

SELECTED ABSTRACTS FROM PUBMED

1. *Savulescu J, Labude M, Barcellona C, Huang Z, Leverenz MK, Xafis V, et al. Two kinds of embryo research: four case examples. J Med Ethics. 2022 Sep;48(9):590-596. doi: 10.1136/medethics-2021-108038. Epub 2022 May 9.*

ABSTRACT

There are ethical obligations to conduct research that contributes to generalisable knowledge and improves reproductive health, and this should include embryo research in jurisdictions where it is permitted. Often, the controversial nature of embryo research can alarm ethics committee members, which can unnecessarily delay important research that can potentially improve fertility for patients and society. Such delay is ethically unjustified. Moreover, countries such as the UK, Australia and Singapore have legislation which unnecessarily captures low-risk research, such as observational research, in an often cumbersome and protracted review process. Such countries should revise such legislation to better facilitate low-risk embryo research. We introduce a philosophical distinction to help decision-makers more efficiently identify higher risk embryo research from that which presents no more risks to persons than other types of tissue research. That distinction is between future person embryo research and non-future person embryo research. We apply this distinction to four examples of embryo research that might be presented to ethics committees. Embryo research is most controversial and deserving of detailed scrutiny when it potentially affects a future person. Where it does not, it should generally require less ethical scrutiny. We explore a variety of ways in which research can affect a future person, including by deriving information about that person, and manipulating eggs or sperm before an embryo is created.

Keywords: Embryo Research; Embryos and Fetuses; Ethics; Ethics Committees.

2. *Abudu R, Oliver K, Boaz A. What funders are doing to assess the impact of their investments in health and biomedical research. Health Res Policy Syst. 2022 Aug 9;20(1):88. doi: 10.1186/s12961-022-00888-1.*

ABSTRACT

As pressures to maximize research funding grow, biomedical research funders are increasingly tasked with demonstrating the long-term and real-world impacts of their funded research investments. Over the past three decades, research impact assessments (RIA) have emerged as an important tool for analysing the impacts of research by incorporating logic models, frameworks and indicators to track measures of knowledge production, capacity-building, development of research products, adoption of research into clinical guidelines and policies, and the realization of health, economic and social benefits. While there are currently several models for RIA within the literature, less attention has been paid to how funders can practically select and

implement a RIA model to demonstrate the impacts of their own research portfolios. In this paper, a literature review was performed to understand (1) which research funders have performed RIAs of their research portfolios to date; (2) how funders have designed their assessments, including the models and tools they have used; (3) what challenges to and facilitators of success have funders found when adopting the RIA model to their own portfolio; and (4) who participates in the assessments. Forty-four papers from both published and grey literature were found to meet the review criteria and were examined in detail. There is a growing culture of RIA among funders, and included papers spanned a diverse set of funders from 10 countries or regions. Over half of funders (59.1%) used a framework to conduct their assessment, and a variety of methods for collecting impact data were reported. Issues of methodological rigour were observed across studies in the review, and this was related to numerous challenges funders faced in designing timely RIAs with quality impact data. Over a third of articles (36.4%) included input from stakeholders, yet only one article reported surveying patients and members of the public as part of the assessment. To advance RIA among funders, we offer several recommendations for increasing the methodological rigour of RIAs and suggestions for future research, and call for a careful reflection of the voices needed in an impact assessment to ensure that RIAs are having a meaningful impact on patients and the public.

Keywords: Funders; Impact assessment frameworks; Impact assessment methods; Impact evaluation; Research impact.

