

Minerva Access is the Institutional Repository of The University of Melbourne

Author/s:

Udovicich, C;Soh, B;Law, S;Hoe, V;Lanfranco, D;Perera, K;Duong, C;Chan, S

Title:

Predictive factors for publication of abstracts at the Royal Australasian College of Surgeons Annual Scientific Congress

Date:

2018-01-01

Citation:

Udovicich, C., Soh, B., Law, S., Hoe, V., Lanfranco, D., Perera, K., Duong, C. & Chan, S. (2018). Predictive factors for publication of abstracts at the Royal Australasian College of Surgeons Annual Scientific Congress. ANZ Journal of Surgery, 88 (1-2), pp.39-44. <https://doi.org/10.1111/ans.14108>.

Persistent Link:

<https://hdl.handle.net/11343/293183>

Predictive factors for publication of abstracts at the Royal Australasian College of Surgeons Annual Scientific Congress

Running title: Publication rates of RACS ASC abstracts

Cristian Udovicich MBBS BMedSci^{1,2}, Bryan Soh MBBS¹, Sam Law MBBS¹, Venetia Hoe MBBS¹, Dion Lanfranco MBBS¹, Kalpa Perera MBBS BMedSci^{3,4}, *Cuong Duong MBBS PhD FRACS^{1,5}, *Steven Chan PhD FRACS^{1,6}

1. Department of Surgery, Western Health, Melbourne, Australia
2. Department of Surgery, Alfred Health, Melbourne, Australia
3. Department of Vascular Surgery, Royal Perth Hospital, Perth, Australia
4. Department of Vascular Surgery, Royal Melbourne Hospital, Melbourne, Australia
5. Division of Cancer Surgery, Peter MacCallum Cancer Centre, Melbourne, Australia
6. Western Precinct, Melbourne Medical School, The University of Melbourne

*Equal contribution as supervising author

Figures: 2

Tables: 2

Word count: 1,939 words

Please Address Correspondence to:

Cristian Udovicich

This is the author manuscript accepted for publication and has undergone full peer review but has not been through the copyediting, typesetting, pagination and proofreading process, which may lead to differences between this version and the Version of Record. Please cite this article as doi: [10.1111/ans.14108](https://doi.org/10.1111/ans.14108)

Department of Surgery

Western Health

Cristian.udovicich@gmail.com

Author Manuscript

Abstract

Introduction

A key metric of the research quality of medical conferences is the publication rate of abstracts. The study objective was to determine the publication rate of abstracts presented at the Royal Australasian College of Surgeons Annual Scientific Congress (RACS ASC) and to examine for any predictive factors associated with publication.

Methods

Abstracts presented at the RACS ASC from 2011-13 were analysed. Abstract characteristics such as presentation format, study type, study design, study site, cohort size and author origin were recorded. Abstracts published were identified by a PubMed search using a strict algorithm. Univariate and multivariable logistic regression was used to analyse for predictive factors of publication.

Results

Overall, 1438 abstracts were presented and 423 abstracts (29%) were published. The median time to publication was 15.2 months (IQR 8-26) with 110 in Australasian journals (26%). The median number of citations for published abstracts was 6 (IQR 2-16). After multivariable analysis, publication was significantly associated with prospective study design (OR=1.34, p=0.02), multi-centre study site (OR=1.43, p=0.02), cohort size ≥ 100 (OR=2.00, p<0.001) and New Zealand author origin (OR=1.50, p=0.01).

Conclusions:

Our study demonstrates that less than a third of abstracts presented at the RACS ASC are subsequently published in a peer-reviewed journal. Factors significantly associated with journal publication include prospective studies, multi-centre study, a larger cohort size and New Zealand author origin. Advances in surgery may progress from the preliminary findings of conference abstracts. However only after the rigorous peer-review offered by journal publication should changes in decision-making of patient care occur.

