Barriers and Facilitators to Implementation of a Telephone Follow-Up Program for Severely Injured Trauma Patients – A Process Evaluation

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Barriers and Facilitators to Implementation of a Telephone Follow-Up Program for Severely Injured Trauma Patients – A Process Evaluation

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Research Article

Abstract

Background:

Survival rates following major trauma are increasing. Understanding the longitudinal outcomes of major trauma can promote successful recovery. A novel, hospital-led telephone follow-up program was implemented by a multi-disciplinary clinical trauma service team at a Level I trauma centre. This evaluation was conducted to examine what factors promoted or impeded the program's implementation.

Methods:

A prospective mixed methods process evaluation was conducted alongside the implementation of the follow up program. Quantitative and qualitative data were collected across the evaluation domains: reach, dose, fidelity, context and sustainability and clinical data of program participants (patients); semi-structured interviews with staff delivering the program and patients and caregivers who had participated in the program and direct observations (by researchers) of the program delivery and data

Descriptive statistics and thematic analysis were applied to quantitative and qualitative data respectively.

Results:

274 major trauma patients (ISS ≥ 12) were eligible for follow up. A response rate of over 75% was achieved at both follow -up timepoints, with nurses responsible for the majority of calls. Limited time and competing clinical demands were identified as barriers to the timely completion of the calls, although over 75% of calls were completed within the designated timeframe.

Staff and patients valued the pre-existing trauma service/patient relationship, and this facilitated program implementation. Clinicians were motivated to evaluate their patient's recovery, whilst patients felt 'cared for' and 'not forgotten' post-hospital discharge. Teamwork and leadership were highly valued by the clinical staff throughout the implementation period as ongoing source of motivation and support.

Although primarily designed as a data collection activity, staff spontaneously developed the program to incorporate clinical follow up processes by providing guidance, advice and referrals to patients who indicated ongoing issues such as pain or emotional problems.

Conclusion:

Telephone follow up within a clinical trauma service team is feasible, accepted by staff and valued by patients and families. Despite time constraints, the successful implementation of this program is reliant on existing clinical/patient relationships, staff teamwork and leadership support.

Background:

Traumatic Injury is a significant global healthcare issue, accounting for 4.4 million deaths annually, or 9% of the global mortality [1]. Within Australia, injury related deaths amount to 13,000 per year, or 8.5% of all deaths nationally [2]. Whilst mortality rates remain high, advances in trauma systems such as specialised prehospital care and tertiary trauma centres have assisted in reducing both out of hospital and in-hospital trauma related mortality by up to 25% [3, 4]. This has led to increased rates of trauma survival which is evident from reports of increased hospitalisations rates in the decade up to 2018 [2].

As more people survive major trauma and are discharged back into the community, their ability to re-integrate into society is of paramount importance. Hence, trauma outcome research has become increasingly focused on long term community-based outcomes. Research shows that survivors of major trauma often experience physical and psychological sequela that adversely affects many aspects of their everyday life [5]. Understanding long term outcomes such as return to work, functional and psychological outcomes can promote a successful recovery and inform and guide the development of trauma health care policy, at both local and national levels.

Evaluating the longitudinal impact of major trauma is challenging due to the heterogeneous nature and severity of injuries. For these reasons, standard quality of life (QoL) measurements such as the EQ-5D-5L [6] and WHO Disability Assessment Schedule (WHODAS) 2.0 [7] are often used to compare psychosocial outcomes across different populations and can also facilitate economic evaluations of healthcare interventions. Follow-up rates of trauma patients after hospital discharge are variable, and reportedly range from 31% up to 79% [8–11]. Within Australia, the Victorian State Trauma Outcomes Registry and Monitoring (VSTORM) program [12] has been successfully following up trauma patients at 6, 12 and 24 months after injury since 2001. This program is funded by the Transport Accident Commission Health Research and operated from Monash University. The program's data has informed service provision and development and aims to reduce mortality and morbidity from major trauma [13].

To date, the follow up of major trauma patients has been observational in design and primarily conducted for research purposes. However, a follow-up program that is implemented by a clinical multi-disciplinary team who cared for the trauma patient during their admission is unique. More importantly, a follow up program designed and led by clinicians can provide unique insight to the patients' circumstances and enable research and evaluation of a wide range of factors that promote or impede their recovery.

In 2019, a Trauma Service Follow Up program (TSFU) was implemented in our institution by a multi-disciplinary clinical trauma team. Modelled on the methods used by VSTORM [12] the program targeted adult (aged ≥ 18 years) survivors of major trauma who had been discharged from our hospital.

This manuscript reports on a process evaluation conducted to evaluate the implementation of the follow-up program. The overarching aim was to investigate the barriers and facilitators that either promoted or impeded the TSFU programs' implementation and sustainability.

Methods:

Aim:

The overarching aim was to investigate the barriers and facilitators that either promoted or impeded the TSFU programs' implementation and sustainability. Its objectives were to apply a standard evaluation framework to examine participation rates, feasibility, fidelity and acceptability and cost to the health service of the program by staff and patients and families, and cost to the health system.

Design:

A prospective mixed methods observational study design was used and embedded within the implementation of the TSFU program.

Theoretical Framework:

The process evaluation and data collection methods were informed by the framework developed by Saunders et al [14]. We qualitatively and quantitatively evaluated process indicators of fidelity, dose, reach, and context and sustainability.

Table 1
Theoretical Framework

Process Evaluation						
Program Component	Data Collected Method	Reach	Dose	Fidelity	Context	Sustainability
		The proportion of the participants that participated in the intervention.	The extent to which the participants interact with the intervention.	The extent to which the intervention was implemented as planned.	The aspects of the environment which may influence the intervention of the implementation.	
Resource Development	Communications*	x			x	
Staff Training	Communications*	x		x		
Screening and Identification	Duration, frequency	x				x
Administration	Duration, number of letters sent		x		x	x
Interviews (pre)	Staff Interviews	x	x		x	
6/12 months telephone follow up	Number of calls made, successful v missed, duration, unexpected outcomes	x	x	x		x
Interviews (post)	Staff, Patient/Caregiver	x	x	x	x	x
Direct Observations	Interview notes, research team notes	x	x	x	x	x
*Communications include emails, phone calls, meeting minutes, logbook						

Setting:

The study setting was a Level 1 tertiary trauma centre located in Southeast Queensland, Australia. The institution is a Level I Trauma Centre credentialled by the Royal Australian College of Surgeons (RACS). The level I status denotes the provision of comprehensive specialist trauma care for patients including education, research and quality improvement [15]. The function of the trauma service is to case manage and coordinate care of the multi-trauma patient. Patients are admitted to the Trauma Service if any of the following criteria are met: Activation of a trauma alert/respond;

Two or more body systems injured; Chest or abdominal trauma and/or High-risk mechanism of injury. The centre receives over 1,500 trauma activations every year, with approximately 350 classed as major trauma (Injury Severity Score (ISS) ≥ 12) [16].

Within the literature severe trauma is frequently described as 'major', 'multi', 'polytrauma', or 'severely injured'. The ISS is often used to describe major trauma with an ISS ≥ 12 being used as the definition of major trauma within Australia or an ISS ≥ 15 used within the USA and UK. The ISS is an established anatomical scoring medical scoring system score to assess trauma severity and correlates with mortality, morbidity and length of hospital stay [17]. This paper will use the umbrella term of major trauma, signifying an ISS ≥ 12 as per Australian Trauma Society guidelines [16].

