Trauma rehabilitation

Whakaoranga kohuki

Te Whatu Ora Capital, Coast and Hutt Valley case study: Improving inpatient rehabilitation services for patients following major trauma

Te kēhi o Te Whatu Ora ki Pōneke, Kāpiti me Te Awakairangi: Te whakapai ake i ngā ratonga whakamauora mō ngā tūroro e whai atu ana i tētahi whētuki nui

Te Hononga Whētuki ā-Motu National Trauma Network

Te Whatu Ora Health New Zealand Capital, Coast and Hutt Valley

Te Kāwanatanga o Aotearoa New Zealand Government

Te Tāhū Hauora Health Quality & Safety Commission

Te Whatu Ora
Health New Zealand
Capital, Coast and Hutt Valley

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

Trauma care is a multi-disciplinary specialty, and the important role of allied health services in the care and rehabilitation of major trauma patients cannot be understated. This project aimed to understand allied health input into the care of major trauma patients and investigate opportunities to improve trauma rehabilitation and enhance patient experiences at Wellington Regional Hospital. Discussions with both consumers and clinicians raised issues of communication, patient-centred care, the role of different therapy disciplines and therapy access. Change ideas to address these issues were developed and tested, resulting in successful and meaningful change for both patients and staff.

Background and context | Kōrero o mua me te horopaki

Wellington Regional Hospital is the tertiary major trauma hospital for the central region trauma network, from as far north as Hawkes Bay and Whanganui down to Wellington. Trauma patients from the Nelson Marlborough region at the top of the South Island are also transferred to Wellington for care because of the geographic proximity. The major trauma caseload for Wellington Regional Hospital has increased significantly over the past 5 years, from 185 patients in 2016/17 to 295 in 2020/21.

As Wellington Regional Hospital has no dedicated trauma admitting service, trauma patients are spread across various disciplines, such as neurosurgical, orthopaedics and general surgery, each of which has their own allied health specialists. This can result in variations in care for trauma patients and little understanding of where inequities in rehabilitation and allied health therapy input may arise.

Diagnosing the problem | Te tātari raru

The problem

The classification of a patient as having major trauma implies a severe single-body system injury or varying degrees of multi-systems injuries. These patients have complex and variable care needs, and their injuries can have a profound and ongoing impact on their life. Despite this clinical complexity, the project team found that no data was available to demonstrate whether these patients receive timely, consistent and equitable allied health input into their care while they are an inpatient at Wellington Regional Hospital.

This could result in lost opportunities for providing rehabilitation strategies targeted to meet the complex needs of these patients. In addition, no certainty is provided that these strategies are delivered in a culturally appropriate way, further contributing to inequitable health outcomes and the overall burden of traumatic injury.

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

The team used both quantitative and qualitative methods for gathering baseline data to identify issues within the current state of major trauma care at Wellington Regional Hospital.

Quantitative data was obtained from analysis of patient experience survey responses and of data from the Allied Health Activity Capture app.

