

DRAFT 5: 2005 October 5

A PAN-CANADIAN STRATEGY FOR PUBLIC HEALTH WORKFORCE EDUCATION

Pan-Canadian Public Health Human Resources Committee (PPHHRC)

Representing:

Public Health Agency of Canada (PHAC)

Canadian Public Health Association (CPHA)

**Canadian Institute for Health Research–Institute of Population and Public Health
(CIHR–IPPH)**

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September 2005

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I. BACKGROUND

Development of the Problem

Public health is “The combination of sciences, skills and beliefs (values) that functions through collective societal activities, and involves many programs, services and institutions, directed to the protection and improvement of the health of all the people. ... Public health is an organized activity of society to promote, protect, improve, and when necessary restore, the health of individuals, specified groups or the entire population.”¹ In general, it operates at the population level. Although it is certainly responsible for much of the progress in improving population health, it receives less than 3% of all expenditures for health services. The technological innovations in personal health services in the 20th century, although arguably having a smaller impact on population health, captured the imagination of the public, the media and politicians, partly because cures are more immediately exciting than prevention—events that do not happen are not news. Public health is paid for primarily by provincial (and in Ontario by regional and municipal) governments, all of which have major financial problems. Personal health care is taking ever increasing proportions of their budgets, leaving no room for growth in public health or other areas. The result of these factors is that public health was relatively neglected toward the end of the 20th century. Budgets were cut, recruitment became difficult, good people left, and morale fell. Then several chickens came home to roost: bad water in Walkerton and Lloydminster, and new or resurgent diseases like drug-resistant tuberculosis, West Nile virus, and especially SARS. The difficulty that Canada had in containing the last infection provided a wake-up call for Canadians, and have led to a much higher profile for public health, although most of this has focussed only on communicable diseases. Concurrently, the attacks of 2001 September 11 led to great concern about bioterrorism, and the role of public health in addressing same. The result is that we now have a unique opportunity to revitalize our public health system, and a good start has already been made. The Public Health Agency of Canada was created in 2004, with a Chief Public Health Officer of Canada at its head. British Columbia and Quebec have created provincial public health agencies (Centre for Disease Control and National Institute of Public Health, respectively), and Ontario is considering the same. And we have seen a flood of reports, virtually all of which have emphasized the importance of strengthening the public health workforce—not surprising, since public health is a human service. These are summarized below.

Chronological Summary of Reports on Public Health Human Resources

The following reports comprise a coherent sequence, with their focus proceeding from the public health system through public health infrastructure to public health human resources (PHHR), and finally to education of the public health workforce, the focus of this report. For more detail, see a recent paper by David Mowat.²

January 2001: A landmark *Survey of Public Health Capacity in Canada*³ prepared for the Advisory Committee on Population Health assessed the ability of Canadian public health services to respond to and adequately fulfil their mandates for five essential functions: population health assessment, health surveillance, health promotion, disease and injury prevention, and health protection. Among its main findings were gaps in human resources planning and development: an aging workforce, unfilled positions in aboriginal and rural communities, deficient

skills for developing new insights and innovative solutions and for evaluating the effectiveness of public health services, and inadequate continuing education opportunities. Respondents expressed more concern regarding the ability of the system to respond to ongoing (especially chronic disease) and emerging issues than to urgent threats to health, and (in a premonition of SARS), suggested that responding to a prolonged crisis or to more than one problem at a time would severely tax the system's resources and capabilities. Among the report's many recommendations was a call for funding of technology investment and staff education in public health at a level comparable to the private sector.

May 2002: *Environmental Scan of Health Human Resources In Public Health in Canada*⁴, prepared by Underwood and Associates for the Centre for Surveillance Coordination of Health Canada, estimated that approximately 175-220 physicians are working in public health in Canada (only 50% of them certified specialists in the field), along with 10,000-15,000 Registered Nurses and 2,400 Public Health inspectors. It acknowledged that a myriad of other public health professionals were not considered in the report. Pointing to the almost total absence of data, it recommended a targeted study of public health human resources in Canada.

____ **2003:** *The Contribution of the Community Medicine Specialist to Health Care System Reform and Primary Health Care Renewal* was the subject of a 2003 Discussion Paper from the National Specialty Society for Community Medicine.⁵ The paper outlined the skill sets and knowledge base of Community Medicine Specialists and showed how these apply to health care system reform, especially primary health care renewal. It argued that Community Medicine specialists are uniquely trained to have a broad systems approach, administrative skills and the ability to design and deliver interventions at individual, group and community levels, and that this equips them for participation in management of regional health authorities and in new forms of primary care. Health ministries and regional health authorities should ensure that reinvestment in public health enables Community Medicine specialists to function in their full scope of practice – population health assessment, health surveillance, health promotion, disease and injury prevention and coordinated management, and health protection.

