

## ORIGINAL RESEARCH

## 20. Publication Rate of Students and Graduates of the Program of Combined Studies in Medicine (PECEM), an MD/PhD program of Mexico

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 [https://www.youtube.com/watch?v=hJlcU1w8oM&list=PL\\_hqNq3xJClaf00Y5bvBcgMmXpgzJxd44&index=5&t=17047s](https://www.youtube.com/watch?v=hJlcU1w8oM&list=PL_hqNq3xJClaf00Y5bvBcgMmXpgzJxd44&index=5&t=17047s)

**Background:** Clinician-scientists play a critical role in bridging biomedical research and clinical practice, offering innovative solutions to the complexity of health challenges worldwide. MD/PhD programs provide a structured pathway for students to simultaneously develop clinical expertise and research skills. While these programs are common in North America and Europe, there are a few in Latin America, like the Program of Combined Studies in Medicine (PECEM) of the National Autonomous University of Mexico (UNAM) that was established in 2011 as one of the first initiatives of its kind in Mexico to integrate undergraduate medical education with rigorous research training, aiming to graduate physicians with both clinical competence and doctoral-level expertise. Evaluating the scientific productivity of PECEM students is essential to understand its contribution to academic medicine and the development of physician-scientists in Mexico.

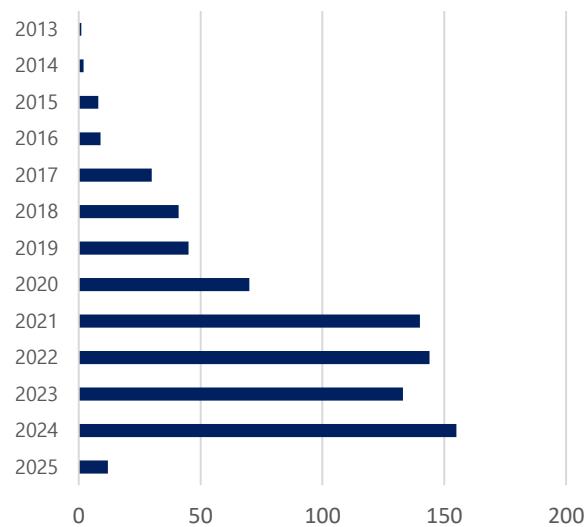
**Methods:** A cross-sectional study was conducted, including all articles published by PECEM students and graduates between 2013 and the first half of 2025. The search was performed in the Scopus database to identify publications authored by program participants. Each publication was examined individually to extract the publication year, journal type (international or national), impact factor of the journal, number of citations, and research topic. Additional demographic data from PECEM enrollment and graduation records were also reviewed. A database was built using Microsoft Excel 2010, and descriptive analyses were conducted to determine publication trends, productivity by generation, thematic distribution, and average citations.

**Results:** Between 2013 and 2025, PECEM students produced 790 original articles. Of these, 749 (94.8%) were published in international journals, while 41 (5.2%) appeared in national journals. The second generation of PECEM students contributed the largest proportion of publications (33.54%). Research topics were diverse, although endocrinology (13.42%) and applied statistics (12.28%) were the most frequent, followed by oncology, infectious diseases, and epidemiology. The average impact factor of journals where PECEM

students published was 4.26, with an average of 17.92 citations per article, underscoring the visibility and academic relevance of their work.

As of 2025, PECEM includes 110 students distributed across 14 cohorts, with 30 graduates who sum up 542 (68.57%) of the articles published. Among them, 9 women (8.18%) and 21 men (19.09%) have successfully obtained both degrees. The program has demonstrated steady growth in student enrollment, accompanied by an increase in research output, particularly notable after 2021, coinciding with the global scientific response to the COVID-19 pandemic.

**Conclusion:** PECEM at UNAM represents an innovative model for integrating clinical training with scientific research at the undergraduate level in Mexico. Its experience demonstrates that it is possible to train physician-scientists capable of making significant contributions to biomedical knowledge and clinical practice. By promoting early scientific productivity, the program helps to reduce the gap in medical publications in Latin America and strengthens the training of professionals with national and international impact. PECEM serves as a reference model for other institutions seeking to expand the role of physician-scientists in Latin America, fostering a stronger future for healthcare systems and the advancement of modern medicine.

**Figure 1.** Articles Published Per Year

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