Debate on the paper by Guimarães

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In this timely article, Reinaldo Guimarães addresses the Brazilian graduate studies system, analyzing its historical origins, evolution, and present interconnections with the health sector and the science, technology, and innovation areas (S&T&I). The co-evolutionary path of Brazil's systems for research and development (R&D) and graduate studies have mainly followed the pattern <graduate studies → research> rather than $\langle research \rightarrow graduate studies \rangle$. As a result, both systems were imprinted with undesirable characteristics that propagated serious distortions such as a lack of interaction with the "demand side" represented by industry, health services, and society.

Borrowing the lens of "national innovation systems", Reinaldo Guimarães calls our attention to another consequence of this "birth defect", amplified by the lack of solid industrial policies not subordinated to the global political and economic power centers: funding for health R&D in Brazil is preponderantly a responsibility of public sources (75%) and not the private sector (23.5%), contrary to the pattern in high-income countries.

Despite some recent actions and policies aiming to correct this situation, e.g. definition of innovation as the central policy thrust in S&T and creation of the Secretariat of Science, Technology, and Strategic Inputs (SCTIE) under the Brazilian Ministry of Health, the challenges remain enormous. Reinaldo Guimarães proposes the path <society → research → graduate studies> as a major vector of change and revamping Capes as a key player in the educational and S&T&I sectors. The path to this "new Capes" would require longoverdue changes such as mobilizing additional categories of evaluators, adopting new performance indicators, and avoiding knowledge compartmentalization into disciplines (I would say moving from Mode 1 to Mode 2 of knowledge production 1).

In my view, this is an important article that will stimulate discussions and actions towards a more responsive national innovation system and better interactions between our educational and health sectors. I would add that some of the necessary changes listed in the article are also being identified currently on a global scale: in the 1980s and 1990s, "health research" and "essential health research" were portrayed as the missing links to equity and development 2, a view not too distant from the "linear model" of Vannevar Bush, which emphasizes the role of basic research as a remote dynamo to development 3,4. Recently, however, the global health focus is moving away from an emphasis on "research", adopting the much broader concept of "innovation systems" used by Reinaldo Guimarães in the analysis and that also underlies the Health Economic Industrial Complex (HEIC) approach 5.

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