April 2003: *The Future of Public Health in Canada: Developing a Public Health System for the 21st Century*, the report of the CIHR–IPPH Ad Hoc Committee on the Future of Public Health in Canada⁶, signalled the beginning of a concerted effort to strengthen the public health system. The Committee referred to an earlier survey of public health capacity in Canada⁷, and interviewed key public health informants in four English-speaking countries. Their report highlighted the very limited information available on the functioning and costs of public health services in Canada, structural limitations due to lack of consistent legislation, identified essential functions and integrated information systems, dependency on inequitable provincial and municipal funding (the federal contribution to public health funding was *much* lower in Canada than in the four other countries studied), competition for resources with immediate care services, and disparities among provinces and territories. Among the recommendations for strengthening infrastructure were several regarding development of the public health workforce. These included

the following steps:

- develop a plan that would assess and address the substantial educational needs of new and existing public health staff;
- address the coordination of the various educational programs to meet the needs of the field;
- identify funding for staff development and more equitable distribution of personnel; and
- create a national institute or school of public health (perhaps virtual) to develop core competencies and address continuing education needs.

May 2003: The CIHR–IPPH followed this with *Building a Sustainable Public Health Research Infrastructure in Canada. Proceedings of a national meeting about what needs to happen to advance collaborative and successful population and public health research across Canada.*⁸ Key action steps identified by the participants were to:

- facilitate on-going dialogue on public health infrastructure;
- develop a national repository for public health evidence (a topic to which we shall return);
- develop a National Public Health Agenda in order to get public health on the broader health agenda and to nurture linkages;
- develop sustainable funding infrastructures by encouraging the federal government to contribute resources to build research and invest in developing practitioners; and
- support capacity building and networking through education and infrastructure developments for ethics review boards.

October 2003: The report of the National Advisory Committee on SARS and Public Health (Naylor Report), *Learning from SARS: Renewal of Public Health in Canada*⁹ praised the efforts of the workers within the Canadian public health system, but identified many systemic deficiencies in its response. These included lack of surge capacity, difficulty in timely access to lab testing and results, uncertainties about data ownership, inadequate capacity for epidemiologic investigation of outbreaks, lack of coordinated business processes across institutions and jurisdictions for outbreak management and emergency response, inadequacies in institutional outbreak management protocols, infection control and infectious disease surveillance, and weak links between public health and the personal health services system. It recommended formation of a public health agency at the federal level, which was soon done. Chapter 7 of the report presented a strategy for public health human resources, with a full implementation plan. It contains a useful summary of available statistics on the size and characteristics of the public health workforce, although it has a fairly strong hospital clinical/orientation. The report pointed to the inadequacy of available data, but noted shortages of public health physicians in some areas, public health nurses (based on an overall shortage of nurses), microbiologists and infection control practitioners, and called for development and implementation of a national strategy to renew and sustain public health human resources. The objectives would be to make Canada self-

sufficient in public health personnel and to enhance inter-jurisdictional collaboration. Specific recommendations were:

1. Federal, provincial and territorial governments (F/P/Ts) to develop a national strategy for renewal of human resources in public health, in concert with non-governmental partners, to include stable funding mechanisms.
2. Health Canada to explore opportunities to create and support training positions and programs in public health-related fields in current short supply (community medicine specialists, field epidemiologists, infection control practitioners, public health nurses, etc.)
3. The public health agency to develop a National Public Health Service, with various career paths and opportunities including secondments to and from government and local health agencies.
4. Educational institutions to develop contingency plans to limit adverse impact of out-breaks on students, while maximizing the learning opportunities.

November 2003: The Report of the Senate Committee on Social Affairs, Science and Technology (M Kirby, Chair)¹⁰ strongly agreed with the Naylor Committee that a long term, comprehensive, national strategy is needed in order to ensure an adequate supply of trained professionals in all aspects of health protection and health promotion (the Committee did not use the term “public health”). The Committee believed that the federal government should immediately undertake measures to increase the number of qualified professionals in the field of health protection and promotion. These measures should include helping to fund training placements, as suggested by the Naylor Advisory Committee, as well as assisting in developing on-the-job training programs that would allow for the cross-training of other health professionals so that they could acquire the skills needed to be able to bolster surge capacity in all jurisdictions. The Committee also believed that the creation of a School of Public Health in Canada was a worthwhile objective, and that one possibility would be a ‘virtual’ school that would draw on the resources of several institutions that are already engaged in some of the teaching and training that is required. A ‘virtual’ school would also have the advantage of linking university-based and community college-based programs so that students received both theoretical and practical training. Building such a virtual school on the strengths of existing institutions could eventually lead to the development of a world-class school of public health in Canada. The Committee believed that the federal government should play an active role in encouraging such a project. The Committee recommended that:

- Human Resource Development Canada, as part of its human resources sector study of physicians and nurses in Canada, devote specific attention to the current and future needs of health professionals in the field of health protection and promotion;
- The federal government take immediate action to encourage the development of on-the-job training programs to assist health professionals in acquiring the necessary skills pertaining to health protection; and
- The federal government, in collaboration with provincial and territorial governments and in consultation with universities and community colleges, initiate discussions

on the creation of a Virtual School of Public Health.

March 2004: Pan-Canadian Public Health Education Initiative. *Summary of Three Regional Workshops* (report prepared by Brent Moloughney)¹¹. These workshops were sponsored by Health Canada's Centre for Surveillance Coordination (now the Office of Public Health Practice in PHAC) to develop a vision for education of the public health workforce, identify current assets and barriers, and identify strategies and actions needed to realize the vision. The workshops stated the importance of defining competencies for various levels of public health workers, the importance of developing open and attractive career paths, and the need for more comprehensive educational programs than currently available. Participants identified the need for:

- one or more schools of public health (opinions divided);
- continuing education programs;
- support for further development for current practitioners;
- expansion of the Field Epidemiology Program;
- recruitment of high school and university students in public health, with removal of barriers to entry;
- providing practical training;
- covering emerging content areas;
- better information on available educational opportunities; and
- closer linkages between research and public health practitioners.

