

## SELECTED ABSTRACTS FROM PUBMED

1. *Støving RK. Mechanisms in endocrinology: Anorexia nervosa and endocrinology: a clinical update. Eur J Endocrinol. 2019 Jan 1;180(1):R9-R27.*

### ABSTRACT

Anorexia nervosa is a syndrome that is collections of symptoms, which is not defined by its etiology. The severe cases are intractable. The syndrome is associated with multiple, profound endocrine alterations which may be adaptive, reactive or etiologic. Adaptive changes potentially may be inappropriate in clinical settings such as inpatient intensive re-nutrition or in a setting with somatic comorbidity. Electrolyte levels must be closely monitored during the refeeding process, and the need for weight gain must be balanced against potentially fatal refeeding complications. An important focus of clinical research should be to identify biomarkers associated with different stages of weight loss and re-nutrition combined with psychometric data. Besides well-established peripheral endocrine actions, several hormones also are released directly to different brain areas, where they may exert behavioral and psychogenic actions that could offer therapeutic targets. We need reliable biomarkers for predicting outcome and to ensure safe re-nutrition, however, first of all we need them to explore the metabolism in anorexia nervosa to open new avenues with therapeutic targets. A breakthrough in our understanding and treatment of this whimsical disease remains. Considering this, the aim of the present review is to provide an updated overview of the many endocrine changes in a clinical perspective.

2. *Erickson S, Kim BS. Research techniques made simple: itch measurement in clinical trials. J Invest Dermatol. 2019 Feb;139(2):264-269.e1.*

### ABSTRACT

Chronic itch, defined as itch lasting longer than 6 weeks, is a highly prevalent and debilitating symptom known to profoundly and negatively affect quality of life. The development of effective targeted therapies for some chronic itch disorders such as atopic dermatitis has given widespread recognition to the importance of measuring itch in clinical trials. Clinical trials now use itch measurement as a primary outcome measure, and steps toward the standardization of itch assessment are being made to meet the growing need for reliably measuring itch and its impact on quality of life in the clinical research setting. Itch can be evaluated via subjective patient-reported assessments or by objective measurement of scratching activity and scratching-induced skin changes. Herein, methods for the subjective assessment of itch via both unidimensional and multidimensional tools are discussed.

3. *Nor NAM, Taib NA, Saad M, Zaini HS, Ahmad Z, Ahmad Y, et al. Development of electronic medical records for clinical and research purposes: the breast cancer module using an implementation framework in a middle income country- Malaysia. BMC Bioinformatics. 2019 Feb 4;19(Suppl 13):402.*

### ABSTRACT

**Background:** Advances in medical domain has led to an increase of clinical data production which offers enhancement opportunities for clinical research sector. In

this paper, we propose to expand the scope of Electronic Medical Records in the University Malaya Medical Center (UMMC) using different techniques in establishing interoperability functions between multiple clinical departments involving diagnosis, screening and treatment of breast cancer and building automatic systems for clinical audits as well as for potential data mining to enhance clinical breast cancer research in the future.

**Results:** Quality Implementation Framework (QIF) was adopted to develop the breast cancer module as part of the in-house EMR system used at UMMC, called i-Pesakit©. The completion of the i-Pesakit© Breast Cancer Module requires management of clinical data electronically, integration of clinical data from multiple internal clinical departments towards setting up of a research focused patient data governance model. The 14 QIF steps were performed in four main phases involved in this study which are (i) initial considerations regarding host setting, (ii) creating structure for implementation, (iii) ongoing structure once implementation begins, and (iv) improving future applications. The architectural framework of the module incorporates both clinical and research needs that comply to the Personal Data Protection Act.

