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# Equity in outcomes following major trauma among hospitalised patients | Te taurite o ngā hua i muri mai i te whētuki nui ki waenga i ngā tūrora hōhipera

A summary of the ninth report of the Perioperative Mortality Review Committee |  
Te pūrongo tuaiwa o te Komiti Arotake Mate Whai Muri mai i te Poka

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In Aotearoa New Zealand, trauma<sup>1</sup> is a leading cause of death and disability, and the associated social and economic costs are substantial. For the period 2010–2015, injury was the leading cause of death from the age of 5 through to 44 years and more than half of the deaths of those aged 10–34 years were from injury.

The main determinants of 30-day mortality following major trauma were: older age, more comorbidities, more severe injury (based on Injury Severity Score [ISS], Glasgow Coma Scale [GCS] score and requiring intubation) and not receiving an index CT scan.

1 For the purposes of this report, the Perioperative Mortality Review Committee is using Te Hononga Whētuki ā-Motu, the National Trauma Network's definition of major trauma, which is: trauma to patients suffering physical injury as a result of energy transfer and not internal pathologic processes, with an Injury Severity Score of 13 or more.



Inequity in mortality was clear for Māori youth aged 15-18 years, who **were over three times more likely to die in the 30 days following major trauma** than non-Māori in the same age group.



Māori were **37% more likely than non-Māori** to not receive a CT scan.



Māori were **56% more likely than non-Māori to die** in the first 30 days following major trauma that did not involve serious traumatic brain injury (sTBI).

The main analysis found no inequities for Māori in overall mortality following major trauma. However, Māori youth and Māori who experienced trauma other than sTBI were at higher risk of mortality. Māori were less likely to receive an index CT scan than non-Māori, and less likely to benefit from treatment at a neurosurgical facility.

Table 1: Inequity in incidence of major trauma in Aotearoa New Zealand, 2015-2019

Year	Māori	Non-Māori	Inequity ratio*
2015-2016	69	39	1.77
2016-2017	52	31	1.68
2017-2018	50	43	1.16
2018-2019	56	43	1.30

Note: Incidence is reported per 100,000 population.

\*Age-standardised.

A number of factors that may impact on major trauma outcomes and treatment in important ways are not evenly distributed between Māori and non-Māori. These include: living in more socioeconomically deprived and rural areas; lower access to health care services; higher rates of chronic health conditions; and differential treatment within the health system.

## Recommendations | Ngā tūtohinga

### Higher mortality in Māori youth

**Recommendation 1:** The Perioperative Mortality Review Committee (POMRC) recommends that each district health board (DHB) conducts an in-depth local review in 2021 into all cases of trauma in Māori aged 15–18 years that occurred in 2018–2020, identifying the key points of intervention. The review should focus on whether treatment was optimal and timely, and what systems and processes need to be improved to provide high-quality and equitable care. Improvements could include prioritising trauma cases involving Māori youth aged 15–18 years, so that care pathways aim to prevent inequitable rates of mortality.

*Rationale:* We identified that more severe injury among Māori does not fully explain higher mortality in Māori youth aged 15–18 years (but not in other age groups). As well as inequity in mortality rates, Māori experience a disproportionate impact from injury because the Māori population has a younger age structure than the non-Māori population so these early deaths have greater potential to represent a greater loss of years of life among Māori.

Māori are more likely to die in the first 30 days following major trauma other than sTBI.

**Recommendation 2:** The POMRC recommends that each DHB reviews its safe discharge plans to check that they identify whether all aspects of care are addressing inequity to achieve equitable outcomes. We recommend the review team includes a trauma nurse specialist or kaupapa Māori navigation support with a trauma-specific focus.

*Rationale:* Our findings show a clear inequity in mortality among those who survive up to 14 days: Māori have a higher risk of mortality, which persists over time.

**Recommendation 3:** The POMRC recommends Te Hononga Whētuki ā-Motu, the National Trauma Network and each DHB review their policies and procedures to ensure they do not include, or allow for, implicit bias and institutional racism at clinician, DHB and policy levels.

*Rationale:* Beliefs or attitudes held by health practitioners and providers about patients at the individual and group levels have the potential to impact on clinical encounters, in terms of both provider behaviour and patient response to the interaction. This may have implications beyond the acute phase, with ongoing care increasing the potential for discretion in decision-making about treatment and management options. International studies show post-discharge deaths among trauma patients are related to common chronic diseases. Because this connection is particularly relevant given the known barriers to care for Māori, this recommendation should be prioritised as an opportunity for improvement.

### Māori are less likely to receive a CT scan

**Recommendation 4:** The POMRC recommends Te Hononga Whētuki ā-Motu, the National Trauma Network develops a national consensus guideline on prioritising CT scans for trauma cases. The guideline requires timeframe guidance and the assessment of its implementation in each DHB to ensure equitable diagnosis and management.

*Rationale:* Our results show that Māori are less likely to receive a CT scan. Prompt diagnosis, with the help of a CT scan, plays a key role in the initial management of traumatic injuries and can have an impact on mortality outcomes.

**Recommendation 5:** The POMRC recommends that DHBs complete an audit of the application of the national consensus guidelines for each Māori trauma patient who did not get a CT scan to see if the guidelines were followed correctly. This analysis should include the role and impact of implicit bias and institutional racism at clinician, DHB and policy levels.



*Rationale:* Numerous studies identify differences between Māori and non-Māori in the care they receive and the quality of that care. International literature suggests a potential mechanism in the area of trauma care is unconscious bias among providers. Addressing this bias requires linking trauma care to broader, system-wide policies including cultural safety education for health providers and services and improvement strategies that recognise equity as a key dimension of quality.

### Neurosurgical facility treatment

**Recommendation 6:** The POMRC recommends that DHBs review all cases of sTBI who were treated at non-neurosurgical centres, focusing on the appropriateness and effectiveness of decisions made about whether to transfer the patient, and on patient outcomes. DHBs should then change their destination and interhospital transfer policies so that, where safe and feasible, all patients with a significant TBI are transferred to a neuroscience centre.

*Rationale:* A systematic review of the effectiveness of specialist neurosurgical care in sTBI demonstrated that transferring severe non-surgical TBI patients to specialist neurosurgical centres had a beneficial effect. The United Kingdom National Institute for Health and Care Excellence recommends that transferring all patients with serious head injuries to a neurosurgical unit would benefit them, no matter whether they need neurosurgery or not. Given the reported differences between Māori and non-Māori, we must understand the rationale for treatment at non-neurosurgical centres so that Māori are not disadvantaged.

**Recommendation 7:** The POMRC recommends DHBs review their protocols on transferring patients with sTBI to neurosurgical centres, with a specific focus on whether these sufficiently address inequity to achieve equitable care and case management. Trauma leads within each DHB should identify training opportunities that will support health care professionals to follow local protocols.

*Rationale:* Some international evidence suggests that mortality has decreased because health providers are implementing and following guidelines, and that the use of protocol-guided therapy after sTBI improves patient outcomes. Decisions to transfer patients must be explicit and health professionals need to follow them through to ensure unconscious bias or institutional racism do not result in inequitable health outcomes for Māori.

### Improved data collection and reporting

**Recommendation 8:** The POMRC recommends that the Accident Compensation Corporation provides additional data collection resources to enable the NZ-MTR to collect systematic data on outcomes for those people who die before they can be admitted to hospital (pre-hospital outcomes).

*Rationale:* The data in this report is limited by the lack of information on outcomes for those people who die before being admitted to hospital. Improved information collection in this area would allow more comprehensive reporting in the future to support public health policy development and decision-making.

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