Major Trauma Network.

Part 4: Learning from the project

4.1 Project achievements

Evidence that the current discharge process is flawed: patient comments:

'There was a bit of a problem with communication… At my local hospital it feels like everyone's at a bit of a loss what to do with me… it's a bit of a shambles'

'At the.. (local hospital)..no one took overall responsibility for …(her)… care. Nothing was organised for her follow-up'

'We felt abandoned…'

One of the key objectives of the QTD project and the 'Innovating for Improvement' programme is to address the quality of the patient's experience of healthcare: specifically, in this instance, of the discharge experience.

'The Quality Discharge project will change the current discharge process which is designed to facilitate discharge from hospital into a comprehensive healthcare episode which is designed to educate, reassure and empower patients to improve recovery during the post-discharge phase' (QTD Innovating for Improvement application, 2014)

Response to the project from all key stakeholders has been positive: there is sometimes a sense of surprise that this type of process is not standard practice. Less subjectively, the increase in patient activation indicates the efficacy of the intervention, as does the significant decrease in unscheduled GP attendances in our sample group.

As a team, we feel that we have achieved more than we set out to. The project has evolved significantly over the last year enabling us to exceed expectations. The response from patients as a group and individually has been particularly satisfying: it has allowed the team to feel that we are mitigating the negative impact of trauma by removing unnecessary uncertainty and insecurity. For motivated clinicians, an improved patient experience and better outcomes are paramount.

It's also clear that such a commonsensical approach to discharge has potential to be useful to a much wider range of patient groups through acute one-off admissions to those who have recurrent hospital contacts. Through our project work and the associated learning we have developed and fine-tuned the resources for and practicalities of the QTD intervention; learning and resources that can be used and replicated in other areas of healthcare.

As a team, the implementation of QTD has necessitated reflection on our daily clinical practice and interaction with people in the Trust. The process has allowed us to refine and standardise these by formalising the service the patients are offered by the Major Trauma practitioners.

An overwhelming contribution to the successful delivery of this project has been made by the Major Trauma practitioners; through accommodating the extra workload with such enthusiasm and through taking such great care to deliver QTD to the best of their availability. Without their knowledge and commitment to delivering the highest standard of care to their patients, the intervention would not be so meaningful or effective. The staff 'buy-in' to the project came with recognition of the value it added to the care of the patients and their families.

Within the Trust, although the project has been supported in principle at a high level, we have received no organisational support in completing the work.

4.2 Risks and challenges

The additional staffing resource and management of changing processes has put strain on the major trauma and pharmacy teams during the project implementation.

> ***'It can be time consuming for complex patients, tracking people down to clarify follow up plans and appointments.'***
>
> **(Major Trauma Practitioner)**

This has been managed through regular meetings and open feedback with clear lines of managerial and clinical support. The change required by the project has been reviewed in the context of a wider service modification accommodating the provision of a seven-day service and the requirement to develop the practitioner role in line with national standards.

A significant risk to the delivery of QTD for all identified patients is the pressures on capacity and patient flow within the Major Trauma Centre. This can impact on the team's ability to consistently deliver the intervention due to the frequently changing discharge plans and the changes this makes to the site and timing of patient discharge. We are beginning to mitigate this through flexible practice using telephone consultations post-discharge and the use of the PKB messaging function. In view of the challenges above and despite the changes we continue to make to practice we have not yet achieved our goal of providing the intervention to 75% of all major trauma patients who are discharged directly home.

In time, we hope that the electronic platform (currently PKB) can be integrated with the Trust's systems to make the process of building plans more efficient. However, the Trust's financial situation and the pressure of change in the IM&T department make this a definite challenge ahead.

One of the key things which we have learned during the course of the project is how poorly communication of change is managed in the NHS and how difficult it is to generate consistent 'spread' of information even within one Trust. In trying to access the wider regional healthcare community to introduce innovation, this is even more of a challenge. In retrospect, it may have been helpful to have established a link with someone at Trust directorate level to provide guidance and support to 'spread the word'.

