We publish:

• Original research articles
• Summer studentship research
• Bachelor of Medical Science (Honours) research
• Literature reviews
• Features articles
• Book / app reviews
• Conference reports

Submissions that will be of interest to medical students are invited. Candidates applying onto vocational training schemes after graduation are rated highly by most Colleges if they have published in a peer-reviewed journal previously. Email us at: nzmsj@nzmsj.com for more information.

References

ACADEMIC: ORIGINAL RESEARCH

Student publications in the New Zealand Medical Student Journal: the first fourteen years

Cameron Wells1, Dr Ibrahim Al-Busaidi1
1School of Medicine, Faculty of Medical and Health Sciences, The University of Auckland
2Christchurch Hospital, Canterbury District Health Board

Cameron is a BMedSci(Hons) student at The University of Auckland in the Department of Surgery. He has been involved with the NZMSJ as an author, reviewer, and editor. He is interested in academic general surgery physiology and how to get more medical students involved in research. Ibrahim is a second-year house officer at the Canterbury District Health Board.

Abstract

Introduction: Medical student journals (MSJs) play an important role in supporting students to improve their academic writing skills, gain familiarity with the peer-review process and ultimately publish their work. International literature examining the role of MSJs is scarce, with no published analyses of their outputs or impact on the scholarly activities of medical students. The aim of the current study was to examine the author characteristics and publishing trends in the New Zealand Medical Student Journal (NZMSJ).

Methods: A retrospective analysis of all articles published in the NZMSJ from 2009 to 2017 was performed. Article-related data were collected for student-authored publications, in addition to author, editor and reviewer gender. Univariate analysis was conducted using the chi-squared goodness-of-fit test.

Results: Twenty-four issues of the NZMSJ have been published to date, containing a total of 204 student-authored articles. Published articles were more likely to be authored by clinical students than pre-clinical students (P<0.001). No gender gap was identified in the authorship of articles or overall editorial board positions. However, NZMSJ issues were significantly more likely to have a male Editor in Chief (71% P=0.04).

Conclusion: The NZMSJ provides students with opportunities to publish their work and develop their academic skills. Medical students should be encouraged to submit their academic work for publication in the NZMSJ. Future research should investigate the impact of publication in MSJs on students’ subsequent scholarly activities.

Background

Medical students have made many notable contributions to science throughout history, being responsible for the discovery of heparin, insulin, the sinalloan node, and ether anaesthesia, among others. A broad range of research opportunities currently exist for medical students in New Zealand, including summer studentships, intercalated degrees, and other extracurricular research activities. Multiple studies have shown that New Zealand medical students are capable of successfully publishing research in peer-reviewed academic literature. Despite these successes, many students still face considerable challenges when attempting to publish their work in mainstream medical and scientific journals. Academic publishing can be daunting, arduous, and time-consuming, and may result in demotivating rejections, impacting on students’ confidence and discouraging them from being involved with research in the future.

A number of medical student journals (MSJs) have been established in response to these challenges, and aim to promote academic research and publishing amongst the medical student community. These include the New Zealand Medical Student Journal (NZMSJ), Australian Medical Student Journal (AMSJ),11 and Student BMJ.12 MSJs provide a student-friendly environment for students to publish their work, improve their academic writing skills and gain familiarity with the peer-review process. More than 18 MSJs are published in English across the world with several more in other languages.

The NZMSJ is a student-led journal which is indexed in Google Scholar and primarily publishes academic articles written by medical students.13 The journal was founded in 2003, with the first issue published in 2004, making it one of the longest-running MSJs in existence, and publishes two issues each year. The primary objective of the NZMSJ is to help “medical students make the transition from writing for medical school to publishing quality work in professional journals”. The journal publishes several different types of articles, including academic research (original and review articles), case reports, feature articles (usually opinion or perspective items), and reviews of books, podcasts, documentaries, and other media.

Despite the recognised importance of MSJs in providing a platform for medical students to develop skills and experience in academic publishing, no analysis of articles published in the NZMSJ has formally been conducted to date. Furthermore, the international literature examining the role of MSJs is scarce, with no published analyses of their impact on scholarly activities of medical students.

The aim of this retrospective analysis was to describe and examine the characteristics and trends in publication of student-authored articles in the NZMSJ.

