

CAHR Training Workshops: Survey of needs and impacts

October 5, 2016

**Prepared for
Dr. Curtis Cooper and Dr. Carol Strike,
CAHR Board of Directors**

by Michelle Campbell
michelle.n.campbell@icloud.com

Key Messages

- CAHR workshops are highly-regarded by participants, 97% rate them highly, and 95% would recommend them to a friend or colleague.
- The workshops are addressing the priority training topics of CAHR's community, and provide an effective base for CAHR's emerging Strategic Training Plan.
- In an on-line survey, CAHR members identified experiential learning - on-the-job, mentored learning opportunities - as having the most impact on their long-term career success.
- Workshop evaluations similarly place highest value on learning-by-doing. The most valued sessions were those described as the most interactive, specific, practical, hands-on, and directly relevant to the stage/ track/ career pathway of the participant.
- Future CAHR workshops could be enhanced by increasing the time participants spend actively problem-solving together; approaches might include:
 - Provide factual information in advance, and focus workshop on discussing questions
 - Encourage session leaders to focus on their unique insight over generic information
 - Have participants do rather than listen, working on real tasks they are struggling with
 - Spend at least half the day in small group interactions
 - Pre-share info about participants with each other, and increase informal networking
- CAHR membership is diverse, and has a wide range of training needs. Virtually all potential training areas were seen as important. Some topics - such as obtaining tenure - were extremely important to a sub-group, but not at all important to the majority. Concurrent sessions might help to address topics important only to some participants.
- Few areas of training were consistently seen as hard to access for everybody, but all were hard to access for a significant portion of respondents. CAHR might explore ways to enhance access to existing training opportunities, especially in less populous regions, outside academia, and for trainees and PRAs from marginalized communities.
- CAHR members are also interested in training which is deeper/ more experiential/ longer term; CAHR might explore partnerships to enhance access to summer institutes, virtual training, and internships.
- Priority training topics for CAHR members include:
 - Post-PhD transitions (new investigator transitions; alternative career paths)
 - Career development (Leadership roles; managing staff, budgets, projects, complex funding opportunities; life skills)
 - Being a successful mentor
 - Grantsmanship skills; mock peer review
 - Creating, working in, and leading teams
 - Building strong stakeholder and community partnerships; enhancing community roles
 - Turning knowledge in applications, services, policy; measuring/ demonstrating impact

Table of Contents

Introduction	1
About this report	1
Who participated in the members' survey	2
Most important professional skills	4
Access to training in key skill areas	7
Hard-to-access training	7
Who found access most difficult?	9
Impact of key training opportunities	10
Sources of high impact training	11
From survey: Training gaps and opportunities	13
Looking back, I wish I could have had... ..	13
Looking forward, I think we need... ..	13
What CAHR can do	14
From evaluations: Training gaps and opportunities	16
Workshop success factors	16
Suggestions for future workshop topics	17
Conclusions	19
Enhancing future workshops	19
Exploring new training approaches	21
New award support	21
Key topics for future workshops	22

Introduction

With a membership of more than 2,000 people undertaking and interested in HIV research, the Canadian Association for HIV Research (CAHR) is the leading organization of HIV/AIDS researchers in Canada. As an integral element of its mandate, CAHR works to “promote education and the development of researchers” and “engage diverse stakeholders in ongoing dialogue and knowledge exchange”.

Training workshops are at the heart of CAHR’s mission to promote education and the development of new researchers. CAHR workshop topics range from biomedical to community-based research, clinical to social sciences. While the workshops were originally tailored to mentor the next generation of HIV researchers, career development for those already in the field has become an important new focus as the breadth and depth of the sessions continue to expand. In the past four years alone, CAHR workshops have mentored over 700 participants. A minimum of five workshops are now held each year, and are inclusive to those from other fields such as HCV, other STBBIs, and TB.

With support from a CIHR Planning and Dissemination Grant, CAHR sought to consult with a wide range of stakeholders to develop a strong curriculum for the workshop series moving forward. CAHR members, the HIV/AIDS research community, national AIDS service organizations (ASOs), regional networks, people living with HIV/AIDS, participants of the annual CAHR research conferences, funders, and CAHR Board members were all invited to provide input to guide the development of the CAHR Strategic Training Plan. Dr. Curtis Cooper and Carol Strike are leading the development of the new Plan, which will address the specific challenges and gaps in an HIV researcher’s career path.

CAHR would like to thank its ongoing workshop sponsors for making the workshop series possible, and for their contributions to its training strategy discussion: the Canadian Institutes of Health Research (CIHR); the Canadian HIV Vaccine Initiative (CHVI) Research and Development Alliance Coordinating Office (ACO); the Public Health Agency of Canada (PHAC); and the Canadian Foundation for AIDS Research (CANFAR).

About this report

This report incorporates two sources of data. The major input was obtained through a web-based survey which was distributed to CAHR’s community (available online July - September 2016). The survey asked respondents how important various key professional skills were to their success, and how easily they could access training in that skill. It further sought to identify the kinds of impacts resulting from respondents’ most critical training experiences, including but not limited to CAHR workshops. The survey (Annex A) received 76 responses from a diverse range of respondents in academia, community and clinical settings.

The second source of data was the 428 evaluations available from 21 CAHR workshops held between 2012 and July 2016. Of particular relevance was the feedback on specific session content and format, as well as the suggestions for future training workshops.

The preliminary findings were reviewed by the CAHR Board of Directors at a September 2016 meeting, with feedback incorporated into the final draft of this report.

