Medical Research Council of Canada

Report on Plans and Priorities

For fiscal year 1998-99

Allan Rock
Minister of Health

Henry Friesen, MD
President of MRC

FOREWORD TO BE INSERTED HERE BY TREASURY BOARD

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Section I: Messages

A. President's Message

It is a pleasure to report to Parliament on the plans and priorities of the Medical Research Council of Canada. Over the past year MRC has worked closely with the health research community and its stakeholders and business partners to ensure that all available funds are directed to support MRC grants and awards that meet international standards of excellence. To achieve this goal MRC invites top experts in each field throughout the world to select truly outstanding projects through peer review

In support of its mission, the vision that guides MRC is that of an internationally competitive Canadian health research community that generates new knowledge. The fruits of that knowledge contribute to the maintenance and improvement of the health of Canadians as well as enhance the economic growth and expansion of the health industry sector.

MRC support embraces a broad spectrum of research related to health, beginning with basic research which is foundational to all major advances in science. MRC's portfolio along the continuum from basic to applied health sciences also includes population health, factors which determine good health and the cost-effective delivery of health services. As research becomes increasingly multidisciplinary, it demands larger teams of researchers and increased cooperation.

The welcome infusion of $40 million in the 1998-99 Budget reversed the downward trend of MRC funding and returned it to 1994-95 levels. This is a promising first step towards ensuring that Canadian health scientists obtain the operating funds and the research grants they need to continue to be internationally competitive.

MRC has met the fiscal challenge with an innovative partnership policy involving voluntary agencies, provincial agencies and private sector companies in health-related fields. Working with these partners, as well as the MRC-inspired Canadian Medical Discoveries Fund, we are looking forward to seeing even more research discoveries reach the commercial market. Our goal is to generate a steady flow of new discoveries from basic research which can be developed and commercialized in Canada by Canadians.

In the coming year, the health science base will need continued support from both government and industry. Facility and infrastructure upgrading through the Canadian Foundation for Innovation will provide the space and equipment necessary for research. The welcome infusion of $40 million in the 1998-99 Budget reversed the downward trend of MRC funding and returned it to 1994-95 levels. This is a promising first step towards ensuring that Canadian health scientists obtain the operating funds and the research grants they need to continue to be internationally competitive.

Canada's research investment remains the lowest of the G-7 nations, a situation that makes it extremely difficult for Canadian researchers to compete. Without research, the wellspring of innovation will dry up. Without our young, talented researchers to drive innovation, Canada risks losing its competitive position in the global economy. It is a corollary that to be internationally competitive, an internationally competitive level of funding is required, and over time we should achieve this goal.

MRC and the researchers it supports represent an important strategic investment - an investment in a robust, growing sector of the economy that contributes to national wealth and provides high-quality jobs where university graduates can utilize their training. Their work is integral and must be linked to a quality health-care system that is available, accessible, and better able to meet the health care needs of Canadians because of innovations shaped by research.

MRC and the researchers it supports represent an important strategic investment - an investment in a robust, growing sector of the economy that contributes to national wealth and provides high-quality jobs where university graduates can utilize their training.

In planning for 1998 and beyond, MRC will continue to focus on funding and encouraging world class health science research in Canada. It will pursue a vision of a Canadian health/medical research enterprise that is anchored in the 16 major academic health science centres and integrated with and responsive to the network of health institutions in the community. Increasingly connected to research efforts serving to maintain and improve the health of Canadians, MRC and its partners will develop an exciting discovery platform that will be the launchpad for a rapidly-growing, internationally-competitive health industry sector.

B. Management Representation

I submit for tabling in Parliament, the 1998-99 Report on Plans and Priorities (RPP) for the Medical Research Council of Canada.

To the best of my knowledge the information:

- *accurately portrays the agency's mandate, plans, priorities, strategies and expected key results*
- *is consistent with the disclosure principles contained in the Guidelines for Preparing a Report on Plans and Priorities*
- *is comprehensive and accurate*
- *is based on sound underlying departmental information and management systems.*

I am satisfied as to the quality assurance processes and procedures used for the RPP's production.

The Planning and Reporting Accountability Structure (PRAS) on which this document is based has been approved by Treasury Board Ministers and is the basis for accountability for the results achieved with the resources and authorities provided.

Name: ***Guy D'Aloisio, Director of Corporate Services***

Signature:

Section II: Overview of the Agency

A. Mandate, Roles, and Responsibilities

The **mandate** of the Council, based on the authority and responsibility assigned to it under the Medical Research Council Act, is to:

- promote, assist and undertake basic, applied and clinical research in Canada in the health sciences; and

- advise the Minister of Health in respect of such matters relating to such research as the Minister may refer to the Council for its consideration.[1]

The MRC Act also authorizes the Council to expend any money appropriated by Parliament for the work of the Council or received by the Council through the conduct of its operations; and, to publish and sell or otherwise distribute such scholarly, scientific and technical information relating to the work of the Council as the Council considers necessary.

Three federal granting councils collectively play a lead **role** in the support of extramural research in Canada. Paralleling the work of the MRC in the area of health are councils that support research in natural sciences and engineering and, social sciences and humanities. The MRC funds health-related research and training primarily in academic health science centres (departments, hospitals and research institutes) that have developed around Canada's sixteen medical schools, ten faculties of dentistry, nine pharmacy schools and four schools of veterinary medicine. Health research, which spans a wide spectrum of activities ranging from studies of molecular mechanisms in cells to examination of health behaviour in populations, is also conducted in faculties of science, social science, nursing and other allied health professions in universities across the country.

*The MRC's guiding **vision** is an internationally-competitive Canadian health research community generating new knowledge that contributes to improvements in quality of life and supports the growth and expansion of Canadian industry in the health area.*

In pursuing its mandate the MRC operates a varied and complete set of mechanisms to deliver funding for research projects and personnel, either directly or in partnerships with health charities, other government organizations or industry. These mechanisms range from single awards made to specific individuals all the way to agreements for research networks that involve hundreds of researchers in many locations. Identification and funding of the very best research proposals, through a world class

[1] *MRC Act, 1979.* Government of Canada

system of peer review developed over many years, is a key component of MRC's business. The organizational structure through which the Council, aided by a Secretariat, meets its **responsibilities** is described in an appendix.

MRC's **strategic** goals, laid out in its master plan, *Investing in Canada's Health,* are as follows*:*

- enlarge the scope of MRC activities, committing to a greater range of health science research;

- continue the pursuit of excellence and innovation in the areas of basic and applied health research; and,

- demonstrate value, the efficient use of scarce resources and accountability in all activities by rigorous measurement of results.

In 1996, the Council commissioned a seven member international panel of experts to review all activities of MRC. In its September 1996 report, the International Review Panel confirmed that the strategic directions articulated by MRC in 1992 are still relevant. It suggested that current strategic planning should "re-enforce the critical importance of MRC's programs of support for basic research as the foundation upon which Canada's capacity for future innovations in health sciences and their practical applications rest".

*In 1996, an **International Review** concluded that:*

" the Medical Research Council of Canada is an outstanding agency under dynamic and imaginative leadership doing first rate, internationally significant work ... It fully merits the loyalty and support of the research community and the confidence placed in it by the Government and people of Canada"

B. Objective

The Medical Research Council's **objective**, as Canada's principal health research funding agency, is to build and maintain, in partnership with others, a national capacity to create and use new knowledge for maintaining and improving health and preventing, curing and treating illness, for the social and economic benefit of Canadians and the well-being of people everywhere.