Certainly, an essential element in the success of the QTD project has been the co-operation and enthusiasm of the Major Trauma team with other healthcare professionals in and outside the trust. In retrospect, a more coherent approach to promoting the intervention prior to starting may have enhanced this and allowed us to work more efficiently with other services.

We feel that all aspects of the QTD intervention can be replicated usefully for other patient groups and in other settings. The basic principles of the QTD are incontrovertibly 'common sense': patient-centredness, information sharing and direct communication. We have produced resources that could be used to reproduce the care plans and discharge counselling intervention (see Appendix).

We recognise that a robust data collection system is important for the success of any similar projects. Our system had limitations and although we managed to complete the thirty-day telephone data collection with 67% of all patients who received the QTD intervention, because of failures in completing or recording the baseline PAM data, the complete result could only be recorded for 54%.

In the process of the QTD project, we realised that we had not appreciated the impact on the clinical team in terms of how it changed workload and refocused the Major Trauma practitioner role. One of the senior team members has suggested that the project has helped in redefining the Major Trauma practitioner role and benchmarking good practice. If we had realised this prior to implementation, the effect on workload, which was at points perceived as 'overwhelming', could have been reduced.

Part 5: Sustainability and spread

5.1 Sustainability

The sustainability for QTD is ensured by continuation of the Major Trauma service and associated income. The Major Trauma Network five-year financial plan has been approved by the Trust board and contains provision for an additional substantive MTP role to support the continuation of delivery of QTD.

Agreement has been gained from the North Bristol NHS Trust commissioning lead to charge for follow-up calls as non-face-to-face clinics. This will provide an additional income stream to offset the ongoing costs of the electronic platforms. We currently estimate this income at approximately £14000: this is based on a Trust tariff of £47 per call and a 'capture rate' of 75% of all major trauma patients going directly home which should be achievable with the additional staffing.

We have had major interest from commissioners and believe that it would be straightforward to spread and adopt a similar model nationally. Adoption of QTD as a service standard at a National level or centralised commissioning of an electronic platform would reduce the associated costs. We would be more than happy to discuss this further with the Health Foundation should this complement your work on patient satisfaction in acute settings.

5.2 Embedding the QTD intervention

After a year of implementation, the practice of QTD is already embedded in the daily service offered by the Major Trauma practitioners. Knowledge of the intervention is well established in the Trust and is beginning to be regarded as part of the discharge process for major trauma patients.

The challenge that we face going forward is to publicise and establish its usefulness in our wider healthcare community which is distributed through a wide geographical area and a number of different CCGs. We are circulating information letters where possible and encouraging the patients to act as advocates, but the engagement is likely to be very gradual and determined by individual experience.

As a 'launch pad' we intend to hold a Quality Trauma Discharge introductory day at NBT with information, testimonials and training for all the relevant parties. This will require additional funding.

5.3 Spread

The QTD intervention is applicable to and reproducible for all similar patients and to many other patient groups. Its simplicity is a strength (Figure 8).

