Trauma rehabilitation

Whakaoranga kohuki

Te Whatu Ora Te Toka Tumai Auckland case study: Improving the discharge pathway for people hospitalised with traumatic brain injury

He mātai tā Te Whatu Ora Te Toka Tumai Tāmaki Makaurau: Te whakapai ake i ngā tukanga wewete mō ngā tāngata i hōhiperatia mō te wharanga tūkino ā-roro

Te Hononga Whētuki ā-Motu National Trauma Network

Te Whatu Ora Health New Zealand Te Toka Tumai Auckland

Te Kāwanatanga o Aotearoa New Zealand Government

Health Quality & Safety Commission New Zealand
Kupu Taurangi Hauora o Aotearoa

Te Whatu Ora
Health New Zealand
Te Toka Tumai Auckland

In 2021, the trauma rehabilitation national collaborative brought together 11 teams of rehabilitation clinicians from across Aotearoa New Zealand to complete quality improvement projects that would improve outcomes in rehabilitation after major trauma. The rehabilitation collaborative formed part of a broader programme of work by the National Trauma Network, Accident Compensation Corporation (ACC) and the Health Quality & Safety Commission (the Commission) to establish a contemporary system of trauma care in Aotearoa New Zealand.

Overview | Tirohanga whānui

The Auckland City Hospital neurosurgical wards admit people with traumatic brain injury (TBI). When people are later transferred to another hospital or inpatient rehabilitation provider, junior medical staff complete the electronic discharge summary sent to the receiving hospital.

This project identified that, because the discharge summary only contained medical information, important allied health assessments were not being handed over to the receiving team. The project developed an integrated allied health assessment form to make the information easier to find and aimed to have allied health team members document on the electronic discharge summary, so that rehabilitation providers received information about the person's rehabilitation needs in a timely manner.

Background and context | Kōrero o mua me te horopaki

Auckland City Hospital is the neurosurgery centre for the whole of the northern trauma region, from the top of the North Island to the Bombay Hills. Over the 12 months that the project team collected data, 69 people were admitted to Auckland City Hospital following TBI. Following their acute hospital stay, people with moderate to severe injuries are either discharged to specialist TBI inpatient rehabilitation services or transferred to their local hospital to continue treatment.

Māori are over-represented in this population, as the risk for TBI is 1.5 times higher for Māori than for non-Māori.[1] Many Māori and Pacific peoples admitted for TBI reside in the Te Tai Tokerau or Counties Manukau areas, which means they are more likely to be transferred back to their local hospital before specialist TBI inpatient rehabilitation.

1 Barker-Collo S, Krishnamurthi R, Theadom A, et al. 2019. Incidence of stroke and traumatic brain injury in New Zealand: contrasting the BIONIC and ARCOS-IV studies. *NZMJ* 132(1502). URL: https://journal.nzma.org.nz/journal-articles/incidence-of-stroke-and-traumatic-brain-injury-in-new-zealand-contrasting-the-bionic-and-arcos-iv-studies.

Diagnosing the problem | Te tātari raru

The problem

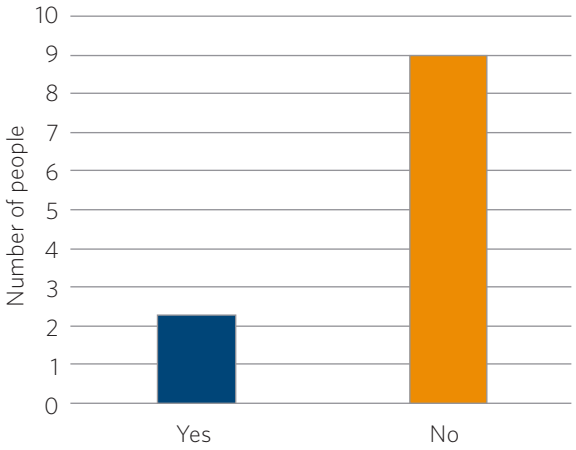
The project team found that the allied health rehabilitation plan and recommendations were often not received by the facility a person was discharged to after a TBI. This meant that rehabilitation clinicians were not aware of the person's continuing rehabilitation needs. At times, people were discharged to a facility that could not meet their ongoing TBI rehabilitation needs.

When clinicians were not aware of a person's rehabilitation plan, there was a risk of people being lost to follow-up, delayed rehabilitation input, lack of transfer to the optimal destination, readmission to hospital and poorer outcomes.

How did you know that this was a problem? What data did you have to describe this problem?