Intervention – Trauma Service Follow Up Program (TSFU):

The TSFU commenced in 2019 and is delivered by the clinical staff of the multi-disciplinary trauma service clinical team which includes nurses and allied health (occupational therapists and physiotherapists). The project is managed by the trauma service program manager in conjunction with non-clinical members of the service (Trauma Registry Systems Administrator and administration support). The program is embedded within the routine trauma service care provided to trauma patients and funded from operational budgets.

The TSFU targets all consecutive major trauma patients aged ≥ 18 years old, who are admitted to hospital and case managed by the trauma service during their admission.

Eligible patients for the TSFU program were major trauma patients admitted and discharged alive in 2019, aged ≥ 18 years, who resided within Australia and spoke and understood and understand English. Patients with no fixed discharge address were not eligible. Caregivers were contacted for patients who did not have the cognitive capacity to participate. Reasons a participant may not have cognitive capacity include patients who have severe Traumatic Brain Injuries (TBI) or receiving ongoing care from the mental health teams. Supplement 1: Figure s1 illustrates the Trauma Service Follow Up flow diagram.

Participants in the TSFU program are contacted by a trained member of the trauma service at 6 and 12 months post injury via telephone and asked to participate in a survey, which uses the validated tools of EQ-5D-5L [6] and WHODAS 2.0 [7] to assess the quality of life and functional outcomes. Additional questions on work status, education, relationship status and self-assessment of pain levels is also collected. These timepoints align with current trauma follow up programs within Australia [12] and in the wider literature [18]. A detailed description of the components of the program can be found in Supplement 2: Table s1: Trauma Service Follow Up Components.

Participants in the Process Evaluation:

The study sample for the process evaluation comprised two groups: (1) trauma service staff who conducted the follow up phone calls and (2) patients (or their caregiver) who had completed both timepoints of the TSFU program.

Trauma Service Staff:

All trauma service staff were invited via email to participate, and written informed consent was obtained from those who agreed to take part.

Patients and/or caregivers:

A study information sheet and letter were sent to every eligible participant to invite them to participate in the process evaluation. This was followed by a phone call conducted by a researcher external to the TSFU program. The phone call provided an opportunity to answer any questions and to obtain consent if a consent form had not been returned.

Data Collection:

Table 1 outlines the data collection methods.

Data:

Quantitative patient data for patients' part of the TSFU program were obtained from the hospital Trauma Registry. Additional data collected from and about the 6- and 12-month phone calls, communications (including emails, phone calls, meeting minutes and a logbook) and direct observations (by the research team) was obtained to explore the process evaluation concepts of reach, dose, fidelity and context.

Cost data included are those considered to be directly related to the provision of the TSFU program and were collected throughout the implementation period; this was divided into two phases: (1) Set Up and (2) Running. The data included activities involved in each phase of the program, the person performing the activity, the length of time to perform each activity and the occurrence of each activity. Figures 2 & 3 outline the processes involved in each phase.

TSFU telephone follow up data:

This data included the number of completed calls (response rates) compared to the number of eligible participants, reasons for non-response of participants, attempts made to call patients, duration of telephone calls and participant characteristics.

Communications:

Throughout the study the research team recorded minutes of meetings regarding the program. Communications between the team regarding the design and implementation and ongoing roll-out of the program were logged.

Training Sessions:

To measure the program reach and fidelity training sessions were logged including duration, attendees and resources utilised. This included both face to face training by the research team and the train the trainer approach for new staff.

Direct Observations:

Direct observations were recorded including the duration of activity recorded for duration of the screening of eligible patients, creation of individual patient packs and letters sent to patients.

Qualitative Data:

Interview data was used to gain an in-depth understanding of both the staff who had delivered the TSFU program and the patient/caregivers who had participated in the program. Semi-structured interview guides for both staff and patients/caregivers were developed using the Theoretical Domains Framework (TDF). The TDF provided a framework to investigate implementation issues and inform practice change [19], with additional probes as relevant.
Interviews with staff were conducted at two timepoints: prior to commencing the 6-month phone calls and after commencement of the 12-month follow up calls. Patient and caregiver interviews were conducted with those who had previously consented to participate in the process evaluation at the conclusion of the 12-month post injury TSFU phone calls. All interviews were conducted by a trained researcher at a date and time that was convenient for the participant. Staff interviews were conducted face-to-face at the participants place of work, while patient/caregiver interviews were conducted via the telephone. All interviews were recorded and transcribed verbatim. The researcher also took interview notes which were used for data collection.

Data Analysis:

Descriptive statistics were used to describe the patient cohort. Medians, Inter Quartile ranges and number (%) were reported for continuous and categorical data, respectively. Where indicated, the chi squared test was performed, whereby a $p < 0.05$ was defined to show statistically significant differences.

To investigate associations between the independent variables the analysis was performed in stages. Firstly, univariate analysis with the primary endpoint of Follow Up (6 month/12 month) completed (yes/no) was applied to the following:

- Male
- Age and Age Ranges (18–35 years; 36–65 years, over 65 years)
- Injury Severity Score (ISS)
- ICU Length of Stay (total days)
- Hospital Length of Stay (total days)
- Hospital Length of Stay Over 7 Days

Next, linear regression was performed. Variables with a $P < 0.10$ were included. Pairwise correlations for independent variables were tested using collinearity diagnostics. Any correlations were tested using Variance Inflation Factor (VIF) which measures the inflation in the variances.

Costs were calculated using time-driven Activity Based Costing approach [20]. Using data collected via direct observation, estimates of the staff performing the tasks within the processes and the time taken to perform the tasks. Staff hourly wages were determined from the relevant awards for all staff. The individual process cost was then evaluated as the sum of all tasks that occurred and the frequency in which the tasks were performed. The total cost was finalised by summing the process costs.

An inductive thematic analysis was used on qualitative data (interview transcripts), following the method described by Braun and Clark [21]. The first author (EW) inductively analysed the data by initially coding selected sentences/passages in the transcripts based on content and meaning. Through an iterative process, patterns across the dataset were then analysed and labelled, and subsequently grouped into emerging themes. Two of the authors (EW and CB) developed the themes and the consulted with the clinical team who provided important input that shaped the analysis and framework. Consensus on the final themes was reached through discussion. To support the trustworthiness of the results, analyses and interpretations of the data were discussed and checked with the clinical team and if required amendments were made. Themes are presented with exemplar quotes, followed by a description of the participants including gender.

Ethical Considerations:

Ethical approval

was obtained by the local Human Research Ethics Committee [HREC NUMBER BLINDED FOR THE PURPOSE OF PEER REVIEW] according to Sect. 2.3 of the National Statement on Ethical Conduct in Human Research. Participants provided informed consent for an audiotaped interview and TSFU survey data.

Results:

Participants in qualitative interviews

Fourteen semi-structured interviews were conducted with 9 staff (7 pre commencement of TSFU program and 7 post) with 5 staff participating in both. The interviews lasted between 20 and 50 minutes. Participants were from a mixture of disciplines and had a median of 20 years (IQR 12–26) clinical experience. The majority of interviewees (n = 7, 77.8%) had a post graduate qualification. A total of 6 interviews were conducted with patients/caregivers (5 patients and one caregiver). The interviews lasted between 12 and 24 minutes. Patient interviewees had been significantly injured with a median ISS 18 (IQR 14–25) and their length of acute hospital stay was 11.5 days (IQR 4–13). Demographics of the interview participants can be found in Table 2.