May 2004 and January 2005: *Partners in Public Health: Report of the F/P/T Special Task Force on Public Health*^{12 13} (Perry Kendall and Ian Shugart, Co-chairs) noted the need for urgent action in five areas:

- strengthening public health infrastructure;
- establishment of a Pan-Canadian Public Health Network, as a means of improving intergovernmental collaboration in public health; the Network would consist of a Council and six expert groups (on communicable disease, emergency preparedness and response, laboratories, surveillance and information, non-communicable disease and injury prevention, and health promotion);
- creation by the Network of tools and instruments for building consensus and cooperation among governments and professionals;
- development of an Agreement on Mutual Aid during an Emergency; and
- the Public Health Network to become the focal point for collaboration and convergence in public health among jurisdictions; all F/P/T public health bodies would be brought within the Network structure.

February 2005: *Improving Public Health Infrastructure in Canada*, report of the F/P/T Strengthening Public Health System Infrastructure Task Group (Perry Kendall and David Mowat, Co-Chairs)¹⁴ to the Advisory Committee on Population Health and Health Security (ACPHHS), identified a sufficient and competent workforce as a priority area for infrastructure development. Its recommendations were as follows:

Priority:

1. P/Ts commit to stabilizing and strengthening the public health workforce, especially front lines.

Longer term and necessary:

2. Develop and implement a national public health workforce development strategy
 - a. Create an Office of Workforce Development within PHAC.
 - b. Identify competencies for practice.
3. Increase training capacity to prepare new and increase skills of existing practitioners
 - a. Create additional capacity, e.g., certificate, diploma, MPH, and Continuing Professional Development (CPD). Develop specialized skill sets.
 - b. Create and support practicum settings, e.g., Teaching Health Units (THUs).
 - c. Provide financial support for individuals and employers to support training.
 - d. Develop mechanisms to ensure consistency and quality, e.g., accreditation of MPH programs.

To accomplish these recommendations, the Task Group recommended creation of the Joint Task Group on Public Health Human Resources (hereinafter referred to as the JTG; Brian Emerson and Dorothy Pringle, co-chairs), reporting to both the Advisory Committee on Health Delivery and Human Resources (ACHDHR, which is developing a health human resources strategy of which the public health human resources strategy would be part) and the Advisory Committee on Population Health and Health Security. The JTG presented two reports in 2005, both of which were considered and approved by the Council of Deputy Ministers in June 2005.

_____ **2005:** *The Development of a Draft Set of Public Health Workforce Core Competencies*¹⁵ addressed priority 2b, above. The report was based on a commissioned report by Brent Moloughney¹⁶ This report clarified terms and concepts, and explained the relationships between core public health functions, their core elements, competencies, and their domains. It defined core competencies as “the set of cross-cutting skills, knowledge and abilities necessary for the broad practice of public health”. The project started from the five core public health functions identified by the Advisory Committee on Population Health and Health Security (assessment, surveillance, prevention, promotion, protection), identified the core elements that comprise each function, mapped each competency statement from existing core competency sets (especially from Australia and the US) to the core elements, analyzed the competencies that mapped to common core elements and selected or combined competencies to capture key themes, assessed the pool of selected competencies to eliminate duplication, and identified and labelled groups of competencies that addressed a common theme. This process led to identification of seven domains:

1. Core public health sciences domain (8 entries). One has the impression that the majority of traditional teaching public health addressed this domain (see comparable observation from USA, below).
2. Analysis and assessment domain (14 entries).
3. Policy development and program planning domain (11 entries).
4. Partnership and collaboration domain (9 entries).

5. Communication domain (6 entries).
6. Socio-cultural competencies domain (4 entries).
7. Leadership and systems approaches domain (9 entries).

_____ **2005:** The second report of the Public Health Human Resources Joint Task Group was *Building the Public Health Workforce for the 21st Century: A Pan-Canadian Framework for Public Health Human Resources Planning*.¹⁷ It presented a framework showing how PHHR planning is influenced by population health needs, management, organization and delivery of public health services, financial resources, education, supply (including recruitment and retention), utilization and deployment, and outcomes. It listed nine principles guiding collaborative public health human resources planning, including:

1. Public health is a distinct sector that links and overlaps with other sectors including but not limited to other health care sectors, education, social services, and local government.
2. Public health human resource planning must be an integral part of all health and public health planning.
3. Effective public health human resource planning is needs-based and evidence-driven.
5. Effective public health human resource education and deployment is interprofessional.
6. Effective public health human resource planning and decision-making involves the public who can articulate health needs, and front line workers who have the wisdom and experience to help develop strategies that work.
9. Effective collaboration requires clearly defined roles, responsibilities and accountability.

The report then set out four goals:

- Goal 1: To increase all jurisdictions' capacity to plan for the optimal number, mix and distribution of public health skills and workers.
- Goal 2: To develop an interprofessional public health workforce with the skills and competencies to fulfill public health functions and meet population health needs at the local, provincial, national and international levels. (This goal is the starting point for the present paper.)
- Goal 3: To enhance all jurisdictions' capacity to achieve the appropriate mix of public health workers and deploy them in interprofessional, population and client-centred service models that make full use of their skills and competencies.
- Goal 4: To enhance all jurisdictions' capacity to recruit and retain public health providers and maintain a stable, affordable public health workforce in healthy, safe work environments.

