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

POMRC
Perioperative Mortality Review Committee

Perioperative Mortality in New Zealand | Te Mate Whai Muri mai i te Poka ki Aotearoa

Summary of the eighth report of the Perioperative Mortality Review Committee | He whakarāpopoto o te pūrongo tuawaru o te Komiti Arotake Mate Whai Muri mai i te Poka

Report to the Health Quality & Safety Commission New Zealand | He pūrongo ki a Kupu Taurangi Hauora o Aotearoa

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Introduction | Kupu arataki

The Perioperative Mortality Review Committee (the POMRC) reviews deaths related to surgery and anaesthesia that occur within 30 days of an operation. It advises the Health Quality & Safety Commission (the Commission) on how to reduce these deaths and makes recommendations to make surgery safer for patients.

The eighth report analyses perioperative mortality between 2012 to 2017 on surgical outcomes for Māori following acute laparotomy. Laparotomy is a surgical incision into the abdomen, for diagnosis or in preparation for major surgery.

Every year in Aotearoa New Zealand, more than 5,600 people are admitted to hospital for an emergency laparotomy. The POMRC found that out of those admitted for emergency laparotomy, incidence is 40.2% higher in Māori than non-Māori.

The central message of the POMRC's eighth report is that health equity gaps exist within our surgical systems between Māori and non-Māori, and there is evidence that the gap is widening. This further supports the Commission's recent report *A window on the quality of Aotearoa New Zealand's health care 2019: A view on Māori health equity,*[1] which highlights several areas where change is needed in the health system.

This eighth report offers insights that will be of importance to surgeons, anaesthetists and other clinicians who deliver these services, to the planning and funding of surgical services and to the patients, families and whānau who support and depend upon those services.

Our aim is to challenge and call on all hospitals to commit to:

- achieving equity in all aspects of surgery
- undergoing further learning and development
- implementing concrete actions to improve and monitor services in the future
- meeting our responsibilities under Te Tiriti o Waitangi.

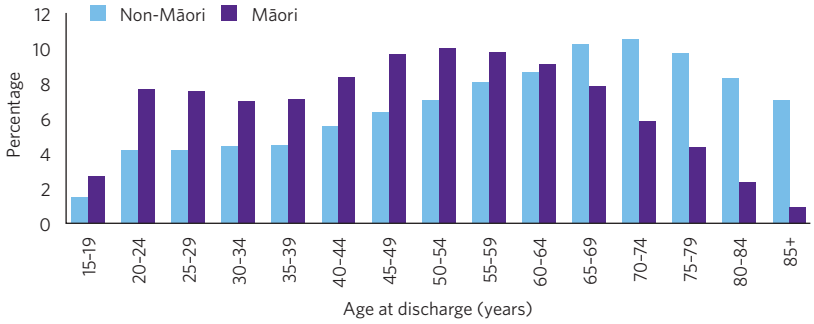
The full POMRC report is available online at www.hqsc.govt.nz/our-programmes/mrc/pomrc/publications-and-resources/publication/3896.

1 Health Quality & Safety Commission. 2019. *A window on the quality of Aotearoa New Zealand's health care 2019 – A view on Māori health equity.* Wellington: Health Quality & Safety Commission.

Emergency laparotomy outcomes for Māori | Ngā putanga hahae puku ohotata mō Ngāi Māori

Differences in patient health and perioperative mortality between Māori and non-Māori show the current system creates and maintains health inequity.

Distribution of patients undergoing emergency laparotomy by age



The average age of Māori having emergency laparotomies is 10 years younger than non-Māori.

Māori are dying at higher rates and at much younger ages than non-Māori **following emergency laparotomy.**

Māori are over-represented and dying at much higher rates in the **highest socioeconomic deprived areas.**

Māori are dying at higher rates with a **higher burden of comorbidities, including diabetes.**

Māori have a **higher burden of disease**, which correlates to higher mortality.

Even at younger ages, Māori have a higher mortality rate, demonstrating a higher burden of disease at younger ages in Māori.

Multivariate analysis shows the percentage increased mortality from each factor: **15% socioeconomic deprivation, 18% comorbidities, 9% complications** and **11% racial disparities.**

Recommendations from the POMRC include:

Improvements to Māori surgical outcomes

All surgical departments to commit to achieving equitable outcomes for Māori, and honouring Te Tiriti o Waitangi.