An orientation guide regarding the process evaluation constructs and results can be found in Table 3.

Table 2
Interview Participant Characteristics

Characteristics	
Staff	N = 9
Gender	3 (33.3%)
- Male	6 (66.7%)
- Female	
Age, median (IQR)	43 (41−54)
Discipline	5 (56%)
- Nurse	2 (22%)
- Doctor	2 (22%)
- Allied Health	
Years' Experience median (IQR)	20 (12−26)
Highest Level of Education	2 (22.2%)
- Degree	7 (77.8%)
- Post Graduate Degree	
Pre-Implementation Interviews completed	7
- Total (minutes)	236
- Min/Max (minutes)	20/43
- Median, IQR (minutes)	29 (20−37)
Post Implementation Interviews Completed	7
- Total (minutes)	248
- Min/Max (minutes)	28/50
- Median, IQR (minutes)	30 (28−39)
Patient/Person Responsible	N = 6
Gender	3 (50%)
- Male	3 (50%)
- Female	
Age, median (IQR)*	46 (34−56)
ISS, median (IQR)*	18 (14−25)
Hospital Length of Stay*, median (IQR)	11.5 (4−13)
Post Implementation Interviews Completed	6
- Total (minutes)	98
- Min/Max (minutes)	12/24
- Median, IQR (minutes)	15 (13.25−16)
* age/ISS/length of stay of patient	

Table 3
Process Evaluation Constructs Orientation

Process Construct	Sub Section	Type of Data
Reach	Patients in the TSFU program	Patient data
	TSFU telephone follow up	Call Logs
Dose	TSFU Telephone Follow up Call	Call logs
	Qualitative Theme 1: Follow Up is time consuming	Staff and patient/caregiver interviews
	Qualitative Theme 2: Patient and Trauma Service clinician relationships	
Fidelity	Patient, Injury and Hospital Characteristics	Patient data
	TSFU telephone follow up	Call logs
	Qualitative Theme 3: Clinician Identity	Staff and patient/caregiver interviews
Context	Qualitative Theme 4: Teamwork and Peer Support	Staff and patient/caregiver interviews
	Qualitative Theme 5: Leadership	
Sustainability	Cost	Observations
	Qualitative Theme 6: Emotional Impact	Staff and patient/caregiver interviews
	Qualitative Theme 7: Rewards	
*TSFU – Trauma Service Follow Up program		

Reach – the proportion of the participants that participated in the intervention [14].

Patients in the TSFU program

Table 3 shows the total number and characteristics of eligible patients; and who participated at both the 6-month and 12-month timepoints. Patients were significantly injured with a median ISS of 17 (IQR 14–22); the majority were male and almost half were in the working ages of 36–65 years old (n = 122, 44.52%). No significant differences were identified between participants of those who completed follow up compared to those who did not at 6 or 12 months.

Table 4
Patient Characteristics

	All n = 274	Completed 6m follow up n = 212	Did not complete 6m follow up n = 62	Completed 12m follow up n = 199	Did not complete 12m follow up n = 75	P value
Age†	49 (33–68)	52 (35–69)	44 (32–63)	50 (34–68)	48 (33–65)	0.10
Age range*						
- 18–35	75 (27.37%)	54 (25.47%)	21 (33.87%)	51 (25.62%)	24 (32%)	
- 36–65	122 (44.52%)	93 (43.86%)	29 (46.77%)	89 (44.72%)	33 (44%)	
- Over 65	77 (28.1%)	65 (30.66%)	12 (19.35%)	59 (29.64%)	18 (24%)	
Gender*	198	153	45	144	54	
- Male	(72.26%)	(72.17%)	(72.58%)	(72.36%)	(72%)	
ISS†	17 (14–22)	17 (14–22)	17 (14–21)	17 (14–22)	17 (14–20)	0.52
Disposition*	200 (72.99%)	152 (71.7%)	48 (77.42%)	142 (71.36%)	58 (77.33%)	
- Home						
- Rehab	26 (9.49%)	24 (11.32%)	2 (3.23%)	24 (12.06%)	2 (2.67%)	
- Another hospital	38 (13.87%)	31 (14.62%)	7 (11.29%)	28 (14.07%)	10 (13.33%)	
- Other	10 (3.65%)	5 (2.36%)	5 (8.07%)	5 (2.51%)	5 (6.67%)	
Mechanism of injury*	68 (24.82%)	50 (23.58%)	18 (29.03%)	45 (22.61%)	23 (30.67%)	
- Fall	153 (55.84%)	120 (56.6%)	33 (53.23%)	118 (59.30%)	35 (46.67%)	
- Transport Related	18 (6.57%)	13 (6.13%)	5 (8.06%)	10 (5.03%)	8 (10.67%)	
- Struck by/against	9 (3.28%)	6 (2.83%)	3 (4.84%)	4 (2.01%)	5 (6.67%)	
- Penetrating	26 (9.48%)	23 (10.86%)	3 (4.84%)	22 (11.07%)	4 (5.33%)	
- Other						
Hospital length of stay †	6.8 (3.7–12.4)	7 (4–13.1)	4.36 (2.8–9.85)	8 (4.36–13.5)	4.57 (2.75–9.11)	0.08
- Days	130 (47.45%)	107 (50.47%)	23 (37.10%)	106 (53.27%)	24 (32%)	
- Over 7 days	144 (52.55%)	105 (49.53%)	39 (62.90%)	93 (46.73%)	51 (68%)	
- Under 7 days						
ICU admission*	100 (36.5%)	81 (38.21%)	43 (69.35%)	78 (39.20%)	53 (70.67%)	0.34
- Yes						

NB Rehab – rehabilitation, ISS Injury Severity Score, ICU – Intensive Care Unit

* Presented in n, %

† Presented in median, IQR

TSFU Telephone follow up

Of the 274 eligible patients, 186 (67.9%) completed surveys at both timepoints. Most were completed by patients (6-month 86.8% (n = 183) and 12-month 82.9% (n = 165)) with the remainder completed by a family member or carer. At 6-month timepoint 212/274 surveys were completed providing a response rate of 77.23%. Following withdrawals from the program 245 were eligible to be contacted at the 12-month timepoint, of which 199 surveys were completed providing a response rate of 81.3%. Inability to contact was the commonest reason for non-participation, followed by withdrawal from the program. Additional reasons included the patient being overseas, in hospital or having died (n = 4, 6.4%).
Dose – the extent to which the participants interact with the intervention [14].

Nursing staff completed most of the TSFU calls (91.48%), with occupational therapy and physiotherapy staff completing the remaining. At the 6-month timepoint the number of attempts made to contact the patient varied with just over one third being reached on the first attempt. At the 12-month timepoint this had increased to half the patients being contacted on the first attempt. Table 4 summarises this data in further detail.

