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Canada

Institute of Neuroscience, Mental Health and Addiction
STIHR GRANTS

Report on Workshop Held on November 28&29, 2005
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Overview

Training future generations of researchers is a major strategic goal of the Institute of Neurosciences, Mental Health and Addictions with investment of approximately one-third of the budget of INMHA on STIHR programs for 2004-2005. Eighteen STIHR programs are associated with INMHA, the largest number of any of the 13 CIHR Institutes, and INMHA took the initiative of holding the workshop to provide PIs and trainees from these STIHRs exposure to the largest possible spectrum of research on Neurosciences, Mental Health and Addiction. In addition, the goals of the workshop were to develop increased interactions between the STIHR programs, to give a unique opportunity for trainees for scientific exchange and networking with peers and established researchers, and to elucidate some 'best practices' that could be used by the INMHA community.

The workshop was held November 28 and 29, 2005 in Montreal, with over 90 participants, including PIs and trainees, up to 5 in total, from each of the 18 STIHRs associate with INMHA. In order to facilitate networking and introduce the STIHR programs to one another, on the first day of the workshop a PI from each of the programs gave a brief overview of the goals and objectives, and the program features of each STIHR. Through the presentations it was clear that each STIHR is unique not only in its topic but also in the way in which it is led, organized, and run. This diversity of approaches has important implications for evaluation of the STIHR programs. Allison Jackson from the Research Capacity Development branch of CIHR gave and update on the evaluation and future of the STIHR program. As partnering is a critical part of the STIHR program, a session was devoted to building meaningful partnerships with Dr. Alycia Halladay from the National Alliance on Autism Research, a major partner of two of the STIHR programs, Dr. Marielle Gascon-Barre from the FRSQ, and Dr. Remi Quirion from INMHA.

A highlight of program was a session run by trainees from the INMHA-associated STIHRs. The trainees described their experiences in being part of different STIHRs, the benefits and difficulties associated with these, and their hopes and expectations for the future of the program, when many of them plan to become PIs. The positive aspects identified by the trainees themselves included the high value of interdisciplinary training, the networking opportunities especially in training institutes, or 'summer schools', and the value of top-up salary funding that was common in many of the STIHRs. Difficulties identified by the trainees included the perception that some PIs viewed them only as 'cheap labour', that there may be a sense exclusivity of membership in a STIHR especially when a particular research group has STIHR trainees and non-STIHR trainees, and the difficulties in transitioning from trainee to faculty positions. A key recommendation of the trainees was to allow some STIHR funding to be used for senior post-doctoral fellows as 'seed' funding for research or travel during their transition. The trainee-led session was complemented with a presentation of research posters from each of the trainees in attendance. These posters showcased the richness and diversity of the research being done by trainees in the STIHR program.

The second day of the workshop was devoted to discussions of the STIHR program. Four breakout group sessions were held in parallel and the groups reported in a general discussion period. The reports of each of the breakout groups are attached and are summarized as follows:

Best Practices to Build the Research Community. The breakout group identified several key elements of the most successful STIHRs. A major element was a 'summer school' or annual meeting/retreat bringing trainees, faculty and often external speakers together for an intensive program. Information about what works and what does not work should be made readily available through at clearinghouse or web-base portal. The critical importance of formalized mentorship of trainees by faculty was identified. Involvement of trainees in the program and recognition of the trainees were also considered to be key elements, as were dialogue between STIHRs and involvement of the local "non-STIHR" community.

Evaluation of the CIHR STIHR Program. The process used to evaluate the STIHRs was hotly debated both within the breakout group and during other sessions. A central theme was that of the diversity of the STIHRs, "no two STIHRs are alike" even the 18 in the area covered by the INMHA. The breakout group identified the disparate ways in which trainees are defined, how productivity is evaluated, what constitutes transdisciplinary activity and knowledge translation as some of the key issues needing attention in terms of fairness and transparency in the evaluation process. The breakout group made specific recommendations to address each of these including that the peer reviewers of the STIHR progress reports need to be well-versed in the diversity of operating practices used by the various STIHRs.

