

SELECTED ABSTRACTS FROM PUBMED

1. McKay F, Williams BJ, Prestwich G, Bansal D, Treanor D, Hallowell N. *Artificial intelligence and medical research databases: ethical review by data access committees. BMC Med Ethics. 2023 Jul 8;24(1):49. doi: 10.1186/s12910-023-00927-8.*

ABSTRACT

Background: It has been argued that ethics review committees-e.g., Research Ethics Committees, Institutional Review Boards, etc.- have weaknesses in reviewing big data and artificial intelligence research. For instance, they may, due to the novelty of the area, lack the relevant expertise for judging collective risks and benefits of such research, or they may exempt it from review in instances involving de-identified data.

Main body: Focusing on the example of medical research databases we highlight here ethical issues around de-identified data sharing which motivate the need for review where oversight by ethics committees is weak. Though some argue for ethics committee reform to overcome these weaknesses, it is unclear whether or when that will happen. Hence, we argue that ethical review can be done by data access committees, since they have de facto purview of big data and artificial intelligence projects, relevant technical expertise and governance knowledge, and already take on some functions of ethical review. That said, like ethics committees, they may have functional weaknesses in their review capabilities. To strengthen that function, data access committees must think clearly about the kinds of ethical expertise, both professional and lay, that they draw upon to support their work.

Conclusion: Data access committees can undertake ethical review of medical research databases provided they enhance that review function through professional and lay ethical expertise.

Keywords: Artificial intelligence; Data access committees; Ethical expertise; Ethical review; Health data repositories; Medical research databases; Public involvement; Research ethics committees.

2. Ahmed TF, Ahmed A, Humayun Q, Sohail SH, Imtiaz F. *Confronting Challenges: An inductive thematic analysis of barriers and solutions to undergraduate medical research in Pakistan. J Pak Med Assoc. 2023 Aug;73(8):1640-1646. doi: 10.47391/JPMA.7806.*

ABSTRACT

Objective: To qualitatively analyze the barriers in pursuing undergraduate research, and to propose solutions for the problems identified.

Methods: The qualitative study was conducted from May to October 2021 after approval from the institutional ethics review board of the Dow University of Health Sciences, Karachi, and comprised undergraduate students of either gender at various public and private medical universities

across Pakistan having some level of research experience and good communication skills. Data triangulation was employed to collect qualitative data through open-ended survey, face-to-face interviews and focus group discussions. Using the information of one method to inform the rest, linked trajectories were established that allowed validation of information at each level. Data was coded manually by two researchers independently. Data was subjected to inductive thematic analysis.

Results: Of the 33 subjects, 17(51.5%) were males, 17(51.5%) were from private medical colleges, 18(54.5%) were from Karachi, and 11(33.3%) were in the final year of medical school. Overall, 13(39.4%) students completed the open-ended survey, 6(18.2%) completed face-to-face interviews, and 14(42.4%) participated in focus group discussions. Thematic analysis showed that students were interested in research to improve their career prospects, but not all were passionate about it. Students were not satisfied with the quality of research being conducted in the country. Dearth of motivated faculty, unavailability of well-maintained and digitalised data registries, ineffective research methodology teaching and lack of access to medical journals and research software were the major barriers in undergraduate research. Time constraint was a projecting problem which challenged the students. Frequent research workshops and conferences, strong networking, reorienting curriculum to provide early exposure to research and student-led initiatives were suggested to improve undergraduate research in Pakistan.

Conclusions: Students' lack of initiative coupled with administrative and faculty-related issues pose a serious threat to the future of evidence-based medicine. Proposed solutions offer a ray of hope to the future of undergraduate research in Pakistan.

Keywords: Undergraduate medical education, Qualitative research, Focus groups, Interview, Pakistan.

