



Michael Smith Foundation for  
**Health Research**

# Infrastructure Program **Analysis of Research Units Funded Between 2003-2005**

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## Abbreviations

AHR	Associated Health Researcher
BCCA	British Columbia Cancer Agency
C&WHC	Children and Women’s Health Centre
FTE	Full-time equivalent
PHC	Providence Health Care
QHR	Qualified Health Researcher
UBC	University of British Columbia
UVic	University of Victoria
VCHA	Vancouver Coastal Health Authority

## Executive Summary

The MSFHR Research Unit Award was introduced in 2003 as one of several strategies to enhance the productivity and competitiveness of researchers in BC. This Program provides infrastructure funding for common services (including personnel) that will enhance the research environment, build critical mass, and improve integration within research groups. The Research Unit Award targets established research groups working in focused areas of health-related research.

The purpose of this report is to assess the impact of the Research Unit Awards on the 25 research groups that have been funded as a result of the two annual competitions held in 2003 and 2004. The report draws on documents provided by the funded Research Units (funding proposal, and annual progress reports for 2003-04 and 2004-05) and site visits conducted by MSFHR staff. The findings in this report are intended to stimulate review and evaluation of the program to date, and also provide feedback to funded Units.

At the end of two completed years of the Research Unit Award, MSFHR had paid a total of \$7.29 million to host institutions for the 25 funded Units, of which \$5.64 million had been spent. Host institutions were holding a combined total of \$1.65 million in unexpended funds as of June 30, 2005, representing 23% of the total allocated funds. The majority of spent funds was used to pay for personnel. Other expenditures covered items such as consultant fees, communication costs and travel costs. A small number of Units included stipends for release time for academic researchers.

The 25 funded Research Units are highly productive and successful research groups, undertaking research across the full spectrum of basic, clinical, population health, and health services research. Well-established indicators of research productivity and competitiveness, such as grants success, peer-reviewed publications, presentations at scientific meetings, and intra- and inter-institutional collaboration suggest significant achievements across the Units. Less information is available about the training environments provided by these Units, although the caliber of researchers and the level of research productivity would suggest highly supportive settings. Most Units have reported knowledge translation activities, but few have extended beyond sharing of results with the scientific community to wider audiences such as policy makers, health care professionals, and the general public. A small number of Units have also reported commercialization efforts, almost exclusively in the form of patent applications.

The specific contribution of MSFHR infrastructure funding to the Research Units' productivity and performance is difficult to quantify. The Research Unit Awards typically represent but a small proportion of the operating funds of the funded Units. A number of researchers and/or students affiliated with the funded Research Units are also recipients of MSFHR Scholar, Trainee and Student Awards, and other funding. We therefore suggest that MSFHR infrastructure funding should be viewed as a valued contribution to a larger pool of funds that, collectively, influence the work and outcomes of each Unit.

On the basis of our analysis we propose the following recommendations:

### **1. Strategic review of the Research Unit Award**

**That** MSFHR undertake a strategic review of the Research Unit Award in light of the Units funded to date, the expanding number of infrastructure funding programs, and the priorities of MSFHR, to ensure that funding programs are strategically linked and well integrated.

### **2. Staged funding payments**

**That** MSFHR consider releasing funds under the Research Unit Award in a staged way rather than in equal annual installments, with smaller amounts awarded in the first and possibly fourth years, and the bulk of funds given in the second and third years.

### **3. Better targeted reporting requirements**

**That** MSFHR develop, in collaboration with funded Research Units, more streamlined and consistent methods for capturing information about research productivity and outcomes, including both quantitative and qualitative data, and potentially involving IT-based reporting processes.

**That** MSFHR develop a policy regarding change notifications and associated review processes for recipients of MSFHR funding.

**That** MSFHR consider the implications of the problem of attribution for its various funding programs and associated performance monitoring processes.

### **4. Non-traditional skills development**

**That** MSFHR facilitate, in consultation with the research community, opportunities for the development of skills beyond those traditionally linked to the research enterprise, including business planning/operations and knowledge translation.

### **5. Sharing results with stakeholders**

**That** MSFHR make the findings of this report available to stakeholders, including Research Units, host institutions, granting bodies, and governments, as a basis for dialogue on the achievements of Research Units and potential opportunities for further supporting the research community in BC.

## Introduction

The MSFHR Infrastructure Program introduced Research Unit Awards in 2003 as one of several strategies to enhance the productivity and competitiveness of researchers in BC. Specifically, this Program provides infrastructure funding for common services (including personnel) that will enhance the research environment, build critical mass, and improve integration within research groups. The Research Unit Award targets established research groups working in a focused area of health-related research.

The purpose of this report is to assess the impact of the Research Unit Awards on those research groups that have been funded in the two annual competitions held in 2003 and 2004. The analysis is based on three sources of information:

- Full applications submitted by each Research Unit, which include Research Development Plans and identify the intended use of MSFHR infrastructure funds;
- Annual progress reports submitted in 2004 and 2005 by the funded Research Units; and
- Site visits of the funded Research Units undertaken by staff between December 2005 and February 2006.

This report is structured to answer nine key questions:

1. What kind of Research Units does MSFHR fund?
2. How do Research Units use the infrastructure funding we provide?
3. What outcome measures have Research Units reported?
4. Has researcher productivity increased?
5. Have Research Units enhanced the training they provide?
6. Has collaboration within and outside Research Units increased?
7. Are Research Units applying research results to improve health care services and/or pursue economic development opportunities?
8. What are some of the issues and challenges for Research Units?
9. What are some of the issues and challenges for MSFHR?

