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| The Hammers and Nails Program was established to formalize multi-disciplinary collaboration between SickKids’ Perioperative Clinicians and the Institute of Biomaterials and Biomedical Engineering (IBBME) Program at the University of Toronto and capitalize on the knowledge of both sides. The Committee will provide a matching service for interested clinicians with IBBME supported undergraduates as part of a design course. | |
| Date: | 05-Jul-2017 |
| Name of SickKids’ Supporting Staff: | Dr. Adrian James and Arushri Swarup |
| Division/Department: | Department of Otolaryngology: Head & Neck Surgery |
| Project Title: | Redesigning the suction system in the ENT operating room |
| Describe the Project (<500 words): | The goal of this project is to reduce the noise pollution caused by releasing pedal suction in the ENT OR. The noise is emitted by air rushing into the suction system when the vacuum has been released. Students would design, prototype and test a new suction system that is “quiet” when the surgeon applies and releases suction. This project involves students visiting the OR during a surgery to understand the problem of the noisy release of suction during surgery. They would have a chance to speak to their stakeholders: surgeon (Dr. James) and the OR staff to understand how it affects their work. After surgery, the students would be able to inspect the suction system to understand the current mechanism which may help them understand how to design a new one or improve upon the current system. Students can then test the system on the benchtop and once they can show appropriate engineering tests to validate the system, it would hopefully be implemented in the OR. |
| Does your challenge require [REB approval](http://my.sickkids.ca/research/clinical-research-services/research-ethics-board/Pages/default.aspx)? If yes, do you currently have approval? | No, this project does not involve human subjects. |
| What is the potential benefit of your project to children, families or SickKids’ staff? | This benefits the OR staff as it reduces noise during surgery. This allows the surgeon to be able to speak to their supporting staff, and teach trainees without being interrupted by the loud noise that occurs after suction has been released. |
| How will you measure/define the success of your project? | If the OR staff can have a conversation in normal voice volume uninterrupted by the noise that occurs after suction has been released. |
| Will you require funding? If required, provide a <500 word summary detailing requirements. | Yes. It is anticipated the group would purchase prototyping supplies such as tubing and plumbing fixtures. These can be purchased on McMaster Carr. If this is a Capstone design project then the budget provided for the class should be enough to cover prototyping costs. Additional funding could be made available from Otolaryngology Department funds given appropriate justification. |