Methods

Search strategy

All published issues of the NZMSJ were retrospectively identified via the journal website.13 Issue 1 of the NZMSJ was published in March 2004, while the most recent edition of the NZMSJ analysed was Issue 24 (June 2017), representing a 14-year period available for analysis.

An article was deemed to be authored by a student if the author biography clearly identified at least one student author. Articles published by medical graduates that were clearly stated as written prior to graduation were included in this definition. Editorials and guest editorials were excluded.

Data collection

Data were collected from previously published issues of the NZMSJ. No attempt was made to contact authors due to the lack of accurate contact details. For each issue, the total number of articles, as well as the number
The proportion of student-authored articles varied from 33% to 85% per issue, although there was no discernible trend over the 14-year period (Figure 1). Likewise, there was no clear trend in the overall number of articles published per year.

### Student-authored publications

Over 237 authors contributed to the 204 student-authored publications. Accounting for students who published more than one article in the NZMSJ, there were 185 unique student authors identified. Of these, 88 were female (48%), and 97 were male (52%) (P=0.01), showing no statistically significant gender gap for authorship in the NZMSJ.

The majority of student-authored articles (92.2%) were written by a single student author. While only one article was identified that did not have a student named as first author (Table 1). Most (73.5%) were authored by clinical medical students, with a clear increase in authorship rates from 2nd to 6th year (P=0.001) (Figure 2). Academic review articles and feature articles made up most of the student-authored publications in the NZMSJ (26% each), while original research and case reports comprised 15% and 18% respectively. Over 90% of student authors were affiliated to either the University of Auckland or University of Otago, with only 15 articles attributed to overseas student authors (P=0.001).

### Statistical analysis

Collected information was entered into a pre-designed Excel sheet. Descriptive statistics were utilised for the majority of the data. Continuous data were expressed as mean ± standard deviation (SD). The X² goodness-of-fit test was used to determine variance from an equally-proportioned distribution for author gender, author year level, and editorial/reviewer gender. A P-value of < 0.05 was considered statistically significant. All analyses were performed using SPSS for Macintosh (Version 22; IBM Corp., Armonk, NY, USA).

### Results

#### Study sample

To date, 24 issues of the NZMSJ have been published, with two being published as a combined release in 2014 (Issue 18/19). A total of 309 articles have been published, of which 204 articles (66%) were authored by at least one student.

The proportion of student-authored articles varied from 33% to 85% per issue, although there was no discernible trend over the 14-year period (Figure 1). Likewise, there was no clear trend in the overall number of articles published per year.

#### Student-authored publications

Overall, there were 237 authors (230 students, 4 non-students) contributing to the 204 student-authored publications. Accounting for students who published more than one article in the NZMSJ, there were 185 unique student authors identified. Of these, 88 were female (48%), and 97 were male (52%) (P=0.01), showing no statistically significant gender gap for authorship in the NZMSJ.

The majority of student-authored articles (92.2%) were written by a single student author. While only one article was identified that did not have a student named as first author (Table 1). Most (73.5%) were authored by clinical medical students, with a clear increase in authorship rates from 2nd to 6th year (P=0.001) (Figure 2). Academic review articles and feature articles made up most of the student-authored publications in the NZMSJ (26% each), while original research and case reports comprised 15% and 18% respectively. Over 90% of student authors were affiliated to either the University of Auckland or University of Otago, with only 15 articles attributed to overseas student authors (P=0.001).

