

## Articles you may enjoy (abstracts and links) December 2015

[Links are included for both UVIC and UBC library websites. Links for the articles are at the bottom of the abstract. When you click on a link, you will first be directed to either the UVIC or UBC library website; in both cases, your ID and password are identical to the one you use to access your email. ]

1. **Four Clinical Concepts: A Template for Cognitive Integration of Clinical and Basic Sciences**
2. **Student and Faculty Perspectives on the Use of Lectures in the Medical School Curriculum**
3. **Internal Medicine Residents Use Heuristics to Estimate Disease Probability** (*Bruce Wright co-author*)
4. **Preceptor Engagement in Distributed Medical School Campuses**
5. **Prevalence of Depression and Depressive Symptoms Among Resident Physicians: A Systematic Review and Meta-analysis** (*note: JAMA December 8<sup>th</sup> issue's theme is Medical Education; there are several interesting short commentaries in addition to the research articles*)
6. **Training Physicians to Provide High-Value, Cost-Conscious Care: A Systematic Review**  
And the commentary: **Charting the Route to High-Value Care: The Role of Medical Education**
7. **Exploring patterns and pattern languages of medical education** (*Joanna Bates author*)  
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**Patterns, trends and thinking 'inside' the box in medical education**
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9. **The Principles of Magic Applied to Healthcare Simulation**
10. **Sequencing learning experiences to engage different level learners in the workplace: An interview study with excellent clinical teachers**

### 1. **Four Clinical Concepts: A Template for Cognitive Integration of Clinical and Basic Sciences**

Olivera Nestic, Dale Quest, Thomas Gest et al

**Medical Science Educator** December 2015, Volume 25, Issue 4, pp 483-488

#### Abstract

Four clinical concepts *symptoms, diagnosis, causes, and treatment(s)* comprised an easily implementable organizing framework for both individual basic science lectures and for an “integration session” that incorporated clinical and discipline-based foundational sciences. According to most students (>80 %) surveyed, this approach facilitated a novel and more meaningful appreciation of basic science in a clinical context, and most (78 %) said they intended to apply this organizing framework in their future learning. Given the enthusiasm of our students for this approach, we intend to organize more sessions around this template with a more rigorous quantitative assessment of our template for fostering cognitive integration.

#### To read more:

<http://link.springer.com.ezproxy.library.uvic.ca/article/10.1007/s40670-015-0175-x/fulltext.html>

<http://link.springer.com.ezproxy.library.ubc.ca/article/10.1007/s40670-015-0175-x/fulltext.html>

## **2. Student and Faculty Perspectives on the Use of Lectures in the Medical School Curriculum**

Matthew Rysavy, Paul Christine, Susan Lenocho, Marc A. Pizzimenti

**Medical Science Educator** December 2015, Volume 25, Issue 4, pp 431-437

### **Abstract**

Delivering educational content through lectures has been a mainstay for medical education; however, discussions about the use of lectures in medical education still remain. Through efforts at our institution, we sought to better understand student and faculty expectations for using lectures in the pre-clinical curriculum and use this information to help shape a renewed curriculum. We surveyed students and faculty members who participated in our pre-clinical curriculum regarding their expectations for live lectures. The questionnaire they completed addressed open- and closed-ended questions about the effectiveness of lectures and what, if any, benefits might be gained from attending live lectures. A total of 110 students and 78 faculty members completed the questionnaire. Compared to students, faculty members were significantly more likely to expect that live lectures provide students with critical thinking skills, motivation to learn, and opportunities for interaction with faculty members. Students were significantly more likely to expect that live lectures facilitate social support. Thematic analysis of open-ended responses provided additional considerations about the benefits of lectures. Our results suggest that examining the perspectives of students and faculty about the purpose of lectures may reveal differences in their expectations. Curricular models may benefit from creating an environment where faculty members, in collaboration with students, consider the appropriate uses and limitations of lectures. Our results have been used to inform curriculum development at our institution.

