A Multimodal Simulation Approach to the Centers for Medicare & Medicaid Services Regulation 482.52: Sedation and Rapid Sequence Intubation for the Non-Anesthesia Provider.

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INTRODUCTION / BACKGROUND

On February 5th, 2010, the Centers for Medicare & Medicaid Services (CMS) issued Revised Hospital Anesthesia Services Interpretive Guidelines focusing on training, oversight, and credentialing of healthcare workers who use sedation in their practice. The impact of these guidelines has been widespread, affecting sedation practices in clinics, emergency rooms, and outpatient settings. In 2011 these guidelines were modified to suggest that hospitals use “nationally recognized” guidelines to create their own policies.

In anticipation of these latest guideline modifications, the American Society of Anesthesiologists (ASA) issued a “Statement on Granting Privileges for Deep Sedation to Non-Anesthesiologist Sedation Practitioners” that includes recommendations for sedation training and time-limited credentialing. The ASA document makes recommendations for the essential cognitive components of a sedation curriculum, as well as 35 hands-on patient encounters (or equivalent simulator cases) to gain adequate experience managing an airway. Ongoing credentialing to perform sedation is contingent on proof of ongoing education.

An effective educational package to meet these needs would include: (a) a relevant and focused didactic curriculum, (b) the ability to apply the new knowledge in realistic situations, and (c) the ability to practice vital psychomotor skills (e.g. bag-mask ventilation, airway rescue, and rapid sequence intubation). Given these broad educational goals, a single-mode educational approach will not be adequate to fulfill these training recommendations; lectures alone would not allow a learner to apply knowledge in context; screen-based simulation does not allow the practice of psychomotor skills; and mannequin-based simulation is too resource intensive to be practical for wide-scale deployment.

A scalable, multimodal simulation-based program would allow learners to repetitively and efficiently apply acquired knowledge and rehearse technical skills for safe sedation practice prior to a hands-on experience with patients.

DESCRIPTION

At Duke University, three separate initiatives are being aligned to offer a multi-modal simulation program to meet the requirements of the CMS and provide effective sedation training. 1. Web and Mannequin-based Rapid Sequence Induction Training - a Duke University Graduate Medical Education Innovation Grant is funding the development of a multi-disciplinary course to teach non-anesthesiologists the skills of rapid sequence induction. The course includes both web-based and mannequin based simulation components. 2. High and Low-fidelity Mannequin-based Moderate Sedation Training - The Durham Veterans Affairs Patient Safety Center of Inquiry has developed a moderate sedation toolkit for non-anesthesiology providers. The toolkit has been made widely available through the internet and includes a detailed curriculum along with high and low-fidelity simulation cases. 3. Digital Games-based Rapid Sequence Intubation and Sedation Training - the Duke University Human Simulation and Patient Safety Center, in collaboration with Applied Research Associates / Virtual Heroes under contract to the U.S. Army Medical Research and Material Command, is developing a serious game for non-anesthesia providers to learn and practice the cognitive skills of rapid sequence intubation and moderate / deep sedation. Through inclusion of web-based didactic and interactive games-based learning, we will provide an educational program for sedation and basic airway management that is interactive, scalable, and self-paced.

CONCLUSION

Beginning in 2011, CMS demands greater central oversight of sedation practices and training throughout the hospital. These new requirements will be difficult to fulfill for many centers. A program that includes traditional web-based didactic, mannequin-based simulation, and games-based learning may be an efficient educational strategy to address these new requirements.

DISCLOSURES


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Above: Obese patient with signs of anaphylaxis

Left: Cases include adult and pediatric patients with realistic airway anatomy

Right: Pediatric airway examination