3. Haroon MA, Noorali AA, Khan AS, Hussain MH, Advani R, Sami A, et al. *Implementation evaluation of a medical student-led intervention to enhance students' engagement with research: Findings and lessons learned. PLoS One. 2023 Aug 31;18(8):e0290867. doi: 10.1371/journal.pone.0290867. eCollection 2023.*

ABSTRACT

Introduction: Medical colleges globally have student organizations that serve to enable students' involvement in research. However, details of their approach and activities are seldom published to serve as learning for student organizations in other settings. The Student Research Forum (SRF), a student organization based at a private medical school in Pakistan aims to facilitate students in acquiring research skills. Following the observation of a downward trajectory of student initiative and interest, SRF leadership restructured the organization and improve its impact. This

study describes the development and implementation evaluation of the interventions.

Methodology: The operational framework was revised using the Theory of Change by the core group. Major interventions included enhanced social media and outreach coordination, research workshops, journal clubs, and mentorship to increase research output, mentorship opportunities, and knowledge of medical research; ultimately improving quality in research. The outcomes generated over the course of the study's duration from July 2019 to September 2021 were analyzed using the process metrics of reach, adoption, and efficacy.

Results: As a result of the interventions, SRF expanded its reach by conducting a total of 41 events during the duration of the study, facilitated by social media growth on each of SRF's online platforms, with a 300% increase in followers on Facebook, and a nationwide network of 91 student ambassadors. An annual workshop series taught research skills to more than 3800 participants. Students leading their own events, SRF featuring international speakers, and the abstracts submitted to SRF's annual conference, along with the conference's reach of 10,000 students, are seen as improvements in the ToC-informed interventions' adoption. The efficacy of the interventions manifested as the REACH program allocated 56 research projects to vetted applicants.

Conclusion: The applied interventions have accelerated SRF's progress towards achieving its long-term outcome of increased quality in research as translated by increased research output quantity, mentorship, and knowledge of medical research. Further evaluation is required to assess the success of the ToC. As SRF continues to grow, a continued analysis of the implementation outcomes is imperative to gauge its effectiveness.

4. **Lujan HL, DiCarlo SE.** *We used to get money to teach students, now we teach students to get money: medical education has become a market with credentials not knowledge the commodity!* *Adv Physiol Educ.* 2023 Sep 1;47(3):521-526. doi: 10.1152/advan.00065.2023. Epub 2023 Jun 1.

ABSTRACT

Preclinical medical education has lost its way. In fact, it seems that preclinical medical education has forgotten its mission and has become focused on assembly line efficiency and profits. Administrators and students are increasingly considering preclinical medical education as a market with credentials (access to USMLE Step 1 or COMLEX Level 1) the commodity and students the consumers. Consider that, once banned, for-profit medical schools are on the rise in the United States. In response to these changes, medical schools are adopting corporate models, cutting costs, and seeking profit-making opportunities. One example is the broadcasting of content to multiple sites and satellite campuses. In addition, the customers need to feel satisfied with the educational experience bought for them at high tuition costs. However, providing students with what they

want often happens at the expense of what they need, and administrators engage in subtle pandering to students. Furthermore, although the pursuit of credentials is understandable, a university is more than a factory that produces diplomas and careers. Universities exist to educate, discover, and impart knowledge while impacting our ways of living and thinking. In this context, universities exist for the greater good and betterment of societies. The "corporatization" of medical education and satisfying the customer creates an environment where a university is selling socioeconomic stability, professional status, and success, rather than a setting for the formation of character, intellect, and critical thinking. Our hope is that administrators, educators, and students will reconnect to the greater purpose and value of learning.

NEW & NOTEWORTHY We should be preparing future physicians to deliver the care we want to receive as patients. This requires training in communication, collaboration, inquiry, discovery, and innovation while developing the habits of the mind and heart that advance the practice of medicine and the health of the public. However, the current "corporatization" of medical education is failing to accomplish this outcome. Specifically, medical schools are adopting corporate models, cutting costs, and seeking profit-making opportunities without improving what goes on in the classroom. Our hope is that we will reconnect to the greater purpose and value of learning.

Keywords: pandering to students; students as "customers".