Table 5
Telephone Follow Up Call Data

	6-month follow up N = 274	12-month follow up N = 245
Surveys Completed	212 (77.37%)	199 (81.2%)
Duration of calls (mins) Median, IQR	1149 12 (9−15)	1646 10 (7−13)
Attempts Made Median, IQR	595 2 (1−3)	520 1 (1−3)
- One attempt	88 (36%)	116 (50%)
- Two attempts	62 (25%)	47 (20%)
- Three attempts	42 (17%)	23 (10%)
- Four Attempts	19 (8)	9 (4%)
- Five attempts	22 (9%)	25 (11%)
- > 5	33 (4%)	13 (6%)
Number of days to timepoint:	183	365
- Median (IQR)	185 (174−196)	363 (353−374)
- Early (n, %)	31 (14.6%)	37 (18.6%)
- Late (n, %)	46 (21.7%)	32 (16%)
*IQR − Interquartile range		

Thematic analysis of the interviews in relation to dose, found two broad themes: (1) Time and (2) Patient and Trauma Service clinician Relationships.

(1) Time

Prior to the commencement of the program, staff thought that the time it would take to perform the phone calls would be a barrier to completing the program, citing that "*follow up is time consuming*" (Male, staff_1; Female, staff_2; Female, staff_5, Male, staff_6). In the post interviews these concerns were validated: '*patients can take a really long time to answer… they feel they needed to explain every answer in varying details'* (Female, staff_3). However, the duration of the call was also affected by the staff if they felt the patient needed extra assistance. Staff noted that another factor extending the length of calls was making small talk, which was initiated by both staff and patients, especially if they were known to each other. The extended duration of calls occurred despite staff having a script to follow when undertaking the calls.

As well as the actual length of the calls, clinicians felt it was difficult to find the time in their day to undertake the phone calls with competing with clinical demands. As (Female, staff_5) stated '*finding the time throughout the day is probably the biggest challenge*'. Even when time was found in the day to make the call, staff reported that it was not uncommon to need to make multiple calls to contact a patient, which led to a sense of frustration: '*I think the biggest frustration is trying to get people on the phone, which is the tedious part of the process*' (Female, staff_4). In addition, patients were sometimes busy when staff rang and trying to call back at predetermined times was problematic due to clinical workload: '*you can't call back necessarily at the exact moment that's responsive to the patient'* (Female, staff_4) as '*you could be in the middle of something*' (Female, staff_2).

The shift patterns worked by the clinical team were used to facilitate patient contact: '*I gave the phone call to the afternoon shift, so that they could contact them in the evening*' (Female, staff_5). Some of the team had allocated time in their shifts to undertake the calls; for the staff with no allocated time this was perceived to be a facilitator '*its separate to their clinical workload which I think is a great advantage*' (Male, staff_1) and '*the nurses get allocated time to do this*' (Female, staff_5). However, staff who had the allocated time suggested this not to be case '*I felt more motivated to do (the calls) on a shorter shift than in an 8-hour day*' (Female, staff_8).

(2) Patient and Trauma Service clinician relationships

The familiarity between the clinicians making the phone calls and the patient and their families was identified as both a facilitator and a barrier by staff. The pre-existing relationship with the patients motivated staff to participate in the program due to a curiosity in finding out what happens to the patients they have cared for: '*it's good to know what the patient outcomes are, it finishes the story off, puts it all together*' (Female, staff_2). The staff

also felt motivated to use the information gained for future patient care '*it's an opportunity to improve our practice, I think there is an advantage in having firsthand feedback*' (Female, staff_3).

Prior to commencement of the program staff believed that their knowledge of the patient would enable the initial contact and lead to a better understanding of '*where the patient is at emotionally, mentally and socially*' (Male, staff_1). In addition, knowing the injuries that the patient had received at the time of the trauma meant that the staff could be '*more sensitive when talking to them*' (Male, staff_1). Following completion of the 12 month interviews some staff suggested this familiarity was essential for the successful completion of the follow up: '*someone has to have that understanding or experience to understand what the patient is trying to say to them about recovery or trauma*' (Female, staff_9).

The relationship between staff and patient affected the dynamics of the communication during the call. In the pre interviews staff speculated that the relationship could impact on the ability to collect the follow up data: '*pre-existing relationships may influence the results or contents of the interviews*' (Female, staff_4). Post interviews indicated this perception to be accurate. For staff who were familiar with the patient 'the *call was a bit more personal*' (Female, staff_5). One staff member said '*if I knew the patient… it could be a positive…. They might give you more information than what they previously would have given someone they hadn't met before*' (Female, staff_3). When staff did not know the patient, they acknowledged the communication may be more brief '*the ones I didn't know, I ask the questions to the script and get off the phone*' (Female, staff_5); '*if its someone that you have had nothing to do with it can be, I want to say clinical, cut and dry*' (Female, staff_2). This concision was perceived as both a positive and a negative by staff.

From the perspective of patients and their families, having the pre-existing relationship was also seen as valuable. Patients felt knowing the caller provided a sources of reassurance post discharge: '*It was reassuring talking to them and telling them what's been going on*' (Female, patient/caregiver_10); '*talking to the people who know (the patient) and they know (the patients) health*' (Female, patient/caregiver_10). Patients valued the fact clinicians from the hospital were making the follow up calls '*I feel more comfortable with a clinical person, it would be different it was like an admin person from the hospital*' (Female, patient/caregiver_15). This was because they felt the staff member would be familiar with their journey, have an understanding of their feelings, and would be able to provide services if needed.

Regardless of prior relationship, staff also reported that they actively sought out information about the patient's journey prior to the follow up call to support rapport building '*I'd always read their notes first to get a bit of a feeling of what the admission was like for the patient*' (Female, staff_8). Whilst checking the contact details and current health status of the patients was built into the follow up program processes to ensure that patients were able to be contacted, staff appeared to utilise this step to establish familiarity, which they found valuable for undertaking the call: '*I may not have looked after the patient, but I know their journey, its valuable*' (Female, staff_8). However, this process also impacted on the time taken for the program: '*it takes time to check the patient to become familiar with the patient prior to calling them*' (Male, staff_1).

Having a pre-existing relationship with the patient was not always a facilitator. For some staff it was a cause for concern, invoking anxiety and apprehension about the making the call '*I have anxiety if my previous relationship with the patient was negative, having to talk to them….*' (Female, staff_3) and '*I'm a little apprehensive about some calls, I think it's just you know some of the personality traits or the issues patients may have experienced in the past*'. Staff also noted they felt discomfort in having to call someone for their 12-month follow up if the 6-month follow up call had been difficult.

However, as a whole the existing relationship appeared to provide more advantages than disadvantages. Some staff suggested that the lack of an existing relationship was a barrier to undertaking the follow up calls and impacted on the level of engagement of the patient with the program: '*I don't think you get a truthful response because they just want to get off the phone*' (Female, staff_2). In some cases, the lack of engagement resulted in the survey not being completed '*one patient wasn't happy with the hospital service, I just made sure they had the patient liaison number before I hung up*' (Female, staff_8).

Fidelity – the extent to which the intervention was implemented as planned [14].

Patient, Injury and Hospital Characteristics

Multivariate analysis of patient, hospital and injury factors are shown in Table 5. Significant correlations were observed between the variables, however, collinearity diagnostic (maximum VIF 1.38; mean 1.25) determined that these did not adversely affect the validity of the model.