A survey of 10 clinicians from two receiving hospitals and one rehabilitation provider showed that an allied health summary was not consistently received in a timely manner when a person was transferred from Auckland City Hospital following a TBI (Figure 1). The electronic discharge summary included only medical information. Allied health assessments were recorded individually in the clinical notes, making information harder for the multi-disciplinary team to find when planning for discharge.

Figure 1: Responses to the question 'Do you consistently receive a discharge report containing an allied health summary in a timely manner (eg, at patient arrival) when people are transferred from Auckland City Hospital following TBI?', April 2021



Source: Te Toka Tumai Auckland data collection.

The team listened to patient and whānau experiences to determine how transitions of care could be improved. These experiences included:

- people being transferred from the acute ward at short notice without an allied health discharge plan
- people with rehabilitation needs being transferred to wards or hospitals that did not have available the required rehabilitation
- safety concerns not always being handed over to the receiving hospital
- people being transferred to another hospital for a short period before being transferred again to inpatient rehabilitation, leading to disjointed handovers to the rehabilitation provider.

The aim | Te whāinga

The project aim was that, by December 2021, 90 percent of people with moderate to severe[2] TBI being discharged or transferred from neurosurgical wards at Auckland City Hospital would have an allied health rehabilitation plan and recommendations included in their discharge report.

The measures | Ngā ine

The measures are described briefly here; refer to Appendix 1 for a detailed description.

Outcome measure

- The percentage of people with moderate to severe TBI who have their electronic discharge summary completed by allied health on the day of discharge.
- The percentage of clinicians at receiving hospitals who report receiving discharge reports containing an allied health summary at the time of patient arrival.

Process measures

- The percentage of people with moderate to severe TBI who have an integrated allied health assessment completed within 24 hours of admission.

