Cleveland Clinic Innovations

PRODUCT
Pulmonary artery catheterization simulator training

INDICATION
Interactive task trainer for: cardiology, anesthesia, pulmonary/critical care, nursing

VALUE PROPOSITION
- Comprehensive training with multiple simulated diseases.
- Easily integrated into simulation centers.
- Demonstrated interest from multiple medical schools.

DEVELOPMENT STAGE
- Working prototypes & demonstration models
- Technology refinement

INTELLECTUAL PROPERTY
Patent application pending

RELATED PUBLICATIONS
https://my.clevelandclinic.org/-/scassets/files/org/respiratory/2019-respiratory-exchange.pdf

PARTNERING OPPORTUNITY
Development and commercialization partnership

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SIM-PAC: Comprehensive PA Catheter Training

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UNMET NEED

Over 57% of pulmonary and critical care program directors believe that pulmonary artery (PA) catheter training is inadequate. About 80% of all PA catheter training is delivered though ad hoc bedside training or didactic lecture. Meanwhile, PA catheterization rates are increasing, as the procedure has value in a variety of cardiac disease states. For example, many heart failure patients in the ICU undergo PA catheter placement.

SOLUTION

SIM-PAC is a comprehensive simulator technology for pulmonary artery catheterization. This simulator has four key components:
- To scale, 3-D printed heart that includes both the right atrium and right ventricle allowing for direct visualization.
- Sensors that map the position of the catheter in real time, allowing use of clinical catheters.
- A transducer device for training proper leveling and zero referencing.
- A waveform processor to simulate multiple disease states. Adjustable heart rate, respiratory rate, respiratory effort variables.
- Capable of measuring cardiac output via thermodilution.