

# Which journals are citing articles from the New Zealand Journal of Medical Laboratory Science?

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## Abstract

**Background:** Citations in scientific articles are references to published articles or works to acknowledge their relevance and relationship to research. The purpose of this study was to determine which articles published in the New Zealand Journal of Medical Laboratory Science have been cited during the last ten years, and by which journals.

**Methods:** The Scopus data base was searched for citations in the last 10 years to the New Zealand Journal of Medical Laboratory Science articles. Articles published in the New Zealand Journal of Medical Laboratory Science cited by other journals were recorded together with the citing journal and year of citation.

**Results:** A total of 37 articles published in the New Zealand Journal of Medical Laboratory Science were cited 57 times in international medical and biomedical journals between 2002 and 2011. About 60% of the citations were in the last 3 years with the largest number of citations in 2011 (n=16).

**Conclusions:** An increasingly significant number of published articles from the New Zealand Journal of Medical Laboratory Science attracted citations in the international medical and biomedical literature with the greatest increase occurring since it became open access early in 2011.

**Key words:** citation, journal, open access, impact factor

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## Introduction

Citations in scientific articles are references to published articles or works. Their prime purpose to the research being published is to acknowledge the relevance of published works of other authors and for the authors to present and discuss the relevance of their research in a concise manner. This allows readers to determine the relationship of the research with the relevant scientific literature by providing information relevant to the Introduction, Methods, and Discussion sections of the research paper.

References in published articles in biomedical journals also play a large role in determining the prestige of the journal that is being cited. More prestigious journals tend to attract and publish better quality articles. The prestige and standing of biomedical journals are indicated by their Impact Factor (IF). The IF was originally developed as a bibliographical tool to help librarians determine which journals in a specific field would be best subscribed to, given that libraries cannot, for cost and space, store every journal in its specific speciality. Nowadays, it is used by journals as a measure of its standing and each year journal editors eagerly await their new IF. It is also used by authors to choose a target journal for their work

and by university promotion committees and research granting agencies in the belief it provides a reflection of research relevance and quality. The IF of a journal is calculated by dividing the number of citations to articles in that journal over the preceding two years by the number of articles published by that journal in the same time period. However, all citations are counted, including those to letters and editorials, while these types of publications are not included in the number of articles published. There have also been cases where journals have manipulated their IF, such as publishing 'year in review' articles that cite only, and every, article published by that journal in the preceding year.

Not every biomedical or science journal is covered by Thomson Reuters, the commercial publisher who compiles the IF. Currently only about 12,000 out of about 60,000 science journals worldwide are covered. The New Zealand Journal of Medical Laboratory Science is not covered in the IF list. However, it is indexed by a number of important data bases, such as Scopus, Embase, Biosis Citation Index and CINAHL (Cumulative Index to Nursing and Allied Health Literature). That, together with the fact that the New Zealand Journal of Medical Laboratory Science was made open access early last year (1) means that articles published in the journal are widely available and may now be more likely to be cited in international medical and biomedical journals.

The purpose of this study was to determine which articles published in the New Zealand Journal of Medical Laboratory Science have been cited during the last ten years, by which international journals, and to provide a base-line to determine future citations from the New Zealand Journal of Medical Laboratory Science articles.

## Methods

The Scopus data base (2) was searched for the New Zealand Journal of Medical Laboratory Science (or the New Zealand Journal of Medical Laboratory Technology as it was previously known) in references and from 2002 to 2011. Articles published in the New Zealand Journal of Medical Laboratory Science and cited by other journals were recorded together with the citing journal and year of citation. Excluded were articles cited in the New Zealand Journal of Medical Laboratory Science.

