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Ionizing Radiation Knowledge Educational Module

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Topics covered during the visit were introductions, tasks and capabilities, expectations, and pearls and pitfalls. Successful curriculum implementation required orientation material preparation by specialists and motivated participation by both the interns and the specialists. The curriculum effectiveness was assessed by participant completion of an optional anonymous retrospective survey.

**Impact/Effectiveness:** The IP was effective in defining and distinguishing ED personnel and assets. A total of 14 out of 15 interns completed the IP curriculum. Eleven interns completed the survey. 91% agreed that the IP (1) helped establish relationships early in training, (2) provided a greater understanding and appreciation for ED staff members, (3) was engaging and relevant to orientation, and (4) should be continued for future intern classes. 100% surveyed disagreed that the IP was a negative experience. Other EM residencies may improve the intern orientation process by incorporating this curriculum into their EM residency program.

## 35 Introduction of a Wilderness Medicine Curriculum to an Urban Emergency Medicine Residency

*Einstein N, Meyers J, Williamson K, Lovell E / Advocate Christ Medical Center, Chicago, IL*

**Background:** Wilderness medicine, the practice of medicine with limited resources in austere environments, is extremely applicable to the emergency physician given its association with pre-hospital, international, and disaster care. Teaching wilderness medicine concepts in a practical fashion can be challenging in an urban emergency medicine residency. In response, the authors created a “Wilderness Medicine Day” in 2016 to be incorporated yearly into our residency’s weekly education conference.

**Educational Objectives:** We sought to enhance our program’s didactic curriculum by providing exposure to an often-underemphasized subspecialty area of emergency medicine. The conference day had a secondary benefit of allowing dedicated time for resident bonding outside the hospital.

**Curricular Design:** The conference day was held at an off-site park, in order to remove participants from the urban environment. Curriculum development was resident driven. Residents created a small group didactic experience that included discussions of limited resource splinting, extrication techniques, first aid kits, and a tourniquet station. The didactic course was followed by three simulation cases: traumatic pneumothorax from fall, distal extremity amputation from animal attack, and open fracture with traumatic brain injury from biking accident.

The day concluded with a fire building session followed by a resident cookout.

**Impact/Effectiveness:** Exposure to Wilderness Medicine topics is an important element of emergency medicine residency. With the creation of a morning conference session devoted to this topic, urban emergency residencies can diversify their conference curriculum, enhance resident knowledge, and include simulation for cases unlikely to be encountered in an urban ED. The curriculum received incredibly positive feedback from residents and faculty and will now be part our 18 month repeating conference series.

## 36 Ionizing Radiation Knowledge Educational Module

*Gobin L, Lall M, Theriot D, Herr K, Henn M/Emory University, Atlanta, GA*

**Background:** Use of advanced imaging in the Emergency Department (ED) increased by 140% from 2001 to 2008 [Pitts SR 2012, Annals of Emerg Med]. Despite the increase in ED ionizing radiation (IR) exposure from imaging there are knowledge gaps among ED providers regarding the presence and effects of such exposure [Ditkofsky N 2016, J Amer Col of Radiol].

**Educational Objectives:** Evaluate if a four-part educational initiative resulting from a collaboration between emergency medicine (EM) and radiology can remedy knowledge gaps regarding ionizing radiation exposure and radiation effects from ED imaging.

**Curricular Design:** EM residency educational curriculums may contain insufficient information about the amount and risks of imaging related IR exposure. In conjunction with emergency radiology, we developed educational objectives including: 1) improve knowledge of the effects of IR resulting from medical imaging and 2) increase comfort level in counseling patients about risks of individual imaging tests. A four-part educational initiative consisted of: portable pocket card, detailed educational document, recorded electronic video lecture, and an in-person lecture. Various educational materials were chosen to suit different learning styles and increase information dissemination. A survey prior to and following the educational intervention was deployed to assess effectiveness.

**Impact/Effectiveness:** Prior to the intervention, 69 EM members took the survey, consisting of 46.4% (n=32) residents, 39.1% (n=27) attendings, and 14.5% mid-levels (n=10); the post-test survey had fewer respondents (n=39) with a similar distribution. The educational intervention demonstrated positive effects across all categories, with improving mean comfort level (Fig. 1) and decreasing standard deviations. EM residents were most likely to use the educational materials (58% usage), while

attending physicians (6.7%) and midlevel providers (20%) were less likely to use such materials. 1st and 2nd year residents were more likely to use educational materials than 3rd year residents. This multi-pronged educational initiative shows success in early EM resident education, however, separate efforts are needed to capture attendings and mid-level providers, some of whom also show knowledge gaps [Ditkofsky N 2016, J Amer Col of Radiol].