In pursuing its objective the MRC strives to:

- provide the knowledge base required for continuing innovation in health services, health maintenance, diagnosis and treatment of illness

- train and develop Canadian scientists with a capacity to address research questions in all areas of health

- focus a national research effort on health threats and opportunities
- diversify and strengthen Canadian health research through partnered funding
- facilitate the return of the social and economic benefits of health research to Canadians
- provide a national voice on health research issues.

Note that the MRC's **achievement of results** relative to these objectives is presented not in this document but in the performance report submitted to Parliament at the end of a planning period. The Executive Summary of the latest MRC performance report is attached as supplementary information. [2]

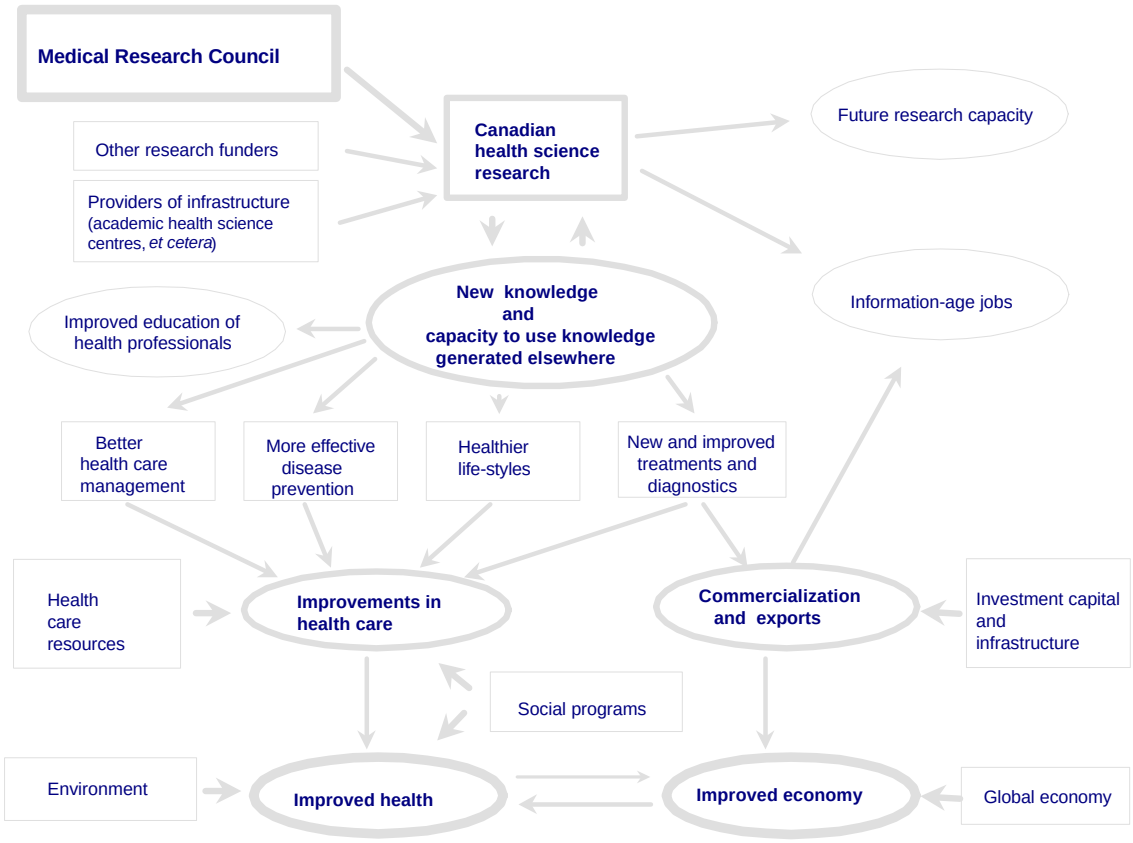
C. Financial Spending Plan

(millions of dollars)	Forecast Spending 1997-98[3]	**Planned Spending 1998-99**	Planned Spending 1999-00	Planned Spending 2000-01
Program spending	237.8	**267.3**	269.9	275.5
Less: Revenue credited to the Consolidated Revenue Fund	(0.8)	**(0.5)**	(0.5)	(0.5)
Plus: Cost of services provided by other departments	0.6	**0.7**	0.6	0.6
Net Cost of the Agency[4]	237.7	**267.5**	270.0	275.6

2 The full report is available at the MRC site on the World Wide Web (wwwmrc.hc-sc.gc.ca). It can also be obtained from the MRC Communications Branch, telephone (613)-954-1972, fax (613) 954-6653, e-mail mrcinfocrm@hpb.hwc.ca or regular mail, MRC, postal locator 3105, Ottawa, K1A 0W9

3 Reflects best forecast of total planned spending to the end of the fiscal year.

4 Note that numbers have been rounded to nearest hundred thousand dollars.



Health Research Leads to Improved Well-being

and Economic Sustainability

Section III: Plans and Priorities

A. Summary of Plans and Priorities

The Medical Research Council of Canada plans to	
provide Canadians with...	**by...**
world-class research aimed at ensuring good health and well being	selecting and funding international calibre research projects in institutions across Canada on: fundamental processes underlying health and illness; prevention and treatment of disease; and, health services supporting special research initiatives on health issues of particular concern to Canadians such as breast cancer, diabetes and AIDS
the social and economic benefits of health research discoveries	fostering the production and dissemination of research results with direct impact on illness prevention, identification and treatment of disease or health services facilitating the commercialization of health research discoveries with resultant creation of jobs and economic opportunity
a capacity to respond to needs for research and development in all areas related to health	providing support for the training and development of scientists capable of responding to research requirements in all health areas fostering growth in Canadian research resources and capacity through partnerships with other organizations
a national perspective on questions of health research priorities, ethics and safety	providing advice and guidance on research priorities, ethics and safety
... and will deliver on these commitments through:	
an efficient and effective administration of the MRC program	continually seeking methods for maintaining exceptional efficiency without reducing quality of program delivery

B. Details for the MRC Business Line

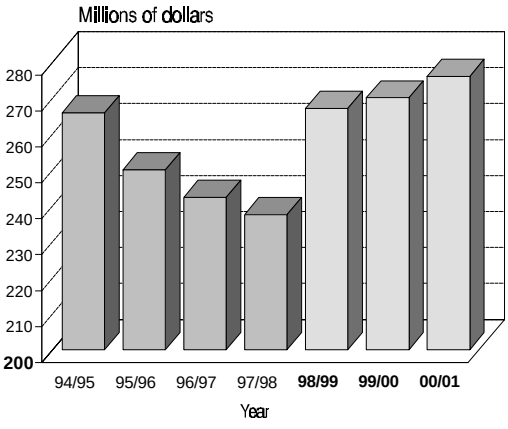
B-1. Planned Spending and Objectives for the MRC Business Line

The MRC delivers on its commitments to Canadians through one **business line: the promotion of health sciences research**. The planned spending for the business line is that shown for the agency (in Section II-C) as are the objectives of that spending (Section II-B).

B-2. External Factors Influencing the Planning of MRC Business

The most important factor influencing the plans and priorities of the MRC is growing international awareness that the potential for social and economic returns from health sciences research is at an all-time high and still growing rapidly. To continue to realize benefits, Canada must equip its researchers with state-of-the art facilities and provide research funding at an internationally competitive level. The global environment requires action to prevent the loss of Canadian health scientists to other countries and develop the next generation of Canadian health researchers.