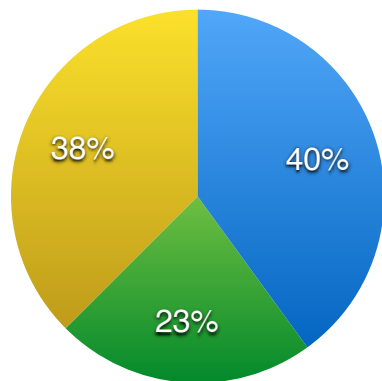
Who participated in the members' survey

The on-line survey respondents reflect the diversity of CAHR's membership, and most identified themselves as having multiple roles within the research community. (In consequence, there is overlap in most of the data categories described below).

About one third of respondents were community members/ persons living with HIV/AIDS. About 15% of all respondents were representatives of community organizations.

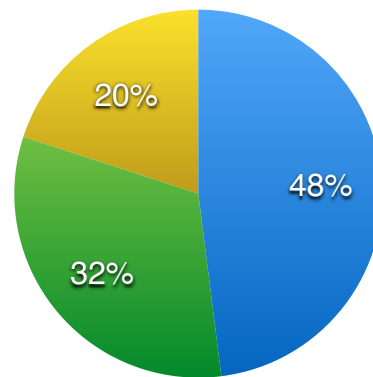
About half of respondents were investigators, and about 13% peer researchers. The investigators tended towards the more established. Note that in contrast to *survey respondents*, the vast majority of *CAHR workshop participants* are trainees, with about 15% of all participants being investigators (of whom one third - or 5% of all participants - are New Investigators).

**Survey respondents:
Investigators were based in:**



● University ● Hospital
● Community ● Industry

**Survey respondents:
Investigators' career stage:**



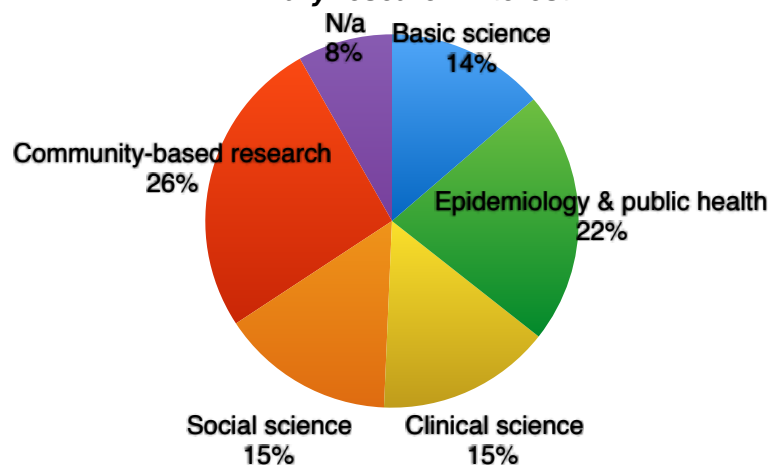
● Established (10 years+)
● Mid-Career (5 years+)
● New Investigators

About 25% of respondents were service providers. About 15% were community-based service providers; and almost 10% health health-system based. **Another 6% were health systems managers, policy makers, or research funders.**

About 20% of respondents were trainees; almost all of these were doctoral students. In contrast, workshop participants tend to be more evenly split between masters, doctoral and post-doctoral trainees. **Almost 10% of respondents were research assistants/coordinators.**

Over 90% of respondents were involved in

**Survey respondents:
Primary research interest**



research, with their primary research interests distributed across the spectrum of CAHR activity. In contrast, about 40% of CAHR workshop participants are in basic sciences.

A bit more than half of survey respondents (54%) had participated in a CAHR workshop. Of these, almost 40% had participated in one workshop, and the remaining 60% in more. About half the workshops attended by respondents were New Investigators Workshops.

Most important professional skills

The literature suggests researchers require a growing and diverse array of skills and experience to succeed, with networking consistently at the top of the list. The input from the CAHR community is consistent with one previous findings. Survey respondents were asked to consider the professional skills and experiences that have been most critical to their research and career success. **Almost all of the proposed skills were considered to be important to the majority of respondents.** (Skills were rated from 1= “Do not need it/ do not use it”, to 5= “Essential to career development”. The list of suggested skills can be found in the survey results in Annex A.)

The key skills considered to be most essential to career development (rated 4 or 5 by more than 80% of respondents) were:

Essential skills, according to ~ 80% of respondents:

- Finding funding for research or training
- Presenting and communicating with non-scientific audiences
- Building/ maintaining networks
- Scholarship writing: writing and publishing abstracts and manuscripts
- New research skills - e.g. Informatics, global health research experiences, new methodologies

Following closely behind is a complex mix of research and professional skills, identified by at least 70% of respondents as important or essential to career development:

Essential skills for more than 70% of respondents:

- Grantsmanship skills; mock peer review
- Knowledge translation and exchange
- Meeting and engaging with mentors
- Turning knowledge into practical applications, services or policy
- Research with impact: measuring and demonstrating impact
- Finding, building and maintaining stakeholder and community partnerships

Most of the remaining skills on the list were still identified as important by half or more of respondents (in descending order, from a high of almost 70%, down to about 50% of respondents):

- Scholarship writing: training and career award applications
- Working in multidisciplinary teams
- Leadership and life skills for a new PI: managing staff, projects, budgets; transitions
- Creating, working in, and leading teams
- Ethics

- How to be a successful mentor
- Working with peer research assistants
- Identifying career path options and how to pursue them; interview skills; career advice
- Presenting to scientific audiences
- Identifying academic job opportunities
- Identifying non-academic job opportunities
- Managing work-life balance

Only three skills did not get identified by at least half of respondents as being of high importance. These were “How to secure tenure”, which was important less than a third. “Working with industry partners” was important less than 20% of respondents, and “Commercialization” to less than 10%.