The report concludes with recommendations for MSFHR to consider.

This report has been written to encourage review and evaluation of the Research Unit Award program by MSFHR, and to provide feedback to funded Units. The results seek to provide an aggregated view of the funded Research Units, although examples of individual Units are given for illustrative purposes.

The following limitations should be noted when considering the findings in this report. MSFHR specified the reporting requirements for the annual progress reports submitted in 2004 and 2005. Information that we might now consider desirable may be lacking because we did not ask for it. The reporting requirements were also changed in 2005 to improve on some aspects of the previous report, which has limited some opportunities for comparisons of trends over time. In the 2005 progress reports, some questions were designated 'optional' and therefore were not answered by all Units.

The ability to directly link the MSFHR Research Unit Awards to changes in research productivity and competitiveness is made difficult by several factors. A number of the funded Research Units with a specific research focus represent a subset of much larger

research enterprises with a wider range of research activities. Furthermore, many Qualified Health Researchers (QHRs) affiliated with individual Research Units have research affiliations with other Units and teams, in related and unrelated areas of research. Their reports of research achievements, such as grant success, publications and student supervision, typically are not tied to specific groups or teams, but rather represent aggregate results. Finally, MSFHR infrastructure funding often represents but a small proportion of the operating funds of Research Units so that its relative contribution to the Unit's overall performance is comparatively small.

This problem of attribution is considerable for MSFHR. Several Unit Leaders provided comments during our site visits that suggested the value of MSFHR infrastructure funding was more than the dollar value of the awards. For example, some referred to the value of the MSFHR brand, and others mentioned the uniqueness and flexibility of the funds. Nonetheless, can we determine the specific impact of MSFHR funding on the productivity and success of Research Units and the individuals within them? The challenge of attribution has been acknowledged in the wider evaluation and auditing literature.<sup>1,2</sup> A key strategy proposed to address this challenge is to consider 'plausible association', defined as "a reasonable person, knowing what has occurred in the program and that the intended outcomes actually occurred, agrees that the program contributed to those outcomes".<sup>1</sup> For MSFHR, specific questions we could ask include:

- (a) Did the specified outcomes appear after our efforts began?
- (b) Did these outcomes appear at different locations and with different people?
- (c) Did the greatest outcomes appear where we did the most (for example, where we provided the most funds)?
- (d) Did outcomes only appear when and where MSFHR funds were introduced?

## **1. What kind of Research Units do we fund?**

MSFHR currently funds 25 Research Units: 18 Category A Units (comprising 3 to 10 QHRs); and 7 Category B Units (comprising 11 or more QHRs). Figure 1 shows the number of QHRs across the Research Units. Consistent with the definitions for Category A and B Units, the number of QHRs in each Unit at proposal stage ranged from 3 to 19.

A complete list of the Research Units is provided in the Appendix. The Units represent a wide range of research foci, including genomics, proteomics, stem cell research, chronic diseases, cancer, other clinical conditions, child health, aging, and health policy. All four research pillars are represented by the Units' research activities. All but two Units (92%) are based in Vancouver.

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<sup>1</sup> Henricks M. (1996). Performance Monitoring: How to Measure Effectively the Results of Our Efforts. Presented at the American Evaluation Annual Conference, Atlanta, November 6.

<sup>2</sup> Mayne J. (1999). Addressing Attribution Through Contribution Analysis: Using Performance Measures Sensibly. Discussion Paper, Office of the Auditor General of Canada, June.

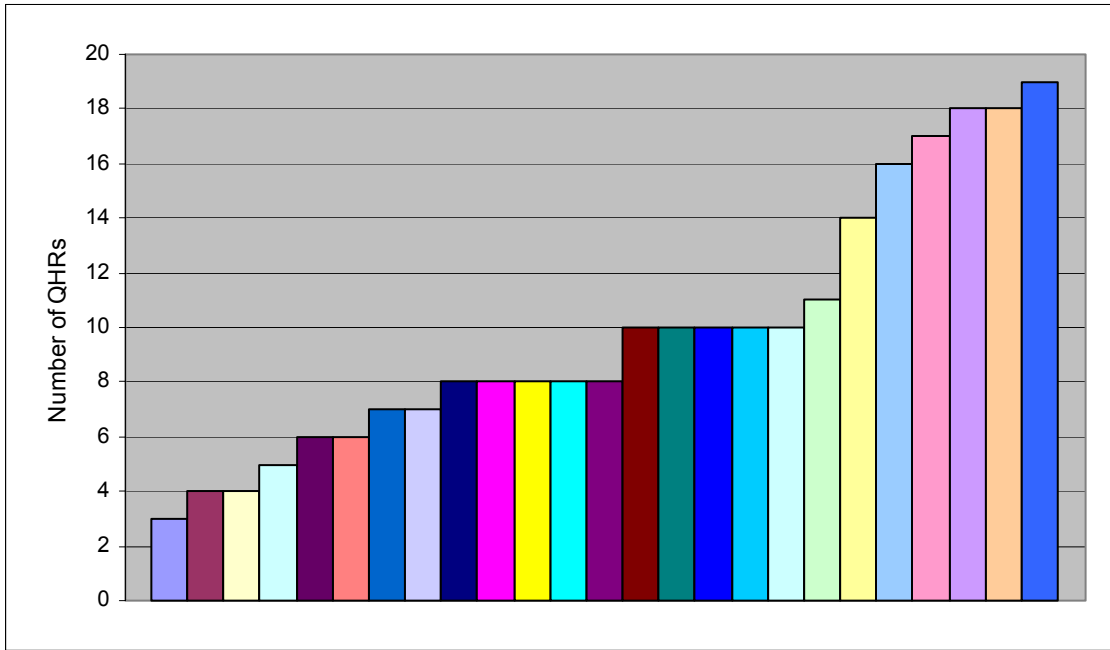


Figure 1: Number of QHRs in each funded Research Unit (at proposal stage).