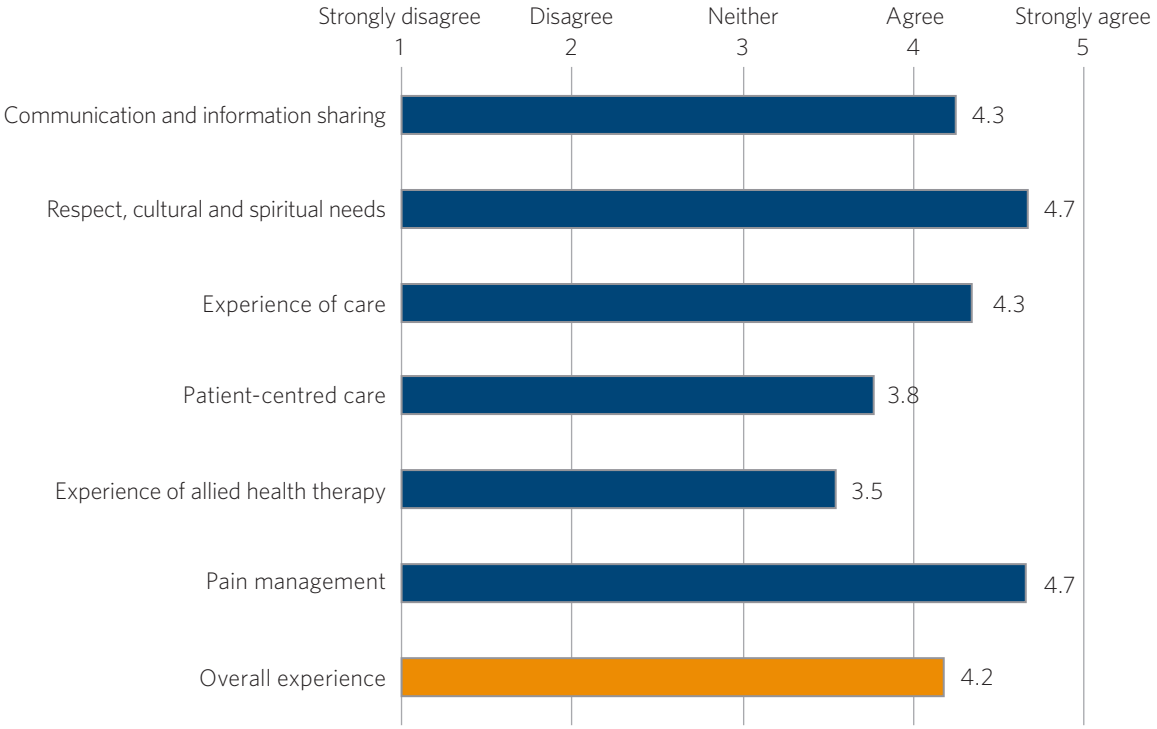
A patient experience survey was co-designed with two consumers and covered a range of topics that impact major trauma patients during their inpatient admission (see 'Other resources'). Four consumers were surveyed to create a baseline, with an overall experience score of 4.2/5 (84 percent).

The survey was broken down into seven areas:

- communication and information sharing
- respect, cultural and spiritual needs
- experience of care
- patient-centred care
- experience of allied health therapy input
- pain management
- discharge planning.

Discharge planning was not completed during the baseline survey because all consumers were current inpatients and were from outside the Wellington region. As such, discharge planning would be undertaken upon transfer to their local hospital rather than by Capital, Coast and Hutt Valley staff.

Figure 1: Baseline results from patient experience surveys, May to August 2021



Source: Capital, Coast and Hutt Valley data collection

Further examination of the two lowest-scoring sections provided insight into the following areas for improvement.

Experience of allied health therapy input: A lack of clarity on the different roles of allied health staff, concerns about the amount of therapy time provided, issues with therapy not being continued by non-allied health workers (nursing and health care assistants) and continuity of therapy provision over the weekend all contributed to a lower score in this section.

Consumer perspectives:

'I am grateful for any therapy I can get.'

'They told me to stand up … I had to tell them I was not allowed to.'

Patient-centred care: Consumers reported that they did not feel as though they were as involved as they would have liked in setting goals for their rehabilitation journey and believed more could have been done to include them and their whānau in discussions around their care.