All surgical departments to review Māori mortality and morbidity outcomes and, where inequities exist, consider all aspects of the surgical pathway that may contribute to these inequities.

All surgical staff to undertake training on Te Tiriti o Waitangi, cultural safety and competency.

Improvements to surgical care

Emergency laparotomy patients and their whānau should be given the opportunity to discuss appropriate goals of care.

Summary | Whakarāpopoto

For the eighth POMRC report, we took a system-level view of health equity, focusing on whether emergency laparotomy surgical systems were equitable between Māori and non-Māori.

Key findings

Between 2012 and 2017, there were 28,481 admissions for emergency laparotomy, and 1,566 deaths (5.5% of admissions). Age-standardised emergency laparotomy incidence is 40.2% higher in Māori than non-Māori, eg, 71.6 per 100,000 in Māori compared with 52.9 per 100,000 in non-Māori. Furthermore, there is evidence that the gap in rates of emergency laparotomy surgery is widening over the time period of the report.

The epidemiology of Māori having emergency laparotomy operations

Compared with non-Māori having emergency laparotomies, Māori:

- are younger
- reside in the most deprived neighbourhoods
- have more emergency laparotomies
- present to the emergency department (ED) more often
- have higher burden of comorbidities, especially diabetes and smoking
- have higher severity of disease
- have a higher risk of complications following emergency laparotomy surgery
- have a higher mortality rate
- have a lower rate of colorectal cancer at the time of laparotomy, but if present it is more likely to be advanced
- have some differences in the indications for laparotomy and procedures performed.

Emergency laparotomy mortality as a measure of health equity

A system-level view of health equity involves thinking about how systems create and maintain health equity and inequity. We wanted to know if surgical systems in Aotearoa New Zealand were equitable between Māori and non-Māori. The data shows that Māori have an overall 30-day emergency laparotomy mortality of 8.8% compared with 5.5% in non-Māori.

We analysed the emergency laparotomy mortality data to identify inequities that might exist in surgical health between Māori and non-Māori at three different levels.

1. Inequities in exposures and life opportunities contribute to higher mortality at younger ages in Māori

Large differences in socioeconomic deprivation and age at procedure between Māori and non-Māori reflect inequities in exposures and life opportunities that impact Māori health.

- Half of all Māori who had emergency laparotomies lived in the most socioeconomically deprived areas (lowest NZDep2013[2] quintile) and have 57% higher mortality than non-Māori living in the same areas. In the multivariable model, socioeconomic deprivation accounts for 25% of the excess mortality in Māori, indicating there are larger systemic issues that need to be addressed.

2 The New Zealand Index of Deprivation (NZDep2013) is an area-based measure of socioeconomic deprivation using variables from the Census of Population and Dwellings 2013.

- The average age of Māori having emergency laparotomies is 10 years younger than non-Māori. Even at young ages, Māori have a higher mortality rate, demonstrating a higher burden of disease at younger ages in Māori.

In an equitable system, Māori and non-Māori would have the same socioeconomic privileges and live to a similar age. In the absence of this equity, Māori who have emergency laparotomies and who have high socioeconomic deprivation and are aged 40 or upwards should be considered high-risk patients and receive the care they need to have outcomes equitable to non-Māori.

2. Inequities in access to health care contribute to higher Māori mortality

Large differences in access to elective surgery, access to primary care, ED attendance and Charlson Comorbidity Index (CCI) between Māori and non-Māori reflect inequities in access to health care, particularly the ability to financially and physically access appropriate health care.

- Māori have 21% more emergency laparotomy operations than non-Māori, indicating that Māori have reduced timely access to elective abdominal surgery. This is an issue because emergency surgery is an independent risk factor for death and likely contributes to increased mortality.
- In the 90 days prior to having emergency laparotomy, Māori are 40% more likely to have presented to the ED. In the group of patients who had been to the ED, Māori had a 71% higher mortality rate than non-Māori after emergency laparotomy.
- Māori have an overall higher burden of comorbidity. The most common comorbidities are diabetes, smoking and cancer. In the multivariable model, comorbidities account for 25% of the excess mortality in Māori compared with non-Māori.