### **To read more:**

<http://link.springer.com.ezproxy.library.uvic.ca/article/10.1007/s40670-015-0171-1/fulltext.html>

<http://link.springer.com.ezproxy.library.ubc.ca/article/10.1007/s40670-015-0171-1/fulltext.html>

## **3. INTERNAL MEDICINE RESIDENTS USE HEURISTICS TO ESTIMATE DISEASE PROBABILITY**

Sen Phang, Pietro Ravani, Jeffrey Schaefer, Bruce Wright, Kevin McLaughlin

**Canadian Medical Education Journal** vol 6 (2) 2015 (on-line only; published December 11, 2015)

### **ABSTRACT**

**Background:** Training in Bayesian reasoning may have limited impact on accuracy of probability estimates. In this study, our goal was to explore whether residents previously exposed to Bayesian reasoning use heuristics rather than Bayesian reasoning to estimate disease probabilities. We predicted that if residents use heuristics then post-test probability estimates would be increased by non-discriminating clinical features or a high anchor for a target condition.

**Method:** We randomized 55 Internal Medicine residents to different versions of four clinical vignettes and asked them to estimate probabilities of target conditions. We manipulated the clinical data for each vignette to be consistent with either 1) using a representative heuristic, by adding non-discriminating prototypical clinical features of the target condition, or 2) using anchoring with adjustment heuristic, by providing a high or low anchor for the target condition.

**Results:** When presented with additional non-discriminating data the odds of diagnosing the target condition were increased (odds ratio (OR) 2.83, 95% confidence interval [1.30, 6.15],  $p = 0.009$ ). Similarly, the odds of diagnosing the target condition were increased when a high anchor preceded the vignette (OR 2.04, [1.09, 3.81],  $p = 0.025$ ).

**Conclusions:** Our findings suggest that despite previous exposure to the use of Bayesian reasoning, residents use heuristics, such as the representative heuristic and anchoring with adjustment, to estimate probabilities. Potential reasons for *attribute substitution* include the relative cognitive ease of heuristics vs. Bayesian reasoning or perhaps residents in their clinical practice use *gist* traces rather than precise probability estimates when diagnosing.

**To read more:** <http://www.cmej.ca/cmej/index.php/cmej/article/view/568/pdf>

#### 4. PRECEPTOR ENGAGEMENT IN DISTRIBUTED MEDICAL SCHOOL CAMPUSES

Thomas Piggott, Cathy Morris, Michael Lee-Poy

**Canadian Medical Education Journal** vol 6 (2) 2015 (on-line only; published December 11, 2015)

##### ABSTRACT

**Background:** There is increasing interest in distributed medical campuses and engagement of physicians in these communities. To date, there has been suboptimal recruitment of physicians to participate in medical education at distributed campuses. The purpose of this project was to identify barriers to engagement in medical education by community physicians in the geographical catchment of the Waterloo Regional Campus of McMaster.

**Method:** In-depth, semi-structured, qualitative interviews were conducted with physicians not involved in teaching. Interview recordings were transcribed and analyzed using a closed-loop, iterative coding methodology and thematic analysis was performed. Interviews were conducted until thematic saturation was achieved.

**Results:** Six interviews were conducted and coded. Nine key themes emerged: academic centre versus distributed sites, interest in teaching, financial considerations, administrative barriers, medical experience and knowledge currency, practice environment and schedule, training on teaching, setting up systems for learners in distributed campus settings, and student engagement and medical learner level.

**Conclusions:** Barriers to engagement in teaching primarily focused on differences in job structure in the community, administrative barriers both at the hospital and through the medical school, and lack of knowledge on how to teach. As medical schools look to expand the capacity of distributed campuses, misperceptions should be addressed and opportunities to improve engagement should be further explored.

<http://www.cmej.ca/cmej/index.php/cmej/article/view/474/pdf>

## 5. Prevalence of Depression and Depressive Symptoms Among Resident Physicians: A Systematic Review and Meta-analysis

Douglas A. Mata, Marco A. Ramos, Narinder Bansal, et al  
**JAMA** December 8, 2015;314(22):2373-2383.

**Importance** Physicians in training are at high risk for depression. However, the estimated prevalence of this disorder varies substantially between studies.

**Objective** To provide a summary estimate of depression or depressive symptom prevalence among resident physicians.

**Data Sources and Study Selection** Systematic search of EMBASE, ERIC, MEDLINE, and PsycINFO for studies with information on the prevalence of depression or depressive symptoms among resident physicians published between January 1963 and September 2015. Studies were eligible for inclusion if they were published in the peer-reviewed literature and used a validated method to assess for depression or depressive symptoms.