Each goal was provided with several objectives, and each objective provided with short-term (1-2 years), medium-term (2-4 years) and long-term (4+ years) activities to be undertaken.

March 2005 (out of sequence to allow the two JTG reports to be consecutive): *The Landscape of Community Medicine Residency Training in Canada: An Environmental Scan*,¹⁸ prepared by Lori Kiefer for the Director General's Office of PHAC's Centre for Surveillance Coordination. This report was based on interviews with the 12 Canadian residency programs

and other key informants. It presented a fairly optimistic picture, revealing that applications were up, that programs could accommodate more residents than they currently have, and that more re-entry positions would be welcome.

April 2005: *Enhancing Collaboration between Primary Health Care and Public Health in Canada*,¹⁹ a discussion paper prepared for the Canadian Public Health Association and Health Canada by Paula Stewart on the interface between public health and primary care. It identified the substantial overlap between these two fields, and noted that the assignment of public health to regional health authorities and the move to defining primary care populations in some provinces bring the fields even closer together. It identified many areas for collaboration, and suggested four models that might facilitate their interaction.

The initiatives proposed in the above reports have been pursued on several fronts. Activities relevant to public health workforce education include:

- development, in collaboration with disciplinary organizations, of discipline-specific competencies for public health nursing, inspection and epidemiology to complement the core competencies. When this task is complete, the Ontario Public Health, Research, Education and Development (PHRED) group is to take the consolidated lists across the country to P/Ts and public health workers.
- a meeting of community medicine residency programs in February 2005.
- a meeting of current and proposed professional masters programs in March 2005, along with a survey of these programs (preliminary results in Appendix II to this document) and formation of a group to develop guidelines for development of such programs (first meeting in July 2005).
- commissioning of the present paper, to “Assemble information around public health training programs in Canada, i.e., range of needed professionals, necessary competencies, types and number of training sites”—primarily JTG Goal 2 and its 6 objectives. It will serve as the discussion paper for:
- a national consultation with stakeholders, to be held in October 2005.

There is remarkable consistency in these reports, which universally call for strengthening of public health human resources, a key feature of which is strengthening the education of same. The reports have become progressively more specific in their recommendations, and this report attempts to continue that trend, showing how to maintain the considerable momentum that currently exists. Common themes include strengthening recruitment, development of schools of public health, the need for MPH programs, provision of practical training, and stronger links between universities and practice. Reassuringly, these themes also emerged in similar projects that are underway in several other countries.

Other Relevant Developments in Canada

Several other developments in Canadian public health are relevant to workforce development.

All provincial governments have devolved some responsibility for their health services to regional health councils, boards or authorities (hereinafter to be called Regional Health Authorities, RHAs). The responsibilities of these new organisms range from planning and coordinating personal health services to management functions and resource allocation in some cases. In several provinces the RHAs are responsible for providing public health services, in place of local or provincial governments. This development is likely to bring public health and personal health services closer together, partially reversing their historical separation. It may lead to a certain merging of primary care and public health services, such that some services previously provided by public health workers may now be provided by family doctors and nurse practitioners. Although not necessarily motivated by it, the changes would bring Canada closer to the WHO model of primary care, as developed through the Alma Ata process; Quebec is already closer to that model.

Non-governmental organizations (NGOs) like the Heart and Stroke Foundation, the Canadian Mental Health Association, and the Victorian Order of Nurses provide many services which are similar or identical to those provided by public health units. Their personnel needs must therefore be considered alongside those of official public health organizations.

Future health problems of the Canadian population will include at least problems of aging, complications of overweight, emergence of yet more communicable diseases—some of them related to international migration, and effects of environmental pollution. Public health will have major roles in the control of all of these problems.

Developments in Other Countries

An international study of public health workforce development commissioned by the Public Health Infrastructure Task Group from the Nevis Group²⁰ found a universal lack of data, and pointed to the inability of the US to achieve a coordinated system, the difficulty that the UK has in planning, and the relative success of Australia, especially their National Public Health Partnership. Canada was behind other English-speaking federal countries in revitalizing its public health system. One of the reasons for this, noted by Naylor, is that most other countries have adopted national health goals, which provide a framework for defining the contribution of public health. Canada has been unable to progress on this front, although a project is currently underway to develop national public health goals.

