SELECTED ABSTRACTS FROM PUBMED

1. *Chabior A, Tymińska A, Pawlak A, Giordani A, Caforio A, Grabowski M, et al. Advances in myocarditis management in the light of the latest research and recent guidelines of the European Society of Cardiology. Cardiol J. 2024;31(2):342-51.doi: 10.5603/cj.95175. Epub 2024 Jan 22.*

ABSTRACT

Myocarditis remains an unknown disease with varying clinical manifestations, often leading to heart failure. The latest 2021 and 2022 guidelines of the European Society of Cardiology (ESC) are the first official European documents updating knowledge on the diagnosis and treatment of myocarditis since the 2013 ESC expert consensus statement. These guidelines and new studies allow standardization and improvements to the management of myocarditis. In this review, we discuss the most important aspects of myocarditis diagnosis, therapies and follow-up based on current knowledge.

Keywords: cardio-immunology; endomyocardial biopsy; heart failure; immunosuppression; inflammatory cardiomyopathy; personalized medicine.

2. *Andreas A, Burri H, Praz F, Soliman O, Badano L, Barreiro M, et al. Tricuspid valve disease and cardiac implantable electronic devices.Eur Heart J. 2024 Feb 1;45(5):346-65. doi: 10.1093/eurheartj/ehad783.*

ABSTRACT

The role of cardiac implantable electronic device (CIED)-related tricuspid regurgitation (TR) is increasingly recognized as an independent clinical entity. Hence, interventional TR treatment options continuously evolve, surgical risk assessment and peri-operative care improve the management of CIED-related TR, and the role of lead extraction is of high interest. Furthermore, novel surgical and interventional tricuspid valve treatment options are increasingly applied to patients suffering from TR associated with or related to CIEDs. This multidisciplinary review article developed with electrophysiologists, interventional cardiologists, imaging specialists, and cardiac surgeons aims to give an overview of the mechanisms of disease, diagnostics, and proposes treatment algorithms of patients suffering from TR associated with CIED lead(s) or leadless pacemakers.

Keywords: Cardiac implantable electronic device; Lead related; Pacemaker; Tricuspid regurgitation.

3. *Boonstra MJ, Weissenbacher D, Moore JH, Gonzalez-Hernandez G, Asselbergs FW. Artificial intelligence: revolutionizing cardiology with large language models. Eur Heart J. 2024 Feb 1;45(5):332-45. doi: 10.1093/eurheartj/ehad838.*

ABSTRACT

Natural language processing techniques are having an increasing impact on clinical care from patient, clinician, administrator, and research perspective. Among others are automated generation of clinical notes and discharge letters, medical term coding for billing, medical chatbots both for patients and clinicians, data enrichment in the identification of disease symptoms or diagnosis, cohort selection for clinical trial, and auditing purposes. In the review, an overview of the history in natural language processing techniques developed with brief technical background is presented. Subsequently, the review will discuss implementation strategies of natural language processing tools, thereby specifically focusing on large language models, and conclude with future opportunities in the application of such techniques in the field of cardiology.

Keywords: Cardiology; Clinical applications; Large language models; Natural language processing.

4. *Massey J, Palmer K, Al-Rawi O, Chambers O, Ridgway T, Shanmuganathan S, et al. Robotic mitral valve surgery. Front Cardiovasc Med. 2024 Mar 5:10:1239742. doi: 10.3389/fcvm.2023.1239742. eCollection 2023.*

ABSTRACT

Totally endoscopic robotic mitral valve repair is the least invasive surgical therapy for mitral valve disease. Robotic mitral valve surgery demonstrates faster recovery with shorter hospital stays, less morbidity, and equivalent mortality and mid-term durability compared to sternotomy. In this review, we will explore the advantages and disadvantages of robotic mitral valve surgery and consider important technical details of both operative set-up and mitral valve repair techniques. The number of robotic cardiac surgical procedures being performed globally is expected to continue to rise as experience grows with robotic techniques and increasing numbers of cardiac surgeons become proficient with this innovative technology. This will be facilitated by the introduction of newer robotic systems and increasing patient demand.

