

UTHSCSA Innovative Teaching Grants Program
ITG Application

Title of ITG proposal: Interactive Endoscopic Sinus Surgery Training

Names and titles of project director and principle collaborators:

Project Director:

Name: K. Christopher McMains

Title: Assistant Professor

Department & Division: Otolaryngology/HNS

E-Mail: mcmains@uthscsa.edu

Campus phone number: 567-5655

Collaborators

Name: Prasanna Vibhute

Title: Assistant Professor

Department & Division: Radiology

E-Mail: VIBHUTE@UTHSCSA.EDU

Campus phone number: 567-3448

Name:

Title:

Department & Division:

E-Mail:

Campus phone number:

Name:

Title:

Department & Division:

E-Mail:

Campus phone number:

ITG Proposal Synopsis

Project Title: Interactive Endoscopic Sinus Surgery Training

What is the educational problem or need that is addressed by this project? {50 words}

Errors while performing Functional Endoscopic Sinus Surgery (FESS) result in devastating complications. FESS requires intimate knowledge of the surgical anatomy and fine coordination of surgical techniques. There is currently no cost-effective way of providing training on these techniques before entering the operating theater.

What do you propose to do? (briefly describe what you will develop – E.g., what is the product or outcome that will be produced?) {50 words}

1. Enhanced video of FESS performed on latex-injected cadaveric specimens with extended prosection to demonstrate the proximity of surrounding anatomic structures (e.g. optic nerve, cranial cavity, and orbit).
2. Development of a surgery simulator. De-identified 3-dimensional reconstructions from CT scans will be used as the basis of the simulator.

What type(s) and numbers of students will directly benefit from this project?

Otolaryngology residents and students who rotate on the Otolaryngology service. It is possible that the surgical video element could be presented to medical and allied health students enrolled in gross anatomy.

How will you evaluate the effectiveness of this project? {50 words}

Computer-based testing of understanding of sinonasal anatomy and function. Computerized testing will be performed before and after program participation. Evaluation will be made of knowledge of anatomy and of simulated surgical actions.

Total amount of funding requested: \$ 6,800.00

Project Approval by Department Chair:

Name: Randy Otto

Department: Otolaryngology/HNS

Signature: _____ **Date:** _____

UTHSCSA Innovative Teaching Grants

ITG Proposal

Your application is expected to answer each of the six questions below. Please read the review criteria on page 6.

1. **Why should this project be implemented?** Discuss the problem, need or deficiency that will be addressed by this project and discuss why it is important to resolve this problem.
2. **What will be developed or implemented?** Describe the product or outcome.
3. **What objective(s) do you hope to achieve by implementing this project?**
4. **What tasks will be performed to complete the project and who will perform each of these tasks?** Describe the plan / methods for completing the work.
5. **How will you evaluate the effectiveness of this project?** Describe how you will evaluate whether or not the project objectives were achieved.
6. **What is your plan for continuation of the project after ITG funding support concludes?**

Other:

- Complete the project budget.
- Develop a logic model for your proposal (example of logic model provided).
- Attach a 2 page biographical sketch of the Project Director.
- Schedule a pre-submission consultation meeting with the ITG Coordinator.

UTHSCSA Innovative Teaching Grants Budget Request

Project Director: K. Christopher McMains

Title of Proposal: Interactive Endoscopic Sinus Surgery Training

		Funds Requested
1. Consumable Supplies (Itemize below)	\$	3,450.00
2. Equipment (Itemize below)	\$	0.00
3. Hourly Rate Services (such as software programming) Must be calculated at an hourly rate.	\$	2,350.00
Example: 30 hrs programming @ \$30/hr = \$900		
4. Other expenses (Itemize precisely)	\$	500.00
TOTAL	\$	6,800.00

Itemize Expense Items

Consumable Supplies	Equipment	Hourly Rate Services	Other Expenses
Embalmed, latex injected cadaveric heads (3 x \$750) Xomed 15 degree high speed DCR burrs (3 x 2.9mm diamond and 3 x 4.0 mm cutting)		Digital video editing services @ \$35/hr x 10 hours = \$350 Medical illustration \$25 x 10 hours = \$250 40 hrs programming @ \$50/hr = \$2000	Sinus instruments-usage/cleaning (est \$500)

Travel and equipment: Budget requests to support travel for presentations at meetings related to an ITG project must be justified in the application. If the grant is funded, travel expenses may not exceed 10% of the total award. If the project budget includes funds for purchasing equipment, the applicant must document that such equipment is not available or accessible at The UTHSCSA.

<p>Define the target population:</p> <p>Who will your program serve?</p> <p><i>Be specific:</i> If age range, SES, geographic location are important, then specify them.</p>	<p>What are the theoretical assumptions you are making about how your program will work?</p> <p>What assumptions are you making regarding:</p> <ol style="list-style-type: none"> 1) participants? 2) environment? 3) staff? 	<p>Resources:</p> <p>What resources does the program have available to achieve the program objectives/goals?</p> <p>Constraints:</p> <p>What obstacles or challenges might there be? Example: Legal or regulatory constraints</p>	<p>These are the services/interventions that a program provides to fulfill its goals.</p> <p>Activities lead to outputs and are directly related to outcomes.</p>	<p>Outputs are the products of a program's activities such as the number of classes held, the number of home visits made, the number of people attending/completing classes, etc.</p>	<p>Outcomes are the benefits for participants during, or after their participation in your program. Outcomes may be related to, knowledge, skills, attitudes, values, behavior or status.</p> <p>There are usually <i>short-term, intermediate, and long-term</i> outcomes.</p>	<p>Outcome indicators</p> <p>Are the observable, measurable characteristics or changes that result represent the achievement of an outcome.</p>
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Program Logic Model