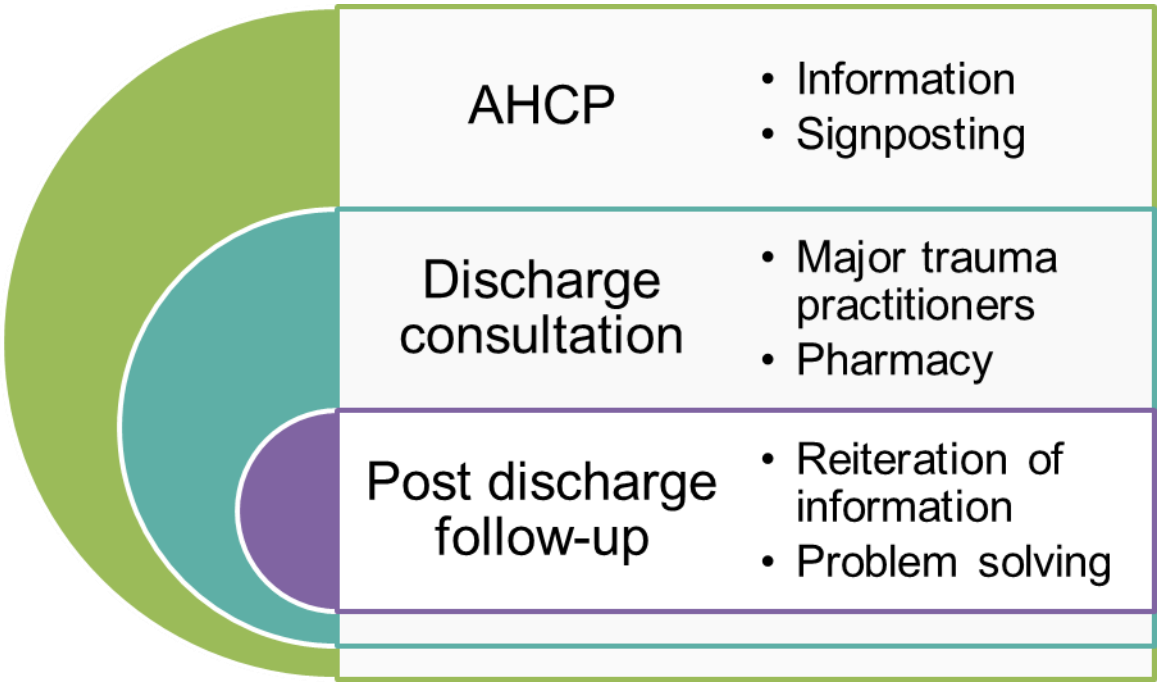


Figure 8: Key components of QTD

Locally

The Severn Major Trauma team intends to roll-out the intervention to every Major Trauma patient (not just those who go directly home). A proportion of these will be repatriated to regional trauma units who will maintain the implementation for the entire patient pathway. The format is not specific to the organisational context and can be replicated in any health care environment. Other clinicians from within the Major Trauma Network have already expressed an interest in QTD, but this would need to be commissioned locally as there are resource implications in terms of staffing.

Interest in the QTD concept has been generated in other specialties within the Trust and across the Severn Major Trauma Network through engagement with clinicians and executives. Specifically a consultant from a neighbouring Trust responded very positively to the QTD concept:

> ***'This is a no-brainer. Why aren't we doing it already?'***

We have a date to present QTD to the Trust executive board and the learning from the QTD project will be integrated with the agreed Trust 'Patient experience/quality objectives 2016/17'

- Patient centredness
- Communication
- The experience of discharge from hospital.

Nationally

There is great potential for this intervention to be adopted by other regional Major Trauma Networks. QTD has been presented already at the national Major Trauma and Traumacare conferences and links have been formed with other key stakeholders. The clinical lead for Major Trauma and those determining the policy for rehabilitation are very interested in the potential of QTD: we are meeting with them in November 2016. Specifically, the different elements of QTD fulfil the 2016 TQUIN measures required of all Major Trauma Centres which states there should be a discharge summary provided for each patient which includes

- *A list of all injuries*
- *Details of operations (with dates)*
- *Instructions for next stage rehabilitation for each injury (including specialist equipment such as; wheel chairs, braces and casts)*
- *Follow-up clinic appointments*
- *Contact details for ongoing enquiries.*

(Nice guideline- Major Trauma (NG39), Major Trauma services Quality Indicators, NHS England, April 2016)

The Future

QTD is now viewed by the Severn Major Trauma team as an integral part of the service we provide to our patients and their families. There is no doubt that the opportunity prior to discharge for a patient and their carers and relatives to sit down and speak with an expert professional is exceptionally valuable. People have described the experience as ‘reassuring’ and as ‘answering questions I didn’t know I had’. Our data suggests that this empowers people to be more confident in managing their care and seeking help appropriately. One patient expressed the comfort that the electronic messaging facility gave him in the initial discharge period:

> ***‘I always think of questions just before I go to bed. I can’t call someone at that time… If I send a message straight away, I know that I’ve taken action and someone will pick it up in the morning. Then my brain will switch off and I can go to sleep.’***

We plan to promote QTD regionally and nationally as outlined in the report above and hope to publish the project and its outcomes in a peer reviewed journal.