**Conclusion:** The completion of the UMMC i-Pesakit© Breast Cancer Module required populating EMR including management of clinical data access, establishing information technology and research focused governance model and integrating clinical data from multiple internal clinical departments. This multidisciplinary collaboration has enhanced the quality of data capture in clinical service, benefited hospital data monitoring, quality assurance, audit reporting and research data management, as well as a framework for implementing a responsive EMR for a clinical and research organization in a typical middle-income country setting. Future applications include establishing integration with external organization such as the National Registration Department for mortality data, reporting of institutional data for national cancer registry as well as data mining for clinical research. We believe that integration of multiple clinical visit data sources provides a more comprehensive, accurate and real-time update of clinical data to be used for epidemiological studies and audits.

**Keywords:** Breast Cancer; Database mirroring; Electronic medical record; Medical system; Quality implementation framework.

4. *Read KB. Adapting data management education to support clinical research projects in an academic medical center. J Med Libr Assoc. 2019 Jan;107(1):89-97.*

### ABSTRACT

**Background:** Librarians and researchers alike have long identified research data management (RDM) training as a need in biomedical research. Despite the wealth of libraries offering RDM education to their communities, clinical research is an area that has not been targeted. Clinical RDM (CRDM) is seen by its community as an essential part of the research process where established guidelines exist, yet educational initiatives in this area are unknown.

**Case presentation:** Leveraging my academic library's experience supporting CRDM through informationist grants and REDCap training in our medical center, I

developed a 1.5 hour CRDM workshop. This workshop was designed to use established CRDM guidelines in clinical research and address common questions asked by our community through the library's existing data support program. The workshop was offered to the entire medical center 4 times between November 2017 and July 2018. This case study describes the development, implementation, and evaluation of this workshop.

**Conclusions:** The 4 workshops were well attended and well received by the medical center community, with 99% stating that they would recommend the class to others and 98% stating that they would use what they learned in their work. Attendees also articulated how they would implement the main competencies they learned from the workshop into their work. For the library, the effort to support CRDM has led to the coordination of a larger institutional collaborative training series to educate researchers on best practices with data, as well as the formation of institution-wide policy groups to address researcher challenges with CRDM, data transfer, and data sharing.

5. *He J, Baxter SL, Xu J, Xu J, Zhou X, Zhang K. The practical implementation of artificial intelligence technologies in medicine. Nat Med. 2019 Jan;25(1):30-36.*

#### ABSTRACT

The development of artificial intelligence (AI)-based technologies in medicine is advancing rapidly, but real-world clinical implementation has not yet become a reality. Here we review some of the key practical issues surrounding the implementation of AI into existing clinical workflows, including data sharing and privacy, transparency of algorithms, data standardization, and interoperability across multiple platforms, and concern for patient safety. We summarize the current regulatory environment in the United States and highlight comparisons with other regions in the world, notably Europe and China.

6. *Bode MF, Hilgendorf I. Integrating basic science in academic cardiology training: two international perspectives on a common challenge. Clin Res Cardiol. 2019; 108(1): 1-5.*

#### ABSTRACT

Political bodies and professional societies acknowledge that translational research benefits from researchers trained in both, clinical medicine and basic science. Yet, few physicians undergoing clinical training in cardiology seek this dual career (Milewicz et al. J Clin Invest 125:3742-3747, 2015). The reasons are likely manifold, but with cardiology having become increasingly interventional and facing economic pressure, how much attention, credit, and encouragement is given to physicians interested in basic cardiovascular science? Having studied and worked in hospitals and laboratories, in both Germany and the USA, we aim to compare in this article how basic science education is currently integrated into cardiology training at German and US university hospitals, from medical school to more advanced career stages. By doing so, we hope to provide some outside perspectives to young physicians and decision makers alike, that may inspire changes to curricula in the respective countries and around the world.

