

SELECTED ABSTRACTS FROM PUBMED

1. Tovar G, López G, Ibáñez M, Alvarado R, Lobelo F, Duperly J. Institutionalized physical activity curriculum benefits of medical students in Colombia. *Educ Health (Abingdon)*. 2016 Sep-Dec;29(3):203-9.

ABSTRACT

Background: Health authorities internationally have recommended implementing physical activity and exercise for health training programs within the curriculum of medical schools. The purpose of this evaluation was to determine the changes in physical fitness and health (Fitnessgram criteria) of a sports medicine and physical activity course implemented for 3rd year students in a private medical school in Bogotá, Colombia.

Methods: Intervention was targeted to 13 medical student cohorts. Cardiovascular endurance (20 m shuttle run test), speed (20 m sprint), strength (push-ups and curl-ups in 30 s), and flexibility (sit and reach) were evaluated at the beginning and end of the school semester. It was a 54 semester-hour intervention (3 h/week), with 37 h (69%) of directed group-based physical exercise.

Results: Five hundred and twenty-four students were evaluated with an average age of 20 ± 1.4 years; 341 (65.1%) were women. In all the fitness tests for men and women, a significant increase was found. The prevalence of a healthy cardiorespiratory capacity went from 47.8% to 89.1% in women ($P < 0.001$) and from 54.6% to 83.1% in men ($P < 0.001$). Body mass index and weight increased in both sexes.

Discussion: The results of the current study showed that a 54-h physical activity course within the medicine curriculum had a positive

impact on health-related fitness indicators in Colombian medical students.

2. Wilting SM, Steenberg RDM. Molecular events leading to HPV-induced high-grade neoplasia *Papillomavirus Res*. 2016 Dec;2:85-8.

ABSTRACT

Cervical cancer is initiated by high-risk types of the human papillomavirus (hrHPV) and develops via precursor stages, called cervical intraepithelial neoplasia (CIN). High-grade CIN lesions are considered true precancerous lesions when the viral oncogenes E6 and E7 are aberrantly expressed in the dividing cells. This results in abolishment of normal cell cycle control via p53 and pRb degradation. However, it has become clear that these viral oncogenes possess additional oncogenic properties, including interference with the DNA methylation machinery and mitotic checkpoints. Identification of the resulting molecular events leading to high-grade neoplasia will 1) increase our understanding of cervical carcinogenesis, 2) yield biomarkers for early diagnosis, and 3) identify therapeutic targets for HPV-induced (pre) cancerous lesions. This review will briefly summarize current advances in our understanding of the molecular alterations in the host cell genome that occur during HPV-induced carcinogenesis.

3. DeRuisseau LR. The flipped classroom allows for more class time devoted to critical thinking. *Adv Physiol Educ*. 2016 Dec 1;40(4):522-8.

ABSTRACT

The flipped classroom was utilized in a two-semester, high-content science course that enrolled between 50 and 80 students at a small liberal arts college. With the flipped model, students watched ~20-min lectures 2 days/wk outside of class. These videos were recorded via screen capture and included a detailed note outline, PowerPoint slides, and review questions. The traditional format included the same materials, except that lectures were delivered in class each week and spanned the entire period. During the flipped course, the instructor reviewed common misconceptions and asked questions requiring higher-order thinking, and five graded case studies were performed each semester. To determine whether assessments included additional higher-order thinking skills in the flipped vs. traditional model, questions across course formats were compared via Blooms Taxonomy. Application-level questions that required prediction of an outcome in a new scenario comprised 38 ± 3 vs. $12 \pm 1\%$ of summative assessment questions (<0.01): flipped vs. traditional. Final letter grades in both formats of the course were compared with major GPA. Students in the flipped model performed better than their GPA predicted, as 85.5% earned a higher grade (vs. 42.2% in the traditional classroom) compared with their major GPA. These data demonstrate that assessments transitioned to more application-level compared with factual knowledge-based questions with this particular flipped model, and students performed better in their final letter grade compared with the traditional lecture format. Although the benefits to a flipped classroom are highlighted, student evaluations did suffer. More detailed studies comparing the traditional and flipped formats are warranted.

4. Shapiro GK, Holding A, Perez S, Amsel R, Rosberger Z. Validation of the vaccine conspiracy beliefs scale. *Papillomavirus Res.* 2016 Dec;2:167-72.

ABSTRACT

Background: Parents' vaccine attitudes influence their decision regarding child vaccination. To date, no study has evaluated the impact of vaccine conspiracy beliefs on human papillomavirus vaccine acceptance. The authors assessed the validity of a Vaccine Conspiracy Beliefs Scale (VCBS) and determined whether this scale was associated with parents' willingness to vaccinate their son with the HPV vaccine.