References

Hibbard and Gilburt, 2014 *'Supporting people to manage their health -An introduction to patient activation'*- http://www.kingsfund.org.uk/sites/files/kf/field/field_publication_file/supporting-people-manage-health-patient-activation-may14.pdf *(accessed18/05/2016)*

'Patient activation and health care costs: do more activated patients have lower costs?' Health Affairs: 32(2): pp 216–22. Available at: www.commonwealthfund.org/Publications/In-the-Literature/2013/Feb/Patients-with-Lower-Activation.aspx)

https://www.nice.org.uk/guidance/ng39 *(accessed 27/06/2016)*

Suzanne E. Mitchell, Paula M. Gardiner, Ekaterina Sadikova, Jessica M. Martin, Brian W. Jack, Judith H. Hibbard, and Michael K.Paasche-Orlow 2013 *'Patient Activation and 30-day post-discharge hospital utilization'* Journal of General Internal Medicine: 29 (2), pp349-355

Appendix 1: Resources and appendices

Resource 1:

Two week follow-up telephone call report

Non-face-to-face clinic: BBS-Major trauma- QTD- ad hoc

Completed by:

Date:

Clear understanding of injuries and treatment established ☐

Review of specific symptoms or complications to be aware of ☐

Review of new medical problems and any action taken ☐

Review of medication (pain control/anticoagulation etc) ☐

Clarification of follow-up appointments and any action needed ☐

Reiteration of any ongoing contacts with Major Trauma team and contact routes ☐

Any other points discussed and actions to be completed:

Lorenzo clinic built ☐

Resource 2:

Discharge counselling guidance/ideas (for pre-discharge education)

First of all, I'd like to ask a few questions which will reflect how you're feeling about your health (PAM). We'll ask this again later on to see whether there has been any change.

This is an 'After Hospital Care Plan' which we've made specifically for you. It shouldn't contain any new information, but it may help you to remember details. It may also be useful to take it to any appointments so that you have all the information at your fingertips. *Perhaps give example of community therapist not having details of injuries?*