**Data Extraction and Synthesis** Information on study characteristics and depression or depressive symptom prevalence was extracted independently by 2 trained investigators. Estimates were pooled using random-effects meta-analysis. Differences by study-level characteristics were estimated using meta-regression.

**Main Outcomes and Measures** Point or period prevalence of depression or depressive symptoms as assessed by structured interview or validated questionnaire.

**Results** Data were extracted from 31 cross-sectional studies (9447 individuals) and 23 longitudinal studies (8113 individuals). Three studies used clinical interviews and 51 used self-report instruments. The overall pooled prevalence of depression or depressive symptoms was 28.8% (4969/17 560 individuals, 95% CI, 25.3%-32.5%), with high between-study heterogeneity ( $Q = 1247$ ,  $\tau^2 = 0.39$ ,  $I^2 = 95.8\%$ ,  $P < .001$ ). Prevalence estimates ranged from 20.9% for the 9-item Patient Health Questionnaire with a cutoff of 10 or more (741/3577 individuals, 95% CI, 17.5%-24.7%,  $Q = 14.4$ ,  $\tau^2 = 0.04$ ,  $I^2 = 79.2\%$ ) to 43.2% for the 2-item PRIME-MD (1349/2891 individuals, 95% CI, 37.6%-49.0%,  $Q = 45.6$ ,  $\tau^2 = 0.09$ ,  $I^2 = 84.6\%$ ). There was an increased prevalence with increasing calendar year (slope = 0.5% increase per year, adjusted for assessment modality; 95% CI, 0.03%-0.9%,  $P = .04$ ). In a secondary analysis of 7 longitudinal studies, the median absolute increase in depressive symptoms with the onset of residency training was 15.8% (range, 0.3%-26.3%; relative risk, 4.5). No statistically significant differences were observed between cross-sectional vs longitudinal studies, studies of only interns vs only upper-level residents, or studies of nonsurgical vs both nonsurgical and surgical residents.

**Conclusions and Relevance** In this systematic review, the summary estimate of the prevalence of depression or depressive symptoms among resident physicians was 28.8%, ranging from 20.9% to 43.2% depending on the instrument used, and increased with calendar year. Further research is needed to identify effective strategies for preventing and treating depression among physicians in training.

### To read more:

<http://jama.jamanetwork.com.ezproxy.library.uvic.ca/article.aspx?articleid=2474424>

<http://jama.jamanetwork.com.ezproxy.library.ubc.ca/article.aspx?articleid=2474424>

## 6. Training Physicians to Provide High-Value, Cost-Conscious Care: A Systematic Review

Lorette A. Stammen, Renée E. Stalmeijer,<sup>1</sup>; Emma Paternotte et al  
**JAMA** December 8, 2015;314(22):2384-2400

**Importance** Increasing health care expenditures are taxing the sustainability of the health care system. Physicians should be prepared to deliver high-value, cost-conscious care.

**Objective** To understand the circumstances in which the delivery of high-value, cost-conscious care is learned, with a goal of informing development of effective educational interventions.

**Data Sources** PubMed, EMBASE, ERIC, and Cochrane databases were searched from inception until September 5, 2015, to identify learners and cost-related topics.

**Study Selection** Studies were included on the basis of topic relevance, implementation of intervention, evaluation of intervention, educational components in intervention, and appropriate target group. There was no restriction on study design.

**Data Extraction and Synthesis** Data extraction was guided by a merged and modified version of a Best Evidence in Medical Education abstraction form and a Cochrane data coding sheet. Articles were analyzed using the realist review method, a narrative review technique that focuses on understanding the underlying mechanisms in interventions. Recurrent patterns were identified in the data through thematic analyses. Resulting themes were discussed within the research team until consensus was reached.

**Main Outcomes and Measures** Main outcomes were factors that promote education in delivering high-value, cost-conscious care.

**Findings** The initial search identified 2650 articles; 79 met the inclusion criteria, of which 14 were randomized clinical trials. The majority of the studies were conducted in North America (78.5%) using a pre-post interventional design (58.2%; at least 1619 participants); they focused on practicing physicians (36.7%; at least 3448 participants), resident physicians (6.3%; n = 516), and medical students (15.2%; n = 275). Among the 14 randomized clinical trials, 12 addressed knowledge transmission, 7 reflective practice, and 1 supportive environment; 10 (71%) concluded that the intervention was effective. The data analysis suggested that 3 factors aid successful learning: (1) effective transmission of knowledge, related, for example, to general health economics and prices of health services, to scientific evidence regarding guidelines and the benefits and harms of health care, and to patient preferences and personal values (67 articles); (2) facilitation of reflective practice, such as providing feedback or asking reflective questions regarding decisions related to laboratory ordering or prescribing to give trainees insight into their past and current behavior (56 articles); and (3) creation of a supportive environment in which the organization of the health care system, the presence of role models of delivering high-value, cost-conscious care, and a culture of high-value, cost-conscious care reinforce the desired training goals (27 articles).

