Piloting Practicum Script, a clinical reasoning simulator, in a multi-centre European study

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ABSTRACT

Background: Current tools for assessing applied knowledge in undergraduate medical education are limited in their scope for testing clinical reasoning and the ability to manage uncertainty in clinical practice. Practicum Script (http://www.practicumscript.education) is an online simulation-based program aimed at enhancing clinical reasoning and problem solving skills as well as introducing the concept of uncertainty for decision-making. This multi-centre pilot study, coordinated by the European Board of Medical Assessors (EBMA), aims to investigate the utility of Practicum Script as a clinical reasoning training tool in undergraduate teaching and assessment.

Summary of Work: It is envisaged that four UK medical schools as well as medical faculties from other European countries will participate. The assessment material will consist of clinical cases mapped to key topics in internal medicine. Cases currently under development by an editorial team will be reviewed by a reference panel consisting of internal medicine experts who will provide responses to the questions and their rationales. A literature review of the clinical evidence relevant to the experts’ judgments will also be performed. For each clinical scenario, final year medical students will be asked to generate hypotheses in ‘free-text’ format and justify them by identifying pertinent positive and/or negative findings in the case. Subsequently students will need to report, in five different clinical scenarios, how new data may affect their original hypotheses. Feedback for the participants will be based on the summaries of experts’ answers and justifications, along with the clinical evidence base from the literature. Students will also be able to see the concordance between their responses and those of the experts.

Summary of Results: The project is ongoing. We aim to perform psychometric analyses of the students’ answers to the items for each case. Student satisfaction and perceptions about the educational model will be also be evaluated.

Discussion and Conclusions: Practicum Script may be a valuable undergraduate educational resource for assessment of clinical reasoning and medical students’ ability to manage uncertainty in clinical practice.

Take-home Messages: There is a strong need for effective approaches tailored to development of clinical reasoning skills at the undergraduate level, and Practicum Script could contribute meaningfully to this goal.
#5LL Posters - Clinical Reasoning & Decision Making

5LL02 (839)

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Time to investigate the path of clinical reasoning in chronic and multimorbid conditions

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ABSTRACT

Background: According to Cook, management reasoning differs greatly from diagnostic reasoning (Cook et al, 2018), making it a more complex process. We intend to explore and shed some light on the different characteristics of this management reasoning.

Summary of Work: A qualitative descriptive study was carried out with semi-structured interviews about their management reasoning and the challenges they encountered with expert primary care physicians working with multimorbid patients in an ambulatory setting. A total of 9 participants were part of this study. Those 9 interviews were transcribed verbatim followed by an inductive and deductive data analysis.

Summary of Results: A few themes emerged from the data, confirming and developing further the perspective of Cook and al. Those themes helped us to better understand and better define how these complex factors coincide and interact with one another, especially regarding the collaborative reasoning with patients, family and other healthcare professionals.

Discussion and Conclusions: Our results gives us the opportunity to highlight Cook's findings as well as opening the bridge to further investigate how clinical reasoning is achieved in different settings. This study would enable clinicians to be more conscious of the richness and quality of their own clinical reasoning processes used during multimorbidity management. Our study contributes to better understand clinical reasoning in the context of patients with multiple chronic conditions during the long-term follow-up care of their patients. These results open the path to new research projects that will enable us to explicit the clinical reasoning processes used by physicians in the context of multimorbidity which might later support the teaching and supervision.

Take-home Messages: Primary care physicians are at the very heart of managing complex patients with multimorbid chronic conditions. This study enables us to think of clinical reasoning as a multi-faceted and longitudinal process.
Think Like a Doctor when you Read the News

AUTHOR(S):

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ABSTRACT

Background: The form we interpret the world that surrounds us depends on our background, this means, that the news on a person injured in an accident, is interpreted different by a doctor that for an architect or engineer. The doctor uses his medical knowledge to interpret the proportionate information, in other words he/she uses Clinical Reasoning.

Summary of Work: During a 20 weeks Physiology course we force students to use Clinical Reasoning in the interpretation of news they read or listen, no matter if it was directly or indirectly related to medicine. During the daily hour class one or two students were asked to share the news they had read or listened, and the rest of students were encouraging to discuss about it.

Summary of Results: At the end of the course students’ opinions were highly positive. They agree that the daily discussion about news had encourage them to apply their medical knowledge to understand better the news and also to look for more information to clarify what they did not understand.

Discussion and Conclusions: Clinical Reasoning is the main cognitive tool used in the clinical practice. It is the reasoning path a medicine student must learn; therefore, it is very important to use all means to develop it.

