SELECTED ABSTRACTS FROM PUBMED

1. ***Florent Mbo F, Mutombo W, Ngolo D, Kabangu P, Mordt OV, Wourgaft NS, et al. How Clinical Research Can Contribute to Strengthening Health Systems in Low Resource Countries. Trop Med Infect Dis. 2020 Mar 29;5(2):48.***

ABSTRACT

Clinical research on neglected tropical diseases is a challenge in low-resource countries, and the contribution of clinical and operational research to health system strengthening is poorly documented. Developing new, simple, safe, and effective treatments may improve the effectiveness of health systems, and conducting research directly in health structures may have an additional impact. This study describes the process of conducting clinical trials in the Democratic Republic of Congo (DRC) in compliance with international standards, and the role of the trials in strengthening health system functions, including governance, human resources, health information, provision of care, and the equipping of health services with the necessary supplies and infrastructure. We conclude that conducting clinical trials in endemic areas has not only reinforced and supported the aim of conducting high-level clinical research in endemic countries, but has also brought lasting benefits to researchers, staff, and hospitals, as well as to broader health systems, which have positive knock-on effect on patients outside of the clinical trials and their communities. Sustainability, however, remains a challenge in an underfunded health system, especially with respect to specialized equipment. Clinical research in most of sub-Saharan Africa is highly dependent on international input and external technical support; there are areas of weaknesses in trial design and documentation, as well as in data management and analysis. Financing remains a critical issue, as African investigators have difficulties in directly accessing sources of international research funding.

Keywords: clinical research; health system strengthening; human African trypanosomiasis.

2. ***Deutz DB, Vlachos E, Drongstrup D, Dorch BF, Wien C. Effective publication strategies in clinical research. PLoS One. 2020 Jan 30;15(1):e0228438.***

ABSTRACT

Researchers in Europe are increasingly assessed by their publication metrics. To uncover the effect of quantitative assessment on the publication strategies of clinical researchers in Denmark, we interviewed 9 senior researchers at the Department of Clinical Research at the University of Southern Denmark with the lowest and highest values for a, as defined by Hirsch. Our aim is to investigate the importance of these metrics to their academic careers: h-index, number of publications, number of citations, international collaborations, local collaborations, field specific journal publishing and high journal impact factor publishing. To validate our findings we compared their publication record to their statistically analyzed stated publication strategy. Our results indicate two styles of publication strategy used by these senior researchers. Researchers with Low a engage in local collaborations, disseminate knowledge in local media and publish in field specific journals, while researchers with High a engage in international collaborations, invest significant time in publishing in the highest impact journals in their field, and acquire a greater number of citations. Both publication strategies can lead to a successful academic career, yet we have an indication through the h5-index that the practices of the High a group are more likely to nudge the h-index.

3. ***Bunnell BE, Sprague G, Qanungo S, Nichols M, Magruder K, Lauzon S, et al. An Exploration of Useful Telemedicine-Based Resources for Clinical Research. Telemed J E Health. 2020 Jan;26(1):51-65.***

ABSTRACT

Background: Clinical trials are key to ensuring high-quality, effective, and safe health care interventions, but there are many barriers to their successful and timely implementation. Difficulties with participant recruitment and enrollment are largely affected by difficulties with obtaining informed consent. Teleconsent is a telemedicine-based approach to obtaining informed consent and offers a unique solution to limitations of traditional consent approaches.

Methods: We conducted a survey among 134 clinical trial researchers in academic/university-, industry-, and clinically based settings. The survey addressed important aspects of teleconsent, potential teleconsent enhancements, and other telehealth capabilities to support clinical research.

Results: The majority of respondents viewed teleconsent as an important approach for obtaining informed consent and indicated that they would likely use teleconsent if available. Consenting participants at remote sites, increasing access to clinical trials, and consenting participants in their homes were viewed as the greatest opportunities for teleconsent. Features for building, validating, and assessing understanding of teleconsent forms, mobile capabilities, three-way teleconsent calls, and direct links to forms via recruitment websites were viewed as important teleconsent enhancements. Other telehealth capabilities to support clinical research, including surveys, file transfer, three-way video, screenshare, and photo capture during telemedicine visits, and proposed telemedicine capabilities such as video call recording, ID information capture, and integration of medical devices, were also viewed as important.