Linking INMHA STIHR Programs. The breakout group reported that it was highly beneficial to meet with other STIHRs and to learn about the variety of STIHRs in terms of topics, approaches, programs and organization/administration. It was recommended that INMHA-associated STIHRs should meet regularly to share approaches and the meetings could be linked with other CIHR Institutes. Involvement of the trainees in meeting and building the linkages between STIHRs was considered crucial.

Retention of Researchers in Canada. The discussion focused on the relatively limited availability of quality post-doctoral training positions and of academic/research positions in Canada. The principal recommendations were to have better-developed post-doctoral positions and programs and to find creative ways to increase funding to institutions to make more faculty positions available and attractive.

From the ensuing, lively, general discussion a series of major recommendations were made from the INMHA STIHR workshop:

Major recommendations of the INMHA STIHR workshop

- STIHR is a highly successful program that is providing novel training of the coming generations of researchers in Canada.

- The STIHR program should be continued as a major strategic program of CIHR.

- Existing STIHRs should be allowed to apply for renewal in future STIHR funding competitions because training of coming generations of researchers is an ongoing need of CIHR and Canada.

- The diversity of STIHRs is a major strength of the program and should be encouraged and fostered through the application and evaluation process.

- As STIHRs are very different from other types of funding programs of CIHR there should be application and evaluation tools that specifically designed for this program. For example, the standard CIHR budget module is inappropriate and there should be a STIHR-specific budget module.

- A central clearinghouse or web-based portal for the STIHRs should be developed where information about successful and unsuccessful elements of STIHRs could be managed and made accessible so that the STIHRs can develop iteratively rather than each 're-inventing the wheel'. The web-based portal needs to be managed appropriately and updated regularly so as to keep the site dynamic

- STIHRs associated with INMHA should meet regularly, every two years was considered to be sufficiently often.

List of STIHR Grants Related to INMHA

Dr. Jack Antel (U McGill): *Integrated Training Program in basic and clinical aspects of neuroinflammation*

Dr. Roy Cameron (U Waterloo): *Tobacco Research*

Dr. Yves De Koninck (U Laval): *Neurophysics: Setting new frontiers in neurosciences with material sciences and photonics*

Dr. Eric Fombonne (U McGill): *Training program in autism research*

Dr. Elliot Goldner (UBC): *Building capacity in mental health and addiction services and policy research*

Dr. Jeanette Holden (Queen's): *Transdisciplinary inter-institute training program in autism spectrum disorders*

Dr. Walid Houry (U Toronto): *Protein folding. Principles and diseases*

Dr. Laurence Kirmayer (U McGill): *Culture and mental health services*

Dr. Patrick McGrath (U Dalhousie): *Pain in child health*

Dr. Michael Meaney (U McGill): *Genes, environment and health training program*

Dr. Brian Mishara (UQAM): *Formation interdisciplinaire en recherche sur le suicide et sa prévention*

Dr. Michael Salter (U Toronto): *Pain research: From molecules to community*

Dr. Peter Selby (U Toronto): *Tobacco use in special populations*

Dr. Steven R. Vincent (UBC): *Neurobiology and behaviour*

Dr. Hugh R. Wilson (U York): *CIHR strategic training program in vision research*

Report from Breakout Group on
Best Practices to Build the Research Community

During the 2-hour break-out session, the following points were identified as positively impacting the individual STIHR programs, as well as building the research community:

1. Summer school/Workshop/Annual meetings
2. Mentoring
3. Student Representatives
4. Trainee Alumni
5. Trainee recognition
6. Inter-STIHR dialogue and collaborations
7. Involving the "extra-STIHR" community

The details of the discussion are presented here.