Methods: Canadian parents completed a 24-min online survey in 2014. Measures included socio-demographic variables, HPV knowledge, health care provider recommendation, Conspiracy Mentality Questionnaire (CMQ), the seven-item VCBS, and parents' willingness to vaccinate their son at two price points.

Results: A total of 1427 Canadian parents completed the survey in English (61.2%) or French (38.8%). A Factor Analysis revealed the VCBS is one-dimensional and has high internal consistency ($\alpha=0.937$). The construct validity of the VCBS was supported by a moderate relationship with the CMQ ($r=0.44$, $p<0.001$). Hierarchical regression analyses found the VCBS is negatively related to parents' willingness to vaccinate their son with the HPV vaccine at both price points ('free' or '\$300') after controlling for gender, age, household income, education level, HPV knowledge, and health care provider recommendation.

Conclusions: The VCBS is a brief, valid scale that will be useful in further elucidating the correlates of vaccine hesitancy. Future research could use the VCBS to evaluate the

impact of vaccine conspiracies beliefs on vaccine uptake and how concerns about vaccination may be challenged and reversed.

5. House JB, Choe CH, Wourman HL, Berg KM, Fischer JP, Santen SA. Efficient and effective use of peer teaching for medical student simulation. *West J Emerg Med.* 2017 Jan;18(1):137-41.

ABSTRACT

Introduction: Simulation is increasingly used in medical education, promoting active learning and retention; however, increasing use also requires considerable instructor resources. Simulation may provide a safe environment for students to teach each other, which many will need to do when they enter residency. Along with reinforcing learning and increasing retention, peer teaching could decrease instructor demands. Our objective was to determine the effectiveness of peer-taught simulation compared to physician-led simulation. We hypothesized that peer-taught simulation would lead to equivalent knowledge acquisition when compared to physician-taught sessions and would be viewed positively by participants.

Method: This was a quasi-experimental study in an emergency medicine clerkship. The control group was faculty taught. In the peer-taught intervention group, students were assigned to teach one of the three simulation-based medical emergency cases. Each student was instructed to master their topic and teach it to their peers using the provided objectives and resource materials. The students were assigned to groups of three, with all three cases represented; students took turns leading their case. Three groups ran simultaneously. During the intervention sessions, one physician was present to monitor the accuracy of learning

and to answer questions, while three physicians were required for the control groups. Outcomes compared pre-test and post-test knowledge and student reaction between control and intervention groups.

Results: Both methods led to equally improved knowledge; mean score for the post-test was 75% for both groups ($p=0.6$) and were viewed positively. Students in the intervention group agreed that peer-directed learning was an effective way to learn. However, students in the control group scored their simulation experience more favorably.

Conclusion: In general, students' response to peer teaching was positive, students learned equally well, and found peer-taught sessions to be interactive and beneficial.

6. Amini Rarani M, Rashidian A, Khosravi A, Arab M, Abbasian E, Khedmati Morasae E. Changes in socio-economic inequality in neonatal mortality in Iran between 1995-2000 and 2005-2010: An Oaxaca decomposition analysis. *Int J Health Policy Manag.* 2016 Sep 24;6(4):219-28.

ABSTRACT

Background: Exploring changes in health inequality and its determinants over time is of policy interest. Accordingly, this study aimed to decompose inequality in neonatal mortality into its contributing factors and then explore changes from 1995-2000 to 2005-2010 in Iran.

Methods: Required data were drawn from two Iran's demographic and health survey (DHS) conducted in 2000 and 2010. Normalized concentration index (CI) was used to measure the magnitude of inequality in neonatal mortality. The contribution of various determinants to inequality was estimated by decomposing concentration

indices in 1995-2000 and 2005-2010. Finally, changes in inequality were investigated using Oaxaca-type decomposition technique.

Results: Pro-rich inequality in neonatal mortality was declined by 16%, ie, the normalized CI dropped from -0.1490 in 1995-2000 to -0.1254 in 2005-2010. The largest contribution to inequality was attributable to mother's education (32%) and household's economic status (49%) in 1995-2000 and 2005-2010, respectively. Changes in mother's educational level (121%), use of skilled birth attendants (79%), mother's age at the delivery time (25-34 years old) (54%) and using modern contraceptive (29%) were mainly accountable for the decrease in inequality in neonatal mortality.

Conclusion: Policy actions on improving households' economic status and maternal education, especially in rural areas, may have led to the reduction in neonatal mortality inequality in Iran.