3. *Benesch MGK, Mathieson A, Pace DE. Research and surgical residency: moving beyond one-and-done projects and motivating for scholarly excellence. Can J Surg. 2022 Jul 28;65(4):E485-E486. doi: 10.1503/cjs.013821. Print 2022 Jul-Aug.*

ABSTRACT

Among surgical residents, research is often perceived as a check-mark exercise. Focus then turns to studying for exams and honing skills for independent practice. While some residents are passionate about research and enroll in other formalized training, pragmatists argue that not every surgeon should engage in research at this level. However, no resident should view research as a one-and-done activity. Rather, research should be viewed as an exercise to improve practice, share gaps in knowledge, collaborate, and empower others to formally study and implement change. The skills acquired during research experiences, at minimum, have value in improving the trainee's literature literacy, which in turn serves as a foundational element of continuing medical education. A culture supportive of scientific discovery, facilitated by both faculty and peer-to-peer mentorship, will result in better collaborative efforts and lead to improved knowledge generation and resident research satisfaction.

4. *Hysong SJ, McGuire AL. Increasing physician participation as subjects in scientific and quality improvement research. BMC Med Ethics. 2022 Aug 13;23(1):81. doi: 10.1186/s12910-022-00817-5.*

ABSTRACT

Background: The twenty-first century has witnessed an exponential increase in healthcare quality research. As such activities become more prevalent, physicians are increasingly needed to participate as subjects in research and quality improvement (QI) projects. This raises an important ethical question: how should physicians be remunerated for participating as research and/or QI subjects?

Financial versus non-monetary incentives for participation: Research suggests participation in research and QI is often driven by conditional altruism, the idea that although initial interest in enrolling in research is altruistic or prosocial, decisions to actually perform study tasks are cost-benefit driven. Thus, the three models commonly employed to appropriately compensate participants (in-kind compensation such as travel reimbursement, paying market rates for the subject's time, and paying market rates for the activity asked of the participant) are a poor fit when the participant is a clinician, largely due to the asymmetry between cost and benefit or value to the participant. Non-monetary alternatives such as protected time for participation, continuing education or maintenance of certification credit, or professional development materials, can provide viable avenues for reducing this asymmetry.

Conclusion: Research and QI are integral to the betterment of medicine and healthcare. To increase physician participation in these activities as the subject of study, new models are needed that clarify the physician's role in research and QI as a subject. Non-monetary approaches are recommended to successfully and ethically encourage research and QI participation, and thus incorporate these activities as a normal part of the ethical clinician's and successful learning healthcare system's world view.

Keywords: Incentives; Physicians; Quality improvement; Research subjects.

5. *Iacobellis G. Epicardial adipose tissue in contemporary cardiology. Nat Rev Cardiol. 2022 Sep;19(9):593-606. doi: 10.1038/s41569-022-00679-9. Epub 2022 Mar 16.*

ABSTRACT

Interest in epicardial adipose tissue (EAT) is growing rapidly, and research in this area appeals to a broad, multidisciplinary audience. EAT is unique in its anatomy and unobstructed proximity to the heart and has a transcriptome and secretome very different from that of other fat depots. EAT has physiological and pathological properties that vary depending on its location. It can be highly protective for the adjacent myocardium through dynamic brown fat-like thermogenic function and harmful via paracrine or vasocrine secretion of pro-inflammatory and profibrotic cytokines. EAT is a modifiable risk factor

that can be assessed with traditional and novel imaging techniques. Coronary and left atrial EAT are involved in the pathogenesis of coronary artery disease and atrial fibrillation, respectively, and it also contributes to the development and progression of heart failure. In addition, EAT might have a role in coronavirus disease 2019 (COVID-19)-related cardiac syndrome. EAT is a reliable potential therapeutic target for drugs with cardiovascular benefits such as glucagon-like peptide 1 receptor agonists and sodium-glucose co-transporter 2 inhibitors. This Review provides a comprehensive and up-to-date overview of the role of EAT in cardiovascular disease and highlights the translational nature of EAT research and its applications in contemporary cardiology.

