Docket #: S18-523

Sensor-equipped laryngoscope and method for quantifying intubation performance

This highly instrumented laryngoscope measures intubation mechanics such as force and torque to quantitatively track how a laryngoscope is being inserted. A light and camera at the tip of the scope allows real-time visualization, recording, and analysis of the procedure from inside of the airway. For endotracheal intubation, a clinician learns over time how to perform the procedure with minimal damage to the patient. This instrumented device can be used for benchmarking performance profiles of experts and subsequent training/live feedback for those with less experience.

Figure



Figure description - Sensor-integrated laryngoscope prototype

Stage of Development

- Prototype built and tested

Applications

- **Intubation guidance and analysis**, especially useful in neonatal units
- **Training and research**

Advantages

- **Sensor integrated** laryngoscope, (sensors such as force/torque sensors, accelerometers, and gyroscopes)

- **Can visualize and record the airway** from within the patient measuring force, torque, and/or three-dimensional motion
- **Provides quantification** of intubation process for benchmarking best practices
- **Provides real-time feedback** during training

Publications

- McWilliam, Paula, Louis P. Halamek, Brian King, Narra Martineau, Janene Fuerch, Nicole K. Yamada, Nancy Kent, Paige Kennedy, and John LaCourse. "Sensor-Integrated Laryngoscope: A Key Step Toward Safe Neonatal Intubation." *Journal of Clinical Engineering 45, no. 1* (2020): 39-44.

Patents

- Published Application: 20170105614
- Issued: 10,264,958 (USA)

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