Keywords: Iran; Neonatal Mortality; Oaxaca Decomposition; Socio-Economic Inequality.

7. Khan MJ, Fatima S, Akhtar M, Owais M. Why should the faculty adopt reciprocal teaching as part of the medical curriculum? *J Ayub Med Coll Abbottabad*. 2016 Oct-Dec;28(4):832-5.

ABSTRACT

Understanding the text is crucial to achieve depth in understanding of complex concepts for students at all levels of education for whom English is not their first language. Reciprocal teaching is an instructional activity that stimulate learning through a dialogue between teachers and students regarding segments of text. The process of summarizing, question-generating, clarifying and predicting allows the gaps to be recognized and filled by the student, who is in control of the learning process and able to

analyze and reflect upon the reading material. Whereas reciprocal teaching has been applied at school and college level, little is known about its effectiveness in medical education. Incorporating reciprocal teaching in early years of medical education such as reading the literature and summarizing the flow of information in the study of integrated body systems could be an area to explore. Feasibility exercises and systematic validation studies are required to confirm authors' assertion.

Keywords: Adult education; Adult learning; Curriculum; Reciprocal teaching.

8. Kwok CL, Lee CK, Lo WT, Yip PS. The contribution of ageing to hospitalization days in Hong Kong: A decomposition analysis. *Int J Health Policy Manag*. 2016 Aug 17;6(3):155-64.

ABSTRACT

Background: Ageing has become a serious challenge in Hong Kong and globally. It has serious implications for health expenditure, which accounts for nearly 20% of overall government expenditure. Here we assess the contribution of ageing and related factors to hospitalization days in Hong Kong. We used hospital discharge data from all publicly funded hospitals in Hong Kong between 2001 and 2012.

Methods: A decomposition method was used to examine the factors that account for the change of total hospitalization days during the two periods, 2001-2004 and 2004-2012. The five factors include two demographic factors - population size and age-gender composition - and three service components - hospital discharge rate, number of discharge episodes per patient, and average length of stay (LOS) - which are all measured at age-gender group level. In order to assess the health cost burden in the future, we also

project the total hospitalization days up to 2041, for a range of scenarios.

Results: During the decreasing period of hospitalization days (2001-2004), the reduction of LOS contributed to about 60% of the reduction. For the period of increase (2004-2012), ageing is associated with an increase in total hospitalization days of 1.03 million, followed by an increase in hospital discharge rates (0.67 million), an increase in the number of discharge episodes per patient (0.62 million), and population growth (0.43 million). The reduction of LOS has greatly offset these increases (-2.19 million days), and has become one of the most significant factors in containing the increasing number of hospitalization days. Projected increases in total hospitalization days under different scenarios have highlighted that the contribution of ageing will become even more prominent after 2022.

Conclusion: Hong Kong is facing increasing healthcare burden caused by the rapid increase in demand for inpatient services due to ageing. Better management of inpatient services with the aim of increasing efficiency and reducing LOS, avoidable hospitalization and readmission, without compromising patient satisfaction and quality of service, are crucial for containing the rapid and enormous increases in total hospitalization days for Hong Kong. The results would be relevant to many rapidly ageing societies in this region.

Keywords: Ageing; Decomposition; Hong Kong; Hospitalization Days; Length of Stay (LOS); Patient Discharge.

9. Shavadia J, Welsh R, Gershlick A, Zheng Y, Huber K, Halvorsen S, et al. Relationship between arterial access and outcomes in ST-elevation myocardial infarction with a pharmaco-invasive versus primary Percutaneous Coronary Intervention

strategy: insights from The Strategic Reperfusion Early After Myocardial Infarction (stream) study. *J Am Heart Assoc.* 2016 Jun 13;5(6). pii: e003559.

ABSTRACT

Background: The effectiveness of radial access (RA) in ST-elevation myocardial infarction (STEMI) has been predominantly established in primary percutaneous coronary intervention (pPCI) with limited exploration of this issue in the early post fibrinolytic patient. The purpose of this study was to compare the effectiveness and safety of RA versus femoral (FA) access in STEMI undergoing either a pharmaco-invasive (PI) strategy or pPCI.