Public health workforce education is highly developed in the **United States**, where MPH or equivalent programs are offered by 32 Schools of Public Health (increasing almost daily) and 45 community health programs in other faculties, accredited by the Council on Education for Public Health. But both the public health system and the associated educational programs face serious problems. A key 1988 report, *The Future of Public Health*²¹ described the field of public health as being in disarray, and made many recommendations regarding practice as well as some on educational programs. Schools of Public Health have been chronically underfunded, making faculty members highly dependent upon research grants, which are easier to obtain in more “basic” forms of research like laboratory and epidemiology. Naturally, this orientation is reflected in their teaching. These points are

extensively reviewed by the Committee on Educating Public Health Professionals for the 21st Century in *Who Will Keep the Public Healthy? Educating Public Health Professionals for the 21st Century*.²² Beginning with the definition, “A public health professional is a person educated in public health or a related discipline who is employed to improve health through a population focus”, the report noted that public health education had traditionally addressed the five traditional core components of public health: epidemiology, biostatistics, environmental health, health services administration, social and behavioural science. It recommended that eight critical new areas should be added: informatics, genomics, communication, cultural competence, community-based participatory research, policy and law, global health, and ethics. It emphasized very strongly that public health professionals should be educated in an ecological model, which considers individual traits, individual behaviour, social/family/community networks, living and working conditions, broad social/economic/cultural/health/environmental conditions and policies at global, national, state and local levels as influencing health, the whole throughout the life span. The report recommended a significant expansion of supervised practice opportunities and sites, organized by faculty members with appropriate practical experience, advocated expansion of transdisciplinary research, and called for public health faculty members to play a leadership role in policy development. It called for Schools of Public Health to collaborate with disciplinary schools, as well as field agencies, so that all students in all fields, especially those in health sciences, can be exposed to public health. The Association of Schools of Public Health (ASPH) has identified the competencies that a graduate of an MPH program should possess, under two headings: discipline-specific competencies (here “discipline” refers to topic areas like biostatistics and environmental health, rather than professions) and interdisciplinary/cross-cutting competencies.²³

Australia has rather similar constitutional arrangements to Canada, but appears to have been less paralyzed by its federal structure.^{24 25 26} It developed a National Institute of Epidemiology and Population Health some years ago, and has made good progress on developing a national strategy for public health. They developed a National Public Health Partnership to strengthen public health infrastructure and capacity, a planning framework based on core public health functions and competencies, and a Public Health Education and Research Program to provide funding to support universities to develop and deliver population health education, training and research. After a review of the latter found a number of problems, including development of too many MPH programs producing graduates who were not job-ready, it established the National Public Health Education Framework Project to fine-tune the situation.

The **United Kingdom** has experienced similar vicissitudes to the other countries, and has reorganized the provisions for public services several times in the past few decades, most recently devolving the planning function to Strategic Health Authorities and service provision to Primary Care Trusts. The Nevis report noted that these changes have severely fragmented the public health system. A major attempt at developing a workforce plan around 2000 was abandoned, for obscure reasons. The Canadian medical specialty of community medicine was based on the British specialty of the same name, and thus addresses the planning and management of personal health services in a way more relevant to the UK than to Canada—expertise that may well come into its own with the regionalization of health services noted above (the British specialty has since been renamed Public Health, but Canada has not followed suit). There are only two “Schools of Public Health”—the London School of Hygiene and

Tropical Medicine and the Liverpool School of Tropical Medicine—but many universities offer MSc degrees that are similar to the North American MPH. An interesting development is the emergence of Public Health Specialists, who break from the tradition that such people are necessarily physicians; there are plenty of issues in determining the competence of the non-physicians, upgrading gaps in their expertise, and getting them accepted. The Faculty of Public Health examines and certifies specialists in public health, whether medically or otherwise qualified.

The Public Health Workforce

Public health workers include public health professionals (with advanced education in public health), other public health workers (professionals with no specialized training in public health), and other workers in public health (secretaries, technicians, etc.). This report deals primarily with the first group. The public health workforce is poorly defined: there are no good statistics, except for specialists in community medicine. But we do know (mainly in a qualitative way) that the workforce is highly multidisciplinary and highly variable geographically, that professional qualifications are not well standardized, that many workers lack appropriate educational qualifications and that members of the workforce have limited opportunities for continuing professional development.

If we do not know how many public health professionals we have in Canada, we certainly do not know how many we need. Goal 1 of the JTG report addresses these points, which will not be pursued here except to note that a first step would be to get a better picture of the *supply*; the Canadian Institute for Health Information (CIHI) has begun to do this, and Ontario is currently conducting surveys of both public health units and public health professionals. We should then identify *needs*, in terms of competencies and (secondarily) numbers, following the example of the Australians. This will be a difficult task, but should be attempted: counting vacant positions only measures what provinces are willing to pay for.

II. DEVELOPING AN INTERPROFESSIONAL WORKFORCE WITH THE PUBLIC HEALTH SKILLS AND COMPETENCIES TO MEET POPULATION HEALTH NEEDS (GOAL 2 of the JTG)

The overwhelming need is to maintain the momentum that has been created, and to ensure that the many good ideas lead to action. This calls for a Steering Committee on Public Health Workforce Education, representing PHAC, F/P/Ts, CPHA, CIHR-IPPH, and universities and colleges engaged in public health, which would replace the Planning Committee for the present consultation. The Steering Committee would continue for at least several years, meeting regularly to review the progress made on implementing the recommendations of the various reports and identifying additional actions that may be needed.

RECOMMENDATION 1: Develop a Steering Committee on Public Health Workforce Education representing PHAC, F/P/Ts, CPHA, CIHR-IPPH, and universities and colleges offering educational program in public health, which will meet regularly to review the progress made on implementing the recommendations of the various reports and identify additional actions that may be needed. In order to facilitate implementation of its recommendations, the Committee would report to the Council of the Pan-Canadian Public Health Network.

