Te Niwha

Research Project Impact Case Study

REMAP-CAP – identifying novel therapeutics for severe seasonal influenza while preparing for the next global influenza pandemic

Short Research Title

Finding the best treatments for severe influenza

Key researchers

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Introduction

Research purpose

Seasonal influenza causes significant morbidity and mortality, especially for Māori and Pacific peoples. However, the optimal management of patients hospitalised with severe influenza is not known. An influenza pandemic looms large as a potential future threat and investment in understanding the optimal treatment of season influenza could deliver benefits for patients and healthcare systems when an influenza pandemic does occur.

Research approach

REMAP-CAP (Randomised, Embedded, Multi-factorial, Adaptive Platform Trial for Community-Acquired Pneumonia) REMAP-CAP is an adaptive learning healthcare platform for evaluation and implementation of therapeutics for hospitalised patients with acute respiratory tract infections. In contrast to conventional randomised clinical trials, REMAP-CAP's innovative design allows new clinical questions to be answered quickly, efficiently, and at low cost. Clinicians from Aotearoa have key leadership roles in the global study that spans multiple continents with ~300 active sites. We seek to identify the optimal combination of treatments for patients with severe seasonal influenza while simultaneously remaining prepared for the next influenza pandemic.

Alignment with Te Niwha

REMAP-CAP was founded to provide capability to respond to novel serious infectious diseases threats, rapidly identifying effective (and ineffective) therapies. A global influenza pandemic is the most likely infectious disease threat facing New Zealand. A focus on seasonal influenza, with preparedness for an influenza pandemic, achieves Te Niwha's vison of preparedness for both current and future infectious diseases challenges. REMAP-CAP is uniquely well-placed to generate evidence in relation to therapeutics for future pandemic threats and can do so with leadership from Aotearoa. REMAP-CAP embodies the vision of Te Niwha, as set out in the charter: a collaborative research network that is recognised nationally and internationally as 'strong, prepared, and unified'.

Results

There are 3 key components of the Te Niwha-funded REMAP-CAP influenza research.

The *influenza antiviral domain* comparing no antiviral to oseltamivir and baloxavir is open in several countries globally with recent active recruitment in the northern hemisphere including 621 participants as at Feb 2025. Eight ICU sites are active in Aotearoa New Zealand with 39 participants. No statistical triggers have yet been reached and adaptive analyses continue every 3 months. Expansion of this domain to local ward recruitment will occur for this coming winter season.

The *corticosteroid domain* evaluating hydrocortisone for all causes of severe pneumonia requiring intensive care and dexamethasone for hospitalised patients requiring oxygen. No conclusion has yet been reached for the efficacy of corticosteroids in influenza. Locally, we will also be expanding this domain to ward recruitment for the 2025 season.

The *influenza immune modulation domain* evaluating tocilizumab and baricitinib in severe cases of influenza requiring intensive care opened globally in Aotearoa in late 2024 with a small number of participants recruited so far.

In the event of an influenza pandemic we can immediately commence recruitment to evaluate the efficacy of these treatments.

Impact

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The health, well-being and social impacts and benefits of REMAP-CAP research can be seen at participant, patient, workforce, and system levels. Trial participants potentially benefit through the global application of response-adaptive randomisation. Non-trial patients with severe respiratory infections benefit as evidence efficiently accrues on the optimal management of severe respiratory infections. Local REMAP-CAP investigators benefit from the shared knowledge and relationships afforded by the large international REMAP-CAP network. Lastly, REMAP-CAP embeds research into usual care creating a learning health system that breaks down barriers between clinical practice and clinical research to improve the delivery of public healthcare. There is real potential for improved treatment of severe influenza, a costly public health problem, to deliver significant economic benefits. REMAP-CAP's focus is on widely available and typically cheap treatments. Identifying effective treatments will reduce mortality, time in intensive care and time in hospital; identifying commonly used but ineffective treatments will enable disinvestment and cost savings. Investing in seasonal influenza clinical research platforms such as REMAP-CAP avoids the needs for such platforms to be established from scratch when a pandemic occurs, which is inevitably costly, inefficient and less likely to quickly deliver the knowledge needed for such a public health emergency.

Conclusion

REMAP-CAP is a global adaptive platform trial, with leadership from Aotearoa, that will continue to evaluate influenza antivirals, corticosteroids, and immune modulator therapies until we have established the optimal combination of treatments for patients with severe influenza.

Future directions

With our network of international collaborators, we are well-placed to evaluate new treatments for seasonal influenza, by adding new domains or interventions to the study, and to evaluate treatments during the next influenza pandemic.