Sixteen Research Units commenced funding in 2003 and have received two full years of infrastructure funding (2003-2005). Nine Units commenced funding in 2004 and have received one full year of funding (2004-2005, see Table 1).

Table 1: Year of award for funded Research Units.

Research Units	2003 Award	2004 Award	Total
Category A (3-10 QHRs)	11	7	18
Category B ( $\geq 11$ QHRs)	5	2	7
Total	16	9	25

### Suggestions

- MSFHR's selection of Research Units for funding is based on a rigorous application and external merit review process, and an assessment of the most meritorious Units within the pool of applicants. The data reported below provide strong evidence that most, if not all, of the 25 currently-funded Research Units are highly productive groups. However, given the ongoing nature of this Award, it is perhaps timely to ask: Should we continue to fund more Research Units? Are we reaching saturation point? Should we alter the selection criteria, for example, to target certain types of Units, such as those with the greatest potential, those most likely to benefit from MSFHR's funds, or those most needy of infrastructure-funding support? Or should we give priority to certain types of research?

## 2. How do Research Units use the infrastructure funding we provide?

Infrastructure funding under the MSFHR Research Unit Award is paid to each Unit's host institution on a quarterly basis starting July 1. As described above, MSFHR currently funds 18 Category A Units at approximately \$150,000 per year, and 7 Category B Units at approximately \$250,000 per year. Funds are paid to 7 host institutions.

At the end of the two completed years of funding, 2003-2005, MSFHR had paid a total of \$7.29 million under the Research Unit Awards. At the end of Year 1, most of the 25 Research Units had not spent their allotted funds, averaging 60% of the yearly budget. At the end of Year 2, 72.5% of the total funds were spent (including any carry-forward amounts from Year 1). As of June 30, 2005, the seven host institutions were holding a combined total of \$1.65 million in unexpended funds (see Figure 2). This represented 23% of the total of \$7.29 million allocated over the two-year period, 2003-2005.

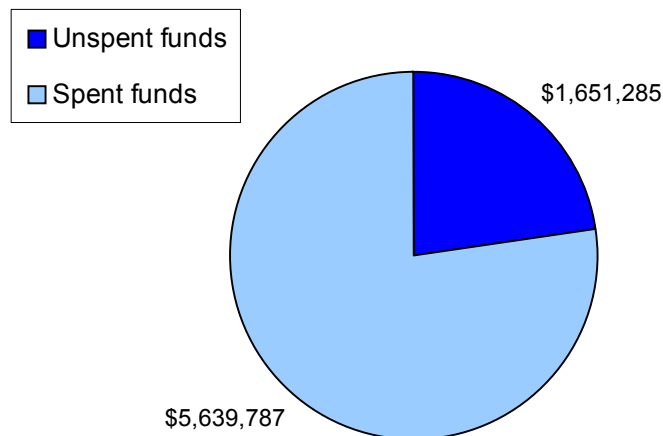


Figure 2: MSFHR Research Unit Award funds spent by Units, 2003-2005.

Of the spent funds, the majority (81% in 2003-04, and 85% in 2004-05) was used to pay for personnel. Although the information was not specifically requested, many Units specified the number of FTEs that would be created using MSFHR infrastructure funding. Based on the Units' funding proposals, at least 52.7 FTEs were to be created. After the first year of funding, at least 41.3 FTEs were created. The most common types of personnel were statisticians, research grant facilitators, programmers, administrative assistants, and database/core facility managers. The FTEs for these specific personnel were not always discernible. In addition to personnel, other expenditures covered items such as consultant fees, communication costs and travel costs. A small number of Units included stipends for release time for academic researchers; others may have included this cost under other headings such as consultant fees. Figure 3 provides a breakdown of the expenditure of funds by the 25 Research Units at the end of the first year of funding, and Figure 4 provides a similar breakdown for the 16 Units that had completed a second year of funding. In Figure 3, the order of the Research Units in Columns 1-16 is the same as the order of the Units Columns 1-16 in Figure 4, to allow comparisons of expenditures within Units for the two years of funding.