Logical steps in a strategy to educate the public health workforce are to:

1. Decide what human resources we need, in terms of
 - competencies
 - types of workers
 - numbers of workers
2. Create educational programs to provide those competencies
 - a mix of undergraduate, graduate and continuing education
 - high quality, as assured by accreditation program
 - capacity sufficient to meet future needs, but no more
 - practical orientation
 - faculty with field experience
 - geographical distribution adequate to ensure reasonable access for students and practitioners
 - coordination among programs
3. Recruit good candidates to these programs
 - make public health an attractive profession
 - provide funding to support students during their education, where necessary
4. Monitor our performance in producing a strong workforce, adjusting as appropriate.

The remainder of this report is organized according to the six objectives set out in the second report of the Joint Task Group for Goal 2, which address all of these points. The report tries to put flesh on the bones of the actions recommended by the JTG, making specific recommendations about what actions

need to be taken in the next two years; the JTG report indicates *what* must be accomplished, while this report suggests *how* to do it. The recommendations have been confined to those thought to need elaboration beyond the statements in the JTG report.

Objective 2.1: Develop a skills/competencies-based (instead of a discipline/profession) approach to PHHR .

This recommendation would provide increased flexibility within public health units, allowing allocation of positions and tasks based on what people can do, rather than the discipline in which they have been trained. It is consistent with the emergence of the Public Health Specialist in the UK. The JTG recommended the following actions for Objective 2.1.

2.1a) Short-Term Actions:

i) Confirm/validate the core public health competencies.

The first report of the Joint Task Group clarified public health competencies as follows:

Core competencies: the set of cross-cutting skills, knowledge and abilities necessary for the broad practice of public health. Thus, these are the minimal competencies that must be possessed by all public health professionals, regardless of their initial discipline.

Core competencies for public health workers are defined in the JTG report, and were considered by the Conference of Deputy Ministers in June 2005. As in most lists of competencies, the required *level* of expertise is not specified.

Technical competencies: special knowledge, skills or abilities that are not possessed by all public health practitioners and are required for a particular aspect of public health practice. These sound like function-specific competencies, required for specific functions, which might be defined as front-line work versus management or supervision, or as activities like outbreak investigation or health education.

Discipline-specific competencies: the breadth and depth of core and technical competencies that are used to define a particular discipline. Something very like these have been defined for MOHs (in the Training Requirements of the Royal College of Physicians and Surgeons), PHNs (in a new certification exam) and PHIs (by CIPHI), although these competencies are often not reflected in educational programs, hiring, maintenance of competence, etc.

ii) Continue to work with the Public Health Research and Education Group and other stakeholders to identify the function-specific public health competencies.

All the major public health disciplines support a competency-based system, although they are at different stages in its development. The PHRED project has taken the core competencies developed for the JTG and “characterized” them according to the level of expertise (aware, knowledgeable, or expert) required of all front-line workers, regardless of discipline; it hopes to do the same thing for public health specialists, although this term is difficult to define. Thus, this phase of the work (which is almost complete) has defined a type of function-specific health competencies, which will shortly be the topic of a national consultation. But experience in Canada and elsewhere suggests that the real challenge is implementing the competencies that have been developed, and this will require commitment

from both employers, educators and professional groups, as noted in several of the following points.

iii) Map the competencies of each discipline against the core and function-specific competencies, and identify any gaps.

This work is also underway. The PHRED project is now working with seven disciplines (nursing, inspection, medicine, epidemiology, dentistry, nutrition and health promotion) to develop discipline-specific competencies or to refine those already in existence.

iv) Ensure the Skills Enhancement for Health Surveillance program (of the PHAC) aligns with the public health competencies.

This might reasonably be done by PHAC personnel.

2.1 b) Medium-Term Actions:

i) Work with education programs to modify/adapt curricula to fill skill gaps.

For MPH programs, this would be a reasonable continuation of the consultation that is already underway, and might best be undertaken by that process (perhaps through its Guidelines Group). The proposed Steering Committee is a crucial mechanism for continuing discussion among PHAC, P/Ts and MPH programs. For discipline-specific programs like nursing and inspection it should involve professional associations.

ii) Develop common tools that employers can use to assess skills and competencies.

This might take the form of tests, or (probably better) handled through credentialing of individuals and accreditation of programs. The Nevis Report described the National On-Line Public Health Skills Audit Tool, developed in the UK to evaluate public health professionals' skills (www.phskills.net) in order to determine whether they qualify as a Public Health Specialist. A first step would be to evaluate the relevance of this and similar tools to Canada; again, this could be done through a contract.

RECOMMENDATION 2: Evaluate the relevance of the Public Health Skills Audit Tool and similar tools (if available) to Canada.

iii) Promote a workplace culture that ensures providers have opportunities to develop needed skills and competencies.

This applies to local public health units and to F/P/T ministries and agencies. It requires that ministers and senior public servants promote and support the idea, but also requires the availability of appropriate and accessible CPD programs.

iv) Encourage employers to use a competency-based approach to develop new service delivery models.

Agreed. Again, this requires commitment by ministries of health and public health agencies. The Steering Committee will be in a position to work toward developing this commitment.

v) Ensure the core public health competencies are used to inform all public health education

programs.

Again, this is a logical continuation of the MPH consultations currently underway, particularly the guidelines project. Thus, another job for the Steering Committee.

Objective 2.2: Develop a better understanding of the public health education system and how it can support PHHR planning .