Take-home Messages: Students can learn Clinical Reasoning just applying their medical knowledge to understand he world that surrounds them.
Correlates of medical error and clinical reasoning

AUTHOR(S):

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- Hung-yi Lai, Chang Gung Memorial Hospital and Medical Education Research Center, Taiwan

ABSTRACT

Background: Clinical reasoning (CR) is the thought process guiding health professionals' practices. Research suggests that medical errors may arise from poor CR skills. Expertise and knowledge may contribute as factors to reasoning/medical errors and hence the likelihood of medical disputes. We examined the association between medical disputes and CR errors.

Summary of Work: A retrospective method was used to investigate medical dispute cases (MDC) (2011-2015) filed at four hospitals in Taiwan. Through discussion and classification, we identified the number of MDC associated with CR errors, clinical specialty, and seniority, respectively.

Summary of Results: 57.7% (45/78) of MDC cases were associated with CR errors (82.2% (37/45) and 22.2% (10/45) were knowledge- and skill-related errors respectively). MDCs related to obstetrician-gynecologists (10/90, 11.1%), surgeons (8/90, 8.9%) and emergency physicians (7/90, 7.8%) who were equally associated with CR error-occurrence (5/51, 9.8%). Physician seniority negatively related to CR errors.

Discussion and Conclusions: CR errors account for almost 60% MDCs, with seniority playing a role in mitigating errors. Given that seniority indicates greater expertise accumulated, and hence explains its association with a lower number of medical disputes, we suggest that the development of CR skills should play a pivotal role in students' training.

Take-home Messages: An examination of MDCs across a range of medical institutions can help us understand the issues better and develop strategies for establishing a safe medical environment for both patients and medical personnel.
Clinical reasoning training program for Japanese nurses using advanced patient simulator

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ABSTRACT

Background: As nurses are usually performing the practice according the instruction of the doctor, and there are few opportunities to diagnose the condition themselves at Japanese clinical site. We established a new training program to teach clinical reasoning to nurses at the opportunity that the nurses new training system related to specific medical treatment was decided by the Ministry of Health, Labor and Welfare in 2015.

Summary of Work: Ten nurses attending this course received lectures on physical assessment and clinical reasoning after receiving basic medical science, anatomy and physiology. After these curriculum, we conducted an objective structured clinical examination for physical assessment. Furthermore, we set four scenario of common disease of dehydration, hypoglycemia, heart failure and pneumonia in advanced simulator to mimic the patients in the hospital or their home. Participants made an interview and physical assessment to do a clinical reasoning for these simulators. Evaluator made an objective assessment and a debriefing as to whether the medical interview and the physical examination were properly performed, enough information were obtained, and the correct clinical reasoning was performed. Finally, whether the understanding of clinical reasoning improved was evaluated using a graded evaluation questionnaire.

Summary of Results: Average score of OSCE for physical assessment was 94.4±3.98. Score about whether participants were doing clinical reasoning in clinical site was 2.2 (Max 4.0). Scores of comprehension of clinical reasoning and the understanding the procedure of clinical reasoning were significantly elevated from 2.1±0.52 (mean±SD) to 3.3±0.54, 1.95±0.60 to 3.17±0.47, respectively. And scores of the interview technique and the physical examination technique also rose significantly from 1.7 ±0.48 to 2.8±0.54, 1.85±0.47 to3.02±0.41.

Discussion and Conclusions: Japanese nurses who have little experience for clinical reasoning were able to acquired medical interview and physical assessment skills by lecture and practical training using advanced simulator. Simulated medical practice allowed nurses to understand the meaning and procedures of clinical reasoning. In addition, these programs were useful for deepening the medical interview and physical examination techniques.

Take-home Messages: Training of clinically reasoning using an advanced simulator is useful for nurses to understand pathological conditions and improve diagnostic techniques.
Evaluating the use of case based discussion in improving clinical reasoning: A pilot study with medical students

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- Rodger Laurent, Royal North Shore/Sydney Medical School, Australia (Presenter)
- Ted Tsai, Australia
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ABSTRACT

Background: Clinical reasoning is the cornerstone of clinical medicine; yet it is difficult to teach and there is little data on optimal methodologies. Case based discussions (CBD) with key features method may be useful in teaching clinical reasoning. The Bordage diagnostic inventory is a well-validated assessment tool of clinical reasoning.

Summary of Work: Ten medicine III/IV students at the Australian National University attended two sessions one month apart. Each session involved a 45 minute structured CBD on polyarthritis, the 41 item Bordage inventory, 10 question MCQ on polyarthritis. The case included questions on key features which were scored. Feedback was given to the student at the end of each case. Scores of the various assessments before and after the two CBDS were compared.

Summary of Results: Median age of the 10 students was 30 years (24-44). The second CBD score was slightly lower (50% vs 56%, p=0.06). There was a trend for the poorer performing students to improve from the CBD. The pre and post CBD MCQ scores were unchanged (76% and 77%, p=0.91). Total Bordage score improved from 150 to 161 out of 246 (p=0.18): Flexibility in Thinking (FIT) score improved from 79 to 82 out of 126 (p=0.63). Structure of Memory (SOM) score improved from 71 to 80 out of 120 (p=0.11). The students with the poorest baseline Bordage scores improved the most (SOM 58 to 94, FIT 73 to 105).

