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Evidence Update

June 2017

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July	(13.00)
Mon 3rd	Interpreting Statistics
Wed 12th	Critical Appraisal
Fri 21st	Literature Searching
Wed 26th	Interpreting Statistics
August	(12.00)
Fri 4th	Critical Appraisal
Wed 9th	Literature Searching
Tues 15th	Interpreting Statistics
Thurs 24th	Critical Appraisal

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BMJ: Education
At a glance: Current topics

BMJ Simulation and Technology Enhanced Learning
April 2017; Volume 3, Issue 2

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Latest Evidence

NICE National Institute for Health and Care Excellence

Improving feedback and reflection to improve learning. A practical guide for trainees and trainers
Publisher: Academy of Medical Royal Colleges. Publication date: 15 June 2017.

Abstract: There are many methods that can enable valuable reflection and feedback as part of individual development. However, these activities may also be undertaken poorly and may even be counterproductive to the learning process. This guide focuses on practical information for trainees and trainers on how trainee self-reflection, feedback from the trainer and trainer self-reflection can improve the performance and value of formative Workplace Based Assessments (WBAs).

Medical school places in England from September 2018
Source: House of Commons. Publication date: 29 March 2017
Abstract: This Commons Library research briefing provides information about the Government's to increase the number of medical school places in England by 1,500, starting from September 2018. This paper has been updated with details of the related Department of Health consultation, which opened on 14 March 2017.

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Medical Education

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Results

1. Social media as an open-learning resource in medical education: current perspectives.

Author(s): Sutherland, S; Jalali, A

Source: Advances in medical education and practice; 2017; vol. 8 ; p. 369-375

Publication Date: 2017

Publication Type(s): Journal Article Review

PubMedID: 28652840

Abstract:PURPOSENumerous studies evaluate the use of social media as an open-learning resource in education, but there is a little published knowledge of empirical evidence that such open-learning resources produce educative outcomes, particularly with regard to student performance. This study undertook a systematic review of the published literature in medical education to determine the state of the evidence as to empirical studies that conduct an evaluation or research regarding social media and open-learning resources.METHODSThe authors searched MEDLINE, ERIC, Embase, PubMed, Scopus, and Google Scholar from 2012 to 2017. This search included using keywords related to social media, medical education, research, and evaluation, while restricting the search to peer reviewed, English language articles only. To meet inclusion criteria, manuscripts had to employ evaluative methods and undertake empirical research.RESULTSEmpirical work designed to evaluate the impact of social media as an open-learning resource in medical education is limited as only 13 studies met inclusion criteria. The majority of these studies used undergraduate medical education as the backdrop to investigate open-learning resources, such as Facebook, Twitter, and YouTube. YouTube appears to have little educational value due to the unsupervised nature of content added on a daily basis. Overall, extant reviews have demonstrated that we know a considerable amount about social media use, although to date, its impacts remain unclear.CONCLUSIONThere is a paucity of outcome-based, empirical studies assessing the impact of social media in medical education. The few empirical studies identified tend to focus on evaluating the affective outcomes of social media and medical education as opposed to understanding any linkages between social media and performance outcomes. Given the potential for social media use in medical education, more empirical evaluative studies are required to determine educational value.

Database: Medline

2. Systematic Review of Patient-Specific Surgical Simulation: Toward Advancing Medical Education^(star, open)

Author(s): Ryu W.H.A.; Jacobs W.B.; Sutherland G.R.; Dharampal N.; Mostafa A.E.; Sharlin E.; Chan S.; Kopp G.; Hurlbert R.J.

Source: Journal of Surgical Education; 2017

Publication Date: 2017

Publication Type(s): Article In Press

Abstract: Objective: Simulation-based education has been shown to be an effective tool to teach foundational technical skills in various surgical specialties. However, most of the current simulations are limited to generic scenarios and do not allow continuation of the learning curve beyond basic technical skills to prepare for more advanced expertise, such as patient-specific surgical planning. The objective of this study was to evaluate the current medical literature with respect to the utilization and educational value of patient-specific simulations for surgical training. Methods: We performed a systematic review of the literature using Pubmed, Embase, and Scopus focusing on themes of simulation, patient-specific, surgical procedure, and education. The study included randomized controlled trials, cohort studies, and case-control studies published between 2005 and 2016. Two independent reviewers (W.H.R. and N.D) conducted the study appraisal, data abstraction, and quality assessment of the studies. Results: The search identified 13 studies that met the inclusion criteria; 7 studies employed computer simulations and 6 studies used 3-dimensional (3D) synthetic models. A number of surgical specialties evaluated patient-specific simulation, including neurosurgery, vascular surgery, orthopedic surgery, and interventional radiology. However, most studies were small in size and primarily aimed at feasibility assessments and early validation. Conclusions: Early evidence has shown feasibility and utility of patient-specific simulation for surgical education. With further development of this technology, simulation-based education may be able to support training of higher-level competencies outside the clinical settingto aid learners in their development of surgical skills.

