

**Solution: Preparing Medical Students for their Patient Safety Role on the Hospital Wards: Development and Evaluation of a Two day Safety and Teamwork Course**

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**IDENTIFICATION:**

Starting their clinical clerkships after the pre-clinical years of 'desk' work mark a stressful and challenging time for medical students. Almost overnight, students find themselves in the hospital interacting directly with patients and families, working with new teams, performing new tasks, and handling medical equipment and it is critical that they do so without causing harm to patients, themselves or their colleagues. Little attention has been given in medical school curriculums nationwide to the importance of this transition. As they join the hospital wards, medical students are largely unaware of the specific strategies and procedures employed in the inpatient clinical setting to reduce opportunities for patient harm, and they discover those as they start their training on the wards by way of trial and error. They, also, have not received training on how to interact with teams in the clinical setting yet their clinical team members expect them to play an effective role on the multidisciplinary clinical team, communicate with other disciplines, interview patients, collect information and present it. In an effort to promote safety and teamwork and help prepare medical students better for this transition we did a baseline needs assessment, then developed, pilot tested, and evaluated the educational intervention describe below.

**PROCESS:**

To better understand the educational needs of students as they start their clinical years, we surveyed third-year medical students, junior residents, and nurses. We also reviewed clerkship directors' perspectives on this and existing patient safety content that students learn during the pre-clinical years.

The resident, nurse, and medical student surveys highlighted the need for medical students to learn about the role of other team members especially nurses' role, introduce themselves as they join new clerkships, take initiative, ask questions, and offer task assistance to others on the healthcare team, establish good pre-rounding routines, write correct orders, write complete SOAP notes, deliver focused oral briefings on patient status, and to learn about infection control. Students wanted to learn more about the hospitals information systems, get oriented to patient charts, learn acronyms, and procedural skills. They also wanted to learn when to share information with patients and how to disclose bad news. Interestingly nurses and residents had different opinions on what medical students needed to learn before starting on hospital wards. While both rated 'seeking information', 'orientation to wards', 'who's who on the wards', 'asking for nurse assistance', and 'admission procedures' highly, nurses rated 'safety issues on the ward', 'privacy issues', 'infection control issues', and 'roles and responsibilities of nurses and other staff' higher than residents did. For our solution design we considered both nurses' and

residents' perspectives, along with the students' and clerkship directors' perspectives, and our learning from the medical literature on how patients can be potentially harmed in the hospital. We aimed to educate students on patient harm mechanisms, and what they can do to prevent harm specifically due to patient misidentification, falls, medication errors, infections, tests and procedures, and reduced teamwork and miscommunication.

**SOLUTION:**

Towards better student preparation, and ensuring patient safety and good team dynamics, we've designed and evaluated a two-day course of learning and orientation activities that students attend just before they head to the hospital wards. For adequate exposure to the hospital safety systems, students were exposed to the institutions error reporting system, and case scenarios illustrating how patients can be harmed in the hospital. They were then told what they can do as medical students to prevent harm to patients and how to enter error reports themselves in the institution's voluntary error reporting system. To prepare students more to assume active roles in their teams, we conducted a series of role play exercises teaching specific structured communication approaches, along with having students participate in a panel discussion with professionals of multiple disciplines (nurses, social work, therapists, dietician, etc.). Panel participants described their role on the clinical team and answered any questions the students had. Simulations were done on hand hygiene and using personal protective equipment, hand scrubbing for OR, and Foley catheter insertion. A pandemic flu simulation was also conducted to highlight importance of team function esp. under stress.

112 students attended the 2-day course that was held just prior to their starting their clinical training on the hospital wards. The course took two 8-hour days. Instruction was done by multidisciplinary presenters of physicians, nurses, and infection control practitioners. Educational methods included case based learning, demonstrations, role-play exercises, and simulations.

**Results:** We conducted a pre-post knowledge and self-efficacy assessment at time of course implementation and administered a follow up survey for course participants at three months to assess their application of taught materials/concepts and feedback on course. Response rates were 99% for pre test, 82% for posttest, and 33 % at three months follow up. Students reported markedly increased self-efficacy in the safety and teamwork objectives ( $34.7 \pm 17.9$  vs.  $87.7 \pm 4.8$  percent rating agree/strongly agree). Their knowledge test scores were also increased ( $46.7 \pm 25.8$  vs.  $59.8 \pm 25.4$  percent correct).

After three months of attending this course, students reported having already applied multiple aspects of the course training. 82% have used the informed consent skills, 76% have used the "read back" communication technique, 54% have used the SBAR communication, 40% have used the DESC conflict resolution script. One student reported using the hospital's patient safety network reporting system and another provided the following statement describing her experience with implementing the communication training: "When you start a sentence with 'I'm concerned about Mrs. S.....' the residents stop and listen, especially when you are brief and to the point. In this way, I alerted my residents to a few areas of concern that we had."



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The course activities that students reported finding most helpful on the hospital wards included the simulation stations on surgical scrub and gowning procedures (54%), simulations on hand hygiene, isolation precautions, and using personal protective equipment (54%), Basic Cardiac Life Support training (40%), avoiding patient mis-identification (27%), and medication errors prevention (24%).