Discussion and Conclusions: CBD is a labour and time intensive method for teaching clinical reasoning. The poorer performing students gained the most from the exercise. CBD significantly improves clinical reasoning in students with poor baselines, but may have less value in other students. Limitations of this pilot study include small sample size, high baseline student knowledge of polyarthritis, and short time interval between cases.

Take-home Messages: Case based discussions with key feature questions is an effective strategy to improve clinical reasoning when conducted by subject matter experts. Teaching strategies for clinical reasoning should focus on poorer performing students as identified by the Bordage diagnostic inventory score.
#5LL Posters - Clinical Reasoning & Decision Making

**5LL07 (844)**

**Date of Presentation:** Monday, 26 August 2019  
**Time of Session:** 1600-1730  
**Location of Presentation:** Hall/Foyer F, Level 0

ClinicalCasesPod: Do medical students tune in to a case-based podcast series to help learn clinical reasoning?

**AUTHOR(S):**
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- Emma Davies, Brighton and Sussex University Hospital Trust, UK  
- Rupert Phillips, Brighton and Sussex University Hospital Trust, UK

**ABSTRACT**

**Background:** There is a move towards finding new ways to expose clinical reasoning to undergraduates, as newly qualified UK doctors feel unprepared for this in practice. Podcasts are becoming a widely accepted method of supporting learning and are increasingly used in medical education, however their role facilitating the learning of clinical reasoning specifically is not yet clearly established.

**Summary of Work:** The project aimed to analyse medical students’ understanding of clinical reasoning in their clinical years and assess whether the experience of listening to case-based podcasts created by foundation doctors highlighting clinical decision making is a useful learning tool. Three conversational-style case-based podcasts were created with the emphasis on why clinical decisions were made. Medical students in years 3-5 were given access to the podcasts and invited to participate in the study by completing an online questionnaire, and invited to attend a semi-structured interview. Thematic analysis of the qualitative questionnaire results and semi-structured interview transcripts is being undertaken.

**Summary of Results:** Preliminary results suggest that the students find the format helpful for increasing understanding of clinical reasoning in diagnosis and management, with greatest value being during clinical placement and in preparation for foundation training. There is a strong call for more clinical scenarios and insight into which presenting complaints are felt to be most needed. Semi-structured interviews will provide more in-depth understanding of how students felt about the podcasts as a learning aid and will enable the researchers to elicit information regarding students’ understanding of clinical reasoning.

**Discussion and Conclusions:** This study will provide helpful insights into the behaviour of podcast use generally, and more specifically with regards to clinical reasoning; positive reporting suggests value in using this ‘bite-sized’ conversational format to help open up the ‘black box’ of clinical reasoning to learners. Furthermore, there are interesting insights into which points in the curriculum students feel this pedagogical approach has greatest value.

**Take-home Messages:** Preliminary results are positive, as this study aims to enhance understanding of the feasibility and educational value of delivering case-based podcasts for medical students, to support their development of clinical reasoning.
From Presentation to Pathology: A workshop on forming a Differential Diagnosis

AUTHOR(S):
- Charlotte Pallett, University College London Medical School, UK (Presenter)
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ABSTRACT

Background: Clinical reasoning is the cognitive process by which clinicians apply their knowledge and experience to formulate a differential diagnosis. It involves several steps such as data gathering, interpretation, and critical evaluation of arguments for and against a particular diagnosis. This process is seldom formally taught in medical schools due to the complexities involved in gaining the knowledge, experience, and breadth of skills required. Therefore the challenge facing the clinical teacher is how to provide students with a framework from which they can develop their own clinical reasoning skills.

Summary of Work: The aim of this project was to develop a standardised framework for teaching medical students about clinical reasoning and uncertainty of differential diagnosis. A workshop was designed and integrated into an existing teaching week for first year clinical students. During this week, students followed the journey of four patients from GP presentation, through hospital admission, and then discharge back into the community. The new workshop introduced learners to the concept of clinical reasoning using didactic teaching, and students then undertook an interactive session focused on arguments for and against a particular diagnosis. By testing their assumptions regarding the diagnosis, students were able to critically analyse the complexities surrounding a patient’s presentation and management.

Summary of Results: Pre- (n=37) and post-workshop (n=32) evaluation forms were given to students to assess their understanding of clinical reasoning, as well as their confidence in applying these skills, using a 10-point Likert scale. Following the session, students felt more confident defining clinical reasoning (+2.8), formulating a diagnosis from history taking (+0.5), examining patients (+0.6), and interpreting test results (+0.7).