### Table 1. Characteristics of student-authored articles in the NZMSJ, 2004-2017

<table>
<thead>
<tr>
<th>Category</th>
<th>Unaffiliated</th>
<th>Auckland</th>
<th>Otago</th>
<th>Overseas</th>
<th>Not stated</th>
</tr>
</thead>
<tbody>
<tr>
<td>First author only</td>
<td>188 (92.2%)</td>
<td>15 (7.4%)</td>
<td>1 (0.5%)</td>
<td>0 (0.0%)</td>
<td>0 (0.0%)</td>
</tr>
<tr>
<td>Co-author only</td>
<td>1 (0.5%)</td>
<td>0 (0.0%)</td>
<td>0 (0.0%)</td>
<td>0 (0.0%)</td>
<td>0 (0.0%)</td>
</tr>
<tr>
<td>Multiple authors</td>
<td>15 (7.4%)</td>
<td>0 (0.0%)</td>
<td>0 (0.0%)</td>
<td>0 (0.0%)</td>
<td>0 (0.0%)</td>
</tr>
<tr>
<td><strong>Stage of study</strong></td>
<td><strong>&lt;0.001</strong></td>
<td><strong>&lt;0.001</strong></td>
<td><strong>&lt;0.001</strong></td>
<td><strong>&lt;0.001</strong></td>
<td><strong>&lt;0.001</strong></td>
</tr>
<tr>
<td>Predoctoral</td>
<td>40 (19.6%)</td>
<td>0 (0.0%)</td>
<td>0 (0.0%)</td>
<td>0 (0.0%)</td>
<td>0 (0.0%)</td>
</tr>
<tr>
<td>Clinical</td>
<td>150 (73.5%)</td>
<td>0 (0.0%)</td>
<td>0 (0.0%)</td>
<td>0 (0.0%)</td>
<td>0 (0.0%)</td>
</tr>
<tr>
<td>Internship</td>
<td>7 (3.4%)</td>
<td>0 (0.0%)</td>
<td>0 (0.0%)</td>
<td>0 (0.0%)</td>
<td>0 (0.0%)</td>
</tr>
<tr>
<td>Other undergraduate</td>
<td>2 (1.0%)</td>
<td>0 (0.0%)</td>
<td>0 (0.0%)</td>
<td>0 (0.0%)</td>
<td>0 (0.0%)</td>
</tr>
<tr>
<td>Not stated</td>
<td>8 (3.9%)</td>
<td>0 (0.0%)</td>
<td>0 (0.0%)</td>
<td>0 (0.0%)</td>
<td>0 (0.0%)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Institution</th>
<th>University of Auckland</th>
<th>University of Otago</th>
<th>Overseas</th>
<th>Not stated</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Type of article</strong></td>
<td><strong>&lt;0.001</strong></td>
<td><strong>&lt;0.001</strong></td>
<td><strong>&lt;0.001</strong></td>
<td><strong>&lt;0.001</strong></td>
</tr>
<tr>
<td>Original research</td>
<td>31 (15.2%)</td>
<td>0 (0.0%)</td>
<td>0 (0.0%)</td>
<td>0 (0.0%)</td>
</tr>
<tr>
<td>Academic review</td>
<td>52 (25.5%)</td>
<td>0 (0.0%)</td>
<td>0 (0.0%)</td>
<td>0 (0.0%)</td>
</tr>
<tr>
<td>Case report</td>
<td>9 (4.5%)</td>
<td>0 (0.0%)</td>
<td>0 (0.0%)</td>
<td>0 (0.0%)</td>
</tr>
<tr>
<td>Feature article</td>
<td>53 (26.0%)</td>
<td>0 (0.0%)</td>
<td>0 (0.0%)</td>
<td>0 (0.0%)</td>
</tr>
<tr>
<td>Book/media review</td>
<td>38 (18.6%)</td>
<td>0 (0.0%)</td>
<td>0 (0.0%)</td>
<td>0 (0.0%)</td>
</tr>
</tbody>
</table>

### Discussion

The NZMSJ provides a medium for New Zealand medical students to publish their academic work in a peer-reviewed journal, with over 200 student-authored articles identified in the current retrospective analysis. No trend in the number of student-authored articles was evident over the 14-year history of the NZMSJ, suggesting the journal has consistently provided opportunities for medical students to publish and develop their academic skills.

### Acknowledgments

The authors would like to thank the NZMSJ editorial team for facilitating this study. The authors would also like to acknowledge all students who have contributed to the NZMSJ over the years.

### References


### Figures

2. Number of articles in the NZMSJ published by medical student year level. P=0.001 for variance from an equally proportioned distribution.
of barriers to publication faced by medical students may facilitate the development of targeted strategies to improve publication rates, and thus further the role of the NZMSJ in publishing the work of medical students from New Zealand and abroad.

Conclusion

The NZMSJ provides medical students with opportunities to publish their work and develop their academic skills. Given that up to two-thirds of medical student research remains unpublished, students should be encouraged to submit their work to the NZMSJ. No gender gap in authorship or editorial board representation was identified, though NZMSJ issues were significantly more likely to have a male Chief Editor. Future work should investigate the impact of publication in the NZMSJ and other MSJs on students’ subsequent scholarly activities.

