

Where are Italian anesthesiologists and intensive care specialists publishing? A quantitative analysis of publication activity

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ABSTRACT

Introduction: With the continuing worldwide shortage of anesthesiologists, the demands of clinical duties allow very little time for research activities. Every dedicated biomedical center should provide doctors and scientists with the proper environment to facilitate education, clinical practice and research activities and promote publication in international peer-review journals.

Methods: In this observational study, the Scopus database was searched for publications (2004-2009) to identify the most prolific authors among Italian anesthesiologists and intensive care specialists working in Italy. We then identified the journals that most frequently hosted Italian writers.

Results: The top 20 authors published between 30 and 76 papers each (mean 51) in the last 5 years. Intensive Care Medicine (112 papers, 14%), Minerva Anestesiologica (92 papers, 11%), Critical Care Medicine (55 papers, 7%), Journal of Cardiothoracic and Vascular Anesthesia (32 papers, 4%), and European Journal of Anesthesiology (32 papers, 4%) most frequently hosted Italian authors.

Discussion: Despite its obvious limitations such as the choice of a single database (Scopus), the absence of important qualitative indicators (e.g. impact factor, citation index), the inclusion of any type of publication (a letter to the editor or reviews counted like a randomized controlled study) and the possible exclusion of important scholars, this is the most up-to-date and comprehensive attempt to perform a quantitative analysis of publishing in Italy. Each of the 20 indexed Journals that most frequently hosted Italian authors only accepts manuscripts in English and has impact factor.

Keywords: *anesthesia, intensive care, journals, publications, manuscripts, scopus, publishing, information science*

INTRODUCTION

Education, through the dissemination of information, is the most obvious reason for publishing. We want to 'make a difference' in our patients' lives and we can do this through investigating, analyzing, and publishing. We furthermore teach the methods behind designing, analyzing, writing, edit-

ing, and publishing to pass on and extend this dissemination of knowledge. This is especially true in critical care medicine, where there is still a paucity of evidence on how to manage most of the clinical problems commonly encountered in critically ill patients. (1) It would be remiss of us not to include the importance of individual or institutional legitimacy, credibility, visibility, and productivity. Similarly, economics influence publishing, whether it is the pressure from a professor to 'publish or perish', or an institute that needs to garner funds for a research project. Reputation is also an important factor. Our literature search

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failed to identify a quantitative evaluation of publications in Italy. For this reason we decided to identify the most prolific authors in the field of Anesthesia and Intensive Care over the past five years in Italy together with the journals where they published.

METHODS

Italian anesthesiologists and intensive care specialists working in Italy were identified as follows: A) Every Professor of Anesthesiology and Intensive Care Medicine listed in www.cpoar.org (last accessed March 31st 2009); B) All the first and last names of authors who published in *Minerva Anestesiologica* from January 2008 To April 2009; C)

All the present SIAARTI (Società Italiana di Anestesia, Rianimazione e Terapia Intensiva) representatives and all the candidates for the 2009 elections listed in www.siaarti.it (last accessed February 28th 2009); D) Co-authors of the previously identified nominees were identified using Scopus; E) Authors of papers published in international journals were also identified. We obtained a total of 321 names and identified the number of publications from January 2004 to May 2009 as indexed in the Scopus database (www.scopus.com) searching for the surname and initial of the author in the “Health sciences” section under “Authors”. We then identified where the 20 most prolific anesthesiologists were published and the rate of co-authorship. The homonym problem was not easy to solve.

Table 1 - *The most prolific 20 Italian anesthesiologists and intensive care specialists of the last 5 years together with their affiliations.*

Author	Affiliation	N of Indexed papers
Antonelli, Massimo	Università Cattolica Sacro Cuore, Roma	76
Biancofiore, Gianni	Azienda Ospedaliera Universitaria Pisana	40
Casati, Andrea	Università di Parma	65
Citerio, Giuseppe	Azienda Ospedaliera San Gerardo, Monza	39
Conti, Giorgio	Università Cattolica del Sacro Cuore, Roma	46
Crescenzi, Giuseppe	IRCCS Ospedale San Raffaele di Milano	36
Gattinoni, Luciano	Università di Milano	57
Gullo, Antonino	Università di Catania	56
Iapichino, Gaetano	Università di Milano	30
Landoni Giovanni	IRCCS Ospedale San Raffaele di Milano	72
Morelli, Andrea	Università La Sapienza di Roma	50
Ori, Carlo	Università di Padova	49
Pelosi, Paolo	Università dell'Insubria, Varese	54
Pietropaoli, Paolo	Università La Sapienza di Roma	48
Ranieri, V. Marco	Università di Torino	37
Ranucci, Marco	IRCCS Policlinico San Donato	42
Silvestri, Luciano	Azienda Ospedaliera di Gorizia	38
Stocchetti, Nino	Università di Milano	69
Tufano, Rosalba	Università Federico II, Napoli	35
Zangrillo, Alberto	Università Vita-Salute San Raffaele di Milano	74

Figure 1

Where are the 20 most prolific anesthesiologists working.



Our method did not consider the possibility that there might really be two or more distinct authors publishing in anesthesia and intensive care with the same surname/name. Scopus often assigns more than one identity to the same author, considering them as distinct scholars. In the final table we included every author publishing in anesthesiology and intensive care that might not be certainly separated from the best one.