Discussion and Conclusions: By introducing students to the concepts of clinical reasoning early in training, it offers a strong foundation for ongoing learning and transferable skills into clinical practice. The ultimate aim would be to reduce patient errors around incorrect diagnosis, which can have serious implications on patient morbidity and mortality.

Take-home Messages: Clinical reasoning is an important skill that ought to be introduced early in medical training to avoid errors in patient diagnosis. By creating a framework for clinical reasoning, we believe this is a teachable skill that will benefit students.
Effect of a peer role playing simulation on the competency of medical students in performing musculoskeletal physical examination and clinical reasoning

AUTHOR(S):

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ABSTRACT

Background: The traditional medical education curriculum in Japan includes insufficient opportunity for students to develop competency in musculoskeletal physical examination, clinical reasoning, and diagnosis, with the majority of residents reporting a lack of confidence in performing these tasks. Our aim was to assess the effectiveness of a peer role playing simulation education module in improving these skills among 90 of 112 female medical students completing their first Orthopaedic clinical clerkship.

Summary of Work: Participants were randomly allocated into two groups, one participating in the simulation-based module (simulation group, N=64) and the other not participating in this program (no simulation group, N=26). Effectiveness was assessed using the mini Clinical Evaluation Exercise (mini-CEX) as formative assessment and performance on an objective structure clinical examination (OSCE) as summative assessment for musculoskeletal case. The simulation-based module included 2 sessions, the first being a semi-structured encounter with a role playing for musculoskeletal cases and the second, a structured debriefing with the course instructor.

Summary of Results: The mini-CEX scores for the real-life MSK encounters were higher for the simulation than non-simulation group (Physical examination: P=0.0053, Clinical reasoning: P=0.027, Overall: P=0.0032, 95% confidence interval). Another result, the total OSCE score was not significantly different between the simulation group and the non-simulation group (P=0.053). The simulation-based module using peer role playing increased the mini-CEX scores for real-life patients presenting with musculoskeletal complaints, not increased total OSCE scores.

Discussion and Conclusions: Simulation-based instruction (combining peer role playing and instructor feedback) was effective in improving the skill of students with MSK physical examination, clinical reasoning, and diagnosis during their Orthopaedic clerkship. The multiple assessment opportunities provided by using the mini-CEX may have been beneficial in improving learning outcomes. To achieve competency and establish of clinical skills for learners using peer role play, the ingenuity is necessary for formative feedback and debriefing methods. However, further research being required to identify optimal SBME opportunities to master and retain skills.

Take-home Messages: (1) Practical training of peer role playing and formative feedback from one instructor promotes a short-term achievement of clinical skills competency. (2) Peer role playing in simulation based medical education is one learning method of clinical skills considering cost benefit.
“What do all those numbers and images mean for my patient?”: A junior doctor led near-peer teaching programme to develop medical students’ clinical reasoning

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ABSTRACT

Background: The use and interpretation of clinical data is a core element of clinical reasoning (CR). A recent study highlighted CR as the weakest area of student performance on OSCEs. Our aim was to develop a small group near-peer teaching (SGNPT) scenario-based programme to enhance data interpretation by medical students in their clinical years.

Summary of Work: In partnership with Glasgow Medical School, core “data interpretation” topics were identified, from the intended course learning outcomes. These were developed into hour-long, lunch-time SGNPT scenario-based sessions. Partnering with the West of Scotland Near-Peer Teaching Programme, a tutor training day course was offered to 69 junior doctors that we recruited. A pilot session on systematic interpretation of chest radiographs (scenario-based) was delivered to nineteen fourth-year medical students by seven junior doctors. Anonymised student feedback was collected (n=19). Students’ confidence in chest radiograph interpretation was assessed pre- and post-session using a Likert-type scale (1 (low) to 5 (high)). Monthly sessions will be continued to gather more data.

Summary of Results: A significant increase in self-reported confidence post-session was noted in all participants (p 0.0001), with pre-session scores of 1 (5%), 3 (84%) and 4 (11%) and post-session scores of 4 (79%) and 5 (21%). All students rated the session enjoyable and useful (based on yes/no questions). The seven tutors delivering the session, provided positive feedback; finding it “enjoyable” and “useful” with all “interested in teaching again”. Tutors also commented subjectively on students’ increasing confidence and improvement in interpretation skills throughout the session.

Discussion and Conclusions: This SGNPT scenario-based programme complements the local medical school’s curriculum, providing a clinical context to data interpretation. It offers an opportunity to improve medical students’ CR and bridge the gap between medical students and senior clinicians. Once the core data interpretation topics are developed, this scheme will be easily rolled out to all years and locations, making it accessible to all students.