Abstract word count: 246 words

Author Manuscript

Introduction

The Royal Australasian College of Surgeons (RACS) hosts an Annual Scientific Congress with over 1,500 delegates from Australia, New Zealand and overseas attending. The ASC is the eminent surgical research meeting of Australasia and provides an opportunity for the distribution of the most recent scientific findings to surgeons.

The subsequent publication of abstracts is an indicator of the research quality at medical conferences. However with only an abstract to evaluate, the peer-review process for a conference is limited compared to that of a journal. Abstracts often only present preliminary results and therefore the interpretation of their findings can be restricted. It has been observed that there are inconsistencies in data between research presented at conferences and published in a journal.¹ Accordingly, authors of conference abstracts should subsequently aim to be published in peer-reviewed journals in order to communicate their findings to other health professionals and the wider public.

The publication rate of biomedical conferences has been reported in a Cochrane review to range from 8-81%.² However there is limited literature for the RACS ASC. A survey of authors self-reporting abstract characteristics and publication success was performed by Kiroff et al³ whilst Usatoff et al conducted a rigid appraisal of the scientific quality of abstracts.⁴ However both analysed ASCs from about 20 years ago. Srinivasa et al provided a brief commentary on the various study designs presented at more recent ASCs.⁵ Objective data on publication rates has previously not been published.

The aim of our study was to determine the publication rate of abstracts presented at the RACS ASC and to examine for any predictive factors associated with publication.

Methods

Abstracts presented at the RACS ASC from 2011, 2012 and 2013 were included in the study. The list of abstracts were obtained from the relevant supplement published in the Australian and New Zealand Journal of Surgery.

Data derived included the ASC year, category (eg Bariatric, Colorectal), presentation type (oral vs. poster), study type (clinical vs. basic science), study design (prospective vs. retrospective), study site (single-centre vs. multi-institutional), cohort size (<100 vs. ≥100) and author origin (Australia vs. NZ vs. international).

Outcomes

To identify whether an abstract was published, we performed a manual PubMed search using a strict protocol (Figure 1). First, the full abstract title was searched. Second, a shortened version of the abstract title using keywords and the first author was searched. Third, the last author was included instead in the abstract search. Publication was defined if meeting two criteria: 1) at least 1 conclusion in the abstract was included in the final publication abstract; 2) the first and/or the last author of the abstract was also listed as the author of the publication. Two authors independently searched each abstract in December 2016. Any interrater disagreement was reviewed by a panel of all authors.

The time to publication was defined as the data of publication online; not when the manuscript was included in an issue. Abstracts that were published before the conference were recorded as time to publication of zero.

The relevant journal of publication was recorded and separated into Australasian or international. The number of abstracts published in the ANZ Journal of Surgery was also recorded. Citations were determined by a manual search of Google Scholar.⁶

Data was entered into Microsoft Excel (Microsoft, USA). The publication rate was calculated as the proportion of publication to abstracts. Univariate and multivariable logistic regression was performed to identify factors associated with publication. Variables analysed included ASC year, presentation type, study type, study design, study site, sample size and author location. Statistical analyses were conducted using Stata SE 12.0 (StataCorp, USA). Significance of difference was considered at a two-sided P-value of <0.05.

Results

In total, 1,438 abstracts were presented at the RACS ASC from 2011-13. Table 1 shows the characteristics of the abstracts. Regarding abstract characteristics, similar numbers were presented in oral (53%) and poster (47%) forms. Colorectal (14%), Hepato-pancreato-biliary & Upper Gastro-intestinal (10%), General Surgery (9%), Plastics (7%) and Breast (7%) were the most prolific in term of abstract categories. There were a low minority of basic science abstracts (9%) when compared to those that were clinically-oriented (91%). Studies were mostly retrospective (70%), from a single institution (86%) and with a cohort less than 100 (69%). The majority of authors were Australian (67%) with 14% from New Zealand and 19% from countries overseas. Regarding states, New South Wales (25%) contributed the most abstracts followed by Victoria (19%). A considerably higher number of abstracts were presented at the 2012 ASC which correlates with the larger delegate size as this meeting was based overseas in Kuala Lumpur.

