Regional vs Metropolitan. Bigger is not always better

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Trauma team activation is used throughout the world to gather the multi-disciplinary teams to meet trauma patients in emergency department (ED) trauma bays, with the aim of providing the best possible treatment for the unwell trauma patient. Trauma teams have been shown to reduce the time to resuscitation, time to computed tomography (CT), time to discharge from the ED and, most importantly, time to transfer to the operating theatre.1-3 Demetriades et al. showed how the introduction of a trauma team resulted in a reduction in mortality of 42.7% for severely injured penetrating trauma patients with an injury severity score (ISS) over 30.4 Teams make fewer mistakes than individuals, but bringing individual experts together does not always promise an effective team. Team performance can be improved through simulation, audit and an attitude for improvement.5

In this issue of the New Zealand Medical Journal, Nonis et al. review whether trauma team activations are associated with a decrease in mortality, and if they improve in-hospital care for major trauma patients. This was a retrospective observational study of all major trauma patients admitted to Christchurch Hospital over two years (2018–2019).6 Of interest, Christchurch Hospital uses a two-tiered trauma activation system, and comparisons are made between the levels of activation and results. This two-tiered system aims to reduce unnecessary involvement of specialist teams and protect this limited resource for more serious cases. Nonis et al. showed that the Christchurch Hospital Trauma Team Activation system is associated with reduced time to diagnostic imaging and definitive management in surgery of major trauma patients presenting to Christchurch Hospital. Also of interest is the under-triage and under-diagnosis of older adults with major trauma who have significantly higher mortality and morbidity.6

A recent paper by Lynham et al. published in this journal reviewed what is happening in New Zealand by comparing rural and metropolitan hospitals and, in particular, they looked at trauma call activation criteria and the role of the anaesthetists in trauma calls.7 This paper surveyed all New Zealand hospitals, and found that 75% have a trauma team and a trauma call criterion; however, there is a wide variation in the number of team members and in team composition. For instance, anaesthetists were only involved in 50% of trauma teams throughout the country and in some hospitals, there was a change in the team composition after hours, with a more junior team dealing with complex trauma patients.

Logistics within the rural and regional centres of New Zealand mean that a pragmatic approach to trauma team make-up needs to be undertaken. Regional centres do not always have onsite anaesthetists after hours, which is when most trauma team activation occurs.8 They are also often lacking an on-call intensivist.

However, the smaller workforce means that the team attending the trauma call are more likely to be known to each other, and their familiarity with each other’s skill sets can lead to better team synergy and communication.9 As Lynham et al. states that smaller trauma teams with between 5–8 members may be more effective, and that regional centres are advantaged in this respect, typically with smaller numbers of staff available to attend.7

Most trauma teams have general surgeons as the surgical representative. In regional hospitals, the general surgeons are more acclimatised to being generalists and this can be advantageous. These generalists are used to managing thoracic injuries and traumatic brain injuries through necessity, as they have no onsite capability from sub-speciality colleagues.

Trauma nurse coordinators/nurse specialists are key team members in 71% of the trauma teams in hospitals around New Zealand.7 The roles and titles vary between institutions, with most hours per week spent on data collection, case management and clinical activities, which includes attending trauma calls in ED within hours and often taking an active role as part of the trauma team. This allows the trauma nurse specialist to have an overview for the entire patient journey; this helps with coordination of care of the trauma patient from “door to discharge”. The current

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goal for the Major Trauma Network is to grow the trauma nursing workforce to be comparable and more standardised across national centres.\textsuperscript{10}

The papers by Nonis et al. and Lynham et al. raise the questions of who should make up trauma teams, what is the optimum number team members, and what activates a trauma call in the different institutions.\textsuperscript{6,7} This leads nicely into further standardisation of what leads to mandatory and discretionary trauma calls. Junior staff move between institutions and regions as part of their training. National standardisation would lead to increased clarity of when to activate the team across all institutions and reduce confusion.

Major metropolitan trauma centres have taken this trauma activation one step further with the Code Crimson—this is relatively new to New Zealand (and is not touched on by Nonis et al.). There is scope for a review on how this is functioning within units in the major metropolitan centres of New Zealand, as this is offered in some of our bigger trauma centres, but not all major trauma centres. The aim of Code Crimson is to gather a consultant-led team in the ED to tend to trauma patients with life-threatening haemorrhage.\textsuperscript{11}

By having senior medical officers (SMOs) in the trauma bay, the hope is to ensure a faster, more streamlined passage of getting the patient through to the operating theatre or interventional radiology for definite treatment. Since its introduction in Christchurch Hospital, we have seen an improvement in consultant engagement in trauma needing urgent treatment. This will hopefully lead to a general improvement in outcomes for our trauma patients. Criteria need to be standardised within all major trauma hospitals, requiring a timeline for establishing a Code Crimson protocol.

Nonis et al. shows that trauma team activation is essential in improving outcomes. We need national consistency with good rural systems and metropolitan centres adopting comprehensive trauma systems, with trauma calls and admission services.
COMPETING INTERESTS
Nil.

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