Letter to the Editor

Scientific papers presented orally at radiology meetings—trends in subspecialty publication rates and adaptations associated with the highest impact factor journal publications

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Journal publication of material presented at medical conferences is vital in propagating research to the global community. The peer review process provides a rigorous assessment and critique of scientific methodology and helps ensure research remains relevant. Therefore, journal publication rates of material presented at meetings is a significant marker of the research quality of the meetings and their participants (1). Impact factors (IF) of journals are determined by dividing the number of citations articles receive by the number of citable articles over a period of time and is considered a marker of the scientific quality of a journal (2). The IF of the journal in which an article is published is therefore a partial marker of the scientific quality of that study.

The European Congress of Radiology (ECR) is the largest annual European radiology meeting and therefore one of the most influential radiology meetings worldwide. Studies have demonstrated the publication rate of abstracts orally presented at ECR 2000 and 2001 to be 47% and 45% respectively (1,3), higher than other radiology conferences (7–39%) (4). There have been no known studies analysing publication rates from ECR or other major international radiology conferences since this data was published. Furthermore, there is a considerable lack of data analysing the research quality of radiology subspecialties. Therefore temporal trends in the publication rates and research quality of radiology subspecialties are unknown. Additionally, there is a lack of studies analyzing which modifications to studies presented at medical conferences are associated with subsequent high quality journal publication. The first purpose of this study was to analyse publication rates from ECR 2010 according to radiology subspecialties, with comparison to analogous data from ECR 2000. The second aim was to assess which modifications to abstracts were associated with subsequent high quality journal publication.

The final abstract programme of ECR 2010 was examined by three authors who identified all orally presented abstracts, and poster presentations were excluded. There were 867 abstracts in total which were categorised into 1 of 16 radiology subspecialties. A computerised search was performed on the MEDLINE database to identify which abstracts were published between years 2010–2014. The presented abstract and published article were analysed for concordance in hypotheses and methodologies. Only articles published between March 2010 (the month of ECR 2010) and December 2014 were included. The following data was collected from each published manuscript; (I) journal of publication; (II) date of publication; (III) IF of the journal. The IF of each journal was obtained from the Science Citation Report on Institute of Scientific Information (ISI) Web of Knowledge Journal Citation Reports (5). Percentage of abstracts published, mean IF and percentage of journals published in the top quartile of IFs were calculated by radiology subspecialty. Our data was

Table 1 Subspecialty publication percentages from orally presented abstracts at ECR 2010

Subspecialty	Total abstracts	Total publications	Publication percentage (%)	Mean impact factor	Top quartile impact factor [%]
Paediatrics	28	18	64	3.5	4 [22]
Chest	55	32	58	3.3	7 [22]
Oncology	34	19	56	3.1	3 [16]
Genitourinary	50	26	52	4.4	10 [38]
Musculoskeletal	72	37	51	3.6	10 [27]
Breast	56	28	50	2.8	0
Safety issues	13	6	46	4.2	5 [83]
Cardiac	84	38	45	3.6	12 [32]
Vascular	60	26	43	3.8	7 [27]
Interventional radiology	77	33	43	2.3	3 [9]
Neuroradiology	86	35	41	3.6	7 [20]
Gastrointestinal	140	55	39	3.4	15 [27]
Head and neck	19	6	32	4.1	2 [33]
Physics	46	14	30	3.1	4 [29]
Quality improvement	10	3	33	1.3	0
Computer studies	32	8	25	1.7	0
Not specified	5	0	0	–	–
Total	867	384	44	–	–

compared to a study examining publication rates from ECR 2000 (1). This study's methodology in terms of published articles was analogous to ours, thus allowing comparison of publication percentages. The follow-up periods were also the same between studies.