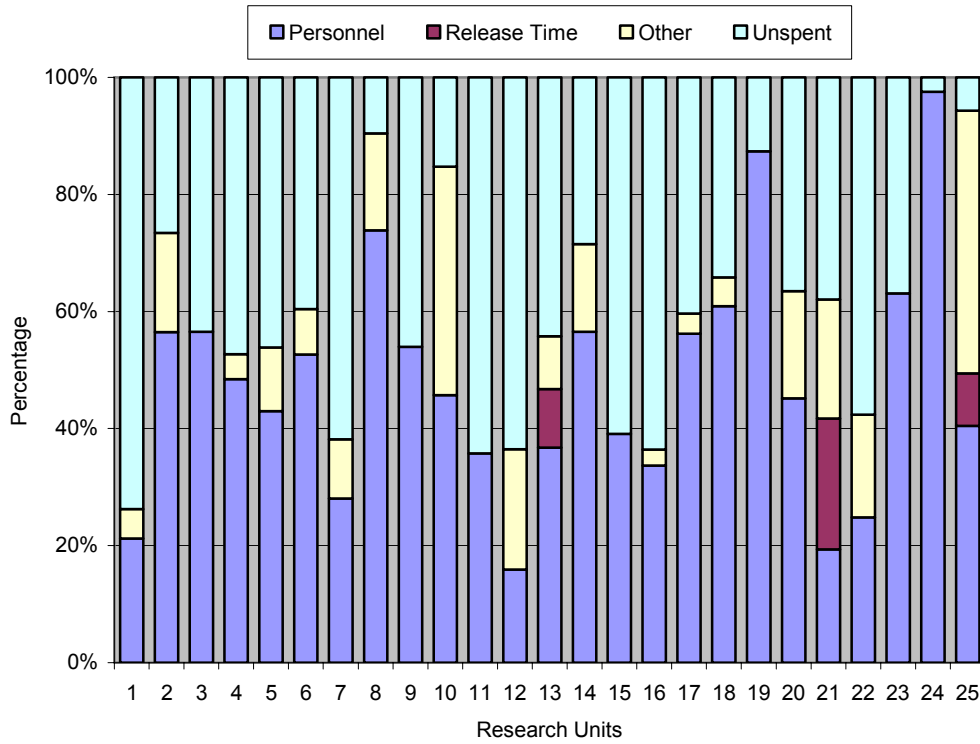


Figure 3: Funding expenditure by 25 Research Units at the end of the first year of funding.

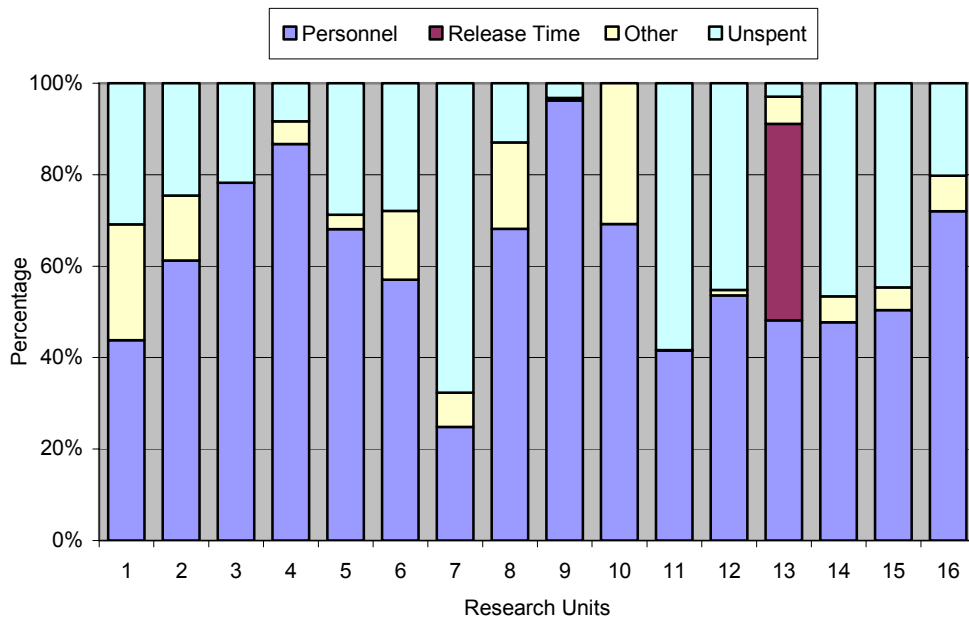


Figure 4: Funding expenditure by 16 Research Units at the end of the second year of funding.

Research Units indicated that the main reason for unexpended funds was difficulties in recruiting personnel. Some Units reported having misjudged the appropriate salary for the position they were seeking to fill, but by far the most common reason given for recruitment difficulties was the inability to offer competitive salaries due to below-market institution pay scales and/or union constraints. Unit Leaders indicated that employers in private industry, the United States, and even other Canadian provinces such as Ontario, offered more competitive wages for similar positions. The most difficult personnel to recruit appeared to be trained technicians and biostatisticians.

Some Units had experimented with alternative means of filling positions. For example, faced with difficulties in hiring a grants facilitator, one Unit re-allocated the money to fund a pool of students that could be hired to assist Unit investigators in the preparation of research grant applications. Another Unit filled its positions by training and promoting people from within. Several Units decided to change direction when they realized that their suggested budget was unfeasible. For instance, partial FTEs were combined to create a larger budget for another position that was easier to recruit and just as beneficial to the Unit. In some cases, more emphasis was placed on a certain aspect of the research proposal and funds were re-allocated to accommodate this new direction.

Our analysis also showed that a small number of Research Units had expended funds on ineligible items.

### ***Suggestions***

- MSFHR should consider the opportunity costs of unspent funds and explore alternate funding options. For example, funds could be released to Research Units on a sliding scale: a smaller amount in the first and possibly the last year of the award, with the bulk of the money being disbursed in the second and third years.
- Information about the number of FTEs created by MSFHR infrastructure funding needs to be captured in a more consistent manner in order to assess the impact of funding on job creation and its contribution to research capacity and economic development.
- MSFHR should develop a protocol to handle budget change requests by Research Units.
- MSFHR should liaise with Units about identified ineligible expenditures.