Caution must be exercised, however, in interpreting these results as a clear priority list, given the significant diversity of survey respondents. **Almost all the skills listed were considered pretty important to most of the respondents, and all were vital for some respondents.** Skills that are absolutely critical for some groups, in some settings, may be of limited importance to those pursuing different career paths. “How to secure tenure”, for example, rated quite low. While 24% labelled it “inapplicable”, another 40% labelled it as “don’t need it/ don’t use it” rather than “inapplicable”. Such results suggest that many respondents might, for example, currently spend some of their time in academic settings, but do not seek to pursue an academic career pathway.

These results underline the importance of careful consideration of audience needs in designing CAHR workshops. Such a diverse community has diverse needs. CAHR has found much value in integrating these diverse audiences into shared workshops, to increase networking and cross-fertilization of ideas. At the same time, topics that are crucial to some are of no interest to others. To balance these two needs, there may be topics, such as tenure or industry partnerships, that are useful to provide in concurrent sessions within a workshop. In this way, participants pursuing different goals or career paths can interact and work together, but also explore less universal issues to the depth they need, without frustrating other participants.

Most important professional skills



Access to training in key skill areas

Respondents had a wide range of views regarding the accessibility of training for key skills. Given their diversity of backgrounds, training, experience and career pathways, it is not surprising that skills which have been readily accessible to some are hard to get for others. Exposure to training opportunities varies widely even just among academic settings, never mind when comparing what is accessible in academia to the kinds of training available within community or clinical settings.

In consequence, the overall ratings of the accessibility of training for particular skills were notably scattered. A few skills were clearly overall easier or harder to obtain, but most were more mixed. The most common response was a neutral one. (Respondents rated access from 1 = “Extremely difficult to access”, to 5= “Available in many places”).

Hard-to-access training

For 50 - 60% of respondents, training is hard to access for:

- How to be a successful mentor
- Leadership and life skills for a new PI: managing staff, projects, budgets; transitions
- Creating, working in, and leading teams
- Managing work-life balance
- Grantsmanship skills; mock peer review
- Research with impact: measuring and demonstrating impact
- Turning knowledge in practical applications, services or policy
- Finding, building and maintaining stakeholder and community partnerships

Only a couple of respondents suggested that training related to any of the above skills could be “very easily” accessed.

Overall, the skills most often rated as highly accessible included (in descending order): “Ethics” and “Presenting to scientific audiences”; both of these areas were broadly agreed to be pretty accessible with respect to training. On the other hand, “Knowledge translation and Exchange”; and “Meeting and engaging with mentors” were rated both highly accessible, and also as highly inaccessible, by large numbers of respondents.

Training opportunities are clearly growing in a diverse range of essential skills, and most respondents are aware of at least some ways to obtain key skills training. As can be seen in the box below, however, a significant minority, still finds access to training limited or extremely difficult for many skills.

30% - 45% of respondents found it hard to access training for:

- Working with industry partners
- New research skills - e.g. Informatics, global health research experiences, new methodologies*
- Working in multidisciplinary teams
- Knowledge translation and exchange
- Presenting and communicating with non-scientific audiences*
- Identifying non-academic job opportunities
- Working with peer research assistants
- Scholarship writing: training and career award applications
- Meeting and engaging with mentors
- Scholarship writing: writing and publishing abstracts and manuscripts*
- Commercialization
- Identifying career path options and how to pursue them; interview skills; career advice
- How to secure tenure
- Building/ maintaining networks*
- Identifying academic job opportunities
- Finding funding for research or training*

It is notable that the top three skills identified (in the previous section) as most important (to 80% respondents) - denoted below with * - are also among the most easily accessed. While 86% of respondents identified finding funding as their most critical skill, 70% did not see a significant gap in access to training in this skill. On the other hand, the next two-most important skills - "New research skills" and "Presenting and communicating with non-scientific audiences" - were seen as harder to access.

A pleasant surprise is the overall level of satisfaction with the more complex challenge of accessing training that supports building and maintaining networks: 68% find access at least adequate (rated 3, 4, or 5), even if not great. Networking has been consistently identified in the literature as a top priority outcome for trainees, and a major gap in most training. These survey results suggest much has been done in the Canadian HIV research community to address that common gap. (Nevertheless, it should still be noted that a gap remains for almost one third of respondents.)

Overall, there were few skills consistently seen as hard to access for everybody, but all were hard to access for a significant portion of respondents. These results suggest that in addition to creating additional training opportunities, CAHR might helpfully connect its members to opportunities which already exist but may be unknown to many of its members. It may also be helpful to seek means to expand access and/ or availability of existing training. Such expansion of access may be geographic, or involve expanding existing training into different sectors from where it's usually available, or aim at engaging marginalized populations who have not typically participated in available training - or all of the above.

Who found access most difficult?

Overall, CAHR workshop attendees were *not* more likely to see key skills as more accessible than respondents who had never attended CAHR workshops. In several cases, CAHR workshop attendees, especially those who had participated in New Investigator workshops, were more likely to rate skills as *harder* to access than other respondents. Working from survey data alone, it is difficult to ascertain why this is the case.