1. **Summer schools/Workshops/Annual meetings.** Several of the STIHRs reported that these types of events were central components of their program, and were often highly successful and enjoyable. In terms of best practices:
    - The diverse experiences of these events should be leveraged so that other STIHRs need not start from scratch when planning similar events. To address this, the information about each event should be made available to each STIHR administrator in some type of "clearing house." This can take on an electronic form, such as on the main STIHR website, or, perhaps more efficiently, an individual administrator can take on the additional responsibility of managing input from all of the other STIHRs (and should be compensated with time and any needed assistance accordingly). To this end, after the event is finished, the administrator of the STIHR can fill out a form with the following information (a template could be made) and submit it to the clearing house:
        i. What worked, what did not work
        ii. Type of event and purpose (goals, objectives)
        iii. Who attended (external/internal, speakers, invited speakers, etc.)
        iv. How many people, duration, location, budget, etc.
        v. Extent of trainee vs. PI involvement, structured interactions vs. free form

      Therefore, each STIHR will be responsible for submitting the content, but one person will collect and collate it, and make it accessible to the others on an as-needed basis.

2. **Mentoring.** This is a fundamental area of the STIHR program and a critical component of the trainees' experience.
    - Research mentoring is distinct from other, equally important types of mentoring, including: career planning, grant writing, publishing, interviewing for a job, CV making, and teaching, among others. These areas are important

parts of the training program and it should not be assumed that the trainees are learning these skills by osmosis.

- These topics could be taught in formal, designated settings, for example:
    i. At the summer schools/workshops/annual meetings;
    ii. A monthly series of talks;
    iii. Published in a "Survival Skills Manual" by CIHR, which can be adapted by each institution.
- A suggestion was to have trainees actually practice the skills, simulating real-life scenarios, with real-life feedback.
- Setting up a mentoring hierarchy could also prove useful. Post-docs can have a more active role in leading meetings or teaching courses, PhD students can mentor Master's students, and undergrads should be involved in the lab and mentored by the graduate students. (This is also a good way to recruit top students into the lab.)

3. **Student representatives.** This should be mandatory for each STIHR. There should be a student voice *within* each STIHR and *between* STIHRs.
    - The student representative could act as a liaison between the trainees and faculty, serve as a resource for new trainees as well as current trainees, and interact with the decision-makers to ensure that the needs of the trainees are being heard.
    - There could be a trainee-run session at the annual meetings/workshops/ summer schools, to engage the trainees more and increase their training experience.
    - A trainee list serve could be created.
    - Finally, it was recognized that trainees at different stages of their education have different needs in terms of training (e.g. a post-doc trainee might be more interested in finding a job than a master's trainee), and this should be incorporated into the STIHRs. This could be addressed by having a post-doc student representative and a master's or PhD student representative.

4. **Trainee Alumni.** What should be done with trainees once they have finished the program? It was suggested that setting up an alumni group would be a good way to build the research community, by keeping students informed on the STIHR activities so that they could participate if they want. Once a trainee has left the program they become a valuable resource to incoming trainees, and maintaining a connection to the program helps the trainee to network and build their own community, which will eventually impact their ability to get a job and start their own lab.

5. **Trainee Recognition.** Providing some type of trainee recognition serves two purposes: 1) it increases the likelihood that other students will apply to the program, and 2) it raises the profile of the STIHR within the department, and the institution. Some ideas on how this can be accomplished:

    - Campus-wide or departmental newspapers/newsletters
    - Annual departmental awards

- Framed list of trainees, with photos
- Posters
- List and/or profiles on the STIHR or graduate program website (NOTE: every STIHR needs to have their own website)
- A STIHR logo should be created that all trainees can use on their posters and presentations.