Take-home Messages: Utilising SGNPT to provide junior doctor led structured data interpretation scenario-based sessions to medical students contributes significantly to developing their confidence and CR skills.
Using a case-based framework to improve teaching and learning clinical reasoning for preclerkship students in Taiwan

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ABSTRACT

Background: Clinical reasoning (CR) should be taught in early medical school. However, it is not explicitly addressed in our medical school curriculum early. In order to build the fundamental concept of CR for preclerkship students, we use case-based frameworks to teach preclerkship students before they contact the real patients.

Summary of Work: Subjects were 62 preclerkship students, using a flipped classroom approach to teach CR skill. In pre-class, preclerkship students were given a PowerCam to learn introduction of CR, a case-based framework to practice CR in a small-group, which was directed by instructor to practice CR in-class. Before and after class, all subjects completed a serial of questionnaires assessing attitude, motivation and satisfaction (5-point Likert scale), and final course achievement.

Summary of Results: The results showed that this strategy in teaching CR significantly increase students’ motivation, attitude (p<0.05), higher satisfaction rate (4.21±0.74) and better achievement performance (83.74±14.56) in learning CR. It also gave the learner’s current abilities, to foster a sense of higher self-efficacy (83%) in realizing CR process. Most of learners showed an active discussion in-class under instructor help.

Discussion and Conclusions: The case-based frameworks could assist in teaching preclerkship students’ CR, so that most of them could explicitly discuss CR processes and well integrate with basic science knowledge. Less complexity and authenticity case-based content setting definitely promoted students’ motivation and changed their attitude to learn CR. It was also easy for them to realise the CR process and got better achievement. In conclusion, in order to promote preclerkship students motivation and create an easy way to learn CR, using less complexity of authenticity case-based content setting to teach CR proved to be a good strategy, and could easily achieve the goal.

Take-home Messages: It is believed that CR teaching should start early in the medical education, and using the case-based framework teaching while gradually increase the complexity of contents can increase student’s clinical experience, so that they can take care of patients with less supervision over time.
Synergic combination to improve medical thought: We must teach clinical reasoning coupled with debriefing

AUTHOR(S):

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ABSTRACT

**Background:** Clinical reasoning is the heart of medical thought. However, just few clinicians manage to share their own processes of clinical reasoning, because clinicians differ from clinical teachers. Through debriefing, both instructor and student share their own perspectives or mind maps that allow them think about mistakes and successes. Therefore, the models of clinical reasoning must be formally discussed during the debriefing. Nonetheless, this issue has not been deeply studied. We propose that students learning improves when the instructor is a clinical teacher capable of formally guides and reinforces the clinical reasoning process during debriefing.

**Summary of Work:** Medical students participated in high fidelity simulation assessment developed with three clinical encounters with simulated/standardized patients (acronym ECLIPSE in Spanish), such as a real patients medical consultation. Subsequently, the debriefing was carried out through the method of good judgment with a clinical teacher. In a subgroup the concept and models of clinical reasoning were formally discussed during debriefing. To determine whether learning process is improving, we evaluated through a Likert 1-5 survey the benefit perception of this strategy and Debriefing Assessment for Simulation in Healthcare© - Student Version (DASH-SV). Both surveys were filled after debriefing.

**Summary of Results:** 28 students answered voluntarily both surveys. Clinical reasoning topic and scope had not been discussed with teacher before for 42.86% (12/28). For all of them, discussing the topic Clinical Reasoning in debriefing is a contribution to identify and improve mental processes, hypotheses and differential diagnoses (agree 14/28 and strongly agree 14/28). Besides, they all considered clinical reasoning should be included formally at the curriculum. The subgroup that formally discussed the issue with a clinical teacher before (16/28) had a better perception of benefit compared to the other group.

**Discussion and Conclusions:** Students perceive the formal discussion of clinical reasoning during debriefing session as a contribution to improve. The clinical teacher must understand how doctors think to articulate their own clinical reasoning in a skillful and didactic way and to be able to teach their students to build their own.

**Take-home Messages:** Must teach clinical reasoning coupled with debriefing.
Development of clinical reasoning competency using virtual clinical training among baccalaureate nursing students

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ABSTRACT

Background: Clinical reasoning skills is crucial for patient safety in nursing practice. Effective strategy for developing clinical reasoning are therefore important for nursing students. The aim of this study is to examine whether utilization of virtual clinical patients in clinical practicum is beneficial for clinical reasoning competence in nursing students.

Summary of Work: A total of 103 nursing students participated in this study, including 67 students in the group one, and 36 students in the group two, respectively. Students in the group one completed a 120-hour clinical practicum and virtual patient training, while the ones in group two received virtual patient training only. Critical thinking skill was measured using the 20-item Chinese version of Critical Thinking Inventory Scale with a six-point Likert scale (ranging from 1 ‘no’ to 6 ‘always’) at baseline and after the training program. Clinical reasoning competency was assessed using the objective, structured clinical examinations (OSCE) consisted of chart assessment, physical examination, and nursing diagnosis and intervention stations after the training course. Participants’ satisfaction regarding virtual clinical training was measured.