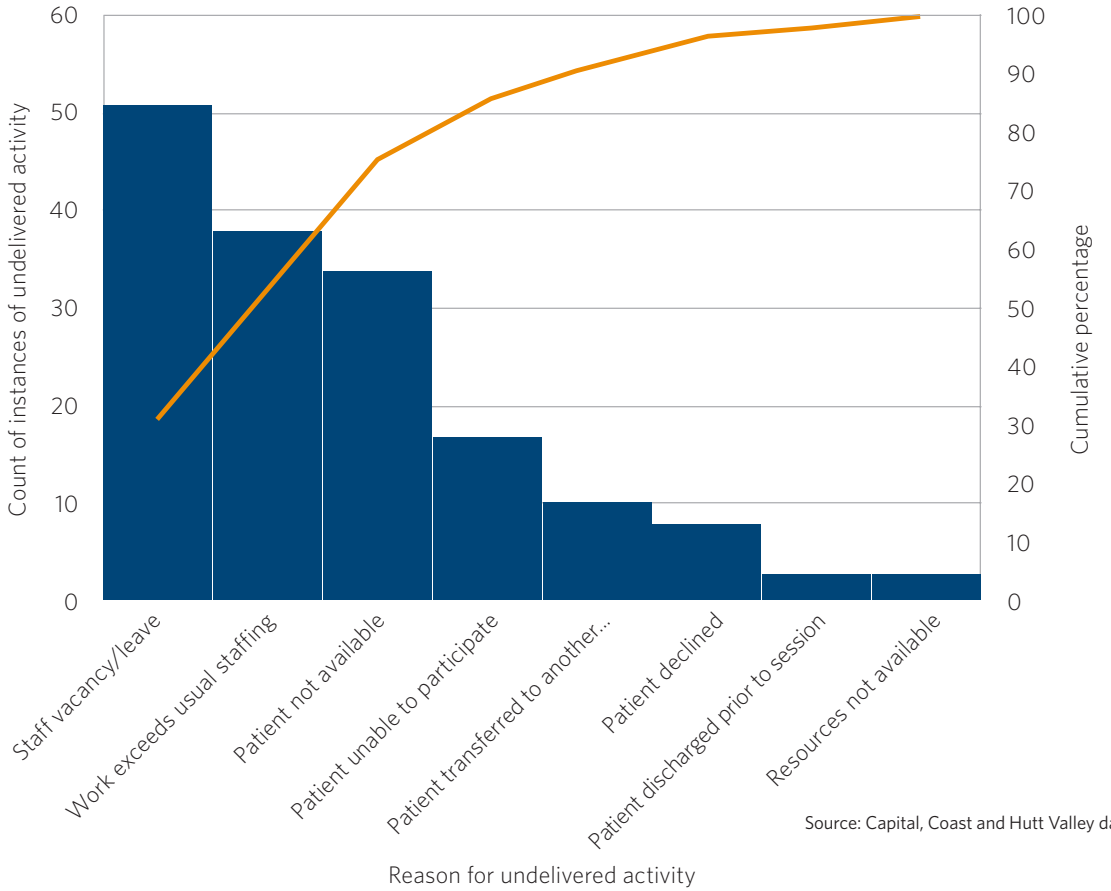
Consumer perspectives:

'I worry for patients who cannot speak up for themselves.'

'They were good at explaining what we were doing. Could have explained the reason why better.'

The concerns raised by patients about the amount of therapy time they received led the team to investigate this problem further using data from the Allied Health Activity Capture app. This app is used at Wellington Regional Hospital for allied health staff to record therapy time spent with patients. Data on occurrences of undelivered activity (instances where allied health therapy was not delivered to the patient as per the care plan) for major trauma patients from January to August 2021 was analysed, and a Pareto chart was used to demonstrate the frequency with which individual values (represented by the bars) contributed to the problem. The line indicates how the values influence the cumulative total. This Pareto chart clearly shows that heavy workloads and short staffing caused by vacancies and annual leave contribute approximately 60 percent towards the issue of undelivered allied health therapy for major trauma patients.

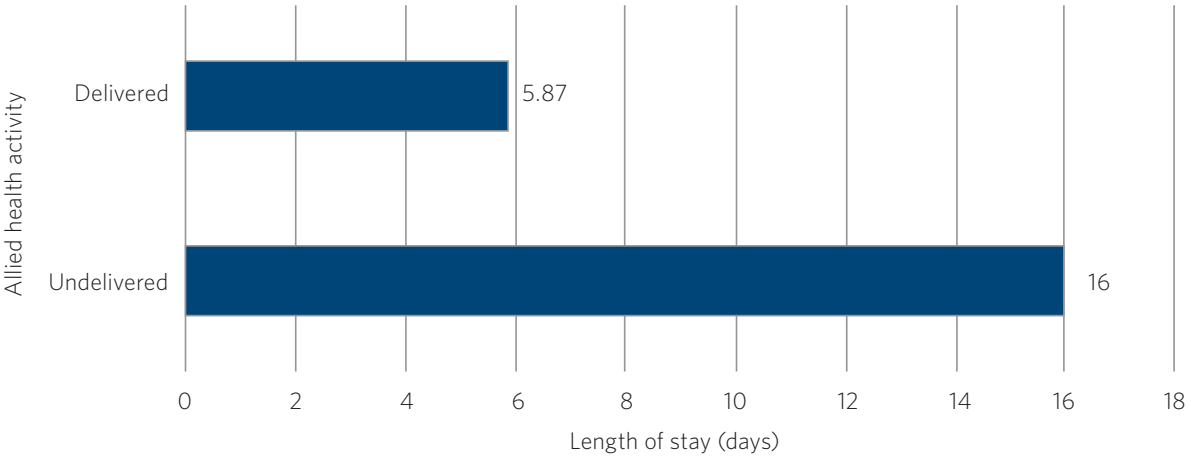
Figure 2: Allied health undelivered activity in major trauma patients, January to August 2021



Source: Capital, Coast and Hutt Valley data collection

Additionally, further analysis of app data demonstrated that patients who had undelivered activity due to 'staff vacancy/leave' or 'work exceeds usual staffing' had a greater median length of stay than those who received their allied health therapy.