## **3. What outcome measures have Research Units reported?**

The funding proposals submitted by Research Units required applicants to specify outcomes that would be expected as a result of MSFHR infrastructure funding and how they would be measured.

The majority of funded Research Units nominated the following well-established academic measures that reflect research productivity and competitiveness:

- increased number of grant proposals;
- increased number of funded grants;
- additional research projects initiated;
- increased number of abstracts, and publications;
- increased invitations to speak at national and international conferences;

- increased number of students trained; and
- increased number of student scholarships.

A small number of Units nominated specific targets associated with these measures. A minority of Units also specified broader outcome measures but often these measures were worded rather vaguely making measurement and reporting difficult, for example, 'increased interdisciplinary collaboration', or 'increased knowledge translation activities'.

Interestingly, although the majority of Research Units allocated a significant proportion of their Awards to recruit new staff, such as administrative assistants, research assistants and/or technical staff, only one Unit included the successful appointment of such staff as an outcome measure. Further, only a minority of Units specified outcome measures directly linked to their Research Development Plans, which were the basis of their proposals.

In subsequent annual progress reports, some Research Units reported against the outcome measures they had specified in the funding proposal but many did not. The format of the annual progress report in Year 1 appeared to be more effective in garnering such information than the format of the Year 2 report. Those Units that did report against the outcomes they had originally specified tended to meet or exceed them. Such results are suggestive of enhanced productivity. However, it should be noted that some of the measures, such as increased publications, are unlikely to be linked to MSFHR funding, especially in Year 1, since the work would have been initiated well before funding commenced. Further details of the outcomes achieved by the Research Units are provided below.

### ***Suggestions***

- MSFHR should work with funded Research Units to review and better target outcome measures, and to develop more consistent and effective methods for reporting against them.

## **4. Has researcher productivity increased?**

A number of indicators confirmed that the 25 funded Research Units are highly productive. However, on the basis of our analysis of the Units' annual progress reports and our site visits we were unable to confirm whether the Units are more productive now than they were before receiving MSFHR infrastructure funding. Details of the productivity of the Units are summarized below, in terms of funding, publications, and scientific awards.

### Funding

All Research Units reported winning grants since receiving their MSFHR Research Unit Awards. Some Units also reported the number of grant applications submitted. The types of grants included operating grants, salary awards, and CIHR collaborative grants. National funding bodies awarded most grants; others came from provincial and international bodies. The specific details that Research Units provided about their grants varied. For example, 10 Units reported the number of successful grants (187) in a calendar year. One Unit reported the number of grants applied for in the past year (20),

the number won (11), and the number currently held (23). Some Units provided dollar amounts for some grants but not others. One Unit reported that its granting success had improved 480% (from \$0.6 million to \$2.9 million) in one year and its co-investigator funding had increased 216%. Several Research Unit Leaders commented on the value of MSFHR infrastructure funding in terms of leveraging additional funds.

### Publications

Over the period 2003-2005, 24 of the 25 funded Research Units reported producing at least 1,477 publications, averaging 61 publications per Unit. (One Unit did not report a number.) The number of publications per Unit varied widely, but this is not surprising given the different sizes of the Units. The reported numbers, nonetheless, did not reflect the work of the Units per se; rather they tended to capture the full range of publications of the QHRs and AHRs affiliated with each Unit, which was often unrelated to the work of the Unit and included collaborative work with researchers from other groups on other topics. In addition, the inclusion of long lists of publications in the Units' annual progress reports did not allow us to identify publications that might have been particularly significant. However, in the 2005 progress reports, one Research Unit provided a separate list of 50 publications in journals with high impact factors that included the *New England Journal of Medicine* and *Science*. While impressive, once again the problem of attribution must be noted: given the time lag in publications, the impact of MSFHR infrastructure funding on publication output among Research Units in the first two years of funding is likely to be minimal at best.

### Scientific Awards

The Research Unit progress reports requested details of major scientific achievements over the past year, but few Units mentioned having won a scientific award.

### ***Suggestions***

- MSFHR should work with funded Research Units to develop more consistent methods for capturing information on grant submissions and/or grant successes.
- If information about publications is to be captured, more specific reporting parameters need to be established. For example, Research Units could be asked to provide details specifically of publications in journals with high impact factors for their respective disciplines, and/or publications that clearly demonstrate excellence in their particular field(s).
- MSFHR should request information from Research Units about scientific awards in order to promote and celebrate exceptional performances and successes.
- Given the problems of attribution outlined earlier in this report, we suggest that information about grant successes be captured after the second year of funding, and information about publications be captured after the third year of funding.

## **5. Have Research Units enhanced the training they provide?**

The 25 funded Research Units provide a wide range of innovative and unique training environments, not only for local Doctoral (PhD) and Masters students, Post-doctoral Fellows (PDFs), and other newly-trained scientists, but also for visiting students and researchers from overseas. During the site visits to Research Units we observed a significant number of students, particularly in laboratory settings, and were shown

various examples of dedicated student spaces, usually well-equipped with computers and located to provide easy access to senior research staff. We also heard of and/or met a number of visiting scientists from Europe, the Middle East, the UK and the USA, again more commonly in laboratory-based Units.

We observed significant levels of cross-disciplinary collaboration facilitated by the co-location of researchers with diverse but related areas of expertise. For example, a number of Units have brought together senior researchers with a wide range of international and professional backgrounds. Several laboratories were structured in such a way that researchers from within and outside the Unit could access 'centralised' specialist core facilities and/or equipment. Such factors are likely to contribute to a rich and stimulating training environment.