3. The Use of Social Media in Graduate Medical Education: A Systematic Review.

Author(s): Sterling, Madeline; Leung, Peggy; Wright, Drew; Bishop, Tara F

Abstract: PURPOSE Despite the growing presence of social media in graduate medical education (GME), few studies have attempted to characterize their effect on residents and their training. The authors conducted a systematic review of the peer-reviewed literature to understand the effect of social media on resident (1) education, (2) recruitment, and (3) professionalism. METHOD The authors identified English-language peer-reviewed articles published through November 2015 using Medline, Embase, Cochrane, PubMed, Scopus, and ERIC. They extracted and synthesized data from articles that met inclusion criteria. They assessed study quality for quantitative and qualitative studies through, respectively, the Medical Education Research Study Quality Instrument and the Consolidated Criteria for Reporting Qualitative Studies. RESULTS Twenty-nine studies met inclusion criteria. Thirteen (44.8%) pertained to residency education. Twitter, podcasts, and blogs were frequently used to engage learners and enhance education. YouTube and wikis were more commonly used to teach technical skills and promote self-efficacy. Six studies (20.7%) pertained to the recruitment process; these suggest that GME programs are transitioning information to social media to attract applicants. Ten studies (34.5%) pertained to resident professionalism. Most were exploratory, highlighting patient and resident privacy, particularly with respect to Facebook. Four of these studies surveyed residents about their social network behavior with respect to their patients, while the rest explored how program directors use it to monitor residents' unprofessional online behavior. CONCLUSIONS The effect of social media platforms on residency education, recruitment, and professionalism is mixed, and the quality of existing studies is modest at best.

4. Systematic Review of Patient-Specific Surgical Simulation: Toward Advancing Medical Education☆.

Author(s): Ryu, Won Hyung A; Dharampal, Navjit; Mostafa, Ahmed E; Sharlin, Ehud; Kopp, Gail; Jacobs, William Bradley; Hurlbert, Robin John; Chan, Sonny; Sutherland, Garnette R

Abstract: OBJECTIVE Simulation-based education has been shown to be an effective tool to teach foundational technical skills in various surgical specialties. However, most of the current simulations are limited to generic scenarios and do not allow continuation of the learning curve beyond basic technical skills to prepare for more advanced expertise, such as patient-specific surgical planning. The objective of this study was to evaluate the current medical literature with respect to the utilization and educational value of patient-specific simulations for surgical training. METHODS We performed a systematic review of the literature using Pubmed, Embase, and Scopus focusing on themes of simulation, patient-specific, surgical procedure, and education. The study included randomized controlled trials, cohort studies, and case-control studies published between 2005 and 2016. Two independent reviewers (W.H.R. and N.D) conducted the study appraisal, data abstraction, and quality assessment of the studies. RESULTS The search identified 13 studies that met the inclusion criteria; 7 studies employed computer simulations and 6 studies used 3-dimensional (3D) synthetic models. A number of surgical specialties evaluated patient-specific simulation, including neurosurgery, vascular surgery, orthopedic surgery, and interventional radiology. However, most studies were small in size and primarily aimed at feasibility assessments and early validation. CONCLUSIONS Early evidence has shown feasibility and utility of patient-specific simulation for surgical education. With further development of this technology, simulation-based education may be able to support training of higher-level competencies outside the clinical setting to aid learners in their development of surgical skills.

5. A systematic review of the effectiveness of flipped classrooms in medical education.

Author(s): Chen, Fei; Lui, Angela M; Martinelli, Susan M

Abstract: CONTEXT There are inconsistent claims made about the effectiveness of the flipped classroom (FC) in medical education; however, the quality of the empirical evidence used to back up these claims is not evident. The aims of this review are to examine the scope and quality of studies on the FC teaching approach in medical education and to assess the effects of FCs on medical learning. METHODS A literature search was conducted using the major electronic databases in 2016. Peer-reviewed papers were screened and reviewed according to explicit inclusion criteria. The scope and quality of all resultant studies were evaluated. Studies identified as using controlled designs were further synthesised to assess the effects of FCs on learning. RESULTS A total of 118 articles were obtained. Full texts of 82 articles were reviewed. Nine of the included 46 articles used a controlled design when examining the effects of the FC. There were generally positive perceptions of the FC approach. However, the effects of FCs on changes in knowledge and skills were less conclusive as the effect sizes ranged from d = -0.27 to 1.21, with a median of 0.08. The varying direction and magnitude of the effect sizes, together with their 95% confidence interval, which contained zero, suggested the lack of strong evidence for the effectiveness of FCs in promoting knowledge acquisition above and beyond the traditional learning methods. CONCLUSIONS There has been a recent increase of research rigor and variety in measures of effectiveness in studies on the FC in medical education. The FC is a promising teaching approach to increase learners' motivation and engagement. More solid evidence on its effect on changes in knowledge and skills are warranted. Further studies should also examine the long-term effects of FCs with regard to knowledge retention and transfer of knowledge to professional practice and patient care.

6. Measuring Medical Students' Empathy: Exploring the Underlying Constructs of and Associations Between Two Widely Used Self-Report Instruments in Five Countries.

