



The External Review Committee is asked to evaluate the standards and quality of the unit undergoing external review, commenting on the points below. The following template 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.

UNIT UNDER REVIEW	Banting and Best Diabetes Centre (EDU:C)
COMMISSIONING OFFICER	Prof. Trevor Young, Dean
EXTERNAL REVIEWERS	Prof. Steven Kahn, University of Washington Prof. André Marette, Laval University
DATE OF SCHEDULED REVIEW	February 4, 2016

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

Context of Review:

The BBDC was established in 1978 as an Extra-Departmental Unit of the Faculty of Medicine, University of Toronto with the primary objective of advancing diabetes research, education, and care. The Centre offers several studentships, fellowships, grants and other support for qualified individuals involved in diabetes research, education and care at the University of Toronto and its affiliated institutions. In addition, the BBDC hosts several educational events for researchers and diabetes healthcare providers. The Centre’s funding programs and operating costs are supported mostly from an endowment (approximately a third) as well as generous contributions and support from industry and the University Health Network (UHN). These have largely funded various educational events and research programs for scientists, graduate students and postdoctoral fellows. All the BBDC’s activities were reviewed as part of an external review, which took place on February 4 2016. This review was based on a document entitled «Self-Study Report» that was provided prior to the external review, and documented activities of the BBDC from the period July 2011 – December 2015. The report is also based on a series of meetings with key BBDC members and stakeholders held at the University on February 4, 2016.

Overall impressions:

The following are some points that came out of the meetings/discussions with the different stakeholders and represent their thoughts. They provide the basis for much of the discussion in the following sections related to the strengths of the BBDC as well as recommendations to enhance it.

Dean Allan Kaplan and Senior Academic Leadership

- The University of Toronto system is a complicated structure which creates risk for the future as the revenue stream from the UHN is not necessarily secure and determinations related to what to pursue are frequently made by the foundations/director
- There is historical tension between hospitals
- This is a university center and not a UHN center
- New Department of Physiology chair had serious concerns about his department and other basic science departments that have traditionally been important in and to the BBDC becoming marginalized
- BBDC has in the last cycle experienced a major revamping of its leadership and lacks senior leaders established in diabetes with national and international reputations. A number of those with these reputations are at the University of Toronto but play no real role in determining the direction(s) of the BBDC.

Gary Lewis

- Chose to take the BBDC in a new direction with more and new younger faculty in leadership positions. Thus the BBDC Executive Committee membership was completely overhauled.
- Developed a strategic plan with the help of an outside agency and this has been put into place in the first five years of his leadership and he feels is working well. It includes as one component a Discovery Research Platform that has been the scientific base of the BBDC for many years. The other component is the Applied Research Platform, which is new and has more of an educational and dissemination focus. This

has been very successful in educating pharmacists. Regular meetings of the leaders of these platforms, particularly the Discovery Research Platform are not occurring at an optimal frequency.

- Adopted a strategy of involving the UHN Foundation in fund raising as they have the greatest capacity to do so. The University of Toronto has less capacity to do this. They have not identified a donor who will provide sustainable funding and they have thus turned to raising money that has to be more or less immediately committed. An example is targeted funding from the pharmaceutical industry.

BBDC Members

- Expansion of the BBDC based on the strategic plan has been good. Has resulted in new membership of the Center and applied research being more actively part of the scientific base of the BBDC.
- It is unclear what the business model is for the BBDC, especially as it relates to the future and the need for continued funding.
- Clinical research could benefit from having leaders in the field who are from different hospitals work more together.
- Relationships with the provincial government could be strengthened.

Students

- Travel funds and funding are appreciated
- Appreciate value of pilot grants awarded to faculty
- Would appreciate expansion of the opportunity of students to meet with visiting faculty

BBDC Administrative Staff

- Expansion of the BBDC based on the strategic plan has been good. Has resulted in applied research being more actively part of the BBDC and has thus expanded BBDC's role in Toronto, across Canada and even internationally.
- Not as much interaction between the two research platforms as may have been hoped for.
- Increasing funding remains a perpetual challenge

1. Relationships

- **scope and nature of relationships with cognate units at the University of Toronto**
- **extent to which the unit 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 unit's relationship with external government, academic, and professional organizations**
- **impact (value to society) of the unit in terms of outreach locally and nationally**

a) Strengths

- i. The BBDC is well respected by the Chairs and Directors of the cognate units at the University. They all spoke highly of Dr. Lewis's capacity and leadership of the BBDC. More researchers from certain departments (e.g. nutritional sciences) have developed research activities in diabetes because of opportunities presented under his leadership. The involvement with graduate training through provision of fellowships to students is also very valuable.
- ii. It is felt that the BBDC has maintained fruitful partnerships with affiliated hospitals and research institutes.
- iii. It is perceived by most Chairs/Directors that Dr. Lewis enhances external visibility of the BBDC at the international level by creating relationships through a joint, rotating conference with Joslin Diabetes Centre in Boston and the University of Copenhagen. In addition, a new training program in which students from Korea will come to Toronto to be trained has been established.

b) Opportunities

- i. Renewal of the UHN commitment is important, but the reliance on the UHN Foundation may hamper the ability for BBDC to raise funds and to even leverage these funds with other institutions that exist under the University's umbrella. This is because it competes with other priorities the Foundation may have. Further, if future leadership of the BBDC were to come from another hospital, the impact on fundraising

through UHN could be marked. As the BBDC has historically been a University of Toronto resource, thought should be given as to who should support and work with the BBDC Director on fundraising efforts.

