Professor perception of the use of realistic simulation in undergraduate programs in the healthcare area

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Background: The interest in realistic simulation on the teaching of healthcare professionals has grown along with the trends to improve the teaching process of such professionals, emphasizing the development of competences necessary for their proper training. The aim of this study is to identify the professor perception of the realistic simulation insertion in the undergraduate program, considering the advantages and challenges faced in working with this resource.

Summary of Work: We conducted a qualitative study with intentional sample according to pre-defined criteria, following a semi-structured outline regarding data saturation. We have interviewed 14 faculty members of healthcare courses from a teaching institution that employs realistic simulation in their syllabi.

Summary of Results: The majority of the interviewed professors considered that the use of scenario followed by debriefing is an excellent teaching tool. However, we found difficulties such as the workload necessary to the assembly of the scenario, the correlation between scenario goals and the competences of the program, and the relationship of the number of students by professors.

Discussion and Conclusions: Considering the statements analyzed, logistics needs arise and need to be considered in a way that professors may perform their simulation activities in the best way possible. One of these factors is to fit the number of students per professor in the trainings comprising simulation, so that it can effectively apply the proposed methodology. Another point to be considered is the needed time to assemble the scenario from the professor’s side.

Does simulation training help to prepare final year medical students for their roles as junior doctors?

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Background: In recent years the use of simulation as a teaching tool has risen in popularity. But is it useful in preparing medical students for their roles as practitioners and does it add anything not provided by traditional teaching methods?

Summary of Work: Simulation allows our students to both participate and observe the management of acutely unwell ‘patients’ in a simulated ward environment. The students learn to make an assessment and differential diagnoses and to institute a management plan. It also assesses how the students communicate, manage stress, work as part of a team and deal with interruptions.

Summary of Results: 95% of students strongly agreed with the statement ‘I found the simulation stations useful in preparing me for my finals and FY1 year’. 75% strongly agreed and 24% agreed that ‘I feel more confident in my approach to patient assessment’

Discussion and Conclusions: The students found this to be a stimulating representation of possible real-life scenarios. They felt challenged and yet safe. Debriefing addressed clinical themes and allowed us to expand on human factor issues that may not have been addressed in such depth previously. Conclusions The students found this method of teaching extremely useful. They felt that it helped to prepare them for their roles as new doctors.

Take-home messages: Simulation is a successful and valid tool for preparing medical students to become practitioners. It is a useful addition to more traditional teaching methods.
Multidisciplinary simulations to improve teamwork and medical skills at the same time

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Background: In the effective treatment the teamwork and communication are as crucial as the proper medical skills, especially in acute cases. The healthcare education should be prepare the whole medical staff for these situations also.

Summary of Work: We developed more specific scenarios involving different medical fields' representatives including nursing and paramedical staff in the same situation. We equipped a simulation room, where the necessary simulators were available at the same time (high fidelity patient-, US-, laparoscopic simulators and audio-visual system, which was able the reach the PACS and lab-systems). Written feedback were taken after all scenario from all participant.

Summary of Results: We could perform simulations involving paramedics, emergency medicine physicians, radiologists, anaesthesiologists, laboratory medicine specialists, surgeons and nurses also. The education was mainly focused on the teamwork and communication, but performing the medical interventions were also obligatory. All of the students and instructors assessed this method effective and useful.

Discussion and Conclusions: The novel, innovative combination of the available educational technologies and equipment can provide an effective method to improve the interdisciplinary teamwork and communication improving the medical skills too, which can be a critical factor in the treatment of acute cases.

Take-home messages: The combined, multidisciplinary simulations can improve the effectivity of the patient care.

Simulation training and management of emergencies in Palliative Medicine: experience of trainees

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Background: Medical simulation is increasingly utilised for training, as it allows management of complex scenarios in a controlled, risk free, environment. Exposure of Palliative Medicine trainees to emergencies can vary, and promoting simulation training in postgraduate medical education provides an opportunity to address this.

Summary of Work: The Palliative Medicine curriculum requires trainees to competently manage an acutely deteriorating patient. Our aim was to use simulation training to enhance the knowledge, skills and confidence of trainees to manage hypoglycaemia and gastrointestinal haemorrhage. Both scenarios necessitated recognition of any potentially reversible causes to the patient’s deterioration and individualisation of management. 8 specialist trainees attended ranging from first to final year. The session was lead by consultants with the support of the simulation team. We obtained trainee feedback pre and post teaching session.