6. *Hermel M, Tsai S, Dlouhy L, Anupama BK, Rana JS, Dani SS, et al. Highlights of Cardiovascular Disease Prevention Studies Presented at the 2022 American College of Cardiology Scientific Sessions. Curr Atheroscler Rep. 2022 Aug;24(8):671-680. doi: 10.1007/s11883-022-01042-6. Epub 2022 May 28.*

ABSTRACT

Purpose of review: Focused review highlighting select studies presented at the 2022 American College of Cardiology (ACC) Scientific Sessions.

Recent findings: Included studies assessed the impact of a low-sodium diet on heart failure outcomes (SODIUM-HF); outcomes of pregnant patients with chronic hypertension treated with antihypertensive therapies (CHAP); cardiovascular outcomes in patients with type 2 diabetes and renal impairment treated with sotagliflozin (SCORED); a safety and efficacy study investigating SLN360, a short interfering RNA targeting lipoprotein(a) (APOLLO); a supermarket and web-based intervention targeting nutrition for cardiovascular risk reduction (SuperWIN); a superiority trial comparing myocardial injury following very mild perioperative hypothermia versus aggressive warming after non-cardiac surgery (PROTECT); and 3-year efficacy outcomes of renal denervation on blood pressure reduction from the SPYRAL HTN-ON MED pilot study. Research presented at the 2022 ACC Scientific Sessions underscores the new potential and meaningful impact of cardiovascular disease prevention and management interventions.

Keywords: Cardiovascular prevention; DASH diet; Heart failure; Hypertension; Lipoprotein(a); Sotagliflozin.

7. *Ghionzoli N, Gentile F, Franco AMD, Castiglione V, Aimo A, Giannoni A, et al. Current and emerging drug targets in heart failure treatment. Heart Fail Rev. 2022 Jul;27(4):1119-1136. doi: 10.1007/s10741-021-10137-2. Epub 2021 Jul 17.*

ABSTRACT

After initial strategies targeting inotropism and congestion, the neurohormonal interpretative model of heart failure (HF) pathophysiology has set the basis for current pharmacological management of HF, as most of guideline

recommended drug classes, including beta-blockers, angiotensin-converting enzyme inhibitors, angiotensin receptor blockers, and mineralocorticoid receptor antagonists, blunt the activation of detrimental neurohormonal axes, namely sympathetic and renin-angiotensin-aldosterone (RAAS) systems. More recently, sacubitril/valsartan, a first-in-class angiotensin receptor neprilysin inhibitor, combining inhibition of RAAS and potentiation of the counter-regulatory natriuretic peptide system, has been consistently demonstrated to reduce mortality and HF-related hospitalization. A number of novel pharmacological approaches have been tested during the latest years, leading to mixed results. Among them, drugs acting directly at a second messenger level, such as the soluble guanylate cyclase stimulator vericiguat, or other addressing myocardial energetics and mitochondrial function, such as elamipretide or omecamtiv-mecarbil, will likely change the therapeutic management of patients with HF. Sodium glucose cotransporter 2 inhibitors, initially designed for the management of type 2 diabetes mellitus, have been recently demonstrated to improve outcome in HF, although mechanisms of their action on cardiovascular system are yet to be elucidated. Most of these emerging approaches have shifted the therapeutic target from neurohormonal systems to the heart, by improving cardiac contractility, metabolism, fibrosis, inflammation, and remodeling. In the present paper, we review from a pathophysiological perspective current and novel therapeutic strategies in chronic HF.

Keywords: Emerging targets; Heart failure; Neurohormonal antagonism; Pharmacodynamics; Pharmacotherapy; SGLT2 inhibitors.