It is reasonable to begin the discussion of this objective with an overview of the present system. Educational programs are sometimes undergraduate and sometimes graduate.

Undergraduate :

Most undergraduate programs are discipline-specific, e.g., PH nursing, PH inspection. There are no generic undergraduate public health programs in Canada (Canada is not unique in this respect); Ryerson University's Public Health and Safety program is probably closest, although it focuses on one area of public health. Some programs in health studies contain considerable public health. Undergraduate programs could be adequate preparation for a considerable proportion of public health workers, without additional training, as is now the case for nurses and inspectors.

Graduate :

Most graduate programs are multidisciplinary. The primary degree here is the professional masters degree with practicum but without thesis. We shall refer to this degree as Master of Public Health (MPH), because people understand this term; it will be used here to refer to MHSc and to other applied public health masters programs. Normally such programs last 9 to 16 months for full-time students. Graduate research degree programs (MSc, PhD, especially in epidemiology) sometimes provide a considerable amount of teaching of public health topics, but typically lack placements and offer relatively few courses—the emphasis in these programs is on research methods.

A survey of current and planned professional masters programs was conducted for this project in early 2005, based on universities' self-assessments of whether their programs qualified. Results are summarized in Appendix II of this report. For many years, there were only two "MPH" programs in Canada: MHSc in Toronto and Master of Community Health in Montreal. There are now at least 16 MPH or similar programs underway or proposed, without much evidence of coordination or of uniform core curricula, and with little guidance available for the universities that are offering them. The sixteen programs are distributed as follows:

British Columbia: UBC (date of first student intake unknown), Simon Fraser (first students to be admitted 2005)

Prairies: Universities of Calgary (2006), Alberta (1996), Saskatchewan (2005) and Manitoba (2006)

Ontario: Lakehead (2002), Universities of Waterloo (2006) and Guelph (1984; McMaster (1994), Toronto (1978 but there were diploma programs much earlier) and Ottawa (2006)

Quebec: University of Montreal (1976), McGill University (2006), Laval University (date of first intake unknown)

Atlantic region: Memorial University (2006).

Panel 1 shows the growth of these programs across the country, along with the projected enrolment. When all these programs have reached the steady state, their output could be at least 400 per year—a vast increase from the current output. The programs in the prairies and in Quebec appear to collaborate with others in their regions.

Panel 1. Growth of Professional Masters Programs in Canada (cumulative totals)						
a. Number of Programs						
<u>Year</u>	<u>Atlant</u>	<u>QC</u>	<u>ON</u>	<u>Prair</u>	<u>BC</u>	<u>Total</u>
-1975	0	0	(1)	0	0	(1) (1 diploma program)
1976	0	1	(1)	0	0	(2)
1978	0	1	1	0	0	2
1984	0	1	2	0	0	3
1994	0	1	3	0	0	4
1996	0	1	3	1	0	5
2002	0	1	4	1	0	6
2005	0	1	4	2	1	8
2006	1	2	6	4	1	14
Unknown	<u>0</u>	<u>1</u>	<u>0</u>	<u>0</u>	<u>1</u>	<u>2</u>
TOTAL	1	3	6	4	2	16
b. Number of Students Admitted (includes part-time)						
1996	0	33	104	20	0	157
2002	0	33	154	20	0	207
2005	0	33	154	40	30	257
2006	20	33	214	45	30	342
Unknown	0	2	0	1	1	3 (programs with unknown enrolment)

The programs are not well standardized, which offers the advantage of diversity but does not ensure that they cover basic public health functions. More important, there is no provision for Canadian accreditation of such schools or programs. The University of Montreal program has been accredited by the Council on Education in Public Health (CEPH), which accredits US MPH programs and Schools of Public Health.

There is nothing called a “School of Public Health” in Canada, although the relevant departments in the Universities of Toronto and Montreal possess most of the characteristics of same. Two other universities (Alberta and Manitoba) are now considering development of Schools of Public Health, while five others have indicated that they are not (the remaining eight universities have not responded).

Major Public Health Disciplines :

In the absence of Schools of Public Health, most public health professionals are educated in faculties of nursing, medicine, social or environmental sciences, etc. Many faculty do not have public health

background, and a focus on the 'public health' side of health care education is often lacking. Thus, most public health workers are trained separately from other public health workers, e.g., nurses train with nurses, etc. There may be some common courses with other health care students, but not a truly interprofessional education experience.

a) **Nursing**

Nursing is the most numerous public health discipline. The Naylor report suggested that Canada has about 12,000 public health nurses, 1/3 of the total public health workforce, but this fraction seems too low, even if all persons working in public health are included in the denominator. Information on their characteristics is limited, since available statistics lump them with other nurses. The workforce is rather old, and there are problems of retention. Historically, there were two types of nursing qualifications: diploma (very hospital-oriented) and degree (more oriented to community care and public health). The basic qualification for all nurses is now the BScN, which means that PHNs are trained with other nurses, quite separately from other public health workers. The inevitable emphasis on hospital care, the largest nursing sector, may have resulted in less emphasis on public health. Public health content, experiences and practica are often lacking. The amount of public health in the curriculum is usually greater than that received by medical students (who rarely work in public health without further training), but a 2004 report stated that the teaching of epidemiology in nursing schools has decreased in recent years and urgently needs to be increased.²⁷ It also noted the difficulty of finding appropriate student placements in public health. PHNs in senior or supervisory posts usually have masters degrees, not necessarily in public health. Some MScN programs offer considerable community health content, and/or specialized fields in public health, health promotion or community health, but community health may also include home care nursing, which has quite a different orientation and requires quite different competencies from public health. A certification examination in community health nursing is being developed by the Canadian Nurses Association for this specialty group, which comprises an examination but no specific educational programs. Nurses are expected to prepare for the exam through self-study. The exam will include home care nursing competencies. There appears to be no interest in requiring specialized postgraduate education for all PHNs.