5. **Hosseini A, Ghasemi E, Nasrabadi AN, Sayadi L.** *Strategies to improve hidden curriculum in nursing and medical education: a scoping review.* *BMC Med Educ.* 2023 Sep 11;23(1):658. doi: 10.1186/s12909-023-04652-z.

ABSTRACT

Background: The importance of hidden curriculum cannot be neglected in education. Despite much research in the field, there have been limited studies on HC improvement in nursing and medical education. This scoping review aimed to determine the scope of strategies to improve HC in nursing and medical education.

Method: PubMed, EBSCO/Cumulative Index to Nursing and Allied Health Literature (CINAHL), Cochrane Library, Scopus, Web of Science, Proquest and Persian-language databases of Magiran and SID were searched in January 2023 without a time filter. According to the PRISMA flow diagram, two independent reviewers selected the records that fit the inclusion and exclusion criteria via title and abstract screening. Next, the reviewers studied the full texts of the related articles. The data extracted from the selected articles were tabulated and ultimately synthesized.

Findings: Out of the eight examined studies, published from 2017 to 2022, only one was in the field of nursing and seven were in medicine. The central strategies were implementing new curricula to replace the previous ones, utilizing team-based clinical clerkship, proposing a HC improvement model, implementation a case-based faculty development

workshop, implementation longitudinal and comprehensive educational courses, and incorporating an educational activity into a small group program.

Conclusion: Students and faculty members familiarization on the topic of HC, implementing new curricula, utilizing team-based clerkship, and using comprehensive models were among the HC improvement strategies. Focusing on upgrading the learning environment, particularly the clinical settings, can also be helpful in HC improvement.

Keywords: Hidden curriculum; Medical education; Nursing education; Scoping review.

6. *Brown JK, Shaw AD, Mythen MG, Guzzi L, Reddy VS, Crisafi C, et al. Adult cardiac surgery-associated acute kidney injury: Joint Consensus Report. J Cardiothorac Vasc Anesth. 2023 Sep;37(9):1579-1590. doi: 10.1053/j.jvca.2023.05.032. Epub 2023 May 23.*

ABSTRACT

Objectives: Acute kidney injury (AKI) is increasingly recognized as a source of poor patient outcomes after cardiac surgery. The purpose of the present report is to provide perioperative teams with expert recommendations specific to cardiac surgery-associated AKI (CSA-AKI).

Methods: This report and consensus recommendations were developed during a joint, in-person, multidisciplinary conference with the Perioperative Quality Initiative and the Enhanced Recovery After Surgery Cardiac Society. Multinational practitioners with diverse expertise in all aspects of cardiac surgical perioperative care, including clinical backgrounds in anesthesiology, surgery and nursing, met from October 20 to 22, 2021, in Sacramento, California, and used a modified Delphi process and a comprehensive review of evidence to formulate recommendations. The quality of evidence and strength of each recommendation were established using the Grading of Recommendations Assessment, Development, and Evaluation methodology. A majority vote endorsed recommendations.

Results: Based on available evidence and group consensus, a total of 13 recommendations were formulated (4 for the preoperative phase, 4 for the intraoperative phase, and 5 for the postoperative phase), and are reported here.

Conclusions: Because there are no reliable or effective treatment options for CSA-AKI, evidence-based practices that highlight prevention and early detection are paramount. Cardiac surgery-associated AKI incidence may be mitigated and postsurgical outcomes improved by focusing additional attention on presurgical kidney health status; implementing a specific cardiopulmonary bypass bundle; using strategies to maintain intravascular euolemia; leveraging advanced tools such as the electronic medical record, point-of-care ultrasound, and biomarker testing; and using patient-specific, goal-directed therapy to prioritize oxygen delivery and end-organ perfusion over static physiologic metrics.

Keywords: acute kidney injury; cardiac surgery; expert consensus; goal-directed therapy; perioperative care.