Author(s): Costa, Patrício; de Carvalho-Filho, Marco Antonio; Schweller, Marcelo; Thiemann, Pia; Salgueira, Ana; Benson, John; Costa, Manuel João; Quince, Thelma

Abstract: PURPOSE Understanding medical student empathy is important to future patient care; however, the definition and development of clinical empathy remain unclear. The authors sought to examine the underlying constructs of two of the most widely used self-report instruments-Davis's Interpersonal Reactivity Index (IRI) and the Jefferson Scale of Empathy version for medical students (JSE-S)-plus, the distinctions and associations between these instruments. METHOD Between 2007 and 2014, the authors administered the IRI and JSE-S in three separate studies in five countries, (Brazil, Ireland, New Zealand, Portugal, and the United Kingdom). They collected data from 3,069 undergraduate medical students and performed exploratory factor analyses, correlation analyses, and multiple linear regression analyses. RESULTS Exploratory factor analysis yielded identical results in each country, confirming the subscale structures of each instrument. Results of correlation analyses indicated significant but weak correlations (r = 0.313) between the total IRI and JSE-S scores. All intercorrelations of IRI and JSE-S subscale scores were statistically significant but weak (range r = -0.040 to 0.306). Multiple linear regression models revealed that the IRI subscales were weak predictors of all JSE-S subscale and total scores. The IRI subscales explained between 9.0% and 15.3% of variance for JSE-S subscales and 19.5% for JSE-S total score. CONCLUSIONS The IRI and JSE-S are only weakly related, suggesting that they may measure different constructs. To better understand this distinction, more studies using both instruments and involving students at different stages in their medical education, as well as more longitudinal and qualitative studies, are needed.

7. Empathy in Psychoanalysis and Medical Education - what can we learn from each other?

Author(s): Löffler-Stastka, Henriette; Datz, Felicitas; Parth, Karoline; Preusche, Ingrid; Bukowski, Xenia; Seidman, Charles

Abstract: BACKGROUND Several research areas, including medical education (ME), focus on empathy as an important topic in interpersonal relationships. This focus is central to the use of communication skills related to empathy and even more crucial to provide information in a way that makes patients feel more involved in the treatment process. Psychoanalysis (PA) provides its initial concept of empathy based on affective aspects including findings from neuroscience and brain research. Enhancing cooperation between ME and PA can help to integrate both aspects of empathy into a longitudinal training program.DISCUSSION The condition of psychoanalytic empathy definitions is the understanding of unconscious processes. It is important to primarily attend especially the dominant affects towards the patient before interpreting his or her behaviour, since in explaining the emerging affects, the analyst has to empathize with the patient to understand the (unconscious) reasons for its behaviour. A strong consideration of nonverbal communication, clinical perceptions, intuitive interaction, contagion-like processes and their implementation and empowerment in medical and therapeutic curricula is one way of beneficially using interdisciplinary approaches to yield empathy in clinical interaction. CONCLUSION Established methods of PA, like training of containment, reflective functioning, affective holding and giving meaningful interpretations in accordance with countertransferential and transferential aspects may help to put a focus on the clinican-patient-interaction and the preservation of the physicians' (mental) health. In consequence of the discussion of various training methods that take the theoretical and practical concepts of empathy into account, we aim for an implementation of the named methods in the medical curricula.

8. Cultural minority students' experiences with intercultural competency in medical education.

Author(s): Leyerzapf, Hannah; Abma, Tineke

Abstract: CONTEXT Medical schools increasingly value and focus on teaching students intercultural competency within present-day multicultural society. Little is known about the experiences of cultural minority students in intercultural competence activities. OBJECTIVES This article discusses the intercultural competence activities of medical education in a Dutch university from the perspective of cultural minority students. We will formulate recommendations for how to stimulate intercultural competency in, as well as inclusiveness of, medical education. METHODS A qualitative evaluation was performed within a medical school in the Netherlands. Data were collected through interviews (n = 23), a focus group (six participants) and participant observations (20 hours). Thematic analysis was performed. RESULTS Cultural minority students experienced a lack of respect and understanding by cultural majority students and teachers. Education activities intended to transfer intercultural knowledge, address personal prejudice and stimulate intercultural sensitivity were perceived as stigmatising and as creating an unsafe climate for cultural minority students. Cultural minority and majority students on campus seemed segregated and the intercultural awareness of minority students was not integrated in intercultural competence activities. CONCLUSIONS As cultural minority students were confronted with microaggressions, the medical school did not succeed in creating a safe education environment for all students. Contrary to their aims and intentions, intercultural competence activities had limited effect and seemed to support the polarisation of cultural minority and majority students and teachers. This can be seen as pointing towards a hidden curriculum privileging majority over minority students. For structural integration of intercultural competency in medical education, the focus must penetrate beyond curricular activities towards the critical addressing of the culture and structure of medical school. Collective commitment to creating a safe and inclusive education climate is vital. This requires fostering social cohesion between minority and majority students and teachers, raising awareness and the practice by all involved of critical (self-)reflexivity on cultural prejudice and dominant, exclusionary norms in academic medicine.

9. "It's making contacts": notions of social capital and implications for widening access to medical education.

Author(s): Nicholson, S; Cleland, J A

Abstract: In the UK widening access (WA) activities and policies aim to increase the representation from lower socio-economic groups into Higher Education. Whilst linked to a political rhetoric of inclusive education such initiatives have however failed to significantly increase the number of such students entering medicine. This is compounded by a discourse that portrays WA applicants and students as lacking the essential skills or attributes to be successful in medical education. Much of the research in this area to date has been weak and it is critical to better understand how WA applicants and students negotiate medical admissions and education to inform change. To address this gap we amalgamated a larger dataset from three qualitative studies of student experiences of WA to medicine (48 participants in total). Inductively analysing the findings using social capital as a theoretical lens we created and clustered codes into categories, informed by the concepts of "weak ties" and "bridging and linking capital", terms used by previous workers in this field, to better understand student journeys in medical education. Successful applicants from lower socio-economic groups recognise and mobilise weak ties to create linking capital. However once in medical school these students seem less aware of the need for, or how to create, capital effectively. We argue WA activities should support increasing the social capital of under-represented applicants and students, and future selection policy needs to take into account the varying social capital of students, so as to not overtly disadvantage some social groups.