Summary of Results: Trainee confidence was rated before and after the session (0-5 scale), and showed an increase in each of the 5 domains measured; recognising acute emergencies in Palliative care (3.6 vs 3.9), approach to immediate management (3 vs 4), communication with medical and nursing staff (4 vs 4.3), approach to team work (3.4 vs 4.1) and seeking senior help appropriately (3.6 vs 4.1). Trainees were satisfied with the content and effectiveness of the session.

Discussion and Conclusions: Trainees found simulation a useful tool to aid management of these medical emergencies. Written and verbal feedback suggested trainees would be able to integrate this learning into clinical practice.

Take-home messages: Simulation training provides an acceptable means of delivering teaching on the management of emergencies in the context of Palliative Medicine.
Simulation-based teaching in using acute ABCDE assessment: improved final year medical student clinical confidence in preparation for foundation years.

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Background: Medical simulation has been shown to improve clinical competence at the undergraduate level and reduce healthcare costs through improvement of medical provider competencies. One of the most important steps in medical curriculum development is to ensure students are exposed to emergency cases in a manner that is safe for patients. Traditionally this learning has been done ad-hoc and dependent on cases occurring in clinical settings.

Summary of Work: We aimed to evaluate student perception and confidence managing emergency scenarios prior to and following simulation based training. Small groups of students ran through individual scenarios using the A to E assessment approach to manage an acutely unwell patient. They then received peer and teacher feedback. The primary outcome was students perception of confidence managing these scenarios.

Summary of Results: 42 students attended. They stated they felt better prepared to face such medical emergencies as a junior doctor. Students felt simulation should be used more or should be mandatory in training and valued the opportunity to learn skills in a safe environment.

Discussion and Conclusions: Previous research shows students feel they are inadequately trained in acute clinical skills. Medical simulation may help cover this educational gap and there is a growing body of evidence to support this. This study demonstrated medical students value simulation-based learning. Students were satisfied with use of a medium fidelity simulator as opposed to high fidelity, which may help offset the costs associated with simulation.

Take-home messages: Simulation based teaching should be considered as an educational tool in training medical undergraduates for clinical practice.

Development, Implementation and Assessment of a Longitudinal Simulation Curriculum for the Management of Medical Emergencies: The RAPID Training Program

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Background: Responding appropriately to urgent or emergent situations is an essential skill for medical students to acquire during medical school. The era of patient safety has reignited discussion regarding whether medical students possess the skills expected on day one of residency. In an effort to ensure our students meet these expectations, a longitudinal simulation curriculum was developed.

Summary of Work: The RAPID (Responding Appropriately to a Patient In Distress) training program is a simulation-based curriculum that fosters progressive implementation and deliberate practice across all four years of training. Global objectives include the ability to recognize and respond to a patient in distress, communicate effectively, and engage and utilize team members effectively. To enhance communication training, an online learning module was also developed.

Summary of Results: Faculty aim to explore the hypothesis that repeated exposure through longitudinal curriculum improves skills and retention by evaluating the following: 1) Validity and reliability of assessment tools; 2) Retention of knowledge and skills throughout the medical school experience; and 3) Overall performance before and after program implementation. Data collection methods include video recordings, checklists, and online survey and database software. Analysis will be conducted within and between student cohorts.

Discussion and Conclusions: Preparing future doctors for emergency situations is crucial to improving patient safety outcomes. Our innovative RAPID curriculum provides learners with a methodical approach that continues to build and reinforce skills each year.

Take-home messages: Research is needed on the effectiveness and retention of emergency management skills within a standard curriculum. The RAPID training program will provide data on the success of such a program.
Using simulation to teach medical students assertiveness and negotiation: an example from a psychiatry placement

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Background: It is important to offer medical students ample opportunity to practice communication skills. A recurrent feedback theme from the Southampton psychiatry placement is the need for more contact with acutely unwell patients. We identified assertiveness and negotiation as useful skills to manage potentially challenging interactions in this context. In addition, higher levels of assertiveness are associated with better performance in clinical placements.

Summary of Work: We organised a student selected module for third year medical students. This ran on a rolling basis for different groups as an afternoon small group session. All students participated in role play scenarios with simulated patients both before and after being taught basic assertiveness and negotiation skills. All had the opportunity to give and receive feedback. The simulation involved a sexually disinhibited manic patient and a suspicious acutely psychotic patient.