MRC Budget



Source: The Budget Plan 1998

Around the world, the knowledge generated by research is increasingly being recognized as critical fuel for the engine of economic sustainability and, hence, as fundamental to the well-being of people everywhere.[5] There is growing appreciation of the importance of coupling basic research with systems for innovative use of the new knowledge that it generates. This is particularly evident in the health area where research leads to improved well-being not only indirectly, through the stimulation of new businesses, employment and education, but directly, through new treatments for illness and new approaches to maintaining good health. Last year the United States Senate voted 98 to 0 in favour of the idea of doubling the budget of the principal organization for health research in America, the National Institutes of Health,

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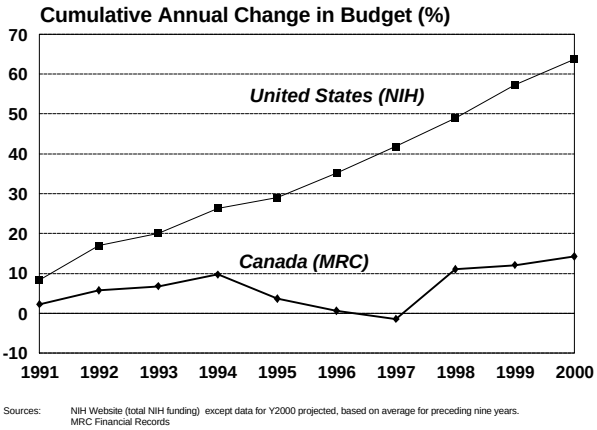
[5] A recent study has shown that 73% of papers cited as the source of ideas for U.S. industry patents were authored in academic, governmental and other public institutions. That is, publicly supported science is the principal source of ideas for technical innovation. See: Narin F, Hamilton KS, Olivastro D. (1997). The Increasing Linkage Between U.S. Technology and Public Science. *Research Policy*, vol 26, pp 317-330.

over a five year period. The U.S. President, Bill Clinton, recently expressed some of the thinking that underlies this enthusiasm for health research: "I do believe that in scientific terms, the last 50 years will be seen as an age of physics and an age of space exploration. I think that the next 50 years will very likely be characterized predominantly as an age of biology and exploration of the human organism, especially with the completion of the human genome project, which I think will literally explode what we know about how to deal with health issues".[6]

While in Canada federal funding for health research was cut back during 1995, 1996 and 1997 as part of government's program to balance the budget, a situation quite unlike that in the United States where funding for health research has increased steadily since at least 1991, there is strong evidence of an expanding Canadian awareness of the strategic importance of research. The federal Standing Committee on Finance, in recommending increases and long-term stability for the budgets of the research granting councils, has recently stated its belief that "this would be the most important action the federal government could take in the short term to boost long-term productivity, create jobs and help Canadians prepare for the economy of the future... we must invest now to give future generations the skills upon which this country will depend... to create wealth".[7]

Trends in Budgets for Health Research



Sources: NIH Website (total NIH funding) except data for Y2000 projected, based on average for preceding nine years.
MRC Financial Records

The very welcome news in the February 1998 budget that funding for the MRC would be restored to the levels they had reached before the deficit-reduction program began, and the equally good news in 1997 about the renewal of the country's science infrastructure through the Canada Foundation for Innovation, clearly signals recognition of the key role of research in training students, creating jobs and new business, and improving quality of life. Dr. Henry Friesen, President of MRC Canada, has described the health sciences as: "... in the same position as the telecommunications sector was 10 or 20 years ago, poised to take off to a degree we would not have dreamt of a decade ago."[8]

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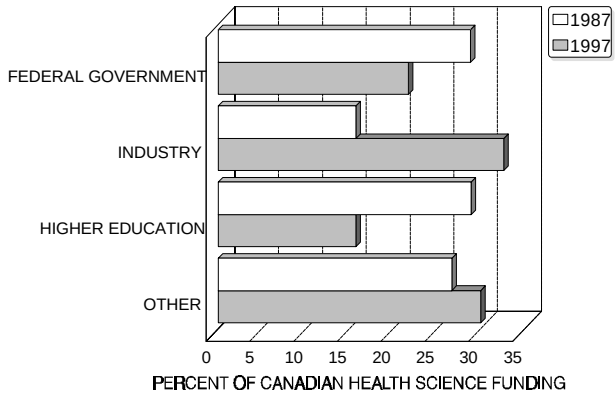
6 Medical Research to Get More Money from Government. *New York Times*, January 5, 1998. Page A-8.

7 Keeping the Balance: Security and Opportunity for Canadians. Report of the Standing Committee on Finance, Maurizio Bevilacqua, Chairman. House of Commons, Canada. December 1997.

8 Canada lags in race for biotech gains. *The Toronto Star*. January 8, 1998. Page C-2.

Establishment of the Canada Foundation for Innovation and restoration of granting council budgets to 1994 levels puts Canada on the road to international competitiveness in health research but there is still quite some distance to travel. A comparison of the amount of federal funding for health research per Canadian, versus the per capita amount for Americans indicates the extent of the gap between where Canada is now and where it needs to be to fully capitalize on the boom in health knowledge. On a per capita basis, Canadians spend approximately $12 (Cdn) on federally funded health research whereas Americans spend about $51 (US).[9] Even in 1994, prior to the deficit-fighting cuts to program budgets, federal funding for health science represented 23.6% of the national total. In contrast, that same year, the United States government contributed 38.4% of US health science funding.[10]

Funding for Canadian Health Science in 1987 and 1997



Source: Statistics Canada. GERD in the health area, 1970 to 1997 (preliminary)

Planning and priority setting by MRC is also influenced by other forces in the environment. Research is becoming increasingly multi-disciplinary, demanding larger teams of researchers and increased cooperation among scientific disciplines and researchers in other nations. The MRC is broadening the range of research that it supports, aiming to address all areas of health, with increased emphasis on studies of population health, the factors which determine good health and the cost-effective delivery of health services. And shifting demographics are demanding increased research on health problems associated with aging such as heart disease, osteoporosis, Parkinson's and Alzheimer's disease. But the principal influence is that already introduced: a requirement for internationally competitive levels of health science funding.

A survey of Canadian Schools of Medicine and other centres of health science research, conducted recently by the Coalition for Biomedical and Health Research, found that there were three key problems resulting from the chronic under-funding of Canadian health science.[11] Note that the survey was conducted before the 1998 federal budget was brought down and thus reflects the situation just before announcement of the good news

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9 Sources. Statistics Canada, NIH Website (section on Extramural Data and Trends, Fiscal years 1986-1995), and www.census.gov. 1995 data was used. Canadian data: $363 million in federal health science funding, intra and extra mural, divided by population of 29.6 million. United States data: $13,423 million divided by 264.3 million.

10 Sources: as above.

11 A Crisis in Health Research: A Report Based on a Survey of Canadian Academic Health Centres. The Coalition for Biomedical and Health Research (Ottawa, Canada). January 1998.

that for fiscal year 1998-99, funding for the MRC would be restored to 1994-95 levels. However, findings give a sense of the seriousness of the plight of Canadian health science and support the recommendation of the Coalition that the budget allocations for all federal research councils be increased to levels competitive with other G-7 countries over the next four years.

The survey confirmed that the major problem resulting from the shortage of research funding in Canada is the loss of research talent to other countries, principally to the United States. And, not surprisingly, it is the very best researchers, Canada's science stars, who are most in demand and receive offers of positions, laboratories, equipment and research personnel in the United States where the average health research grant is more than twice the size of the average grant here [12] . The second problem is the curtailment of basic research, effectively communicated in a quote from Dr. Cecil Yip, Vice Dean of Research at the University of Toronto: "Almost all Canadian genome projects have been abandoned... Canada has virtually frozen itself out of this crucial area". Respondents to the survey reported other health research programs that have either been shut-down or curtailed because of a shortage of MRC funds. The list includes projects on Parkinson's disease, gene expression in HIV and AIDS, respirology research, infectious diseases (e.g., mycobacteria) and haemophilia. The third problem identified in the survey was the low morale in a community of scientists who see important research proposals being turned down for lack of funds. At the time of the survey the environment was not one in which the prospects for a career in science appeared hopeful. Students who saw good research projects being terminated in mid stream and who learned that the granting councils could fund few scholarships, and those at low levels of support, could not be expected to view health research as a promising career.