Figure 3: Median length of stay (days) for patients with delivered and undelivered allied health activity, January to August 2021



Source: Capital, Coast and Hutt Valley data collection

Although this data was useful for problem identification, increasing allied health staffing was outside the scope of this project, so the team focused on other areas of the patient experience survey when investigating areas for improvement within the service.

Qualitative data was collected through surveys and interviews with consumers. The views of nine consumers were collected throughout the lifespan of the project. The team found that the patient experience survey did not always match with statements made by patients in a face-to-face setting, and open-ended questions allowed for the collection of detailed qualitative feedback. Five allied health and two nursing staff were also interviewed to gain a more in-depth understanding around care provision. Some of the common themes from these interviews are presented in the word cloud in Figure 4.

Figure 4: Word cloud created from staff interview results

Case studies were also collected. These demonstrated the significant impact on patients of allied health short staffing, gaps in staff skills and experience, lack of knowledge on the roles and responsibilities of the multi-disciplinary team and the complexity of caring for major trauma patients. Some details of these cases have been deliberately obscured to ensure confidentiality.

Case study 1: Lack of clarity on roles and responsibilities
Mrs B was admitted as a major trauma patient and discharged home with an orthotic device in situ. No education was provided from nursing or allied health staff on how to care for the device upon discharge. Interviews conducted with members of nursing and allied health staff all reported a lack of understanding of which health care professional was responsible for which task, leading to the patient receiving no education.

Case study 2: Major trauma complexity and variations in allied health skills and experience
Mr A was admitted with complex trauma. Short staffing led some clinical assessments to be completed by a therapist who did not normally work on Mr A's ward. The patient was screened for concussion and deemed to require no further input at that time. However, when the patient was reassessed by the usual ward therapist in the following days, he failed the Westmead Post-Traumatic Amnesia assessment, indicating that he had sustained a brain injury and required additional support for concussion management that was not initially identified..

The aim | Te whāinga

The project aimed to improve the experience of adult major trauma patients who receive allied health therapy during their stay on an acute ward at Wellington Regional Hospital from a baseline score of 84 to 95 percent by December 2021.

Initially, the project also aimed to increase the experience score for whānau by 50 percent during the same period. However, visiting restrictions because of multiple COVID-19 outbreaks meant the team could not conduct surveys of the whānau experience.

The measures | Ngā ine

Refer to Appendix 1 for a detailed description.

Outcome measures

- Experience score of major trauma patients and whānau.
- Qualitative feedback from consumers and whānau about the inpatient experience.
- Qualitative feedback from staff about the experience of caring for major trauma patients.