Summary of Results: After training program, the students in group one had significantly better critical thinking (mean difference = 3.5, p < 0.001), while the students in group two showed the trend of improving critical thinking (mean difference = 2.8, p = 0.06). The results of OSCE indicated that a significant difference in the clinical reasoning competency between the group one (mean = 66.2, SD = 11.3) and group two (mean = 57.1, SD = 15.1) (p < 0.005). The average of satisfactory score was 4.2 in a five-point scale for both groups.

Discussion and Conclusions: Combining virtual patient training in the clinical practicum are effective in enhancing clinical reasoning and critical thinking skills in nursing students. By using virtual patient training alone is helpful in cultivation of critical thinking skill. Computerized virtual patient is effective in enhancing the critical thinking skills among baccalaureate nursing students.

Take-home Messages: The use of computerized virtual patient training in clinical practicum education is effective in development of clinical reasoning skills in nursing students.
Assessing shared decision-making skills of 3rd year medical students

AUTHOR(S):
- Lucille Ong, Academic Medical Centre, the Netherlands (Presenter)

ABSTRACT

Background: Around 70% of patients want to be involved in their care. Shared decision-making (SDM) meets this need. Furthermore, it has a positive effect on patient: satisfaction, participation and adherence to treatment. Also, it diminishes decisional conflict in patients as well as overtreatment.

Summary of Work: We teach our 3rd year medical students a 5-phase SDM model. The five phases are: 1. Start: creating ‘choice awareness’ 2. Informing the patient about the options with pros and cons 3. Deliberation: which considerations play a role? 4. Preference 5. Decision: which treatment best fits the patients needs and expectations? During two intensive classes with only 6 students, all students practice this SDM model with (trained) simulation patients. At the end of their third year, assessment of SDM skills takes place. Assessment procedure: video recordings of students conducting SDM consultations with simulation patients are made and uploaded in students portfolio. Furthermore, students provide written reflections on self-selected events in their consultation. Students both provide and receive peer-feedback (reflective portfolio assignment). Also, the recorded SDM consultations are assessed by trained teachers. Summative assessments are categorized as: below expectations (4-5), meets expectations (6-7-8), and above expectations (9-10). Results of this years assessment are described below.

Summary of Results: A semi-structured rating list was developed to assess SDM skills of 360 medical students. The average assessment was 7.0 (out of 10). 24 students (7%) failed, whereas 22 students (6%) performed above expectations. The majority of students (87%) performed at ‘meets expectations’ level. All students fulfilled their reflective portfolio assignment.

Discussion and Conclusions: SDM skills are essential for good (clinical) practice. When practiced effectively, SDM can determine the treatment option which best fits patients’ needs and expectations. Practicing SDM however, is a challenge for most clinicians. Ideally, SDM training should be implemented in their medical education. In our hospital therefore, we offer a 4 hour SDM training for residents, medical specialists, and nurses. Our 5-phase SDM model can be used to teach shared decision making skills. Students manage well with this model. We also conclude that shared decision making skills can be assessed using a semi-structured rating list.

Take-home Messages: Shared decision-making skills can be taught and assessed.
Clinical Decision-Making in Geriatric Emergency Medicine: A Systematic Review

AUTHOR(S):
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ABSTRACT

Background: Clinical Decision-Making (CDM) traditionally refers to the cognitive processes involved in making clinical decisions. The ability to make competent clinical decisions in Emergency Medicine (EM) is challenged by high levels of uncertainty and task complexity. With a growing geriatric subgroup in EM, new challenges arise, especially for Post-Graduate Year 1 (PGY1) residents, whom are sparsely trained for this group of patients. This review explores the empirical literature on CDM in geriatric EM (GEM). It aims to describe the state of research in this field, in order to identify learning objectives for training PGY1 residents.

Summary of Work: A systematic search of terms related to CDM and EM was performed on title or abstract in PubMed, ProQuest, Scopus, EMBASE and Web of Science. Search terms related to geriatrics was searched in the entire manuscript to allow inclusion of articles that did not exclusively address geriatric patients. Title and abstract were screened for 622 peer-reviewed manuscripts, excluding ones if not empirical, in a Scandinavian or English language, or did not address all search terms. 134 full manuscripts were screened for eligibility.

Summary of Results: Preliminary results based on 32 full text manuscripts suggest that the majority of studies is quantitative, mostly investigating CDM tools to assist clinicians in making more accurate decisions. The qualitative studies primarily investigate which specific information is used when making clinical decisions. As such, the empirical literature does not reflect the theoretical background, in addressing the cognitive processes underlying CDM itself.