It may be that those respondents feel that after participating in a CAHR workshop, they still didn't get the training they needed. However, participants rate the workshops very highly in their evaluations. Another consideration is that since most CAHR workshops focus on trainees, survey respondents who are also CAHR workshop participants tend to be younger than respondents as a whole, and have therefore had less opportunity to become aware of existing training opportunities.

Another possibility is that exposure to introductory training makes participants more aware of how much more depth of training they still need: they now know what they don't know. In addition, respondents who attend CAHR workshops are those actively desiring and seeking out professional training opportunities, and are perhaps in consequence more aware of how hard these may be to find anywhere else.

Finally, it may be that workshop participants are finding that the training was great at the time, but in the long term, ongoing and/ or more substantial skills-building is required to achieve real impact. This hypothesis is consistent with several other findings. First, as described in the next section, the training impacts identified in this survey by CAHR workshop participants are low in comparison to the high workshop ratings. It may be that participants experience difficulty in sustaining or putting the learning into practice in their real lives, and/ or over the long term.

As also described in the next section, the most high impact sources of training were consistently on-the-job or within-program learning and mentoring opportunities, rather than individual workshops. Respondents associate substantial training impacts with those opportunities that involve learning-by-doing, in an immersive environment.

Impact of key training opportunities

Only about half of the survey respondents identified specific impacts associated with key training experiences. Among the half of survey participants who provided input to this section of the survey, many identified specific impact areas as “not applicable”. In other words, they have never received training specifically relevant to that area. In consequence, the number of respondents assessing the level of impact of training related to any one specific skill is low compared to the overall number of survey respondents. This impact data should therefore be seen as suggestive of trends, rather than broadly generalizable to CAHR members, or to CAHR workshop participants.

A considerable portion of the responses in the impacts section of the survey were neutral, i.e. “some impact”. (Respondents rated impact from 1 = “No impact”, to 2/3/4= minor/ some/ major impact, to 5= “critical impact”). While this section had fewer neutral responses than the questions concerning access, the neutral response rate was still quite high. In consequence, there is a small number of training experiences rated as having particularly high impacts, and a handful with generally low impacts. The bulk, however, are in the middle: often rated both high and low with similar frequency.

This tendency suggests that while respondents do see their training as having had some value, there is also room to considerably increase the long-term impacts of key training opportunities.

One-quarter to one-third of relevant respondents had a training experience which was very important or critical to:

- Develop a new research collaboration
- Investigate a new kind of research question, or use a new research approach
- Build or join a new research team
- Present my work to a key scientific audience
- Successfully manage new job responsibilities
- Build a collaboration or partnership that has lasted more than 2 years

As noted, however, key training experiences had mixed results on most impacts, with approximately equal numbers finding high and low impacts on:

15% - 25% of relevant respondents had a training experience which was very important or critical to:

- Work more effectively with community
- Present my work to a key non-scientific audience
- Get a research grant
- Develop a new partnership with community and/ or decision makers
- Successfully manage projects, budgets, staff and/ or team
- Get a new training position
- Teach/ mentor students and staff

Few respondents found their training led to high impacts in (descending order):

- Get a new job outside academia
- Work more effectively with NGOs
- Get a training fellowship or scholarship
- Get a new job in academia
- Increase the uptake by research users (partners, health professionals, policy makers, industry, etc)
- Work more effectively with government
- Increase the uptake of my research by other scientists
- Work more effectively with industry

It is important to note that the survey data cannot distinguish whether training in these areas could be improved to become more effective, or whether respondents would not consider it effective to provide training in the area.

Sources of high impact training

Note: This section focuses specifically on comparing training that was noteworthy for either high or low impact. It thus focuses *only* on those impacts rated either high (rated 4 or 5), or low (rated 1 or 2), leaving out the neutral (rated 3) scores. Ratings are compared across a number of groups of respondents, based on the source of the training they associate with the impact in question: (1) CAHR or CIHR New Investigator workshop; (2) Other CAHR workshops; (3) University-offered training (outside of a degree program); (4) External training (e.g. from Stats Can); and (5) On the job/ within degree mentoring and experience. The numbers involved in any one category and item are therefore small: this section thus focuses on trends across types of training, rather than individual instances of impact.

As noted in the previous section, the low ratings of training impacts from respondents who participated in CAHR New Investigator and other workshops contrast with the high ratings on evaluations provided by participants in those same workshops. This discrepancy may be an artifact of the small numbers within each group who responded to specific items in this section of the survey. However, it may also reflect the challenge of achieving long-term impacts via one-off training. Other data in this section support the latter hypothesis: there is a notable difference between the low impacts ascribed to any specific training activity, CAHR or otherwise, and the much higher impacts associated with a variety of forms of ongoing/ on the job training.

For example, among those who have participated in CAHR New Investigator workshops, every potential impact area is more frequently rated low (1 or 2) than high (4 or 5). In most cases, there are twice as many low impact ratings as high impact ratings. The two exceptions, which receive about equal numbers of positive and negative impact scores, are “Get a research grant” and “Present my work to a key scientific audience.” The specific items are individually rated too infrequently within each group to draw detailed conclusions, but the overall trend is clear.

Almost half of the impact areas are notable for receiving both many “low impact” scores, plus zero or only 1 “high impact” score from CAHR New Investigator Workshop participants.