The survey was conducted before the 1998 federal budget brought the good news that funding for the MRC would be restored to 1994-95 levels.

However, findings give a sense of the seriousness of the plight of Canadian health science and support the recommendation of the Coalition that the budget allocations for all federal research councils be increased to levels competitive with other G-7 countries over the next four years.

[12] Zucker L, Darby M. (1996). Star scientists and institutional transformation: Patterns of invention and innovation in the formation of the biotechnology industry. Proceedings of the National Academy of Science. Vol. 93, pp 12709-12716.

The Council's top priority must be to restore the research base to a position of international competitiveness and this will require, to quote the International Review Panel which assessed the MRC in 1996, a continuing "...articulation of the public policy case for greater investment in health science research". The Council will work towards the development of strategies through which government may "...shore up support for health sciences research in this critical period when too much of Canada's potential for first-class work is being lost".[13] Government's decision to begin renovating the Canadian science infrastructure and restoring research grant funding indicates that the policy case is beginning to be heard. The social and economic returns from research make it a key area for public investment.

Government's decision to begin renovating the Canadian science infrastructure and restoring research grant funding indicates that the policy case is beginning to be heard. The social and economic returns from research make it a key area for public investment.

Factors influencing the administration of the MRC program are those affecting most organizations in both the public and private sectors. Information technology is changing at a rapid pace requiring constant attention to the updating and compatibility of hardware, software and staff expertise. Emerging technologies (especially the Internet) are opening up new possibilities for posting program guidelines, submitting applications for research grants and awards, obtaining expert reviews, communicating funding decisions, collecting information on program performance and disseminating information on projects and results. Years 1999 and 2000 demand attention to software which may be disrupted by 99 and 00 date codes.

[13] Report on an International Review of the Medical Research Council of Canada, September 1996. Cat. No. MR21-17/1996

B-3. Plans and Approaches

Plan: **To provide Canadians with world-class research aimed at ensuring good health and well being**

Approach**:** [14] fund international calibre research projects in institutions across Canada on: fundamental processes underlying health and illness; prevention and treatment of disease; and, health services.

Activities*:* attract applications for support of important research projects from scientists across Canada in all health fields

obtain expert scientific opinion on the value of each proposal

decide the most effective distribution of available resources to research projects through grants for: research operations, maintenance, equipment, fostering of team research, promotion of university-industry linkages and regional research development

provide Canadians with world-class research aimed at ensuring good health and well being

Approach: support special research initiatives on health issues of particular concern to Canadians such as breast cancer, diabetes, AIDS and health services

Activities: continue providing financial and organizational support to inter-organizational programs of research in areas that offer special threats or opportunities to the health of Canadians

lead an inter-sectoral study of research needs and priorities in the health area in Canada

seek opportunities to partner with health charities, the private sector and other government organizations for research targeted at specific diseases

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[14] This report uses the term "approach" rather than "strategy" to avoid confusion between "strategic directions" as set out in the 1993 MRC strategic plan, and "operational strategies" as set out here.

Plan: **To provide Canadians with the social and economic benefits from health research discoveries**

Approach: foster the production and dissemination of research results with direct impact on illness prevention, identification and treatment of disease or health services

Activities: give weight to potential health impact in assessments of proposed research projects

fund trials testing the safety and effectiveness of promising new health products, services or service delivery mechanisms

support programs that facilitate the communication of research findings to clinical practitioners, patient groups and hospital administrators

assist researchers in making their findings public

Approach facilitate the commercialization of health research discoveries with resultant creation of jobs and economic opportunity

Activities: assist in linking scientists and sources of funding for the commercialization of their discoveries (sources such as the Canadian Medical Discoveries Fund)

promote awareness of Canadian health science research potential around the world

monitor the impact of Canadian health science discoveries in terms of new businesses, employment creation and invested capital

develop and operate programs and partnerships that promote communication and collaboration between university researchers and industry

provide Canadians with the social and economic benefits from health research discoveries

Plan: **To help provide Canadians with a capacity to respond to needs for research and development in all areas related to health**

Approach: provide support for the training and development of scientists capable of responding to research requirements in all health areas

Activities: conduct, in partnership with other stakeholders (such as Human Resource Development Canada and Health Canada) an assessment of the human resource for health science in Canada and future needs

attract applications from students for support of research training, and from current scientists for development awards, in all areas of health across Canada

use expert panels to assess and rank applications according to applicants' potential to contribute to the advancement of knowledge through research

decide the most effective distribution of available resources to research training and development through personnel awards for: undergraduate research training, graduate study in health science, postdoctoral research training and development, career establishment and career development

provide support for the training and development of scientists capable of responding to research requirements in all health areas

Approach: foster growth in Canadian research resources and capacity through partnerships with other organizations

Activities: create and sustain funding partnerships with other organizations in governments, industry and the voluntary sectors[15]

facilitate access by health scientists to research resources available through other programs (e.g., through the Canada Foundation for Innovation or the Canadian Foundation for Health Services Research)

[15] see supplementary information for a reprint of information on MRC partnerships appearing in the Fall 1997 report on MRC performance

develop and disseminate information on the important positive contribution of health science to the well-being of Canadians, international competitiveness and economic sustainability

advance the public policy case for full federal support of a national infrastructure of expertise, facilities and operating funds in all areas of health research

facilitate the flow of funds to Canadian health science research through all possible channels (such as industry research, funding from other countries, and fund-raising by universities, hospitals and research institutes)

Plan: to provide Canadians with a national perspective on questions of health research priorities, ethics and safety

Approach: produce advice and guidance on research priorities, ethics and safety

Activities: develop, in concert with the other federal granting councils, a policy statement on ethical conduct for research involving humans

monitor national and international developments that may require a Canadian position with respect to health research

develop national perspectives on research issues in consultation with key stakeholders (e.g., planned policy forum on a Canadian health research agenda)

provide Canadians with a national perspective on questions of health research priorities, ethics and safety

Plan: to provide Canadians with an efficient and effective administration of the MRC program

Approach: continually seek methods for maintaining exceptional efficiency without reducing quality of program delivery

Activities: complete the Information Technology Renewal Project commenced in 1996

continue extensive use of volunteer assistance in the assessment of applications and program administration

ensure that all software used by MRC will function in year 1999 and 2000

maintain a high level of service in both official languages

B-4. Expected Results

Expected Results	**Indicators** [16]
international calibre research projects in institutions across Canada on: fundamental processes underlying health and illness; prevention and treatment of disease; and, health services	expert ratings of the quality of funded projects number of grant applications from highly qualified scientists and number funded distribution of funded projects across Canada subject areas covered by funded projects descriptions of selected projects
special research initiatives on health issues of particular concern to Canadians such as breast cancer, diabetes and AIDS	MRC and partnered funding on health issues of particular concern evaluation of programs targeted at specific health issues advances in knowledge of targeted health problems descriptions of selected projects
utility or impact of research results on illness prevention, identification and treatment of disease or health services	examples of high impact results from MRC-funded research
commercialization of health research discoveries with resultant creation of jobs and economic opportunity	market value of Canadian public companies in the life sciences growth in health science venture capital employment by firms benefitting from venture capital investment MRC investment in programs to stimulate knowledge and technology transfer examples of marketable products arising from health science discoveries

