

## EDITORIAL

# Editors' welcome

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Welcome to Issue 39 of the New Zealand Medical Student Journal (NZMSJ), Te Hautaka o nga Akonga Rongoa. This issue celebrates big data and digital health research in medicine: a topic that is currently reshaping the practice of medicine and the future of healthcare. From artificial intelligence to wearable technologies and electronic health records, digital innovations are transforming the ways we diagnose, treat, and monitor patients, offering unprecedented opportunities to improve health outcomes.

For medical students, understanding and engaging with new digital tools is becoming increasingly essential. New tools are not only shaping clinical practice, but the data generated from such technology is also opening new avenues for research, medical education, and patient empowerment. In this issue, you will find contributions that explore the ethical, practical, and technical dimensions of digital health, highlighting both benefits and challenges of integrating digital technologies into everyday medical practice.

We hope this issue inspires you to think critically about the role of technology in medicine, consider how it might influence your future practice, and perhaps even inspire your own research ideas. Big data and digital health are not just trends: they are a fundamental part of the next generation of healthcare. This issue explores the evolving landscape of digital health.

## Overview of articles in Issue 39

In keeping with the big data and digital health theme, this issue features invited editorials from Brett Sumner and his doctoral supervisor Dr Rebecca Grainger; Dushanthi Madhushika and her colleagues and supervisors Rabia Naseer Rao, Muhammad Bilal, A/Prof Gary Cheung, Dr Hiran Thabrew, Dr Partha S Roop, Dr Seyed Reza Shahamiri, and A/Prof Frederick Sundram; and A/Prof Chris Paton. These authors have significant experience in digital health research and publication within Aotearoa New Zealand. We would like to acknowledge and celebrate two of these invited editorials being first authored by PhD students, with the support of their supervisors as co-authors.

In his invited editorial article, Brett Sumner discusses the need to include more digital health education in the medical school curriculum and specifically describes four essential digital health competency domains to be met. He also highlights steps that students can take to develop their digital health competency, such as use of chatbots to create medical case vignettes and virtual patient simulations. Dushanthi Manamalage is a researcher at DeepNet Discovery Network, researching AI-driven speech technologies for early depression detection. In her article she describes the transformation of mental health research and care with the use of big data and artificial intelligence. Such new technologies can support early detection and treatment of depression, autism, and dementia. Finally, A/Prof Chris Paton, Editor in Chief of BMJ Digital Health & AI, and author of the Textbook of Digital Health, reviews the challenges that AI presents to medical

students in a rapidly changing healthcare environment. He advocates for medical students to learn how AI can be best utilised to provide equitable and effective healthcare.

We present a range of academic articles in this issue, some of which reflect the theme of this issue, and all of which will appeal to the medical student audience. Firstly, Jun Wei Chong, a fifth-year medical student at the University of Otago, Wellington, publishes her prize-winning essay on the role of artificial intelligence in dermatology clinics, for which she was awarded the Wilson-Allison Memorial Prize in Dermatology. Her essay describes how AI could be used in dermatology clinics to aid note taking, improve diagnostic accuracy, and personalise patient treatment plans. Sticking with the theme of AI in healthcare, Sam Zaia, a trainee intern from the University of Otago, Wellington, supervised by Dr Mark Huthwaite and Dr Fiona Mathieson, publishes an original mixed-methods study comparing an AI chatbot 'psychologist' to traditional non-generative AI mental health tools. Perceived benefits, limitations, use patterns, and future relevance of the AI chatbot were considered in the study. The chatbot has potential to help improve patient access to mental health resources. However, as Sam describes, there are ethical implications and data privacy concerns associated with use of AI in healthcare.

Siew Wei Han, a fifth-year medical student at the University of New South Wales, Sydney, supervised by Dr George Tang and Dr John Kok, publishes a case report on the diagnostic challenges of differentiating type 1 and type 2 diabetes in an older adult. The case report not only helpfully compares type 1 and type 2 diabetes but also highlights the importance of effective education when starting insulin treatment and the benefits of implementing an automated insulin delivery system. Next, Gary He, a trainee intern from the University of Auckland, together with supervisors Dr Ethan Breinhorst and Dr Lip Koon Ng from North Shore Hospital, present a case report on hepatic echinococcosis, a notifiable disease in New Zealand caused by a zoonotic, parasitic tapeworm infection. The article specifically examines the characteristic CT and ultrasound features of hydatid cysts in an asymptomatic patient. We also have the pleasure of publishing the project abstracts from University of Auckland and University of Otago BMedSc(Hon) students from 2024. Finally, we publish an article on the topic of big data: what do biostatisticians and data managers want you to know about it, in our ongoing Statistics Primer series thanks to the generous support of authors Prof Andrew Gray, Dave Barson, Dr Ari Samaranayaka, Prof Robin Turner, and A/Prof Claire Cameron, from the University of Otago Statistics Department.

## Acknowledgements and concluding remarks

We would like to acknowledge the hard work of the 2025 NZMSJ committee whose members are listed on the previous page. We are also grateful to the ongoing financial support from the University of Otago and the University of Auckland, as well as from the Medical

Assurance Society, The Royal Australian and New Zealand College of Psychiatrists, and Specialty Trainees of New Zealand. Thank you to Prof Frizelle for his continual sponsorship of the Verrall Award. The recipient of this award in 2024 was Reuben He whose work was published in issue 37, titled "Risk factors and treatment window in arteritic anterior ischaemic optic neuropathy: a case study". We would also like to thank our NZMSJ advisory board members for their support of the NZMSJ, as well as our expert reviewers and our student peer reviewers for their contribution to ensuring all articles are of rigorous academic quality (listed on the previous page).

We hope you find the editorials, academic articles, and feature articles of this special issue insightful. The theme for our next issue will be 'perspectives on the future of cancer research', and we encourage you to submit your research work to the NZMSJ in anticipation of this issue.