A similar trend is found when looking at responses from participants in other CAHR workshops (i.e. not New Investigator). In this group, however, the trend is less stark: there are many items

which received close to equal numbers of high and low impact ratings, with several weighting slightly to the positive side. As discussed further below, as compared to evaluations of New Investigators workshops, participants who rate the workshops highly also tend to emphasize the value arising from the specific, targeted, focused, hands-on and interactive nature of the workshop they attended.

There are also a couple of notable, promising, exceptions to the trend of low long-term impact resulting from other CAHR workshops. “Present my work to a key non-scientific audience”; “Build or join a new research team”, and “Build a collaboration or partnership that has lasted more than two years” all received twice as many high impact ratings as low ones. “Develop a new research collaboration” received *three times* as many high impact ratings as low ones. **The data suggest CAHR’s greatest impact is on connecting researchers into new teams and collaborations via its career development workshops.**

Too few respondents identified specific impacts associated with university or externally-provided training to draw conclusions about these sources.

In contrast, one of the five sources of training did have both consistently large numbers of high impact ratings, *plus* consistently low numbers of low impact ratings: on the job training. Respondents repeatedly emphasize the importance of extended experiential learning, and especially the mentors who provided continual support with degree programs or during specific employment experiences. Respondents particularly noted that short-term placement within a different setting (such as an NGO) had large impacts on being able to access jobs or develop future partnerships with people in that other setting.

High impacts were consistently associated with on-the-job training in the following areas, (in descending order of impact ratings):

- Present my work to a key scientific audience
- Get a research grant
- Investigate a new kind of research question, or use a new research approach
- Get a new job outside academia
- Develop a new research collaboration
- Work more effectively with community
- Get a new job in academia

Finally, across all sources of training, one area consistently stands out for having training rated as “low impact”, with almost no commensurate ratings of “high impact”: that item is “Work more effectively with government”. No current training approaches seem to be leading to useful outcomes when it comes to working more effectively with government partners.

The considerable spread of impact ratings suggests that professional skills training can make a difference, but its long-term value may fall short of funder expectations - even while fully satisfying participants. Addressing this gap may require seeking ways to increase the longevity of training experiences, but also setting more specific goals and realistic expectations for one-off training events.

From survey: Training gaps and opportunities

Over 30 survey respondents made suggestions as to training they really wish they could have received, but didn't. Although the responses cover a wide range of training opportunities, there was a trend towards career development needs, as opposed to earlier-stage training needs. Mentoring emerged as the biggest specific need for additional training, whether participants were considering their needs in retrospect, or looking forward.

Looking back, I wish I could have had...

Career development (10 mentions): How to develop and manage budgets, new kinds of research programs or questions; funding for non-academic-based researchers; career transitions - adapting to new roles, dealing with new funders or funding approaches (including international); increasing networking, international impact

Partnering and collaboration (9 mentions): How to develop and maintain research partnerships and relationships, including with community organizations, industry, government, international groups, Aboriginal groups; communicating with partners; finding partners

Mentoring and managing staff (8 mentions): How to mentor, train and manage staff; how to create suitable projects appropriate to different training levels, budgets, and needs (such as individual partnership); how to make mentors available to trainees

Knowledge translation and exchange (6 mentions): How to increase impact; build a case for policy change; what does it mean to set up impact-focused research? How to communicate with policy makers; bridging research to policy; meaning and engaging KTE strategies

Looking forward, I think we need...

Another 38 respondents made suggestions regarding training opportunities needed in the future, either for themselves or more generally (note: some respondents made multiple suggestions). For the HIV research community as a whole, respondents identified a wide range of ways to strengthen the community role in HIV research. For their own personal needs, respondents emphasized training in specific research and clinical skills. Looking forward, respondents were most likely to identify the need for better training around new investigator transitions, and in particular more support in finding non-academic careers.

Strengthening community partnerships (10 mentions): Developing more equitable relationships with community partners; engaging community mentors and attracting diverse new researchers; increasing HIV peer mentoring; enhancing scientific literacy within community; enhancing communications skills within community collaborations; cultural training

Specific research/ clinical skills (9 mentions): Such as ethics; new methodological approaches; statistical approaches and data analysis; Communication with difficult or unaware patients; critical appraisal; software, novel KTE strategies, etc

Post-PhD transitions (5 mentions): How to find employment outside academia; how to transition into role as independent researcher

What CAHR can do

Respondents made a wide range of suggestions regarding CAHR's role and activities, addressing everything from the structure of the CAHR conference and workshops to enhancing CAHR's advocacy efforts and its own mode of working. Overall, respondents emphasized the importance of CAHR's role in getting people together, and encouraging opportunities for hands-on experiential learning, where participants tackle real activities with outcomes that matter to their own research and careers.

The following section summarizes the many kinds of suggestions made for CAHR's role and activities in the future.

Provide new kinds of awards and grants

Internships (6 mentions): A number of respondents suggested that CAHR support internships, to expose students, investigators or emerging investigators from marginalized communities to new environments and skills. For example, one respondent proposed short term awards for 'lab exchanges', emphasizing a broad range of placement options. Others mentioned sponsored internships in academia, industry, government, and NGOs. Mentoring would be key to the success of these developmental awards.

Travel awards (6 mentions): Respondents suggested a number of ways CAHR could enhance mobility, especially via travel awards. They particularly noted that PIs with tight budgets struggle to send students to conferences. Community-based researchers and members also find it difficult to find the funding needed to participate in research meetings.

Summer institutes (2 mentions): One suggestion, for example, was a two-week in-depth summer course, partnering with existing institutes, and focusing on hands-on skills building.