8. *Orphanou N, Papatheodorou E, Anastasakis A. Dilated cardiomyopathy in the era of precision medicine: latest concepts and developments. Heart Fail Rev. 2022 Jul;27(4):1173-1191. doi: 10.1007/s10741-021-10139-0. Epub 2021 Jul 14.*

ABSTRACT

Dilated cardiomyopathy (DCM) is an umbrella term entailing a wide variety of genetic and non-genetic etiologies, leading to left ventricular systolic dysfunction and dilatation, not explained by abnormal loading conditions or coronary artery disease. The clinical presentation can vary from asymptomatic to heart failure symptoms or sudden cardiac death (SCD) even in previously asymptomatic individuals. In the last 2 decades, there has been striking progress in the understanding of the complex genetic basis of DCM, with the discovery of additional genes and genotype-phenotype correlation studies. Rigorous clinical work-up of DCM patients, meticulous family screening, and the implementation of advanced imaging techniques pave the way for a more efficient and earlier diagnosis as well as more precise indications for implantable cardioverter defibrillator implantation and prevention of SCD. In the era of precision medicine, genotype-directed therapies have started to emerge. In this review, we focus on

updates of the genetic background of DCM, characteristic phenotypes caused by recently described pathogenic variants, specific indications for prevention of SCD in those individuals and genotype-directed treatments under development. Finally, the latest developments in distinguishing athletic heart syndrome from subclinical DCM are described.

Keywords: ARVC; Athletic heart syndrome; BAG3; Cardiomyopathies; DCM; DSP; Dilated cardiomyopathy; FLNC; Heart failure; Hypokinetic non-dilated cardiomyopathy; Inherited cardiac diseases; LMNA; Molecular cardiology; PLN; Precision medicine; TMEM43.

9. *Zhao H, Chen Y, Mao M, Yang J, Chang J. A meta-analysis of colchicine in prevention of atrial fibrillation following cardiothoracic surgery or cardiac intervention. J Cardiothorac Surg. 2022 Sep 1;17(1):224. doi: 10.1186/s13019-022-01958-9.*

ABSTRACT

Background: Postoperative atrial fibrillation (POAF) is the most common complication after cardiothoracic surgery or cardiac intervention. Colchicine is an anti-inflammatory agent that was associated with improved cardiovascular outcomes. However, its effect on POAF prevention was inconsistent across studies. Therefore, the aim of this meta-analysis was to evaluate the efficacy of colchicine in prevention of POAF.

Methods: We searched PubMed, Embase, ClinicalTrials.gov, Cochrane Library database and Google Scholar for randomized controlled trials (RCTs), using terms "atrial fibrillation" and "colchicine". The primary end point was the occurrence of clinically diagnosed atrial fibrillation. The relative risk (RR) and 95% confidence interval (CI) were evaluated. Estimates were pooled using DerSimonian-Laird random-effects model. We also performed subgroup analyses based on the duration and dose of colchicine treatment.

Results: A total of 9 RCTs were included in this meta-analysis, enrolling a total of 2031 patients. Colchicine significantly reduces the incidence of POAF (RR 0.62; 95% CI, 0.52-0.74, $P < 0.001$, $I^2 = 0\%$). Subgroup analyses indicated that the protective effect of colchicine on POAF was slightly stronger in the long-duration group (RR 0.60; 95% CI, 0.48-0.75, $P < 0.001$, $I^2 = 0\%$) than in the short-duration group (RR 0.65; 95% CI, 0.49-0.86, $P < 0.001$, $I^2 = 0\%$).

Conclusion: Colchicine is effective in preventing the occurrence of POAF. The efficacy of colchicine can be slightly increased over treatment duration, with no obvious adverse reactions.

Keywords: Atrial fibrillation; Cardiac intervention; Cardiothoracic surgery; Colchicine; POAF.

10. *Arends BC, Timmerman L, Vernooij LM, Verwijmeren L, Biesma DH, van Dongen EPA, et al. Preoperative frailty and chronic pain after cardiac surgery: a prospective observational study. BMC Anesthesiol. 2022 Jul 1;22(1):201. doi: 10.1186/s12871-022-01746-x.*

ABSTRACT

Background: Chronic pain after cardiac surgery, whether or not related to the operation, is common and has negative impact on health related quality of life (HRQL). Frailty is a risk factor for adverse surgical outcomes, but its relationship with chronic pain after cardiac surgery is unknown. This study aimed to address the association between frailty and chronic pain following cardiac surgery.