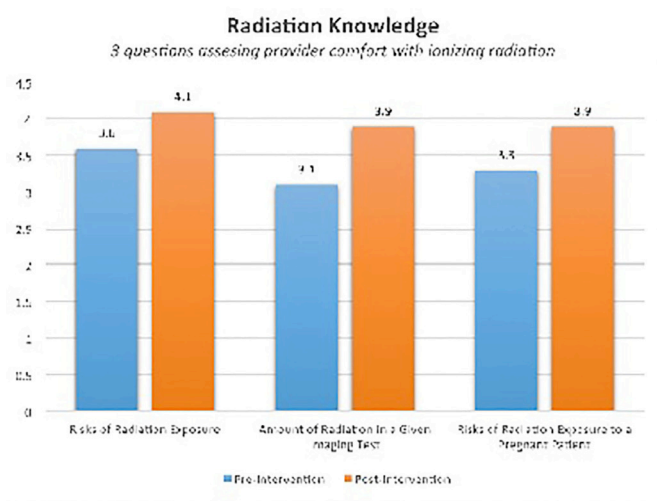


Figure 1—Responses were collected using a Likert scale where 1 is extremely uncomfortable and 5 is extremely comfortable. Mean values are presented prior to and following the educational intervention. Mean comfort levels rose (reflecting increased provider comfort), and standard deviations declined across all questions.

Figure 1.

**Radiation: What Patients Want to Know**

Ionizing Radiation exists everywhere

- Sun and soil provide constant background exposure
- Living or flying at high altitudes increases exposure

Goal: Balance the risk of exposure against harm of missed diagnosis

Medical Sources: X-rays, CTs, MR procedures & Nuc Med studies

- Medical imaging causes ~20% of all radiation exposure

Practical Comparisons:

- ✦ **CCR = Airplane ride from NYC to LAX 3 times**
- Risk: Health effects with large doses, in small doses effects are estimates
- ✦ Younger patients = longer lives = higher risks (age adjustments)
- Risk of death from CCR = 1.4 million
- Risk of cancer from CT AP = 1:2000
- Form shows risk of imaging other body parts as CAP is most sensitive to radiation.

Fetal Exposure: Abdomen/Pelvis imaging is highest risk, avoided when imaging other areas

- ✦ Proven risk associated w/ 5-10 CT APs
- ✦ Baseline leukemia risk is 1:1500
- ✦ Leukemia risk with 1:2500 with 5-10 CT APs
- ✦ No documented link b/w CT and fetal brain damage

Figure 2. Front of Pocket Card.

## 37 It is a Reality: Oculus Assists in Seeing Virtually Everything During Interview Sessions

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**Background:** Recruiting, interviewing and training resident physicians is a resource intensive endeavor.

Selecting individuals with the skills and temperament to fit within a specialty or even a specific training program is one of the most deliberated topics for residency training programs. Standardized Letters of Evaluation (SLOEs) aid in the interview selection process but discovering the true character of a candidate during an interview can be challenging. Some programs have used standardized interview systems in an attempt to compare individuals in a systematic manner. These systems, although many would argue are effective, are poorly received by the interviewee who we hope to recruit. The American Association of Medical Colleges (AAMC) has even begun to look at a standardized video interview system to help programs evaluate candidates. We used a virtual reality headset as part of a standardized interview to evaluate the candidates' temperament, problems solving abilities, and communication skills. The purpose of the study was to examine the resident interview candidate's satisfaction with our program's interview process.

**Educational Objectives:** This innovation was implemented to provide a novel tool for evaluating interview candidates in a systematic and standardized format. A secondary goal was to demonstrate the innovative and progressive nature of the program that would be discussed among other interview candidates resulting in and improved image and marketing for the program. The interview session was constructed to demonstrate some characteristics deemed by our program to be most important in prospective candidates including: adaptability, the ability to communicate clearly and succinctly, teamwork, being calm under stress, and problem solving skills.

**Curricular Design:** All interview candidates for the Texas Tech El Paso Emergency Medicine residency program in the 2015-2016 interview cycle participated in a standardized interview session. The session was conducted in pairs or threes depending on an odd or even number on interviewees. Each group would watch a training video describing the use of the Oculus virtual reality headset and a virtual bomb defusing puzzle-based game. Each team was then given five minutes to review the game manual and plan their approach to the presenting puzzles. Following this video and planning period, each team member would take a turn solving the logic puzzles within the VR headset, relying on the assistance of their team members. Following the activity each interviewee was asked questions about their experience. This structured interaction was then used to formulate a ranking that was incorporated as part of the overall applicant scoring within our program. Candidates were surveyed during the period between the rank list submission and match day about their experiences with our program and the VR interview session.

**Impact/Effectiveness:** Faculty members in the department now look to this session for insight or