Keywords: minimally invasive; mitral valve; mitral valve repair; outcomes; robotic.

5. *Clark SC. Can ChatGPT transform cardiac surgery and heart transplantation? J Cardiothorac Surg. 2024 Feb 26;19(1):108. doi: 10.1186/s13019-024-02541-0.*

ABSTRACT

Artificial intelligence (AI) is a transformative technology with many benefits, but also risks when applied to healthcare and cardiac surgery in particular. Surgeons must be aware of AI and its application through generative pre-trained transformers (GPT/ChatGPT) to fully understand what this offers to clinical care, decision making, training,

research and education. Clinicians must appreciate that the advantages and potential for transformative change in practice is balanced by risks typified by validation, ethical challenges and medicolegal concerns. ChatGPT should be seen as a tool to support and enhance the skills of surgeons, rather than a replacement for their experience and judgment. Human oversight and intervention will always be necessary to ensure patient safety and to make complex decisions that may require a refined understanding of individual patient circumstances.

Keywords: Artificial intelligence; ChatGPT; Generative pre-training transformer; Natural language processing.

6. *Boussuges M, Blanc P, Bregeon F, Boussuges A. Interest of thoracic ultrasound after cardiac surgery or interventional cardiology. World J Cardiol. 2024 Mar 26;16(3):118-125. doi: 10.4330/wjc.v16.i3.118.*

ABSTRACT

Thoracic ultrasound has attracted much interest in detecting pleural effusion or pulmonary consolidation after cardiac surgery. In 2016, Trovato reported, in the World Journal of Cardiology, the interest of using, in addition to echocardiography, thoracic ultrasound. In this editorial, we highlight the value of assessing diaphragm function after cardiac surgery and interventional cardiology procedures. Various factors are able to impair diaphragm function after such interventions. Diaphragm motion may be decreased by chest pain secondary to sternotomy, pleural effusion or impaired muscle function. Hemidiaphragmatic paralysis may be secondary to phrenic nerve damage complicating cardiac surgery or atrial fibrillation ablation. Diagnosis may be delayed. Indeed, respiratory troubles induced by diaphragm dysfunction are frequently attributed to pre-existing heart disease or pulmonary complications secondary to surgery. In addition, elevated hemidiaphragm secondary to diaphragm dysfunction is sometimes not observed on chest X-ray performed in supine position in the intensive care unit. Analysis of diaphragm function by ultrasound during the recovery period appears essential. Both hemidiaphragms can be studied by two complementary ultrasound methods. The mobility of each hemidiaphragms is measured by M-mode ultrasonography. In addition, recording the percentage of inspiratory thickening provides important information about the quality of muscle function. These two approaches make it possible to detect hemidiaphragm paralysis or dysfunction. Such a diagnosis is important because persistent diaphragm dysfunction after cardiac surgery has been shown to be associated with adverse respiratory outcome. Early respiratory physiotherapy is able to improve respiratory function through strengthening of the inspiratory muscles i.e. diaphragm and accessory inspiratory muscles.

Keywords: Diaphragm; Hemidiaphragm; Phrenic nerve; Physiotherapy; Thickening fraction; Ultrasonography.

7. *Ahmed Y, Khayal S. Advancing research training in medical education: global perspectives and paradigms for future development. Cureus. 2024 Feb 20;16(2):e54559. doi: 10.7759/cureus.54559. eCollection 2024 Feb.*

ABSTRACT

Background: This study delves into the dynamic field of medical education research, emphasizing the integration of research training within medical curricula. It seeks to understand the impact of such integration on the competencies of future medical professionals.

Objective: The primary aim is to systematically categorize and analyze the current trends and future directions in research training in medical education. This involves assessing the influence of research training on medical students' skills and the methodologies used in such research.

Methods: The research employs an extensive bibliographic literature review across multiple databases. It classifies studies like experiential or case studies, editorials, and original research articles. This classification is based on criteria such as geographical location, research objectives, theoretical frameworks, and methodologies.