Summary of Results: Each session was improved with feedback from the previous one. The main challenge was selecting simulated patients who could portray acutely unwell psychiatric patients. The potential risk of students reacting negatively to the challenging nature of the scenarios was averted by the many measures put in place to create a safe practicing environment.

Discussion and Conclusions: The students enjoyed and found the session useful. The success suggested that third year is not too early to introduce advanced communication skills. However, it should be noted the participants were self selecting.

Take-home messages: The psychiatry placement in medical school offers an opportunity to combine teaching of specific clinical presentations with advanced transferrable communication skills.

The GMC Panel: High Fidelity Teaching on the Use of Social Media

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Background: 88% of medical students in Severn have viewed colleagues acting ‘unprofessionally’ on Facebook. Unprofessional use of social media can compromise patient confidentiality and jeopardise the public’s regard of the medical profession. Hence, the GMC receives numerous complaints regarding doctors’ use of social media. Only 26% of students were aware of any advice on the use of Facebook. We aimed to promote the importance of staying professional on social media.

Summary of Work: We designed high-fidelity, simulation teaching sessions for medical students. We created five cases, which were based on real scenarios where a healthcare professional’s unprofessional use of social media resulted in disciplinary action. We used Photoshop to create Facebook pages, which illustrated the cases. The students were assigned to the cases, in small groups. They presented their cases in a simulated disciplinary hearing, to a mock panel.

Summary of Results: Anonymous feedback was collected on a paper questionnaire. On 10-point Likert scales, students (n=26) reported:

<table>
<thead>
<tr>
<th>Factor</th>
<th>Before</th>
<th>After</th>
<th>Improve</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Consciousness of personal Facebook content</td>
<td>6.54</td>
<td>8.54</td>
<td>2.00</td>
<td>0.0005</td>
</tr>
<tr>
<td>Awareness of what is ‘unprofessional’</td>
<td>6.27</td>
<td>8.42</td>
<td>2.15</td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td>Awareness of implications</td>
<td>5.54</td>
<td>8.31</td>
<td>2.78</td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td>Awareness of support and advice</td>
<td>4.88</td>
<td>7.77</td>
<td>2.88</td>
<td>&lt;0.0001</td>
</tr>
</tbody>
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Lastly, students (n=17) gave an average of 7.29 out of 10 change in the way they think about their Facebook use.

Discussion and Conclusions: Our teaching session increased our students’ consciousness of staying professional on social media.

Take-home messages: We must continue to promote and educate on professional use of social media to maintain patient safety and the public’s opinion in us as a profession.
Pharmacists on the Frontline: Lecture Based Acute Simulation (LBAS)

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Background: New Royal Pharmaceutical Society Guidelines propose that pharmacy services should expand, increasing clinical responsibility to offload National Health Service burden. Minimal curriculum focus and consequent lack of confidence within the profession in managing acutely unwell patients are recognised barriers to uptake.

Summary of Work: A 6-hour LBAS course was designed to teach a structured approach to deteriorating patients. It utilised actors with real-time remotely controlled projected observations of heart rate, blood pressure, oxygen saturations, respiratory rate and electrocardiogram. Students reacted to deteriorating physiology, via situation pausing and group decisions on 1 of 5 intervention options, with actor and observations responding dynamically. Scenarios would progress to stability or further deterioration according to a pre-designed algorithm.

Summary of Results: On a score of 1 to 5, MPharm students (n=73) rated interactivity as 4.7±0.6, relevance 4.7±0.6, engagement 4.6±0.6 and educational value 4.6±0.6. Feeling of preparedness (4.3±0.7 vs 1.6±1.1, p<0.001) and confidence (4.1±0.8 vs 1.7±1.3, p<0.001) in managing acutely unwell patients after the session were both significantly greater compared to before the session.

Discussion and Conclusions: Students found the LBAS highly informative and relevant, with increased confidence in managing acutely deteriorating patients. High interaction and engagement suggests LBAS may be useful in introducing and encouraging students to take future independent prescriber accreditation and expanding clinical roles.

Take-home messages: LBAS offers a low fidelity method of increasing skill and hence confidence that may help increase uptake of independent prescribing accreditation and allow development of front-line community pharmacy services.
Transposing problem based learning tutorials into high fidelity acute medical simulation: Familiarity promotes learning

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Background: Barriers to skill acquisition for undergraduates in simulated medical emergencies are unfamiliar clinical scenarios and simulated learning itself.