Research grants (2 mentions): One respondent suggested catalyst grants, and grants for international research collaborations; another suggested funding ground-up innovative research.

Enhance existing training approaches

Enhancing CAHR workshops (8 mentions): The suggestions for improving CAHR workshops emphasized two main issues. First, increase experiential learning, for example with more mentorship and interaction, in hands-on work on real tasks, in the setting where it can be directly applied (e.g. writing actual grant applications). Second, increase access to learning, especially in less populous regions, and for trainees and PRAs from marginalized communities. One-off workshops may not be the best approach for some kinds of learning; make more use of technology and blended approaches, as well as mentorship and learning-by-doing. Two respondents specifically noted excellent experiences to date with CAHR workshops, with particular mention of their practical focus and the informal opportunities for mentoring.

Enhancing CAHR Conference (2 mentions): Suggestions include: increase community involvement and leadership in research, including greater diversity on the CAHR board and conference organizing committees. Devote more time at conferences to experimental learning, and organize by theme rather than track.

Provide other kinds of supports

Increase interactions across the research community (4 mentions): In addition to the community-oriented training needs identified above, four respondents suggested CAHR could help increase interactions among members and groups within the HIV research community more broadly. Particular mention was made of helping people living with HIV to interact with each other and engage with clinical and biomedical research, as well increasing community involvement in all aspects of CAHR. Researchers also need more opportunities to interact with other researchers at different stages of career development and with different interests.

Enhance access to/ use of research funding (5 mentions): Each of the suggestions in this area was quite distinct. They included: Enhancing access to awards for community-based personnel. Monitoring changes in CIHR and strategies to optimize proposals. A training workshop where people could develop new ideas, partnerships, and methodologies. Helping researchers advocate for release time. Understanding how pharma makes research investment decisions.

From evaluations: Training gaps and opportunities

CAHR workshops have been very successful. **Overall, they have a cumulative 97% approval rating** (i.e. participants rated the whole workshop as “Excellent” or “Good”). **Over 95% of participants would recommend the CAHR workshop to a colleague or friend.**

Workshop success factors

New Investigator workshops - key themes in evaluations

New Investigator workshops generally include three main types of sessions: (1) Informational presentations (e.g. from funders); (2) How-to presentations (e.g. grantsmanship, communications); and (3) interactive sessions (e.g. speed-dating with mentors, mock peer review).

Overall, participants placed highest value on material they saw as most relevant and usable. They prioritized information they could take home and use. They gave lower ratings to sessions focused on information that “was not relevant to me yet at this stage of my career”.

Informational presentations are frequently described in evaluations as “A great overview”. However, evaluations are also thick with comments suggesting that participants find them both too much and too little to take in. Presentations are seen as long, detailed and broad in scope, but lacking depth, specificity, or clear applicability. The most positive comments relate to participants discovering new funding opportunities and how to access them. The most negative comments relate to presentations seen as addressing general information about a funding organization, rather than specific advice which is relevant for the researchers in the room.

How-to presentations, such as on grantsmanship, tended to be higher-rated. The more specific the advice provided, the more value seen by participants. Detailed advice, specific case studies, and examples to take apart and consider are all highlighted in positive feedback. Positive comments usually emphasized how practical the info was, and how clearly the participant could see how to use it themselves. “How-to” sessions that were seen as more generic, less specific/ example-based, and not interactive were usually rated lower, described as “too long”, and attracted comments such as “was a little bit all over the place”.

Interactivity is highly valued by participants in every kind of session, and the most interactive sessions - those on mentorship and mock peer review - are consistently described as the highlight of the CAHR New Investigator workshops. Participants especially value the small group and one-on-one aspect of talking with mentors. The vast majority of negative comments about these sessions relate to participants wanting much more time for the session in general, and with the mentors in particular. Some participants expressed frustration that an excellent opportunity in theory felt too fast and superficial in practice. Another common challenge reported in the evaluations was a shortage of mentors in the track of particular interest to the participant.

Beyond New Investigators workshops - key themes in evaluations

The key themes in the evaluations of other CAHR workshops were broadly similar to the findings for the New Investigators workshops.

The most positive feedback was consistently associated with descriptions of sessions being well-focused, detailed, and above all, more interactive. The more a session was small and discussion-based, the more participants wished it had been longer. Starting a session with a question that the group then worked together to answer, for example, was seen as very effective.

Personal stories were important to participants in these workshops, providing ‘someone I can relate to, so that I can learn from their experience’.

Interestingly, personal stories were equally effective in the opposite direction, that is to expose participants to perspectives wholly new to them, such as of particular communities with whom they might partner. Participants frequently described how powerful personal stories allowed them to see perspectives they had never considered, or to which they may have initially been more negatively inclined. For example, one notably candid presentation, on career pathways from a recent graduate who had become an industry researcher, provided a personal story that addressed both these needs (i.e. “a young investigator I can relate to, talking about an environment I couldn’t previously relate to”). This session generated consistently positive feedback, uniquely among CAHR’s various industry-oriented sessions.