- ii. The BBDC should improve its relationships with some departments that feel they are being sidelined. This is critical as the BBDC's reputation has been built on a number of departments, not just Medicine, and without their full cooperation, the BBDC's position as a world leader will be threatened. Further, if these departments do not feel they are getting supported, it is likely that the diabetes focus of faculty recruits and trainees will consequently decrease.

2. Research

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

a) Strengths

- i. The University of Toronto provides a state-of-the-art research milieu that supports internationally renowned scientists in the field of diabetes and related areas. This environment is created in part by the presence of the BBDC.
- ii. The BBDC supports a broad range of research activities from beta-cell biology, incretin physiology, insulin resistance, nutrient signalling and organ crosstalk in metabolic control.
- iii. Some Discovery Research Platforms (e.g. Gestational Diabetes and Islet Stem Cell) are doing very well and foster multidisciplinary research that allows for more people to work together and improved success for funding through team grants.
- iv. The human islet distribution center is a potential strength, although it was not yet fully functional at the time of the visit. It should help foster new work and could result in new collaborations and funding.
- v. The Applied Research Platform was more recently created and is already proving to be successful. Lori MacCullum has really made great strides in educating pharmacists and international outreach has been successful.
- vi. There is increased amount of support for research grants, which is critical. Much of this is not sustained support and comes from gifts through the UHN Foundation. One example is the \$1 million that was awarded as a single grant to a multi-disciplinary group. The increased amount of funding is also generating more applications that need to be reviewed. This means the committee evaluating these submissions has a large amount of work.

b) Opportunities

- i. The different components of the Discovery Research Program are generally successful, but there is still room for improvements given the strengths of the science and the multiple key leading researchers. It was felt that some of the platforms could be integrated better. Certain groups (e.g. Nutrients and Diabetic Complications) are not meeting on a regular basis.
- ii. The leadership of the Discovery Research Platform is not meeting regularly. Not doing so is a lost opportunity to foster research across the different platforms and also to enhance translational research as there is inadequate communication between groups. Thus, some of the programs may not be flourishing as well as could be expected. Consideration could be given to changing the focus or realigning some of these programs. Further, these may also be helped by identifying champions who are willing to spend time meeting with their constituents and the broader BBDC leadership on a more regular basis.
- iii. The Discovery and Applied Research Programs are individually impressive but more crosstalk should be encouraged between basic and clinical scientists. This fosters interdisciplinary research and can help position the BBDC for some funding opportunities at the national and international level, and promote some translational activities that may become transformative by their innovative concept and by reaching unprecedented milestones.
- iv. The discovery programs would benefit from the organisation of an annual one-day symposium that truly focuses on what is being done locally and thereby more effectively promotes inter-disciplinary research. While the collaboration between BBDC, Joslin and the University of Copenhagen, is nice, it only benefits younger scientists in Toronto every three years as only senior and invited presenters will attend when it is held at the other two sites.

- v. The approach to reviewing grants should be evaluated and could be improved to decrease the workload on individual members of the review panel and especially the chair. Consideration to having separate committees to review the discovery and applied applications or increasing membership on the review panel to reflect the type of grants being received and that the appropriate expertise is present. It would also be good to ensure that applications receive outside reviews to ensure adequate expertise and reduce the likelihood for bias in selection of awardees.

3. Education

- scope and quality of educational activities and initiatives (e.g., courses, programs, communication strategies)
- extent to which the unit is fulfilling its education mandate

a) Strengths

- i. There are a number of educational opportunities offered. These range from the typical lecture to poster sessions at all day symposia.
- ii. As mentioned, a tri-institutional meeting is held annually. This now incorporates the Joslin Diabetes Center from Boston and the University of Copenhagen. This event is expected to bring outside experts from these institutions to Toronto every three years.
- iii. A new training program has been developed that will allow junior scientists from Korea to come to Toronto for a relatively extended period for training in different disciplines related to diabetes. The first group are due to come in 2016.

b) Opportunities

- i. The future of diabetes research at the University of Toronto is going to be critically dependent on creating a solid generation of young scientists. Thus, it is important that every opportunity be taken to engage them in scientific interchange. This could include creating additional opportunities for them to meet with visiting faculty in small groups to present their work to ensuring that sufficient opportunities are available locally to allow them to share their work with Toronto faculty and students in the form of either oral presentations or posters.
- ii. A number of training and education opportunities are organized by the Training and Research Excellence Committee. The workload of this committee is extreme and should be reevaluated. Having a committee responsible for grant reviews only and another for research training is one possibility.