Methods and Results: Within STRategic Reperfusion Early After Myocardial Infarction (STREAM), we evaluated the relationship between arterial access site and primary outcome (30-day composite of death, shock, congestive heart failure, or reinfarction) and major bleeding according to the treatment strategy received. A total of 1820 STEMI patients were included: 895 PI (49.2%; rescue PCI [n=379; 42.3%], scheduled PCI [n=516; 57.7%]) and 925 pPCI (50.8%). Irrespective of treatment strategy, there was comparable utilization of either access site (FA: PI 53.4% and pPCI 57.6%). FA STEMI patients were younger, had lower presenting systolic blood pressure, lesser Thrombolysis In Myocardial Infarction risk, and more Σ ST-elevation at baseline. The primary composite endpoint occurred in 8.9% RA versus 15.7% FA patients ($P<0.001$). On multivariable analysis, this benefit on the primary composite outcome favoring RA persisted (adjusted odds ratio [OR], 0.59; 95% CI, 0.44-0.78; $P<0.001$) and was evident in both pPCI (adjusted OR, 0.63; 95% CI, 0.43-0.92) and PI cohorts (adjusted OR, 0.57 95% CI, 0.37-0.86; P

interaction=0.730). There was no difference in non-intracranial major bleeding with either access group (RA vs FA, 5.2% vs 6.0%; P=0.489).

Conclusions: Regardless of the application of a PI or pPCI strategy, RA was associated with improved clinical outcomes, supporting current STEMI evidence in favor of RA in PCI.

Clinical Trial Registration: URL: <https://www.clinicaltrials.gov/>. Unique identifier: NCT00623623.

Keywords: ST-segment elevation myocardial infarction; arterial access; pharmaco-invasive strategy; primary percutaneous coronary intervention.

10. Feinberg L, Menon J, Smith R, Rajeev JG, Kumar RK, Banerjee A. Potential for mobile health (mHealth) prevention of cardiovascular diseases in Kerala: A population-based survey. *Indian Heart J.* 2017 Mar - Apr;69(2):182-99.

ABSTRACT

Background: India's southern state of Kerala stands at the forefront of India's epidemic of cardiovascular disease (CVD), among other non-communicable diseases (NCDs). Mobile phone use in healthcare (mHealth) has shown promise in India, including NCDs. However, suitability and acceptability of m-Health interventions is poorly researched, particularly in rural settings.

Methods: A questionnaire regarding mobile phone usage and possible use in healthcare was verbally administered in five primary health centers and by home visits in five village councils ("panchayats") of Ernakulam, Kerala. Adults who spoke Malayalam or English, with access to a mobile phone were recruited by convenience sampling in partnership with accredited social health activists (ASHAs).

Quantitative data analysis was conducted using SPSS software.

Results: 262 participants were recruited. 87% routinely used and 88% owned a mobile phone. 92% were willing to receive mHealth advice, and 94% favored mobile medication reminders. 70.3% and 73% preferred voice calls over short messaging service (SMS) for delivering health information and medication reminders, respectively. 85.9% would send home recorded information on their blood pressure, weight, medication use and lifestyle to a doctor or ASHA. 75.2% trusted the confidentiality of mHealth data, while 77.1% had no concerns about the privacy of their information.

Conclusions: The majority of this population approve mHealth interventions. While further investigation of mHealth as a health education tool is warranted, SMS interventions may fail to maximize equity and penetration across all patient groups.

Keywords: Cardiovascular diseases; Cell phones; India; Prevention and control; Rural health; Telemedicine.

11. Lin CL, Kao JH. New perspectives of biomarkers for the management of chronic hepatitis B. *Clin Mol Hepatol.* 2016 Dec;22(4):423-31.

ABSTRACT

With recent advances in molecular and genomic investigations, the impact of hepatitis B viral and host factors on the progression of chronic HBV infection has been explored. For viral factors, hepatitis B viral load is a strong predictor for liver disease progression. Hepatitis B viral kinetics appear to be important for successful anti-viral therapy. Serum HBsAg level serves as a complementary marker to viral load for the prediction of HBV-related adverse outcomes

in patients with low viral load. In those with low viral load, high serum HBsAg level is associated with higher risks of cirrhosis and HCC. Hepatitis B core-related antigen (HBcrAg) induces host immune responses, and the reduction of the HBcrAg level as well as the increment of total anti-HBc level are significantly associated with favorable outcomes. HBV genotypes (genotype C/D) and mutants (basal core promoter and deletion mutation in pre-S genes) are well known viral genetic markers to predict disease progression. For host factors, serum inflammatory biomarkers have been developed to evaluate the HBV-associated

hepatic necroinflammation and fibrosis. Host single nucleotide polymorphism on sodium taurocholate co-transporting polypeptide (NTCP, an HBV entry receptor) may be associated with a decreased risk for cirrhosis and HCC. In conclusion, patients with chronic hepatitis B should be evaluated with relevant viral and host markers to identify those who are at a higher risk of liver disease progression and then receive timely antiviral therapy.

Keywords: Chronic hepatitis B; HBV DNA; HBcrAg; HBsAg; Total anti-HBc.
