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Patient Safety and the ACGME Outcome Measures Project: An Interdepartmental Collaborative Effort to Eliminate Errors in Nasogastric Tube Insertion And MRI Test Ordering

Aaron Gottesman, MD, Staten Island University Hospital, Staten Island, NY ; **Robert Wetz, MD**, Staten Island University Hospital, Staten Island, NY ; **Rabih Touma, MD**, Staten Island University Hospital, Staten Island, NY ; **Mary Salvatore, MD**, Staten Island University Hospital, Staten island, NY ; **Lynn Voutsinas, MD**, Staten Island University Hospital, Staten Island, NY ;

Background: In 1997, the Accreditation Council on Graduate Medical Education embarked on The Outcome Project, an initiative to enhance residency education through educational assessment of six core competencies. Coinciding with the project implementation, the Institute of Medicine issued a report that posited that the medical error-related deaths that occur in the United States are due to healthcare system deficiencies rather than incompetent practitioners. A few years thereafter, two sentinel events occurred at our institution that prompted the development of more accurate tools to decrease the likelihood of adverse patient events.
Case 1 (June 2003): A PGY-1 medical resident inserted a nasogastric tube into a patient to provide nutritional support. Insufflation confirmed apparently successful tube placement in the stomach. The patient was fed via the tube but developed hypoxia and respiratory distress. A CXR revealed the NGT to be in the left main stem bronchus.
Case 2 (May 2004): A brain MRI was recommended by a neurologist for a patient with a pacemaker who had a suspected cerebrovascular accident. Despite checking off “pacemaker” as an absolute contraindication on the MRI assessment form, the PGY-1 ordered the MRI. A post-MRI pacemaker interrogation revealed no alteration in the pacemaker settings.
Purpose: The purpose of the interdepartmental collaboration was to develop systems that would prevent nasogastric tube misplacement and reduce errors in the MRI ordering process. These innovations would serve the purpose of increasing patient safety as well as provide methods to evaluate medical residents' proficiency in patient care, one of the ACGME's six core competencies.
Description: In August 2003, a hospital safety committee convened. The committee decided that all NGT placements must be confirmed radiographically prior to the initiation of tube feeding. In addition, a series of ten radiographs depicting correct and incorrect NGT placement was formulated into a quiz for residents. In May 2004, another hospital safety committee met. The committee recommended that a 10-question quiz on MRI knowledge and safety be administered to all house staff prior to granting them MRI ordering privileges.

Results: The first NGT radiology quiz consisting of ten radiographs was administered to medicine residents in December 2003. The pass rate was 100%. A repeat quiz administered in August 2004 yielded the same result. No further episodes of misplaced NG tubes have occurred since quiz administration initiation. The first MRI safety quiz was administered during the house staff orientation in June 2004. A score of 100% was required to pass the quiz. Of the 45 incoming residents, 16 passed and 29 failed. A revised version of the quiz was administered in September 2004. Of the residents taking the quiz, 64.2% passed and 35.8% failed. The value of the MRI safety quiz continues to be evaluated.

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