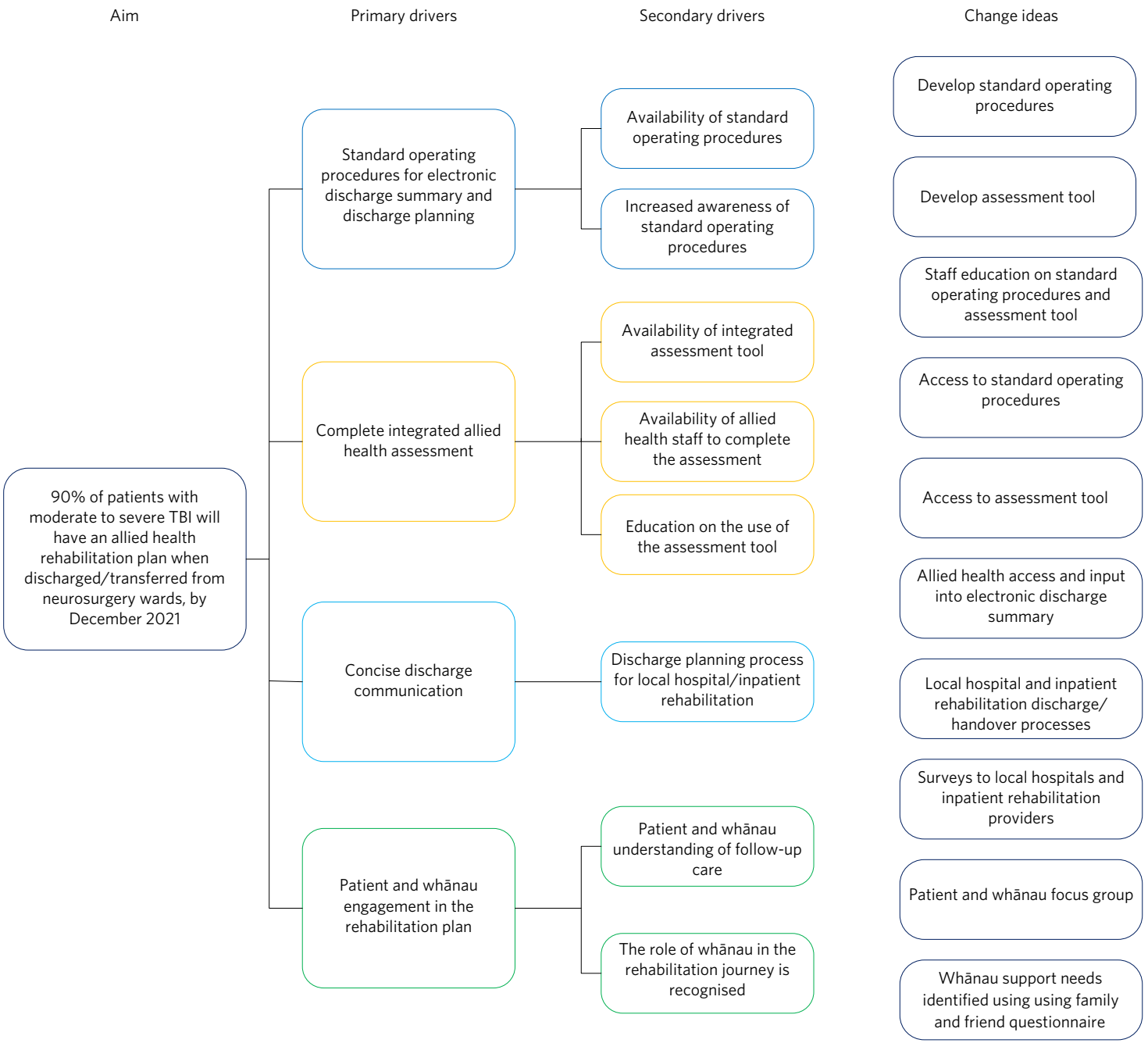
Balancing measures

- The percentage of people without TBI who have unmet need for allied health services.

2 Moderate to severe TBI is defined as a Glasgow Coma Scale score of 3–12 or post-traumatic amnesia for more than 24 hours.

Drivers of change | Ngā tūāhua panoni

Figure 2: Driver diagram



What we did | Tā mātou i mahi

Were there any ethical considerations to be aware of?

There were no ethical considerations.

How were consumers involved in this project?

The team sought feedback from a consumer representative in the design of the integrated assessment form. The family and friend questionnaire was co-designed with a Māori health researcher, who gave feedback on how to make it more culturally safe.

What quality improvement tools did you use that you would recommend?

- Cause and effect analysis was used to identify and analyse the problem.
- Process mapping helped to effectively understand the patient pathway.

What changes did you test that worked?

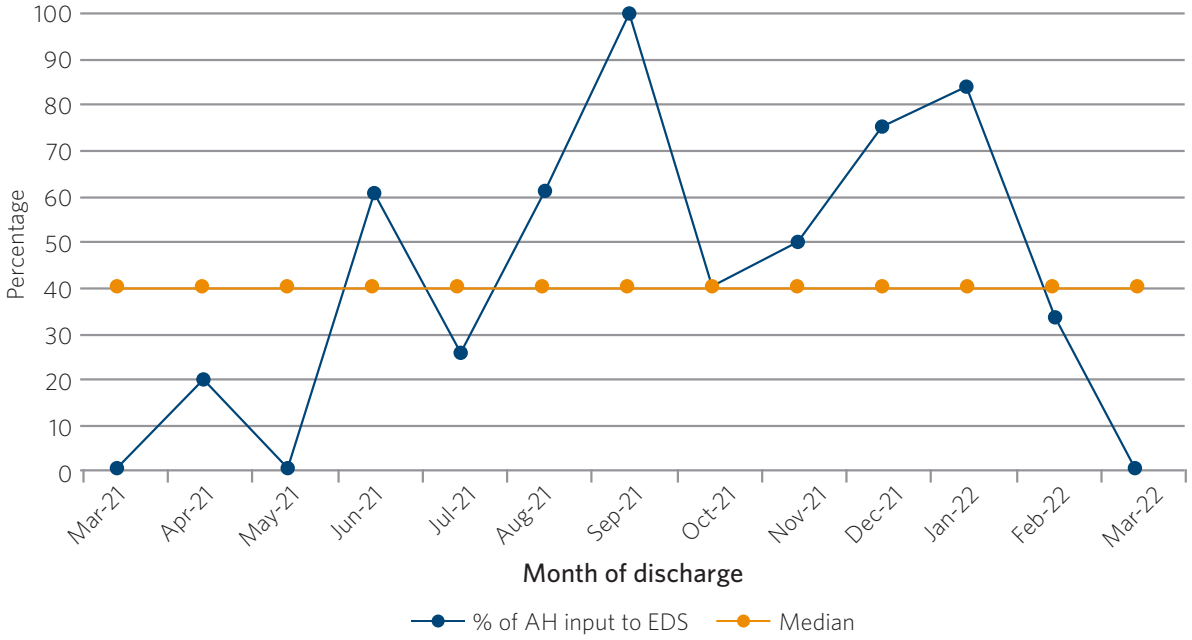
- Implemented an integrated allied health assessment form to be commenced within 24 hours from admission and completed within three days. This form was shortened after the first trial.
- Developed a culturally safe family and friend questionnaire to capture the patient's relevant social history and cultural needs. This was used alongside the allied health assessment form and sent to the receiving provider.
- Obtained access to the electronic discharge summaries for allied health clinicians.
- The five allied health clinicians in neurosurgery began to input information into the electronic discharge summary.