6. **Inter-STIHR dialogue and collaborations.** Meetings such as this reinforce the value of an open communication between the STIHRs, and how lessons learned should be leveraged and shared across the whole program.
   - This type of meeting should become a regular part of the program, every year or two years.
   - A STIHR list serve should be created and used.
   - A yearly STIHR e-newsletter could be created that highlights the accomplishments and activities of the STIHRs and the PIs and trainees.
   - A description of each STIHR should be available on the main INMHA-STIHR website (and/or links to each individual STIHR website), so that PIs can familiarize themselves with the other STIHRs and explore the possibilities of collaborations.

7. **Involving the "extra-STIHR" community.** This is critical to the longevity of the program and building continued support for the research community, since it raises the visibility of the program and, as a bonus, it enhances the trainee experience. Although it may not explicitly be a part of the STIHRs, it certainly has added value and attempts need to be made to involve other PIs, trainees, partners, and stakeholders as much as possible**.** Some ways to achieve this:
   - Advertising the STIHR programs (posters, handouts, pamphlets, websites):
     - In different departments
     - At conferences (SfN, CAN, etc.)
     - Abroad
   - Branding – the need for a STIHR logo
   - Will also trickle down to increase undergraduate and graduate student recruitment.

Report from Breakout Group on Evaluation of CIHR STIHR Program

Overall, the most important point made during the discussions was that no two STIHRs are alike and that there are disparate ways in which training money is used to support the STIHR activities, how trainees are defined, how productivity is calculated, what constitutes transdisciplinary activity and knowledge translation. **Therefore it is important the reporting module, particularly the narrative element (4 pages), be flexible enough to permit an adequate description of individual STIRHs and how they themselves define the terms of the evaluation.** There should be no assumption on the part of peer reviewers that individual STIHRs use a uniform set of definitions and that their "numbers" are therefore informative separate from the context in which they are compiled.

Participation There were widely different numbers of trainees being reported by individual STIHRs. If training grants have the same basic financial resources how can the numbers be so different? In part this is dependent on the model of trainee support adopted by different STIHRs, ranging from no financial support, travel support only, top up support for externally funded trainees, and various degrees of stipend support for trainees funded primarily through the STIHR. But more importantly, whereas some STIHRs "count" only trainees receiving financial support, others define trainee more broadly as any individual who may or may not be funded by the program but who's training substantially benefits from the activities of the STIHR including attending summer schools or seminars or video conferences sponsored by the STIHR.

Productivity Linked to disparate numbers of trainees there are widely different reported levels of productivity based on various types of communications generated by the trainees. To some extent different disciplines pursue distinct avenues of communication including scientific publication in peer reviewed journals, scientific meetings abstracts, clinical rounds, creation of pamphlets, or writing of policy papers.

Some eligible evidence of productivity is more challenging to capture in the context of the training grant environment. One example given at the round table discussion was that of a PI giving an invited seminar and presenting material generated by trainees. This is an instance in which trainees are not generally given direct credit in terms of authorship and the PI's talk would therefore not be captured as a productivity item. Another example would be the communications with policymakers that do not involve formal publication but are considered to be eligible in the context of a given STIHR.

Yet another characteristic of the collaborative training environment is the participation of multiple trainees in, for example, coauthoring publications or abstracts. In one part of the report form such an item would be tallied as "one" whereas the same item will be reported more than once by applying the item to each co-authoring trainee.

Thus a guideline might be in order that items generated by the trainees should be **counted by the number of trainee authorships reflecting the collaborative nature of the STIHR program and that leeway be given to permit the capture of other productivity that fall outside the standard items** to reflect both the specialized activities of some trainees and to reflect the trainees contributions to the entire spectrum of knowledge translation.