Discussion and Conclusions: Initial results indicate that the understanding of the cognitive processes underlying CDM in GEM is not well described. When training PGY1 residents to make complex decisions under uncertainty, it is not enough to know when competent decisions are made, but also how they are made. Further empirical work is needed to understand the process itself, in order to prepare our future clinicians to care for the ‘baby boomers.’

Take-home Messages: In order to develop CDM learning objectives in GEM to train PGY1 residents, a better understanding of the CDM process is needed, than what is currently available in the empirical literature.
Health Healthy Volunteers Role-play Helped Training of Patient Decision Aids (PDAs) Implementation in the Simulation of Shared Decision Making (SDM)

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ABSTRACT

Background: Shared decision making is a new concept that the healthcare system in Taiwan has adopted since 2016. Patient engagement is a central part of designing and implementation of patient decision aids in clinical settings. Role-play is a method of simulation used commonly to teach communication skills.

Summary of Work: Thirty medical teams implemented department-based designed PDAs in 40-minutes simulation in OSCE center in August 2018. Volunteers were recruited and trained by a short curriculum of SDM. Volunteers were asked to role-play in the simulated clinical encounters of PDAs designed for, and the encounter topics were assigned by themselves based on their favor and own life experiences. Questionnaires evaluated the health literacy of the volunteers and collected their feedbacks to PDAs and the process of SDM. The anxiety of the volunteers to the PDA topics was assessed pre- and post-simulation. The performance of medical teams was rated by measurement adopted from Observer OPTION 5 Measure.

Summary of Results: Twelve healthy volunteers participated in the department-based simulation activities. In team performance measurements, item 1 (alternate options) had the highest average score, while item 5 (integrating preference) had the lowest. Item 1 also had the highest rate of teams reached 7.5 indicating skilled effort in the simulation, while item 5 also had the lowest. In these simulations, the PDAs reduced the sim-patients’ anxiety about the specific encounter topics. The average of satisfactory scores to PDAs and the SDM process were both high, regardless of the performance score of the teams.

Discussion and Conclusions: The content of PDAs and the skills performing SDM by teams of different departments could be examined by adopted measurement efficiently in volunteer role-play. The engagement of healthy volunteers by role-playing in the simulation of department-based clinical encounters helped to identify the skills of medical teams and the fitness of content of PDAs in SDM.

Take-home Messages: Volunteer-involved simulation with adequate assessment helps training the skills of the medical team with implementation of PDAs in SDM.
#5LL Posters - Clinical Reasoning & Decision Making

5LL17 (2435)

Date of Presentation: Monday, 26 August 2019
Time of Session: 1600-1730
Location of Presentation: Hall/Foyer F, Level 0

Anchoring and Outcome Biases in Medical Trainees and Providers

AUTHOR(S):

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ABSTRACT

Background: Cognitive biases are a potential source of error in decision making, and understanding them is especially important not only for minimising mistakes, but to inform medical education. The anchoring heuristic - arising when respondents make a numerical estimate close to a given anchor value - has been shown to bias medical decision making even when the anchor is an irrelevant value. Outcome bias describes the tendency to judge the quality of a decision by the outcome rather than the facts surrounding the decision. Doctors have shown outcome bias regarding their own decisions, which has implications for education and the process of lifelong learning.

Summary of Work: Medical students and practitioners were recruited via Facebook and by direct email to postgraduate training departments around the US. Participants took a survey including the Medical Risk Tolerance Scale, 10-point Decision Styles Scale, and questions regarding anchoring or outcome bias. Bias questions included both medical scenarios and non-medical questions. Outcome bias was assessed with regards to surgical risk and outcomes.

Summary of Results: 305 responses were received in total. Anchoring bias was seen in providers at all levels of training, and did not vary with expertise. Bias increased as the expertise of the source increased. Outcome bias declined slightly with training, and surgical specialists showed no outcome bias when assessing high surgical risk. There was little variation in Rationality and Intuition scores measured by the DSS. Residents and fellows showed more risk tolerance than students or physicians.

Discussion and Conclusions: Medical students, trainees and physicians show similar levels of anchoring and outcome bias regardless of their level of training, suggesting that experience alone is not protective against these biases. Anchoring bias also increases with a more experienced source, suggesting a measure of authority bias as well. Surgical specialties showed no outcome bias when assessing high surgical risk cases, indicating a possible effect of training to overcome bias. Rationality and Intuition scores were overall similar, probably as a result of a highly selected population.

Take-home Messages: Doctors and students are vulnerable to common cognitive biases, and medical training alone does not necessarily prevent them.
Teaching Critical Thinking with Osler Techniques

AUTHOR(S):

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ABSTRACT

**Background:** Formal patient history taking without critical thinking may contribute to diagnostic error. We developed Osler techniques by reviewing practical wisdoms from old-school master clinicians. Techniques consist of “walking through event” “perceptual memory” “retrospective physical examination” “the power of patient own words” and “human reaction to disease”. The aim of this study is to evaluate the perception of medical students to use Osler techniques.

