



The external reviewers are asked to evaluate the standards and quality of the extra-departmental unit (EDU) undergoing external review, commenting on the points below. You are welcome to use this interactive form if it is helpful in organizing your response. It is based on the terms of reference and highlights the critical elements that must be considered. Please make note of any recommendations on any essential and/or desirable modifications.

EDU:C UNDER REVIEW	Heart & Stroke / Richard Lewar Centre of Excellence in Cardiovascular Research
COMMISSIONING OFFICER	Professor Trevor Young, Dean
DATES OF SCHEDULED REVIEW	September 13-15, 2017

EXTERNAL REVIEW SUMMARY (Please provide a summary of your findings.)

Preamble

We would like to express our appreciation to the team in the Dean’s office of the Faculty of Medicine, University of Toronto (UT), and especially Dr Allan Kaplan, Anastasia Meletopoulos and Linda Stone for their excellent arrangements and shepherding of the review process. It was a pleasure to work with you all. We also wanted to thank the H&S/Lewar Centre Director, Dr Michael Farkouh, for an excellent overview of the functions and directions of the Centre. In the format of the Review Form we have attempted to address the particular bullets and sub-headings in at least some detail.

Synopsis of Considerations

We observed that the Heart & Stroke/Lewar Centre of Excellence in Cardiovascular Research has been well-led by Dr. Michael Farkouh. He has brought expertise in cardiovascular science, especially clinical trials, a highly personable style of leadership, a selfless, outward-looking approach to all relevant partners and an agile, energetic approach to a very complex role. He has balanced other competing and complementary activities and roles with great dexterity and sensibility.

The Centre is progressing in its “gathering” role in the Toronto cardiovascular sciences community. The relationship building of the Centre is very effective considering the small staff of the Centre proper. The assistance to new/young investigators in salary contributions and small grants is viewed by all discussants to be of great positive value. The model of consortial convergence is now being emulated in the Faculty of Medicine, even though EDU-C’s in general have largely fallen out of favour. This EDU-C and its partner EDU-C, the BBDC, and its important educational partner, the CSCP, are thriving. It might be helpful for UT leadership to have a formal presentation of the Centre’s activities by the Director, illustrating this important consortial model has a specific and more generalized pathway to advance and enhance the University’s scholarly directions.

The Centre would benefit from the appointment of a small, highly distinguished External Advisory Board. The Centre would benefit from leadership arising in the Faculty of Medicine to help define a stable funding model for this enterprise. Dr Gillian Hawker generously volunteered to serve as a nucleating force for discussions-aimed-at-actions to fortify and secure the future of the Centre. The Heart & Stroke Foundation of Canada is interested in being around the table to further such discussions. This is a great start!

A renewed discussion and strategy around branding and marketing of the Centre should be undertaken in concert with the funding strategy discussions. There is a great urgency to address these issues and we encourage all constituents that benefit from the activities of the Centre to take an active and aggressive role in these efforts.

It is our impression that the Centre runs in the “middle of the pack” in terms of international metrics of performance and productivity in cardiovascular science. This is not a bad thing necessarily. What it means is that there is room to grow and raise the level of excellence throughout the programs and people of the Centre. The future is bright.

1. Relationships

- scope and nature of relationships with cognate Departments/EDUs at the University of Toronto
- extent to which the EDU:C has developed or sustained fruitful partnerships with affiliated hospitals, research institutes, organizations, and other universities in order to foster research, creative professional activities, and education
- scope and nature of the EDU:C’s relationship with external government, academic, and professional organizations
- impact (value to society) of the EDU:C in terms of outreach locally, nationally, and internationally (through international collaborative cardiovascular research)



(1) Relationships:

- (a) The most important set of relationships relate to the Centre Director, Dr Michael Farkouh. He has served as Director since 2013. There was uniform positivity from all stakeholders about his relationships with the University, the hospitals, the scientists and clinicians, and the staff and trainees. Dr Farkouh is variously described as galvanizing, enabling, selfless, inspirational, available, and yet stretched in his role as an inter-institutional bridge between the UT, the major hospitals and all of the relevant stakeholders associated with the H&S/Lewar Centre. His leadership and communication skills are admired and deemed to be a crucial reason why progress in the Centre and its constituent relationships has been so positive. He has worked extraordinarily well as the human “glue” for the Centre’s community of scholars and clinicians. The office of the Centre Director is ably organized and operated by a talented person, Liz Thuo. She has the right background in business administration, with experience in the private and public sector, to carry the load of an “intersectional” office. She also has a generous spirit and personality necessary to deal with the many deadlines, diverse people and institutions, and relationships of trainees, mentors and others connected to the Centre.
- (b) The Centre has relationships with multiple basic sciences and clinical departments within UT, as well as the Banting & Best Diabetes Centre (BBDC). The Cardiovascular Sciences Collaborative Program (CSCP) is now the educational arm of the H&S/Lewar Centre. The Centre has become CSCP’s major financial supporter. The BBDC and CSCP are both in a category designated as EDU-C. While the EDU-C units do not have the same independence, hiring freedoms, and budgetary support as departments, we found that all of the departmental leaders and the two EDU-C leaders were equivalently engaged with and positive about the H&S/Lewar Centre. Importantly, there are many productive relationships with cardiovascular units in the various hospitals throughout the city. These involve research and mentoring and generally shared ethos of collaborative synergy.
- (c) There is an important historical relationship with the Heart & Stroke Foundation and Lewar family legal representative. Both entities remain strongly supportive of the H&S/Lewar Centre and expressed interest in helping the Centre’s efforts. Annual stewardship meetings have been helpful, although they noted some drift from these efforts recently. Re-engagement (especially with Heart & Stroke Foundation) is advised as they have expressed a willingness to offer support for Lewar moving forward (see funding section below).
- (d) Beyond the local ecosystem, the Centre has numerous international academic partnerships through the Centre’s leadership of the Worldwide Network of Innovation in Cardiovascular Research (WNICR) including the Ottawa Heart Institute, Munich, Mayo, Harvard & Joslin, Mt Sinai NY, and others; and professional/philanthropic (CURA) relationships. These relationships have a diversity of focuses but are mainly in the realm of translational research and clinical trials. An important relationship in the realm of commercialization links a company, QANAT, in Munich to the microvascular group within the framework of the H&S/Lewar Centre. Numerous continuing medical education workshops and sessions within the context of international cardiovascular meetings involve people from the Centre. Of interest, major productive collaborations between the Centre and institutions and organizations across Canada are becoming prominent. The Ottawa Heart Institute is a major partner in WNICR. Additionally, Shaun Goodman, a member of the H&S/Lewar Centre Executive, is directing two national initiatives: a major mentoring program for junior faculty which includes the University of Alberta and the University of British Columbia; and a new proposal for a pan-Canadian collaborative for clinical research. There does not appear to be a significant relationship with governments, either in Ontario or federally in Canada. Both of the latter, Canadian academic and private sector partnerships and relationships with governments, represent obvious portals of bidirectional interaction to amplify the impact of the Centre. In summary, the Centre is setting a strong framework for moving ideas into action, including a commercialization capability. The breadth of seed funding catalysis and professional interactions are significantly bolstering the Toronto cardiovascular community. The national relational presence is developing, while the international presence is mainly in clinical trials and is steadily evolving.
- (e) The value proposition of the Centre for UT and community is enormous. The partial fiscal support of, education of, mentoring of and provision of an interdisciplinary, inter-institutional context for diverse trainings is pivotal now and going forward. The harmonizing and “interstitial” influence for good that occurs through the Centre helps to bridge the various hospital-based enterprises including the big ones like the Peter Munk Cardiac Centre and the Ted Rogers Centre for Heart Research. Partnership with the BBDC helps to enhance the focus on dysmetabolism and heart disease, while the partnership with the CSCP provides a much stronger cardiovascular educational environment than would exist otherwise. Recruitments are enabled through the Centre’s convening effect as well. Loss of H&S/Lewar Centre support would lead to loss of a novel UT model of network building, loss of bonds between different complementary institutions, loss of a key honest broker, loss of a growing international recognition, and loss of a significant leader and force of leadership for all. The impact on the global scene is just emerging, mainly due to the tireless efforts of the Centre Director.



