

An evaluation of a telephone triaging system for traumatic brain injury referrals.

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Abstract

This paper builds upon the earlier work of King et al (2017) using a telephone triage service for traumatic brain injury (TBI) referrals. We have investigated effects of this new service on waiting times, attendance rates and use of clinical time during the first year of implementation. Waiting times reduced, 36 clinical hours were saved, and contrary to our predictions, the DNA ('did not attend') rate increased. Likely reasons for this unanticipated outcome are discussed, and further projects are recommended.

Introduction

Following traumatic brain injury (TBI), early access to multidisciplinary neurological rehabilitation is crucial, since neurological recovery happens most rapidly in the early weeks and months after TBI, providing the greatest opportunity for optimal recovery (Greenwood, 2004; León-Carrión et al, 2013; Thompson et al, 2012). Following discharge from hospital, the National Institute for Health and Care Excellence (NICE; 2014), recommend that all individuals who have acquired a brain injury should be referred for outpatient follow-up.

The British Psychological Society Division of Neuropsychology (BPS DoN; 2015) have published guidance for commissioners regarding the clinical and economic benefits of neuropsychology assessment and interventions following TBI, which is supported by an expansive evidence base (Cicerone et al, 2011; Ponsford et al, 2016; Rabinowitz & Levin, 2014; Yeates, Edwards, Murray, Creamer & Mahadevan, 2013; Ulrichsen et al, 2016). Importantly, early neuropsychological input can address unhelpful “passive” coping strategies (such as avoidance), which are associated with poorer psychosocial outcomes over time (Anson & Ponsford, 2006; Wolters et al, 2011).

The Service

The clinical neuropsychology TBI outpatient service sits within the larger clinical neuropsychology department of the regional neurosciences centre at Salford Royal Hospital, and is part of The Northern Care Alliance. Every individual admitted to the centre as an inpatient with a TBI is automatically referred to the clinical neuropsychology service for triage, plus external referrals are received from GPs, neurologists, and other psychology services. Typical input includes comprehensive neuropsychological assessment, followed by therapeutic intervention where indicated. Interventions may include: psychoeducation; facilitating adjustment and acceptance; signposting to other agencies; and providing advice and training in compensatory strategies for cognitive difficulties.

Given the evidence for the benefits of early intervention in TBI, we were concerned about the waiting times for initial outpatient appointments. Despite referral rates having remained fairly stable (with a mean of 27 referrals per month) over the previous three years, waiting times had risen significantly above the NHS target of 18 weeks, following a period of staff shortages.

Clinicians also observed (anecdotally) that the “did not attend” (DNA) rate for TBI referrals was higher than that for other client groups seen within the department (including tumour, general neurology, non-epileptic attack disorder and subarachnoid haemorrhage). Limited research was identified regarding DNA rates amongst people with TBI, however, a recent study conducted in Norway found that 30% of people with a mild TBI did not attend their planned follow-up appointments (Vikane et al., 2014).

Additionally, we had also noticed that a significant minority of TBI clients attended their first appointment reporting minor or no difficulties, thus were then discharged without further assessment or intervention. This led us to consider whether clinical time was being appropriately and efficiently utilised by offering face-to-face follow-up appointments to every TBI referral.

Telephone Triaging

In response to the concerns described above, the service instituted a telephone triaging system in March 2016. Telephone triaging is recommended in mental health services, as an empowering opportunity to promote strengths and develop basic self-management strategies (Ní Shiothcháin & Byrne, 2009).

Triage calls took the form of a brief clinical interview with a qualified clinical neuropsychologist to establish: how the client was managing since their TBI; whether neuropsychology input was clinically

recommended; any risk issues indicating a need for the appointment to be expedited; and whether the client wanted and intended to attend an initial face-to-face appointment. Preliminary outcome data based on the first three months of the triaging intervention (King et al, 2017) indicated cost-effectiveness in terms of time spent on triaging versus clinical time saved by removing unnecessary or unwanted referrals from the waiting list. Anecdotally, this also increased clinician satisfaction with the service by making meaningful clinical contact earlier in their clients' recovery.

