* Minimally invasive surgery – be more specific to ear surgery – find paper that states that TEES is a new, cutting edge type of surgery
* Minimally invasive is old – so need to say that this project is new, cutting edge – answer the question what is different about TEES
* For NSERC/CIHR look for areas that the Canadian government is funding and tye it to the project
* http://www.nserc-crsng.gc.ca/ResearchPortal-PortailDeRecherche/Instructions-Instructions/CGS\_M-BESC\_M\_eng.asp
  + Say that people are not doing TEES because of lack of training and the one-handed problem, lack of instruments
  + Objective: help develop research skills and assist in the training of highly qualified personnel by supporting students who demonstrate high standard of undergrad achievement
  + CIHR supports excellence across all four pillars of health research: biomedical, clinical, health systems services, population health
  + CIHR’s mandate is to: ‘excel, according to internationally accepted standards of scientific excellence in the creation of new knowledge and its translation into improved health for Canadians, more effective health services and products and a strengthened Canadian health care system’
  + Significant research component
    - Original
    - Autonomous research **leading** to the completion of a thesis, major research project, dissertation, scholarly publication, peer-reviewed
      * This project aims to publish the results of the Needs Analysis study in a peer-reviewed otolaryngology journal
  + Outline of proposed research:
    - Max one page, bibliography max one page
    - Detailed description of research, specific
    - Background with context of current knowledge in field
    - Objectives, hypothesis
    - Experimental/theoretical approach to be taken (citing literature)
      * Methods and procedures
    - Significance to health sciences, engineering, - promote more mechanical engineering advances in robotic instrument design which applies to surgery
  + Applicant’s Research potential
    - Research history
    - Interest in discovery, proposed research, its potential contribution to the advancement of knowledge in the field, anticipated outcomes
    - Quality and originality of contributions to research and development
      * The development of these tools will have potential to be used in other types of surgery, including traditional invasive surgery as it is difficult to reach hidden recesses within the ear in the traditional microscopic guided surgery
      * These tools will be derived from endoscopic neurosurgery tools that can be used manually and via robot therefore, the potential to further develop these tools – can be designed for use with robotic surgery which is (give a number on how big robotic surgery is and a description of its niche)
      * Therefore, these tools can be used for neuro, sinus, ear, and more to come
    - Relevance of work experience and academic training to field of proposed research
    - Significance, feasibility and merit of research
    - Judgment and ability to think critically
    - Ability to apply skills and knowledge
    - Initiative, autonomy and independence
    - Research experience and achiecements relative to expectations of someone with the candidate’s academic experience
  + Interpersonal skills:
    - Work experience
    - Leadership experience
    - Project management – organizing conferences, meetings
    - Ability to communicate theoretical, technical, scientific concepts – oral and written
      * Presentation to lab, thesis presentation, thesis
    - Involvement in academic life
    - Volunteerism/community outreach
* Single spaced, 12pt Times New Roman
* Margins: ¾ inches
* Left-justified
* Name in page header
* Number pages
* Project will include: the validation of tool – will have residents in a lab with models and will time the length of time it takes to place the graft
* Have one research question and address how it will be answered
* People want to do TEES but they cannot because of x, y, z and the needs assessment will gather the information as to why
  + Will use dephi technique – formulate list of questions based on surgeons feedback, send it out to many surgeons, and then publish results as this information is not out there
  + There is an existing prototype that the team developed and this prototype will be further developed using surgeons to test it in the cadaver, patient, etc
    - Mock OR - residents in a lab with models and will time the length of time it takes to place the graft, how many drops, how many tries to pick up the graft, and ease of use/functionality feedbckv
* CIGITI will provide the models to test on

Aim 1: needs assessment

Aim 2: modify prototype to optimize functionality/accessibility in middle ear

Aim 3: test protoype

Say: dr. james and dr. andrysek and IBBME are a new collaboration with IBBME and we started working together on this new project since Sept 2015, as it was identified as a need by Dr. jame,s a client for our biomed eng capstone project.

Research theme – research in a clinical setting and biomaterials (synthetic grafts)

Synthetic grafts used in tympanoplasty and this instrument will be used to deliver the graft (biomaterial implant) in the clinical setting

* This project encapsulates an overarching goal of collaborating between ibbme research themes of engineering in a clinical setting and biomaterials as this new tool will be used for tympanoplasty to deliver a synthetic biomaterial graft implant in a clinical setting – the instrument is delivering a biomaterial in a clinical setting (the OR)