

Editorial

Are we securing our future workforce of physician-scientists in hematology?



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The physician-scientist stands as a pivotal figure in advancing biomedical sciences, characterized by a fusion of robust scientific knowledge with the inherent clinical skills of medical practice¹. In a historical and stringent definition, the physician-scientist is regarded as one who dedicates 80% of their time to research and 20% to clinical duties². It's crucial to recognize that this role surpasses occasional publications or submissions to scientific meetings; at its core, physician-scientists dedicates themselves primarily to scientific inquiry, leveraging clinical expertise to pose questions that not only expand scientific understanding but also address critical clinical challenges. This is achieved through a comprehensive approach that involves basic experimentation, translational research, clinical trials, or data analysis³.

Despite the rapid progress in biomedical sciences and the escalating demand for new therapies, the number of physician-scientists continues to lag behind this growth. The decrease in the proportion of these professionals can be attributed to various factors. The extensive and costly journey required for a professional to understand the disease and its clinical aspects, alongside the entirety of the scientific process, stands out as one of the main reasons why this career is overlooked by young medical students. In addition to this, the low attractiveness of the academic career compared to the private sector, the reduction in funding opportunities and governmental support, and the limited visibility given to physician-scientist role models all contribute to this scenario^{4,5}.

Hematology is a field known for several seminal discoveries that were later expanded to other areas. Therefore, hematology academic services have been closely associated with basic, translational and clinical research. In the Brazilian

context, research in hematology performs well. Between 1980 and 2020, scientists affiliated with Brazilian institutions published 4,186 papers according to the Web of Science database, placing Brazil in 22nd position in terms of the number of papers for the period. This highlights the importance of hematology research conducted by Brazilian scientists⁶.

Although no objective data are available, anecdotal reports from most research-intensive hematology centers in Brazil and in the world show that in recent years it has become more difficult to recruit medical doctors (MDs) for research careers. This represents a problem for the maintenance of the quality of the hematology research in Brazil. Unlike other areas of knowledge, such as the humanities, biological sciences, and exact sciences, which face problems with a lack of vacancies in academia or a lack of scholarships for graduate programs, paucity of academic positions is probably not the main issue here, as we are witnessing less competition for academic positions, even in major research institutions^{5,7}.

This problem cannot be underrated as we cannot rely on academic production from abroad. Despite the quality of science from other countries and the importance of engaging in collaborations for international science, it is necessary for us to have scientific independence and the ability to develop research within our territory. As an example, in this number of Hematology, Transfusion and Cell Therapy there are at least four papers addressing issues for which regional data are important. The papers from Pinheiro, R.F. et al, Garnica M. et al, Cançado, R.D. et al e Viana, M.A. et al published in this edition of "Hematology, Transfusion and Cell Therapy", discuss relevant hematological diseases under the Brazilian perspective⁸⁻¹¹.

The shortage of physician-scientists tends to be heterogeneous within hematology itself. In benign/classical hematology the scenario tends to be more critical, facing greater challenges in the training and retention of this profile of MDs.

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On the other hand, onco-hematology offers a more dynamic scenario permeated with clinical trials, providing at least some minimal exposure of MDs to scientific research⁷. Despite this, it is important to emphasize that scientific training in onco-hematology is still far from ideal for a physician-scientist, and it does not seem appropriate for the training to be linked to the agenda of the pharmaceutical industry.

A relatively high number of solutions have been proposed to overcome this issue. It is important for students to be exposed to scientific practice from the beginning of their education. The inclusion of courses that promote engagement with science and the expansion of undergraduate research programs and scholarships can stimulate students to pursue a scientific career. Additionally, integrated training programs, such as MD-PhD Student Pathway, can contribute to optimizing the training process for physician-scientists, representing an appealing alternative for students seeking to accelerate their educational journey. Recognizing and valuing successful physician-scientists also holds promise as a means to inspire clinical trainees to embrace research endeavors. Additionally, the provision of protected time for research during residency warrants consideration as a viable strategy^{1,5,7}.

The guarantee of maintaining the quality of Brazilian research in hematology depends on the training of professionals capable of reconciling scientific and clinical skills. Universities and research centers have at their disposal a wealth of evidence showing that research is associated with improving the education of their students and professionals, enhancing practical qualifications, and increasing resource acquisition, thus also impacting the institution's reputation¹². What is now needed is to translate this evidence into actions that result in a more attractive path for young hematologists.

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