Interactive Endoscopic Sinus Surgery Training

Program Goal:

TARGET POPULATION	ASSUMPTIONS	INPUTS	ACTIVITIES	OUTPUTS	OUTCOMES	OUTCOME INDICATORS
<p>Otolaryngology trainees, students who rotate on OTO/HNS service, and students enrolled in anatomy coursework</p>	<p>1. Participant knowledge and performance will improve with exposure to subject matter in an interactive way.</p> <p>2. Academic medical center provides an environment of sufficient knowledge and technology to support this project.</p> <p>3. No identified assumptions.</p>	<p>Otolaryngology trainees, students who rotate on OTO/HNS service, and students enrolled in anatomy coursework</p> <p>Resources: surgeons with skill and desire to teach complete, safe surgery; digital video equipment; access to image guidance technology; motivated trainees; technical support from Medtronic Xomed; dissection space approved/equipped for cadaveric use.</p> <p>Constraints: Funding, trainee time free of clinical duties</p>	<p>Interactive training in endoscopic sinus surgery with video demonstration and computer simulated surgical experience.</p>	<p>Module will be available for ENT residents and radiology residents. Additionally, it will be made available to medical students rotating on ENT (est. 3/month) and offered as a resource to the Gross anatomy course.</p>	<p>Short Term: increased knowledge of paranasal sinus anatomy and related surgery.</p> <p>Intermediate term: improve preparedness among ENT trainees for the operating theater to maximize learning and patient safety.</p> <p>Long term: Produce practitioners who are maximally knowledgeable and safe in their practice of FESS. For those students who select another specialty, to develop a deeper level of understanding of the structure and function of the paranasal sinuses.</p>	<p>Comparison between pre- and post-test results with multiple choice questions and surgical simulator.</p>

Review Criteria for ITG Proposals

ITG proposals will be evaluated in relation to the applicants' responses to the areas below. A pre-submission meeting with the ITG Coordinator is required.

1. Description and justification of the problem, need or deficiency

Why should this project be implemented? What is the problem, need or deficiency that will be addressed by this project? And why is it important to address this problem.

2. Uniqueness of the project

What will be developed or implemented and, importantly, why is this approach innovative and likely to enhance students' learning or the quality of their educational experience?

3. Potential for impact

What objective(s) do you hope to achieve by implementing this project?

4. Thoroughness of the work plan.

What tasks will be performed, how it will be done, and who will do the work?

5. Appropriateness of the evaluation plan

Describe how you will evaluate whether or not the project objectives were achieved.

6. Plan for continuation

What is the plan for continuation of the project after ITG funding concludes?

7. Development of a Logic Model

The logic model is a tool that will provide assistance in the planning and implementation phase of the project.

8. Pre-submission meeting with the ITG Coordinator

The ITG Coordinator will certify that the meeting occurred.

ITG Application Template

Please complete each section of the application. Please type.

- 1. Why should this project be implemented?** Discuss the problem, need or deficiency that will be addressed by this project and discuss why it is important to resolve this problem.

Errors while performing Functional Endoscopic Sinus Surgery (FESS) result in devastating complications. FESS requires intimate knowledge of the surgical anatomy and fine coordination of surgical techniques. There is currently no cost-effective way of providing training on these techniques before entering the operating theater.

- 2. What outcome(s) do you hope to achieve by implementing this project?**

Improving trainee/student education with respect to the structure and function of the paranasal sinuses. Increasing understanding of the complex anatomic relationships to other structures at risk with FESS. An equally important goal is to apply this knowledge to performing safer surgery.

3. What will be developed or implemented? Describe the products or outcomes. Examples: web-based curriculum, CD-ROM, teacher training programs.

Computer based course, test, and surgical simulator.

4. Methods: What tasks will be performed to complete the project and who will perform these tasks? Describe the plan / methods for completing the work.

1. Digital capture and editing of anatomic prosection (McMains/media services)
2. Development and implementation of pre-/post-test (McMains/programmer)
3. Development and implementation of surgical simulator (McMains/Vibhute/programmer/media services)

5. How will you evaluate the effectiveness of this project? Describe how you will evaluate whether or not the project objectives were achieved.

Pre- and post-testing that will be part of the computer-based module. This will consist of traditional multiple choice questions as well as scored surgical simulation.

6. What is your plan for continuation of the project after ITG funding support concludes?

Apply for grant funding to integrate haptic tactile feedback into the surgical simulator from private and governmental sources.

Project Director biosketch:

Principal Investigator/Program Director (Last, First, Middle):
McMains, Kevin, Christopher

BIOGRAPHICAL SKETCH

K. Christopher McMains

Assistant Professor

Department of Otolaryngology/Head and Neck Surgery

Medical College of Georgia, 2004-2005, Rhinology-Sinus Surgery

Medical College of Georgia, 1999-2004, Otolaryngology/HNS

UT-Southwestern Medical School, MD, 1995-1999, Medicine

Duke University, AB, 1990-1994, Public Policy Studies