4. Organizational + Financial Structure

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

- i. The BBDC-UHN agreement expires in 2017. Thus, this year it will be necessary to negotiate a new agreement. The nature of this agreement will of course need to be appropriate for both the University of Toronto and UHN. If UHN is to continue its involvement, it is important that this be in a way that does not create the "silo" effect and mean that some of the other hospitals and University departments feel disenfranchised. Consideration should also be given to whether UHN can be asked to increase its commitment given what BBDC brings to it.
- ii. Funding has increased in the last few years, but this is largely in the form of one-time gifts with no commitment to continued giving and many of them have come from the pharmaceutical industry. Some of these funds require that they be used in the short term and the BBDC Director has actively pursued this avenue of giving and utilization. The problem it creates is one that many institutions face and that is endowments are not growing. As the cost of research increases and should there be a downturn in the amount of funds being donated, the BBDC could find itself in a position of not being able to sustain the desired activity. This could have major impacts on its perception in the University system and on its ability to support diabetes research. Thus, serious consideration should be given to new mechanisms for increasing the BBDC's endowment. Some of this could be achieved through a focused campaign, e.g. the 100th anniversary of the discovery of insulin. Importantly, such funds should be available for the future and should, if at all possible, not be tied to one hospital foundation or another.

- iii. The organizational structure and leadership is discussed in part above. Highlights are essentially an overhaul at most levels so there is little carryover of leaders from previous cycles. With the new research platforms, there are numerous individuals involved, but at least some do not appear to interact regularly. It appears that the Director is largely responsible for day-to-day decisions, fund raising and frequently larger decisions for the BBDC. While this structure is currently working and the Center is functioning, it is putting a lot of pressure and responsibilities on the Director, and it is possible this could be improved. It is recommended that some consideration be given to restructuring BBDC leadership to enhance communication, spread the workload and ensure past experiences of the Center, both good and bad, are considered when important decisions are being made.
- iv. The site visitors did not get an opportunity to meet with representatives from the other hospitals. Given that there appears to be an element of competition and tension between them, this was unfortunate. It is vital for the future success of the BBDC that everyone sees the importance of the Center and sustaining it as an important goal given the history of the Center and diabetes in Toronto.
- v. The space occupied by the BBDC was not seen. From reports it is in UHN and is adequate.
- vii. The actual finances of the BBDC were not reviewed.

5. Long-Range Planning Challenges

- clear articulation of a strategic academic plan that is consistent with the University's and Faculty's academic plan
- 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

a) Strengths

- i. The BBDC has expanded in the last 5 years, promoting new activities in applied research while maintaining its strong reputation in basic research, in line with the University and Faculty academic plan.
- ii. The BBDC has adapted its management profile in a changing financial and research environment, and maintained its important role in Toronto, while simultaneously expanding its leadership across Canada and even internationally.

b) Opportunities

- i. While the BBDC has established its leading role for all diabetes related research at the University of Toronto and UHN, it should further enhance links with other stakeholders (e.g. other affiliated hospitals). Such an approach will not only expand the concept that the BBDC is a University of Toronto resource that truly crosses boundaries, it could also help capture alternative sources of revenues and optimize fundraising efforts.
- ii. Capitalize on the recently funded SPOR program to further advance its national leadership and international recognition for innovative patient-oriented research which can help raise new funding mechanisms for diabetes research and educational programs.

6. International Comparators

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

a) Strengths

- i. The vision of the BBDC is « *As Canada's leading centre of excellence for innovation in diabetes research, education, and clinical care, we will tangibly impact diabetes prevention and outcomes in Canada and globally.* » It thus goes beyond Toronto and is aligned with other groups in Canadian institutions as well as international organizations as exemplified by the relationship develop with both the Joslin Diabetes Center and the University of Copenhagen.
- ii. One recent national initiative lead by a BBDC-ULaval team to develop a network on diabetes and its related complications was recently funded by SPOR (Strategy for Patient-Oriented Research) for a major grant of \$32 million. This will further increase the leadership of the BBDC on diabetes research and patient care in Canada.

b) Opportunities

- i. The BBDC is encouraged to seek further collaborations and agreements, in both basic and clinical research areas with other leading academic institutions in Canada and abroad, especially in fields where the BBDC is less competitive.

7. Conclusions

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

The BBDC has an outstanding track record and continues to be the leader in Canada for diabetes research. It is appropriately recognized as such inside and outside of Canada. In the past 5-year cycle under the leadership of Gary Lewis, the Center has undergone numerous structural and philosophical changes. These have clearly benefited the Center and have also created opportunities for further enhancement. Doing so could put the BBDC in an even stronger position to grow successfully and continue to lead to find cures to diabetes and its complications.