10. Evaluation of an innovative, evidence-guided, PBL approach.

Author(s): Neve, Hilary; Bull, Stephanie; Lloyd, Helen; Gilbert, Kerry; Mattick, Karen

Abstract: AIM To understand the experiences of students and problem-based learning (PBL) facilitators during an evidence-based curriculum change to a PBL programme within an undergraduate medical course in South West England METHODS Four novel PBL cases were designed and implemented, based on educational theory and evidence. Eight focus groups were undertaken with Year-1 and -2 students (n = 18) and PBL facilitators (n = 14) to explore the experiences of participants. Thematic analysis and conceptual abstraction led to insights into the intended and unintended consequences of the change. RESULTS Participant responses to the change process were influenced by the perceived relevance and value of the change (e.g. benefit to student learning), which was shaped by individual beliefs and preferences (e.g. presumed purpose of PBL, relative value placed on different curriculum topics, and desire for uniform educational experience), and the wider education context (e.g. expectations of assessment). It appears that the three distinct elements must align for the changes to be received positively. We updated our PBL curriculum in response to new evidence DISCUSSION: This study describes how we updated our PBL curriculum in response to new evidence, and demonstrates the importance of communicating the pedagogic rationale behind changes, and meticulous planning, preparation and alignment, even in distant parts of the curriculum. Engaging with existing views and attitudes is an essential requirement for successful curriculum change.

11. Evaluating the complementary roles of an SJT and academic assessment for entry into clinical practice.

Author(s): Cousans, Fran; Patterson, Fiona; Edwards, Helena; Walker, Kim; McLachlan, John C; Good, David

Abstract: Although there is extensive evidence confirming the predictive validity of situational judgement tests (SJTs) in medical education, there remains a shortage of evidence for their predictive validity for performance of postgraduate trainees in their first role in clinical practice. Moreover, to date few researchers have empirically examined the complementary roles of academic and non-academic selection methods in predicting in-role performance. This is an important area of enquiry as despite it being common practice to use both types of methods within a selection system, there is currently no evidence that this approach translates into increased

predictive validity of the selection system as a whole, over that achieved by the use of a single selection method. In this preliminary study, the majority of the range of scores achieved by successful applicants to the UK Foundation Programme provided a unique opportunity to address both of these areas of enquiry. Sampling targeted high (>80th percentile) and low (<20th percentile) scorers on the SJT. Supervisors rated 391 trainees' in-role performance, and incidence of remedial action was collected. SJT and academic performance scores correlated with supervisor ratings (r = .31 and .28, respectively). The relationship was stronger between the SJT and in-role performance for the low scoring group (r = .33, high scoring group r = .11), and between academic performance and in-role performance for the high scoring group (r = .29, low scoring group r = .11). Trainees with low SJT scores were almost five times more likely to receive remedial action. Results indicate that an SJT for entry into trainee physicians' first role in clinical practice has good predictive validity of supervisor-rated performance and incidence of remedial action. In addition, an SJT and a measure of academic performance appeared to be complementary to each other. These initial findings suggest that SJTs may be more predictive at the lower end of a scoring distribution, and academic attainment more predictive at the higher end.

12. Rapid Cycle Deliberate Practice in Medical Education - a Systematic Review.

Author(s): Taras, Jillian; Everett, Tobias

Source: Cureus; Apr 2017; vol. 9 (no. 4); p. e1180

Publication Date: Apr 2017

Publication Type(s): Journal Article Review

PubMedID: 28540142

Abstract: Rapid Cycle Deliberate Practice (RCDP) is a novel simulation-based education model that is currently attracting interest, implementation, exploration and research in medical education. In RCDP, learners rapidly cycle between deliberate practice and directed feedback within the simulation scenario until mastery is achieved. The objective of this systematic review is to examine the literature and summarize the existing knowledge on RCDP in simulation-based medical education. Fifteen resources met inclusion criteria; they were diverse and heterogeneous, such that we did not perform a quantitative synthesis or meta-analysis but rather a narrative review on RCDP. All resources described RCDP in a similar manner. Common RCDP implementation strategies included: splitting simulation cases into segments, micro debriefing in the form of 'pause, debrief, rewind and try again' and providing progressively more challenging scenarios. Variable outcome measures were used by the studies including qualitative assessments, scoring tools, procedural assessment using checklists or video review, time to active skills and clinical reports. Results were limited and inconsistent. There is an absence of data on retention after RCDP teaching, on RCDP, with learners from specialties other than pediatrics, on RCDP for adult resuscitation scenarios and if RCDP teaching translates into practice change in the clinical realm. We have identified important avenues for future research on RCDP.

13. Flipping the script-a controlled trial of a flippedclassroom and blended-learning module in graduate medical education

Author(s): Stetson G.V.; Saxena V.; Harleman E.

