Graduate Diploma in Health Research
PROGRAM – 2018 SUPERVISOR &
PROJECT INFORMATION FORM

Please complete and return via email only (gdip.hres@utoronto.ca) by September 4, 2018
(forms received after this date will not be posted).

Supervisor Information

Name: Harindra Wijeysundera  Email: harindra.wijeysundera@sunnybrook.ca

Degree(s): MD, PhD  SGS Department: IHPME

Academic Rank: Associate Professor

Field of Research: cardiovascular health services, health technology assessment, economic evaluations.

Research Institution Affiliation (if applicable): Sunnybrook Research Institute

Allocation of student contact time: 10 hours per week
(number of hours per week YOU are available to the student for any concerns or to review progress)
Aortic stenosis (AS) is the most common acquired valvular abnormality requiring intervention, with a prevalence of almost 10% in the elderly. It is caused by restriction of the aortic valve leaflets, which obstructs blood-flow from the heart to the rest of the circulation. Once symptoms develop, AS has a grave prognosis, with a 1-year mortality of 50% if left untreated. Traditionally, the sole therapeutic option has been surgical aortic valve replacement (SAVR).

Transcatheter aortic valve implantation (TAVI) is a minimally invasive alternative and represents a paradigm shift in AS treatment, with > 200,000 implantations performed in > 40 countries annually. Landmark clinical trials have found that TAVI is associated with improved/non-inferior clinical outcomes compared to SAVR, with multiple economic analyses suggesting that TAVI is cost-effective. As such, practice guidelines recommend TAVI as the preferred option in patients who are either inoperable or high risk for SAVR, and a reasonable alternative in intermediate risk patients.

TAVI is extremely resource intensive, given that severe AS patients are elderly with multiple co-morbidities, coupled with the need for an extensive preprocedural diagnostic work-up. Pilot data show that in Ontario, the median cost of a TAVI hospitalization is >$42,000, which was ~ 2-fold higher than for SAVR. Moreover, there was wide variation across hospitals, suggesting inefficiency in care delivery. There is a paucity of previous literature on the drivers of this variation. Moreover, cost drivers are likely different in the pre-TAVI diagnostic work-up period, compared to the either the peri-procedural or post-procedural period. Understanding cost drivers in each of these phases is highly relevant because, although TAVI is reimbursed across Canada, access and TAVI capacity is restricted by limited funding. These supply factors in the face of growing demand have resulted in substantial wait-times, with wait-time mortality > 10%. Identifying the drivers of health care utilization and cost is the first necessary step to inform how to best develop strategies to improve the efficiency of care delivery. Indeed, this may require a fundamental restructuring of care delivery in complex valve
disease. It is critical that this restructuring is informed by real world evidence. This in turn, will increase the equitable, and timely access to this life-saving treatment. There is a pressing need to address this gap in knowledge. The overall goal of this project is to evaluate TAVI related health care costs. Our specific objectives include:

1. Determine the mean total health care costs per patient from the time of TAVI referral up to 1-year post procedure/death, across multiple sectors (acute hospitalization, home care, diagnostic testing, medications, long term care etc.) using a bottom-up approach, through linkage to provincial administrative databases.

2. Determine if there are distinct phases of cost accumulation, such as for example: a.) the pre-TAVI diagnostic work-up period, b.) the TAVI procedure hospitalization period, c.) the stable post-TAVI phase and, d.) the outpatient pre-death phase. The duration and mean cost per month/patient of each phase will be estimated.

If human subjects are involved, have the appropriate Research Ethics Board approvals been obtained?

X YES ☐ NO ☐ Application Submitted ☐ N/A

Do you expect this work will be published within the 20 months?

XYES ☐ NO ☐ Uncertain
**Student’s roles and responsibilities** (please be as specific as possible):

1. Literature review to understand up-to-date literature on TAVI costs and funding models
2. Working with a senior epidemiologist, evaluate the variation in costs between hospitals and understand the primary drivers of that variation – specifically the role of complications
3. Primary author on the publication regarding peri-procedural complications and TAVR costs.

*Please indicate who will serve as the student’s direct report for daily oversight (PI, PhD student, technician, etc…). Daily oversight will be provided by PI and epidemiologist on the team*