Suggestions for future workshop topics

Many of the workshop evaluations included suggestions for future topics. **The most-frequently mentioned needs are consistent with those identified in the survey: (1) career development; (2) new research skills; and (3) collaboration/ and teamwork.** The full list of suggested topics from the 2012 - 2016 evaluations includes:

Career development

- Research Project Management
- Challenges of and for new researchers
- Sabbaticals
- Moving up: promotions - Academic and professional
- Time management
- Mid-career research projects
- Timelines (for research, for career)
- Work-life balance
- Training vs. goals - how far do you need to go
- Young researchers
- how to choose the future topics
- how to get the most out of conferences
- how to deal with reviewer comments
- more about becoming independent instead of just about the grants
- Professional/personal boundaries (good? Bad?)
- Outcomes and measuring success

Research skills

- Diverse methodologies/ methods (e.g. CBR)

Interdisciplinary work
Qualitative research
Global health
reactive and kill latent HIV-1 viruses
Community/population based research and talks (eg. MSM, sex workers)
Aboriginal peoples research
Peers, people living with HIV
basic status of HIV research, biology
CBR
Clinical trial processes
Mental health and HIV
Anti-oppressive research
Ethics and ethics board applications/approvals
CBR in a workplace context

Collaboration, teamwork

Managing research collaboration, inter-department appointments
Managing group dynamics
Vaccine industry
Leadership and building a strong team
community involvement - who, what, how and why its beneficial
Connecting with smaller communities
How to not replicate/double up on research (collaboration techniques)

Grantsmanship

Grants
Posters
Fellowships
New Investigator awards

Mentorship

Actual examples of leadership and mentorship
How to be a strong supervisor

Funding

Changes in HIV Funding, PEPFAR, funding bodies

International

HIV Research in International Contexts

Communications

How do deal with the media

KTE

Simulations (putting new knowledge into practice)

Conclusions

CAHR workshops have been very successful, as evidenced by their high approval rating (97%), and participants' willingness to recommend them to a friend or colleague (95%). The workshops are highly-regarded, and are addressing the priority training topics of CAHR's community. They provide an effective base for CAHR's emerging Training Plan.

Throughout the survey of CAHR members and the evaluations of previous CAHR workshops, several key success factors stand out. Survey respondents repeatedly emphasize the importance of experiential learning. Their past training that has led to the most impact was almost always reported as on-the-job, mentored learning. The experiences survey respondents sought in the future were ones that would give them opportunities to develop real skills, in real time, while undertaking real tasks.

Workshop participants similarly emphasize learning-by-doing. The most valued workshop sessions were those described as more interactive, more specific, more practical, more hands-on, and more directly-relevant to the stage/ track/ career pathway of the researcher. Participants value sessions that are focused, targeted, and specifically address their current learning needs. Participants also place the highest value on speakers who are seen as candid, honest, personal, relatable, and, above all, providing unique insight that couldn't be obtained by 'reading the website'.

CAHR training workshops have been unequivocally successful, and are highly regarded by its members. At the same time, these findings create challenges - and real opportunities - for CAHR in the future. Depth vs breadth; integration vs. targeting; training more participants vs more training time per participant - these are not new questions. As the environment changes, however, new answers may at times emerge from reconsidering old questions.

CAHR values providing its workshop participants with broad exposure to a range of topics, ideas, people, skills and research opportunities they might not otherwise encounter. Interactions among, and integration between, people at different career stages, tracks, and sectors are important. Creating opportunities for as many members of the CAHR community to engage is important. Opening minds to future opportunities is important. How can these many - and often competing - priorities be balanced? The feedback from CAHR's members and workshop participants suggest a number of possibilities to consider in developing CAHR's new training plan. Some workshop enhancements and additional ideas to consider for the future are included below.

Enhancing future workshops

Provide factual information in advance. For example, provide access to copies of presentations, web links, summaries of organizations and programs, etc, to be reviewed by participants before the workshop. The session could then jump directly to the questions and ideas that arise out of those materials. The idea is to increase the time spent on interactions and discussion about how to use the material, and minimize the detailed presentation of more generic information that can be accessed elsewhere.

Encourage session leaders to focus on their unique content. Maximize the time presenters spend on the parts of their presentations that are most valued by participants: their personal analysis, insight, experiences, etc, that can't be readily conveyed in background materials. Presenters add most value when they are interpreting, explaining, prioritizing, and otherwise making sense of the factual materials. While presenters should aim to avoid restating the contents of a website, it can be useful to teach how to use, assess, and triage what's in there. Sharing personal stories is a helpful approach in many topics, especially about the times things *didn't* work - for example, career pathways that weren't smooth, plans that met major obstacles, barriers that maybe weren't overcome. Presenters can also be encouraged to not talk about their individual research projects, but rather focus on their barriers and successes and how these are relevant to the questions the participants bring into the session.

Do rather than listen. Seek alternative session structures that are discussion-and action-based, rather than presentation-based. For example, minimize the presentation of general theory, or describing how to do things (for example, with respect to topics such as KTE, communications, or scholarship writing). Instead of receiving information, participants might work out answers to questions, seek to solve specific problems, work out case studies, draft actual communications materials or applications, develop answers to questions they submitted in advance of the workshop, etc.,.

Do real tasks. As much as possible, build training around actual tasks participants are currently trying to do - such as find funding; work on their actual research proposals, protocols, grant or award applications; or develop a presentation to various audiences.

Spend at least half the day in small group or one-on-one interactions. Such sessions are consistently seen as the most valuable part of the workshop, and could be greatly expanded. Assess the feasibility of spending more time with a smaller number of carefully-selected and relevant mentors. Increase the diversity of participating mentors, especially from non-academic sectors and from marginalized communities. While participants appreciate meeting a range of mentors, there is suggestion in the evaluations that more time with fewer mentors may be a worthwhile trade-off of depth vs diversity.

