

Reversal of fortune

Influx of 'new' money is revitalizing Canadian science

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Healthy investment

Reorganization breathes new life into health research in Canada

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Research gets a new lease of life as Canada takes the initiative

After years of cuts, Canadian science is finally receiving the financial backing it needs to flourish in the 21st century, says Diane Gershon.

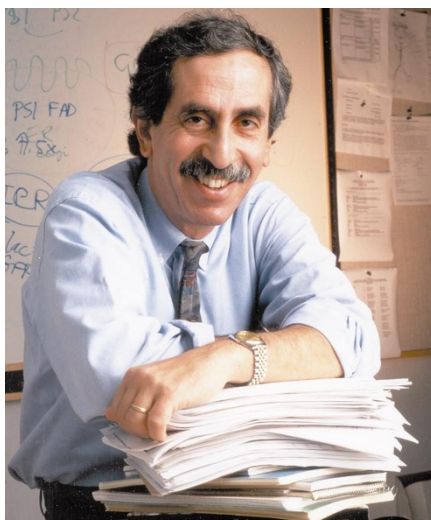
CIHR

By any measure, these are the best times that researchers in Canada have seen for many years. New federal and provincial initiatives are rejuvenating all aspects of the research enterprise. The federal government is "serious about positioning Canada as a place of choice to pursue academic research careers", says Robert Davidson, director of research and policy analysis at the Association of Universities and Colleges of Canada (AUCC).

The new initiatives provide a "great signal to young Canadians that there's a future in the country for people wanting to do research", says Alan Bernstein, president of the newly formed Canadian Institutes of Health Research (CIHR, see below).

This turnaround is due in part to "the realization that something had to be done if Canada was going to be competitive in this knowledge economy", says David Strangway, president and chief executive officer of the Canada Foundation for Innovation (CFI). The CFI is an independent agency set up by the government in 1997 to fund infrastructure development in Canada's research institutions.

The situation today is a far cry from that faced by researchers in Canada for much of the past decade. When the present government took office in November 1993, its initial focus was on deficit reduction, and no one was spared in its fiscal belt-tightening



Bernstein: strengthening health research.



Strangway: building for the future.

measures. It was a similar story among provincial governments, which provide most of the operating support to universities. Davidson says that they were forced to reduce their faculty ranks by about 4,000 to around 31,000 during the 1990s.

And all this when researchers in the United States seemed to be having it so good. There is still some debate as to the extent of Canada's brain drain. But Victor Ling, vice-president of research at the BC Cancer Agency in Vancou-

ver, believes that "the quality of the [brain] drain is more important than the quantity".

Since putting its fiscal house in order, the federal government has set up the CFI and so far pumped almost Can\$2 billion (US\$1.3 billion) into the agency. It has restored funding for the granting councils to previous levels and renewed its commitment to the Centres of Excellence Programme. Moreover, it has formed the CIHR, established a national genome initiative (Genome

Canada catalyses health research with thirteen virtual institutes

One development energizing the research community in Canada at the moment is the arrival of the Canadian Institutes of Health Research (CIHR), which opened for business in June and provides the much-anticipated new structure of support for health research.

The most tangible difference between the CIHR and the Medical Research Council of Canada, which it replaces, is the level of federal government support. In the transition that created the CIHR, its budget was increased about 25% to Can\$402 million (US\$270 million) for the current year, and will rise by a further 33% to Can\$533 million next year.

"We don't have any further commitment from the

government but I'm hoping that they will see this as a phase one," says CIHR president Alan Bernstein. The omens are good. Bernstein says that as recently as last month, federal health minister Allan Rock said that he viewed the present figure not as a stopping point but as a start towards a Can\$1 billion budget for the CIHR.

A budget of this size would elevate the federal government's expenditure on health research to about 1% of its total healthcare spend, making it comparable to levels in the United Kingdom, for example. "I think the vision for CIHR when it's fully functional will require a budget of that order," Bernstein says.

Another change is that researchers with common research interests and goals, but spread about in universities, hospitals and research centres across the country, will now be linked together in 13 'virtual' institutes (see list, overleaf), the final selection of which was made in July (see *Nature* 406, 445; 2000).

Many have been quick to draw parallels between the CIHR and the US National Institutes of Health (NIH) and some of the CIHR's institutes do bear a striking resemblance to those in the NIH's intramural programme. But unlike the NIH, the CIHR will not have an intramural component. Bernstein says that by concentrating the CIHR's resources in universities and

CFI

careers and recruitment

Canada), and begun to address the human resource issue.

In terms of the Can\$160 million Genome Canada initiative, there is a sense that “we missed the boat a little bit in the first wave of genome research”, says Christian Sylvain, senior policy analyst at the AUCC.