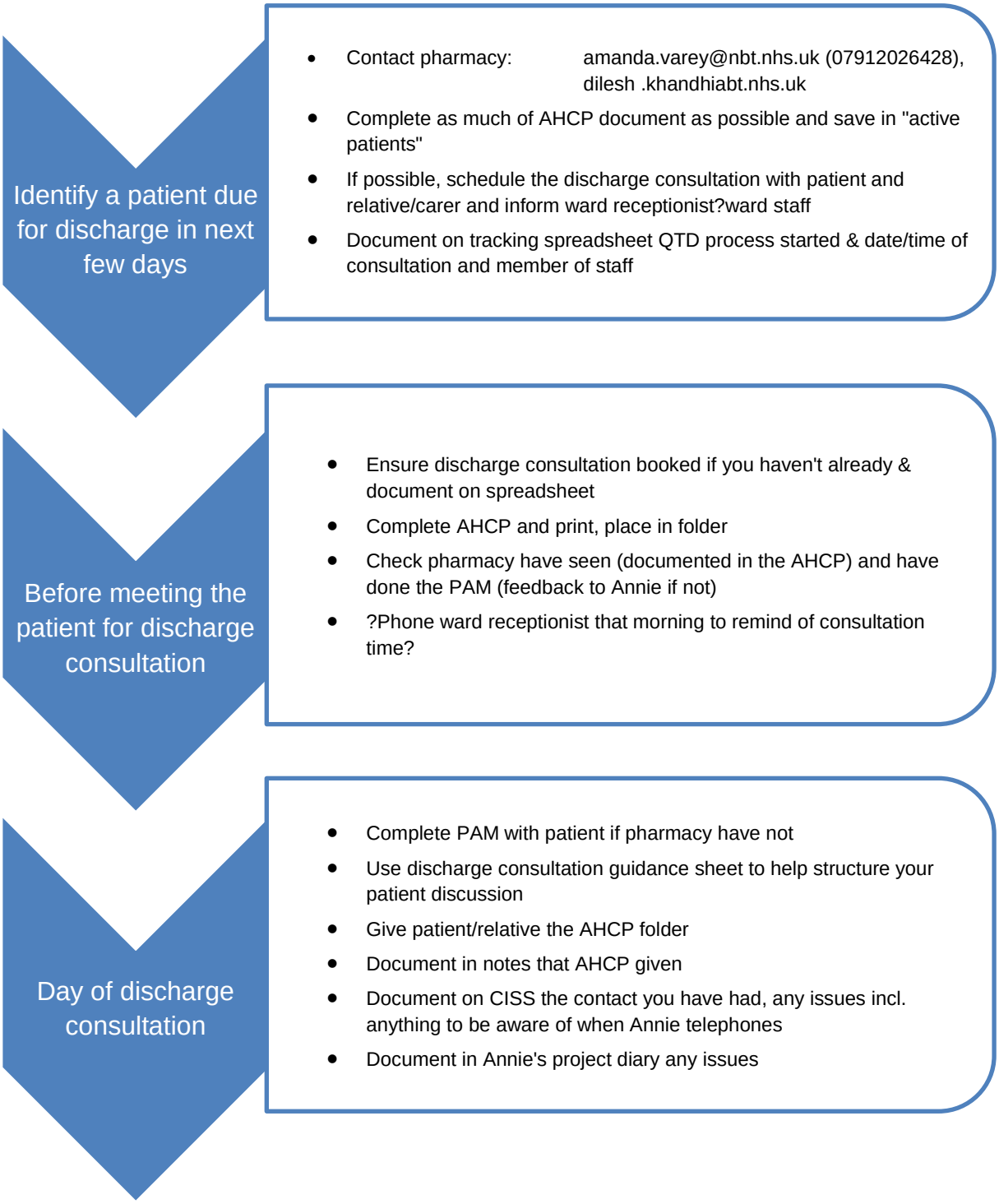
- Would you like to talk about why you came into hospital and your time in Southmead?
    - *Narrative/story of patient's pathway including dates and wards visited*
- Can you tell me what your main problem or diagnosis is? There may be more than one
    - *Discuss the nature and severity of the injuries with Xray viewings if appropriate*
- Do you know what treatment you have received for these injuries?
    - *Detail of management discussed in detail*
- And do you know who the doctors were who were responsible for your care?
    - *Describe the specialist teams who are responsible, including the consultant's name and which their specialist area is*
- Has anyone talked to you about things that you should look out for when you go home?
    - *Eg. Discuss wound care, signs of infection, intransigent PTSD symptoms etc.. and who to consult in event of these*
- And also signs or symptoms which are expected and you shouldn't be overly concerned about?
    - *Outline normal post-traumatic symptoms eg. Fatigue and when to be concerned*
- I know that you have had a chat with our pharmacist. Do you have any further questions about your medication?
    - *There shouldn't be any, but answer if possible (pharmacy yellow card should be with the patient or in scanned documents) or contact Amanda.*
- What follow-up appointments or services are you expecting after you go home?
    - *List expected outpatient clinic appointments and timings, where they are and who with and give the contact numbers if you are able.*
    - *If appropriate discuss any equipment they are expecting and whether this has been provided.*

    - *Discuss community services or rehab, when they can be expected and where possible give contact numbers.*

- Can we talk about your rehabilitation? What is your understanding of any current limitations to what you are able to do?
    - *Guide them through mobility (including aids), weight-bearing status and duration, ADLs, any feeding or dietary concerns*
- Have you set any goals with the therapists that you'd like to achieve?
    - *Encourage them to reflect on these, or if they are unable to identify any- suggest things that might be meaningful (eg. Climbing stairs, being able to walk around the supermarket..)*
- And have you thought about how you're going to achieve this?
    - *Discuss suggested exercises, reiterate therapists advice from notes etc.*
    - *Think about pacing, progression and little and often*
- While your body is healing and you are trying to get stronger, it's also a really important time to think about your general health.
    - *Direct them to the general/specific health advice in the AHCP and suggest that they read this. Perhaps emphasise things that are particularly pertinent eg. Smoking.*
- Do you have any further questions for me? Or any specific concerns about going home?
    - *If none, direct them to MT patient line number and reiterate that there will be a follow-up call from the team in two weeks.*
    - *Also if consent for 30/7 questionnaire not yet given, please seek this and give reminder (can go in folder).*