**Conclusions and Relevance** Research on educating physicians to deliver high-value, cost-conscious care suggests that learning by practicing physicians, resident physicians, and medical students is promoted by combining specific knowledge transmission, reflective practice, and a supportive environment. These factors should be considered when educational interventions are being developed.

**To read more:**

<http://jama.jamanetwork.com.ezproxy.library.uvic.ca/article.aspx?articleid=2474425>

<http://jama.jamanetwork.com.ezproxy.library.ubc.ca/article.aspx?articleid=2474425>

**And the commentary: Charting the Route to High-Value Care: The Role of Medical Education**

Deborah Korenstein, MD

<http://jama.jamanetwork.com.ezproxy.library.uvic.ca/article.aspx?articleid=2474409>

<http://jama.jamanetwork.com.ezproxy.library.ubc.ca/article.aspx?articleid=2474409>

**7. Exploring patterns and pattern languages of medical education**

Rachel H Ellaway and Joanna Bates

**Medical Education** Vol. 49 (12) December 2015 1189-1196

**Abstract**

**Context**

The practices and concepts of medical education are often treated as global constants even though they can take many forms depending on the contexts in which they are realised. This represents challenges in presenting and appraising medical education research, as well as in translating practices and concepts between different contexts. This paper explores the problem and seeks to respond to its challenges.

**Methods**

This paper explores the application of architectural theorist Christopher Alexander's work on patterns and pattern languages to medical education. The authors review the underlying concepts of patterns and pattern language, they consider the development of pattern languages in medical education, they suggest possible applications of pattern languages for medical education and they discuss the implications of such use. Examples are drawn from across the field of medical education.

**Results**

The authors argue that the deliberate and systematic use of patterns and pattern languages in describing medical educational activities, systems and contexts can help us to make sense of the world, and the pattern languages of medical education have the potential to advance understanding and scholarship in medical education, to drive innovation and to enable critical engagement with many of the underlying issues in this field.

**To read more:**

<http://onlinelibrary.wiley.com.ezproxy.library.uvic.ca/doi/10.1111/medu.12836/full>

<http://onlinelibrary.wiley.com.ezproxy.library.ubc.ca/doi/10.1111/medu.12836/full>

And the commentaries (no abstracts)

**a) Context, patterns and practices: lessons in adaptation from environmental design and planning**

Cynthia R. Whitehead and Jane Wolff

**Medical Education** Vol. 49 (12) December 2015 1174-1176

<http://onlinelibrary.wiley.com.ezproxy.library.uvic.ca/doi/10.1111/medu.12928/full>

<http://onlinelibrary.wiley.com.ezproxy.library.ubc.ca/doi/10.1111/medu.12928/full>

b) **Patterns, trends and thinking 'inside' the box in medical education**

Mohamed M Al-Eraky and Hesham F Marei

**Medical Education** Vol. 49 (12) December 2015 1176-1178

<http://onlinelibrary.wiley.com.ezproxy.library.uvic.ca/doi/10.1111/medu.12930/full>

<http://onlinelibrary.wiley.com.ezproxy.library.ubc.ca/doi/10.1111/medu.12930/full>

**8. Clinical participation of medical students in three contemporary training models**

Rashmi Shahi, Lucie Walters, Helena Ward, Richard J Woodman and David Prideaux

**Medical Education** Vol. 49 (12) December 2015 1219-1228

**Abstract**

**Objectives**

As community settings are being used increasingly in undergraduate medical programmes, this study aimed to explore and compare the clinical experiences of students in hospital-based and community-based training programmes. It measured students' clinical participation and compared the perspectives of Year 3 medical students in three different models of clinical education: a tertiary hospital block programme; a community hybrid programme, and a rural longitudinal integrated clerkship (LIC) programme.