Source: Journal of General Internal Medicine; Apr 2017; vol. 32 (no. 2)

Publication Date: Apr 2017

Publication Type(s): Conference Abstract

Available in full text at Journal of General Internal Medicine - from National Library of Medicine

Abstract: NEEDS AND OBJECTIVES: The "flipped classroom" is an educational approach that uses out-of-class time for learners to absorb content, and in-class time to apply that new knowledge. "Blended learning" is a combination of online and in-person education. Currently, the majority of didactic content in our residency program is delivered via in-person lectures. Scheduling conflicts make it difficult for residents to attend all lectures. We created a flipped classroom and blended learning module with the following objectives: - Ensure access to curricular materials for all learners - Maintain or improve learning outcomes - Maintain or improve learner satisfaction. SETTING AND PARTICIPANTS: The University of California, San Francisco (UCSF) Internal Medicine Residency Program (IMRP) Intern Core Curriculum (ICC) includes all 68 UCSF internal medicine interns from the 2016-2017 academic year. DESCRIPTION: The entire class was offered an online pre-test consisting of 11 questions related to the diagnosis and management of acute liver failure (ALF). Next, the class was split into two groups. The control group received the current standard: a one-hour in-person lecture on ALF. The intervention group watched online didactic videos using the same lecturer and content as the control group. After completing this pre-work, the intervention group worked in teams on ALF case-based

activities and discussed their answers with the lecturer. The total learning time for the control and intervention groups were 60 and 70 min, respectively. Both groups completed a post-test and a survey (Likert-style + free-response) about their learning experience. EVALUATION: Compared to the pre-test results, both groups performed better on their post-tests with five questions showing statistically significant improvement (P < 0.05). When comparing the post-test results of the intervention and control groups, the intervention group seemed to have performed better, however none of the differences reached statistical significance. There was no difference in satisfaction between the two groups. Free-response sections of the survey showed that many residents enjoy the ability to learn at their own preferred speed via the videos, and the concept-reinforcing activity. DISCUSSION/REFLECTION/LESSONS LEARNED: While no measureable differences between the two groups was revealed, benefits of the flipped classroom and blended learning should be noted. Specifically, given the discontinuous nature of residents' schedules, alternative learning modalities such as these offer flexible didactic learning opportunities. Furthermore, video lectures can serve as a useful adjunct resource for other learners, as well as content for faculty to easily disseminate. Our study was limited by a small sample size and high variance, which may have limited our abilities to detect a difference between the two groups.

14. Virtual reality supplemental teaching at low-cost (VRSTL): A model and review for developing low cost VR for medical education

Author(s): Jones C.; Chang P.; Chen B.; Parikh M.; Bunting K.; Chakraborti C.; Kahn M.J.

Source: Journal of General Internal Medicine; Apr 2017; vol. 32 (no. 2)

Publication Date: Apr 2017

Publication Type(s): Conference Abstract

Available in full text at Journal of General Internal Medicine - from National Library of Medicine

Abstract: NEEDS AND OBJECTIVES: Currently, there is interest for expanding earlier clinical experiences in medical schools. While virtual reality (VR) has successfully been used for surgical training at the resident level, the high cost, low quality, and limited scalability have previously restricted its widespread use for medical education. The goals of the VRSTL pilot are to propose a model for harnessing low-cost VR film as an adjunct for clinical teaching, review the developmental process to allow for replication and showcase the benefits of VR as an education tool. SETTING AND PARTICIPANTS: A series of low-cost VR films were developed and shown at the first year medical school level using smartphones and low-cost VR headsets. DESCRIPTION: Low-cost VR film was integrated into a first-year medical education course that teaches a basic pulmonary exam that allowed learners to look with 360 degrees of freedom during viewing. A systematic review of technologies including, 360 cameras, online VR platforms and smartphones, was done based on criteria of ease of use and compatibility across technology. Three first person virtual reality films that allowed 3D depth perception were subsequently created. Pathological lung sounds, augmented reality diagrams and a multiple choice question were added over the user's field of vision. Ubiquitous smartphone presence on campus was explored as an educational platform by allowing half of learners to successfully view the film on their own smartphones. EVALUATION: Three levels of low-cost smartphones, cameras and free online platforms were evaluated for ease of implementation and compatibility. Success was measured by integration of a VR film into a real class under budget that showcased VR's ability to add examples of pathology and active learning over the learners' field of vision. DISCUSSION/REFLECTION/LESSONS LEARNED: Our first and second video demonstrated that low-cost virtual reality could be achieved for $12/student on a $2000 budget. We demonstrated that VR film may enable educators to provide learners with first-person examples of pathology(e.g. crackles, egophony, and wheezes) and education overlays. Animations and multiple-choice active learning through left-right options were further showcased. Learners using this model gain the ability to turn and look in 360 degrees throughout viewing a film. On reflection, the optimal use of this freedom of vision likely includes teaching situations that demand interplay with the environment. Examples may include practice scenarios where residents run codes and are required to interact in a 360 degree environment. While this pilot showed a range of additional teaching tools that VR may offer educators, this group believes VR is not a replacement for real clinical experiences. However, VR film is a versatile teaching adjunct that can be adapted to a multitude of situations. Technology is rapidly progressing, and institutions interested in replication should prioritize ease and compatibility across hardware.

15. The value of mentorship in medical education.

Author(s): Dalgaty, Faith; Guthrie, Greg; Walker, Heather; Stirling, Kevin

Source: The clinical teacher; Apr 2017; vol. 14 (no. 2); p. 124-128

Publication Date: Apr 2017

Abstract: BACKGROUND The transition from senior medical student to working safely and effectively as a new junior doctor is one of the biggest challenges that a new graduate will face. In 2014 the General Medical Council published The state of medical education and practice in the UK, reporting that some new doctors continue to struggle with increased responsibilities. We classify these instances as a 'performance gap', describing occasions in clinical practice where an individual exceeds their performance capacity. The Medical Mentorship Programme addressed identified performance gaps through a structured curriculum of simulation-based education and facilitated clinical practice. METHODS Programme content was based on the experiences of the authors and their peers in graduating from their undergraduate training programme and becoming junior doctors. A questionnaire was disseminated to junior doctors in their first clinical rotation. The questionnaire asked doctors to describe instances where they experienced a performance gap. These data informed the development of the Medical Mentorship Programme. The effect of this programme was then evaluated via focus group discussion.RESULTS The Medical Mentorship Programme has been shown to be an effective conduit for supporting the transfer of learning needed to address performance gaps in students. The programme increased the confidence of students in preparation for clinical practice and allowed junior doctors to reflect on their professional development. The programme combined complementary teaching techniques - mentorship, simulation and direct clinical experience - to aid the professional development of both students and mentors. Some new doctors continue to struggle with increased responsibilities.