The mean number of patients in the study at oral abstract presentation and journal publication was compared, and linear regression was used to assess for a trend between increasing number of patients and IF at publication. Chi-squared test for trend was used to look for association with increased, decreased or same level of collaboration at publication compared with oral presentation abstracts, as well as for a change in number of authors. Publishing journals were split into quartiles according to IF and association with publication in top quartile IF journals according to change in study numbers, authors and collaboration was explored.

Our results demonstrate that between March 2010 and December 2014, 384 from 867 oral abstracts at ECR 2010 were expanded into articles published in MEDLINE indexed journals. This equates to a publication rate of 44%, similar to the study from ECR 2000 (47%) (P=0.28) (1). Our results demonstrate that, relative to data on other radiology conferences, there is a consistently high publication rate of ECR orally presented abstracts. ECR abstracts perform similarly to other specialty specific conferences—for example 21–47% for urology conferences (6-8) and 34–50% for orthopaedic meetings (9,10).

Relative subspecialty publication rates had changed considerably over the 10-year period. Paediatric radiology had the highest publication rate of 64% for ECR 2010 (*Table 1*). This compared to 41% at ECR 2000, where it came 11th (1). Chest (58%), oncology (56%), genitourinary (52%), musculoskeletal (51%) and breast (50%) all had publication rates over 50% at ECR 2010. Computer studies had the lowest publication rate at 25%. Genitourinary studies were published in journal with the highest mean IF of 4.4. Safety issues had the highest percentage of journals in the top quartile of IF publications (5/6 or 83%). Paediatric radiology significantly improved from ECR 2000 to ECR 2010, currently converting 63% abstracts into publications (41% in 2000) (1). The ECR 2000 study also demonstrated high publication rates of thoracic (56%) and breast (55%) centred radiology research (1). The high proportion of abdominal radiology abstracts and publications from our data is also reflected in the literature—one study analysing modalities represented in Radiology over a 10-year period demonstrated abdominal centred radiology studies to be the

most frequent (1,219/6,542); almost twice as much as any other subspecialty (11). One reason for computer studies having such a low publication rate is invariably these types of papers are intended for conference presentation only.

The addition of authors and expanding the level of collaboration were significantly associated with publication in top quartile IF journals (P=0.002 and P=0.028 respectively). However change in patient number did not show a significant association. Studies presented at conferences are often adapted prior to submission for journal publication in an attempt to improve the quality of the research. Whilst the factors associated with acceptance of abstracts submitted to conferences or journals have been assessed (11,12), the modifications of abstracts presented at conferences that predict subsequent journal publication and publication in higher IF journals remain unknown. In this study, the addition of authors and expanding the level of collaboration were significantly associated with publication in higher IF journals. These adaptations can potentially broaden the academic capacity of a paper through increased access to resources and expertise for analysis. However, honorary authorship is an additional factor to consider. This is the practice of including authors who have not met the authorship criteria, and occurs in over 25% of papers according to one study of two major radiology journals (13). One reason for this may be to increasing the chance of publication by collaborating with authors affiliated to specific journals. Interestingly, increasing participants to studies was not associated with publication in higher IF journals. This is perhaps because the abstracts presented at ECR already had high numbers of study numbers (mean of 205) and therefore adding patient numbers did not significantly increase the power of studies.

Our study had some limitations. Firstly, we determined publication status through a MEDLINE search. As MEDLINE focuses on English language journals, articles not published in English will be underrepresented. However, we consider the MEDLINE database to currently be the largest available database of relevant medical and radiological abstracts. Additionally, the MEDLINE acts as a further quality control measure, as a committee selects journals for inclusion on the basis of their scientific policy and quality. Secondly, whilst we took the IF as a surrogate marker of the scientific quality of the journal, it is by no means an absolute determinate of all papers published therein. We used Web of Knowledge Journal Citation Reports to calculate our IF, which has received some criticisms recently (14). These include skewing citations towards established journals and making the journal IF properties being field specific (14). However, we consider this a suitable and recognised objective measure of indexing the research quality of journals.

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Footnote

Conflicts of Interest: The authors have no conflicts of interest to declare.

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