Meeting transdisciplinary and knowledge translation goals. Individual STIHRs strive to fulfill the mandate of transdisciplinary goals in a variety of ways. Some impose relatively rigid terms requiring rotations or dual supervision of trainees. These tactics appear to be aimed at creating substantive collaborations. Others employ more flexible terms simply creating opportunities for trainee participation in transdisciplinary group meetings, video conferences, schools, institutes or symposia. This style seeks to achieve transdisciplinary goals through cross-fertilization of ideas and information sharing. While it is reasonable that molecular biologists or biochemists can interact with epidemiologists or clinician in a mutually informative way, it is less likely that these disparate disciplines can be expected to routinely publish in collaboration. It is important to recognize the benefits of different models. Regardless of which model individual STIHRs emphasize, they should be **encouraged to report all types of transdisciplinary activities including those that fall outside their particular model.**

Like transdisciplinary activity, knowledge translation can be too narrowly self-defined by STIHRs and some may not capture as much of this activity as actually occurs in practice by concentrating on "bench to bedside" translation or those activities that inform health policy makers. An inclusive definition of knowledge translation could be any instance in which the knowledge generated by the methods associated with distinct disciplines is made available in a form that others can be digested by non-specialists in other health science related areas or outside the field altogether. Thus knowledge transfer is frequently inherent in transdisciplinary activity but can be augmented by any activity that involves outreach to communities or individuals outside the health science field including policy makers, politicians, high school students, popular press, or the public at large. Therefore STIHRs should be **encouraged to use a definition of "knowledge translation" that is sufficiently inclusive to capture all facets for the purposes of reporting.**

Peer review of progress reports Unlike grant review panels that gather together experts to assess proposals in a specific field, the transdisciplinary nature of the Strategic Training program, the many distinct fields that are covered in the program, and the fact that very large multicentre groups actually include most of all the available expertise in the country, make the task of obtaining true peer review next to impossible. Recognizing that this would be nearly impossible to address, **peer reviewers should be well-versed in the diversity of operating practices used by individual STIHRs and the way in which reasonable expectations of progress might be tailored as a result of these distinctions.** For example, a STIHR that requires trainees to engage in multiple rotations might be expected to generate a somewhat lower rate of publication in comparison to STIHR that uses a different model.

One of the issues raised at the roundtable discussion was a sense that responses to reports generated by peer review have cut-and-paste pastiche of comments that can be frequently contradictory. **An extra effort should be made to generate a consensus response that minimizes the problem of self-contradictory assessments.**

Since this is a pioneering experiment in health science funding, STIHRs might be reasonably expected to encounter problems along the way and are indeed encouraged to spell out *both* their strengths and weaknesses in their reports. However it is the experience of some reportees that their candor in acknowledging problems simply served as red flags for reviewers and resulted in an overall negative tone in the assessment. Presumably, reporting of weaknesses or difficulties serves as a basis strengthening the operation of STIHR programs. However, if forthright self critique is not handled in this spirit, then there will be tacit agreement that negative issues should not be addressed in reports and the CIHR will have missed the opportunity to get a candid picture of how the STIHR program can be optimized.

Data collection Obviously the CIHR can not be made responsible for how efficiently different groups collect data throughout the term of the Training Grant but guidelines should emphasize the process of data collection keeping in mind the kinds of information that will be useful in reporting. While we need to recognize that this is learning process, each time guidelines change, different information is requested, or the method of evaluating numbers is altered, there is a chance of generating ill will on the part of beleaguered program directors. Therefore, STIHRs should **be informed as to the nature of and rationale behind proposed changes in reporting requirements in a timely manner.**

Another issue raised during the discussion after the breakout session is that of trainee tracking. It was pointed out that it might be onerous, unnecessary and ethically thorny for STIHRs to track trainees indefinitely. **An expiry date of 5 years was recommended** although I think the important idea is to not require indefinite and indefinite tracking window.