On the basis of the information provided by Research Units in their proposals and progress reports, we do not have sufficient data to assess whether MSFHR infrastructure funding has enhanced the training provided. Of the 25 Research Units, 14 (56%) provided some information in the original funding proposal about the numbers of PDFs, PhD and Masters students being supervised by QHRs within the Unit. However, this information was reported in a variety of ways, for example:

- PDFs and PhD students combined, and Masters students separately;
- PDFs separately, and PhD and Masters students combined;
- "all graduated students" combined;
- PhD and MD students combined; and
- PDFs, PhD students, and Masters students separately.

In the annual progress reports most Research Units tended to either not report information about numbers of students being trained, or provided data that suggested inconsistencies in the way students were being counted. For example, some counts included students and trainees for whom the QHRs in the Research Unit were the primary supervisor, while other counts included students and trainees for whom the QHR was either a primary or co-supervisor. Some counts only included students and trainees supervised by QHRs within the Research Unit, while others appeared to include all students supervised by the QHRs in various locations.

Six Research Units (24%) provided quantitative data in a format that would allow some comparisons of students trained over time. In five of these Units there was evidence of increased numbers of students being trained over the two-year funding period. Most of these Units also reported an increase in the number of QHRs over the same period. Thus, enhanced training may have been a function of additional researchers affiliating with the Unit, rather than a consequence of MSFHR infrastructure funding and increased researcher productivity.

Within the detail of the progress reports, some qualitative information was provided by individual Units regarding specific training opportunities provided to individuals, for example, technical training courses attended by MSFHR-funded personnel. Several Units also employed students as temporary research assistants, which could provide limited opportunities for training.

Little systematic information was available about the quality of the training experience, or training opportunities provided for established researchers.

### ***Suggestions***

- MSFHR should work with funded Research Units to develop more consistent methods for capturing information on the numbers of students and trainees supervised by Research Units in order to assess the effect of MSFHR funding on training opportunities over time.
- In consultation with Research Units, MSFHR should explore the possibility of surveying students and trainees to assess the perceived quality of, and satisfaction with, research training in BC.

## **6. Has collaboration within and outside Research Units increased?**

At the proposal stage, the 25 funded Research Units described a wide range of collaborations, although in varying levels of detail: some Units listed all of the groups they were working with regionally, provincially, nationally and internationally; others gave general statements such as “key research partnerships with government, industry, national and international peers, and community stakeholders”.

Subsequent reporting indicated that most Units had fairly extensive local, regional, provincial and national collaborations. Many of the well-established Units appeared to actively and openly share their resources and expertise. Research Units also provided details of new collaborations in their progress reports. The most common types of collaborations appeared to be with Canadian Universities (for example, McGill, Waterloo, Queen’s, Alberta, and McMaster) and with national health networks.

International collaborations seemed to be fairly limited and concentrated in the United States. However, one Unit in particular had developed a strong and close international collaboration since the beginning of its Research Unit Award that was of great value to its development and progress.

Clearly researchers have various collaborations inside and outside of the funded Units. Reported collaborations in the proposal and progress reports tended to reflect all such collaborations, making it difficult to distinguish which were relevant to the Unit and its range of research activities. Furthermore, pre-existing collaborations were often reiterated in progress reports, making it more difficult to identify those new collaborations that might have been directly or indirectly related to the infrastructure support provided by MSFHR.

### ***Suggestions***

- MSFHR should work with funded Research Units to develop more consistent methods for capturing information on collaborations that are directly related to the Units’ activities.
- Research Units should consider enhancing international partnerships and collaborations.

## 7. Are Research Units applying research results to improve health care services and/or pursue economic development opportunities?

All Research Units identified knowledge transfer (KT) activities in their funding proposals. While many Units reported KT activities in subsequent progress reports, most had not yet met their KT goals. One Research Unit admitted to not having addressed KT at all after two years. Another Unit reported that allocated KT funds had not been spent but that KT activities had been undertaken and paid for by its host institution.

For the purposes of this report, KT activities reported by Research Units were assigned to one of four types: Academic KT; Health System KT; Community KT; and Economic KT. As shown in Table 2, most KT activities described by Research Units were academic and oriented towards scientists sharing their work with other scientists (such as scientific presentations and papers, student research days, and weekly colloquia). There were, however, some excellent examples of other types of KT activity, some of which are provided below.

Table 2: Number and type of KT activities reported by Research Units in Years 1 and 2.

	Year 1 (25 Units)*	Year 2 (16 Units)
Academic KT	14	9
Health System KT	11	2
Community KT	10	8
Economic KT	1	8

\* Reporting was not consistent. For example, some Units reported annual or weekly activities in one year and not the other.

### Academic KT

One Unit hosted monthly rounds that regularly linked researchers and students electronically across various sites in Canada. In addition, the Unit hosted a national conference that included a high-profile public health professional as the keynote speaker who attracted considerable interest.

### Health System KT

On the basis of research undertaken by one Unit, the BC government had established a committee to implement changes in specific hospital policies. Another Unit reported working closely with provincial and federal governments to influence health policy directions. A third Unit reported making a number of presentations to physicians to garner their support and endorsement for anticipated clinical practice changes expected to arise from their research.