Conflict of Interest: Cameron Wells is the NZMSJ Academic Editor. This article has gone through a double blinded peer review process applied to all articles submitted to the NZMSJ and has achieved a standard required for publishing. The authors have no other conflicts of interests to declare.

Correspondence: Cameron Wells; cameron.wells@auckland.ac.nz

References

21. van Renterghem, A., Poole, P. Rising levels of New Zealand medical student debt. NZ Med J. 2017;130(1458):9-12.

Abstract

Developing the clinical academic workforce of the future is a priority of international relevance. Despite a number of measures implemented to address this challenge, a small proportion of medical students engage in research. Lack of knowledge of available research opportunities and difficulty finding projects and suitable mentors are key barriers to undergraduate medical research. To date, there is no consolidated source of information on undergraduate research training opportunities and how their outcomes available to medical students in New Zealand. Based on a comprehensive review of the published and grey literature and the authors’ personal experiences of research training activities and challenges facing medical student research involvement are discussed and current knowledge gaps in the literature are highlighted. The article concludes with suggested strategies to help promote research training opportunities and support students through their research experience.

Background

Clinical academics are medical doctors who also undertake research and other academic activities alongside their clinical responsibilities.1 Given their unique combined experiences in research, undergraduate and postgraduate teaching, and other academic activities alongside their clinical responsibilities.1 Clinical academics are medical doctors who also undertake research and other academic activities alongside their clinical responsibilities.1 Given their unique combined experiences in research, undergraduate and postgraduate teaching, and other academic activities alongside their clinical responsibilities.1 Clinical academics are medical doctors who also undertake research and other academic activities alongside their clinical responsibilities.1

Dr Ibrahim Al-Busaidi, Cameron Wells

1. Christchurch Hospital, Canterbury District Health Board
2. Department of Surgery, Faculty of Medical and Health Sciences, The University of Auckland

Stimulating the clinical academics of tomorrow: A survey of research opportunities for medical students in New Zealand

Ibrahim is a second-year house officer at the Canterbury District Health Board. He completed his BMeds(Hons) degree at the Edgar Diabetes and Obesity Research, Dunedin, examining the quality of diabetic foot disease in Oman. His research interests include the epidemiology of diabetes and diabetic foot disease and medical student research. Cameron is a BMeds(Hons) student at the University of Auckland.

In addition to the development of interpersonal and research-specific skills, early student participation in scholarly activities is associated with improved short- and long-term academic productivity. Numerous studies have demonstrated that medical student research activities can regularly result in publications in peer-reviewed medical and scientific journals.1,2,3,5,7 Further, external exposure to research enhances medical students’ confidence in conducting research and improves their critical thinking and literature appraisal skills.3,6 Qualities essential for the practice of evidence-based medicine.

Despite the importance and benefits of undergraduate research, relatively few students participate in scholarly and research activities,1,6-11 In New Zealand, only one-quarter of students are involved in research during their time at medical school.17 International studies exploring perceived barriers to undergraduate research involvement have identified a number of potentially ameliorable factors. As well as time and financial constraints, lack of awareness of available research opportunities and how to get involved in research projects were some of the main barriers cited by medical students.1,12-15 To date, there is no consolidated source of information on undergraduate research training opportunities and their outcomes available to medical students in New Zealand. Challenges facing medical student research involvement are discussed and recommendations are presented in order to promote research opportunities and support students through their research experiences.

Methods

A comprehensive search of the published literature was performed using the MEDLINE database to identify articles relevant to medical student research opportunities in New Zealand. MEDLINE searches were carried out via PubMed in March 2017. The following terms were used alone or in combination: medical student, undergraduate, physician-scientist, academic medicine, intercalated degree, research, publication, New Zealand. The reference lists of identified articles were scanned for additional relevant publications. The websites of the Universities of Auckland and Otago were also searched to attempt to obtain quantitative data about the uptake of undergraduate medical students in New Zealand apart from individual university medical school websites.

Aim

The aim of this review was to present an overview of the research training opportunities, formal and informal, offered at New Zealand medical schools. Based on a comprehensive review of the literature, and the authors’ personal experiences of research training activities and challenges facing medical student research involvement are discussed and recommendations are presented in order to promote research opportunities and support students through their research experiences.