Summary of Work: Nine students participated in simulation. Each scenario mirrored a problem based learning tutorial delivered a week previous. Students completed a questionnaire before and after simulation. Questions examined confidence in the clinical problems and non-technical domains. Each question responded 0-10. A further questionnaire examined the impact/acceptability of the session.

Summary of Results: Before simulation understanding of non-technical skill scores was low (max=4, min=0 median=2). All students reported an improvement in their understanding of non-technical skills (score difference: max=7, min=4, median=4).

Students reported median improvement of +2 score points in decision making with a median of +1 in the other three domains.

Students reported positive score differences for identifying (median=2, max=4, min=0) and early management of sepsis (median=3, max=5, min=1). For haemorrhage equivalent score differences were (median=2, max=4, min=0) and (median=4, max=5, min=2).

The mean score for each of the impact/acceptability metrics was 9.

Discussion and Conclusions: An improvement in reported ability to identify and initiate management of the clinical scenarios was demonstrated following a short simulation session. The most pronounced effect was an improvement in understanding of non-technical skills. With reduced stressors students may be able to reflect in real time on non-clinical interactions/behaviours. This is in contrast to reflecting during debrief when it may be difficult to remember emotions and exact cognitive states.

Students scored highly on all impact/acceptance questions. This is reflected in an improvement in learning metrics.

Take-home messages: Aiming to reduce stress in undergraduate simulation training may improve learning of non-technical and clinical skills.

A mobile application to facilitate debriefing after cardiac arrest simulation

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Background: Effective debriefing is essential to the success of simulation-based education. However, the optimal format by which to facilitate debriefing remains elusive. A free iOS mobile App, CodeTracer, was designed to map team-based interventions during resuscitation simulation into a unique timeline graph for real-time review. We then evaluated whether this particular tool could help in the debriefing process after simulations.

Summary of Work: 60 participating nurses were randomly assigned into teams of six. Each team completed two scenarios of adult cardiac arrest simulation following a mini-lecture of learning objectives and practice guidelines in resuscitation. A structured debriefing was held immediately after every simulation. 24 and 36 subjects were randomly assigned to "oral debriefing alone (OD)" or "software-assisted debriefing (SD)" groups, respectively. Data and event graph by the mobile App were shown to the SD group, but not OD group, in debriefing sessions.

Summary of Results: A total of 20 post-simulation debriefings were recorded. Overall, SD groups made more delta comments than OD group, while the differences of plus comments made between two groups were not significant. In the subdomains of delta comments, the SD groups made richer feedbacks on the technical skills than OD groups, but not significantly different on the knowledge, task management and teamwork.

Discussion and Conclusions: Software-assisted debriefing had advantage over oral debriefing alone that permit participants to better identify gaps in technical skills in cardiac arrest simulations.

Take-home messages: Incorporating with fundamental education theories, specifically tailored software can be beneficial in achieving a particular goal in the field of simulation in healthcare.
Background: It is observed that many instructors in simulation training did not use video in debriefing even the facilities were available. The aim of this study was to explore the attitude of local instructors and participants towards videotape assisted debriefing in team based clinical simulation training.

Summary of Work: A series of semi-structured interviews were conducted among the local instructors and participants to explore the feelings, attitudes and perceived pros and cons of using video playback as a tool of debriefing.

Summary of Results: Videotaping was thought to be a good tool for effective learning in many aspects. However, this intervention may cause anxiety among some participants. For instructors, there were several possible reasons for not using videotaping despite the known advantages, including technically difficult to learn, required extra efforts, was time consuming and some had reservation on its value over oral debriefing. In general, instructors wanted to have it but not frequently use it in debriefing.

Discussion and Conclusions: Video assisted debriefing has both a positive side as well as a negative side. Teachers in clinical simulation should know them clearly and use the intervention wisely.

Take-home messages: A teacher in simulation training should know the pros and cons of using video as a debriefing tool and choose to use it when feasible.
Background: Most of the related articles about quality assurance of SPs’ performances focused on accuracy, consistency and replicability of SPs’ performances. Since the purpose of quality assurance is to assure the fairness of examinees’ score, examinee-centered quality assuring method may meet the goal more closely. We have developed a newly general rating scale for assessing standardized patients’ performance across different SP cases after reviewing and categorizing common errors during video clips. This study is to assure the feasibility of this newly developed rating scale.