Aims

The aims of this service evaluation were to expand upon preliminary findings by examining telephone triaging data over a longer time period (the first twelve months of triage calls) and to compare attendance and waiting time data, and use of clinical time, to the twelve months prior, in order to evaluate its impact. It was also hoped that we would be able to make clinical contact within the 18 week target, to improve clinical outcomes and address unhelpful, passive strategies earlier before these became entrenched.

It was hypothesised that both the DNA rate and waiting times would have significantly reduced since the introduction of the triage calls. It was hoped that the findings would provide objective information to help the service to consider the costs and benefits of continuing to use the telephone triaging system, as well as whether it would be worthwhile to roll out the system to other parts of the clinical neuropsychology service.

Method

Sample

634 individuals were referred to the TBI service over the 24 month target time period: 12 months prior to telephone triaging (December 2014 to November 2015, $N = 318$), and the first 12 months after the introduction of this initiative (December 2015 to November 2016, $N = 316$). All referred

individuals were aged 16 and over. No individuals were excluded from this service evaluation on the basis of any demographic or clinical factors.

Design, Ethics and Procedure

This study was deemed to be a service evaluation (as opposed to research) using documentation from the NHS Health Research Authority, thus NHS ethics procedures and patient consent were not required (BPS, 2009; HRA, 2017). Relevant approvals were granted by the Trust's Research and Development (R&D) department, and Lancaster University Faculty of Health and Medicine Research Ethics Committee.

Quantitative data only were used, obtained from pre-collected data in a service database monitoring referrals to the TBI service and triage call outcomes. Additional demographic information was gathered from the electronic patient records.

Our hypotheses were that the TBI triage call initiative would:

- 1) reduce the TBI service DNA rate, and
- 2) reduce waiting times for an initial face-to-face appointment with the TBI service.

Results

Appointments Offered and Attended

318 people were referred to the TBI service in the 12 months pre-triaging, of whom 219 were offered an initial face-to-face appointment. Of these, (20.5%) did not attend. Reasons for not being offered an appointment included being referred on to a Community Neuro Rehabilitation Team (CNRT), and not meeting the service's referral criteria.

316 people were referred to the service in the first 12 months of triaging. Information regarding the appointments offered to and attended by this group are displayed in Figure 1. Of the 161 referrals who were offered an appointment, 56 (34.8%) did not attend, which represents, contrary to our prediction, a significant increase in rates of first appointment non-attendance (up from 20.5%) in the first year of the telephone triaging system ($X^2(1, n=380) = 9.63, p<.01$).

< insert Figure 1 here >

Of the 37 individuals who answered the triage call and agreed to attend an appointment, eight (21.6%) did not attend. This is similar to the pre-triaging DNA rate (20.5%). Meanwhile, of the 51 individuals who did not answer the triage call and were offered an appointment, 24 (47.1%) did not attend. It can therefore be inferred that the triage calls did not have a significant impact upon the DNA rate of those individuals who answered the call and agreed to attend, and that the increase in overall DNA rate was attributable to other differences between the pre- and post-triaging groups.

Use of Clinical Time

In the first three months of the triaging system, the mean number of calls per hour was 4.9. The total number of calls made in the year since the initiation of the calls was 169, hence 34.5 hour-long clinical sessions (rounded up to 35) were likely to have been spent on calls. 71 individuals were removed from the waiting list as a direct outcome of the triage calls in the first year; therefore it can be presumed that 36 clinical sessions were saved over this period, due to the introduction of the triaging system.