**Keywords:** Clinician scientist; Education; Training.

7. *Zhang J, Begley A, Jackson R, Harrison M, Pellicori P, Clark AL, et al. Body mass index and all-cause mortality in heart failure patients with normal and reduced ventricular ejection fraction: a dose-response meta-analysis. Clin Res Cardiol. 2019 Feb;108(2):119-132.*

#### ABSTRACT

**Background:** For patients with heart failure, there is an inverse relation between body mass index (BMI) and mortality, sometimes called the obesity-paradox. However, the relationship might be either U- or J-shaped and might differ between patients with reduced (HF<sub>r</sub>EF) or preserved left ventricular ejection fraction (HF<sub>p</sub>EF). We sought to investigate this further in a dose-response meta-analysis of published studies.

**Methods:** PubMed and Embase from June 1980 to April 2017 were searched for prospective cohort studies evaluating associations between BMI and all-cause mortality in patients with HF<sub>r</sub>EF (LVEF < 40%) or HF<sub>p</sub>EF (LVEF ≥ 50%). Summary estimated effect sizes were obtained by using a random-effects model. Potential non-linear relationships were evaluated by using random-effects restricted cubic spline models.

**Results:** Ten studies were identified that included 96,424 patients of whom 59,263 had HF<sub>p</sub>EF (mean age 68 years of whom 38% were women) and 37,161 had HF<sub>r</sub>EF (mean age 60 years of whom 17% were women). For patients with HF<sub>p</sub>EF, the summary hazard ratio (HR) for all-cause mortality was: 0.93 (95% CI 0.89-0.97) per 5 units increase in BMI ( $I^2 = 75.8\%$ ,  $p$  for heterogeneity = 0.01 and Begg's test,  $p = 1.0$ , Egger's test,  $p = 0.29$ ) but the association was U-shaped ( $p$  for non-linearity < 0.01) with the nadir of risk at a BMI of 32-33 kg/m<sup>2</sup>. For patients with HF<sub>r</sub>EF, the summary HR for all-cause mortality was: 0.96 (95% CI 0.92-0.99) ( $I^2 = 95\%$ ,  $p$  for heterogeneity < 0.001 and Begg's test,  $p = 0.45$ , Egger's test,  $p = 0.01$ ). The relationship was also U-shaped ( $p < 0.01$ ), although 'flatter' than for HF<sub>p</sub>EF, with the nadir at a BMI of 33 kg/m<sup>2</sup>.

**Conclusions:** For patients with heart failure, the relation between BMI and mortality is U-shaped with a similar nadir of risk for HF<sub>p</sub>EF and HF<sub>r</sub>EF at a BMI of 32-33 kg/m<sup>2</sup>. Whether interventions that alter weight in either direction can alter risk is unknown.

**Keywords:** BMI; Dose-response meta-analysis; HF<sub>p</sub>EF; HF<sub>r</sub>EF; Mortality.

8. *Ek A, Ekblom O, Hambraeus K, Cider A, Kallings LV, Börjesson M. Physical inactivity and smoking after myocardial infarction as predictors for readmission and survival: results from the SWEDEHEART-registry. Clin Res Cardiol. 2019 Mar;108(3):324-332.*

#### ABSTRACT

**Background:** Physical activity (PA) and smoking cessation are included in the secondary prevention guidelines after myocardial infarction (MI), but they are still underutilised. This study aims to explore how PA level and smoking status (6-10 weeks post-MI) were associated with 1-year readmission and mortality during full follow-up time, and with the cumulative 5-year mortality.

**Methods:** A population-based cohort of all hospitals providing MI-care in Sweden (SWEDEHEART-registry) in 2004-2014. PA was expressed as the number of exercise sessions of ≥ 30 min in the last 7 days: 0-1 (low), 2-4

(medium) and 5-7 (high) sessions/week. Individuals were categorised as smokers, former smokers or never-smokers. The associations were analysed by unadjusted and adjusted logistic and Cox regressions.