In an equitable system, Māori and non-Māori would have the same access to elective surgery; Māori would not need to go to the ED more often; and Māori would have the same access to the social determinants of health as non-Māori. In the absence of this equity, Māori with diabetes and with weighted CCI of > 3 should be considered high-risk patients and receive the care they need to have outcomes equitable to non-Māori.

3. Inequities in quality of care

We do not have enough information in our data set to ascertain whether Māori are dying at a higher rate because of the potential differences in the quality of health care they receive. The Australian and New Zealand Emergency Laparotomy Audit – Quality Improvement (ANZELA-QI) project will thoroughly investigate emergency laparotomy quality of care.

Applying an 'equity lens' to improve Māori surgical health

Aotearoa New Zealand has historically followed a 'one size fits all' approach to health care policy, service design and delivery based on Pākēhā European norms and values, including fundamentally, the way in which 'health' itself is defined. This narrow definition of health often does not reflect indigenous and minority populations needs or definition of health and wellbeing, and who do not share the same norms and values. For example, funding prioritisation and resourcing decisions, and the location of services, are being made by the majority and drive the resulting inequitable outcomes for indigenous and minority populations. Māori health discourses also recognise the pivotal role of environment and additional external influences that impact on health and wellbeing, such as socioeconomic oppression and racism.

Māori understandings of health and wellbeing extend beyond those of the physical, mental and emotional dimensions of the individual to recognise the importance of spiritual wellbeing and the central role of whānau (family) health, as detailed in the model Te Whare Tapa Whā.[3] It describes four dimensions or cornerstones of Māori health and wellbeing: tinana (physical health), hinengaro (mental and emotional health), wairua (spiritual health) and whānau (family).

3 Durie M. 1994. *Whaiaora – Māori health development*. Auckland: Oxford University Press.

The Meihana multidimensional model of clinical practice helps health providers understand causes of health inequities between Māori and non-Māori.[4] This model integrates cultural competencies into clinical assessments and interventions with Māori and their whānau, expanding on Te Whare Tapa Whā to include two additional elements: taio (the physical environment of the clinical service) and iwi katoa (societal structures that impact organisational capacity). The role of the clinician is to identify the patient's beliefs, values and experiences within a Māori context. This allows the clinical team to explore past and present influences and impacts of whānau, wairua, tinana, hinengaro, taiao and iwi katoa on the patient's health and make appropriate treatment decisions accordingly.

Practical steps you can take

What this means to you as a clinician

In your role as a health care professional, best practice when providing care to Māori patients and their whānau includes:

- listening carefully to patients and whānau and understanding what is important to them
- reflecting on and being self-aware of any biases, attitudes, assumptions stereotypes and prejudices that may be contributing to a lower quality of health care for Māori, and within the policies and procedures in place across your health organisation that may be further perpetuating inequitable health outcomes for Māori
- a commitment to establishing, maintaining and enhancing your cultural competence to provide culturally safe care
- better understanding the experience within the health system for Māori, including:
    - acknowledging a differing worldview from your own and te ao Māori (Māori worldview), including its tikanga, cultural practices and protocols
    - gaining an awareness of the experience of colonisation and its influences on health and illness for Māori and its ongoing effects
- providing the highest level of care by making senior clinicians available for procedures
- continuing to check in with the patient and their whānau, acknowledging their concerns and answering their questions. Whānau know best
- acknowledging hauora (overall physical, mental, emotional, environmental and spiritual health) and making available Māori health pastoral care from within the hospital to provide additional support to your patients and their whānau during consultations with clinicians.

What this means for patients and whānau

We know patients and whānau have extremely important roles to play in supporting the overall health, hauora of their family member.

Patients and whānau can expect that they will be:

- listened to without judgement
- included in management of their own health care
- given answers to their questions and concerns for them and their whānau.

Patients and whānau can advocate for:

- a CT scan to be made available prior to the procedure
- a proactive health care management plan to meet the needs of the patient and whānau
- an assessment before the surgery of the risks of the surgery and any risk of death

4 Pitama S, Robertson P, Cram F, et al. 2007. Meihana model: a clinical assessment framework. *New Zealand Journal of Psychology* 36(3): 118–35.