Resource 3:

Quality Trauma Discharge: Flow chart of actions for Major Trauma Clinical Team



Resource 4:

Trust Intranet ‘Message of the Day’

From the 1st September, patients who have suffered major trauma and are being discharged directly to their own home will be offered enhanced support on discharge as part of a project funded by the Health Foundation. The aim is to improve patient and carer satisfaction and to reduce unscheduled healthcare attendances.

Preliminary research conducted by the Major Trauma team shows that although patients are very complimentary about the care they receive whilst an inpatient here at the Major Trauma Centre, they often feel ‘cast adrift’ after discharge. In telephone conversations, patients have expressed uncertainty around follow-up appointments, medications and even what their original injuries were.

The Quality Trauma Discharge ‘package’ will involve a one-to-one discharge counselling session for each patient and a family member or carer, an individualised ‘After Hospital Care Plan’ and a follow-up telephone call two weeks after discharge home. The package will be provided and implemented by the Major Trauma team.

Resource 5:

QTD presentation for the Major Trauma board

Quality trauma discharge- why?

'Post discharge and rehabilitation concerns are the most common issues identified by the national annual peer review visits'

(Grant application, 2014)

Quality Trauma discharge- why?

- 'I can't fault the care'
- 'There was a bit of a problem with communication… At my local hospital it feels like everyone's at a bit of a loss what to do with me… it's a bit of a shambles'
- '…I felt cast adrift'

(Patient questionnaire responses, 2015)

Challenges for discharge

Hospital/Community Care

- Lapse in communication
  - GP and community services
  - Outpatient services in local hospital
- Inadequate education
- Medication errors
- Lack of timely follow-up
- Lapse in home care
- Inappropriate discharge

Readmission or repeated and unscheduled healthcare contacts

Patient

- New medical problem
- Complication of injury or wound
- Socio-cultural issues
- Medication adherence
- DNA follow-up

AND/OR isolated, unhappy patient. Poor quality of life secured.

Specific to major trauma

- Enormous variation in injury patterns
- Complex rehabilitation needs
  - Physical
  - Psychological
  - Neurological
- Variation in rehabilitation goals
- Multiple clinical specialties requiring co-ordination
- Multiple contacts post discharge from MTC
- Variation in local care and rehabilitation provision

Quality trauma discharge and 'RED'

'The RED project … reported a 30% decrease in re-admissions and significant cost savings to the health service in the 30 days post discharge'

(Grant application, 2014)

Early Findings

- >70% of patients contacted had seen their GP at least once in thirty days since discharge
- An estimated 40% of these could have been avoided
  - Outpatient follow-up
  - medication
- Around 30% of patients had had multiple contacts with their GP
- 10% of patients had been readmitted to hospital with a problem related to their initial trauma during that thirty day period, with two of these potentially avoidable

Quality trauma discharge- elements

- Individualised 'After Hospital Care Plan'
  - 'Patients know best' (PKB)
    https://www.patientsknowbest.com/
    https://uat.patientsknowbest.com/
- Discharge education and 'counselling'
  - Patient activation measure (PAM)
- Pharmacy input (MMAps)
- Follow-up contact

Anticipated outcomes

- Fewer unscheduled healthcare contacts
- Greater patient and carer satisfaction
- Higher levels of 'activation', translating into changed healthcare behaviours

Potential national implications and wider local applicability.

Any questions?

Quality Trauma Discharge

Severn Major Trauma Operational Delivery Network

Resource 6:

Discharge Consultation discussion with Major Trauma practitioner

Discharge Education

Quality Trauma Discharge
August 2015
Annie Thornton

Why are we doing this?