16. Balancing health care education and patient care in the UK workplace: a realist synthesis.

Author(s): Sholl, Sarah; Ajjawi, Rola; Allbutt, Helen; Butler, Jane; Jindal-Snape, Divya; Morrison, Jill; Rees, Charlotte

Abstract: CONTEXT Patient care activity has recently increased without a proportionate rise in workforce numbers, impacting negatively on health care workplace learning. Health care professionals are prepared in part by spending time in clinical practice, and for medical staff this constitutes a contribution to service. Although stakeholders have identified the balance between health care professional education and patient care as a key priority for medical education research, there have been very few reviews to date on this important topic. METHODS We conducted a realist synthesis of the UK literature from 1998 to answer two research questions. (1) What are the key workplace interventions designed to help achieve a balance between health care professional education and patient care delivery? (2) In what ways do interventions enable or inhibit this balance within the health care workplace, for whom and in what contexts? We followed Pawson's five stages of realist review: clarifying scope, searching for evidence, assessment of quality, data extraction and data synthesis. RESULTS The most common interventions identified for balancing health care professional education and patient care delivery were ward round teaching, protected learning time and continuous professional development. The most common positive outcomes were simultaneous improvements in learning and patient care or improved learning or improved patient care. The most common contexts in which interventions were effective were primary care, postgraduate trainee, nurse and allied health professional contexts. By far the most common mechanisms through which interventions worked were organisational funding, workload management and support. CONCLUSION Our novel findings extend existing literature in this emerging area of health care education research. We provide recommendations for the development of educational policy and practice at the individual, interpersonal and organisational levels and call for more research using realist approaches to evaluate the increasing range of complex interventions to help balance health care professional education and patient care delivery.

17. InsuOnline, an Electronic Game for Medical Education on Insulin Therapy: A Randomized Controlled Trial With Primary Care Physicians.

Author(s): Diehl, Leandro Arthur; Souza, Rodrigo Martins; Gordan, Pedro Alejandro; Esteves, Roberto Zonato; Coelho, Izabel Cristina Meister

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Abstract: BACKGROUND Most patients with diabetes mellitus (DM) are followed by primary care physicians, who often lack knowledge or confidence to prescribe insulin properly. This contributes to clinical inertia and poor glycemic control. Effectiveness of traditional continuing medical education (CME) to solve that is limited, so new approaches are required. Electronic games are a good option, as they can be very effective and easily disseminated. OBJECTIVE The objective of our study was to assess applicability, user acceptance, and educational effectiveness of InsuOnline, an electronic serious game for medical education on insulin therapy for DM, compared with a traditional CME activity. METHODS Primary care physicians (PCPs) from South of Brazil were invited by phone or email to participate in an unblinded randomized controlled trial and randomly allocated to play the game InsuOnline, installed as an app in their own computers, at the time of their choice, with minimal or no external guidance, or to participate in a traditional CME session, composed by onsite lectures and cases discussion. Both interventions had the same content and duration (~4 h). Applicability was assessed by the number of subjects who completed the assigned intervention in each group. Insulin-prescribing competence (factual knowledge, problem-solving skills, and attitudes) was self-assessed through a questionnaire applied before, immediately after, and 3 months after the interventions. Acceptance of the intervention (satisfaction and perceived importance for clinical practice) was also assessed immediately after and 3 months after the interventions, respectively. RESULTS Subjects' characteristics were similar between groups (mean age 38, 51.4% [69/134] male). In the game group, 69 of 88 (78%) completed the intervention, compared with 65 of 73 (89%) in the control group, with no difference in applicability. Percentage of right answers in the competence subscale, which was 52% at the baseline in both groups, significantly improved immediately after both interventions to 92% in the game group and to 85% in control (P<.001). After 3 months, it remained significantly higher than that at the baseline in both groups (80% in game, and 76% in control; P<.001). Absolute increase in competence score was better with the game (40%) than with traditional CME (34%; P=.01). Insulin-related attitudes were improved both after the game (significant improvement in 4 of 9 items) and after control activity (3 of 9). Both interventions were very well accepted, with most subjects rating them as "fun or pleasant," "useful," and "practice-changing. "CONCLUSIONS The game InsuOnline was applicable, very well accepted, and highly effective for medical education on insulin therapy. In view of its flexibility and easy dissemination, it is a valid option for large-scale CME, potentially helping to reduce clinical inertia and to improve quality of care for DM patients.TRIAL REGISTRATIONClinicaltrials.gov NCT001759953; https://clinicaltrials.gov/ct2/show/NCT01759953 (Archived by WebCite at http://www.webcitation.org/6oeHoTrBf).