Process measures

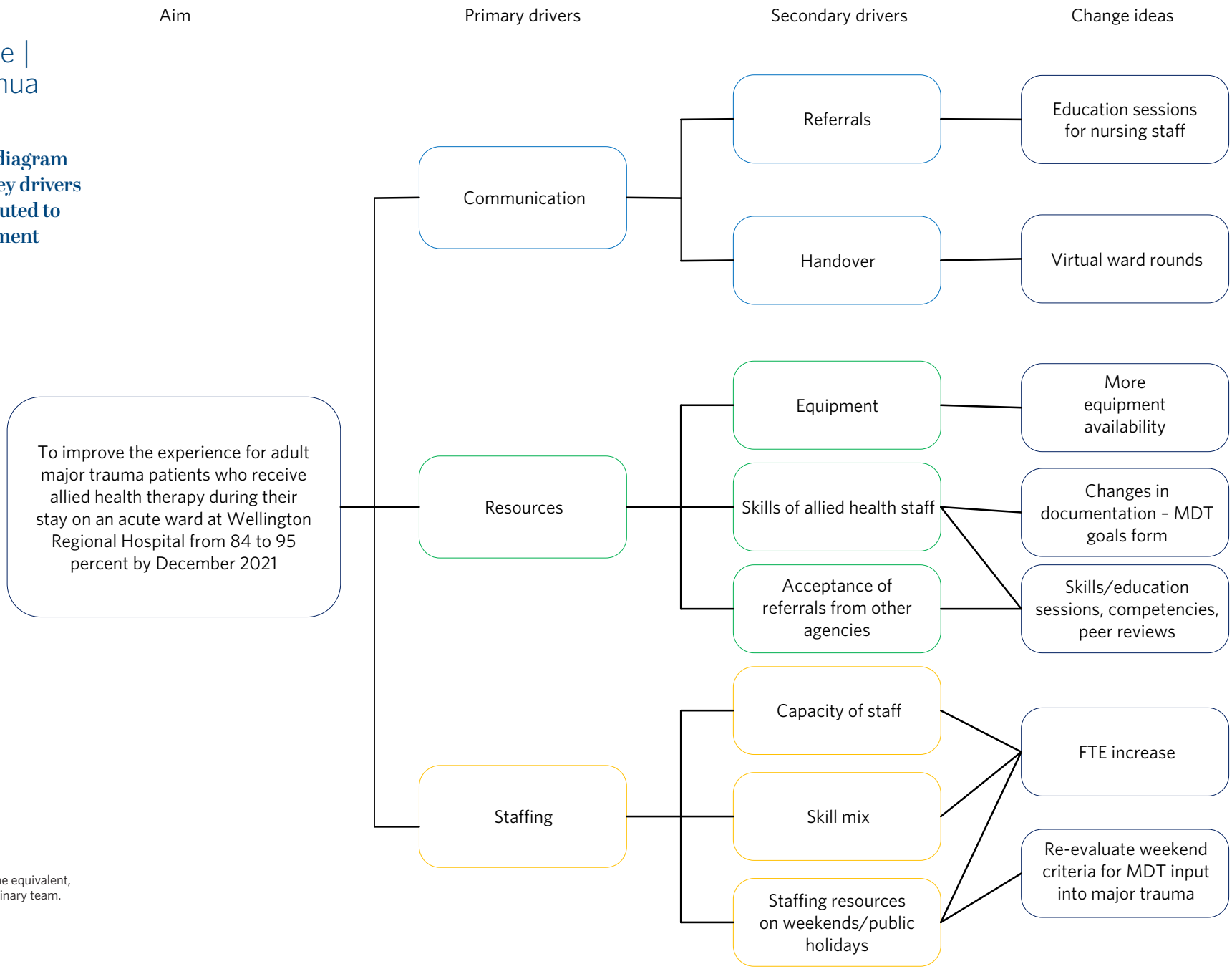
- The percentage of staff providing the information booklet to major trauma patients.
- The percentage of staff using the allied health assistant handover tool.
- The quality of referrals to allied health.

Balancing measure

- The rate of unmet need for non-major trauma patients.

Drivers of change | Ngā tūāhua panoni

This driver diagram shows the key drivers that contributed to the achievement of our aim.



Note: FTE = full-time equivalent, MDT = multidisciplinary team.

What we did | Tā mātou i mahi

Were there any ethical considerations to be aware of?

Team members undertaking the patient experience surveys raised some concerns on the burden of this method of data collection on people with concussion. Although the survey was co-designed with a consumer lens applied, some patients found completing the survey challenging and required a member of the project team to complete it with them. This method did allow for additional collection of rich descriptions of their lived experience in the form of qualitative data, but the team cautions those who may want to undertake a similar survey to be aware of the impact of data collection on patients in recovery. The project team initially planned to survey patients with whānau available at the bedside for support, but COVID-19-related hospital visitation restrictions decreased the opportunity for this.

Additionally, team members recognised an inherent power imbalance between health care workers and patients and the potential for patients to feel unable to report negative experiences for fear of affecting their therapy. The team attempted to mitigate this risk by explaining fully about the project aims, answering any questions or concerns and obtaining informed consent from all patients who participated in data collection.

How were consumers involved in this project?

The team engaged two consumers to work alongside clinicians to ensure that the co-design method was woven throughout the project. These consumers played a vital role in designing the consumer and whānau experience surveys, ensuring that the team members asked the right questions to gather rich information critical for identifying and understanding gaps in care provision. The consumers also assisted with the development of the major trauma booklet to ensure the right information was provided in a way that people would be able to understand.