The results | Ngā hua

What outcome measures improved?

The percentage of people with allied health input into their electronic discharge summary increased initially, reaching 100 percent in September 2021 (Figure 3). However, this was not sustained after January 2022. The Omicron COVID-19 surge over February and March 2022 led to staff sickness, fewer inter-hospital patient transfers and reprioritisation of clinical caseloads, which impacted on the project's outcomes over those months.

Figure 3: Percentage of people with allied health input in their electronic discharge summary, March 2021–March 2022



Source: Te Toka Tumai Auckland data collection.

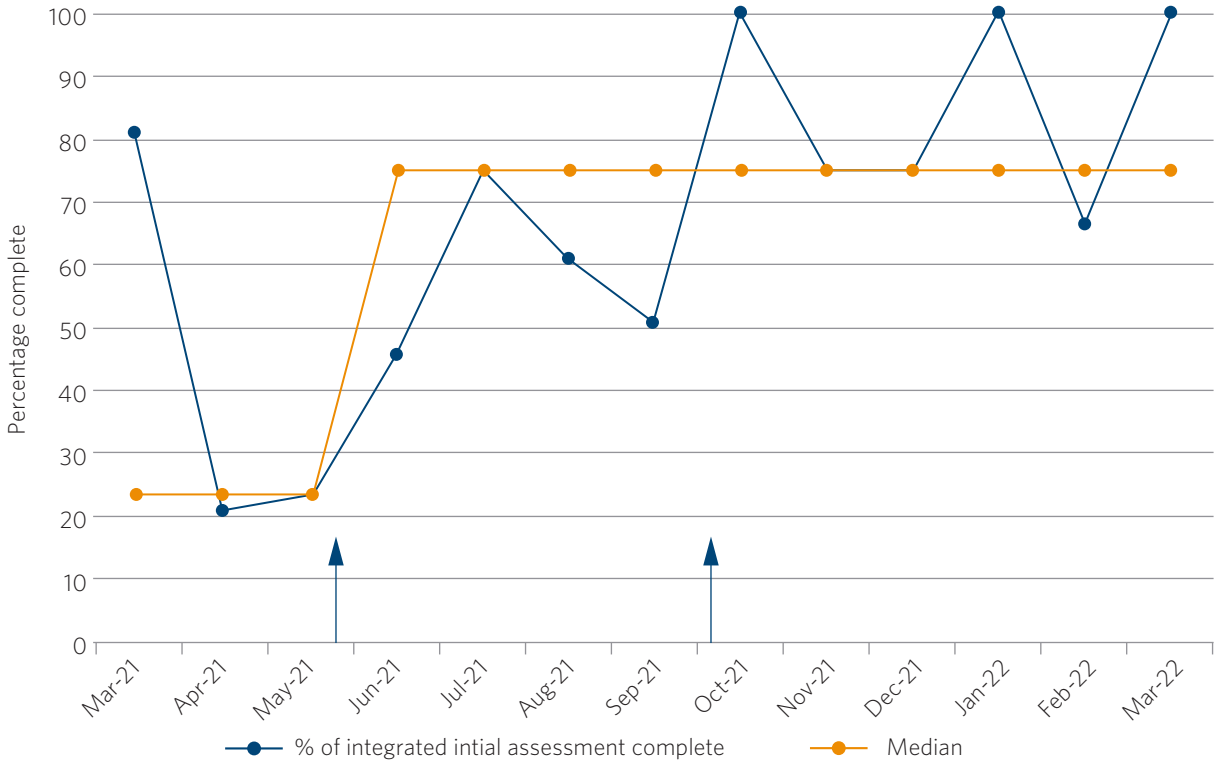
AH = allied health; EDS = electronic discharge summary.

A follow-up survey with one inpatient rehabilitation provider after the changes were implemented showed that a timely handover was received 90 percent of the time and that 80 percent of clinicians found the information in the electronic discharge summary 'somewhat' or 'very' helpful.

What process measures improved?