18. Outcome-based approach to medical education towards academic programmes accreditation: A review article.

Author(s): Mohieldein, Abdelmarouf H

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Abstract: The rapid change worldwide, as a consequence of advances in science and technology, necessitates the graduation of well-qualified graduates who have the appropriate knowledge and skills to fulfill specific work requirements. Hence, redesigning academic models by focusing on educational outcomes became the target and priority for universities around the world. In this systematic review we collected and retrieved literature using a selection of electronic databases. The objectives of this report is to: 1) provide an overview of the evolution of outcome-based education (OBE), (2) illustrate the philosophy and principle of OBE, (3) list the OBE advantages and benefits, (4) describe the assessment strategies used in OBE, and (5) discuss the role of teachers and students as key elements. In conclusion, there is growing interest by the Saudi government to provide student-centered education in their institutes of higher education to graduate students with the necessary knowledge and skill experiences. Moreover, OBE is considered a holistic approach which offers a powerful and appealing way of reforming and managing medical education for mastery in learning and to meet the prerequisites for local and international accreditation.

19. Knowledge Syntheses in Medical Education: Demystifying Scoping Reviews.

Author(s): Thomas, Aliki; Lubarsky, Stuart; Durning, Steven J; Young, Meredith E

Abstract: An unprecedented rise in health professions education (HPE) research has led to increasing attention and interest in knowledge syntheses. There are many different types of knowledge syntheses in common use, including systematic reviews, meta-ethnography, rapid reviews, narrative reviews, and realist reviews. In this Perspective, the authors examine the nature, purpose, value, and appropriate use of one particular method: scoping reviews. Scoping reviews are iterative and flexible and can serve multiple main purposes: to examine the extent, range, and nature of research activity in a given field; to determine the value and appropriateness of undertaking a full systematic review; to summarize and disseminate research findings; and to identify research gaps in the existing literature. Despite the advantages of this methodology, there are concerns that it is a less rigorous and defensible means to synthesize HPE literature. Drawing from published research and from their collective experience with this methodology, the authors present a brief description of scoping reviews, explore the advantages and disadvantages of scoping reviews in the context of HPE, and offer lessons learned and suggestions for colleagues who are considering conducting scoping reviews. Examples of published scoping reviews are provided to illustrate the steps involved in the methodology.

20. Do high tuition fees make a difference? Characteristics of applicants to UK medical and dental schools before and after the introduction of high tuition fees in 2012.

Author(s): Gallagher, J E; Calvert, A; Niven, V; Cabot, L

Abstract: Aim To compare trends in the volume, socio-demography and academic experience of UK applicants and entrants to medicine and dentistry in the UK with university in general, before and after the major increase in university fees in England in 2012.Methods Descriptive trend analyses of University and College Admissions Services (UCAS) data for focused (preferred subject was medicine or dentistry) and accepted applicants, 2010-14, compared with university in general in relation to socio-demography (age, sex, ethnicity, POLAR 2, region) and academic experience (school type). POLAR2 data provide an indication of the likelihood of young people in the area participating in further or higher education. Results In 2012 the volume of applicants to medicine and dentistry fell by 2.4% and 7.8% respectively, compared with 6.6% for university overall. Medical applications remained buoyant and by 2014 had risen by 10.2% from 2010 to 23,365. While dental applications fell in both 2012 and 2013, they had increased by 15.6% to 3,410 in 2014, above 2010 levels. Females formed the majority of applicants, and admissions, with the proportion gaining admission to dentistry in 2014 reaching an all-time high (64%), exceeding medicine (56%), and university in general (56%). Mature admissions to dentistry were at their highest in 2010 (29%) falling to 21% in 2014, compared with 22-24% in medicine. Black and minority ethnic group admissions to university, although rising (24% in 2014), are still less than for medicine (34%) and dentistry (48%). In 2013, just over half of the students admitted to dentistry were from BME groups (51%) for dentistry. Among UK applicants <19 years, over 60% of applicants, and 70% of accepted applicants, to medicine and dentistry are from the top two POLAR2 quintiles representing areas of high participation in education; however, in 2014 there was a notable increase in the proportion of applications from the lower two quintiles to dentistry (19%) and medicine (20%), with a very modest increase in those gaining admission over 2012 (14% of both; cf 10% and 12% respectively).Discussion The findings suggest that the short-term impact of the 2012 rise in fees had a greater influence on the volume and nature of applicants to dentistry than medicine, and that both programmes are gaining in popularity, despite high fees and reduced places. Dentistry remains particularly attractive to Asians, and females, the latter forming an increasing majority of students. While there is some recovery, social inequalities exist and present a challenge for widening participation in the professions.

21. Standardisation of delivery and assessment of research training for specialty trainees based on curriculum requirements: recommendations based on a scoping review.