Report from Breakout Group on Linking All INMHA STIHR Groups

- very beneficial to all, where a great deal is learnt about approaches to projects
- it is important to provide such a forum to link all programs together
- good place for trainees to interact and share experiences
- doing this type of meeting every 2 years is a good idea to share advantages/disadvantages of progress and programs
- linking of all other CIHR institutes (genetics, pop. Health, etc) would be a good idea to increase cross-collaborations within fields that normally would not interact
- also a good place for trainees to learn how CIHR bureaucracy works (esp. with grant capture process)
- important for new groups joining to discuss problems and solutions with older programs (meeting like this every 2-3 years)

Additional ideas/comments:

- sending info to Canadian Association of Neuroscience about training programs to keep the larger neuroscience community up-to-date about us
- linking of similar training programs (ie. autism and smoking) with joint conferences
- better documents to link groups together (ie. website, list-serv, etc)
    - website to link all STIHR groups together needed immediately (researchtraining.ca)
    - searchable database-type website for students to find positions, PIs to find students
    - publicity across campuses to increase visibility and number of applications into programs
    - website as a way to link people together and to advertise STIHRs from other universities to students as a way to attract people
    - seed money given from each program to set up is needed, with monthly maintenance fees
    - student CVs and PI CVs that are searchable
    - cost feasibility can be assessed bi-annually
    - link to all STIHRs should be established to individual sites immediately
    - the CIHR website must be better for finding STIHRs and what we do
- additional funds specifically set aside to link trainees between programs
- the implementation of a “national CIHR conference” to showcase programs and work being done
    - a forum for recruitment of students/post-docs
    - trainees given chance to present their work in poster/presentation formats
    - invite members of public and media for coverage
- each STIHR should try to be as different as possible to have students participating in different aspects of each program (ie. summer schools, workshops, etc)

- bi-annual meetings for all neuroscience trainees, and yearly meetings for similar STIHR programs from across CIHR institutes
- mixed conferences of various STIHRs that do not collaborate (ie. depression and suicide, smoking and vision, etc.)

In all, 4 main recommendations are made:

1. Meetings every 2-3 years for new and old STIHRs to share ideas (like that held in Montreal)
2. A better website, with searchable database, that is attractive for people to check often. Information must be updated often to keep the site dynamic
3. Joint conferences between STIHRs (across all pillars of CIHR), with trainees given the opportunity to visit specific groups of interest
4. Conference for Neuroscience STIHRs to meet and showcase their trainees and research during forums like the Montreal meeting, or during a major conference like SfN

Report from Breakout Group on Retention of Researchers in Canada

The problem of retention of scientists varies in scope and complexity between disciplines, among clinicians, basic scientists and health services researchers and across different regions of Canada. That said, our group's discussion and subsequent recommendations have focused on two general points:

1. Availability of quality post-doctoral positions:

    - A statement was made about the discrepancy in the caliber of PhDs and post-doctoral candidates available in Canada; post-doctoral students are under-represented and under-funded.
    - This is compounded by the fact that there are few incentives to include post-docs on grants given their higher expense relative to PhD students.
    - In addition, a statement was made that tenure-track positions are easier to acquire when graduates do their post-doctoral training elsewhere, providing incentives for exceptional Ph.Ds to seek out post-doctoral training abroad.
    - In such circumstances, more often than not, scientists choose not to return, as mobility is an issue when married/starting a family.
    - The recommendations of the group are therefore to create better-developed post-doctoral positions, and increase the overall availability of such positions in Canada in order to retain quality graduates.

2. Availability of academic/research positions:

    - There is a perception among students that universities produce Ph.D. graduates and neglect to take any responsibility for where they may end up afterwards.
    - Trainees all believed that their respective STIHRs do a good job in providing students with opportunities to network with researchers outside of their institutions.
    - However, quality graduates, particularly clinicians/MDs and basic scientists as well, are often drawn to either clinical work or the private sector (particularly Biotechs and Pharmaceutical firms) due to financial considerations.
    - In addition, positions within Health Canada and other governmental agencies are rarely posted externally, making it difficult for graduates to find work in research settings.
    - The "hard money" system in Canadian academia limits the ability of institutions to recruit new researchers, and when positions are made available, competition is on the global scale.
    - The recommendations of the group are to therefore to increase funding to institutions to make more positions available, and possibly make positions more financially attractive to outstanding candidates in disciplines that face private market demands.