ISSN: 2091-2889 (online)
2091-2412 (print)

Published: 28 Feb 2026

DOI: 10.54530/jcmc.1821

OPEN ACCESS

Research, writing, and publication initiative for medical and health science students

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Peer reviewed

Abstract

The integration of research methodology and scientific writing into undergraduate medical education is essential for developing physician-scientists responsive to community needs. The Undergraduate Research Writing and Publication (UGRWP) initiative marks a strategic shift from elective participation to structured, mandatory training in Nepal. The editorial outlines the UGRWP framework, which bridges the gap between theory and scholarship through scientific writing mastery, reference management, and ethical training. By institutionalizing this model at Patan Academy of Health Sciences (PAHS), which has been incorporated into undergraduates teaching learning at Chitwan Medical College (CMC), the program addresses systemic barriers such as lack of time and mentorship. Furthermore, it explores the future role of artificial intelligence and global metrics, ensuring graduates remain socially accountable while contributing to the global scientific community.

How to cite

Shah JN. Research, writing, and publication initiative for medical and health science students. Journal of Chitwan Medical College. 2026;16(57):1-5

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Introduction, UGRWP

The evolution of medical education in Nepal has seen a significant move toward competency-based training, originally established in postgraduate programs and now extending to the undergraduate level through the Undergraduate Research Writing and Publication (UGRWP) initiative.[1,2] This shift from elective to mandatory research writing and publication training is essential for developing physician-scientists in developing countries.[2] Such initiatives are fundamentally anchored in the principle of social accountability, ensuring that the academic output of medical schools is directly responsive to local and community health needs.[3]

Evidence from the literature

Multiple studies support the need for such training, as it prepares future physicians to address complex public health challenges through critical thinking and evidence-based inquiry.[4,5] While students often show interest in research electives, their success depends heavily on structured institutional support, dedicated time, and quality mentorship.[6,7] Despite these documented benefits, the transition from student to published author is frequently hindered by systemic barriers, primarily lack of time within the curriculum and insufficient mentorship.[8,9] To address this, structured mentored experiential clinical research programs offer an effective model for institutionalizing a research culture.[9]

The UGRWP curriculum: Bridging the gap

The UGRWP framework bridges the gap between theoretical knowledge and scholarly practice by focusing on reproducible methodology and data-driven inquiry.[10] By providing a clear roadmap, the curriculum helps students overcome publication anxiety and build confidence in their analytical abilities.[11,12]

Career and ethical considerations

Research experiences have become increasingly important for medical school admissions and career development,[11] and integrating such experiences at the undergraduate level prepares students for competitive residency placements and future academic careers. Ethical considerations in research are also emphasized, as undergraduate medical ethics education forms an important component of responsible conduct of research, ensuring that students understand principles of informed consent, confidentiality, and integrity in scientific inquiry.[12]

- **Scientific writing mastery:** Mastery begins with the IMRAD structure (Introduction, Methods, Results, Discussion), a universal format that ensures clarity for authors, reviewers, and readers alike.[12]
- **Reference management:** Hands-on training in tools such as Zotero, Mendeley, or EndNote is emphasized. This is critical not just for organizational efficiency but as a safeguard for academic integrity and the prevention of unintentional plagiarism.[13,14]
- **Researcher identity and ethics:** Students are encouraged to establish a digital footprint via Google Scholar, ResearchGate, and ORCID to track their impact metrics, such as the h-index, from the start of their careers.[15,16] This professional identity is built upon an ethical foundation of informed consent and integrity in scientific inquiry.[17,18]

Institutionalizing the model: From PAHS to CMC

This model was pioneered at Patan Academy of Health Sciences, where research writing training became a mandatory component of the internship curriculum. This institutional shift was supported by leadership from the IRC Chair, journal Chief Editor, and Vice Chancellor's office. Building on this success, the program is now integrated from the third year of MBBS through internship at Chitwan Medical College, covering the full research lifecycle—from proposal development to final publication.[19-21] A unique aspect of this institutionalization is the inclusion of students as editorial assistants in the journal ecosystem (JPAHS/JCMC), providing them with rare behind-the-scenes exposure to peer review and editorial decision-making.[9,21]

The PAHS experience: Founding the model

This approach was institutionalized at Patan Academy of Health Sciences (PAHS), Nepal, through an educational policy. The policy required completion of research writing training workshops mandatory for interns before graduation from medical school.[14] Reflection on the mandatory training workshop for intern doctors on "Research, Writing and Publication" at PAHS demonstrated the feasibility and effectiveness of such an approach in the Nepalese context.[14]

In addition to training workshop, the selected students get opportunity for integration into the journal (JPAHS) ecosystem as editorial assistants. This mentorship model provides students with behind-the-scenes exposure to the peer-review process and editorial workflows, from submission to final decision.[7]

Integration of research and teaching

Integrating research and teaching in medical education presents challenges and strategies, with important implications for healthcare systems in developing and developed countries alike.[15] Successful integration requires institutional commitment, faculty development, and curriculum redesign.[15]

The role of mentorship

Mentoring directly improves students' research skills through information literacy and competency development.[16] Students learn to search literature effectively, critically appraise evidence, manage data, and write scientifically.[16] Engaging undergraduate students in research requires intentional curriculum design and institutional commitment, including protected time, resources, and recognition for both students and mentors.[17]

Future directions and the AI frontier

Looking ahead, the UGRWP initiative aims to create a standardized framework across all health science disciplines, including dental and nursing programs.[22,23] A significant next step is the integration of artificial intelligence literacy. While general models such as ChatGPT are useful for narrative synthesis, newer models such as DeepSeek show superior performance in technical academic writing and citation accuracy, provided they are managed with human oversight.[24] Furthermore, retrieval-based tools such as Perplexity AI or Elicit offer a path for real-time citation discovery, provided they are verified through reference management software.[13,24]

As graduates enter the global research arena, they must navigate global benchmarks such as the quartile system while remaining committed to the DORA principles, which emphasize evaluating research on its own merit rather than solely on journal impact factors.[25-27]

Conclusion

The UGRWP initiative demonstrates that early exposure to research and editorial processes is important for professional development. By transitioning from elective workshops to mandatory, integrated training, institutions can bridge the gap between classroom theory and scholarship. The progression from PAHS to CMC highlights the value of mentoring students, transforming them from passive learners into active knowledge generators. By embedding these practices within a framework of social accountability and equipping students with skills in scientific writing, reference management, and AI literacy, this model establishes a foundation for a sustainable research culture. This may help ensure that future healthcare leaders are equipped to contribute globally while remaining accountable to local health needs in Nepal.

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