**Methods**

The study used a mixed methodology approach to examine the clinical experiences of students through the analysis of logbooks and semi-structured student interviews. This involved the quantitative analysis of 88 logbook weeks, data from which were triangulated through the analysis of 101 individual interviews using grounded theory.

**Results**

A total of 35 students across the three different clinical training models participated in the study. The results demonstrate significant differences among the three models in students' clinical participation and suggest that community settings provide more opportunities to students for meaningful engagement in patient care activities.

**Conclusions**

Consistent wider and more direct access to patients for students, as found in the community-based model, provides a pathway for engaging students in the learning processes, and a step towards making them aware of their learning needs and knowledge. Interviews provide evidence that authentic clinical activities can be enhanced through structured systems of supervision and through the provision of authentic roles for students in clinical teams.

**To read more:**

<http://onlinelibrary.wiley.com.ezproxy.library.uvic.ca/doi/10.1111/medu.12815/full>

<http://onlinelibrary.wiley.com.ezproxy.library.ubc.ca/doi/10.1111/medu.12815/full>

### **9. The Principles of Magic Applied to Healthcare Simulation**

Rubio, Rodrigo MD; Maestre, Jose M. MD, PhD; del Moral, Ignacio MD, PhD; Raemer, Dan PhD

**Simulation in Healthcare: The Journal of the Society for Simulation in Healthcare**

Issue: Volume 10(6), December 2015, p 368–371

**Abstract:** Five principles of magic are described that directly relate to enhancing participant engagement in the healthcare simulation setting. The principles discussed are the following: reality is in the mind of the participant, attention is easily misdirected, perception can be manipulated, various cognitive biases can be exploited, and focus must be captured. Using these principles in a healthcare simulation can help fill gaps in fidelity and bring a participant to a point where the situation and events make sense to them, they feel that they are in an appropriate environment, and they are willing to forgive the natural flaws of the simulation itself. Misuse of illusions beyond the purpose of filling fidelity gaps can break trust with the teacher and lead to disengagement of the participant.

**To read more:**

<http://ovidsp.tx.ovid.com.ezproxy.library.uvic.ca/sp-3.18.0b/ovidweb.cgi?&S=MDDLFPILHGDDNINNNCJKAJCLEMIAA00&Link+Set=S.sh.22.23.26%7c6%7csl10>

<http://ovidsp.tx.ovid.com.ezproxy.library.ubc.ca/sp-3.18.0b/ovidweb.cgi?&S=MDDLFPILHGDDNINNNCJKAJCLEMIAA00&Link+Set=S.sh.22.23.26%7c6%7csl10>

### **10. Sequencing learning experiences to engage different level learners in the workplace: An interview study with excellent clinical teachers**

H. Carrie Chen, Patricia O’Sullivan, Arianne Teherani, Shannon Fogh, Brent Kobashi & Olle ten Cate

**Medical Teacher** December 2015, pp. 1090-1097

#### **Abstract**

**Purpose:** Learning in the clinical workplace can appear to rely on opportunistic teaching. The cognitive apprenticeship model describes assigning tasks based on learner rather than just workplace needs. This study aimed to determine how excellent clinical teachers select clinical learning experiences to support the workplace participation and development of different level learners.

**Methods:** Using a constructivist grounded theory approach, we conducted semi-structured interviews with medical school faculty identified as excellent clinical teachers teaching multiple levels of learners.

We explored their approach to teach different level learners and their perceived role in promoting learner development. We performed thematic analysis of the interview transcripts using open and axial coding.

**Results:** We interviewed 19 clinical teachers and identified three themes related to their teaching approach: sequencing of learning experiences, selection of learning activities and teacher responsibilities. All teachers used *sequencing* as a teaching strategy by varying content, complexity and expectations by learner level. The teachers initially *selected learning activities* based on learner level and adjusted for individual competencies over time. They identified *teacher responsibilities* for learner education and patient safety, and used sequencing to promote both.

**Conclusions:** Excellent clinical teachers described strategies for matching available learning opportunities to learners' developmental levels to safely engage learners and improve learning in the clinical workplace.

**To read more:**

<http://www-tandfonline-com.ezproxy.library.uvic.ca/doi/full/10.3109/0142159X.2015.1009431#abstract>

<http://www-tandfonline-com.ezproxy.library.ubc.ca/doi/full/10.3109/0142159X.2015.1009431#abstract>