Methods: This sub-study of the Anesthesia Geriatric Evaluation study included 518 patients ≥ 70 years undergoing elective cardiac surgery. Pain was evaluated with the Short-Form 36 questionnaire prior to and one year after surgery. Associations between chronic postoperative pain and frailty domains, including medication use, nutritional status, mobility, physical functioning, cognition, HRQL, living situation and educational level, were investigated with multivariable regression analysis.

Results: Chronic pain one year after cardiac surgery was reported in 182 patients (35%). Medication use, living situation, mobility, gait speed, Nagi's physical functioning and preoperative HRQL were frailty domains associated with chronic pain after surgery. For patients with chronic pain physical HRQL after one year was worse compared to patients without chronic pain (β -10.37, 99% CI -12.57 - -8.17).

Conclusions: Preoperative polypharmacy, living alone, physical frailty and lower mental HRQL are associated with chronic pain following cardiac surgery. Chronic postoperative pain is related to worse physical HRQL one year after cardiac surgery. These findings may guide future preoperative interventions to reduce chronic pain and poor HRQL after cardiac surgery in older patients.

Trial registration: This trial has been registered before initiation under number NCT02535728 at clinicaltrials.gov.

Keywords: Chronic pain; Elderly; Frailty; Postoperative pain.

11. *Jones H, Hammond L. Threshold concepts in medical education: A scoping review. Med Educ. 2022 Oct;56(10):983-993. doi: 10.1111/medu.14864. Epub 2022 Jul 24.*

ABSTRACT

Introduction: The threshold concept framework (TCF) was first described nearly 20 years ago, but its application in the field of medical education has recently seen a significant growth of interest with a diverse range of literature

published on the subject. The transformative nature of threshold concepts (TCs) offers potential for the design of learning experiences and curricula across the medical education continuum. A scoping review was conducted to map the extent of the current literature regarding TCs in medical education-to describe the types of available evidence and its focus-and identify research gaps.

Methods: The review followed the JBI Manual for Evidence Synthesis approach for scoping reviews. Four databases and two additional websites were searched for articles exploring TCs in medical education. Data were analysed using quantitative and qualitative thematic approaches. A framework of conceptual change was used to synthesise the TCs identified.

Results: Thirty-six papers, spanning undergraduate, postgraduate and continuing medical education, were included in the final analysis. The most frequent application of the TCF was in the identification of TCs, which related to basic scientific knowledge, ways of thinking and ways of practising in medicine. Uncertainty, patient care, clinical reasoning and professional identify formation were themes that emerged at multiple stages of training. Several papers evaluated the use of the TCF in teaching.

Conclusion: The understanding and embodiment of TCs increases in complexity across the medical education continuum, with TCs recurring with changes in clinical environment and responsibilities. This lends support to a holistic approach to curriculum design spanning all stages of training. Further research is needed to develop a consistent approach for describing and applying the TCF in medical education and to address how the TCF can be used in teaching and how threshold crossing can be measured.

12. *Hege I, Schüttpez-Brauns K, Kiessling C. How is the situation of women in leadership positions in medical education in Germany? GMS J Med Educ. 2022 Jul 15;39(3):Doc36. doi: 10.3205/zma001557. eCollection 2022.*

ABSTRACT

In Germany, about two thirds of students and doctoral candidates in medicine are female. The proportion is only about 35% for post-doctoral degrees and much lower for many leadership positions at medical schools and on medical education committees. Although reasons for this have long been known, changes are slow in coming. Therefore, with this commentary, we would like to shed light on the current situation regarding gender equality in Germany in medical education and identify and discuss measures. These include, for example, mentoring and networking programs as well as greater consideration of women in committees.

Keywords: gender equality; medical education; mentoring.