Table 1 also shows the subsequent fate of abstracts. By January 2017, 423 abstracts (29%) had been published in PubMed-indexed journals. There was no significant difference in publication rate between the analysed ASCs (29-31%). ASC abstracts went on to published in Australasian (26%) and International (74%) journals. The ANZ Journal of Surgery accounted for 22% of published abstracts. The median time to publication was 15.2 months (IQR 8-26). The median number of citations for abstracts published was six (IQR 2-16). Figure 2 shows the publication rate by author origin. New Zealand had the highest publication rate (39%) followed by New South Wales and Western Australia (both 32%). Of international abstracts, 24% were published. Publication rates by category are shown in Figure 2. Rates were highest in Craniomaxillofacial (52%), Pain Medicine (50%) and Bariatric Surgery (41%). Excluding those categories with less than 50 abstracts, Colorectal (40%), Head & Neck (37%) and Endocrine (35%) had the highest publications rates.

Table 2 shows the predictive factors correlated with publication. On univariate analysis, multi-centre (OR=1.61, $p=0.003$), cohort size ≥ 100 (OR=2.10, $p<0.001$) and authors from New Zealand (OR=1.60, $p=0.004$) were significantly association with publication. After multi-variable analysis, factors significantly correlated with publication included prospective (OR=1.34, $p=0.02$), multi-centre (OR=1.43, $p=0.02$), cohort size ≥ 100 (OR=2.00, $p<0.001$) and authors from New Zealand (OR=1.50, $p=0.01$). There was also a trend towards publication from abstracts presented in oral format (OR=1.24), albeit not significant ($p=0.07$).

Discussion

Overall, 29% of abstracts presented at the RACS ASC from 2011-13 were subsequently published in scientific journals. The publication rate in the present study is considerably lower

compared to 55% reported by Kiroff et al for the RACS ASC in 1994-96.³ This is likely due to methodological differences with only a survey of abstract authors conducted with self-reporting of publication and no external validation. Authors with published abstracts may have been more likely to respond to this voluntary survey as shown by the response rate of 52%. Similar to the present study (26%), a minority of abstracts (34%) were published in Australasian journals. Our findings for a median time to publication of 15.2 months are similar to both Australasian and international studies.^{7,8}

Comparable publication rates of 24% and 35% have been observed for British surgical conferences by Weale et al.⁹ Higher publication rates (53-69%) have been reported by Housri et al for more academically-oriented American surgical conferences.¹⁰ With a similar publication rate to our findings, Australian orthopaedic (31%¹¹ versus 49%¹²) and urology (30%⁷ versus 55%¹³) meetings have decreased rates compared to their American equivalents.

The reasons for differences in publication rates between conferences is difficult to establish. Colorectal research presented at the RACS ASC has been compared to international conferences with most research consisting of single-centre, retrospective studies focusing on operative management.¹⁴ However a lower proportion of prospective and basic science research was observed in the ASC. Additionally, Usatoff et al assessed ASC abstracts for scientific content using a custom scoring form.⁴ Whilst not compared to other international conferences, a mean score of only 49% was attained. Whilst of interest to surgeons at the RACS ASC, abstract categories such as surgical history and medico-legal are generally not aimed for publication and may contribute to a lower publication rate observed.

Significant factors associated with publication included prospective studies, multi-centre studies, a sample size ≥ 100 and abstract authors from New Zealand. A correlation with publication for prospective studies has been observed by many others^{15,16} whilst in the survey by Kiroff et al on the RACS ASC similar publication rates were observed for prospective (57%) and retrospective (51%) studies. Other studies have also demonstrated the correlation with publication for both cohort size^{16,17} and multi-centre studies.^{17,18}

The publication rates for basic science abstracts in the present study (24%) are considerably lower in contrast to most other studies. A very high publication rate (92%) was observed by Kiroff et al and many other studies have demonstrated the association between basic science abstracts and publication.^{15,19} Our results are unexpected as basic science papers are generally presented by those undertaking higher degrees. The decreased publication rate for this aspect in our study may be due to researchers working on many different projects and also due to the differences in study design by Kiroff et al.