Conclusions: Teleconsent and telemedicine are promising solutions to some common challenges to clinical trials. Many barriers to study recruitment and enrollment might

be overcome by investing time and resources and further evaluating this technology.

Keywords: clinical research; teleconsent; telemedicine.

4. Zhou F, Yu T, Du R, Fan G, Liu Y, Liu Z, et al. Clinical course and risk factors for mortality of adult inpatients with COVID-19 in Wuhan, China: a retrospective cohort study. Lancet. 2020 Mar 28;395(10229):1054-1062.

ABSTRACT

Background: Since December, 2019, Wuhan, China, has experienced an outbreak of coronavirus disease 2019 (COVID-19), caused by the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). Epidemiological and clinical characteristics of patients with COVID-19 have been reported but risk factors for mortality and a detailed clinical course of illness, including viral shedding, have not been well described.

Methods: In this retrospective, multicentre cohort study, we included all adult inpatients (≥18 years old) with laboratory-confirmed COVID-19 from Jinyintan Hospital and Wuhan Pulmonary Hospital (Wuhan, China) who had been discharged or had died by Jan 31, 2020. Demographic, clinical, treatment, and laboratory data, including serial samples for viral RNA detection, were extracted from electronic medical records and compared between survivors and non-survivors. We used univariable and multivariable logistic regression methods to explore the risk factors associated with in-hospital death.

Findings: 191 patients (135 from Jinyintan Hospital and 56 from Wuhan Pulmonary Hospital) were included in this study, of whom 137 were discharged and 54 died in hospital. 91 (48%) patients had a comorbidity, with hypertension being the most common (58 [30%] patients), followed by diabetes (36 [19%] patients) and coronary heart disease (15 [8%] patients). Multivariable regression showed increasing odds of in-hospital death associated with older age (odds ratio 1·10, 95% CI 1·03-1·17, per year increase; p=0·0043), higher Sequential Organ Failure Assessment (SOFA) score (5·65, 2·61-12·23; p<0·0001), and d-dimer greater than 1 μg/mL (18·42, 2·64-128·55; p=0·0033) on admission. Median duration of viral shedding was 20·0 days (IQR 17·0-24·0) in survivors, but SARS-CoV-2 was detectable until death in non-survivors. The longest observed duration of viral shedding in survivors was 37 days.

Interpretation: The potential risk factors of older age, high SOFA score, and d-dimer greater than 1 μg/mL could help clinicians to identify patients with poor prognosis at an early stage. Prolonged viral shedding provides the rationale for a strategy of isolation of infected patients and optimal antiviral interventions in the future.

Funding: Chinese Academy of Medical Sciences Innovation Fund for Medical Sciences; National Science Grant for Distinguished Young Scholars; National Key Research and Development Program of China; The Beijing Science and Technology Project; and Major Projects of National Science and Technology on New Drug Creation and Development.

5. Michelson KA, Nigrovic LE, Nagler J, McAneney CM, Mistry RD, Survey Committee of the Pediatric Emergency Medicine Collaborative Research Committee. Research Interest in Pediatric Emergency Medicine Fellows. Pediatr Emerg Care. 2020 Feb;36(2):e38-e42.

ABSTRACT

Objective: Factors predictive of research career interest among pediatric emergency medicine (PEM) fellows are not known. We sought to determine the prevalence and determinants of interest in research careers among PEM fellows.

Methods: We performed an electronically distributed national survey of current PEM fellows. We assessed demographics, barriers to successful research, and beliefs about research using 4-point ordinal scales. The primary outcome was the fellow-reported predicted percentage of time devoted to clinical research 5 years after graduation. We measured the association between barriers and beliefs and the predicted future clinical research time using the Spearman correlation coefficient.

Results: Of 458 current fellows, 231 (50.4%) submitted complete responses to the survey. The median predicted future clinical research time was 10% (interquartile range, 5%-20%). We identified no association between sex, residency type, and previous research exposure and predicted future research time. The barrier that most correlated with decreased predicted clinical research time was difficulty designing a feasible fellowship research project (Spearman coefficient [ρ], 0.20; P = 0.002). The belief that most correlated with increased predicted clinical research time was excitement about research (ρ = 0.69, P < 0.001).

