

Using Full-Scale Human Simulation to Teach Second-Year Medical Students Optimal Single-Provider Facemask Ventilation,

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Background

We have previously described using human simulation during the third-year medical student anesthesiology clerkship (1). This abstract describes using human simulation to teach second-year medical students optimal single-provider facemask ventilation skills.

Methods

Before the simulation course students received a manual describing indications and methods of bag-valve mask (BVM) ventilation. They then attended a 48-minute simulation session, utilizing a Laerdal® SimMan™ human simulator. One hundred forty-two second-year medical students participated in groups of 10-15. They first watched a video describing and demonstrating the sniffing position, how to hold a facemask, use a bag-valve device, recognize effective or ineffective ventilation, and how to place an oral airway. The video concluded by demonstrating how to ventilate a simulated apneic patient. Students then practiced the skills in groups of two with faculty supervision. Finally, students individually performed a scenario where they ventilated a simulated apneic patient with a SpO₂ of 85%. The simulator was programmed such that it could only be ventilated once the mannequin was in the sniffing position and had an oral airway placed.

Results

Time to placing the mannequin into the sniffing position, placing an oral airway, and establishing the first breath was measured (table 1). The order of steps taken, degree of assistance required to perform the skills, and students' evaluations of the course were also recorded.

Discussion

Students demonstrated single-provider facemask ventilation skills after attending our simulation course. Future second-year medical student airway courses will add laryngeal mask airway ventilation and direct laryngoscopy and endotracheal intubation to the curriculum.

Table 1:

<u>Skill</u>	<u>Ave (seconds)</u>	<u>Std dev</u>	<u>Min</u>	<u>Max</u>
Sniffing position	21	16	4	165
Oral airway	65	24	23	174
First breath	77	25	41	179

1. McIvor, WR: Using mannequin-based human simulation during the third-year medical student clerkship in perioperative medicine. *Anesthesia and Analgesia*. 2002;95,S121.