7. *Doenst T, Schneider U, Caldonazo T, Toshmatov S, Diab M, Siemeni T, et al. Cardiac surgery 2022 reviewed. Thorac Cardiovasc Surg. 2023 Aug;71(5):356-365. doi: 10.1055/s-0043-57228. Epub 2023 May 17.*

ABSTRACT

PubMed displayed almost 37,000 hits for the search term "cardiac surgery AND 2022." As before, we used the PRISMA approach and selected relevant publications for a results-oriented summary. We focused on coronary and conventional valve surgery, their overlap with interventional alternatives, and briefly assessed surgery for aorta or terminal heart failure. In the field of coronary artery disease (CAD), key manuscripts addressed prognostic implications of invasive treatment options, classically compared modern interventions (percutaneous coronary intervention [PCI]) with surgery (coronary artery bypass grafting [CABG]), and addressed technical aspects of CABG. The general direction in 2022 confirms the superiority of CABG over PCI in patients with anatomically complex chronic CAD and supports an infarct-preventative effect as underlying mechanism. In addition, the relevance of proper surgical technique to achieve durable graft patency and the need for optimal medical treatment in CABG patients was impressively illustrated. In structural heart disease, the comparisons of interventional and surgical techniques have been characterized by prognostic and mechanistic investigations underscoring the need for durable treatment effects and reductions of valve-related complications. Early surgery for most valve pathologies appears to provide significant survival advantages, and two publications on the Ross operation prototypically illustrate an inverse association between long-term survival and valve-related complications. For surgical treatment of heart failure, the first xenotransplantation was certainly dominant, and in the aortic surgery field, innovations in arch surgery prevailed. This article summarizes publications perceived as important by us. It cannot be complete nor free of individual interpretation, but provides up-to-date information for decision-making and patient information.

8. *Jubber I, Ong S, Bukavina L, Black PC, Compérat E, Kamat AM, et al. Epidemiology of bladder cancer in 2023: a systematic review of risk factors. Eur Urol. 2023 Aug;84(2):176-190. doi: 10.1016/j.eururo.2023.03.029. Epub 2023 May 16.*

ABSTRACT

Context: Bladder cancer (BC) is common worldwide and poses a significant public health challenge. External risk factors and the wider exposome (totality of exposure from external and internal factors) contribute significantly to the development of BC. Therefore, establishing a clear understanding of these risk factors is the key to prevention.

Objective: To perform an up-to-date systematic review of BC's epidemiology and external risk factors.

Evidence acquisition: Two reviewers (I.J. and S.O.) performed a systematic review using PubMed and Embase

in January 2022 and updated it in September 2022. The search was restricted to 4yr since our previous review in 2018.

Evidence synthesis: Our search identified 5177 articles and a total of 349 full-text manuscripts. GLOBOCAN data from 2020 revealed an incidence of 573 000 new BC cases and 213 000 deaths worldwide in 2020. The 5-yr prevalence worldwide in 2020 was 1 721 000. Tobacco smoking and occupational exposures (aromatic amines and polycyclic aromatic hydrocarbons) are the most substantial risk factors. In addition, correlative evidence exists for several risk factors, including specific dietary factors, imbalanced microbiome, gene-environment risk factor interactions, diesel exhaust emission exposure, and pelvic radiotherapy.

Conclusions: We present a contemporary overview of the epidemiology of BC and the current evidence for BC risk factors. Smoking and specific occupational exposures are the most established risk factors. There is emerging evidence for specific dietary factors, imbalanced microbiome, gene-external risk factor interactions, diesel exhaust emission exposure, and pelvic radiotherapy. Further high-quality evidence is required to confirm initial findings and further understand cancer prevention.

Patient summary: Bladder cancer is common, and the most substantial risk factors are smoking and workplace exposure to suspected carcinogens. On-going research to identify avoidable risk factors could reduce the number of people who get bladder cancer.

Keywords: Bladder cancer; Epidemiology; Incidence; Prevalence; Risk factors.

9. Sun J, Jianhui Zhao J, Jiang F, Wang L, Xiao Q, Han F, et al. Identification of novel protein biomarkers and drug targets for colorectal cancer by integrating human plasma proteome with genome. *Genome Med.* 2023 Sep 19;15(1):75. doi: 10.1186/s13073-023-01229-9.