Univariate analysis suggested that patients over the age 65 years were twice as likely to complete follow up at the 6-month timepoint (*Odds Ratio 2.13, CI 95% 0.96–4.73, P 0.06*) and almost 1.5 times more likely to complete the 12-month timepoint (*Odds Ratio 1.46, CI 95% 0.71–2.96, P 0.29*); however this was not demonstrated in the multivariate analysis. Hospital length of stay over 7 days was not significantly associated with successful follow up at 6 months (*Odds Ratio 1.72, CI 95% 0.96–3.09, P 0.06*); at the 12-month timepoint patients with a hospital length of stay over 7 days were almost 2.5 times more likely to complete follow up (*12-month Odds Ratio 2.42, CI 95% CI 1.38–4.23, P value 0.00*) and this was statistically significant.

Table 6
Predictors of Follow up Completion at 6 and 12 months

6-month	Univariate		Multivariate	
	Odds Ratio (95% CI)	p-value	**Odds Ratio (95% CI)**	p-value
Male	0.979 (0.51–1.84)	*0.94*	–	–
Age	1.011 (0.99–1.84)	*0.12*	–	–
Age Range	1.233 (0.64–2.37)	*0.52*	0.419 (0.11–1.53)	*0.19*
- 36–65 years	2.138 (0.96–4.73)	*0.06*	0.740 (0.13–4.03)	*0.72*
- Over 65 years				
ISS	1.032 (0.99–1.07)	*0.12*	–	–
ICU Days	1.127 (0.98–1.28)	*0.07*	1.119 (0.96–1.29)	*0.12*
Hospital LOS days	1.020 (0.99–1.04)	*0.13*	–	–
Hospital LOS > 7 days	1.727 (0.96–3.09)	*0.06*	1.216 (0.35–4.19)	*0.76*
* CI – Confidence Interval; ISS – Injury Severity Score; ICU – Intensive Care Unit; LOS – Length of Stay				

TSFU telephone follow-up data

Timepoint accuracy

Over three quarters (78%) of the calls were completed within the designated contact window (2 weeks before and 2 weeks after). At the 6-month timepoint, 4% (n = 33) patients were attempted to be contacted over 5 times, which is over the stipulated attempts. Although a lower number at 12 months (n = 13) this protocol deviation occurred on a higher percentage of patients (6%).
Thematic analysis of the interviews, in relation to fidelity, found one prominent theme (1) Clinician Identity.

1. Clinician Identity

Staff highlighted a tension between their role as a clinician and their involvement in the follow up program: '*being clinical I'm definitely more a hands on, a doer, whereas this to me felt more administrative*' (Female, staff_8). While an earlier theme outlines the advantages and disadvantages to having a pre-existing relationship with patients, this theme was more related to a sense of identity and skills as a clinician, and how they affected fidelity with the program's procedures. A tension between the clinical role and role in the follow up program appeared to be a source of frustration with staff, who reported the calls could be '*draining*', '*monotonous*' and '*tedious*'. Some staff reported that they didn't think a health professional was required to undertake the call (Female, staff_3; Female, staff_8) despite the advantages of having a pre-existing relationship with the patient noted earlier.

However, other staff also noted the advantages that their clinical skills brought to the task, including being able to introduce a clinical focus to the follow up '*the patients feel valued that if needed, (we) offer advice or avenues or referrals*' (Male, staff_1). Staff acknowledged that this development was not the primary goal of the follow up program, but felt it was valuable '*I do think there is a lot you can do whilst you're on that call*' (Female, staff_4). This evolvement of the program was important to both staff and patients. Staff felt they were making a difference to the patient and their family, which helped with motivation. Patients and caregivers expressed that having the link to the clinical team was important and made them feel cared for: '*it made me feel pretty good that they cared enough to ring up*' (Male, patient/caregiver_11) and '*it's important to feel that hospital is helping after discharge*' (Male, patient/caregiver_12). The value that staff placed on the program evolvement impacted on their perception of clinical staff involvement in the program: '*before taking part in the phone calls I would have honestly said surely you can get a telehealth team to do this; now that I have taken part I do see the benefit and the rapport with patients that someone from the team has rung them*' (Female, staff_8).

During the implementation period, adherence to the fidelity of the program was altered from a data collection exercise gathering functional outcomes, to incorporate some clinical follow up processes. Within the first month staff, deviated from the processes employed and organically expanded the program to provide guidance to patients and families about their injuries and issues, such as organising referrals, dealing with complaints and sending letters to GPs. Table 6 highlights additional services provided to patients and families because of the follow up call.

Table 7
Fidelity

12-month	Univariate		Multivariate	
	Odds Ratio (95% CI)	p-value	Odds Ratio (95% CI)	p-value
Male	1.01 (0.56–1.84)	*0.95*	–	–
Age	1.00 (0.98–1.01)	*0.70*	–	–
Age Range	1.30 (0.69–2.46)	*0.40*	–	–
- 36–65 years		*0.29*	–	–
- Over 65 years	1.46 (0.71–2.96)			
ISS	1.04 (1.00–1.09)	*0.03*	1.04 (0.98–1.10)	*0.18*
ICU Days	1.10 (0.98–1.22)	*0.08*	1.04 (0.94–1.14)	*0.39*
Hospital LOS days	1.04 (0.97–1.11)	*0.01*	–	–
Hospital LOS > 7 days	2.42 (1.38–4.23)	*0.00*	2.54 (0.82–7.85)	*0.10*

* CI – Confidence Interval; ISS – Injury Severity Score; ICU – Intensive Care Unit; LOS – Length of Stay

	6 Month Follow Up	12 Month Follow Up
Complaints:	6	3
- Patient Liaison details provided	4 (67%)	2 (67%)
Escalation: Risk Management	0	1
Advice offered:	25	19
- GP Review	17 (68%)	11 (58%)
o GP for Pain Management	4 (24%)	3 (27%)
o GP for Psychology	6 (35%)	4 (36%)
o GP – Other	7 (41%)	4 (36%)
- Physiotherapy/Chronic Pain Team/Psychology	2 (8%)	2 (11%)
- Other	6 (24%)	6 (32%)
Referrals Made:	9	6
- Trauma Connect Clinic	2* (22%)	1 (17%)
- Occupational Therapy	1 (11%)	0
- Letter to GP	2 (22%)	2 (33%)
- TS Nurse Navigator	4 (44%)	1 (17%)
- Other	0	2 (33%)
Letter/Contact details sent to patient/family resources (Trauma Service, Mental Health Services, Aged Care Service, Outpatient appointments)	6	2
*Resulted in further surgery		

Context – aspects of the environment that may influence intervention implementation or study outcomes [14].

Thematic analysis of the interview found the themes of (1) Teamwork and peer support and (2) leadership.

- Teamwork and peer support

Teamwork was a key facilitator of the implementation of the follow up program. Staff felt this was centred on being supportive of each other and having shared goals and visions. Not all staff were keen to take part with some being resistant to take on the new role, but despite the reluctance, the

concept of '*contributing to the team*' (Female, staff_8) was the driving motivator to participate: '*[I wanted] to be part of something new, just as teamwork, to be part of the team*' (Female, staff_9).

perceived the Trauma Service team as supportive of each other and have aligned goals and shared visions, and this facilitated the implementation of the follow up program: Not all staff were keen to take part with some being resistant to take on the new role, but despite the reluctance, the concept of '*contributing to the team*' (Female, staff_8) was the driving motivator to participate.