Waiting Times

The mean waiting time for individuals referred in the pre-triaging period was estimated at 34.8 weeks (as explained below), whilst the mean waiting time for individuals referred in the post-triaging period was 30.7 weeks. However, there were several reasons why these figures could not be reliably compared. Firstly, whilst waiting times were calculated for each individual in the post-triaging group, these data were not available for the pre-triaging group; rather, broad estimates were available from service reports. Additionally, since some individuals' appointments were expedited for clinical reasons, the waiting time data for the post-triaging group were bimodal (therefore not normally distributed). Finally, it was expected that the effects (if any) of the triaging calls on waiting times were more likely to be apparent over time than by direct comparison of the pre- and post-triaging groups. Therefore, the decision was taken to inspect the data for the individuals referred in the post-triaging group over time, and to exclude those individuals who were given expedited appointments ($N = 58$). These data are summarised in Figure 2.

< insert Figure 2 here >

A downwards trend in waiting times was observed, with non-expedited individuals referred in the first month of the triaging intervention waiting on average 50 weeks for an appointment, and non-expedited individuals referred in the 12th month of the intervention waiting on average 33 weeks. A corrected independent t-test (since Levene's test for equality of variances was significant) found that this reduction was statistically significant; $t(8.70)=5.56$, $p<0.01$.

Discussion

The overall aims of this service evaluation were to establish the effects of a new telephone triaging system on service efficiency (including attendance patterns, waiting times and use of clinical time) in a clinical neuropsychology TBI service.

36 hours of clinical time were saved as a direct outcome of the triage calls over the first year of implementation. This implied potential for reduction in waiting times, given that the saved hours could be utilised for offering more initial appointments, and a significant reduction (50 weeks in the first month of triaging down to 33 weeks in the 12th month) was found in waiting times for non-expedited individuals (arguably, waiting time was not a concern for those who received an expedited appointment, usually within a few weeks).

Furthermore, many of the individuals on the waiting list had received their first clinical contact from the service within the recommended 18-week period. As highlighted previously, early clinical contact for people with TBI is important for neuro-rehabilitative outcomes and overall wellbeing (Greenwood, 2004; Leon-Carrion et al, 2013; Thompson et al, 2012). The triage calls appeared to have met our service's goal to increase the potential for good clinical outcomes for TBI clients by providing earlier neuropsychological input.

Clearly, we have achieved several positive outcomes by instituting telephone triaging, but it is important to also consider potential negative effects of this service. One concern we had is that, the service user may later regret opting out of the service, during the short phone call, if problems were to arise later on, whereas a longer face-to-face initial appointment may encourage further exploration and reflection on current difficulties. However, patients discharged via the triage call were sent a standard discharge letter informing on how they could action a re-referral to the TBI service at some future point, if required. Further, particularly in working with the TBI population reduced insight was another concern, in that the TBI patient may report no difficulties on the telephone, whereas a significant other, who might have attended with them to a face-to-face assessment appointment, might be more informative on highlighting concerns they are not aware of.

This study also found (contrary to our expectations) that the DNA rate significantly increased in the first year of the triaging calls compared to the previous year. However, this finding was based on a comparison of all people eligible to receive a first appointment in the pre-triaging period, with only those people who had been offered an appointment in the post-triaging period.

These findings were contrary to our hypothesis, since it had been anticipated that the option to decline an appointment at the time of the call would mean that the individuals remaining on the waiting list were keen to attend. Instead, it seems that those removed from the waiting list following the calls (often with minor or no residual difficulties) consisted of largely that group of people who might have attended their first appointment if invited, but did not require ongoing input from the service. Therefore the triage calls appeared to reduce the number of unnecessary or unwanted appointments, despite not leading to a reduction in the DNA rate. Meanwhile, however, many of those individuals whom we could not reach by telephone remained on the waiting list, and almost half (47%) of these individuals did not attend their first appointment. These findings indicate the existence of other potential barriers to attendance than simply not wanting to attend, because approximately one fifth of individuals who agreed to attend their appointment at the time of the triage call failed to then do so when invited.

