

REVIEW OF UNIVERSITY OF TORONTO CENTRE FOR THE STUDY OF PAIN

This report describes the conclusions of an external review of the University of Toronto Centre for the Study of Pain (UTCSP) carried out in October 2008. The purpose of the review was to provide an objective assessment of the success of UTCSP in achieving its original goals and objectives and to make any recommendations for the future. The report is organized according to the following areas: the process of the review; a description of the Centre; background of the Centre; findings related to research, education, knowledge translation; organization /administration; conclusions and recommendations.

Review Process

The review was conducted by two external experts in the field of pain research and education:

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Written materials were provided to the reviewers in advance of the site visit. The materials included the original proposal for the establishment of the UTCSP with its purpose and objectives. The remainder of the extensive documentation included a report which described the productivity of the UTCSP in research, international recruiting, publications, funding, education and other Centre

activities. Other materials forwarded were appendices with names of all faculty and graduate student membership in the Centre, a sample of publications, lists of awards to members, an education curriculum and facilitators manual. Overall, the documents were well organized and informative.

The site visit took place over a 2-day period (October 1 & 2, 2008) and included interviews with deans of medicine, nursing, and pharmacy as well as program directors in physical therapy, occupational therapy, anesthesia, pharmacology and physiology. Meetings were held with UTCSP recruits, post doctoral fellows and doctoral trainees, faculty members of the Centre, the director of UTCSP and the Dean of Dentistry (the names of participants and schedule is appended). The interviews were well organized and on schedule. All participants were candid in their comments and all were actively engaged in the process.

Description of UTCSP

The UTCSP was approved and established by the Academic Priorities Committee/Fund of the University of Toronto in 1999 and was launched officially in the year 2000. It was planned as a comprehensive and coordinated network of research and education on pain at the University of Toronto. The UTCSP is a collaborative partnership with Faculties of Medicine, Dentistry, Nursing and Pharmacy. The Centre's membership includes a unique community of basic and clinical scientists whose goal is to produce new knowledge about pain mechanisms and management and to translate that knowledge into education for health researchers and practitioners.

The Centre is a virtual centre with an administrative office located in the Faculty of Dentistry. Members of the Centre hold appointments in various faculties within the university and are geographically distributed across the University of Toronto campus, the teaching hospitals and associated research institutes. The Centre is led by a Director who has held the position from 1999–2008 and whose term is at an end. The Director reports to the Dean of Dentistry as the lead Dean. The

Deans of Medicine, Nursing and Pharmacy have oversight of the Centre and delegate the day to day administration to the Dean of Dentistry.

Four committees are responsible for Centre administration. These include:

- ◆ Advisory Committee – provides advice and guidance to the Director.
- ◆ Education Committee – plans and implements interfaculty educational activities, and coordinates educational events within the various faculties.
- ◆ Research Committee – coordinates interfaculty research initiatives and events and adjudicates the research awards made by the UTCSP.
- ◆ Membership Committee – assesses applications for membership in the UTCSP.

The members of these committees are leading pain researchers and educators who are faculty members in the UTCSP.

There are 66 regular members of the Centre. Of these 62% are members of the faculty of Medicine, 20% are from the faculty of Dentistry, 14% are from the faculty of Nursing and 4% from the faculty of Pharmacy.

There are 40 trainee members of the Centre supervised by 10 faculty members. The Centre also involves 110 facilitators who are scientists, clinicians and educators from all faculties and university affiliated health centres who participate in the week long interfaculty pain curriculum referred to later in this report.

In addition to research and education, the UTCSP fosters knowledge transfer about recent discoveries in basic and clinical science in pain. It sponsors seminars, conferences, journal clubs and lectures on pain. Each year the Centre hosts the UTCSP Pain Day which is a multidisciplinary retreat that involves trainees, researchers and clinicians in a symposium focused on the latest advances in pain science in a particular content area.