Our study observed a higher publication rate for New Zealand abstract authors compared to their Australian counterparts. The publication rate for Victoria and NSW was similar. This is in contrast to urology where Victoria (40%) accounts for the most publications in an aligned journal followed by NSW (23%) and New Zealand (13%).²⁰ A contributing factor is that Victorian academic urologists have double the publication output compared to NSW.²¹

Depending on the subspecialty, there can only be a requirement for RACS trainees to present research with no further undertaking to publish. The undertaking of research not only offers a greater in-depth understanding of specific conditions but also contributes to the selection for admission to surgical training as well as competitive fellowships. The mandatory completion of the

Critical Literature Evaluation and Research (CLEAR) course for all Australasian surgical trainees provides an excellent base on which to develop their research skills and aids to assist on the journey to publication are available.^{22,23} RACS provides excellent research support for both trainees and fellows through scholarships, grants and opportunities.^{24,25} Comparison between trainees and fellows was not possible as this was not specified in the abstracts whilst the parent hospital was generally the only institution specified. In non-surgical conferences, university affiliation has been associated with publication in one study¹⁵ whilst another observed similar publication rates.⁸ Our study demonstrated that multi-centre studies and larger cohorts were more likely to be published. Collaborative efforts by trainees internationally have resulted in high-impact research.²⁶ Australian equivalents for general surgery²⁷ and urology²⁸ have recently been established and the results of these efforts will be excitingly awaited.

There are some limitations in our study. Firstly, our search was restricted to PubMed so there would be some abstracts published in other journals not identified in our search. A PubMed search would also not be able to find abstracts published in other forms such as book chapters, theses or reports. Additionally, there may be some abstracts which are still yet to be published. However with four years after the most recent conference analysed, very few abstracts would be expected to finally be published. A previous study showed that only a further 6.4% of abstracts were published at the 5-year interval that were not after three years.²⁹

Our study demonstrates that less than a third of abstracts presented at the RACS ASC are subsequently published in a peer-reviewed journal. ASC abstract factors significantly associated with journal publication include prospective studies, multi-centre studies, a larger cohort size and author origin from New Zealand. Publication rates are not the only way to evaluate a conference with

alternative metrics such as social media being utilised more recently.³⁰ Advances in surgery may progress from the preliminary findings of conference abstracts however only after the rigorous peer-review offered by publication in a journal should changes in decision-making of patient care occur.

