Queen's Cancer Research Institute
Faculty of Health Sciences
Report of the Advisory Review Committee
November 15, 2017

Executive Summary:
The Committee unanimously recommends the renewal of the Institute and strongly supports the current Director, Dr. David Berman.

1. The Committee endorses the Institute Strategic Plan.
2. To realize the potential of this Plan, efforts to integrate the three Divisions (CBD, CCE, CCT) should be continued and strengthened, where appropriate.
3. To promote this integration, the Committee recommends:
    - The Institute Director's role be separated from any leadership at the divisional level and a new management team be created, where there are three divisional leaders each distinct from the Director
    - The Faculty of Health Sciences invest to support the hiring of a Program Manager to support the Director, enabling the Director to focus on executive tasks
    - Enhanced communication and interaction between all levels of the Institute be a priority
    - Funding be prioritized to effectively support initiatives promoting integration of the divisions or current initiatives may not be sustained
    - Enhanced funding to support the Institute graduate program in transdisciplinary cancer research training
    - Creation of an Institute Advisory Board whose terms of reference meet identified needs of the Institute and Senate guidelines
    - The Director establish metrics to measure the success of this integration
4. The Committee recommends that recruitment of junior and mid-career faculty be a priority, including in the area of Bioinformatics, and that the Director have a greater role in this recruitment process.

Preamble:
The Queen's Cancer Research Institute (QCRI) was established in 2001 within the Faculty of Health Sciences following approval by Senate and ratification by the Board of Trustees. In accordance with the Senate Policy on "Procedures Governing the Establishment, Reporting and Review of Research Centres, Institutes and Other Entities at Queen's University," reviews are conducted every five years to advise the Dean of Health Sciences on the viability of the Institute, and provide recommendations as to whether it should be authorized to operate for a period of up to five years or phased out of existence. The reviews conducted in 2005/06 and 2011 both resulted in the renewal of QCRI for subsequent 5-year terms. The Review Committee appointed in 2017 was tasked to review the viability, leadership, accomplishments, and organizational structure of QCRI, and provide recommendations for future development. The Review Committee was also asked to provide feedback on the new draft QCRI Strategic Plan.

Membership of the 2017 Advisory Review Committee included:

Dr. Jim Biagi	Associate Professor & Deputy Head, Department of Oncology
Dr. Alexander Boag	Associate Professor & Head, Dept. of Pathology & Molecular Medicine
Dr. Ann Chambers	Distinguished Oncology Scientist, London Health Sciences Centre
Dr. Paula James	Professor, Department of Medicine
Dr. Steven Smith	Professor, Department of Biomedical & Molecular Sciences
Dr. Stephen Vanner (Chair)	Professor & Deputy Head, Department of Medicine
Dr. Christine Williams	Deputy Director, Ontario Institute for Cancer Research

Administrative support was provided by Jennifer Robinson, Research Projects Advisor in the Faculty of Health Sciences.

Documents provided to the Review Committee included the QCRI Constitution, Annual Reports over the past five years, a 5-year budget forecast, QCRI Strategic Planning Retreat 2017 Report, and draft QCRI Strategic Plan "Realizing the Promise of Translation". The results of two online surveys circulated to i) faculty & staff and ii) trainees were also provided. Over the course of the day, the Review Committee met with the QCRI Director and Division Directors, who provided presentations highlighting research themes, research funding and publications, challenges, and strategic priorities. The Review Committee also met with a variety of other stakeholders, including faculty members representing the three Divisions of QCRI, trainees representatives, staff representatives, the Vice-Dean Research for the Faculty of Health Sciences, and the graduate training program director and leaders from each Division.

As outlined in the Terms of Reference for the Advisory Review Committee, the Review Committee considered the following areas and provided their comments and recommendations:

I. Viability of the QCRI

QCRI is comprised of three Divisions; Cancer Biology & Genetics (CBG), Cancer Care & Epidemiology (CCE), and Cancer Clinical Trials (CCT), housed in a ~60,000 sq ft. free-standing building attached to Botterell Hall. The three Divisions are complementary in their activities, with each being vital to the QCRI Strategic Plan. They also afford the opportunity to support and strengthen each other in a climate of funding and resource shortfalls. Currently, the CCT Division is the largest in terms of financial and human resources, which helps to stabilize other Divisions. The structure of QCRI is a strong platform to facilitate interdisciplinary, translational research amongst the three Divisions. It provides clear potential to enhance funding success both for individual investigators and group grants. Graduate student training has clearly benefited and the potential for high quality recruitment strengthened. It also provides a strong platform for philanthropic fund raising initiatives. While the committee recognizes the existing strength of QCRI, it strongly encourages futher integration of the divisions to meet the goals of the strategic plan.

Recommendations: The Advisory Review Committee unanimously agrees that the QCRI should be renewed for another 5-year term.

II. Leadership

Dr. Berman is relatively new in the role of QCRI Director, having been appointed in 2015. There was unanimous consensus that Dr. Berman has provided effective leadership to date. The Institute Review and Strategic Retreat that led to the development of a Strategic Plan were viewed as important steps towards realizing the full potential of the Institute. The Committee supports the recommendations in the Strategic Plan regarding the proposed changes in leadership roles in the Institute (i.e. Director is also not a Division Chair; see below) and the need for high level management support for the Director (see below) to enable him to focus more on executive tasks.