Results: Findings reveal a diverse landscape in medical education research, with a significant emphasis on research training. The research showcases varying methodologies and approaches used globally, highlighting the thematic focus and geographical distribution of these studies.

Conclusion: Research training in medical education is a globally expansive and evolving field. It underscores the importance of continuous investigation, particularly focusing on integrating research elements at curricular levels and exploring innovative educational strategies. The study also points out potential research gaps, especially in underrepresented regions, indicating directions for future research efforts.

Keywords: bibliographic; curriculum; medical education; medical students; research training.

8. *Arja SB, Arja SB, Ponnusamy K, Veetil PK, Paramban S, Laungani YC. Medical Education electives can promote teaching and research interests among medical students. Adv Med Educ Pract. 2024 Mar 7:15:173-80. doi: 10.2147/AMEP.S453964. eCollection 2024.*

ABSTRACT

Introduction: Although all residents routinely teach medical students, not all residents are involved in teaching or trained in teaching during undergraduate medical school, as accreditation bodies do not mandate the promotion of teaching skills to undergraduate medical students. With relatively inadequate formal training and residents' intrinsic time constraints, tactically incorporating formal medical education elective experiences in medical school curricula is understandable. This study explores if medical

education electives at Avalon University School of Medicine (AUSOM) can enhance medical students' interest in teaching and research.

Methods: The medical education elective at AUSOM was developed to give interested medical students an elective experience. The course modules include accreditation/regulation, curriculum development, learning theories, assessments, and research methodology. Students can choose any one of the modules. We offered the medical education elective to twenty-five students in the year 2021. All of them gave feedback at the end of the elective. The data was analyzed qualitatively through framework analysis, which includes familiarization, generating initial codes, searching for themes, reviewing, and defining and naming themes.

Results: Different themes emerged, enhancing the interest in academic medicine, understanding research methodologies, supporting learners, and awareness of learning theories.

Conclusion: Doing medical education electives at AUSOM enhanced students' interest in teaching, and students reported that they could understand research methodologies, especially those related to medical education. Medical students should have opportunities for electives in medical education, and more research is required to evaluate the effectiveness of medical education electives across medical schools.

Keywords: electives; health science students; medical education; medical educational research; medical educators.

ABSTRACT

When clinician-educators and medical education researchers use and discuss medical education research, they can advance innovation in medical education as well as improve its quality. To facilitate the use and discussions of medical education research, we created a prefatory visual representation of key medical education research topics and associated experts. We conducted one-on-one virtual interviews with medical education journal editorial board members to identify what they perceived as key medical education research topics as well as who they associated, as experts, with each of the identified topics. We used content analysis to create categories representing key topics and noted occurrences of named experts. Twenty-one editorial board members, representing nine of the top medical education journals, participated. From the data we created a figure entitled, Medical Education Research Library. The library includes 13 research topics, with assessment as the most prevalent. It also notes recognized experts, including van der Vleuten, ten Cate, and Norman. The key medical education research topics

identified and included in the library align with what others have identified as trends in the literature. Selected topics, including workplace-based learning, equity, diversity, and inclusion, physician wellbeing and burnout, and social accountability, are emerging. Once transformed into an open educational resource, clinician-educators and medical education researchers can use and contribute to the functional library. Such continuous expansion will generate better awareness and recognition of diverse perspectives. The functional library will help to innovate and improve the quality of medical education through evidence-informed practices and scholarship.

Keywords: Evidence-informed practices; evidence-informed scholarship; medical education; medical education research; research use.

ABSTRACT

Background: As the number of limitations increases in a medical research article, their consequences multiply and the validity of findings decreases. How often do limitations occur in a medical article? What are the implications of limitation interaction? How often are the conclusions hedged in their explanation?

Objective: To identify the number, type, and frequency of limitations and words used to describe conclusion(s) in medical research articles.

Methods: Search, analysis, and evaluation of open access research articles from 2021 and 2022 from the Journal of the Society of Laparoscopic and Robotic Surgery and 2022 Surgical Endoscopy for type(s) of limitation(s) admitted to by author(s) and the number of times they occurred. Limitations not admitted to were found, obvious, and not claimed. An automated text analysis was performed for hedging words in conclusion statements. A limitation index score is proposed to gauge the validity of statements and conclusions as the number of limitations increases.