Author Manuscript

References

1. Dundar Y, Dodd S, Williamson P, Dickson R, Walley T. Case study of the comparison of data from conference abstracts and full-text articles in health technology assessment of rapidly evolving technologies: does it make a difference? *Int J Technol Assess Health Care*. 2006;22(3):288-94.
2. Scherer RW, Langenberg P, Von Elm E. Full publication of results initially presented in abstracts. *Cochrane Database Syst Rev*. 2007;(2). doi:10.1002/14651858.MR000005.pub3.
3. Kiroff GK. Publication bias in presentations o the Annual Scientific Congress. *ANZ J Surg*. 2001;71(3):167-171.
4. Usatoff V, Waxman B. A critical evaluation of free paper abstracts accepted for the 1996 RACS Annual Scientific Congress. *Aust N Z J Surg*. 1997;67(1):45-46.
5. Srinivasa S, Hill L, Yu T-C, Hill A. An overview of the Annual Scientific Congress. *ANZ J Surg*. 2011;81(1-2):100-101. doi:10.1111/j.1445-2197.2010.05620.x.
6. Google Scholar. Available at: <https://scholar.google.com.au/>.
7. Yoon PD, Chalasani V, Woo HH. Conversion rates of abstracts presented at the Urological Society of Australia and New Zealand (USANZ) Annual Scientific Meeting into full-text journal articles. *BJU Int*. 2012;110(4):485-489. doi:10.1111/j.1464-410X.2011.10879.x.
8. Sanossian N, Ohanian AG, Saver JL, Kim LI, Ovbiagele B. Frequency and determinants of nonpublication of research in the stroke literature. *Stroke*. 2006;37(10):2588-2592. doi:10.1161/01.STR.0000240509.05587.a2.
9. Weale AR, Edwards AG, Lear PA, Morgan JDT. From meeting presentation to peer-review publication - A UK review. *Ann R Coll Surg Engl*. 2006;88(1):52-56. doi:10.1308/003588406X83069.
10. Housri N, Cheung MC, Gutierrez JC, Zimmers TA, Koniaris LG. SUS/AAS abstracts: what is the scientific impact? *Surgery*. 2008;144(2):322-331. doi:10.1016/j.surg.2008.03.011.
11. Harris IA, Mourad MS, Kadir A, Solomon MJ, Young JM. Publication bias in papers presented to the Australian Orthopaedic Association Annual Scientific Meeting. *ANZ J Surg*. 2006;76(6):427-431. doi:10.1111/j.1445-2197.2006.03747.x.
12. Ul Haq MI, Gill I. Observational analysis of BOA free-papers (2001): From presentation to publication and comparison with the American Academy of Orthopaedic Surgeons (AAOS). *Injury*. 2011;42(4):418-420. doi:10.1016/j.injury.2010.12.018.
13. Hoag CC, Elterman DS, Macneily AE. Abstracts presented at the American Urological Association Annual Meeting: determinants of subsequent peer reviewed publication. *J Urol*. 2006;176(6):2624-9. doi:10.1016/j.juro.2006.08.021.
14. D'Souza R, Srinivasa S, Cribb B, Hill L, Hill A. A comparison of the colorectal surgical research across Europe, USA and Australasia. *Color Dis*. 2012;14(9):1145-1151. doi:10.1111/j.1463-1318.2011.02852.x.

15. Winnik S, Raptis DA, Walker JH, et al. From abstract to impact in cardiovascular research: Factors predicting publication and citation. *Eur Heart J*. 2012;33(24):3034-3045. doi:10.1093/eurheartj/ehs113.
16. Wong SW, Crowe PJ. Does presentation at the registrars' papers day predict future publication? *ANZ J Surg*. 2006;76(6):522-525. doi:10.1111/j.1445-2197.2006.03764.x.
17. Massey PR, Wang R, Prasad V, Bates SE, Fojo T. Assessing the Eventual Publication of Clinical Trial Abstracts Submitted to a Large Annual Oncology Meeting. *Oncologist*. 2016;21(3):261-8. doi:10.1634/theoncologist.2015-0516.
18. Miguel-Dasit A, Martí-Bonmatí L, Aleixandre R, Sanfeliu P, Bautista D. Publication of material presented at radiologic meetings: authors' country and international collaboration. *Radiology*. 2006;239(2):521-8. doi:10.1148/radiol.2392050162.
19. Fosbøl EL, Fosbøl PL, Harrington RA, Eapen ZJ, Peterson ED. Conversion of cardiovascular conference abstracts to publications. *Circulation*. 2012;126(24):2819-2825. doi:10.1161/CIRCULATIONAHA.112.120535.
20. Manning TG, Roach TS, Papa N, et al. Urological Society of Australia and New Zealand's alignment with the BJU International : a collaborative success magnified by a supplement journal. *BJU Int*. 2014;114:3-5. doi:10.1111/bju.12916.
21. Woo HH. Academic publishing by senior academics in urology in NSW and Victoria. *ANZ J Surg*. 2014;84(4):296-7. doi:10.1111/ans.12530.
22. Udovicich C, Kasivisvanathan V, Winchester CL. Communicating your research (part 1) - to the scientific community. *J Clin Urol*. 2016:Epub. before print. doi:10.1177/2051415816668941.
23. Critical Literature Evaluation and Research (CLEAR). Available at: <http://www.surgeons.org/for-health-professionals/register-courses-events/skills-training-courses/clear/>.
24. Bennett I, Smith JA, Faulkner K. Translational research and the Royal Australasian College of Surgeons' Foundation for Surgery. *ANZ J Surg*. 86(1-2):8-9. doi:10.1111/ans.13385.
25. Boulton M, Babidge W, Pleass S, Scott D. Looking back at the John Mitchell Crouch Fellowship: the most prestigious research award of the Royal Australasian College of Surgeons. *ANZ J Surg*. 2015;85(10):705-708. doi:10.1111/ans.13229.
26. National Surgical Research Collaborative. Multicentre observational study of performance variation in provision and outcome of emergency appendicectomy. *Br J Surg*. 2013;100(9):1240-52. doi:10.1002/bjs.9201.
27. Queensland Surgical Trainee Collaborative (QUEST). Available at: <http://www.questcollaboration.org/>.
28. Manning TG, Christidis D, Zotov P, Lawrentschuk N. "Collaboration Through Communication": The Young Urology Researchers Organisation (YURO). *BJU Int*. 2016;118 Suppl:6-7. doi:10.1111/bju.13682.