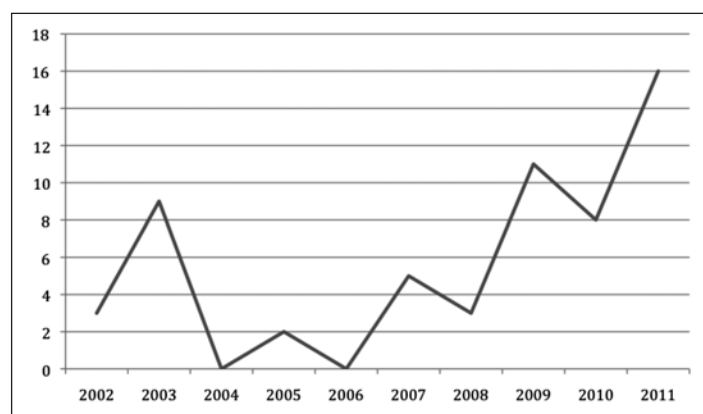
## Results

A total of 37 articles published in the New Zealand Journal of Medical Laboratory Science (or the New Zealand Journal Medical Laboratory Technology) were cited 57 times in international medical and biomedical journals from 2002 to 2011. These articles and citing journals are shown in Table 1.

**Table 1.** Citations to articles in the New Zealand Journal of Medical Laboratory Science in other journals.

1 <sup>st</sup> Author & year	Reference	Citing journal and year
Aitken J. 2000	3	Australian Journal of Medical Science 2003 (2 times)
Akinbo FO. 2009	4	Tanzanian Journal of Health Research 2011
Albert T. 2002	5	Nutricion Hospitalaria 2007
Allan KL. 2003	6	Seminars in Thrombosis and Hemostasis 2011
Baker M. 2007	7	Chinese Journal of Antibiotics 2008 New Zealand Medical Journal 2007
Broad G. 2002	8	Journal of Interprofessional Care 2008
Broadbent JL. 2002	9	Scandinavian Journal of Medical Sciences in Sport 2011 Diabetologie Metabolismus Endokrinology Vyziva 2009 Annals of Clinical Biochemistry 2009
Carter MJ. 1984	10	New Zealand Journal of Zoology 2009
Chotivanich K. 2007	11	Tropical Medicine and International Health 2010 Medical Journal of the Armed Forces of India 2010
Christian C. 2008	12	American Heart Journal 2011
Delahunt B. 2004	13	Pathology 2007 New Zealand Medical Journal 2005
Denholm A. 2008	14	Seminars in Thrombosis and Hemostasis 2011
Donald JJ. 1979	15	Journal of Parasitology 2003 Antimicrobial Agents and Chemotherapy 2003
Dougherty M. 1996	16	New Zealand Journal of Zoology 2009
Elmsly CJ. 1980	17	Journal of Parasitology 2003
Evans G. 2007	18	Journal of Forensic Identification 2010
Fadheel ZH. 2008	19	American Journal of Health-System Pharmacy 2009
Gillespie J. 2003	20	New Zealand Medical Journal 2007
Henry J. 1989	21	Southern Medical Journal 2011 Journal of Clinical Microbiology 2010 Journal of Clinical Pathology 2003
Hewett R. 1999	22	Australian Journal of Medical Science 2003 and 2009
Hills S. 2002	23	Journal of Thrombosis and Haemostasis 2005
Jones LC. 1997	24	New Zealand Journal of Zoology 2009
Jones LM. 2009	25	Metabolism: Clinical and Experimental 2011
Leaver CC. 2004	26	Pathology 2011
Lowrey I. 2005	27	Clinical Laboratory 2008
Millar JR. 2007	28	Foodborne Pathogens and Disease 2011
Nelson W. 2007	29	New Zealand Medical Journal 2011
Newton L. 2006	30	Veterinary Microbiology 2010 Consultant 2009
Omoriegie R. 2008	31	African Journal of Microbiology Research 2011 North American Journal of Medical Sciences 2011 Fooyin Journal of Health Sciences 2010 British Journal of Biomedical Science 2009
Omoriegie R. 2009	32	Tanzanian Journal of Health Research 2011
Povall A. 2009	33	Revista Brasileira de Hematologia e Hemoterapia 2011
Siebers R. 1999	34	Journal of the Medical Library Association 2003 Emergency Medicine 2002
Siebers R. 2000	35	Journal of Minimally Invasive Gynecology 2010 Science Communication 2003 British Journal of Biomedical Science 2002
Sies C. 2006	36	International Review of Neurobiology 2007
Thomas N. 1993	37	International Journal of Laboratory Hematology 2010 and 2011 Pancreas 2010
Walker NK. 1991	38	New Zealand Journal of Zoology 2009 New Zealand Medical Journal 2002
Wood N. 1999	39	New Zealand Journal of Zoology 2009

About 60% of the citations were in the last three years (2009 – 2011) with the largest number of citations in 2011 (n=16). Figure 1 shows the trend of citations for the last 10 years.