The percentage of people with integrated allied health assessments completed increased following the introduction of the integrated assessment form in June 2021 and increased further after the form was reviewed and shortened in October 2021 (Figure 4). The median rate of completion after implementing the new process was 75 percent.

Figure 4: Percentage of integrated assessment completion, March 2021–March 2022



Source: Te Toka Tumai Auckland data collection.

Were any unintended consequences, unexpected benefits, problems or costs associated with this project?

Between August and December 2021, Auckland was in lockdown because of COVID-19. Over this time, fewer people were admitted with TBI, and fewer people were transferred to other hospitals. This impacted on the data collection for the project. Staff sickness and leave also impacted on the project's success, as the staff covering were not as aware of the project.

Is there evidence that the knowledge of quality improvement science in the team or in the wider organisation improved?

The team learned about the use of plan–do–study–act cycles and the importance of testing changes before wider implementation. They also learned about building support for change through storyboards and about elevator pitches, maintaining process documentation and understanding data.

Post-project implementation and sustainability | Te whakaritenga me te whakapūmautanga

Have the successful changes been embedded into day-to-day practice? How have you managed this?

The integrated assessment form and the family and friend questionnaire are both consistently used in day-to-day practice on the neurosurgery wards. Implementing it initially with the small team on these wards made this easier.

How did you communicate your progress and results to others?

The allied health clinicians in neurosurgery shared the project's progress with their wider teams.

Summary and discussion | Te whakarāpopoto me te matapakinga

What were the lessons learned?

- The team showed passion, good teamwork and a shared vision for improved service delivery for TBI.
- The impacts of COVID-19 on caseloads and staffing impacted on the project's progress. Despite this, the project achieved a lot.
- The team needed to explore other options for how to get allied health input into the electronic discharge summary.

What are the key steps that a team somewhere else should take to implement a similar project?

- Select a team that is passionate to make the change.
- Listen to your patient stories.
- Focus on what is within the team's control.

Are there any future steps or ongoing work that you intend to continue with on this project topic?

- The expectation of allied health input into the electronic discharge summary is included in the house officer and allied health inductions.
- An allied health discharge summary template is being trialled to make it simpler for information to be included on the electronic discharge summary.
- The integrated assessment form and family and friend questionnaire is being scaled to other wards within the hospital.

The team | Te rōpū

- Hannah Zuhir – clinical lead physiotherapy and project lead
- Ever Saley – occupational therapist
- Jenni Monahan – physiotherapist
- Shannon Taylor – speech and language therapist
- Victoria Falconer – physiotherapist

Appendix 1: Measures | Āpitihanga 1: Ngā ine

Measure name	Description	Collection method	Collection frequency
Percentage of people with moderate to severe TBI who have their electronic discharge summary completed by allied health on the day of discharge	Numerator: The number of patients with moderate to severe TBI with electronic discharge summaries completed by allied health on day of discharge Denominator: The total number of patients with moderate to severe TBI discharged from ward	Review of electronic records, compared with a count of people discharged in the ward's admission–discharge book	Weekly
Percentage of people with moderate to severe TBI who have an integrated allied health assessment completed	Numerator: Number of allied health assessments using the integrated allied health form Denominator: Number of patients with moderate to severe TBI	Clinical notes review	Weekly

Other resources

The following resources can be downloaded from: www.hqsc.govt.nz/resource-library/Te-Whatu-Ora-Te-Toka-Tumai-Auckland-case-study

Integrated assessment form (MS Word)

Family and friend questionnaire (MS Word)

Glossary | Te kuputaka

Allied health: Registered health professionals such as physiotherapists, occupational therapists, social workers and speech and language therapists.

Balancing measure: Determines whether changes made to one part of the system are causing any unintended consequences in another part of the system.

Cause and effect analysis: A tool used in quality improvement to analyse the problem by identifying potential causes. Also known as Ishikawa/fishbone analysis.

Driver diagram: A visual display of a team's theory of what contributes to the achievement of the project's aim.

Glasgow Coma Scale: A scale used to objectively describe a person's level of consciousness, by assessing eye opening, limb movements and verbal responses.

Outcome measure: Determines the extent to which the aim has been achieved.

Post-traumatic amnesia: A transient state of altered brain function following a traumatic brain injury, causing memory loss, disorientation and behavioural changes.

Process mapping: Process mapping creates a visual diagram of the steps involved in a process. It helps a team to understand their current system better and makes it easier to see where opportunities for improvement are.

Process measure: Determines the degree to which processes or change ideas have been implemented.

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