Abstract: OBJECTIVES(1) To conduct a scoping review of postgraduate specialty training (ST) curricula for doctors within Health Education England in order to identify common themes and variations in requirements for training and assessment of research competencies. (2) To make recommendations on standardisation of training for clinical research across ST programmes. SETTING Health Education England North East and National Institute for Health Research Clinical Research Network (CRN)-North East and North Cumbria. METHODS Annual Review of Competence Progression (ARCP); Certificate of Completion of Training (CCT) checklists and curricula for ST were obtained from Health Education England North East and reviewed between June and September 2015. Research competence requirements based on knowledge, skills or behaviour-based domains were identified and entered onto a spreadsheet for analysis. Common themes with levels of competence required were identified. This information was used to construct and propose a model for delivery of training in clinical research across ST programmes. RESULTS Sixty-two ST curricula were reviewed and seven common themes for research training were found in up to 97% of the curricula. Requirement for good clinical practice (GCP) in research training was included in 15% of curricula. One of the common themes involved knowledge-based competency, and three each of the remaining seven involved skills or behaviour-based competencies. There was less clarity and larger variation between specialties in how research competencies were assessed; and what evidence was required for ARCP and CCT to assure competence. 63% (19/30) of curricula from medical specialties had no mention of research requirements within their ARCP guidelines. CONCLUSIONS Given that the majority of specialty curricula contain consistent themes around core research knowledge, consideration should be given to standardising the delivery and assessment of generic research competencies within ST. Our recommendations from this review could form the basis for developing structured research training for specialty trainees involving: (1) a taught course for knowledge-based competencies; (2) clinical placements with CRN teams for practical workplace-based experience and (3) developing research tutors to help support placements and assessment of these competencies.

Exercise: Research Designs

Match the diagrams to the corresponding research designs

1

Group of interest
(e.g. smokers)

Follow over time

Comparison group
(e.g. non-smokers)

Follow over time

Compare outcomes

2

Treatment Group

Follow-up

Control Group

Follow-up

Patients

Random assignment

Compare results

3

Take histories

Group of interest
(e.g. cancer patients)

Compare histories

Draw conclusions

Comparison group
(e.g. non-patients)

Take histories
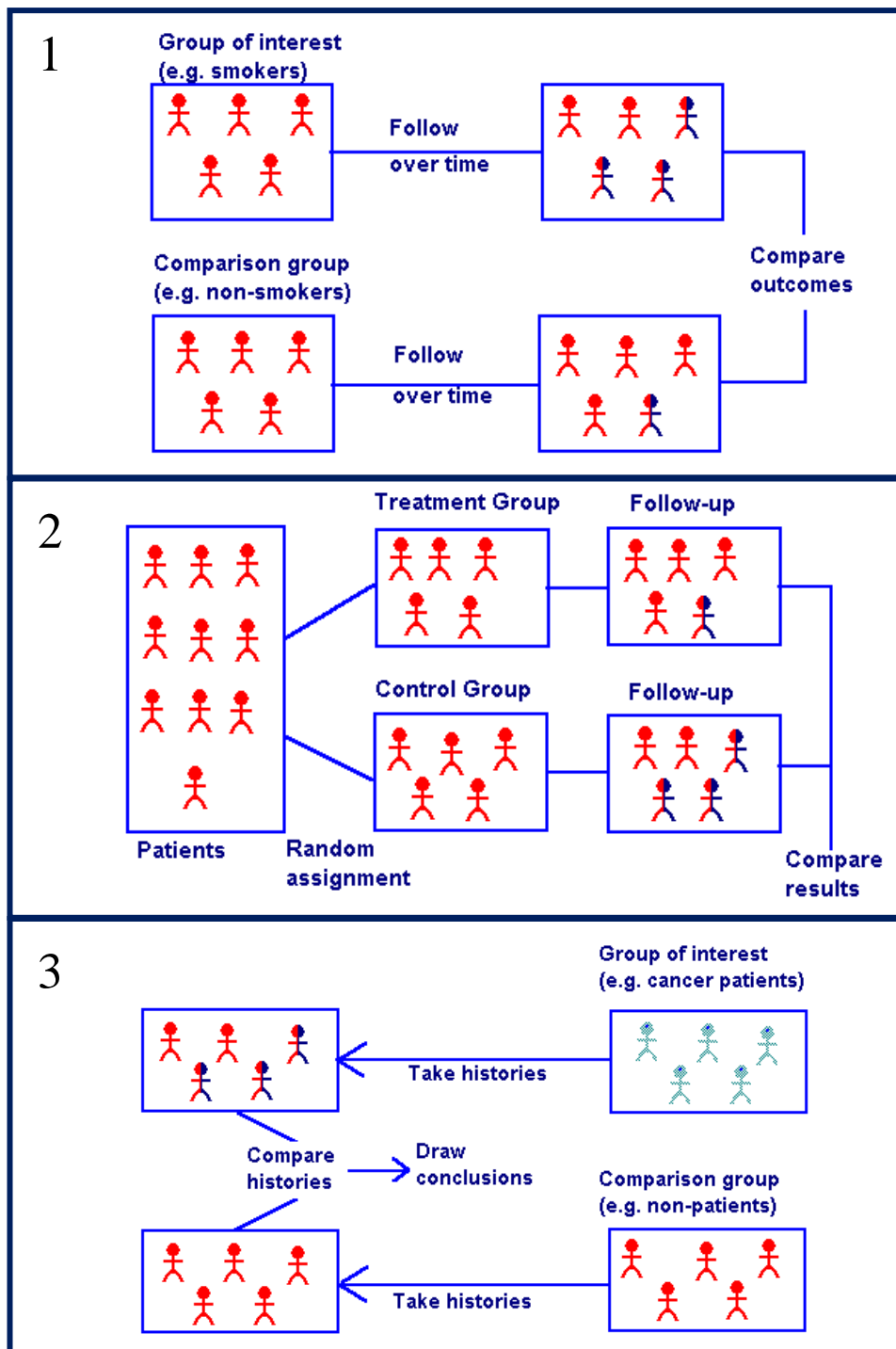
A: Randomised Controlled Trial
B: Cohort Study
C: Case-control Study

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Answers: 1B; 2A; 3C

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