29. De Meijer VE, Knops SP, Van Dongen JA, Eyck BM, Vles WJ. The fate of research abstracts submitted to a national surgical conference: A cross-sectional study to assess scientific impact. *Am J Surg*. 2016;211(1):166-171. doi:10.1016/j.amjsurg.2015.06.017.
30. Udovicich C, Barberi A, Perera K. Tweeting the meeting: A comparative analysis of an Australian emergency medicine conference over four years. *J Emerg Trauma Shock*. 9(1):28-31. doi:10.4103/0974-2700.161655.

Author Manuscript

Table 1: Abstract Characteristics (n=1438)

ASC Year	
2011	368 (26%)
2012	681 (47%)
2013	389 (27%)
Presentation type	
Oral	758 (53%)
Poster	680 (47%)
Study type	
Clinical	1312 (91%)
Basic Science	126 (9%)
Study design	
Prospective	433 (30%)
Retrospective	1005 (70%)
Study site	
Single-centre	1232 (86%)
Multi-centre	206 (14%)
Cohort size	
<100	999 (69%)
≥100	439 (31%)
Author origin	
Australia	967 (67%)
NSW	357 (25%)
VIC	277 (19%)
QLD	120 (8%)
SA	120 (8%)
WA	62 (4%)
TAS	11 (1%)
NT	8 (1%)
ACT	12 (1%)
NZ	195 (14%)
International	276 (19%)
Publication rate	423 (29%)
Time to publication, months (median, IQR)	15.2 (8-26)
Journal	
Australasian ANZJS	110 (26%)
International	92 (22%)
	313 (74%)
Citations, median (IQR)	6 (2-16)

Author Manuscript

Table 2: Factors associated with publication rate

	Univariate Odds Ratio (95% CI)	p value	Multivariable Odds Ratio (95% CI)	p value
ASC Year				
2011	-		-	
2012	1.01 (0.76-1.33)	0.96	1.08 (0.81-1.44)	0.60
2013	1.10 (0.81-1.51)	0.53	1.08 (0.78-1.49)	0.63
Presentation Type				
Poster	-		-	
Oral	1.19 (0.95-1.50)	0.13	1.24 (0.98-1.57)	0.07
Study type				
Clinical	-		-	
Basic science	0.73 (0.48-1.12)	0.15	0.79 (0.51-1.23)	0.50
Study design				
Retrospective	-		-	
Prospective	1.18 (0.93-1.51)	0.18	1.34 (1.04-1.72)	0.02
Study site				
Single-centre	-		-	
Multi-centre	1.61 (1.18-2.18)	0.003	1.43 (1.04-1.96)	0.02
Cohort size				
<100	-		-	
≥100	2.10 (1.65-2.67)	<0.001	2.00 (1.56-2.57)	<0.001
Author origin				
Australia	-		-	
NZ	1.60 (1.16-2.20)	0.004	1.50 (1.08-2.08)	0.01
International	0.77 (0.57-1.05)	0.1	0.80 (0.58-1.10)	0.17