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

Process mapping was useful for understanding how various wards manage major trauma patients differently. This visibility was important in identifying areas for improvement within the wider allied health service.

The driver diagram helped the team to organise their change ideas and understand which ideas to focus on that would have the greatest impact on drivers for change.

What changes did you test that worked?

- The major trauma booklet (see 'Other resources') was co-designed with consumers and provided to major trauma patients in the orthopaedic ward to help patients navigate their inpatient stay and answer some of their anticipated questions or concerns. The booklet addressed issues raised by the patient experience survey, including patients lacking clarity about the different allied health services and their role in rehabilitation and recovery, and included information on the role of ACC and key contact numbers for patients being discharged home. Feedback from patients was positive, and one patient who received the booklet when it was rolled out as they neared discharge remarked that they wished they could have had it throughout their stay.
- An allied health handover form (see 'Other resources') was created to improve communication between allied health therapists and allied health assistants, including exercises, equipment and mobility plans. Since the introduction of the handover form, compliance with its use for major trauma patients has been 100 percent. Staff feedback is overwhelmingly positive, with reports that the tool made planning their day more efficient, reduced duplication of care and improved teamwork. An unintended but positive benefit was the usefulness of the tool in the orientation of new allied health assistants for recording and signing off core competencies.
- Education sessions were delivered for clinicians about completing ACC705 referrals for ongoing rehabilitation services to reduce inequities in access to community services. These were helpful for staff, but the team found it challenging to get all staff to attend education sessions because of roster gaps and workload. Despite this, staff reported anecdotally that there was an overall reduction in requests for additional information from ACC as forms were being completed correctly and that the time to action referrals improved.

- Education sessions were held for nursing staff on the role of the allied health team and when and how to refer to these services. This resulted in a higher quality and volume of referrals to the service as indicated by allied health staff and an increase in nursing staff confidence in all aspects of the allied health referral system.

The results | Ngā hua

What outcome measures improved?

The aim of this project was to improve consumer and whānau inpatient experience, with a co-designed experience survey used to evaluate results. Even though COVID-19 disrupted the survey process, interviews with patients demonstrated qualitative improvement.

- Consumers and whānau expressed in the baseline surveys that they were often unaware of their care plans and the identity and role of clinicians involved in their rehabilitation and had uncertainty about post-discharge care. This led to feelings of confusion and frustration.
- After the introduction of the major trauma booklet, consumers and whānau expressed that the information provided was useful and improved their understanding of the hospital system and what rehabilitation services were available to them, both as an inpatient and once they were discharged home.

Consumer perspective:

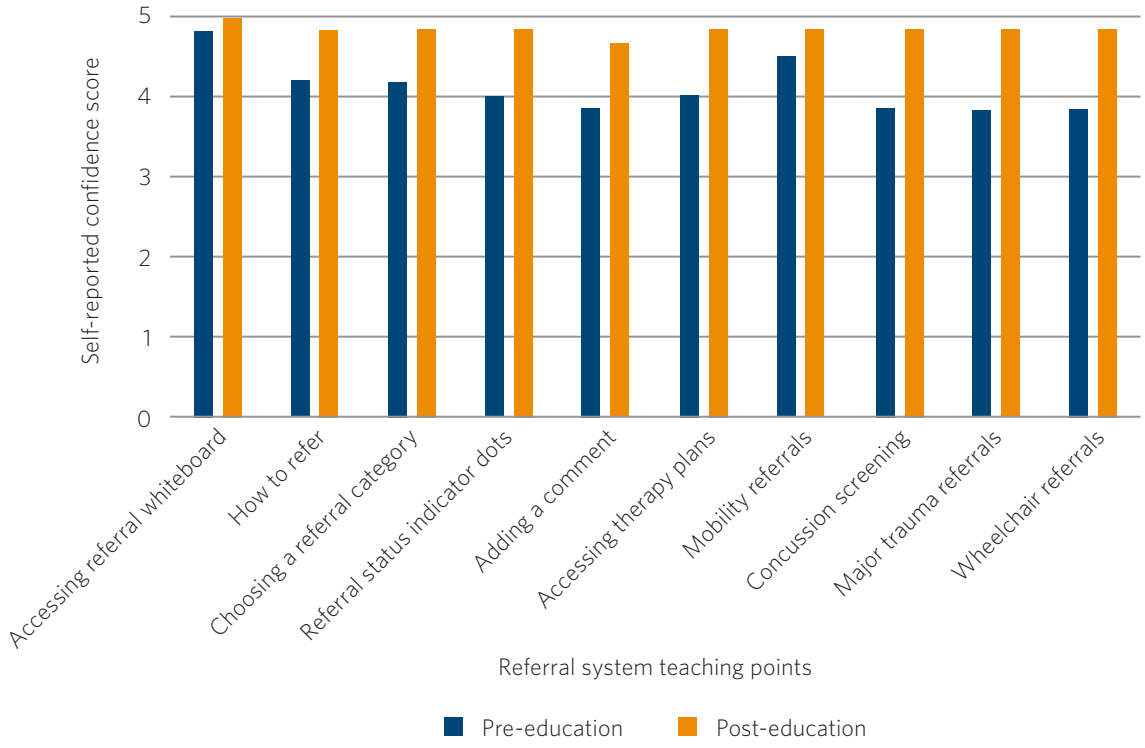
'If I had known about that service, it would have really helped my journey.'

