

# Airway Manikin With Realistic Mobility

Tech ID: 29463 / UC Case 2016-176-0

## BACKGROUND

Training for direct laryngoscopy relies heavily on practice with patients. The necessity for human practice might be supplanted to some extent by an intubation manikin with accurate airway anatomy, a realistic “feel” during laryngoscopy, the capacity to model many patient configurations, and a means to provide feedback to trainees and instructors.

The realism and mobility of the anatomical features of current models limits the effectiveness of training intubation skills. Current models provide only one set of anatomic features, but patients present innumerable combinations of size, shape, proportion, and tissue stiffness. Thus, a novice who trains on a particular model merely learns how to intubate that particular model, but has minimal ability to transfer the learned skills to the multiplicity of anatomies in patients. Furthermore, most models approximate a normal anatomic configuration that poses no problem for intubation, so novices do not gain experience with difficult situations

## TECHNOLOGY DESCRIPTION

Researchers from UC San Diego designed an airway simulator with realistic dimensions and haptic sensation that could undergo a range of adjustments in several features that affect laryngoscopy difficulty, along with a system to display information on laryngoscopy force and motion in real time.

## APPLICATIONS

The manikin is a life-size model of the human head, neck and cervical spine that can be adjusted into shape and size configurations mimicking more than 300 patients. The model is used to train healthcare practitioners how to perform endotracheal intubation, taking human variability into account.

## ADVANTAGES

Their patent-pending invention incorporates novel features that aid in developing mastery of the laryngoscopy procedure, including:

An automated assessment and record of the anatomic configuration of the manikin before the procedure starts. This feature is important because reproducing the specific anatomic configurations desired and necessary for optimal training can be difficult if based just on visual assessment. The calibration between the physical settings and the actual position can change with time and use. The invention will self-calibrate and eliminate that problem.

Enabling the tracking of the laryngoscope and endotracheal tube trajectory alignment to the anatomic structures regardless of which of the 300 or more configurations are selected. This feature is important because the positions of the mouth, pharynx, larynx and vocal cords varies appreciably among different configurations. Those shifts must be taken into account to provide healthcare students with accurate feedback about whether they are performing the procedure properly.

## STATE OF DEVELOPMENT

## CONTACT

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## OTHER INFORMATION

### KEYWORDS

Manikin airway model, laryngoscope  
training, endotracheal tube

### CATEGORIZED AS

- **Medical**
- Devices
- Other
- Research Tools

### RELATED CASES

2016-176-0

The adjustable manikin and the sensor system for providing procedural feedback arepresent in working prototypes. The electronic system to recognize, record and display the anatomic configuration is in concept stage.

INTELLECTUAL PROPERTY INFO

This technology is patented and is available for licensing.

RELATED MATERIALS

► [Delson N, Sloan C, McGee T, Kedarisetty S, Yim WW, Hastings RH. Parametrically adjustable intubation mannequin with real-time visual feedback. Simul Healthc. 2012 Jun;7\(3\):183-91. - 06/01/2012](#)

PATENT STATUS

Country	Type	Number	Dated	Case
United States Of America	Issued Patent	<a href="#">10467927</a>	11/05/2019	2016-176
Patent Cooperation Treaty	Published Application	<a href="#">2017123852</a>	07/20/2017	2016-176

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