Summary of Work: Twenty-four video clips from 12 SPs with a range of performance levels were selected, by a staff member in SP training program, for expert/rating scale comparisons. SP performance was evaluated by two nurse raters who applied the developed rating scale and two extramural experts who used global judgment. We use Kappa value to estimate the concordance between expert opinions and our developed rating scale.

Summary of Results: With comparative analysis with Kappa Statistic, only one paired comparison revealed moderated agreement (Kappa coefficient = 0.571, P value= 0.028). The other three paired comparisons revealed chance agreement. However, both of the nurse rater and the expert with moderated agreement are stringent, while others showed leniency when rating.

Discussion and Conclusions: Though only one paired comparison showed moderated agreement, it seems feasible to develop a newly general rating scale for assessing standardized patients’ performance. However, rater training for rating consensus will be recommended for applying this new rating scale effectively.

Take-home messages: Since the purpose of quality assurance of SP’s performance is to assure the fairness of examinees’ score, examinee-centered quality assuring method may meet the goal more closely. It is needed and seems feasible to develop a newly general rating scale for assessing standardized patients’ performance.
Teaching with adolescent simulated patients, what can we learn from medical students? A mixed methods study

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Raphaël Bonvin, University of Lausanne, Medical Education Unit, Lausanne, Switzerland

Background: Communication and interviewing skills are essential for adolescent healthcare. The recent introduction of programs with adolescent simulated patients (ASP) in medical education has been an opportunity to meet the substantial challenge of teaching these skills to medical students. Identifying ways to optimize this learning experience through a thorough understanding of how learning with ASP works is of utmost importance to medical educators in charge of such programs. Therefore, the purpose of this study is the in-depth exploration of the students’ learning experience with ASP at the University of Lausanne (Switzerland).

Summary of Work: Our mixed methods study includes two parts that will be conducted simultaneously in spring 2015. Part A consists of a qualitative inquiry using grounded theory approach. It includes semi-structured interviews, focus groups and in-field observation of workshops with ASP among fourth-year medical students, as well as ASP and teachers involved in these workshops. Part B consists of an online cross-sectional survey with both quantitative and qualitative data collection that will be submitted to all fourth- and sixth-year students.

Summary of Results: We will present near-final results of both parts of the study that are essential to understand barriers and positive factors contributing to an effective learning process and to build a model of student learning with ASP.

Discussion and Conclusions: These results will help medical educators and teachers in adolescent medicine find ways to improve the teaching curriculum with ASP and pay attention to the prerequisites for successful learning when implementing programs with ASP in the undergraduate medical curriculum.

International Faculty Development in Fundamental Simulation Methods for Japanese Healthcare Educators

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Background: Fundamental Simulation Instructional Methods (FunSim) is an international simulation faculty development course for Japanese healthcare educators, with English and Japanese language versions.

(Objectives)
1) Describe demographics of Japanese healthcare educators taking FunSim
2) Assess post-course outcomes of international “FunSim” for Japanese healthcare educators.
3) Identify barriers to implementation of simulation based education (SBE) methods for Japanese simulation educators.

Summary of Work: A 73 item web-based questionnaire was distributed in 2014 to Japanese participants who completed FunSim between 2011 and 2013. FunSim course outcomes were assessed at Kirkpatrick model levels one (Reaction); two (Learning); and three (Behavior). A Likert-type rating scale (1-7) was used for the course evaluation (level one), and for confidence and competency (level two); four different types of Yes-No questions were used for level three outcomes. A Likert-type rating scale (1-5) was used to rate twelve pre-defined potential barriers to implementation of SBE methods.

Summary of Results: 178 (63%) of 283 participants responded; 45.6% Physicians and 35.7% Nurses. FunSim language was 47.8% English(E) and 57.3% Japanese(J), with no differences between (E) and (J) “language barrier” responses. 88% of ratings on 7 course evaluation items were >4 (1-strongly unhelpful / 7-strongly helpful). Confidence and competency scores decreased “at the time of survey” compared to “at the end of the course” (P< 0.05). Pre/Post-course participants who were active simulation faculty increased from 68 to 112 (P< 0.001). Human factors such as “Simulation specialist availability”, “Time for teaching and faculty development”, “Number of trained faculty”, “faculty development availability”, “Faculty skill” were predominant barriers compared to other issues.

Discussion and Conclusions: FunSim participants reported positive course feedback. However, barriers to implementation of SBE are Work-release, hiring simulation specialists, and faculty development.

Take-home messages: Work-release, hiring simulation specialists, and faculty development must be addressed to establish effective SBE systems.