### Community KT

Several Research Units reported engagement with the community through extensive media coverage. In many cases, reporting of such activities was facilitated by data capture systems maintained by the host institution. At least five Units also mentioned KT activities involving high school students and/or teachers. One Unit had attracted \$11 million from the BC Ministry of Health to develop and implement a major workplace program, and another had liaised with the Workers' Compensation Board of Canada regarding health risk information for industry and labour.

### Economic KT

Several units reported meetings, collaborations and/or partnerships with industry. A small number of Units mentioned filing patent applications: in Year 1 at least 2 patents were filed, and in Year 2 at least 12. In addition, during our site visits several Unit Leaders mentioned that they had 'many' patents and that related commercialization efforts had generated significant revenues.

In addition, one Unit had attracted considerable accolades for its wide range of KT activities including an award from the Canadian Institutes for Health Research (CIHR). Most funding bodies are placing increasing demands on researchers to demonstrate KT, and the successes among the funded Research Units could provide valuable shared learning opportunities for BC's research community.

### ***Suggestions***

- MSFHR should work with funded Research Units to develop more consistent methods for capturing information on KT activities in order to assess the impact of research on scientific and health innovations, and economic development over time.
- In consultation with Research Units, MSFHR should consider hosting a workshop on KT strategies that draws on the learning and successes of Research Units.

## **8. What are some of the issues and challenges for Research Units?**

On the basis of our analysis of Research Units' proposals and progress reports, and our site visits, three issues consistently emerged as posing significant challenges for Research Units: recruitment of support staff; support from host institutions; and funding sustainability.

### Recruitment

As noted previously, the majority of Research Units spent a significant proportion of MSFHR infrastructure funding on new support staff, including administrative assistants, research assistants, project coordinators or managers, and/or technical staff. Nearly all Units reported recruitment difficulties. Typically, processes took longer than expected, finding 'good people' proved more difficult than expected, and attracting people at the salary levels available was often problematic – either because the Research Unit had underestimated current market salary levels, or the salary levels determined by host institutions for specified job titles were not competitive. Recruitment difficulties were the most frequently cited reason for the under-spending of infrastructure funds in Year 1.

### Support from host institutions

It is a requirement of the MSFHR Research Unit Award that a host institution support each funded Unit. At a minimum, a host institution is required to administer funds on behalf of the funded Unit, and provide appropriate space for the Unit to undertake research activities (as per the Implications of Signatures for the MSFHR Application Cover Form). During our site visits, several Unit Leaders spontaneously praised the personal support they received from senior people within their host institution. However, there appeared to be some dissonance between the personal support provided versus any tangible support offered. For example, the number of Research Units that used

MSFHR infrastructure funding to provide basic administrative support for their Units was quite surprising, and several Units commented on difficulties finding space for the new staff they wanted to, or had recruited.

#### Funding sustainability

Most sources of research funding are time-limited, typically between one and five years. This reality significantly affects the ability of research groups to plan strategically, to recruit, retain and build a cohesive human resources base, to invest in processes and projects that, by necessity, require long-term horizons, and so forth. The MSFHR Research Unit Awards have a fixed four-year term. Units may have the opportunity to apply for a further award at the end of this term, subject to MSFHR's own continuance beyond 2009 and its strategic decisions about the nature and funding of this program. While Research Units were advised, in the application stage, that planning for sustainability of the Unit's infrastructure beyond the MSFHR funding term would be viewed as a strength, verbal discussions during our site visits suggest few Units have such plans in place or under development. Units have a very real challenge securing infrastructure support, and place significant value on MSFHR funding for this reason. A frequent comment from Unit Leaders was that the Research Unit Awards 'fund things no one else will'. We received repeated feedback that this made the MSFHR awards even more valuable than the dollar amount of the award. Another perceived advantage of the MSFHR Awards was the ability to carry forward funds from one year to the next, although this appears to have led to some 'squirreling away' of funds to allow for discretionary spending opportunities in the future.

#### ***Suggestions***

- Discussions should be held with host institutions to explore opportunities for alleviating some of the challenges experienced by Research Units in staff recruitment, infrastructure support and funding sustainability.
- Discussions should be held with government and national health research funding organizations to explore opportunities for strengthening funding security and sustainability of research groups.

## **9. What are some of the issues and challenges for MSFHR?**

In addition to the issues discussed above, our review and assessment of the 25 Research Units has raised the following three key issues: capacity development; problem of attribution; and reporting requirements.

#### Capacity development

A major focus of MSFHR infrastructure funding has been to enhance research productivity. Recent developments in the health research environment have placed increasing demands and expectations on researchers to be more than good researchers; to also have skills in project management, contract negotiation, accounting, interdisciplinary collaboration, knowledge translation, media relations, and/or government relations. There appears to be little support to help researchers develop such skills, although some researchers clearly have them and have achieved considerable successes as a result. Opportunities exist for MSFHR to facilitate sharing and learning of such skills in partnership with BC's research community.

### Problem of attribution

As mentioned previously, the MSFHR Research Unit Awards usually represent but a small proportion of the operating funds of the funded Units. The proportional contribution of these funds to a Unit's overall performance is generally comparatively small. A number of researchers and/or students affiliated with the funded Research Units are recipients of MSFHR Scholar, Trainee and Student Awards, and potentially recipients of other infrastructure-funding awards in the future. It is therefore a significant challenge to try and measure the unique contributions of the Research Unit Award (or any other award) on research productivity and competitiveness. Rather we would suggest that MSFHR funding be viewed as a valued contribution to a larger pool of funds that, collectively, influences the work and outcomes of each Unit. However, given the recent expanding number of MSFHR infrastructure awards, MSFHR should ensure the relative values and roles of these awards are well integrated.

