

Scientific publications in laboratory medicine from mainland China, Hong Kong and Taiwan: A ten-year survey of the literature

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ABSTRACT

Background: We investigated scientific publications in laboratory medicine originating from mainland China, Hong Kong and Taiwan over the past 10 years.

Methods: The information about articles published in the included journals were determined by computer-searching on PubMed and data were extracted independently and analyzed in relation to the number of articles.

Results: From 2000 to 2009 there were 1166 articles published in laboratory medicine journals from the major Chinese regions (mainland China, Hong Kong and Taiwan). This exceeded Japan, Germany, the United Kingdom and France from 2005 onwards. Also, the number of articles from mainland China exceeded those from Hong Kong and Taiwan from 2004 onwards. The average impact factor (IF) from Hong Kong ranked the first, followed by mainland China, and then Taiwan. Clinica Chimica Acta seems to be the most popular laboratory medicine journal among Chinese authors.

Conclusion: Over the past 10 years, Chinese authors have been more and more active in the field of laboratory medicine. Mainland China seems to have caught up to Hong Kong and Taiwan regarding publication of papers in this field.

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1. Introduction

Laboratory medicine, or clinical chemistry, is defined as the application of biochemistry, chemistry, molecular biology, haematology, immunology, microbiology, virology, and drug measurement to the clinical investigation and the diagnosis, therapy, and monitoring of human disease in body fluids, cells or tissues. It also covers evaluation of diagnostic markers, new reagents and systems, reference materials, and reference values. In general, publications in scientific journals are a reflection of research activity in a country. The past 30 years have seen significant growth in Chinese regions' laboratory medicine. According to the Essential Science Indicators SM (January 1997 to August 2007) [1], China ranked the sixth among the most-cited 146 countries in all fields, but the scientific publications in laboratory medicine from the three major Chinese regions (mainland China, Hong Kong and Taiwan) have not been reported. Therefore, we analyzed the contributions of articles from the three Chinese regions to laboratory medicine research.

2. Materials and methods

2.1. Data sources and searching

We checked the 2008 Journal Citation Reports (JCR) [2] to select the journals related to laboratory medicine. Journals not indexed in PubMed were excluded. Due to the nature of laboratory medicine, scientific articles could be published in professional journals (e.g. *Clinical Chemistry*) or relevant ones (e.g. *Journal of Clinical Microbiology*). The fifteen professional laboratory medicine journals included were *Clinical Chemistry*, *Clinica Chimica Acta*, *Clinical Biochemistry*, *Clinical and Laboratory Haematology*, *International Journal of Laboratory Hematology*, *Clinical and Vaccine Immunology*, *Clinical Laboratory Medicine*, *Journal of Laboratory and Clinical Medicine*, *Clinical Chemistry and Laboratory Medicine*, *Annals of Clinical and Laboratory Science*; *Journal of Clinical Laboratory Analysis*, *Archives of Pathology and Laboratory Medicine*, *Critical Reviews in Clinical Laboratory Sciences*, *Advances in Clinical Chemistry* and *LabMedicine*. The twelve relevant journals included were *Journal of Thrombosis and Haemostasis*, *Blood*, *European Journal of Haematology*, *British Journal of Haematology*, *Journal of Immunological Methods*, *Journal of Clinical Immunology*, *Journal of Clinical Microbiology*, *Clinical Microbiology and Infection*, *Clinical Microbiology Reviews*, *Journal of Antimicrobial Chemotherapy*, *Antimicrobial Agents Chemotherapy* and *Clinical Infectious Diseases*.

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As prescribed previously [3], data searching was conducted as follows. The ISSN (print) and publication date (print) were used to conduct searches in PubMed database in February 2010. Articles originated from mainland China, Taiwan and Hong Kong published during January 2000 to December 2009 in these journals were elicited. The search terms were “China[ad] not Hong Kong[ad] not Taiwan[ad]”, “Hong Kong[ad]”, “Taiwan[ad]” and “0009–9147 or 0009–8981 or 0009–9120 or 0141–9854 or 1751–5521 or 1556–6811 or 0272–2712 or 0022–2143 or 1434–6621 or 0091–7370 or 0887–8013 or 0003–9985 or 1040–8363 or 0065–2423 or 0007–5027 or 1538–7933 or 0006–4971 or 0902–4441 or 0007–1048 or 0022–1759 or 0271–9142 or 0095–1137 or 1198–743X or 0893–8512 or 0305–7453 or 0066–4804 or 1058–4838”. Articles with the first author affiliated with the 3 Chinese regions were considered as research output from the regions. We also searched the articles from the top 5 countries: the United States of America (USA), Japan, the United Kingdom (UK), Germany and France. It is recognized that counting the nationality of each author would be more accurate, however it was noticed that currently many papers originating from the three regions of China have more co-authors from their own region than did papers from other parts of the world. So the data is more reliable than might be supposed with this group of papers and authors.