RESULTS

The 20 most prolific Italian anesthesiologists and intensive care specialists of the last 5 years are listed in *Table 1* together with

their affiliations (*Figure 1*). Most of them are from academic institutes. The complete top-50 ranking (in which the 50th published 18 papers in the last five years) is available online on the journal website www.itacta.org (online table only). One out of 20 and three out of 50 of the most prolific authors were female. These 20 authors published 821 manuscripts and only 194 (20%) of these manuscripts were co-authored by other “fast publishing” Italian authors, suggesting that collaborative research could be implemented among Italian researchers. The 20 International Journals that most frequently hosted these authors are listed in *Table 2* and include Intensive Care Medicine (112 papers, 14%), *Minerva Anest-*

Table 2 - The 20 international journals that most frequently host papers from Italian anesthesiologists and intensive care specialists.

Ranking	Journal	N of manuscripts	%
1	Intensive Care Medicine	112	13,6
2	Minerva Anestesiologica	92	11,2
3	Critical Care Medicine	55	6,7
4	Journal of Cardiothoracic and Vascular Anesthesia	32	3,9
4	European Journal of Anaesthesiology	32	3,9
6	Critical Care	28	3,4
7	Anesthesia and Analgesia	23	2,8
8	Transplantation Proceedings	22	2,7
9	Anesthesiology	19	2,3
10	Annals of Thoracic Surgery	18	2,2
11	Paediatric Anaesthesia	16	1,9
12	Current Opinion in Critical Care	14	1,7
12	American Journal of Respiratory and Critical Care Medicine	14	1,7
12	British Journal of Anaesthesia	14	1,7
15	Journal of Clinical Anesthesia	13	1,6
16	Acta Anaesthesiologica Scandinavica	11	1,3
17	Chest	10	1,2
18	Shock	8	1,0
19	European Journal of Cardio Thoracic Surgery	6	0,7
19	Liver Transplantation	6	0,7

esiologica (92 papers, 11%), Critical Care Medicine (55 papers, 7%), Journal of Cardiothoracic and Vascular Anesthesia (32 papers, 4%) and European Journal of Anaesthesiology (32 papers, 4%). Each of the 20 indexed Journals that most frequently hosted Italian authors only accepts manuscripts in English and has impact factor. They deal mostly with anesthesiology (8 journals), intensive care (7 journals) or both (1 journal), surgery (2 journals) or with transplants (2 journals). Notably, some of the total 821 papers were published in the most prestigious journals such as Circulation (5 papers), JAMA (3 papers), NEJM (2 papers), JACC, Internal Medicine and The Lancet (1 paper each).

DISCUSSION

In this study, we identified the most prolific authors among Italian anesthesiologists and intensive care specialists over a five-year period (2004-2009) using the Scopus database. We also focused upon where they published.

New medical information is communicated through international journals.

The number of published articles might be considered a reflection of productivity (2), even though impact factor and citation indexes are considered to be more reliable qualitative guides.

If we do not develop the knowledge, both practical and academic, of anesthesiol-

ogy through research, our specialty might gradually become a simple clinical service or technical department. More than ever we need to train and encourage young investigators and educators and provide them with dedicated mentorship and the necessary resources to allow them to follow their academic career paths, and avoid an overly-developed focus on the simple provision of clinical services. The results of this study suggest that, nowadays, a scholar could publish one paper per month in a peer-reviewed international journal while attempting to publish one paper per year in a top-ranking journal. The low rate of co-authorship indicated by this study among Italian scientists from different institutes highlights the need for more co-operative research, especially between different academic centers (those publishing more).

Our study has numerous limitations. A) We only used the Scopus database. Using other resources, like Web of Science or Pubmed, we might have obtained slightly different results. Nonetheless, Scopus is an excellent database with a wide range of journals. (3) We only identified the most prolific authors without considering impact factor, citations, H indexes and other important scores. Letters to the editor, editorials and review articles had the same importance as randomized controlled trials and original articles in our scoring. We also did not identify the position of the scholars' name (e.g. first or last names are more important than names found in other positions). We might have left out valuable researchers, especially those working at non-academic institutes. Unfortunately, it is impossible to include everyone. Furthermore, we decided to exclude non-anesthesiologists, even when they had published numerous papers in anesthesiology and intensive care journals.

Andrea Casati, associate professor of anesthesiology and intensive care at the University of Parma, passed away in 2007. He was

the most published medical doctor in Italy and his death represented a tragic loss for the anesthesiology community worldwide (4).

CONCLUSION

Although we acknowledge its limitations, this is the most up-to-date and comprehensive attempt to estimate the most prolific authors among anesthesiologists and intensive care specialists working in Italian hospital or universities over a five-year period. On average these authors published one paper per month in peer-reviewed international journals with impact factor, such as Intensive Care Medicine, *Minerva Anestesiologica*, *Journal of Cardiothoracic and Vascular Anesthesia*, and *European Journal of Anesthesiology*.

We confirmed that these authors were mostly from academic institutes and identified the need for more co-operative research between Italian centers.

No conflict of interest exists.

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