Conclusions: Most fellows expect to devote a minority of their career to clinical research. Excitement about research was strongly correlated with career research interest.

6. Ebner M, Kresoja K-P, Keller K, Hobohm L, Rogge NIJ, Hasenfuß G, et al. Temporal trends in management and outcome of pulmonary embolism: a single-centre experience. Clin Res Cardiol. 2020 Jan;109(1):67-77.

ABSTRACT

Background: Real-world data on the impact of advances in risk-adjusted management on the outcome of patients with pulmonary embolism (PE) are limited.

Methods: To investigate temporal trends in treatment, in-hospital adverse outcomes and 1-year mortality, we analysed data from 605 patients [median age, 70 years (IQR 56-77) years, 53% female] consecutively enrolled in a single-centre registry between 09/2008 and 08/2016.

Results: Over the 8-year period, more patients were classified to lower risk classes according to the European

Society of Cardiology (ESC) 2014 guideline algorithm while the number of high-risk patients with out-of-hospital cardiac arrest (OHCA) increased. Although patients with OHCA had an exceptionally high in-hospital mortality rate of 59.3%, the rate of PE-related in-hospital adverse outcomes (12.2%) in the overall patient cohort remained stable over time. The rate of reperfusion treatment was 9.6% and tended to increase in high-risk patients. We observed a decrease in the median duration of in-hospital stay from 10 (IQR 6-14) to 7 (IQR 4-15) days, an increase of patients discharged early from 2.1 to 12.2% and an increase in the use of non-vitamin K-dependent oral anticoagulants (NOACs) from 12.6 to 57.2% in the last 2 years (09/2014-08/2016) compared to first 6 years (09/2008-08/2014). The 1-year mortality rate (16.9%) remained stable throughout the study period.

Conclusion: In-hospital adverse outcomes and 1-year mortality remained stable despite more patients with OHCA, shorter in-hospital stays, more patients discharged early and a more frequent NOAC use.

Keywords: Anticoagulation; Early discharge; Pulmonary embolism; Risk assessment; Trends.

7. Khan AW, Sethi A, Wajid G, Yasmeen R. Challenges towards quality assurance of Basic Medical Education in Pakistan. Pak J Med Sci. Jan-Feb 2020;36(2):4-9.

ABSTRACT

Objective: There are growing concerns towards the quality of medical education in Pakistan. To help strengthen accreditation processes, this study identifies the challenges towards quality assurance of Basic Medical Education in Pakistan.

Methods: A qualitative case study was carried out from March to August 2018. Participants included inspectors from various disciplines in both public and private medical colleges, and medical educationists from Pakistan. Semi-structured interviews were conducted with 12 inspectors, while focus group discussion included 10 medical educationists. All the interviews were audio recorded and transcribed verbatim. Thematic analysis was conducted to capture the intricacies of meaning within the data.

Results: Data identified 14 sub-themes grouped under three major themes. Challenges towards quality assurance included mounting political influence, commercialism in medical education, weak regulatory capacity of accrediting body, violation of rules, lack of valid accreditation standards and skilled inspectors.

Conclusion: Quality assurance of Basic Medical Education in Pakistan involves various systemic, resource and personnel related challenges. The accrediting body needs to bring major reforms in its accreditation system and strengthen its regulatory and technical educational capacity to ensure the quality of medical education in nearly 168 medical and dental colleges of the country.

Keywords: Accreditation; Basic Medical Education; Challenges; Quality Assurance.

8. Barteit S, Guzek D, Jahn A, Bärnighausen T, Jorge MM, Neuhann F. Evaluation of e-learning for medical education in low- and middle-income countries: A systematic review. Comput Educ. 2020 Feb;145:103726.

