Scientific Output of the University Hospital from the Federal University of Rio de Janeiro. Balance Between Education- and Research-Oriented Publications

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Introduction

The development of the Brazilian scientific and technological infrastructure as well as the training and expansion of the scientific community are recent events when compared with developed nations. In medical sciences, the turning point of this process was the foundation of the Oswaldo Cruz Institute, in Rio de Janeiro in 1900. For decades, this institute was the main Brazilian institution devoted to medical research. (Schwartzman, 1991)

A remarkable expansion in medical sciences research occurred in the late 1980's. But this process was not uniform among the various regions of the country as well as among the two economic and politic leader states, São Paulo and Rio de Janeiro. Following international trends, the Medical School of the University of São Paulo (and its University Hospital) has been involved in teaching, social assistance and research since 1930. Meanwhile, at the Federal University of Rio de Janeiro (FURJ), the first Brazilian university (founded in 1920), medical research was not implemented in its Medical School until the 1990's. The gap in the implementation of medical research between FURJ and USP was a result of many factors, such as the changes in the academic organization of Brazilian universities. This seems to have resulted in a clear separation between clinical and biomedical sciences. At FURJ, the latter was remarkably developed in terms of research through the last decades while clinical sciences continued to be devoted mainly to medical training.

At the end of the 1970's, a university hospital (UH-FURJ) was finally founded at FURJ. At the beginning, the university hospital was closely related to teaching and medical care, without emphasis on research. This policy lasted until 1990, when the Scientific Research Commission (SRC) was settled as a new sector of the UH-FURJ. Since its foundation, SRC has offered financial support to those who publish books, chapters or papers in national or international journals or take part on scientific meetings. It has also established a well-organized system to collect and catalogue information about the scientific literature published by the UH-FURJ academicians.

The present paper analyzes the trends of scientific output of UH-FURJ registered at SRC. The data presented here may not only be useful to follow the establishment of the research activity within a single university hospital, but may also have general implications to understand the meaning of research within an important component of Brazilian medical institutions, university hospitals.

Methods

During the 1990-2002, the SRC registered 1,420 publications. A copy of the database and all publications were kindly provided by SRC to the authors. One by one, we classified all publications according to their visibility as: (1) *with international visibility* – publications written mainly in English and published in journals indexed by one or both of the two international databases, Web Of Science and PubMed, (2) *with some international visibility* – publications written mostly in Portuguese and indexed only by the Brazilian database, Scientific Electronic Library On-line, and (3) *with mostly domestic visibility*, publications written in Portuguese and not indexed by any of the three databases. Around 80% of the publications were also classified according to the pattern (Pincus, Henderson, Blackwood & Dial, 1993)**:** (1) research, (2) review, (3) case report, (4) opinion, (5) books and chapters and (6) others (residual category).

Findings

Visibility and pattern.

For the 1990-2002 period, the number of registered UH-FURJ publications grew from 23 to 116. We have found that 58% these publications were published in journals with *domestic visibility* while

Table 1: Visibility and pattern of the UH-FURJ scientific publications, 1990 – 2002.

Visibility	N	Format	N
International	382	Research	509
"Some" International	216	Books and Chapters	261
Domestic	822	Report	193
		Review	164
		Opinion	1
		Others	81
		NC	211
Total	1,420	Total	1,420

NC = not classified. These articles were registered at SRC but as their originals were not found they could not be classified.

27% were in journals with *international visibility*. For the pattern, 36% of all publications were classified as *research* while 49% were *education-oriented* publications (books, chapters, case reports, reviews, opinion, others)

Publications: for peers or for the local public?
As it is shown in Figure 1A, publications classified as research and those with international visibility increased at a similar rate.

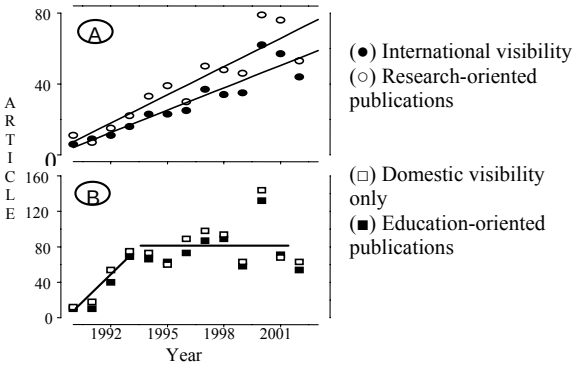

Figure 1: Visibility versus education and research-oriented publications.

A similar tendency was also observed for education-oriented publications, and those with domestic visibility (Figure 1B). The two variables grew markedly from 1990 to 1993 (r = 0.97), tending to stabilize thereafter (r = 0.04), except for an unusual peak in 2000 (excluded from the analysis).

Quality versus quantity
In order to evaluate how the education- and research-oriented publications were distributed inside the institution, the productivity of each sector was analyzed.

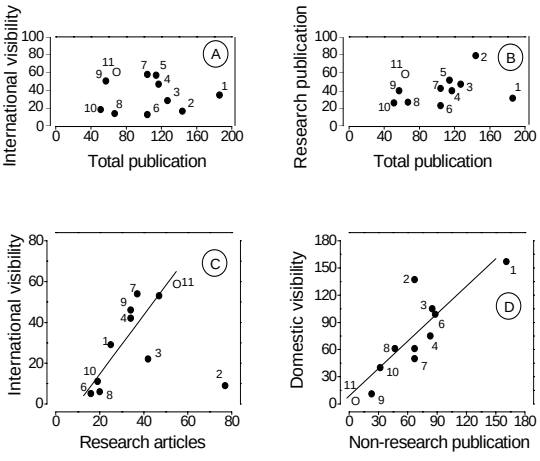

Figure 2: Pattern, visibility and total number of publications from the 10 most productive sectors of UH-FURJ.

The ten most productive sectors share 75% of the total UH-FURJ publications. The relationship between type of publication, visibility and total publications of these sectors is shown in Figure 2. We found a close correlation between research-oriented publications and international visibility (Figure 2C) and between education-oriented publications (non-research publications) and domestic visibility (Figure 2D).

For comparative purposes, the data regarding the scientific productivity of three research laboratories were also added to Figure 2 (number 11). These laboratories were recently set up in the UH-FURJ and are not associated with its specialized clinical sectors. The trend observed for these laboratories definitely exemplifies the trend of productivity expected for a scientific unit.

Conclusions

Brazilian UHs concentrate 86% of the in-house practical medical training (Campos, 1999). Despite such important role, UHs should also be understood as a place where teaching, assistance and research activities are closely related. In the present study, it is clear that the scientific activity within the UH-FURJ is still greatly oriented to education interests. By publishing reviews, case reports and books, its academicians reach students and professionals who are interested on updating their knowledge. Such scenario points out that the teaching activity is strongly consolidate at UH-FURJ.

But, the growing of original articles in international journals can not be disregarded. Although it is a slow increase, it may indicate some changes inside the UH-FURJ research activities towards a more balanced situation among its three main goals, teaching, assistance and research.

The lack of appropriate data on scientific output of other UHs makes it hard to compare our results with others from Brazilian or even foreign UHs. The expansion of this study may clarify the history of medical research in Brazil. It may also outline new strategies to increase research in Brazilian UHs as well as help the country to face new challenges in medicine in which some research techniques routine are required, such as the use of molecular- and cell-based techniques.

Acknowledgments

The authors are grateful to SRC for making its database available. This research was supported by CNPq, FAPERJ and K.U.Leuven/SO&OS.

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