- surgery to be offered within an appropriate timeframe
- both a consultant surgeon and consultant anaesthetist provide input prior to surgery
- a senior surgeon and anaesthetist to be present during the operation especially if the patient is high risk
- the admission to a critical care facility following surgery (noting there is a high risk of sepsis and intravenous antibiotic administration needs to be administered within 60 minutes prior to incision)
- patients and whānau to be given the opportunity to discuss appropriate goals of care.

'I think all the doctors and nurses are caring, that they do their best. As a Māori patient I just want them to be honest, and to have respect. Because it can feel so rushed in hospital, you do feel like they are just treating you as an illness, not who you are as a whole. I would just like hospital staff to ask, "Is there anything else we can help you with? Is there anything else that is worrying you?" And not just about the reason that they are there for. My great-grandfather signed Te Tiriti o Waitangi, but no one had ever really shown me much manaakitanga – the principle of reciprocity of kindness, respect and humanity. You just want to feel love, and some sort of connection.'

Quote from a patient story – patient in his 60s

Understanding bias in health care

Having biases toward particular groups or individuals can affect their health as they may not get the proactive care they need.

Coordinated by the Commission, in partnership with the Accident Compensation Corporation (ACC) and PHARMAC, Patient Safety Week 2019 encouraged health professionals to learn about and understand bias in health care.

Three learning modules were launched during Patient Safety Week, focusing on:

- understanding and addressing implicit bias
- Te Tiriti o Waitangi, colonisation and racism
- experiences of bias.

The modules are an introduction to bias in health care. They are available online for all health professionals who engage directly with consumers or who influence the way health organisations are managed. The modules come with questions for learning reflections.

The modules are available on the Ministry of Health's LearnOnline platform, and on the Commission's website at www.hqsc.govt.nz/understanding-bias.

Conclusions

Differences in patient health and perioperative mortality between Māori and non-Māori show the current system creates and maintains health inequity, with a strong correlation between mortality and deprivation.

Changes to the health system are required, as well as necessary wider societal changes to address these inequities. The higher burden of comorbidity among Māori needs to be addressed, as higher burden of comorbidity is likely contributing towards Māori having emergency laparotomies younger than non-Māori.

Māori are presenting to their general practitioners and the ED more often than non-Māori prior to emergency laparotomy, yet have a higher mortality rate.

As health professionals, we must all implement the changes necessary to better meet the needs of Māori within our health system. It is the POMRC's aim to drive change in the health system to achieve equity in the surgical health outcomes for Māori. This requires ongoing and substantially improved culturally safe dialogue and communication from clinicians, alongside their patients and whānau, so that all are connecting throughout the patient's journey to wellness. We believe this will benefit all patients.

We have developed recommendations from our eighth report findings to address the changes needed within surgical care, the health system and overall improvements in care.

Eighth POMRC report recommendations | Ngā whakahau o te pūrongo POMRC tuawaru

The following recommendations were informed by data presented in this report, and a review of the international literature.

Improvements to Māori surgical outcomes

Recommendation 1: All surgical departments should commit to having equitable outcomes for Māori, consistent with Te Tiriti o Waitangi.

> *Rationale:* The Waitangi Tribunal Wai 2575 Health Services and Outcomes Kaupapa Inquiry report, *Hauora*, revealed significant differences throughout the health system that need to be addressed. Our report has shown that ethnic inequities (socioeconomic deprivation, comorbidities, complications, and access to elective laparotomies) account for large differences in mortality. These can only be addressed by breaking down racism that is inherent in the system.

Recommendation 2: All surgical departments should review Māori mortality and morbidity outcomes. Where inequities exist, they should consider all aspects of the surgical pathway that may contribute to these inequities.

> *Rationale:* The POMRC recognises that all future hospital protocols need to address differences in socioeconomic deprivation, comorbidities and complications between Māori and non-Māori to ensure outcomes are equitable for all.

Recommendation 3: All surgical staff should undertake training on Te Tiriti o Waitangi, cultural safety and competency.