The COVID-19 outbreaks resulted in lower than anticipated numbers of major trauma patients admitted to the pilot ward, and restrictions on whānau visits meant that this outcome measure was underpowered to quantitatively demonstrate positive change.

What process measures improved?

- The project team lead monitored major trauma admissions to the orthopaedic ward and distributed the major trauma booklet to 100 percent of major trauma patients. However, the volume of eligible patients per month was too low for improvement to be demonstrated on a run chart.
- The allied health handover tool was introduced as business as usual within the orthopaedic ward after it achieved a 100 percent completion rate in the first month of rollout.
- The team provided targeted education sessions to nursing staff about the allied health referral process. These included how to access and use the electronic referral whiteboard, appropriate referrals for different allied health specialties, referral status indicators and how to add comments, and how to view care plans and documentation from therapists. The team also provided education on which allied health specialists staff should refer to for mobility issues, concussion screening, major trauma management and to access wheelchairs for patients. The project team used a Likert scale ranging from 0 to 5 to measure the confidence of nursing staff in using the electronic referral system before and after the education sessions. Nursing staff reported an increase in their confidence across all aspects of the referral system, with the largest gains seen in major trauma, concussion and mobility aid referrals (Figure 5).

Figure 5: Nursing staff confidence levels pre- and post-education on the allied health referral system, July 2021



Source: Capital, Coast and Hutt Valley data collection

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

COVID-19 lockdowns negatively impacted on the project team's ability to measure experience data through surveys and interviews because of the intrahospital restrictions on patient and clinician movement and whānau visitation. Clinical workload was also increased and staff turnover was high in the pilot ward during the testing and implementation phases. This further hampered improvement efforts and the ability to gather staff feedback around change ideas and accurate unmet need data using the Allied Health Activity Capture app as a balancing measure.

Although the focus of this project was improving patient experience, some unanticipated benefits included the strengthening of relationships between the allied health service and the trauma team at Wellington Regional Hospital. This has extended to the appointment of an allied health representative on the Wellington Regional Hospital trauma committee and on the Central Region Strategic Network. The service is also working on a business case to reallocate some FTE to a therapist with a specific focus on major trauma.

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

- Participating in this collaborative increased the base knowledge across the team in the use of quality improvement methods and tools, such as driver diagrams and process maps, and built a strong working relationship with the Capital, Coast and Hutt Valley improvement and innovation team.
- The project created opportunities for team members to educate the wider allied health service on the quality improvement process.
- The project team lead has since worked on several smaller quality improvement projects on the orthopaedic ward and supported junior therapists to carry out change projects using the plan–do–study–act cycle.

Post project implementation and sustainability | Te whakaritenga me to whakapūmautanga

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

The major trauma booklet is being provided to patients on the orthopaedic ward and receiving positive feedback. The allied health handover form has improved communication, reduced task duplication and improved efficiency and continuity of care between therapists and allied health assistants. Consumer co-design and staff engagement contributed to the success of these change ideas. Education sessions with nursing and medical staff are ongoing, and the volume and quality of referrals to the allied health service have improved.

How did you communicate your progress and results to others?