Strong teamwork resulted in a team-based approach in which the workload was shared between members when needed: '*there have been times when other team members have offered to do my calls which has helped with the load*' (Female, staff_8). This supportive environment provided reassurance to staff members in taking on the task: '*I think people in the team understand that it's hard to fit everything in*' and '*you were never made to feel you weren't pulling your weight*'. However, this shared workload was also cited as a barrier, causing feelings of frustration for those who felt the workload became uneven: '*it makes it harder when you have to take on other people's phone calls.. it's very frustrating*' (Female, staff_9).

Teamwork also manifested as peer support and education throughout the follow up program. Staff spoke about the importance of feeling supported: '*peer support is important, the team is reassuring and adds to individual confidence*' (Female, staff_4). When staff felt uncomfortable in contacting a specific patient, they felt supported in being able to decline: '*I voiced concerns and there was lots of support*' and '*there was never a pressure to do so*' (Female, staff_9). The staff also used the 'team' as a resource when dealing with new or difficult situations: '*I used the team for alternative suggestions to make sure we were doing the right thing for the patient*' (Female, staff_8), '*if we have any issues, we can talk about it within the team*' (Female, staff_5). This communication between the team was seen as a facilitator as '*debriefing helps you deal with it (the experience of TSFU)*' (Female, staff_2). This debriefing process appeared to occur organically during the program as prior to commencement staff identified that '*we have no formal process to manage staff or distress*' (Female, staff_5).

The multi-disciplinary aspect of the team was considered an important factor in delivering the follow up. '*We have great AO support and allied health buy in*' (Female, staff_5), and to even have positive impacts to the clinical team in a more general sense; '*I think the more engagement of all of us in the clinical roles in this sort of program is advantageous and builds our team strength*' (Male, staff_1).

(2) Leadership

Leadership of both the trauma service clinical team and TSFU program was also highlighted as critical to the program's success. The leadership of the trauma service was cited as '*being passionate about this* project' (Female, staff_5) and the TSFU program was supported by the Trauma Advisory Committee within the hospital (Female, staff_5; Male, staff_ 6). However, it was noted that despite the 'in kind' support no additional resources were provided to the service to undertake the program. It was speculated that this may change in the future: '*potentially, if we show project outcomes, we may be able to get resources*' (Female, staff_5).

Staff also discussed the importance of leadership of the TSFU program itself, and the value of having a '*go to person who was available*' to ask if you needed to '*escalate a cause for concern*' (Female, staff_8; Female, staff_9). Staff in the leadership roles also saw this role as important to the program and undertook this additional responsibility: '*staff would come to me with advice around what they should do*' (Female, staff_5).

Sustainability

Cost

Using an activity-based costing approach [20] a cost analysis was carried out to estimate the financial costs of implementing and running the follow up program. The estimated costs for the 'set-up' phase was $5,312.66 (12 months) and for the 'running' phase this was estimated to cost $20,106.15 (25 months) which equates to $804.25 per month.

Thematic analysis revealed two main themes in relation to sustainability. These were (1) Emotional impact and (2) Rewards.

Emotional impact

The emotional impact of conducting follow up has implications for sustainability of the program. As reported earlier, participation in the program generated feelings of anxiety for some staff and tedium for others. However, staff also reported how the calls affected their motivation to continue in the program. Staff reported that some calls were negative which impacted their motivation to participate in the program '*when you have a negative conversation you think I don't really want to do this anymore*'. Following up with patients who had ongoing negative outcomes could be difficult for staff: '*there were some who weren't doing well, still had issues… it's pretty* sad' (Female, staff_2). This impact was recognised by the staff '*working closely with patients can impact the clinician, it can affect your resilience*' (Female, staff_4). However, over the course of implementation staff reflected that they built up their emotional resilience to any negative experience '*I find now having more experience I don't take it to heart like I use to*' (Female, staff_9) and '*I didn't take it personally, it's the patient's journey*' (Female, staff_8).

Before the program commenced many staff raised concerns about how the phone call would emotionally affect the patients as there was a risk of 'retraumatising' them '*you are worried that they will have a negative reaction to you or a memory of you because you're bringing up an experience for them that wasn't positive necessarily in their life*' (Female, staff_4). However, the patients who participated in the qualitative interviews reported this

not to be the case '*it didn't upset me at all*' (Male, patient/caregiver_11). Some patients reported they looked forward to the call as '*It was good to talk to somebody*' (Male, patient/caregiver_13). For others the call allowed patients to reflect on their injuries and progression '*I found it pretty helpful honestly, it made me sit and think about a few things*' (Male, patient/caregiver_11), '*I'm amazed at where I am right now*' (Female, patient/caregiver_14).

Rewards

Staff feeling rewarded supported the sustainability of the program. Staff placed importance on helping the patient and this was linked to their role as a clinician: '*you feel like you have actually helped and so it's those times that you actually think, this is worth it*' (Female, staff_9). This reward was linked to the individual motivation to continue with the program '*your personal motivation is being able to help patients, you get a lot back from doing that*' (Female, staff_8).

Despite time being referred to as a barrier, spending time talking to the patient also provided a reward for staff as they felt appreciated '*I spent a lot of time talking to [the patient], they were appreciative – it was a good day*' (Female, staff_9).

Staff also felt rewarded by learning of the progression of the patient's recovery, especially when this was positive: '*it's really good to hear where they [the patients] got to, 6 and 12-months down the track… it's really nice to get a good news story*' (Female, staff_4). Staff also stated how they had been inspired by the patients '*I find it uplifting, it's a strange thing with trauma I didn't really expect, that people have life changing incidents, and they speak quite positively about it… it's almost spiritual*' (Male, staff_1).

Patients and caregivers who participated in the evaluation also felt rewarded through their participation in the program '*[I'm] pretty chuffed that someone from [the hospital] would ring me… it made me feel pretty good that someone had the time to do it; that they cared enough to ring up and follow through*; (Male, patient/caregiver_11), '*it was nice to know that you were still there checking in on me*' (Female, patient/caregiver_15).

For additional quotes relating to all themes refer to Supplement 5, Tables s4 to s9.

Discusssion:

Main findings

This prospective study of 274 severely injured adult patients discharged from a tertiary hospital provides a comprehensive attempt to document the trajectory of post-discharge injuries in the year following, by a clinical trauma service team involved in the initial care of the patient. We contacted almost three quarters of patients at 12 months post injury. The description of the considerations associated with successful implementation and conduct of the follow up program enable translation of this model to other tertiary Australian facilities.

Despite no significant differences between participants of those who completed and did not complete the follow up timepoints in terms of demographics (patient and hospital) and injury severity profiles, the data indicates that patients within older age groups or had been admitted to Intensive Care or whose hospital stay was over 7 days were more likely to complete follow up.

One of the main themes from staff interviews highlighted lack of time for the calls as a perceived challenge prior to service execution. While this was confirmed in the post-implementation interviews, positive unintended effects were the staff satisfaction with being able to accommodate the timing of calls, the rewards in discovering positive patient outcomes and extension of previously established relationships. Despite this, a preference for shorter follow up sessions was still reported by staff in the context of busy clinical workloads.

The immediate expansion of the program by staff to provide advice, information, referrals and emotional support patients and families, although unanticipated, should not have been unexpected. The clinical team were incapable of shedding their professional integrity when faced with a clinical issue. Professional integrity is intimately linked with the identity to which professionals subscribe [22]. Underpinning professional integrity is the sense of personal adequacy and satisfaction in the workplace [23]; our findings support this as clinicians reporting increased levels of satisfaction and rewards with the program when able to assist patients/caregivers with clinical issues.

