

UNIVERSITY OF LOUISIANA AT LAFAYETTE

STEP Committee

Technology Fee Application

**Wearable Technology to Increase Fidelity in an
Advanced Airway Management Simulation**

Title

**Frances Stueben, assistant Professor,
College of Nursing and Allied Health
Professions**

**Stephanie Arceneaux, Instructor,
College of Nursing and Allied Health
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Specialist, College of Nursing and Allied
Health Professions**

Name of Submitter
(Faculty or Staff Only)

**College of Nursing and Allied
Health Professions
University of Louisiana at Lafayette**

Organization

Title: Wearable Technology to Increase Fidelity in an Date: 7-15-21
Advanced Airway Management Simulation

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Department/College/Org: Nursing/College or Nursing and Allied Health
Professions/University of Louisiana at Lafayette

ABSTRACT (250 words or less):

The purpose of this grant proposal is to purchase wearable technology for airway management training via high fidelity simulation in the Critical Care Laboratory with undergraduate nursing students. Airway management is a basic life-saving skill all nurses should become proficient in. Due to illness or trauma some patients require an artificial airway called a tracheostomy. A tracheostomy is a surgical incision in the neck used to facilitate placement of a breathing tube (artificial airway) into the trachea. Patients with tracheostomy tubes are at risk for airway obstruction due to mucus and secretion build up within the lungs. Nurses must be skilled in tracheostomy (airway) management which includes suctioning the tracheostomy and performing tracheostomy care. Nursing students receive training in tracheostomy management via simulation-based learning which is a teaching-learning strategy aimed at replicating a real-life experience in a laboratory setting. Fidelity refers to the realism of the simulation experience. The Avtrach is a wearable tracheostomy simulator which is used with a live actor to enhance the degree of fidelity and allows the nursing student to gain psychomotor skills during the learning process. The Avtrach has mucus that can be suctioned from the patient's tracheostomy, breath sounds depicting chest congestion can be auscultated, and the live actors will receive cues via vibrations and can respond appropriately to create a more realistic experience for the students. Utilization of wearable technology (Avtrach tracheostomy simulator) with live actors will help students gain confidence in tracheostomy management and better prepare them for transition into practice.

Keywords: airway, airway management, simulation, fidelity, tracheostomy

Instruction Sheet:

1. Complete the cover page.
2. Complete the abstract page.
3. Give a description of your proposal in 12 pt. font, single spaced, addressing the following points:
 - a. Purpose of grant and impact to student body as a whole
 - b. Projected lifetime of enhancement
 - c. Person(s) responsible for
 - i. Implementation
 - ii. Installation
 - iii. Maintenance
 - iv. Operation
 - v. Training (with qualifications)
 - d. The narrative of the proposal must include the purpose and justification for each of the items listed in the Budget Proposal.
4. Complete the Budget Proposal form.
5. Include any additional information relevant to your application.
6. Discuss all previous funded STEP projects (if any).

**ONE ELECTRONIC COPY (Microsoft Word or Adobe PDF) OF
PROPOSAL SHOULD BE EMAILED TO
stepproposal@louisiana.edu
BY DEADLINE DATE.**

**For additional submission instructions and deadlines,
please visit <http://cio.louisiana.edu/step-process>**

**NO HARD COPY SUBMISSIONS WILL BE
ACCEPTED!**

Budget Proposal

- | | | |
|----|--------------------|---|
| 1. | Equipment | \$ 9490.00 |
| 2. | Software | \$ included |
| 3. | Supplies | \$ 60.00 (simulated mucus in three colors) |
| 4. | Maintenance | \$ 2695.00 (extended warranty) |
| 5. | Personnel | \$ N/A |
| 6. | Other | \$ 300.00 (shipping and handling) |

TOTAL: **\$12,545.00**

Previously funded STEP projects

Frances Stueben has previously been awarded two STEP grants:

1. Stueben, F. & Buford, M. (Spring 2012). Enhancing Learning Through Games. \$3504.00
2. Lemoine, J. & Stueben, F. (Fall 2011). Integration of Technology Systems into the Clinical Setting to Enhance Educational Opportunities for the Millennial Nursing Student. \$15,224.50