Target some sessions. One way to increase workshop focus and relevance without decreasing participant diversity may be to provide one or more sessions within a workshop as concurrent ones. A recurring evaluation theme was "make it more relevant to my.... theme/ career path/ stage of training...." Concurrent sessions would enable participants to be segregated for depth, but still integrated at other times in order to learn from each other and address shared interests. The goal would be to find a balance between exposing participants to what they don't know they need to know, vs identifying what they actually don't need to know.

Share info among, and connect participants. For instance, use posters to market people, and not just research results, by having session leaders, partner organizations, and/ or participants create personal posters. These could, for instance, highlight interests, expertise, questions they can be asked about or want to ask others about, future plans - whatever might be appropriate to the workshop goals. During networking sessions, participants can find each other at their posters. If posters have pictures, participants will be able to identify each other at any time during the workshop. Taken a step further, a one-page "poster" (with photo) can be produced by each participant and circulated in advance. Participants could then identify people

with potential shared interests ahead of time, and make a point of tracking them down during the workshop.

Increase informal networking. As much as feasible, add in un-programmed, relaxing time where participants - including session leaders and mentors - have more opportunity to get to know each other, and follow up on questions and ideas that arose during sessions. Often, the most free time participants have is when they arrive the night before an event, but they usually have no opportunity to meet with others, nor do they yet know who they might want to meet. When a meet-up or “cafe space”, or a reception, is combined with pre-circulated info about other participants, informal networking time can be well used, even when it’s the night before an event.

Provide take-home resources. To help participants use and implement what they learn, it can be helpful if they can bring home materials, resources, etc that will remind them of what they have learned, and help them put the learning to use.

Exploring new training approaches

Looking to the future, CAHR may wish to assess the feasibility of supporting some different formats of training. Two (not mutually exclusive) approaches to consider in particular are summer institutes and new learning technologies.

A two-week summer institute structure offers the potential to provide in-depth experiential learning approaches built around specific tasks and goals, which produce real and useable output and outcomes. The obvious drawback is that such training is expensive and could only be provided to a small number of people, but the benefit would be more in-depth experiential learning that could address major real-life tasks in a substantial way.

In contrast, the expanding range of e-learning technologies creates opportunities to inexpensively provide more training, over a longer period, to more people. The interactions may be all, or mostly, virtual, but they can last over time, and can, too, address topics and tasks in more depth. Such training could also more effectively integrate the daily activities and goals of participants. The up-front cost and resources required to produce such training modules, however, would be substantive.

Finally, the survey found widely varying views on whether different types of training are readily accessible or not. It may be helpful for CAHR to find and disseminate information about available training opportunities of relevance to its members, from all sources. There may also be opportunities for CAHR to partner with, piggy-back on, and/ or expand its members’ access to existing training.

New award support

Recent discussions across the Canadian health research community - such as the training consultation undertaken last year by CIHR - identified wide demand for internship support. The idea was proposed by a number of respondents to the current CAHR survey as well. In considering the shape of future awards programs, CAHR may wish to assess the feasibility of providing short and/ or long term placements in different research and partner environments, for

trainees, investigators, and community-based research partners and participants. Such placements are seen as invaluable ways of learning both new research skills, as well as learning how to work with partners.

Travel awards would also likely be valued by the CAHR community, and could be explored. However, given the likely high demand for such awards by trainees, partners and community-based research participants, the feasibility of such awards may be particularly challenging.

Key topics for future workshops

Broadly speaking, almost all the skills listed in the survey were considered important to a significant portion of respondents. Almost all those skills were also considered hard to access by a considerable portion of the respondents. Unquestionably, CAHR is on the right track, and its workshops are addressing the priority issues of its community.

There was consistent feedback between the survey and the workshop evaluations that the following topics are critical areas for future training:

Most important areas for future training:

- **Post-PhD transitions** (*New investigator transitions. Alternative career paths*)
- **Career development** (*Leadership roles. Managing staff, budgets, projects, complex funding opportunities.*)
- **Mentoring**
- **Partnering and collaboration** (*within research teams, with community, government, international groups, Aboriginal groups, industry*)
- **Knowledge translation and exchange**
- **Strengthening community partnerships and roles**
- **Specific research/ clinical skills**

In analyzing the data, a subset of skills stands out as being not only very important to most respondents, but as skills for which training is very hard to access. These specific skills (listed in box below) may suggest priority topics wishing future CHAR workshops:

As discussed in previous sections of this report, however, caution should be exercised in denoting some topics as lower priority. Some topics may be crucially important to a sub-set of CAHR members, even though not at all important to others. As discussed above, such topics may benefit from being presented in more targeted training settings, and/ or as one selection among concurrent sessions choices.

Skills which are very important AND very hard to access (in descending order):

- How to be a successful mentor
- Research with impact: measuring and demonstrating impact
- Leadership and life skills for a new PI: managing staff, projects, budgets; transitions
- Grantsmanship skills; mock peer review
- Creating, working in, and leading teams
- Turning knowledge in practical applications, services or policy
- Finding, building and maintaining stakeholder and community partnerships

Overall, there were few skills consistently seen as hard to access for everybody, but all were hard to access for a significant portion of respondents. These results suggest that in addition to creating additional training opportunities, CAHR might helpfully connect its members to opportunities which already exist but may be unknown to many of its members. It may also be helpful to seek means to expand access and/ or availability of existing training. Such expansion of access may be geographic, or bring training into different sectors from where it's usually available, or aimed at engaging marginalized populations who have not typically participated in available training - or all of the above.