2.2. Data extraction

The number of articles originating from these countries and regions was examined from the professional laboratory medicine journals. Articles with the first author from the specialty of laboratory medicine from the 3 Chinese regions were identified from the relevant journals. The average impact factor (IF) was calculated using the accumulated IF divided by the accumulated number of articles and the distribution of articles in relation to IF was also examined for the 3 Chinese regions. IF from 2000 to 2009 were published by Thomson Reuters in their JCR. Articles published on the high-impact laboratory medicine journals (IF > 2.000) were also generated. Furthermore, the most popular laboratory medicine journals of the 3 regions according to the publications were determined. Discrepancies were resolved by discussion.

2.3. Statistical analysis

We focused on the trends and scientific impact about the relative contributions of mainland China, Hong Kong and Taiwan. Therefore, only simple descriptive statistics (e.g. sum, average) were provided in this article.

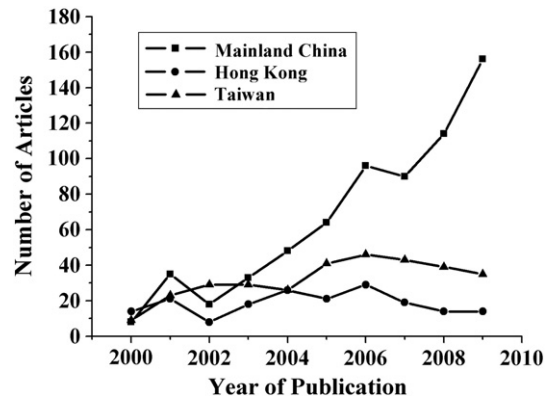


Fig. 2. The number of articles published in laboratory medicine journals from mainland China, Hong Kong and Taiwan during the past 10 years.

3. Results

3.1. Total number of articles

In the selected 15 professional laboratory medicine journals, there were a total of 13,554 articles published from 2000 to 2009 around the world. According to the number of articles, authors from the USA contributed the majority of the papers (66.9%, 9067/13,554 articles), followed by Chinese regions (1166 articles), Japan (1057 articles), Germany (1027 articles), UK (708 articles) and France (529 articles). According to Fig. 1, the annual total number of articles from Chinese regions showed a positive trend and exceeded Japan, Germany, UK and France from 2005 onwards.

There were 662 articles from mainland China published in the 15 journals during the 10 years, 184 articles from Hong Kong and 320 articles from Taiwan (Fig. 2). Since 2003, there had been a substantial increase in the number of articles published from mainland China (from 33 to 156 papers). From 2004 onwards, the number of articles from mainland China exceeded those from Hong Kong and Taiwan.

The selected 12 relevant journals published a total of 1288 articles from Chinese regions between 2000 and 2009. As shown in Fig. 3, Taiwan contributed 504 articles, followed by mainland China and Hong Kong with 468 and 316 articles, respectively. Furthermore, the percentages of articles by authors from the specialty of laboratory medicine were shown in Fig. 4. The authors from Hong Kong ranked the first (28.8%, 91/316 articles), followed by Taiwan (16.3%, 82/504 articles) and mainland China (6.4%, 30/468 articles).

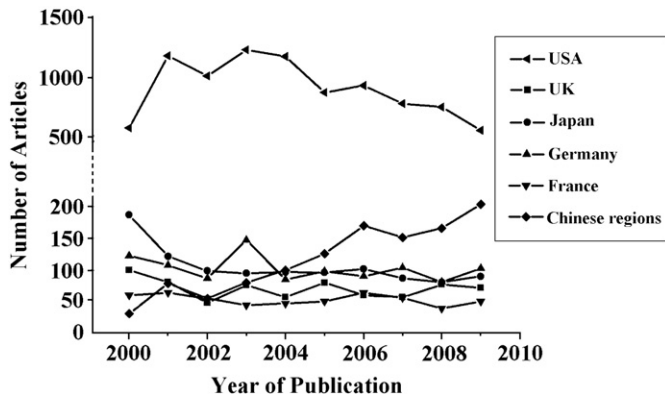


Fig. 1. The number of articles published in laboratory medicine journals from the USA, Chinese regions, France, Germany, Japan and the UK from 2000 to 2009.

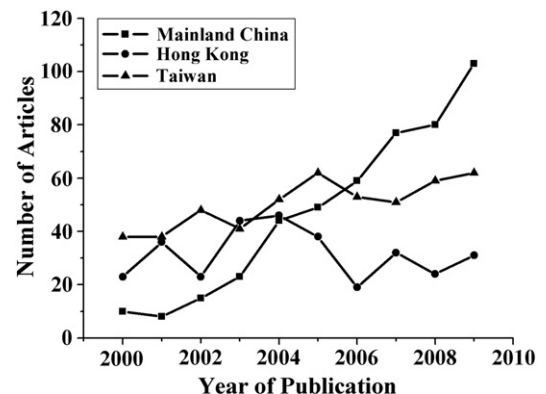


Fig. 3. The number of articles published in relevant journals from mainland China, Hong Kong and Taiwan during the past 10 years.

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