The UTCSP has a base budget of approximately \$400,000 from the original APF award and a subsequent Academic Initiative fund award. Additional funding of approximately \$55,000 comes from the member faculties, recovery from CRCs and income from symposia. Of the total amount, \$50,000 is committed to the Clinician Scientist Trainee Award and \$50,000 to the Interfaculty Pain Curriculum. The Centre also supports 2 internationally renowned basic scientists who were recruited to the UTCSP. Their funding comes from a combination of base budget and funding from the Canada Research Chairs program. There are funds available to recruit at least one clinical scientist.

Background for UTCSP

Pain represents a major health and societal problem in developed and developing countries. Epidemiological studies show that more than 20% of the adult population suffers from chronic pain and the majority of chronic pain patients receive insufficient help from existing treatments. In order to improve the management of pain there is a need for coordinated action to increase our knowledge of pain, to disseminate information about pain, and to improve education in the area of pain. Because of the complexity of pain and its management, the International Association for the Study of Pain (IASP) has identified the need for an interdisciplinary approach to the study of pain, one which brings together basic and clinical scientists and other healthcare providers with the common goal of increasing our knowledge of pain and translating that knowledge into improved pain management. Such thinking served as the stimulus/catalyst for the development of the UTCSP in 1999. The large critical mass at the University of Toronto of scientists, researchers and clinicians with an interest in pain, representing a variety of disciplines, provided a solid foundation and the unique opportunity for the creation of a virtual centre for the study of pain. The mission of such a centre would be that of increasing knowledge of pain, disseminating such knowledge and educating a new generation of scientists and other health care providers in the field of pain. UTCSP is a virtual centre

which, until now, has concentrated its activities on three areas: 1) research, 2) education, and 3) clinical translation.

Goals and mission of UTCSP

The initial goals of the UTCSP were:

1. to build a coordinated network of University of Toronto educational and research programs in pain and,
2. to develop novel strategic interdisciplinary initiatives in pain research and education.

The mission statement is to lead in research, educational and clinical activities concerning pain; to be a model of interdisciplinary collaboration in the creation and dissemination of knowledge about pain; and to promote excellence in scholarship.

Achievements of the UTCSP since 1999 within the areas of Research, Education and Translating Knowledge

Research

Research is a key area for UTCSP. Twenty members of the Centre are recipients of awards with the total annual research funding exceeding \$21 M. The number of publications has increased to 162 in 2007 representing an 80% increase since the start of the centre in 1999. Research is reflected in the following areas: Canada Research Chairs (CRC), pain research teams, Strategic Training Program Grants on Pain (CIHR), clinical research and annual scientific retreat, all areas where a clear added value of UTCSP has been demonstrated:

- A. Canada Research Chairs. Currently, UTCSP members hold six Tier I and one Tier II Canada Research Chairs. Two of the research chairs are recruits. These new recruits are basic scientists, one in the area of genetics and the second in cellular/molecular biology of pain. Both of these individuals emphasized in their interview that the existence of a

multidisciplinary centre represented an additional stimulus to come to the University of Toronto. The international competence of these individuals was recognized in their being awarded a Tier I CRC. They have also attracted additional grant money to the University of Toronto. The added values of these recruits are numerous: 1) facilitating collaboration of researchers at UTCSP with others across Canada and abroad; 2) attracting additional grant money to U of T ; 3) bringing new areas of expertise thus adding new dimensions to the scientific program provided by the Centre; and 4) attracting new trainees. By implementing a plan to recruit individuals with clinical and translational expertise, a further added value is expected. It was apparent, both from the existing material and the interviews, that without the coordinated effort from the UTCSP researchers, it would have been unlikely that the University of Toronto would have placed a priority for Canada Research Chairs (CRC) in the pain area.

- B. Research Teams. As part of developing a research environment, members of UTCSP have formed 9 interdisciplinary research teams e.g. Transforming Research in Neuropathic Pain; CIHR Team in Pain in Children, Net Emerging Team. In interviews conducted during the external review it was clear that these pain teams, in addition to initiating and facilitating collaboration between researchers from different disciplines, also have contributed to retaining key scientists at the University of Toronto. As an example, one individual (Dr. Simon Beggs) indicated that he had established research collaborations with basic and clinical researchers in the UTCSP, collaboration that would not have occurred if the centre and the research teams had not been there.
- C. Strategic Training Program Grants on pain (CIHR). Three training grants under the Strategic Training in Health Research (STIHR) program all involve UTCSP members as STIHR faculty members. These programs support the training and interaction of new interdisciplinary investigators. Two former postdoctoral fellows who trained under these grants are now

faculty members at U of T and active members of UTCSP. The STIHR programs have also been used together with Clinician Scientists awards to support pain trainees from the U of T. In total, 14 trainees have been supported by UTCSP since its inception.