ABSTRACT

Background: The proteome is a major source of therapeutic targets. We conducted a proteome-wide Mendelian randomization (MR) study to identify candidate protein markers and therapeutic targets for colorectal cancer (CRC).

Methods: Protein quantitative trait loci (pQTLs) were derived from seven published genome-wide association studies (GWASs) on plasma proteome, and summary-level data were extracted for 4853 circulating protein markers. Genetic associations with CRC were obtained from a large-scale GWAS meta-analysis (16,871 cases and 26,328 controls), the FinnGen cohort (4957 cases and 304,197 controls), and the UK Biobank (9276 cases and 477,069 controls). Colocalization and summary-data-based MR (SMR) analyses were performed sequentially to verify the causal role of candidate proteins. Single cell-type expression analysis, protein-protein interaction (PPI), and druggability evaluation were further conducted to detect the specific cell

type with enrichment expression and prioritize potential therapeutic targets.

Results: Collectively, genetically predicted levels of 13 proteins were associated with CRC risk. Elevated levels of two proteins (GREM1, CHRDL2) and decreased levels of 11 proteins were associated with an increased risk of CRC, among which four (GREM1, CLSTN3, CSF2RA, CD86) were prioritized with the most convincing evidence. These protein-coding genes are mainly expressed in tissue stem cells, epithelial cells, and monocytes in colon tumor tissue. Two interactive pairs of proteins (GREM1 and CHRDL2; MMP2 and TIMP2) were identified to be involved in osteoclast differentiation and tumorigenesis pathways; four proteins (POLR2F, CSF2RA, CD86, MMP2) have been targeted for drug development on autoimmune diseases and other cancers, with the potentials of being repurposed as therapeutic targets for CRC.

Conclusions: This study identified several protein biomarkers to be associated with CRC risk and provided new insights into the etiology and promising targets for the development of screening biomarkers and therapeutic drugs for CRC.

Keywords: Biomarker; Colorectal cancer; Drug target; Protein; Proteome-wide Mendelian randomization.

10. Sadeghi A, Arani AM, Khaghan HK, Qadimi A, Ghafouri R. Patient safety improvement in the gastroenterology department: An action research. *PLoS One.* 2023 Aug 15;18(8):e0289511. doi: 10.1371/journal.pone.0289511. eCollection 2023.

ABSTRACT

Background: Patient safety is a global concern. Safe and effective care can shorten hospital stays and prevent or minimize unintentional harm to patients. Therefore, it is necessary to continuously monitor and improve patient safety in all medical environments. This study is aimed at improving patient safety in gastroenterology departments.

Methods: The study was carried out as action research. The participants were patients, nurses and doctors of the gastroenterology department of Ayatollah Taleghani Hospital in Tehran in 2021-2022. Data were collected using questionnaires (medication adherence tool, patient education effectiveness evaluation checklist, and medication evidence-based checklist), individual interviews and focus groups. The quantitative data analysis was done using SPSS (v.20) and qualitative data analysis was done through content analysis method using MAXQDA analytic pro 2022 software.

Results: The majority of errors were related to medication and the patient's fault due to their lack of education and prevention strategy were active supervision, modification of clinical processes, improvement of patient education, and promotion of error reporting culture. The findings of the research showed that the presence of an active supervisor led to the identification and prevention of more errors

($P < 0.01$). Regarding the improvement of clinical processes, elimination of reworks can increase satisfaction in nurses ($P < 0.01$). In terms of patient education, the difference was not statistically significant ($P > 0.01$); however, the mean medication adherence score was significantly different ($P < 0.01$).

Conclusion: The improvement strategies of patient safety in Gastroenterology department included the modification of ward monitoring processes, improving/modification clinical

processes, improvement of patient education, and development of error reporting culture. Identifying inappropriate processes and adjusting them based on the opinion of the stakeholders, proper patient education regarding self-care, careful monitoring using appropriate checklists, and presence of a supervisor in the departments can be effective in reducing the incidence rate. A comprehensive error reporting program provides an opportunity for employees to report errors.