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ORIGINAL ARTICLE



Publication rates of abstracts presented at the 2007 and 2010 Canadian Association of Radiation Oncology meetings

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ABSTRACT

Background

We set out to determine the rate, time-trend, and defining factors associated with publication of abstracts presented at two annual scientific meetings of the Canadian Association of Radiation Oncology (CARO).

Methods

All abstracts accepted for oral presentation in 2007 and 2010 were obtained from the CARO program archives and searched using the PubMed database. Variables in the dataset included the year of presentation at CARO and of publication in a scientific journal, time to publication (in months), publishing journal, impact factor of publishing journal, abstract research type (clinical, technical, or basic science) and disease site, country of origin, and university of the first author.

Results

Overall, 88 of 172 abstracts from the 2007 (n = 102) and 2010 (n = 70) CARO meetings were published in peer-reviewed journals (publication rate: 51.2%). Mean time to publication was 18.5 months. Among research types, clinical research (62.5%) and, among disease sites, prostate cancer (40.4%) were most likely to be published. Of all the abstracts, 50.1% were contributed by only 2 universities, a proportion that resembles the overall abstract publication rate of 51.2%. The conversion rate for those 2 universities (51.1%) is very similar to that for all abstracts presented at the two meetings.

Conclusions

Half the abstracts presented at the 2007 and 2010 CARO meetings were ultimately published in journals indexed in PubMed by about 1.5 years after presentation. Half the abstracts and publications came from just 2 universities; more must to be done to close the gap.

KEY WORDS

Abstracts, annual meetings, Canada, conversion rate, radiation oncology

1. INTRODUCTION

The Canadian Association of Radiation Oncology (CARO) is a national association whose annual scientific meeting is attended by radiation oncologists, medical physicists, radiation therapists, and their trainees from across Canada[1]. The meeting is an important platform for exchanging scientific information and hearing about the latest research. Abstracts are submitted and chosen for presentation during the meeting based on a blinded peer review process[2].

The rate of publication of presented abstracts can be viewed as an indirect indicator for the scientific quality of a meeting, because abstracts that proceed to publication as articles have gone through analysis, document preparation, and peer review. Converting presented abstracts into full-text journal articles validates the scientific content of the meeting[3].

Publication rates vary from one meeting to another. In the field of oncology, publication rates have been as high as 78%, such as for the 1985 meeting of the American Society of Clinical Oncology[4]. In radiation oncology, the American Society for Therapeutic Radiology and Oncology (ASTRO) had a publication rate of 56% for the years 1999–2001[5]. The only analysis of a Canadian scientific meeting was related to the Quebec Urological Association; the conversion rate in that report was 56%[6]. Here, we evaluate the publication rate of the oral abstract presentations from the annual CARO scientific meeting for the years 2007 and 2010. We compare the conversion rates for those two years, investigate whether the rate has increased over the years, and identify the determining factors for publication.

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2. METHODS

Using the CARO program archives, we identified abstracts presented at the annual CARO scientific meetings in 2007 (n = 102) and 2010 (n = 70). To reduce the workload, only oral presentations were included. Searches of the PubMed database for full publications of the relevant abstracts were conducted between June 10 and July 4, 2013. First, the primary author and sections of the title were used to search for relevant publications. If no corresponding papers were found, the senior or second author and keywords were used in the search. When a published article was retrieved, the abstract was considered published if a common hypothesis or conclusion and at least one common author was present.

Several variables were entered into a dataset: year of presentation, year of publication, time to publication (months), the publishing journal, journal impact factor [retrieved from the 2012 Thomson Reuters report of journal impact factors (available at http://thomsonreuters.com/)], the submitting university of the first author (cancer centres were grouped with their affiliated university), the country in which the research was conducted (Canada or outside Canada), whether the abstract presented research from a Canadian industry–sponsored grant money competition, and the topic or disease site (for example, prostate cancer, breast cancer). We also classified the abstracts according to their research type (clinical, technical, or basic science—a classification that was somewhat subjective). Comparisons between 2007 and 2010 used the Student t-test. Comparisons of distributions used the chi-square test. All statistical analyses were performed using IBM SPSS Statistics (version 20: IBM, Armonk, NY, U.S.A.).

3. RESULTS

3.1 Acceptance Rate

We identified 172 abstracts presented at the annual CARO scientific meetings in 2007 (n = 102) and 2010 (n = 70). Of those 172 abstracts, 88 were, by July 2013, published in peer-reviewed journals, for a publication rate of 51.2%. The percentage of abstracts published increased only marginally (p = 0.54) from the year 2007 (49.0%) to the year 2010 (54.3%). To correct for a bias in follow-up, we then excluded the 9 abstracts presented in 2007 that were published after more than 36 months. That exclusion reduced the publication rate considerably, although not significantly (p = 0.14), to 43.1%.