- D. Clinical research. It was the impression that clinical research within the last few years has been facilitated by the Centre e.g. by providing an infrastructure where experts on specific topics easily can be identified and used to guide and collaborate. Also some clinical investigators have received grant support via UTCSP. There is a growing group of clinical scientists involved in imaging, genetics and knowledge translation.
- E. Annual scientific retreat. This retreat termed “Pain Day” brings trainees and principal investigators together for presentation, discussion and interaction on funding of research in specific pain topics and their clinical application.

Concluding remarks on research:

The Centre, which is an internationally recognized centre in pain research, has, since its inception in 1999/2000, established an interdisciplinary pain research program involving trainees, post doctoral fellows and senior researchers. The UTCSP has provided an added value to the pain research carried out at the University of Toronto in several aspects:

1. There is an extraordinarily large number of Canadian research chairs, including two in areas not formerly present at the University of Toronto.
2. The Centre has attracted post doctoral fellows and junior researchers from other parts of the world.
3. A large number of interdisciplinary research teams have been established.
4. Strategic training program grants on pain have been formed.

It is clear that these activities and programs would not have been possible without a centre like UTCSP. Importantly the transition of knowledge provided by basic research is now disseminating into clinical disciplines. A strengthening of this aspect will undoubtedly be seen in the near future.

Education

The development of educational programs in pain was the second major goal of the UTCSP. An educational committee has coordinated a network for various programs in pain. The added value of this educational program is shown in the following:

- A. The UTCSP interfaculty pain curriculum (IPC) is a unique interprofessional curriculum on pain in which students from six professional programs (nursing, dentistry, medicine, pharmacy, occupational therapy and physical therapy) are educated on various aspects of pain during a one week program each year. This program involves 800-900 students annually. IPC is headed by an educational committee and assisted by a series of facilitators. The benefits of this course have been documented in scientific publications with: 85-95% of students agreeing, or strongly agreeing, that the curriculum is relevant and informative. No similar educational activities exist in the world. Agreement exists that this type of educational activity should be made available at the graduate level and post –licensure levels as well and plans are being made with this objective. The curriculum was established before the interprofessional program (IPE) at the University of Toronto was started. There seems to be universal agreement among those organizing the curriculum, and also among others, that the IPC course cannot be embedded in IPE for the simple reason that this pain curriculum is about a specific topic, i.e. pain, and not about collaboration generally which otherwise characterizes IPE.

- B. The STIHR programs (see above) have been a significant element in new interdisciplinary research training bringing together basic and clinical

scientists, and developing new national/international relationships between trainees and faculty. These programs have not only facilitated training at the University of Toronto but also made it possible to generate exchanges with investigators and trainees in Canada and abroad. The increased training in pain management seems, in part, to be a result of UTCSP and the facilitated interhospital relationship. One STIHR program led through the UTCSP has been involved in developing a series of visualization projects together with other pain centres in Canada. Recognition of the importance of this educational activity was seen in the distribution of a DVD containing a library of ten visualization projects – five of which are animations and five of which are web-based interactive tools - to approximately 6,000 attendees at the IASP 2008 World Congress on Pain.

- C. Facilitator program: The facilitators participating in the IPC undergo a facilitator educational program which focuses on pain and on improving the relationship between disciplines at both the basic and clinical levels. The training program ensures that facilitators are equipped with the most recent knowledge about pain and pain management so that they can effectively facilitate the small group discussions amongst students during the IPC.