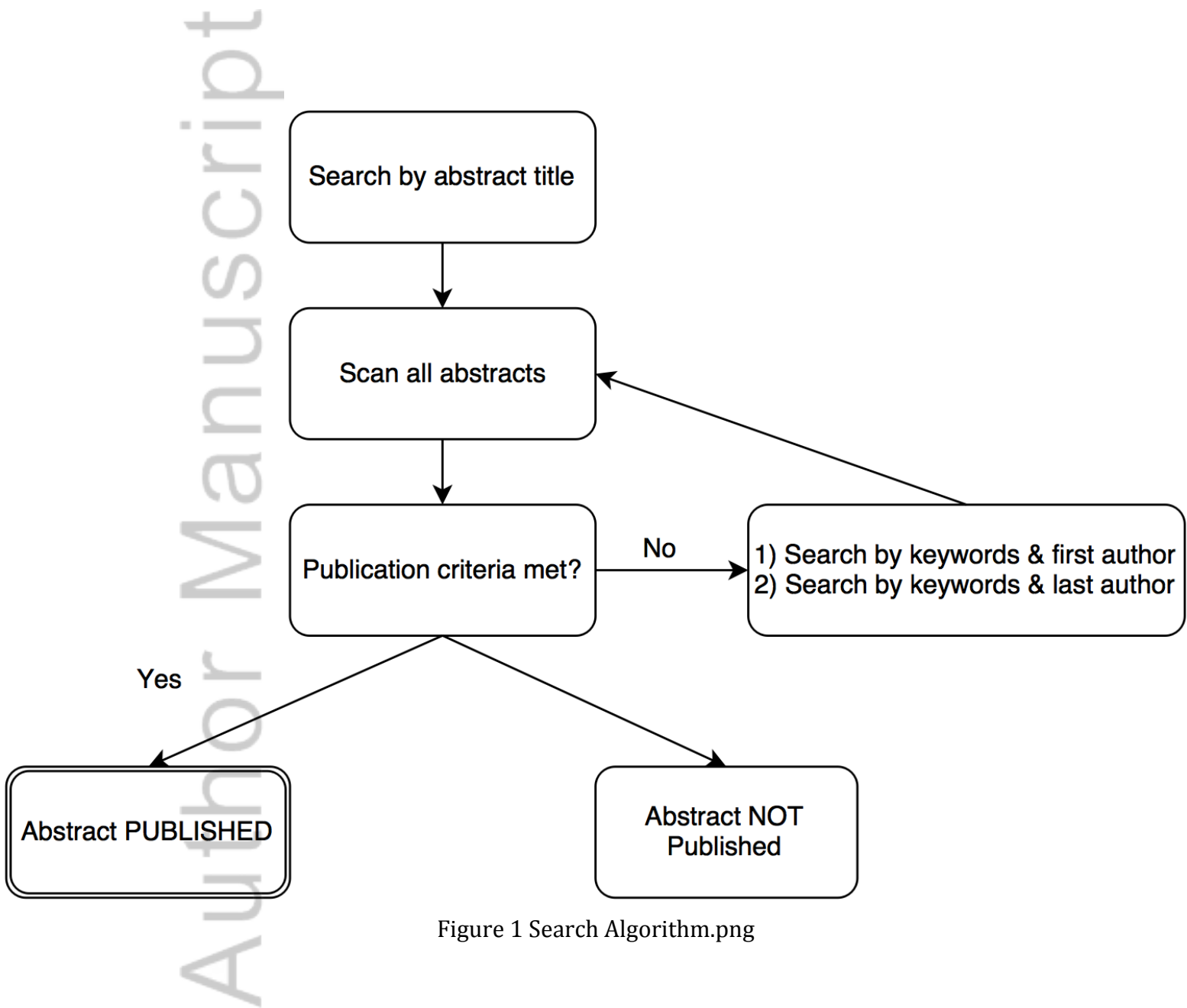


Figure 1 Search Algorithm.png