[16] These indicators appeared in the last report on MRC performance. It can be expected that further indicators will be presented in future performance reports.

trained and experienced scientists capable of responding to research requirements in all health areas	investment by MRC and partners in research training number of students supported in research training programs investment by MRC and partners in research career development number of scientists supported in research development programs profiles of outstanding Canadian health scientists
research resources and capacity generated by partnerships between MRC and other organizations	size of the contribution of other sectors to Canadian health science MRC leverage of health science resources through partnerships amount of partnered funding raised by every MRC dollar invested in partnership programs number of scientists and trainees supported through partnered programs profiles of partnered projects
utility or use of advice and guidance on research priorities, ethics and safety	examples of MRC advice or guidance influencing public policy or programming

Section IV: Supplementary Information

Supplementary Information Item 1:

C Tables: Authorities and Resource Allocation Plans

Health

Table 1.1 Spending Authorities - Ministry Summary Part II of the Estimates

Vote	(thousands of dollars)	**1998-99 Main Estimates**	1997-98 Main Estimates
	Medical Research Council		
15	Operating expenditures	**8,239**	8,330
20	Grants	**218,212**	228,620
(S)	Contributions to employee benefit plans	**851**	616
	Total Agency	**227,302**	237,566

Table 1.2 Responsibility for Planned Spending in 1998-99

	Accountability	
($ millions)	President	**Total**
Medical Research Council Program		
Promotion of Health Sciences Research	267.3	**267.3**
Total Planned Spending	**267.3**	**267.3**

Table 1.3 Planned Full Time Equivalents (FTEs)

(full-time equivalents)	Forecast 1997-98	**Planned 1998-99**	Planned 1999-00	Planned 2000-01
Medical Research Council Program				
Promotion of Health Sciences Research	80	**83**	72	72
Total	80	**83**	72	72

Table 1.4 Details of FTEs Requirements

($ dollars)	Forecast 1997-98	**Planned 1998-99**	Planned 1999-00	Planned 2000-01
Salary Ranges				
<30,000	15	**13**	12	12
30,000 - 40,000	36	**38**	31	31
40,000 - 50,000	7	**7**	7	7
50,000 - 60,000	8	**10**	9	9
60,000 - 70,000	6	**5**	4	4
70,000 - 80,000	2	**4**	4	4
> 80,000	6	**6**	5	5
Total	80	**83**	72	72

Table 1.5 Agency Data by Standard Object of Expenditure

($ millions)	Forecast 1997-98	**Planned 1998-99**	Planned 1999-00	Planned 2000-01
Personnel				
Salaries and wages	3.9	**4.1**	3.5	3.5
Contributions to employee benefit plans	0.6	**0.8**	0.7	0.7
	4.5	**4.9**	4.2	4.2
Goods and Services				
Transportation and communications	2.1	**2.1**	2.0	2.0
Information	0.5	**0.4**	0.4	0.4
Professional and special services	2.0	**1.1**	0.9	0.9
Rentals	0.1	**0.1**	0.1	0.1
Purchased repair and maintenance	0.1	**0.1**	0.1	0.1
Utilities, materials and supplies	0.2	**0.2**	0.2	0.2
Minor capital	0.2	**0.2**	0.2	0.2
	5.2	**4.2**	3.9	3.9
Total operating	9.7	**9.1**	8.1	8.1
Transfer payments				
Voted	228.1	**258.2**	261.8	267.4
	228.1	**258.2**	261.8	267.4
Gross budgetary expenditures	237.8	**267.3**	269.9	275.5
Net budgetary expenditures	237.8	**267.3**	269.9	275.5
Total	237.8	**267.3**	269.9	275.5

Table 1.6 Program Resources by Business Line for the Estimates Year

($ millions)	Budgetary					
	FTE	**Operating**	**Grants**	**Gross Voted**	**Statutory Items***	**Net Planned Spending**
Medical Research Council Program						
Promotion of Health Sciences Research	83	9.1	258.2	267.3		267.3
Total	**83**	**9.1**	**258.2**	**267.3**		**267.3**

*Does not include contibutions to employee benefit plans that are allocated to operating expenditures.

Table 1.7 Net Cost of Medical Research Council Program for 1998-99

($ millions)	
Gross Planned Spending	267.3
Plus:	
Services Received without Charge	
Accommodation provided by Public Works and Government Services Canada	0.4
Contributions covering employees' share of insurance premiums and costs paid by TBS	0.3
	0.7
Total Cost of Program	268.0
Less:	
Revenue Credited to the CRF	0.5
Net Cost of the Program in 1998-99	267.5

Estimated Net Program Cost in **1997-98**	237.7

Table 1.8 Details of Transfer Payments

($ dollars)	Forecast Spending 1997-98	**Planned Spending 1998-99**	Planned Spending 1999-00	Planned Spending 2000-01
Research Grants				
Operating	132,676,000	**149,580,000**	151,000,000	152,000,000
Genome	516,000	**1,371,000**	2,000,000	2,000,000
Maintenance	2,290,000	**2,770,000**	3,000,000	3,000,000
Equipment	2,439,000	**1,000,000**	1,000,000	1,000,000
Health Services Research Foundation	2,000,000	**2,000,000**	2,000,000	2,000,000
Special Projects	2,251,000	**1,095,000**	1,000,000	1,000,000
University-Industry Grants	5,667,000	**9,136,000**	10,000,000	10,000,000
Other Research Grants	0	**13,893,000**	16,037,000	21,997,000
	147,839,000	**180,845,000**	186,037,000	192,997,000
Multi-Disciplinary				
MRC Groups	18,893,000	**20,000,000**	21,000,000	21,000,000
Program Grants	3,787,000	**1,518,000**	300,000	0
Development Grants / Regional Partnerships	530,000	**615,000**	1,500,000	2,000,000
	23,210,000	**22,133,000**	22,800,000	23,000,000
Salary Support				
MRC Groups	1,845,000	**1,388,000**	500,000	60,000
Development Grants	2,037,000	**1,556,000**	800,000	360,000
Career Investigators	679,000	**483,000**	370,000	90,000
Distinguished Scientists	762,000	**1,040,000**	1,200,000	1,200,000
Senior Scientists	863,000	**1,140,000**	1,200,000	1,200,000
MRC Scientists	4,275,000	**4,125,000**	4,200,000	4,200,000
Scholarships	8,091,000	**9,042,000**	9,100,000	9,100,000
Clinician Scientists 2	1,070,000	**970,000**	1,000,000	1,000,000
University-Industry Salary Support	1,007,000	**1,829,000**	1,900,000	1,900,000
	20,629,000	**21,573,000**	20,270,000	19,110,000
Research Training				
Clinician Scientists 1	1,208,000	**1,318,000**	1,400,000	1,400,000
Centennial Fellowships	803,000	**815,000**	800,000	800,000
Fellowships	9,239,000	**9,031,000**	9,100,000	9,100,000
Studentships / Doctoral Research Awards	6,345,000	**6,810,000**	7,000,000	7,000,000
Undergraduate Scholarships	404,000	**550,000**	600,000	600,000
University-Industry Training Awards	650,000	**1,232,000**	1,300,000	1,300,000
	18,649,000	**19,756,000**	20,200,000	20,200,000
Travel and Exchange				
Visiting Scientist and Professorships	161,000	**100,000**	100,000	100,000
Travel Grants, Symposia and Workshops	119,000	**100,000**	100,000	100,000
	280,000	**200,000**	200,000	200,000
Other Activities				
President's Fund	356,000	**450,000**	450,000	450,000
Other Grants	3,639,000	**2,805,000**	2,805,000	2,805,000
	3,995,000	**3,255,000**	3,255,000	3,255,000
Total Core Budget	214,602,000	**247,762,000**	252,762,000	258,762,000
Networks of Centres of Excellence	13,518,000	**10,450,000**	9,000,000	8,650,000
Total Grants and Scholarships	228,120,000	**258,212,000**	261,762,000	267,412,000