Recommendations: The Committee strongly supports the leadership of the Director, Dr. David Berman. A new executive management team be formed that will include the three Divisional Chairs in addition to the Director. There is tremendous value that the integrated whole can deliver, and as such initiatives by the QCRI Director to further integrate the Divisions should be supported by the Faculty and University. Increased financial support will be critical to enable and ensure the success of integrative programs and initiatives.

III. Organizational Structure

The QCRI comprises the CBG, CCE, and CCT Divisions within dedicated research space.

- As introduced above, the QCRI Constitution currently states that the QCRI Director also be a Director of one of the three Divisions. The Review Committee agreed that this arrangement creates a conflict of interest and the added time commitments together could diminish the effectiveness of the QCRI Director.
- Each Division has their own distinct research themes and priorities. While there is excellent collaboration of QCRI members within Divisions, there has been less cross-divisional collaboration. The recent creation of site-specific Translational Research Teams is a creative approach to better integrate the three divisions but will require leadership and resources to enable them to realize their potential.
- The CCT Division houses the Canadian Cancer Trials Group (CCTG), which is a national program of the Canadian Cancer Society Research Institute. The CCTG collaborates with over 3100 researchers in Canada and around the world, with 40 international partners. The Review Committee recognized the inherent challenges in integrating the Divisions of the Institute given the national mandate of the CCTG, particularly the need to be careful to avoid a perceived favouritism towards Queen's (e.g. in accessing databases and other resources, analysis, collaboration). However, it was noted there is limited capacity to conduct Institute-based investigator-driven phase I clinical trials.
- Communication issues were a recurring theme in the review from multiple groups. The committee also identified that three Divisions were physically separated on floors with restricted access to any common area due to security issues.

Recommendations: Leadership and resources should be committed to enable the Translational Research Teams to be successful. Opportunities to create more clinical trial capacity in the CCT Division for the Institute should be explored. Most discussions surrounding the integration of the Divisions have focused on research initiatives. Integrating other human and physical resources (e.g., social activities, biostatistics, shared equipment, etc.) would also be very beneficial. Enhanced communication is needed. For example, physical space identified on the first floor atrium could provide an ideal common area for fostering such interactions.

IV. Accomplishments of the Institute

The visibility that the QCRI brings to cancer research in Kingston has tremendous benefits for the recruitment of faculty and trainees. Each Division has internationally recognized research leaders, with the activities of each Division serving to enrich the others. All Divisions appear to be doing well considering the current funding climate in Canada, with shrinking budgets for research funding, and the preference of agencies to fund applied research at the expense of basic discovery research.

- *External funding:* The CCT Division research funds have seen growth, with a large industry component, success in the CFI Major Science Initiatives Fund ($9M), and ongoing programmatic support from CCSRI ($24M over 5 years). Funding for CBG and CCE has been relatively stable but tri-council and related national agency funding has been declining over the past 5 years.
- *Publications:* The publication data presented for the Institute over the last five years is impressive, with the number of publications increasing for all three Divisions. This growth has occurred despite a lack of continuing faculty recruitment and the current research funding landscape. It would be informative to consider other metrics, such as the number of publications and grants co-authored by investigators in more than two Divisions, to gauge how QCRI integration is proceeding.
- *Integration:* The creation of Translational Research Teams was viewed positively by QCRI faculty as a way to bring individuals from different Divisions together and generate ideas. Of the five teams, two will be successful in receiving $40K of funding from the Department of Oncology. These funds will enable teams to generate pilot data to hopefully spur new collaborations and grants to external agencies.

- *Education:* The QCRI does not have its own graduate program; students are enrolled in the graduate program of their supervisor's home department. However, the QCRI offers a Collaborative Cancer Graduate Program, funded until recently via a Terry Fox/CIHR Training Program grant, where trainees complete a variety of cancer themed courses and present at a seminar series. The Transdisciplinary Training Program has been highly valued by students and the faculty, having provided trainees with opportunities for interdivisional co-supervision. Unfortunately funding for this program has recently been discontinued.

Recommendations: The funding challenges experienced by QCRI are not specific to the Institute or Queen's, but rather is a national issue, and all Divisions are doing well in spite of declining sources of funding. However, it does create a level of vulnerability for these Divisions. The Faculty of Health Sciences should consider additional resources (e.g. bridge funding, pilot grants, etc.) to ensure research laboratories remain viable amid these funding shortfalls. Recruitment of new faculty will be critical to ensure the success of the QCRI and bolster research funding. The QCRI Director should have a larger role in strategic recruitments for the Faculty, particularly given that cancer research is a major priority area. Continued support for the Translational Research Teams will be important to ensure the success of this initiative. The Faculty should consider consolidating smaller internal research grants to increase the amount of funds available for this initiative, providing larger amounts per team. Larger grant sizes would enable these teams to have greater impact and encourage more participation. The Transdisciplinary Training Program is viewed as a particular strength and is highly valued by the trainees. Resources should be allocated to this program to ensure its continued operation.