Concluding remarks on Education:

UTCSP has established an interdisciplinary educational program at the undergraduate level, one which is unique and internationally recognized. It is unlikely that this activity could have been organized had the Centre not existed. Getting four faculties and two departments to cease all other teaching for four consecutive days in order to provide this curriculum is a major feat. Another educational activity relates to the training of a new generation of investigators and facilitating interaction between those coming from different disciplines. Graduate students in basic and clinical studies interviewed during the site visit had many positive comments about their experience in the UTCSP, although

they expressed the wish to meet together more frequently and this could be accomplished in an interesting graduate seminar.

Translating knowledge

Translating research knowledge into clinical practice has within the last decade become a major goal for centres established at educational and research institutions. Indeed this is also the case for UTCSP. Knowledge translation was not part of the initial mission statement of the Centre, but following implementation of successful research and educational activities, the foundation is now laid for more emphasis on translating this knowledge into clinical practice. The presence of multiple hospitals affiliated with the University of Toronto represents a fertile ground for implementing such a program. Activities have already begun at various hospitals and these can, with the infrastructure present at UTCSP, easily be carried forward.

Governance and Administration

The UTCSP was founded as a partnership between the faculties of Medicine, Dentistry and Nursing with Pharmacy joining somewhat later. The Centre reports ultimately to a Council of Deans of the four founding faculties with the Dean of Dentistry assuming an administrative lead. An Advisory Committee made up of senior members of the Centre provides guidance to the director. There are three other committees providing direction on research, education and Centre membership respectively.

A number of observations suggest to the external reviewers that a slightly altered model of governance be considered. First, three of the four original founding Deans are no longer in place. The degree of support for the Centre was clear in interviewing three of the Deans but was questionable in one instance. This could have a negative influence on the capacity of the Centre to evolve to the next level of successful scholarship as a unique entity. A second observation relates to communication with the Deans. Recognizing that Deans have incredibly busy

schedules there needs to be a formal mechanism for regularly communicating updates from the Centre to the Council of Deans. Good news needs to be brought to their attention. It was observed that the communication between the Centre director and the Deans had diminished over time, at the request of former Deans, and this needs to be improved.

A third observation concerns the role of the Advisory Committee. While at the outset the members of the Advisory Committee may have been appropriate for the task of designing the work of the Centre, it is today perhaps questionable as to whether members of the Centre are in the best position to advise without input from the faculties. While we are not suggesting that this committee be disbanded, we do propose a change in governance. A new, higher level general advisory committee should be considered consisting of a few senior members of the Centre and some Departmental/Faculty administrators from at least the four founding Faculties to bring a higher level university perspective to the Centre's planning. These people would also ensure that the Deans of Medicine, Dentistry, Pharmacy and Nursing would be briefed from time to time on the Centre's activities. This Advisory Committee should meet 3-4 times a year.

The current Advisory Committee could remain but more in the role of Centre program advice. This committee should probably meet at least every 6-8 weeks to monitor programs and identify new opportunities for research, teaching and transfer of knowledge.

While we did not spend much time gathering information about the administrative capacity of the Centre we did consider that more assistance may be required. The issue of administration was not raised during the site visit. However, given the remarkable growth in research programs and the increasing number of trainees it may be beneficial to create the position of research coordinator. Such an individual could be beneficial to the Director and to Centre members. Possible responsibilities of this role would be that of facilitating meetings of

research teams, identifying new funding and research opportunities, providing support in completing application materials etc. The addition of a dedicated education coordinator (or clinical translation coordinator) could also be helpful given the very large size of the educational program.

The issue of space, particularly laboratory space, was raised by several of the people interviewed during the site visit. At present, labs are distributed in various university buildings and hospital research institutes. Some scientists feel they would benefit by being in closer physical proximity. With the plan to build a new facility for the Faculty of Dentistry, there was speculation that new space could incorporate more UTCSP labs and teaching space. There are undoubtedly pros and cons for maintaining a virtual centre and for establishing a physical centre. Proximity of scientists and educators may lead to increased collaboration although the present track record for collaborative work is impressive. If a physical space is allocated to the Centre at some time in the future, it will be important that the Centre not become insular. An aggressive program of knowledge translation and outreach to affiliated hospitals will be required.