Table 1.9 Details of Revenue by Program

Revenue Credited to the Consolidated Revenue Fund (CRF) ($ millions)	Forecast Revenue 1997-98	**Planned Revenue 1998-99**	Planned Revenue 1999-00	Planned Revenue 2000-01
Medical Research Council Program				
Refunds of Previous Years' Expenditures	0.8	**0.5**	0.5	0.5
Total Revenue Credited to the CRF	0.8	**0.5**	0.5	0.5
Total Revenue	0.8	**0.5**	0.5	0.5

Supplementary Information Item 2:

C MRC Research Funding Mechanisms [17]

The Grants and Scholarships portion of MRC's budget encompasses all of the mechanisms through which the Council delivers support for research and accounts for about 97% of the expenditures. The balance is spent on the administration necessary for effective program delivery. Funding mechanisms (referred to as programs) are grouped into the following broad categories:

C **Research Grants** provide support for basic, applied and clinical research projects in the health sciences as proposed and carried out by investigators in Canadian university laboratories and the laboratories of their affiliated institutions and research institutes. **Operating Grants** are the mainstay of this group supporting research projects directed towards a defined objective, conducted by an investigator working alone or in collaboration with others. The grants may be used to employ assistants or trainees, to purchase materials, supplies, equipment, and to buy and maintain laboratory animals.

C **Multi-Disciplinary Research** programs provide support for teams of investigators with various types of expertise to undertake collaborative multidisciplinary research in the health sciences.

[17] For even more detail on MRC program mechanisms, visit the MRC website at **wwwmrc.hc-sc.gc.ca**

- **Salary Support** programs provide research time for independent investigators through a number of mechanisms aimed at maintaining career progression.

- **Research Training** programs offer programs for the support of highly qualified candidates seeking research training in the health sciences. Programs range from the support of undergraduates to the awarding of post-doctoral fellowships.

- **Travel and Exchange** programs support visiting scientists travelling abroad and foreign based scientists coming to Canada for the purpose of collaboration with colleagues. Scientific workshops and symposia are also supported.

- The **Networks of Centres of Excellence (NCE)** Program was announced by the government in 1988, and confirmed in 1997, as a major component of its strategy to link research and development with wealth creation. Its objective is to mobilize Canada's research talent in the academic, private and public sectors for the purpose of developing the economy and improving the quality of life of Canadians. The NCEs are not bricks and mortar. They are nation wide research programs, based in Canadian universities, which link the best researchers in the field in research targeted to national priorities. Six networks in the health area are funded primarily through the MRC. NSERC and SSHRC are responsible for networks in areas covered by their mandates.

- The **Human Genome** Program is a component of the international human genome project. Its objective is to analyze the structure of DNA from the human and other selected genomes. It also includes the development of related technologies and informatics, and the study of corresponding medical, ethical, legal and social issues.

- MRC has a number of **Partnered** programs with organizations both in the private and public sector. Examples are the Canadian Breast Cancer Research Initiative with the National Cancer Institute and Health Canada, Centres of Excellence for research on juvenile diabetes with the Juvenile Diabetes Foundation, and the MRC/PMAC Health Program with the Pharmaceutical Manufacturers Association of Canada.

Supplementary Information Item 3:

C Organization of the MRC

Organization Structure: The Council is comprised of a full-time President, who is also the chief executive officer, and 21 members representative of the scientific and lay community who serve without remuneration and are appointed by the Governor-in-Council. The Council's membership also includes three Associate Members who represent the other two federal granting agencies and Health Canada. An Executive Committee of Council carries out functions assigned by Council through its by-laws. The Council itself approves all grants and scholarships. Its programs are administered by a secretariat of approximately 80 employees located in Ottawa.

Recommendations on grants and scholarships to be awarded are made to the Council following an extensive examination of applications through rigorous review processes which involve 29 grant panels and 10 award committees with a total membership of over 400 working scientists. Most are based in Canadian universities and selected for their knowledge, expertise and experience. Members of MRC selection panels serve voluntarily, with only their travel expenses being reimbursed by the Council. The Council also makes wide use of over 5,000 external referees, in both Canada and other countries, who also serve without remuneration.

There are four **standing committees** which provide advice and guidance to Council. The membership of the committees includes at least one Council member, with the rest drawn from the scientific community, government, the general public and industry. The mandates of the standing committees are as follows:

C **Science and Research:** to examine national and international trends and issues affecting the development of health research in Canada; to manage the peer review process and make recommendations for improvement; to advise on the committee structure to ensure all applications are assessed by appropriate scientific experts; and, to select and approve the members for all peer review committees.

C **Business Development:** to oversee the development of appropriate alliances and to assess the financial implications of alliances for the programs of Council.

C **Ethics:** to develop policies for Council in the area of ethics and advise Council on their implementation; to survey the interface between research funded by the Council and the concerns of the broader public in areas of ethics; and, to promote a coordinated approach towards ethics among all agencies concerned with health research.

C **Planning and Evaluation:** to develop a policy and planning framework which will provide the philosophical base for the operations of Council; to develop and oversee an evaluation program for the Council; to monitor external developments having an impact on MRC operations; to monitor the implementation of the Strategic Plan; and, to ensure adequate attention to women's health research issues in Council activities.

The **Secretariat**, which has the general responsibility for the administration of the Program, is under the direction of the President and includes the following areas:

C **The Office of the President**. This office, which includes that of the Executive Director, is responsible for MRC program policy and administration of the Secretariat.

C **Programs**. The Programs Branch is responsible for operation of the Council's grants and scholarships mechanisms, including the peer review process.

- **Business Development**. This branch is responsible for seeking new resources and opportunities, primarily through creation and maintenance of appropriate partnerships.