V. Operating Budget & Adequacy of Human Resources

The QCRI has a modest operating budget for an organization of this size. Salaries for faculty are funded by their home departments (i.e., Biomedical and Molecular Sciences, Pathology & Molecular Medicine, Public Health Sciences). Annually, the Director receives a $10K administrative stipend and $6K travel allowance to support a 1-day a week commitment to the role. The Faculty provides a $30K annual salary contribution for an administrative assistant to the QCRI Director, as well as a $30K annual research stipend to offset the salary of a senior Research Associate. The discontinuation of infrastructure and administrative funding from Cancer Care Ontario (CCO) in 2008 created instability in job security for staff in the CCE Division, and the unpredictability of CCO's research agenda is a continued concern. Overall, this funding situation is not conducive to realizing the potential of the Institute.

Recommendations: The Review Committee recommends that a MSc/PhD level program manager be hired to support the Director (i.e., operations, facilitation, communications, coordinate cross-divisional initiatives, etc.). Such an individual would allow the QCRI Director to focus on higher-level Institute priorities (e.g., philanthropy, integration). Additional support should ideally be provided to each Division Director. Financial support of the Institute should be reviewed to ensure its sustainability over the next five years. Additional internal funding should be explored with partnering Departments and through other external sources, including philanthropic donations.

VI. Future Development & Operations

To ensure the continued growth, success, and impact of the QCRI, the Review Committee provides the following additional considerations:

- *Strategic recruitment*: There is a need to replenish QCRI faculty with new and mid-career investigators, and it will be essential to be strategic in these recruitments. The QCRI Director should be engaged in recruitment plans of the Departments/Divisions within the Faculty of Health Sciences. A shared vision and priorities amongst Divisions would assist with buy-in throughout the Faculty of Health Sciences. Expertise in bioinformatics and health economics is an immediate need, and would support research endeavors of a large number of the research groups within the Institute and Faculty.

- *Advancement:* The QCRI represents an excellent profile for fundraising, though there has been little success tapping into the local community. The QCRI should capitalize on the expansive Queen's alumni community in its fundraising efforts. An Institute Advisory Board (IAB) is mandated by Senate, and will need to be created. The committee agreed with the strategic report recommendations that the IAB should focus on external partnerships, publicizing value to stakeholders, and providing advice on fundraising initiatives.
- *Communications:* Internal and external communications could be improved. 1) *Internal*: Faculty and staff between Divisions could link better internally, as there are tremendous benefits to sharing knowledge and resources. Currently, there are no formalized communications between Divisions, nor common space that all members have access to, which could spur interactions. Space was identified on the first floor atrium that could ideally serve this function once security issues have been resolved. Quarterly email newsletters highlighting grants/publications/other successes may be helpful and facilitate cross-pollination. Successes in bringing people together are often project-based, so continued initiatives such as the Translational Research Teams would be beneficial to encourage interactions between Divisions. There also needs to be a regular trickle down of information from the Executive Management Team to the membership. A mechanism by which the membership can provide input to and receive information from the Executive Management Team should be set in place. 2) *External:* The QCRI would benefit from strengthened linkages with other regional cancer research centres (e.g. Ottawa, Toronto, and Montreal). When communicating with others, QCRI members should include their QCRI affiliation to increase ensure maximum visibility of the Institute to the broader community. QCRI should also work to maximize its collaborations within the Queen's research community.
- *Strategic Plan*:
    - *Integration*: The establishment of cross-Institute themes (precision medicine, sustainability of cancer care, and value) and grouping teams around disease sites appear to be effective approaches to integrate Divisions. The Translational Research Teams have succeeded in getting researchers from different Divisions engaged and working together, though QCRI will need to ensure these teams are better resourced to improve their success rates in attracting external funding. Without this, there is a significant risk that these initiatives will not be sustained.
    - *Education:* Trainees are a significant asset to the QCRI and could play a vital role in further integration of the Divisions. On the whole, trainee recruitment has been stagnant over the last 5 years due to a lack of research funding. Aggressive recruitment of more post-doctoral fellows should be pursued, as these individuals typically take on more complex projects and move them forward more quickly. Trainees expressed a need for more career support, including formalized mechanisms to provide advice on future careers and how to apply their skills to other jobs. Such an initiative could be offered via a Faculty-wide initiative.
    - *Research Assets/Core Facilities*: Shared research assets are an efficient use of resources and benefit multiple QCRI researchers. Better advertisement of available infrastructure and resources is critical, both within the Institute and across the Queen's community. It will also be important to consider how QCRI can benefit from the resources and expertise of the CCT Division, while respecting its national mandate.
    - In addition to renewed efforts to recruit faculty with Bioinformatics expertise, potential capacity in the Centre for Advance Computing (CAC) should be explored as they also possess bioinformatics personnel.

In closing, the Advisory Review Committee unanimously supports the renewal of the QCRI, which has demonstrated substantial benefits in bringing the three Divisions together.

Submitted by:

Stephen Vanner
Chair, QCRI Advisory Review Committee