Overall, this evaluation found that the implementation of the follow up calls was feasible and mostly undertaken in the pre-specified timeframes, and while for some the program was seen as an add-on administrative duty, additional system benefits for program staff were perceived heightened team cohesion, shared workloads, and ability for multidisciplinary escalation of issues. The operation of our contained and informal follow-up system was added to existing staff workloads in an attempt to investigate feasibility. The basic activity-based cost analysis highlighted the expenditure required to undertake follow up; whilst this was absorbed into the current operational budget, additional expansion of the program would require an increase in resources and funding. There is scant information contained within current literature to inform trauma services wanting to undertake a follow up program in regard to resources required and financial cost. Within the United States well established trauma systems using data for planning and procedures emphasise training, staff availability and staff quality as success factors for their viability and dedicated finances for sustainability [24]. Following on from the findings of this study, our follow-up program has now been expanded to provide structured advice to patients and caregivers at the timepoints and receives activity based public funding as part of the hospital avoidance scheme.

Comparison with other studies

The concept of telephone follow-up following hospital discharge is not new, with systematic reviews reporting mixed results [25, 26]. General benefits include satisfaction with care, prevention of loneliness for older people and reduction of readmissions for people with chronic illness [27, 28]. Specifically for the major trauma population, telephone follow-up has been utilised to provide ongoing support, psychological interventions and to facilitate the management of complex ongoing health-care needs in both adult and paediatric trauma populations [29–31]. Additionally, the recent and ongoing COVID-19 global pandemic has demonstrated an increased reliance on this method to ensure continuing delivery of care across a spectrum of health conditions [32].

Despite the importance of receiving support after discharge, retention of severely injured patients is challenging with the literature reporting follow up rates ranging between 31 to 79% [11, 33]. Reasons include changing life circumstances and availability of family support, as shown in a previous study in our geographic region following up adult ICU patients after discharge [34]. They achieved 71.5% contact rate at 6 months, slightly lower than the 77.4% rate found at the 6-month timepoint in the current study. The ICU study also found that older people were more likely to be retained at follow-up. Determinants of complete follow-up at 6 and 12 months in our program were older age (65 + years) and longer length of stay (> 7 days) respectively. Whilst our follow-up rates at 6 and 12 months were in the range reported by others (54–94%), [35] evidence from that review shows that they drop after 12 months. Accordingly, there might be value in examining whether incorporating an acceptable and convenient service delivery activity such as referral to telehealth rehabilitation consults [36] could improve patient adherence to hospital follow-up.

One of the barriers reported by staff was a conflict between their clinical workloads and delivering the program. Reports of frustration due to longer than anticipated calls and the inability to successfully contact patients were a consistent theme. Automated call services to ascertain information needs or monitor medication management or appointment compliance proposed by others [31] might have the potential to enhance effective use of time in busy hospital services. This type of service would effectively screen patients with specific issues that require further attention. The viability of an automated phone or app-based service has been identified at our site as a future direction of research and clinical services, with a view to reducing workloads for clinical staff.

Contrary to staff expectations, pre-implementation follow-up calls did not appear to trigger an emotional burden on patients or caregivers and in many cases became a rewarding experience for all involved. The ongoing continuity provided patients and caregivers confidence and was a source of reassurance. Frequently, trauma care after hospital discharge has been reported as fragmented with a lack of continuity [37]. Engaging with patients and caregivers forms the basis of patient and family centred care [38].

Strengths and limitations

Our study included an all-eligible prospective follow-up design with a validated definition of injury severity, a standard protocol for staff including sufficient number of contact attempts, and training of clinical and non-clinical staff in the administration of questionnaires. Participants and non-participants had similar demographic profiles. Managerial support for the program and participation of internal clinical staff in this research allowed a comprehensive assessment of the feasibility and sustainability of the service. However, the study also had some limitations.

Patient and caregiver contributions to our study provided insightful firsthand experience of our program but these are not without bias. Reasons as to why patients did not participate are unknown. Understanding why patients choose not to participate in such programs could provide valuable insights in developing and tailoring the program to ensure the program reaches those who need it the most. The small sample size of those who participated may not be large enough to reflect the differences between demographic and injury characteristics which in turn may affect participation. The program continues; therefore, the additional data may be able to provide further insights into this space.

This study only included major trauma patients. The literature suggests patients who are affected with minor and moderate trauma also experience ongoing compromise [34], however, in its current format, the program is not equipped to expand and engage with these patient groups.

Recommendations for future

Trauma registries enable the collection and analysis of standardised data regarding trauma patients, their injury events, diagnoses, intervention and outcomes, to support clinical quality improvement, system change and injury prevention [39]. Our institution has a trauma registry and regularly reports to the national Australian Trauma Registry (ATR). The TSFU program recorded 6 and 12 month patient outcomes separately to the registry due to the feasibility stage of the program and economic constraints; future steps would be to merge the TSFU program and trauma registry for better characterisation of post-discharge access to rehabilitation and other community-based services [40]. The inclusion of patient reported outcome measures (PROMS) into trauma registries have been indicated as an important future practice [41] to facilitate patient centred care [42]. In addition, plans to include caregivers reported outcomes will help to better characterise the impact of trauma and help to inform future care. As noted above, automation of all or part of the follow up program which could facilitate expansion into the minor and moderate trauma groups is currently under investigation at our site.

Conclusion:

A hospital-led implementation of telephone follow-up of severely injured patients using existing staff was feasible and achieved acceptable retention rates. Staff participation was time consuming but rewarding and there was evidence that the program will be sustainable long term. Supplementation with some innovation such as call automation, referrals to GPs and telehealth rehabilitation could result in a sustainable service in addition to amalgamation into the institution trauma registry.

Abbreviations

ISS: Injury Severity Score

QoL: Quality of Life

RACS: Royal Australian College of Surgeons

TSFU: Trauma Service Follow Up (program)

VSTORM: Victorian State Trauma Outcomes Registry and Monitoring

WHODAS: World Health organisation Disability Assessment Schedule

Declarations

Declarations

Declarations

CONSENT FOR PUBLICATION:

Not applicable.

Declarations

COMPETING INTERESTS:

The authors declare that they have no competing interests.