Nevertheless, Genome Canada will establish five genome centres, or hubs, probably in Halifax, Montreal, the Prairies, Toronto and Vancouver, with the aim of developing the kind of critical mass needed to carry out competitive research, as well as establishing core facilities for use by researchers across Canada.

The human-resource issue in Canada is not just about making up the shortfall created in the 1990s. Davidson says that the ageing of Canada’s faculty is also a concern, with the average age now about 49. Added to this, the AUCC estimates that student enrolment will increase by 20% over the next decade, so universities will need to hire 2,500–3,000 new faculty each year over this period.

This might be a tall order given that Canada produces about 4,000 PhDs a year and only some of these will end up in academia. Universities will need to increase their share of these PhD graduates, says Davidson, as well as attract individuals from outside Canada. Programmes such as the CFI’s New Opportunities Fund, and the 21st Century Chairs for Research Excellence programme, which will create 2,000 new research chairs over the next five years, will certainly help.

Faculty renewal is going hand in hand with institutional renewal. With all the new initiatives to kick-start careers and recruit and retain leading scientists, the “biggest limiting factor at the moment is space”, says Jim Woodgett of the medical biophysics department at the Ontario Cancer Institute in Toronto, not so much in terms of availability of funds but because of the time it takes to build.

The CFI’s Innovation Fund, was created with infrastructure development in mind. Although it is not intended to address the issue of deferred maintenance, the fund does provide support for equipment, buildings



Helping hand: the BC Cancer Agency has received a major grant to build a new cancer research centre, replacing its existing facility which is housed in a converted bakery.

and core facilities. The CFI contributes 40% of ‘eligible’ project costs, which is usually matched by provincial governments, leaving the institution to find the rest.

In the most recent round of awards, announced in July, one of the major beneficiaries was the BC Cancer Agency, which will receive Can\$27.8 million from the CFI towards a new Can\$82 million, 225,000-square-foot cancer research centre. When built, it will provide a fully integrated cancer research facility that will also house the Genome Sequence Centre headed by Nobel laureate Michael Smith.

The new cancer research building is part of a joint initiative between the BC Cancer Agency and the University of British Columbia (UBC) to form a Centre for Integrated Genomics headed jointly by Ling and Douglas Kilburn, director of the UBC’s Biotechnology Laboratory. The centre will encompass a new Can\$30 million biotechnology laboratory being planned at the UBC, for which it received Can\$9.3 million from the CFI last year, as well as the new cancer research centre.

Provincial governments are also investing more aggressively in research and development, and encouraging greater collaboration between the public and private sectors in an effort to boost regional economies.

In Alberta, for example, which is prospering as Canada’s main oil-producing region, the provincial government announced in February a Can\$500 million endowment fund to support R&D in basic science and engineering, which will be administered by the new Alberta Heritage Foundation for Science and Engineering Research. And in April the Ontario Research and Development Challenge Fund announced plans to invest up to Can\$75 million over five years in genomics research in the region.

This current transformation in Canada’s research enterprise is a consequence of no one initiative but rather “the congruence of all of them”, says Woodgett. Although the resources are somewhat focused on areas that have the highest potential, the important point is they are “not being diluted, which has always been the Canadian way”, he says. ■

teaching hospitals, “as well as funding health research, we’re strengthening the education system and healthcare system”.

The CIHR is in the midst of a national search for institute directors and advisory board members. Nominations are flooding in and Bernstein hopes to announce the names of the institute directors in the next six weeks. “The actual institutes are perhaps less important than the philosophy that goes into how they will work and the quality of the individuals that will lead and advise them,” Bernstein says.

Once in place, the directors (who will remain at their home institutions), together with their institute advisory boards, will be asked to develop a strategic plan for their institute. “For the first time we’ll have at the national level an organization which is not simply

writing out cheques but actually setting the health research agenda for Canada,” says Bernstein. It will put health research where it should be, he says, “which is front and centre”.

Although the CIHR received a healthy budget increase, its mandate has been broadened to make it all-inclusive. The four pillars of health research — biomedical, clinical, population and health services — now all come under the CIHR umbrella. Bernstein says that he has already increased the number of grant panels in the investigator-initiated area to reflect this broader mandate.

Research training is also under the CIHR’s purview and Bernstein plans to look into the possibility of providing institutional training grants, which have been used to great effect in the United

States. Under the current system it is individuals who apply. ■

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▶ <http://www.cihr.ca>

The CIHR’s virtual institutes are: Aboriginal Peoples’ Health; Cancer Research; Circulatory and Respiratory Health; Gender and Health; Genetics; Health Services and Policy Research; Healthy Aging; Human Development, Child and Youth Health; Infection and Immunity; Neurosciences, Mental Health and Addiction; Musculoskeletal Health and Arthritis; Nutrition, Metabolism and Diabetes; and Population and Public Health.