2. Research

- scope, quality, and relevance of research activities
- appropriateness of the level of research activity and funding relative to national and international comparators

(2) Research:

- (a) The scope of research activities reaches from molecule (laboratory) to populations (community). There has been excellent competitiveness for funding in national competitions. This competitiveness is built on solid individuals and teams in a range of UT departments and at the hospitals. These capabilities are in part founded on continuous seeding of pilot projects and programs by the Centre. Recent philanthropy to units like the Peter Munk Cardiac Centre and the Rogers Centre should further enhance overall research productivity, especially in terms of clinical research.
- (b) Although the quality of research relevant to the H&S/Lewar Centre, as assessed by international comparators, is very good, there appears to be room for improvement. In global citation impact, and in domains like cardiac & cardiovascular systems, peripheral vascular disease, and nephrology/urology [a bit of an outlier domain], the *citation impact* is only middle of the pack compared to other leading Canadian and international institutions. It appears that there is room for further improvement in performance indicators for scholarship. As is often the situation in institutions or programs, the citation impact is strongest in a few members of the Centre. These role models may want to inspire a higher level of performance in certain of their colleagues. The number of patents filed during the 5 year period relevant to the Review is impressive. It would be interesting to know if these patents are arising mainly from a few individuals or a particular program. The research ongoing is certainly relevant to and aligned with major thrusts of organizations like the Heart & Stroke Foundation of Canada.
- (c) A few perceived areas of possible weakness include the strategy of multidisciplinary and programmatic grants, and training grants, realizing that at one time the Centre used to host a CIHR block grant, TACTICS, for fostering the best of cardiovascular science training. It also appears that beyond the excellent academic events built into the Centre's menu of learning activities, there are no recurring social events where varied trainees from a range of sites could get together, learn, laugh and grow in their networking capacity.

3. Education

- scope and quality of educational activities and initiatives (e.g., courses, programs, communication strategies)
- extent to which the EDU:C is fulfilling its education mandate
- impact of the formal relationship with the Cardiovascular Sciences Collaborative Program (CSCP) on the training of graduate students
- involvement of the EDU:C in continuing medical education activities at national and international events

(3) Education:

- (a) As noted above, the monthly Visiting Professorships, the annual Michael J. Sole Cardiovascular Scientific Research Day, the joint efforts of the Centre and the CSCP in graduate education, and an array of rounds and learning events, make the environment for undergraduates, graduates, fellows and others very rich. The CSCP program is superb. Its partnership with the Centre brings a 25 year legacy of development including several formal graduate courses pertinent to cardiovascular science. Perhaps the educational mandate, in the context of cardiovascular sciences, is one of the pinnacle positive features of the Centre. Many of the rounds are held at particular hospital sites. There needs to be some effort to create a multi-site video-conferencing capability that would enhance learning across disciplines throughout the fabric of the Centre.
- (b) Financial stipend and project support, in part or in whole, of various trainees (through competitive processes) very positively impacts the local training environment. Perhaps more travel awards for the best poster and platform presentations at the Canadian Cardiovascular Congress would be a good strategy to consider. The continuing education activities at various global congresses are important in providing a "face" on the excellence within and associated with the H&S/Lewar Centre, even though the educational value for trainees and faculty in Toronto is not immediate.

4. Organizational + Financial Structure

- appropriateness and effectiveness of the EDU:C's organizational and financial structure
- appropriateness with which resource allocation, including space and infrastructure support, has been managed
- opportunities for new revenue generation



(4) Organizational + Financial:

- (a) The organizational structure/function is reasonably well-delineated. The Executive & Operations Committee (EOC) of the Centre is broadly representative and meets monthly with the Director on important functional issues (fund allocation, strategic decisions, support of Director in relationship building within and among UT, the hospitals, charitable organizations like Heart & Stroke, and industry). It is not clear how the EOC participates in charting the future strategic directions of the Centre. Is there a periodic retreat for such? It is not clear how the current Donors' Due Diligence Committee works to impact the Centre. Of note, the Centre Director is also the Vice-Chair, Research for the Department of Medicine, UT. Dr. Farkouh has used the model of the H&S/Lewar Centre to develop multidisciplinary networks within the Department of Medicine to leverage resources across the UT system. Dr. Farkouh felt strongly that there was potential for great synergy between these 2 roles.
- (b) The Director has an excellent Business Manager who is very busy with Awards and Grants processes, planning and execution of educational and networking events, accounting, and other responsibilities. It appears that the Centre would benefit with marketing, branding and communications support all aimed at relationship building and management. Such activities become crucial during a period of time when fund replenishment for the Centre is reaching a critical phase.
- (c) In the fund-raising domain, it seems that UT must step forward to lead. The Centre is an EDU-C of the University. It mainly has academic mandates – learning, teaching, mentoring, discovering and translating in the cardiovascular realm. It appears that the UT is ready to step forward in a leadership role for the next phase of funding. It also appears that the Heart & Stroke Foundation would like to participate, and to leverage its considerable initial investment that occurred along with the Lewar gift. With the UT and Heart & Stroke coming forward, it would seem natural that the partner hospitals and their foundations would also consider participating in the next phase of fund-raising. A committee to drive all of this forward needs to be struck by the Faculty of Medicine, UT, immediately. A consortium model (UT, hospitals, charities, industries) would build on the base now established and on the productive outputs and outcomes witnessed by all observers. Finally, concurrent with the fund-raising focus, a look at the “brand” should be undertaken. How can the brand be adapted to take advantage of the Toronto-wide representation of cardiovascular excellence that is inherent to the Centre? Such adaptation could provide a much stronger “face” for the world to view. The time is now for this development to occur.

5. Long-Range Planning Challenges

- **clear articulation of a strategic academic plan that is consistent with the University's and Faculty's academic plans**
- **management, vision, and leadership challenges in the next 5 years**
- **planning for advancement and leadership in approaching alternative sources of revenue, and appropriateness of development/fundraising initiatives**
- **space and infrastructure considerations**

(5) Long Range Planning:

- (a) There are four research priorities based on the 2013 Strategic Plan including Diabetes and Heart Disease, the Brain-Heart interaction, Heart Failure and Personalized Medicine. Where will or should the Centre place its emphasis over the coming 5-10 years? A cartoon illustrating more clearly how members are aligned from basic/fundamental to translational to clinical to community research would help frame the current strengths in people and indicate where the opportunities and needs are most clearly located. The Centre membership appears to be very varied in stage of career, focus and productivity. How is membership defined? What do members have to commit and perform in order to have the privilege of membership? Should this be reviewed or revised? The metrics provided to the reviewers were helpful, yet having each member's h-index and i10-index would give a clearer picture of each member's contributions to excellence. Such could and should be monitored regularly as indicators of progress or regression of individuals and perhaps of chosen priority focuses.
- (b) We could not discern a clear relationship between the Centre's strategic directions and strategies, and those of the Faculty of Medicine or the UT. It would be nice to know how leaders within the Centre, the Faculty and the UT believe their directions are aligned.
- (c) For the immediate and longer term viability and prosperity of the Centre, we believe that it is crucial to maintain the interest and enthusiasm of the current, highly effective Director by providing spiritual and substantive support for the Centre and its activities. His efforts and those of his most effective colleagues should be lauded and reinforced as a model for others planning or implementing system-wide networks like the Centre represents.
- (d) A clearer vision for the Centre in terms of the Canadian landscape is needed. While strong locally, and progressive internationally in the clinical research domain, the relationship to other major Canadian programs with similar goals and possibly complementary skills and resources is not defined.



- (e) How CURA, competitive and non-competitive grants from different organizations, philanthropy, industry investment, and commercial returns will fortify the Centre over the coming decade needs to be drafted and heightened in focus for stability and outstanding performance to be achieved. A matrix model of funding should be refined and made clear to all key stakeholders, especially the UT, the hospitals and the broader public community of Toronto. The city of Toronto, along with the UT should boldly “own” the vision that the Centre is trying to pursue.

6. International Comparators

- **assessment of the EDU:C under review relative to the best in Canada/North America and internationally, including areas of strength and opportunities**

It is our impression that the Centre runs in the “middle of the pack” in terms of international metrics of performance and productivity in cardiovascular science. This is not a bad thing necessarily. What it means is that there is room to grow and raise the level of excellence throughout the programs and people of the Centre. The future is bright.

7. Conclusions

- **overall assessment of strengths and concerns, and recommendations for future directions**

We have provided a synopsis of observations at the outset of this form. We trust that those are helpful in the impacting the sterling future of the Heart & Stroke/Lewar Centre of Excellence. It has been a privilege to work with all of you as your community moves further towards extraordinary discoveries, translations, learning experiences and collaborations.