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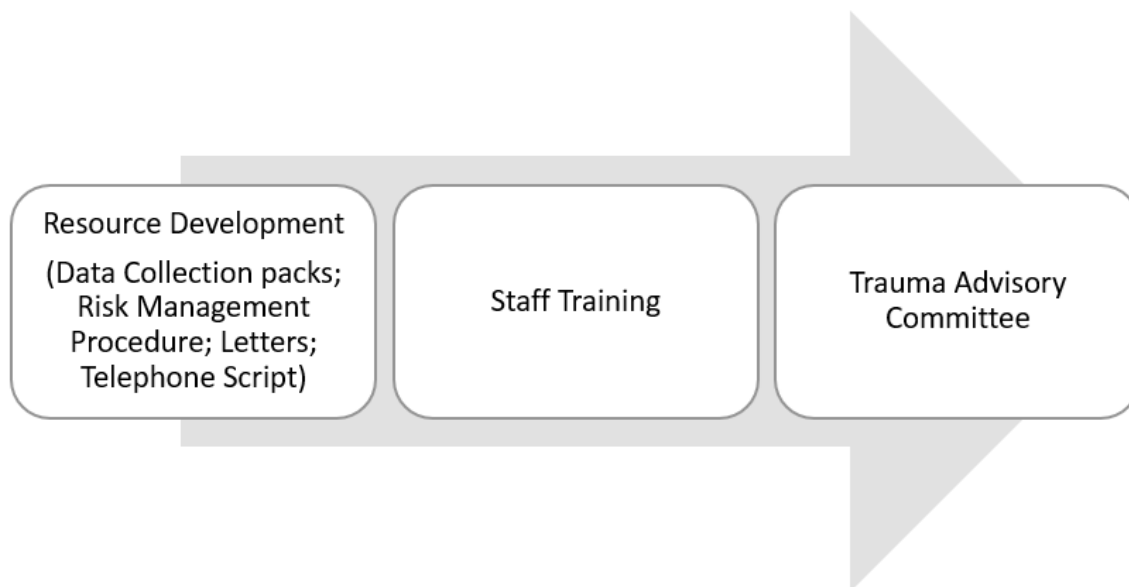
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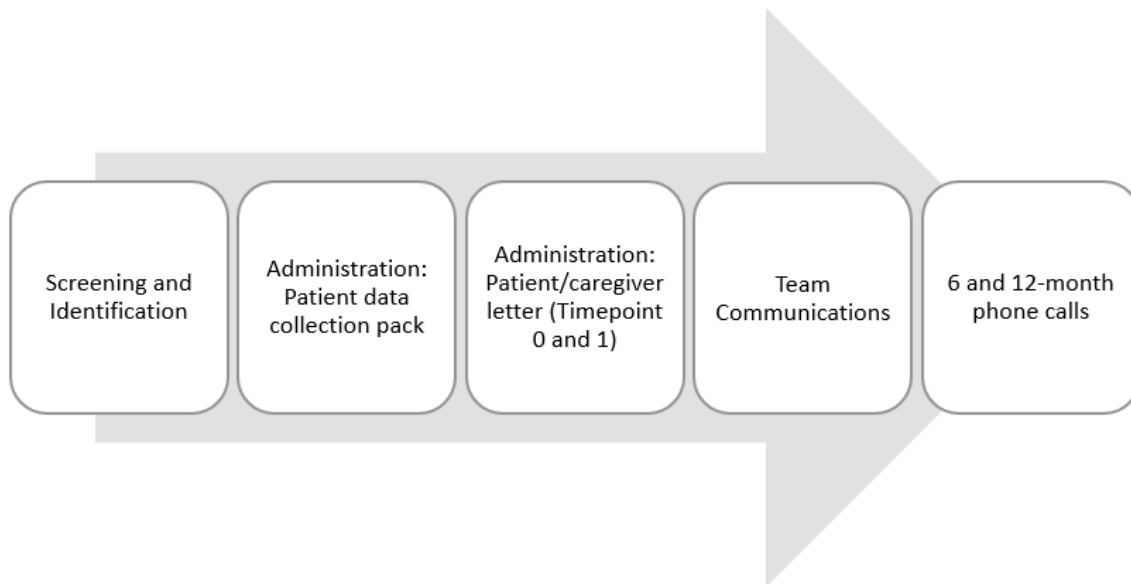

Figure 1

Activities of Set Up

Screening and Identification

Administration: Patient data collection pack

Administration: Patient/caregiver letter (Timepoint 0 and 1)

Team Communications

6 and 12-month phone calls

Figure 2

Activities of Running

Trauma Patients 2019
n = 2524

Excluded:
- ISS < 12 (n = 2152, 85%)

ISS ≥ 12
n = 362

Excluded - 72 (19.9%):
- < 18 Years Old (n = 29, 40.3%)
- Died (n = 36, 50%)
- Overseas (n = 7, 9.7%)

Missed (n = 16, 4.4%)
- Added post screening (n=7, 43.8%)
- ISS code altered on QI review (n=9, 56.2%)

274 enrolled (75.9%)

6 months Follow Up
Interviews Performed
n =212 (77.23%)

Not Completed 62 (22.6%)

Reasons:
- Unable to Contact: (n = 33, 53.2 %)
- Withdrawn (n = 29 (inc. died n=4), 46.8%))

12 months Follow Up
(Eligible n=245)
Interviews Performed
n = 199 (81.2%)

Not Completed 46 (18.7%)

Reasons:
- Unable to Contact: (n = 36, 78.3%)
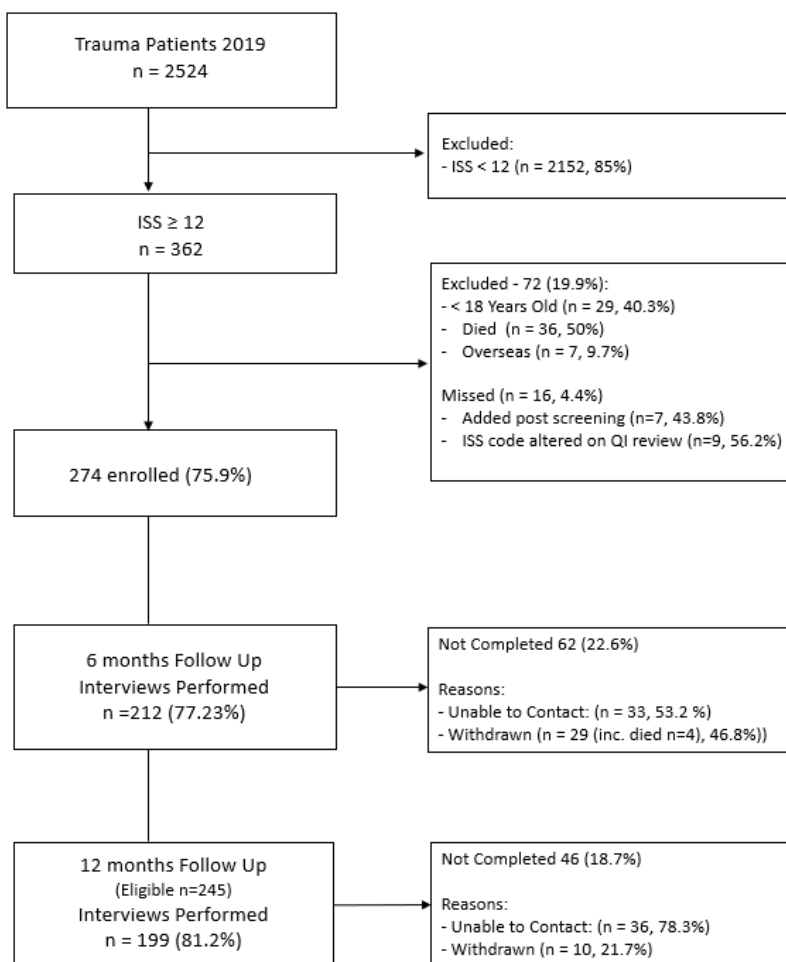- Withdrawn (n = 10, 21.7%)

Figure 3

STROBE Diagram

Supplementary Files

This is a list of supplementary files associated with this preprint. Click to download.

- ProcessEvaluationSupplementaryTSFU15.07.2021.docx