> *Rationale:* The POMRC endorses the Medical Council of New Zealand (MCNZ) revised statement and resource on cultural safety released on 22 November 2019: *He Ara Hauora Māori: A Pathway to Māori Health Equity.*[5]

Recommendation 4: All hospitals should collect high-quality ethnicity data.

> *Rationale:* High-quality ethnicity data is needed to monitor equity for the health and disability sector.

Recommendation 5: All hospitals should review Māori mortality surgical outcomes within their catchment and be proactive in addressing any differences in access to, and/or quality of, health care between Māori and non-Māori.

> *Rationale:* Our report has shown that ethnic inequities account for large differences in mortality. All hospitals need to implement the changes that are necessary to better meet the needs of Māori and address the inequities identified in this report.

5 MCNZ. 2019. *He Ara Hauora Māori: A Pathway to Māori Health Equity.* URL: https://www.mcnz.org.nz/assets/standards/6c2ece58e8/He-Ara-Hauora-Maori-A-Pathway-to-Maori-Health-Equity.pdf (accessed 25 November 2019).

Recommendation 6: When planning care for emergency laparotomy patients, staff should take into account that Māori have high rates of comorbidity, complications and mortality from 40 years of age onwards.

Rationale: Proactive management plans should be in place for all Māori patients undergoing an emergency laparotomy. The plans should consider age, comorbidities (especially diabetes) and prevention of complications associated with higher mortality (heart failure, severe sepsis, renal failure and pneumonia). For example, Māori patients may require admission to high dependency units or intensive care units at a younger age than their non-Māori counterparts if we are to achieve equity in health outcomes.

Further research and research funding

Recommendation 7: Research institutes should investigate further the factors that contribute to significantly higher Māori mortality in surgery.

Rationale: The majority of perioperative mortality research that has been done with an equity focus has been on heart and cancer operations. The POMRC is interested in seeing more equity research done on other types of surgery.

Recommendation 8: Research institutes should investigate further into why the surgical care system disadvantages Māori, and how this can be rectified.

Rationale: Every surgical study that is focused on equity has shown Māori have higher mortality regardless of the operation studied, indicating the system is not equitable. But little research has been conducted on how this should be addressed. Focus needs to be on how the system can be changed to achieve equity for Māori.

Improvements to surgical care

Recommendation 9: Clinicians should give emergency laparotomy patients and their whānau the opportunity to discuss appropriate goals of care.

Rationale: Clinicians should make patients aware of the likely impacts of their surgery and should give patients the opportunity to discuss their goals and wishes, and to make plans for their life after surgery.

Recommendation 10: The POMRC endorses all National Emergency Laparotomy Audit (NELA) recommendations. The NELA aims to improve the quality of care for patients undergoing emergency laparotomy by providing high-quality comparative data from all providers of emergency laparotomy.

A. All patients presenting to hospital requiring an emergency laparotomy should be offered surgery within an appropriate timeframe.

B. All patients presenting to hospital requiring an emergency laparotomy should receive input from a consultant surgeon and a consultant anaesthetist prior to surgery.

C. All patients presenting to hospital requiring an emergency laparotomy should be assessed for risk of death before surgery.

D. A consultant should be present during surgery for high-risk patients undergoing emergency laparotomy surgery.

E. The highest-risk patients should be admitted to critical care following emergency laparotomy surgery. Highest-risk patients include those with high American Society of Anesthesiologists (ASA) scores, significant comorbidities, high deprivation, complicated diabetes and higher risk of sepsis (which are likely to be experienced disproportionately by Māori and put Māori at higher risk).

F. All patients at high risk of sepsis should receive high-dose intravenous antibiotic administration within the recommended 60 minutes of diagnosis.

Recommendation 11: The POMRC endorses quality improvement in emergency laparotomy undertaken by the Australian and New Zealand Emergency Laparotomy Audit – Quality Improvement (ANZELA-QI) project. The POMRC recommends that ethnicity is recorded as part of the project criteria, and that the ANZELA-QI develops Te Tiriti o Waitangi, cultural safety and competency training as a component of quality improvements.

Rationale: The Royal Australasian College of Surgeons (RACS) and the Australian and New Zealand College of Anaesthetists (ANZCA) have committed to supporting the bi-national, bi-college ANZELA-QI project, and the POMRC is in full support of this project.