The team communicated their change work across the service in many different ways, including emails, staff meetings, in-service education sessions and presentations to the trauma committee.

Summary and discussion | Te whakarāpopoto me to matapakinga

What were the lessons learned?

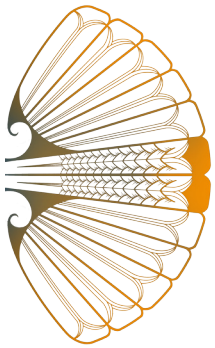
- Experience surveys provide rich information, but obtaining sufficient numbers to demonstrate quantitative change is challenging, and the surveys can be a burden on patients recovering from significant major trauma and on staff busy with clinical workload.
- Despite the challenges of the COVID-19 pandemic, allied health staff were involved with the development of change ideas, and this has led to positive engagement with the work and more buy-in as staffing levels improve and the rate of staff turnover slows.
- Consumer co-design is an important part of successful and meaningful change.
- The project was carried out during a time of reduced coverage of the trauma clinical nurse specialist role. Two new clinical nurse specialists have since been hired and have provided support and encouragement to the project, demonstrating the value that this role has on quality improvement work in the trauma space.
- The patient experience survey tool yielded valuable insight, but the COVID-19-related workload and restrictions meant the project team was unable to continue to use the survey instrument to collect data. Further survey work could be repeated during non-pandemic times with greater success, building on what has already been achieved in this project.

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

- Clarify your project aim, try to make it focused rather than broad.
- Problem identification is critically important.
- Formalise team meetings with an agenda and minutes and designate actions for individual team members.

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

- Improvement will be sustained and further implemented as allied health staffing levels improve and by working alongside the new trauma clinical nurse specialist team and the wider trauma service.
- Allied health recommendations stemming from this work have been made to and received positively by the trauma service and allied health team leads.
- Next steps include further improving the access to and collection of data around allied health service provision for major trauma to identify inequities and opportunities for further improvement.



The team | Te rōpū

- Elaine Fitzgerald – project lead, physiotherapist for orthopaedics
- Charlotte Smith – orthopaedic social worker and quality improvement advisor
- Katrina Burns – quality improvement advisor
- Jan Gould – consumer representative
- Wayne Paku – consumer representative

The team also acknowledges and thanks the following people for their contribution to the success of the project: Wellington Regional Hospital Trauma Committee, Richard Perry and the Capital, Coast and Hutt Valley improvement and innovation team, James Moore (clinical lead for trauma), Zoe Perkins (trauma clinical nurse specialist), Kate Boulton (allied health service manager), Molly Kallesen (former director of allied professions at Capital & Coast), Gillian Watson (physiotherapy team lead).

Appendix 1: Measures | Āpitihanga 1: Ngā ine

Measure name	Description	Collection method	Collection frequency
Consumer experience	Experience survey of consumers fitting major trauma criteria around their experience with allied health	Paper-based survey tool provided to eligible consumers to read with clinician going through survey afterwards to complete it with them in face-to-face format	Dependent on major trauma admissions to pilot ward
Consumer, whānau and staff feedback	Verbal feedback on experiences as a major trauma patient/working with major trauma patients	Face-to-face interviews with eligible consumers, their whānau and with allied health and nursing staff	Dependent on major trauma admissions to pilot ward and staff availability
Percentage of staff providing major trauma booklet	Staff on pilot ward (orthopaedics) providing patients who fit major trauma criteria with information booklet	Project team members to ask patients about receiving booklet and document in clinical notes	Dependent on major trauma admissions to pilot ward
Confidence levels of staff on allied health referral system	Confidence level of nursing staff pre- and post-targeted education sessions	Self-reported survey scored from 0 to 5	Before and after education sessions

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.

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

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

Pareto chart: A graph that indicates the frequency of events or defects and their cumulative impact on the problem as a whole.

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.

Qualitative data: Describes the attributes or properties of a person, event or object. It represents information and concepts through text, audio and images and cannot be counted, measured or easily expressed through numbers.

Quantitative data: Information that can be counted, measured or quantified and given a numerical value.

Other resources

The following resources can be downloaded from: www.hqsc.govt.nz/resources/resource-library/improving-inpatient-rehabilitation-services-for-patients-following-major-trauma.

Patient and whānau experience surveys

Major trauma booklet

Allied health handover form

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Available online at www.hqsc.govt.nz.