ABSTRACT

In low- and middle-income countries (LMICs), e-learning for medical education may alleviate the burden of severe health worker shortages and deliver affordable access to high quality medical education. However, diverse challenges in infrastructure and adoption are encountered when implementing e-learning within medical education in particular. Understanding what constitutes successful e-learning is an important first step for determining its effectiveness. The objective of this study was to systematically review e-learning interventions for medical education in LMICs, focusing on their evaluation and assessment methods. Nine databases were searched for publications from January 2007 to June 2017. We included 52 studies with a total of 12,294 participants. Most e-learning interventions were pilot studies (73%), which mainly employed summative assessments of study participants (83%) and evaluated the e-learning intervention with questionnaires (45%). Study designs, evaluation and assessment methods showed considerable variation, as did the study quality, evaluation periods, outcome and effectiveness measures. Included studies mainly utilized subjective measures and custom-built evaluation frameworks, which resulted in both low comparability and poor validity. The majority of studies self-concluded that they had had an effective e-learning intervention, thus indicating potential benefits of e-learning for LMICs. However, MERSQI and NOS ratings revealed the low quality of the studies' evidence for comparability, evaluation instrument validity, study outcomes and participant blinding. Many e-learning interventions were small-scale and conducted as short-termed pilots. More rigorous evaluation methods for e-learning implementations in LMICs are needed to understand the strengths and shortcomings of e-learning for medical education in low-resource contexts. Valid and reliable evaluations are the foundation to guide and improve e-learning interventions, increase their sustainability, alleviate shortages in health care workers and improve the quality of medical care in LMICs.

Keywords: Country-specific developments; Evaluation methodologies; Evaluation of CAL systems; Medical education; Post-secondary education; e-learning.

9. Rohlfsen CJ, Sayles H, Moore GF, Mikuls TR, O'Dell JR, McBrien S, Innovation in early medical education, no bells or whistles required. BMC Med Educ. 2020 Feb 7;20(1):39.

ABSTRACT

Background: Despite a paucity of evidence to support a multitude of educational innovations, curricular leaders are pressured to find innovative solutions to better prepare medical students for an evolving twenty-first century health care system. As part of this effort, this study directly compared student-rated effectiveness scores of six different learning modalities.

Methods: Study participants included 286 medical students enrolled in the second-year rheumatology core at a single academic medical center between 2013 and 2017. Students were surveyed at the end of the core with a 15-item questionnaire, and student perceived effectiveness of six different learning modalities were compared.

Results: The modality that outperformed all others was Live Patient Encounters (LPE), with significantly higher student-rated effectiveness scores when compared to the referent modality of Problem-Based Learning (PBL). Using a 5-point Likert scale with responses ranging from "not effective" to "highly effective," LPE received a mean effectiveness score of 4.77 followed by Augenblick (4.21), PBL (4.11), Gout Racer video game (3.49), Rheumatology Remedy e-module (3.49), and simulation knee injection (3.09).

Conclusions: Technologically advanced novel learning strategies were outperformed in this study by the more traditional active learning modality of LPE. This finding highlights the importance of testing innovative learning strategies at the level of the learner. Three additional conclusions can be drawn from this result. First, conflation of technology with innovation may lead to a myopic view of educational reform. Second, human factors seem to be responsible for the success of LPE and may have far-reaching educational rewards. Third, further applications of LPE should be tested in non-rheumatologic curricula. The relevance of this study is innately tied to the humanities-based application. While a formal qualitative analysis was not performed in this study, preliminary results suggest that live, structured patient interactions in the pre-clinical years of medical education may not only promote the learning of important educational objectives but also foster professional development, empathy, reflection, leadership, agency, and interpersonal skills. This "win-win" scenario (if true) would stand out as a rarity among strategic educational initiatives.

10. Fares J, Mohamad Y Fares MY, Fares Y. Medical schools in times of war: Integrating conflict medicine in medical education. Surg Neurol Int. 2020 Jan 3;11:5.

ABSTRACT

Amid the rise in conflict and war and their ensuing repercussions, traumatic injuries, psychological distress, and communicable diseases spread widely. Today, health-care providers in the Middle East are faced with new and unfamiliar cases resulting from the use of new and advanced types of weapons. In addition, there has not been enough emphasis on hands-on experiences in medical school, which can be imperative in times of war. Lack of academia is another inadequacy that limits the transmission of knowledge onto the newer generations. Here, we will shed light on the inadequacies in medical curricula in the Middle East when it comes to addressing patients of war. We also call for action to advance medical education in war-ridden areas by incorporating "conflict medicine" as an integral module in medical curricula.

Keywords: Conflict medicine; Medical education; Middle East; War.