3.2 Trend Over Time

The mean time to publication was 18.5 months. The median time to publication was 16.5 months, and 5 abstracts were published before presentation at the conference. The first abstract published was published 10 months before the CARO presentation, and the last abstract published (by June 2013) appeared 4.5 years after the CARO meeting. Of the abstracts that reached full publication, 75% were published within the first 26 months.

3.3 Determining Factors for Publication

We found that most of the abstracts published represented clinical research (62.5%); 26.1% represented technical research, and only 5.7% represented basic science. There were 8 general topics for which at least 10 abstracts were presented: brain (n = 11; conversion rate: 36%), breast (n = 24, 58%), general radiation oncology (n = 12, 42%), gynecologic (n = 16, 38%), head and neck (n = 17, 53%), lung (n = 10, 70%), prostate (n = 43, 53%), and technical subjects (n = 12, 42%).

Clinical subjects had a conversion rate of 60.4%; basic science, 55.6%; technical subjects, 40.4%; and other subjects, 33.3%.

Only two thirds of the abstracts that won industry grant money were published; however, all were published in journals with impact factors exceeding 4.5.

For the CARO meeting, 27 different universities presented abstracts; however, 66.3% of the abstracts came from just 4 Canadian universities: Toronto, British Columbia, Edmonton, and London (Ontario). The percentage of abstracts from the latter universities that reached full publication was in the range 46.7%–58.3%, with 50.1% of those abstracts coming from just 2 major Canadian universities (Toronto and British Columbia). Of the abstracts from those two institutions, 51.1% were published. Overall, 94.8% of the abstracts came from Canadian universities.

3.4 Impact Factor

The mean 2012 impact factor of the publishing journals was 4.9. Figure 1 shows the journals in which the published abstracts appeared. Most of the papers (38%) were published in the *International Journal of Radiation Oncology·Biology·Physics* (5-year impact factor of 4.8). The second most frequent journals for publication (7% of the abstracts for each journal) were the *Journal of Medical Physics, Brachytherapy,* and *Radiotherapy and Oncology* with 5-year impact factors of 3.1, 1.5, and 4.4 respectively. Another 6% of articles were printed in the *Journal of Clinical Oncology,* which has an impact factor of 18.038. The mean 2012 impact factor of the journals in which the abstracts were published was slightly higher in 2010 (mean: 5.39 ± 6.29) than in 2007 (mean: 4.64 ± 4.26); however, the difference was nonsignificant (p = 0.51).

4. DISCUSSION

There are many important reasons why scientific meeting abstracts should be published. First, the

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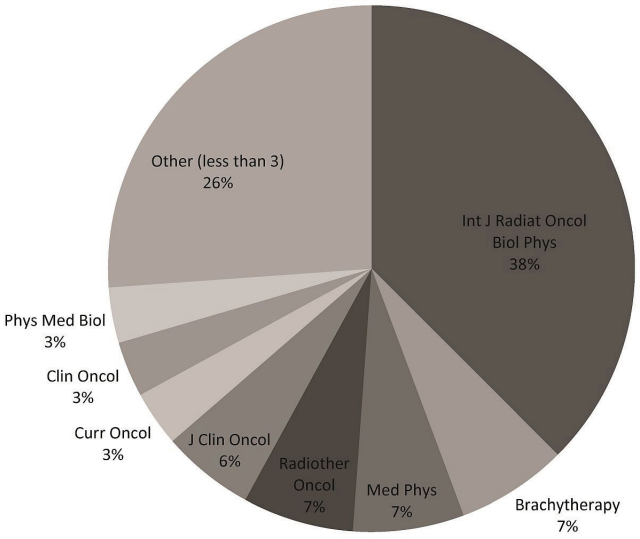


FIGURE 1 Journals in which abstracts presented at the Canadian Association of Radiation Oncology (CARO) 2007 and 2010 meetings were fully published, and percentage of those abstracts published in each journal. Int J Radiat Oncol Biol Phys = International Journal of Radiation Oncology·Biology·Physics*; Med Phys* = Journal of Medical Physics*; Radiother Oncol* = Radiotherapy and Oncology*; J Clin Oncol* = Journal of Clinical Oncology*; Curr Oncol* = Current Oncology*; Clin Oncol* = Clinical Oncology*; Phys Med Biol* = Physics in Medicine and Biology.

publication rate indirectly improves the scientific quality of a meeting. Authors might be pressured to overstate positive results and minimize flaws to achieve acceptance in the meeting review process. Publication therefore validates the scientific quality of abstracts[7]. In addition, if an abstract is published, the research can be publicized and made available to medical professionals; abstracts from conferences such as CARO are not entered into global databases such as PubMed. If the abstracts are not available worldwide, the research might be redone, which is needless—and avoidable if the abstract is published[7]. Furthermore, the publication rate is an important tool to evaluate the quality of abstracts and research done in a country, with higher conversion rates signifying better quality[8].