**Summary of Work:** Fourth year medical students learned Osler techniques as a part of critical thinking program during clinical year. After one year practicing Osler technique parallel with formal history taking, the questionnaire was used to evaluate the perception of students.

**Summary of Results:** Twenty-seven medical students responded to the questionnaire. The “retrospective physical examination” and “walking through event” were two most understanding by students 64.7% and 62.5% respectively, three-fourths misunderstood “the power of patient own words” “ human reaction to disease” and only 1.7% of them understood “perceptual memory”. However, seventy-four percent of medical students agree that patient history taking with Osler technique should reduce diagnostic error and enhanced critical thinking skill.

**Discussion and Conclusions:** Most of medical students know five Osler techniques but they understand and properly use with two techniques. Like other learning skills, students need understanding and deliberate practice of these techniques by feedback and assessment. Overall, they understand more about the important of listening to patients for making correct diagnosis. Teaching Osler techniques should be included in the critical thinking program.

**Take-home Messages:** Teaching Osler technique may help critical patient data gathering and reducing diagnostic error.
The development of clinical thinking in junior doctors

AUTHOR(S):
- Rachel Locke, University of Winchester, UK (Presenter)
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ABSTRACT

Background: Currently we have limited knowledge about the contextual factors which serve to best develop clinical thinking amongst postgraduate medical trainees. This study explores how Foundation doctors acquire the capability to think appropriately so as to practise effectively in a clinical setting. It considers three specialities in particular, namely Emergency Medicine, General Practice, and Psychiatry, as these have been shown previously to report active engagement with their seniors regarding ‘clinical thinking’. Two main research questions are: 1. Do Foundation doctors working in the three clinical fields already identified develop their clinical thinking more than elsewhere? 2. What are the factors in placements that appear to be associated with this development?

Summary of Work: The research is located within the ‘non-positivist’ paradigm (Golby & Parrott, 1999). The experiences of nineteen educators have been captured for the purposes of this study via in-depth research interviews. Rich qualitative data derived from the interview transcripts have been analysed thematically in a rigorous and iterative process.

Summary of Results: Preliminary findings suggest the importance of community (of trainers and of trainees, as well as the workplaces), collegiality (we are all still learning, and we are learning together; we are fallible, it’s about dealing with uncertainty), and criticality (we encourage trainees to look at their own practice, as we look at our own, we discuss cases between ourselves, it’s about risk).

Discussion and Conclusions: The mind-set of the people who work in the identified specialties is one that embraces (and enacts) what may be considered as educational ways of thinking and being. Factors that appear to be associated with the development of clinical thinking include a close proximity between the Foundation doctor and their senior(s) and the creation of a safe trajectory to independence by the educators for Foundation doctors.

Take-home Messages: The ‘context’ in which a medical trainee learns is crucial to what is learnt and how it is learnt. (2) Much of this learning happens naturally within the learner’s everyday working environment. (3) There needs to be a culture supportive to learning, and educators have a significant role in reinforcing and sustaining that culture.
Engaging medical students in reflective practice - can we do it better?

AUTHOR(S):

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ABSTRACT

Background: The importance of reflective practice for health professionals has been frequently reported in literature with most medical schools now incorporating learning modules that encourage undergraduate student participation in the process of reflection. However, various barriers to effectively teaching reflective practice have emerged with the authenticity of the exercise depending on aspects such as its incorporation in the education programme and its relevance to the needs of the student at the time.

Summary of Work: A primary literature search of peer-reviewed articles on PUBMED and MEDLINE was conducted to assess current research on reflective practice in the medical curriculum and the barriers that have been identified. A secondary search was carried out to identify the most effective ways in incorporating reflective practice in the medical curriculum.

Summary of Results: Engaging medical students in reflective practice has been shown to promote deep learning, improve core medical knowledge and enhance academic performance in social and community medicine. It has also been suggested that it can better improve relationships both with patients, as well as, between student and supervisor. However, establishing relevance of the reflective exercise, teaching learners about reflection, and assessment and feedback of reflections have been identified as the key factors preventing students from effectively engaging in reflective practice and reaping the associated learning and development opportunities embedded in the curriculum.

Discussion and Conclusions: Intended effort needs to be carried out to deeply embed reflective practice in the learning medical programme, as well as the wider medical practice. Crucial steps for this to be achieved include, supervisors embodying and modelling reflective practice, learn about guided reflection for undergraduates and how to assess reflection. The need for a standard tool to evaluate the current methods of assessment of reflection as well as set a framework for effective reflective practice is paramount in valuing and embedding this important skill in tomorrow’s doctors.

Take-home Messages: A standardised framework of incorporating reflective practice into the medical curriculum should be used in order to effectively teach and demonstrate reflective practice.