**Results:** During follow-up (M = 3.58 years), a total of 1702 deaths occurred among 30 644 individuals (14.1 cases per 1000 person-years). For medium and high PA, the hazard ratios (HRs) for mortality were 0.39 and 0.36, respectively, compared with low PA. For never-smokers, the HR was 0.45 and former smokers 0.56 compared with smokers. Compared with low PA, the odds ratios (ORs) for readmission in medium PA were 0.65 and 0.59 for CVD and non-CVD causes, respectively. For high PA, the corresponding ORs were 0.63 and 0.55. The association remained in adjusted models. There were no associations between smoking status and readmission.

**Conclusions:** The PA level and smoking status are strong predictors of mortality post-MI and the PA level also predicts readmission, highlighting the importance of adherence to the secondary prevention guidelines.

**Keywords:** Hospitalisation; Myocardial ischaemia; Physical activity; Survival; Tobacco.

9. *Blunt SB, Kafatos A. Clinical Nutrition Education of Doctors and Medical Students: Solving the Catch 22. Adv Nutr. 2019 Mar 1;10(2):345-350.*

#### ABSTRACT

There is a well-documented pandemic of malnutrition. It has numerous sequelae, including physical and psychological ill health, early death, and socioeconomic burden. The nutrition landscape and dynamics of the nutrition transition are extremely complex, but one significant factor in both is the role of medical management. Doctors have a unique position in society from which to influence this scenario at global, public, and personal levels, but we are failing to do so. There are several reasons for this, including inadequate time; historical educational bias towards disease and therapeutic intervention-rather than diet, lifestyle, and prevention; actual or perceived incompetency in the field of nutrition; confusion or deflection within medicine about whose role(s) it is on a medical team to address nutrition; and public confusion about whom to turn to for advice. But the most fundamental reason is that current doctors (and thus the trainers of medical students) have not received-and future doctors are thus still not receiving-adequate training to render them confident or competent to take on the role. A small number of important educational approaches exist aimed at practicing doctors and medical students, but the most effective methods of teaching are still being evaluated. Without properly trained trainers, we have no one to train the doctors of tomorrow. This is a "catch 22." To break this deadlock, there is an urgent need to make appropriate nutrition training available, internationally, and at all levels of medical education (medical students, doctors-in-training, and practicing doctors). Until this is achieved, the current pandemic of nutrition-related disease will continue to grow. Using important illustrative examples of existing successful nutrition education approaches, we suggest potential approaches to breaking this deadlock.

**Keywords:** dietary education; global malnutrition; lifestyle education; nutrition education; nutrition education of

doctors; nutrition education of medical students; nutrition teachers; nutrition training; primary prevention.

10. *Maeno T, Haruta J, Takayashiki A, Yoshimoto H, Goto R, Maeno T. Interprofessional education in medical schools in Japan. PLoS One. 2019 Jan 17;14(1):e0210912.*

#### ABSTRACT

Interprofessional education (IPE) for medical students is becoming increasingly important, as reflected in the increasing number of medical schools adopting IPE. However, the current status of and barriers to pre-registration IPE implementation in Japanese medical schools remain unknown. The purpose of this study was to clarify the status and barriers of IPE implementation in medical schools in Japan. We conducted a curriculum survey from September to December 2016 of all 81 medical schools in Japan. We mailed the questionnaire and asked the schools' undergraduate education staff to respond. The survey items were the IPE implementation status and barriers to program implementation. Sixty-four of the 81 schools responded (response rate 79.0%), of which 46 (71.9%) had implemented IPE, 42 (89.1%) as compulsory programs. Half of IPE programs were implemented in the first 2 years, while less than 10% were implemented in the latter years of medical programs. As part of the IPE programs, medical students collaborated with a wide range of professional student groups. The most common learning strategy was lectures. However, one-third of IPE programs used didactic lectures without interaction between multi-professional students. The most common perceived major barrier to implementing IPE was adjustment of the academic calendar and schedule (82.8%), followed by insufficient staff numbers (73.4%). Our findings indicate that IPE is being promoted in undergraduate education at medical schools in Japan. IPE programs differed according to the circumstances of each school. Barriers to IPE may be resolved by improving learning methods, introducing group discussions between multi-professional students in lectures or introducing IPE programs using team-based learning. In summary, we demonstrated the current status and barriers of IPE implementation in Japanese medical schools. Our findings will likely lead to the promotion of IPE programs in Japan.