In all, 51.2% of the abstracts presented at the 2007 and 2010 CARO meetings were published. Few data are available about the publication rates from oncology meetings, and we are aware of only two other studies that have published data specifically relating to the publication rates of radiation oncology meetings. Those two studies reviewed the annual meeting of the Royal Australian and New Zealand College of Radiologists (publication rate of 41%)[9] and the annual ASTRO meeting (publication rate of 56%)[5]. Those rates are similar to CARO's conversion rate and consistent not only with radiation oncology rates but also with rates for other medical fields (Table I). Having a conversion rate similar to that for the international ASTRO meetings is proof of the quality of research conducted in Canada. Although the publication rates for the American Society of Clinical Oncology in 1984 (78%) and ASTRO in 1999–2001 (56%) are slightly higher than CARO's rate, the comparison must be a cautious one because those conversion rate studies are older than the present work, and in the meantime, competition seems to have intensified. It might be more difficult to publish now, because journals have become more selective in recent years. We could not find any mention of a mandatory submission policy for abstracts accepted to the meetings listed in Table I. We know that some societies mandate submission of abstracts presented at the plenary session of their meetings. Because plenary sessions include only a few abstracts, we don't believe that the presence of such a policy would influence the conversion rate of a meeting.

For the present study, we did not contact the authors of the unpublished abstracts to confirm that their abstracts were indeed unpublished. PubMed is the main database used for article searches, and if the article isn't found on PubMed, the abstract is not necessarily available to the public. We chose to examine only two years of abstracts from the CARO meetings, because the process of collecting the data needed for the analysis of publication rate was very time-intensive. We also decided to only include oral presentations, because some researchers found no significant differences in the publication rates of oral and poster publications[3,11,12].

To adjust for the limited follow-up since the 2010 meeting, we eliminated the 9 papers from the 2007 meeting that were published after more than 36 months. We then found that the publication rate was 11.2% higher in 2010 compared with 2007. Given the limited maximum follow-up of 36 months, the 54.3% publication rate for the 2010 meeting might very well be higher with longer follow-up.

Interestingly, about half of all published articles came from just 2 universities. That finding is troublesome, because it points to a large inequality in scientific work. Factors influencing that imbalance could be numerous. Possibilities include the number of fellows or residents, money or other incentives, protected time, and institutional culture. Another factor that has to be analyzed is the ratio of submitted-to-accepted abstracts for each institution. And although abstracts are blinded for evaluation, selection bias might still operate, because some authors might be recognized by their peers despite the blinding. We believe that CARO should put a great deal of effort into correcting this gap.

Another important observation of our research is that very few presented abstracts (n = 9) were characterized as basic research. Modern radiation oncology puts a lot of resources into genetic modifiers of radiation treatment, and more effort should be invested into this area if Canada is to be a leader in the field.

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TABLE I Abstract publication rates for various scientific meetings

Meeting	*Specialty*	*Country*	*Year*	*Abstracts (n)*		*Conversion rate (%)*	*Oral (O) or poster (P)*
				Received	*Published*		
American Society of Clinical Oncology[4]	Oncology	United States	1984	81	63	78	Not stated
American Society of Neuroradiology[10]	Neuro-radiology	United States	1993	Not stated	Not stated	37	O, P
Royal Australian and New Zealand College of Radiologists[9]	Radiation oncology	Australia and New Zealand	1996–1999	Not stated	Not stated	41	O, P
American Urological Association[11]	Urology	United States	1998–2000	4302	1627	37.8	O, P
American Society for Radiation Oncology[5]	Radiology and oncology	United States	1999–2001	802	452	56	O
Association des Urologues du Québec[6]	Urology	Canada	2000–2010	439	248	56	O
British Association of Urological Surgeons[12]	Urology	United Kingdom	2001–2002	449	142	42	O, P
Congress of Neurological Surgeons, and American Association of Neurological Surgeons[13]	Surgery	United States	2003–2005	3827	1243	32.48	O, P
Meetings of 3 North American plastic surgery societies[14]	Surgery	Canada and United States	2003–2007	888	400	45	O
American Society of Pediatric Hematology/Oncology[15]	Hematology and oncology	United States	2005	204	114	62	O, P
Urological Society of Australia and New Zealand[16]	Urology	Australia and New Zealand	2005–2009	614	183	29.8	O, P
Canadian Association of Radiation Oncology (present study)	Radiation oncology	Canada	2007, 2010	172	88	51.2	O

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5. CONCLUSIONS

Of the abstracts presented at recent CARO meetings, 51.2% were published in peer-reviewed journals, with 57% of the published articles appearing in journals with an impact factor exceeding 4.5. The CARO conversion rate closely resembles the high publication rates of scientific meetings in other medical fields. However, research is dominated by 2 Canadian universities; more effort has to be made to close that gap. In addition, molecular research in radiation oncology is not given enough importance.

6. CONFLICT OF INTEREST DISCLOSURES

None of the authors has any perceived bias related to the present work.

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