Results: A total of 298 articles were reviewed and analyzed, finding 1,764 limitations. Four articles had no limitations. The average was between 3.7% and 6.9% per article. Hedging, weasel words and words of estimative probability description was found in 95.6% of the conclusions.

Conclusions: Limitations and their number matter. The greater the number of limitations and ramifications of their effects, the more outcomes and conclusions are affected. Wording ambiguity using hedging or weasel words shows that limitations affect the uncertainty of claims. The limitation index scoring method shows the diminished validity of finding(s) and conclusion(s).

Keywords: Bias; Hedging; Limitations; Methods; Research; Uncertainty; Validity.

11. Lieb W, Strathmann EA, Röder C, Jacobs G, Gaede KI, Richter G, et al. *Population-Based Biobanking. Genes (Basel). 2024 Jan 3;15(1):66. doi: 10.3390/genes15010066.*

ABSTRACT

Population-based biobanking is an essential element of medical research that has grown substantially over the last two decades, and many countries are currently pursuing large national biobanking initiatives. The rise of individual biobanks is paralleled by various networking activities in the field at both the national and international level, such as BBMRI-ERIC in the EU. A significant contribution to population-based biobanking comes from large cohort studies and national repositories, including the United Kingdom Biobank (UKBB), the CONSTANCES project in France, the German National Cohort (NAKO), LifeLines in the Netherlands, FinnGen in Finland, and the All of Us project in the U.S. At the same time, hospital-based biobanking has also gained importance in medical research. We describe some of the scientific questions that can be addressed particularly well by the use of population-based biobanks, including the discovery and calibration of biomarkers and the identification of molecular correlates of health parameters and disease states. Despite the tremendous progress made so far, some major challenges to population-based biobanking still remain, including the need to develop strategies for the long-term sustainability of biobanks, the handling of incidental findings, and the linkage of sample-related and sample-derived data to other relevant resources.

Keywords: biobanking; biomarker; biosample; clinical routine; cohort study; governance; health data; phenotype; public involvement; sustainability.

12. El Harch I, Benmaamar S, Tachfouti N, Hida M, Belahsen MF, Houssaini TS, et al. *Knowledge, attitudes, and practices of the ethics in medical research among Moroccan interns and resident physicians. BMC Med Ethics. 2024 Mar 20;25(1):33. doi: 10.1186/s12910-024-01029-9.*

ABSTRACT

Background: In Morocco, medical research ethics training was integrated into the medical curriculum during the 2015 reform. In the same year, a law on medical research ethics was enacted to protect individuals participating in medical research. These improvements, whether in the reform or in the enactment of the law, could positively impact the knowledge of these researchers and, consequently, their attitudes and practices regarding medical research ethics. The main objective of this work is to assess Moroccan physicians' knowledge, attitudes, and practices at the beginning of their careers (interns and residents) in medical research ethics.

Patients and methods: This is a multicenter cross-sectional study conducted in 2021 among Moroccan physicians. Three scores were created and validated to assess physicians' level of knowledge, attitudes, and practices regarding research ethics. A descriptive analysis was carried out, followed by a univariate analysis and a multivariate analysis using multivariate binary logistic regression to study the factors associated with the different calculated scores.

Results: A total of 924 physicians were included in the study, with an average age of 27.8 ± 2.2 years. 40.7% had a high medical research ethics knowledge score, and 68.8% had good attitudes. These two scores were positively associated with age and were statistically higher in residents and in physicians who had received training in medical research ethics during their medical curriculum. Only 29,9% of physicians who had participated in research studies had adequate practices with medical research ethics. This score was statistically higher in residents and in physicians who had heard about research ethics.

Conclusion: A genuine introduction to ethics in the medical curriculum is essential to enhance researchers' knowledge, attitudes, and practices. This, in turn, can lead to an increase in both the quantity and quality of research conducted in Morocco.

Keywords: Attitudes and practices; Ethics in medical research; Knowledge; Moroccan physicians.