Given that the findings are specific to the service, they cannot be easily generalised (though this was not the intention of the project). A further limitation of this service evaluation is that, although it gave information about the impact of the calls, it does not explain the reasons for the changes, thus further investigation is required to explore this from the client's perspective, and also to look at the impact of shorter waiting times on longer-term outcomes.

This study has generated some useful information for the service regarding the benefits of telephone triaging, not least convincing our managers to continue to release clinical time to continue with this initiative. This data has also proved useful in putting forward business cases for new posts within our service, as we have been able to evidence that we are already creatively using our existing resources to reduce waiting times, yet waiting list pressures continue, thus stressing the need for additional posts. Though the findings are specific to the TBI service, the successes of the triaging system may encourage the wider department (and perhaps other clinical neuropsychology services) to trial similar systems with other client groups.

Conclusions

The telephone triaging system appeared to be a helpful intervention for the reduction of waiting times in the service. Clinical contact was achieved earlier for many individuals, which research suggests could have positive implications for neuropsychological outcomes. Although the triage calls did not have a significant impact upon the DNA rate of those individuals who answered the call and agreed to attend, clinical time was saved by removing individuals from the waiting list who did not want or require an appointment. Further service evaluation work is warranted to explore clients' experiences of the triage calls, and to establish whether shorter waiting times are associated with better neuropsychological outcomes. We are also preparing a further paper from these analyses looking at predictors of first appointment attendance in this population.

We would like to thank our very helpful and forward-thinking management team (Urszula Rozkowska, Katie Moncrieff, and Sam Dickens) who consented to us using clinical time (and in so doing, losing income within our clinic tariff system) in order for us to implement this innovative project.

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Figure 1

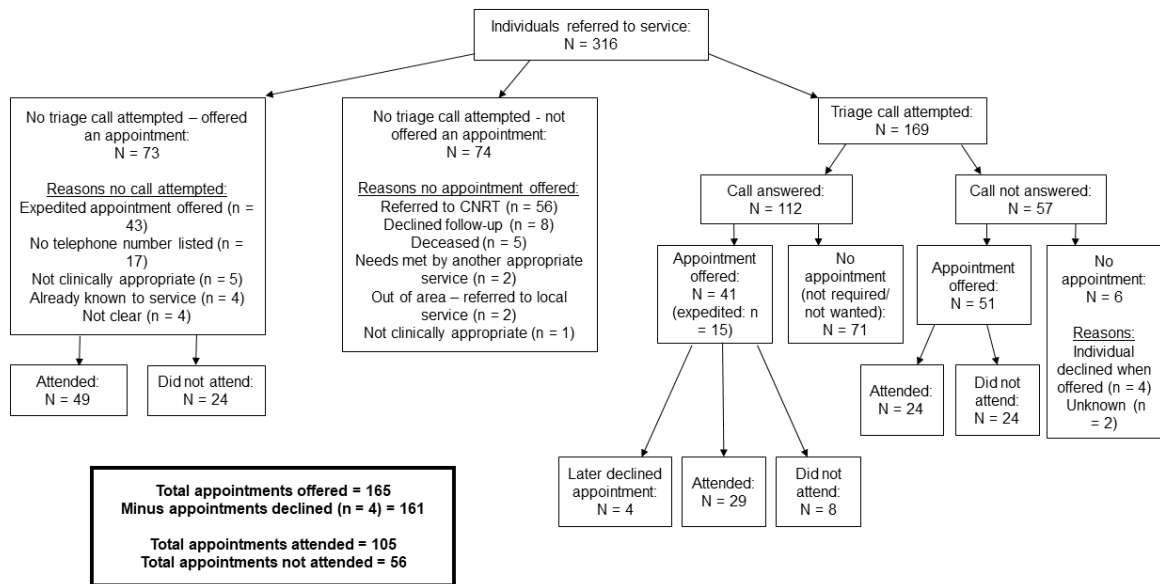


Figure 2