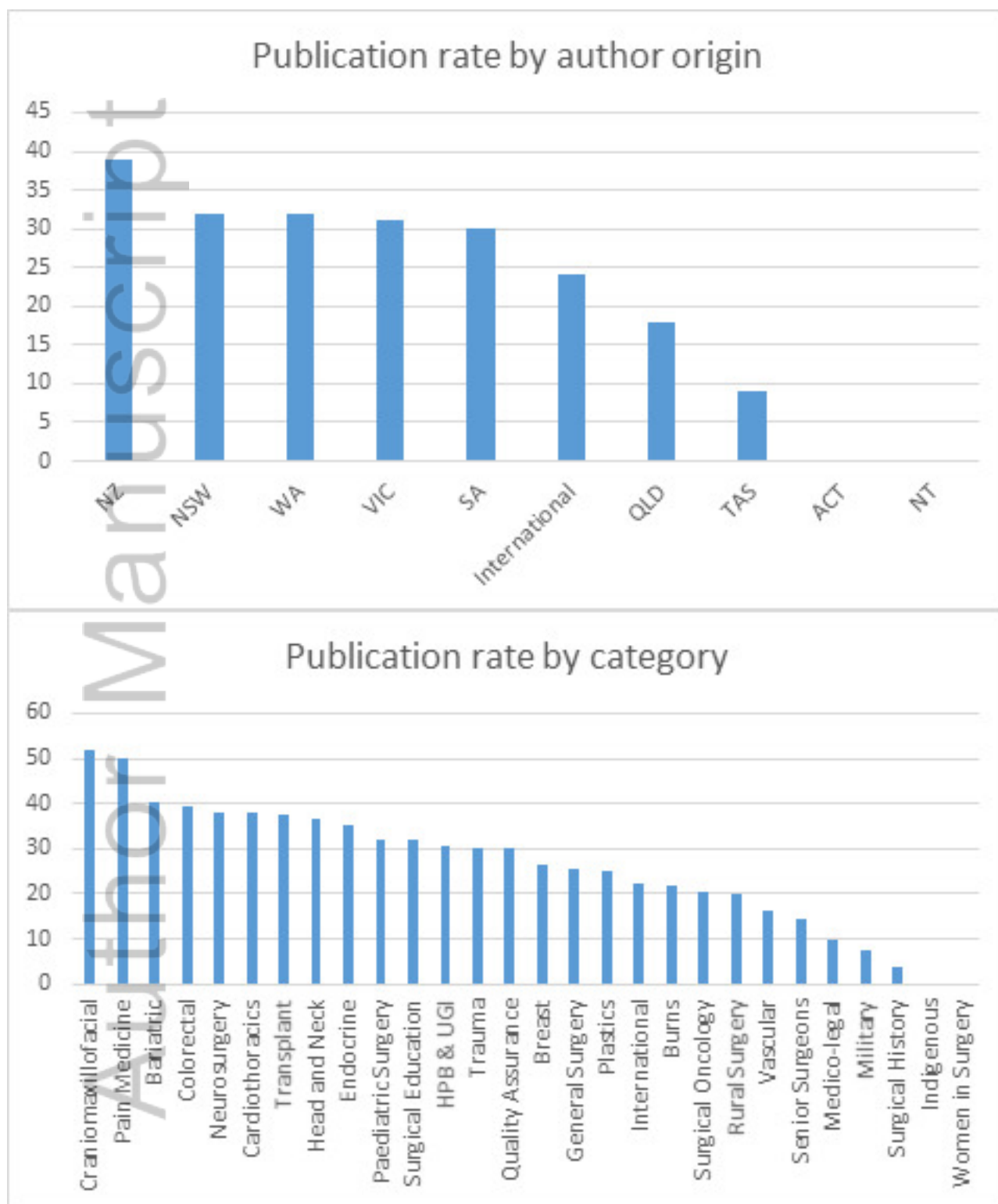


Figure 2 Publication Rates.jpg