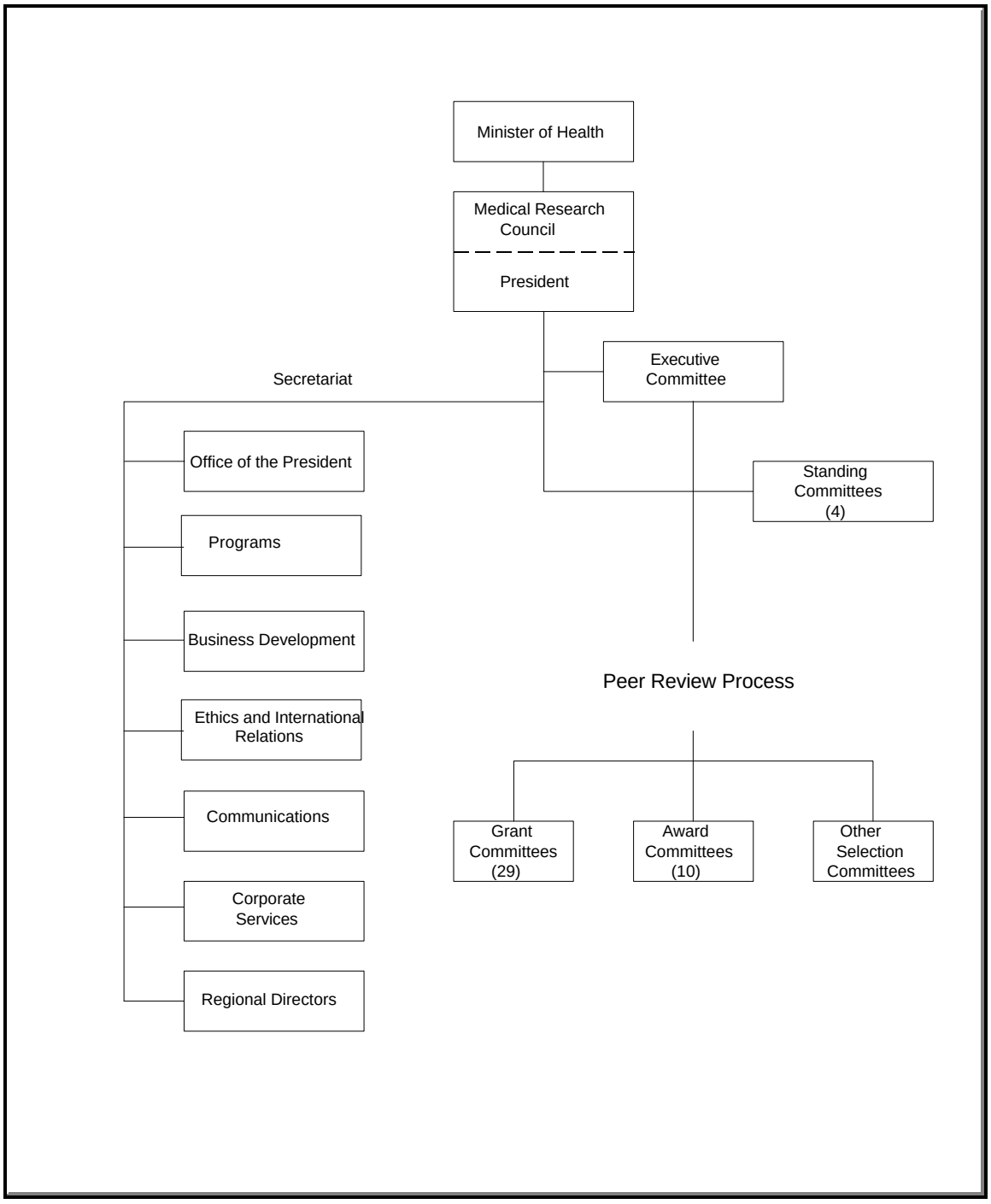
- **Communications.** The Communications Branch is responsible for promoting the nature, scope and significance of the MRC program and health science research in Canada.

- **Ethics and International Relations.** This branch is responsible for conveying the MRC perspective on ethical issues in the area of research and coordinating MRC's interactions with organizations around the world.

- **Corporate Services** is the branch responsible for financial and administrative services, informatics, records management, operational planning, program evaluation and human resources.

- **Regional Directors** ensure an effective presence in the regions where most MRC funds are spent and provide input on regional views. These voluntary positions are usually held by established health scientists in Canadian universities.

Organization of the Medical Research Council of Canada



Supplementary Information Item 4:

C Executive Summary of the MRC Performance Report, 1996-97

The Medical Research Council is the principal instrument of the federal government for making strategic investments in research related to health. The MRC, with a budget of $242 million in 1996-97, provides the foundational platform for Canada's $1.6 billion health R&D enterprise. The Council supports world-class health science research projects in universities, hospitals and research institutes and provides awards for the training and development of health scientists. It focuses the national research effort on specific health threats and opportunities, and through a wide variety of partnerships, helps strengthen and diversify research funding across the country. The Council facilitates the use of research discoveries for the benefit of Canadians and provides an international presence and advice on priorities, ethics and safety in research.

This report covers the performance of the Medical Research Council in 1996-97. Some highlights:

- Canadian health science research yielded highly significant advances in basic knowledge, prevention or treatment of a wide variety of health problems including AIDS, Alzheimer's disease, arthritis, cancer, cystic fibrosis, diabetes, heart failure, leukaemia, stroke ... to list but some of the areas in which important discoveries have been made.

- The Canadian Breast Cancer Research Initiative was evaluated and MRC support confirmed for a further five years; also in 1996, MRC helped create two new research networks targeted at juvenile diabetes.

- Through partnerships with other organizations, MRC levered $56.8 million for Canadian health science in 1996-97 and obtained very substantial commitments for future years. The MRC attracted $2.80 in outside funding for every dollar it invested. Health science venture capital raised by the MRC-inspired Canadian Medical Discoveries Fund grew from $14 million to $164 million, and the number of firms benefiting from the Fund's investments in the commercial development of Canadian research discoveries increased from 8 to 22.

- An International Review of the MRC endorsed the Council's strategic direction and lauded its efforts to diversify the funding portfolio for health research in Canada.

The Medical Research Council also contributed to three important developments in health science funding in 1996-97: establishment of the Canadian Health Services Research Foundation; affirmation of the Networks of Centres of Excellence Program as a permanent feature of Canada's science and technology environment; and, creation of the Canada Foundation for Innovation which should result in more than $2 billion of infrastructure renewal funding for Canada's research base over the next five years.

Supplementary Information Item 5:

C MRC Partnerships

(See accompanying notes, next page)	*Partners Involved*	*Estimated Financial Contributions of Partners*			
		(thousands of dollars)			
	(1996-97 estimates)	*1994-95*	*1995-96*	*1996-97*	*3-year total*
Partnerships with Industry					
MRC-PMAC Health Program	39	7,446	13,670	21,421	42,537
University-Industry Program	41	10,613	3,897	4,409	18,919
Partnerships with Voluntary Health Organizations					
Juvenile Diabetes Foundation International	1			1,000	1,000
Burroughs Wellcome Fund	1			663	663
Other voluntary health organizations	12	479	792	886	2,157
Partnerships with Other Types of Organization					
Health Services Research Foundation	2			11,000	11,000
AIDS Strategy Research	1	6,107	6,575	5,796	18,478
Breast Cancer Research Initiative	2	3,200	6,502	7,000	16,702
Human Frontiers of Science	1	700	2,313	1,864	4,877
Genome Analysis and Technology	4	445		1,310	1,755
Eco-Research	3	500	787	450	1,737
Youth Experience Pilot	1		4,000		4,000
Other	9	1,265	786	981	3,032
Totals	117	30,755	39,322	**56,780**	126,857
MRC's Contribution to these Partnerships		14,676	14,676	19,908	49,260
Ratio of MRC to Partners' Contributions		1 to 2.1	1 to 2.7	**1 to 2.8**	1 to 2.6

Notes To Table On MRC Partnerships

MRC has used the data in the preceding table to report on its progress in meeting financial targets established through its partnerships strategy. Because of the unique nature of each partnership, and the varying levels of direct control exerted by MRC in each arrangement, the financial contributions of partners reflect varying levels of precision. Estimates, where they are used, are based on MRC's best judgement after analysis of available data.

Partnerships with Industry

MRC / PMAC Health Program

The data reported under this program reflect the commitments of the various PMAC member companies towards personnel support and research projects supported in partnership with MRC. All of the projects are funded over a period of two to three years (for research projects), and up to five years for personnel support. During the support period, companies make actual cash contributions as they deem appropriate. These actual cash transfers are not tracked by the Program. The contributions of PMAC companies are reported by fiscal year, by prorating their contributions on the same basis as MRC's contributions for each funded project. Also, program data as reported in the table do not include PMAC commitments towards approved projects in future years (some of which now extend to year 2003). If these "future year commitments" were to be included, the total committed investment by PMAC through this program as at March 31, 1997 would be over $90 million.