11. *Alsjö A, Wennström B, Landström B, Silén C. Implementing clinical education of medical students in hospital communities: experiences of healthcare professionals. Int J Med Educ. 2019 Mar 27;10:54-61.*

#### ABSTRACT

**Objectives:** To explore healthcare professionals' experiences of implementing clinical education of medical students in communities of practice that previously focused on the delivery of healthcare services.

**Methods:** Seven focus group interviews involving assistant nurses, nurses, and physicians were conducted at a regional hospital in Sweden. A total of 35 respondents participated. Open-ended questions were used to explore respondents' experiences of medical students in their community. Data were analysed using qualitative inductive content analysis.

**Results:** Three main themes emerged: Staff members becoming learners, structural and sociocultural changes due to the implementation, and features designing the

settings of the implementation. Reflection and interactive learning processes among staff, patients, and students were found to stimulate individual learning, to improve the learning climate in the organisation, and to enhance the structure of the clinical work. Attitudes to education among staff members as well as awareness of how education is organised appeared to be vital for their experiences and approaches.

**Conclusions:** Implementing clinical education of medical students at a hospital previously focused on delivery of care was acknowledged to not only stimulate learning among staff but also trigger structural and cultural development in communities of practice. Opportunities for interprofessional interaction and reflection are vital to successfully implement a new student group in communities of practice. Addressing conceptions about and attitudes toward the clinical education of students among healthcare professionals are essential to promote their engagement in education.

**Keywords:** clinical education; community of practice; interprofessional learning; medical students; reflection.

12. *Rogers SL, Priddis LE, Michels N, Tieman M, Van Winkle LJ. Applications of the reflective practice questionnaire in medical education. BMC Med Educ. 2019 Feb 7;19(1):47.*

#### ABSTRACT

**Background:** We sought to determine whether the Reflective Practice Questionnaire (RPQ) is a reliable measure of reflective capacity and related characteristics in medical students. We also planned to learn how the RPQ could be used in medical education.

**Methods:** The RPQ is a 40 item self-report questionnaire that includes a multi-faceted approach to measuring reflective capacity. It also includes sub-scales on several

other theoretically relevant constructs such as desire for improvement, confidence, stress, and job satisfaction. The reliabilities of reflective capacity and other sub-scales were determined by calculating their Cronbach alpha reliability values. In the present study, the RPQ was answered by 98 graduating fourth-year medical students from an American University, and these RPQ scores were compared with general public and mental health practitioner samples from a prior study using ANOVA and Bonferroni adjusted comparisons.

**Results:** Medical students reported a higher reflective capacity than the general public sample, but students were statistically indistinguishable from the mental health practitioner sample. For medical students, reflective capacity was associated with features of confidence, stress, and desire for improvement. Job satisfaction was positively associated with confidence in communication with patients, and negatively associated with stress when interacting with patients. A cluster analysis revealed that around 19% of the medical students exhibited a relatively high level of anxiety interacting with patients, 23% were less engaged, 5% were dissatisfied, and 7% expressed a level of over-confidence in their knowledge and skills that was concerning.

**Conclusions:** The RPQ is a reliable measure of reflective capacity (Chronbach's alpha value = 0.84) and related characteristics (Cronbach's alpha values from 0.75 to 0.83) in medical students. The RPQ can be used as part of pre-post evaluations of medical education initiatives, to complement student self-reflection activities in the curriculum, and to identify students who might benefit from targeted intervention.

**Keywords:** Anxiety; Communication; Job satisfaction; Medical education; Over-confidence; Reflective capacity; Stress.