**Figure 1.** Number of articles (y axis) in the New Zealand Journal of Medical Laboratory Science (or Technology) cited each year in international biomedical journals.

## Discussion

The prime purpose of citations to published articles is to acknowledge the relevance of that published work. On average, published articles are cited only about once in a 20 year period and about three-quarter of articles are never cited in that period. The most cited article ever is the 1951 paper of Lowry describing the measurement of protein with the Folin phenol reagent (40). This article has been cited more than 200,000 times in the literature.

This study has shown that a number of articles in the New Zealand Journal of Medical Laboratory Science are cited in the international medical and biomedical literature with an increasing trend during the last three years. Indeed, most of the citations were in the preceding year (2011) which is when the New Zealand Journal of Medical Laboratory Science became open access worldwide (1). Whether this is co-incidental will await further analysis over the coming years. Another reason for increased citation over the last three years may be due to the inclusion of the New Zealand Journal of Medical Laboratory Science in the Scopus data base in 1999. Scopus covers nearly 18,500 peer-reviewed publications with references to articles going back to 1996.

About a third of the cited articles have been cited more than once in the preceding 10 years (7,9,11,13,15,21,22,30,31,34,35,37,38) with one of these being cited four times (31). Some of the journals that have cited articles from our journal have a high international standing, such as the American Heart Journal (41) citing the article by Christian (12), Seminars in Thrombosis and Hemostasis (42) citing the articles by Allan et al (6) and Denholm et al (14), Pathology (43) citing the article by Leaver (26), and Annals of Clinical Biochemistry citing the article by Broadbent (9).

The types of articles that attracted citations covered a wide spectrum of medical laboratory science subjects. Clinical/laboratory articles and method/instrument evaluations were the most cited. Thus nine clinical/laboratory articles (4,15,17,19,25,28,31,32,38) attracted 14 citations while eight method/instrument evaluation articles (6,9,10,12,26,27,33,37) attracted 12 citations. However, case studies and review articles were also likely to be cited with five case studies (14,16,21,24,30) attracting eight citations and six review articles (11,18,20,23,27,36) attracting seven citations. Personal opinion or viewpoint articles were also cited (3,7,8,13,22,29).

A limitation of the study is that a number of authors (or co-authors) of published articles in the New Zealand Journal of Medical Laboratory Science self-cited their article in other journals (6,13,14,20,23,29,31,32,35). However, in most cases this is justified

because of similar methodology, opinion, conclusions or related research in the same area.

In conclusion, despite the New Zealand Journal of Medical Laboratory Science not being covered by what is regarded as the two most important data bases for published medical and biomedical articles, namely PubMed (National Library of Medicine, USA) and the Web of Knowledge™ (Thomson Reuters, USA), a significant number of articles attracted citations in the international medical and biomedical literature. This is likely due to two reasons. First of all, the quality of the article is important and the New Zealand Journal of Medical Laboratory Science always has had, and continues to have, a rigorous peer review process to ensure not only that quality articles are accepted for publication, but also that suggestions by reviewers can significantly strengthen an already good submission. Secondly, although not covered by PubMed or the Web of Knowledge™, the New Zealand Journal of Medical Laboratory Science is covered by a number of other quality data bases (Embase, Scopus, Biosis Citation Index, CINAHL) and most importantly, became free access worldwide early in 2011. This is evidenced by the highest number of citations per year over the last decade. It remains to be seen whether this trend will continue.

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## Conflicts of interest

Rob Siebers is the Editor of the New Zealand Journal of Medical Laboratory Science. The handling of this manuscript, selection of independent reviewers and ultimate decision for acceptance was undertaken by the Deputy-Editor. The author had no input in this process or decision.

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