University / Industry Program

This program works in essentially the same way as the MRC/PMAC Health Program. Company contributions however, are not tracked to the same level of precision as the Health Program. For example: suppose an application which requests a total of $100 K in funding, on a 2:1 company to MRC ratio, is reduced to $75 K when assessed by a peer review committee. Although MRC's contribution is known exactly ($25 K in this instance), MRC does not track whether the company's contribution is likewise reduced. The company does agree however, to fund the proposal on a ratio of *at least* 2 to 1, and that is the basis for reporting on this program.

Partnerships with Voluntary Health Organizations

Data reported for the voluntary sector are actual investments made by the organizations in the years reported. No estimates are used. Partnerships with the voluntary sector are aimed primarily at supporting research personnel through studentships, fellowships and salary support.

Partnerships with Other Types of Organizations

Canadian Health Services Research Foundation

The data represents the payments made by Health Canada to the CHSRF in 1996-97. In the same year, MRC's contribution was $2 million. This funding arrangement will extend over a five year period to a maximum of $65 million ($10 M from MRC and $55 M from Health Canada). Note therefore that the reported figures do not represent actual investments made in direct research, but rather contributions to the Foundation. In 1996-97, the Foundation had not yet made any direct investments in research projects.

AIDS

Data is as has been reported by Health Canada

Canadian Breast Cancer Research Initiative

Reported data represents contributions of partners to the initiative, not actual investments in research made by the Program. Actual investments would be in a different profile than seen in the table.

Genome Analysis and Technology Program

Data represents actual expenditure of National Cancer Institute contributions towards this program.

Eco-Research and Human Frontiers of Science Programs

Data has been derived from analysis of reports and other information from these organizations.

Supplementary Information Item 6:

C MRC Publications and Contacts

The following publications are available from MRC. Those marked **WEB* are available at the MRC web site: **http://wwwmrc.hc-sc.gc.ca**. All publications are free of charge unless otherwise indicated.

BUSINESS DEVELOPMENT

(To receive these publications, please contact 613-941-6696)

< Canadian Medical Discoveries Fund (CMDF) Newsletter

< Canadian Medical Discoveries Fund Information Brochure

< Health Research and the Jobs Agenda

< Medical Research Council of Canada Estimates Part III Expenditure Plan **WEB*

< University Medical Discoveries Inc. Brochures

COMMUNICATIONS

(To receive these publications, please contact 613-954-1972)

< Automated Health Research Information System (AHRIS)

This is an electronic version of the Reference List of Health Science Research in Canada. It is available on CD-Rom.

< Dealing with the Media (1992)

< Decisions **WEB*

< Distinguished Scientist Awards booklet (1996,1997)

< Grants and Awards Guide (annual) **WEB*

< Investing in Canada's Health - A Strategic Plan for the Medical Research Council of Canada (1992)

< Journey into Genetics - A voyage of discovery and hope (1996)

< List of MRC Grants & Awards

Please see Automated Health Research Information System (AHRIS)

< Medical Research Council - brochure **WEB*

< MRC Communiqué (quarterly) **WEB*

< Michael Smith Award for Excellence - brochure

< Reference List of Health Science Research in Canada

Please see Automated Health Research Information System (AHRIS)

< Report of the President (annual) **WEB*

< Report on an International Review of the Medical Research Council of Canada (1996) **WEB*

< Road to Discovery (1993)

ETHICS AND INTERNATIONAL RELATIONS

(To receive these publications, please contact 613-954-1972)

< Code of Ethical Conduct for Research Involving Humans (Draft document - July 1997) This publication, once finalized, will replace 1987 Guidelines on Research Involving Human Subjects. **WEB*

< Guidelines for Research on Somatic Cell Gene Therapy in Humans (1990)

< Guidelines for the Commercialization of Medical Research (Draft document) **WEB*

< Guidelines on Research Involving Human Subjects (1987)

This publication is currently under revision.

< Integrity in Research and Scholarship - A Tri-Council Policy Statement (1994)

MRC/PMAC HEALTH PROGRAM

(To receive these publications, please contact 613-954-1972)

< MRC/PMAC Health Program Annual Report (1994 - 1996)

Please see http://www.pmac-acim.org

< MRC/PMAC Health Program and You - brochure

< MRC/PMAC Health Program Update (1997)

The following publications may be purchased from your local bookstore which handles Federal Government publications by mail from: Canada Communication Group, Publishing, Ottawa, Ontario, K1A 0S9. Telephone orders: (819) 956-4802

< **Terminology Series** (English-French, French-English vocabularies; joint project of MRC and of the Department of the Secretary of State of Canada).

a) Enzyme Engineering (1989)

b) Genetic Engineering (1990)

c) Medical Signs and Symptoms (1990)

d) Signs and Symptoms of the Musculoskeletal System Volume I: Clinical Findings (1990)

e) Signs and Symptoms of the Musculoskeletal System Volume II: Medical Imaging Signs (1992)

f) Cell Engineering Volume I: Cell Structure (1992)

Also with equivalents, but no definitions:

g) Glossary of Health Services (1992)

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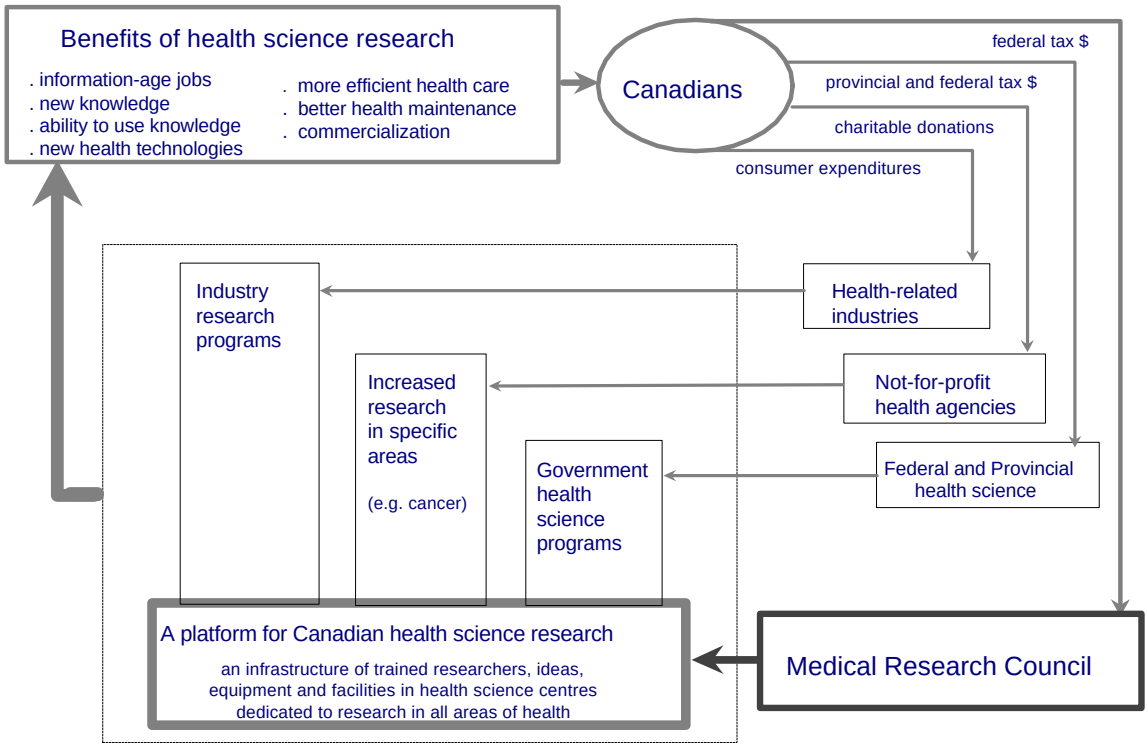

Through the MRC, the federal government provides a platform for Canadian health science research