### Reporting requirements

Most Research Units receive funding from multiple sources, each with its own reporting requirements. These requirements contribute to the administrative burden of Research Units. At the same time, all funding agencies, including MSFHR, have obligations to account for and monitor the use of distributed funds. Potential opportunities exist, nonetheless, for MSFHR to streamline current reporting requirements for funded Research Units, and to strengthen indicators of the quality of research-related activity. There is also a need for MSFHR to clarify its reporting requirements of Research Units and host institutions regarding notification of significant changes such as the departure of Unit Leaders and major budgetary deviations.

### ***Suggestions***

- MSFHR should consult with the research community to determine interest in, and need for, the development of skills beyond those traditionally linked to the research enterprise.
- MSFHR should consider the implications of the problem of attribution for its various funding programs and associated performance monitoring processes.
- MSFHR should ensure the relative values and roles of its various infrastructure-funding awards (including Institutional, Research Unit, Team Start-up, Team Planning, Health of Population Networks, and Technology/Methodology Platforms) are strategically linked and well integrated.
- MSFHR should develop a policy regarding notification of changes and associated review processes for such circumstances.

## **Recommendations**

On the basis of the above findings, we propose the following recommendations:

### **1. Strategic review of the Research Unit Award**

**That** MSFHR undertake a strategic review of the Research Unit Award in light of the Units funded to date, the expanding number of infrastructure funding programs, and the priorities of MSFHR, to ensure that funding programs are strategically linked and well integrated.

## **2. Staged funding payments**

**That** MSFHR consider releasing funds under the Research Unit Award in a staged way rather than in equal annual installments, with smaller amounts awarded in the first and possibly fourth years, and the bulk of funds given in the second and third years.

## **3. Better targeted reporting requirements**

**That** MSFHR develop, in collaboration with funded Research Units, more streamlined and consistent methods for capturing information about research productivity and outcomes, including both quantitative and qualitative data, and potentially involving IT-based reporting processes.

**That** MSFHR develop a policy regarding change notifications and associated review processes for recipients of MSFHR funding.

**That** MSFHR consider the implications of the problem of attribution for its various funding programs and associated performance monitoring processes.

## **4. Non-traditional skills development**

**That** MSFHR facilitate, in consultation with the research community, opportunities for the development of skills beyond those traditionally linked to the research enterprise, including business planning/operations and knowledge translation.

## **5. Sharing results with stakeholders**

**That** MSFHR make the findings of this report available to stakeholders, including Research Units, host institutions, granting bodies, and governments, as a basis for dialogue on the achievements of Research Units and potential opportunities for further supporting the research community in BC.

## Appendix

Table 3: List of funded Research Units.

Host Institution	Year	Research Unit	Leader	Pillar*			
				BM	Clin	Pop	HS
BCCA	2003-A	Cancer Control Research Unit	Gallagher R	✓		✓	
BCCA	2003-B	Terry Fox Laboratory	Eaves A	✓			
C&WHC	2003-A	Centre for Healthcare Innovation and Improvement	Von Dadelszen P (acting)		✓		✓
C&WHC	2003-A	FIND: Fundamental Innovation in Neurodegenerative Diseases	Hayden M	✓	✓		
C&WHC	2004-A	Childhood Diabetes Unit	Verchere B		✓		
C&WHC	2004-A	Nutrition Research Program	Innis S	✓		✓	
C&WHC	2004-A	Pharmaceutical Outcomes and Policy Innovation	Carleton B			✓	✓
Centre for Coastal Health	2003-A	Animal Determinants of Emerging Infectious Disease	Stephens C	✓		✓	
PHC	2003-B	iCAPTURE	Schellenberg B (acting)	✓	✓		
UBC	2003-A	Centre for Health Services and Policy Research	Black C			✓	
UBC	2003-A	Institute of Health Promotion Research (Health Disparities Research)	Yassi A			✓	✓
UBC	2003-A	NEXUS: Social Contexts of Health Behaviour	Bottorff J			✓	✓
UBC	2003-A	Solid Tumour Progression Research Unit	Roskelley C		✓		
UBC	2003-B	Centre for Blood Research/ Laboratory of Molecular Biophysics	MacGillivray R	✓			
UBC	2003-B	Centre for Health and Environment Research	Kennedy S			✓	
UBC	2004-A	Centre for Research on Personhood in Dementia Care	O'Connor D				✓
UBC	2004-A	Stem Cell Physiology	Schrader J	✓			
UBC	2004-A	Respiratory Sleep Disorders Research Unit	Fleetham J		✓		
UBC	2004-B	Child & Youth Developmental Trajectories Research Unit	Hertzman C			✓	
UVic	2003-B	Centre on Aging	Hultsch D			✓	✓
VCHA	2003-A	Centre for Complex Disorders	Honer W		✓		✓
VCHA	2003-A	Immunity and Infection Research Centre	McMaster R	✓			

VCHA	2003-A	Musculoskeletal Research Centre	Oxland T	✓			✓
VCHA	2004-A	GPEC: Genetic Pathology Evaluation Centre	Huntsman D	✓			
VCHA	2004-B	PC-TRIADD (Prostate Cancer)	Gleave M	✓	✓		
				12	8	10	8

\* The assignment of specific pillars above is intended as a guide only. The range of research activities undertaken by some Units is not easily demarcated by these four pillars.