Leadership

The present Director of the UTCSP is at the end of his term and pending the decision taken regarding the future of the Centre, a new Director will be recruited. During the site visit several individuals spontaneously commented on the great leadership provided by Mike Salter. As the first Director of the Centre, Dr. Salter was an excellent choice. He and his work are well known internationally and no doubt he played a key role in attracting other world class scientists to the University of Toronto.

The next Director will be equally important and while there may be people already at the University of Toronto who could fill this role, the university may wish to consider recruiting from outside. Because of the excellent reputation of the UTCSP there is an opportunity to attract another renowned scientist. A few

people interviewed mused about whether or not the next director should be a clinical scientist. Certainly the future plans for the Centre include a closer, more frequent involvement of clinical researchers and practitioners in Centre activities and while this direction could be enhanced by the appointment of a clinical scientist it may not be essential. Whoever the next director is, he/she will have to commit to the continuing development of both basic and clinical research as well as the unique collaborative research and education involving scientists and clinicians.

Concluding Comments

◆ *Current success and future directions :*

UTCSP is an internationally recognized centre of excellence within the area of pain. An astonishingly large number of experts in the field of pain are now concentrated at the University of Toronto, mainly in the area of basic research. The Centre has been established as one of the top leading centres in the world in pain research. No similar Centre has been established at other universities and therefore, there is a very high level of national and international interest in, and recognition of, the UTCSP. The Centre has been able to obtain a large number of Canadian research chairs and they have recruited two experts from outside to complement the current research at the centre. Several interdisciplinary research teams have been established to facilitate research at the University of Toronto. A number of strategic training program grants have been formed, again to train and allow individual researchers to interact with each other. Based on these grants and activities, a number of graduate students, post doctoral fellows and trainees have been educated at the Centre. Some of these individuals are now faculty members at the University of Toronto, attesting to the value of their preparation at the Centre.

Another unique feature of the educational program has been the bringing together of different faculties within a variety of educational activities. One of these has been the undergraduate educational program, a noteworthy example

of an interprofessional curriculum. This program has served as a model for other institutions in other parts of the world.

In the opinion of the reviewers, the achievements as seen at the University of Toronto in the area of pain could not have been obtained if the Centre had not existed. Both basic and clinical science is strong and the interdisciplinary programs of research are well positioned to produce novel discoveries. While the Centre does not have to expand significantly to continue its important work, it is in an enviable position to attract more world renowned scientists in the study of pain to the University of Toronto.

Based on our knowledge, the UTCSP is one of the world's three leading centres in pain research and education and has the potential to obtain a similar status in the clinical field in the years to come as its planned focus includes increased development of clinical research, i.e. translating the large amount of research available into a series of clinical initiatives.

Recommendations from the External Review Committee

1. It is recommended that a strategic plan for the next 5 years with identified goals and milestones be developed following a planning meeting with key members of the Centre and individuals from the faculties.
2. The Advisory Committee to the Director should be more at arms length to the Centre faculty. While it is important to have some members of the Centre on the Advisory Committee it is suggested that 2-4 department chairs or directors of graduate studies be included to ensure: a) regular advice from the larger university community; b) regular communication with the four faculty deans; c) more objectivity in assessing strengths and future directions for the Centre.

3. The newly formed Advisory Committee should bring a strong clinical researcher into the Centre, either from in or outside.
4. Given the pace of growth in research and the rich but complex research collaboration, it is suggested that the Director would be well supported to continue leading the research enterprise if he/she had a full time research coordinator. Keeping track of new funding initiatives, providing application support, presentation support and organizing meetings of research teams are a few examples of activities that would support the research enterprise.
5. With the continued planned growth in educational programs and the increasing emphasis on knowledge translation and clinical application, creation of a position of education coordinator would be beneficial to the director and to Centre members.
6. With a new director in place, it would be advantageous to undertake an in-depth discussion as to whether a virtual or a physical centre would be the best for the future. If continuation of the virtual model is chosen, an analysis of the various means by which to enhance the involvement of trainees and other members within the Centre's various activities would be beneficial.
7. It is recommended that a graduate pain seminar similar in structure to the successful undergraduate interfaculty educational program be developed and made available to all trainees. Graduate students expressed the wish to meet together at least once per month.

Respectfully submitted

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