- 'I just wanted to get home, I wasn't really with it on discharge'
- 'I had to go to my Mum's for a few days- my partner couldn't manage
- 'There was a bit of a problem with communication… At my local hospital it feels like everyone's at a bit of a loss what to do with me… it's a bit of a shambles'
- 'I'm not sure what was done for my back. I don't know what I can and can't do'

'I felt cast adrift'

Elements of the discharge education contact- some suggestions

- Establish their 'journey' since admission and maybe before…
- Signpost who to call for help
- Reinforce and supplement current knowledge around injuries and management
- Discuss expected follow up contacts
- Discuss functional capabilities, limitations and goals
- Give pertinent but general health advice from 'library'

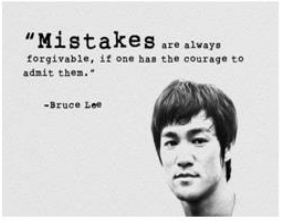
Elements of the discharge education contact- some suggestions

- Reassure them re. follow-up contact from MT
- Encourage patient and carer/family to record questions or concerns in the AHCP to take to next appointment
- Re-cap and seek any uncertainties

Resources- all in QTD folder

- Patient information library
- Outpatient contact numbers
- Discharge counselling guidance
- Directory of services

Any thoughts….?



Resource 7:

Poster announcing implementation of QTD to ward staff

Quality Trauma Discharge is coming…

From the 1st September, patients who have suffered major trauma and are being discharged directly to their own home will be offered enhanced support on discharge by the Major Trauma team.

The aim is to improve patient and carer satisfaction and to reduce unscheduled healthcare attendances.

What will it involve?

- One-to-one discharge counselling session for each patient and a family member or carer
- An individualised ‘After Hospital Care Plan’
- A follow-up phone call two weeks after discharge home.

If you have any questions, please contact the Major Trauma team on ext. 41546

Resource 8

PKB information letter

Major Trauma Office
Room PF1-C01-5-108
Gate 14, Level 5
Brunel Building
Southmead Hospital
BS10 5NB

Telephone 0117 414 1540

Dear Colleague,

I am the Major Trauma practitioner involved in the care of . As part of an effort to **improve care for our patients**, we are implementing an online tool called Patients Know Best that allows the patients, their clinicians and the Trust's expert medical advisers to contribute to the patients' own web based personal health record and conduct consultations or discussions online.

By using Patients Know Best we hope to make it easier for patients, their clinicians and our medical advisers to establish the standard of care in order to pursue the appropriate treatment for patients.

The Health Foundation is currently funding this software for patients and their clinicians so it is **free for you** to register and use. **The patient will need your e-mail address** to invite you to join his or her online clinical team. You will then receive an email prompting you to visit www.patientsknowbest.com and register with the site.

Patients Know Best (PKB) is the first company to integrate into the NHS Connecting for Health network to offer secure tools for patients to work with their existing clinicians online. Its Chairman is Dr Richard Smith, former editor of the *British Medical Journal*, and it has received awards and funding as a social enterprise.

Patients using the PKB web site can send and receive messages securely with their clinicians. Patients can also upload any electronic records they have, and receive any copies of their medical records which their clinicians are able to provide them with electronically; for example, referral documents, test results, or x-rays. (Or if available on paper, the Trust can arrange for them to be scanned and uploaded to beneficiary's account.) By default, everyone in the patient's clinical team can see the patient's entire PKB record, including communications with other clinicians, to facilitate collaboration among the team.

For any questions about PKB, for help registering or to be trained to use the site, please visit **http://help.patientsknowbest.com**, contact **help@patientsknowbest.com** or call them on 0845 658 6345. You can also learn more about PKB at www.patientsknowbest.com. Please also feel free to contact me at 0117 4141540 if you have any questions or concerns about the use of this system.

We are very excited about the potential for improving patients' care with this tool and look forward to your help with this project.

Regards
Annie Thornton (Major Trauma practitioner)

Resource 10

MaPPs information