b) **Inspection**

This is the second most numerous public health discipline. The basic qualification is certification by the Canadian Institute of Public Health Inspectors (CIPHI)²⁸, following a BScPH or similar degree. Often this specialty is found in departments that do not quite "fit". For example, there are only 5 schools that train environmental public health professionals. The departments managing these programs are varied as follows: School of Occupational and Public Health, School of Health Sciences, School of Science & Technology, Department of Science, and Department of Professional Education. Several of the school websites do not mention the words "public health", suggesting that valuable context may be missing. Like PHNs, those in supervisory positions often have masters degrees, not necessarily in public health (since masters degrees in environmental health are in short supply). The CIPHI estimated that the environmental public health (EPH) workforce numbered 1,302 in 2001, down from 2,046 in 1971, indicating a major human resources problem at a time when environmental threats to health have become especially prominent. Public health inspectors face a special problem in that

some jurisdictions have moved them out of Health into Ministries of Environment, where it has been harder to maintain the integrity of the discipline. Some employers have tried to hire uncertified individuals. CIPHI has produced a National Strategy to Revitalize Environmental Public Health Services. The primary goal is to enhance and revitalize the EPH system at the local, provincial and federal levels, to ensure that it is capable of effectively responding to current and emerging issues that potentially threaten the health, social and economical well-being of Canadians. Its six objectives are to:

1. Strengthen the front line EPH capacity and human resource infrastructure;
2. Build up strong leadership at all levels (including appointment of a chief EPH Officer for Canada);
3. Support and enhance EPH research and development, including strengthening the existing schools;
4. Develop measurable indicators and outcomes;
5. Enhance access to technology and improve communication (marketing and advocacy); and
6. Develop strategic partnerships.

c) **Medicine**

Specialty training in community medicine (the Canadian term for the former specialty of public health) is important because of the special position of the Medical Officer of Health in public health practice. The specialty is unusual for medicine in that virtually all of its members are salaried employees, and remuneration is less than that of other medical specialists. The job situation is not stable: provincial funding cutbacks in early 1990s changed a shortage to a perceived surplus overnight, as local health units stopped filling vacant positions. Medical students are not much attracted to the specialty, partly because most have never heard of it. There are two main educational paths:

- (i) Specialist certification by the Royal College of Physicians and Surgeons of Canada, FRCPC Community Medicine, is the full training, and the only pattern that offers substantial practical experience. It lasts 5 years, of which one must be clinical, one academic, one practical placements in public health, one further training in public health, and one elective. Most residents take an MHSc or equivalent (some take the MSc) as part of the training, as well as concurrent certification in family medicine. Training is well standardized, being governed by the Training Requirements of the Royal College of Physicians and Surgeons of Canada (RCPSC). This is the most appropriate qualification for MOHs and AMOHs, because of the breadth and depth of the training and its inclusion of practical experience. The number of applicants has increased in recent years, but the 11 (soon to be 12) training programs have a total intake of only 16 trainees per year, after provinces cut back on residency posts in the 1990s. In principle this should lead to more than 16 graduates per year, since some graduates enter at PGY-2 level or later, but in fact there are only about 10 graduates per year, due to leaves and drop-outs. Recruitment to the specialty was adversely affected by the elimination of the rotating internship route to a medical licence in about 1990: medical students do not wish to abandon the possibility of doing clinical practice when they are still in third year medicine, so most insist on concurrent training in family medicine. One program became inactive because of its inability to provide this. Canada has about 350 physicians who are certified specialists in community medicine, and the Naylor report states that 210 of them are employed in public health practice at the provincial

or municipal level. Since the federal government and its agencies must surely employ no more than 50 specialists, it is obvious that many do not do public health practice. A quarter of the specialists are 55 years of age or greater.

(ii) MPH: This partial training is better than no specialized training, and is acceptable as a transitional pattern or for physicians working in STD clinics, etc. Provinces may prefer this route because the training is shorter and graduates can be paid less. Its value could be enhanced by provision of supervised experience after graduation but before the first MOH job; ideally, such experience would be creditable toward future residency training. United States MPH programs are of limited relevance to Canadian public health, because of the lack of Canadian content.

d) Epidemiology

Larger health units usually employ one or more epidemiologists (although not all of these are actually trained in epidemiology). Although the number in Canada is not known, there are 62 in Ontario²⁹ This is an important discipline despite its small numbers, because it provides essential expertise to public health units—the epidemiologist usually knows more epidemiology than anyone else in the unit. The usual qualification is an MSc in epidemiology; a few have PhD degrees. But nearly all degree programs are based in medical schools, and are highly focussed on aetiologic studies of chronic disease or on clinical epidemiology, with little attention to public health topics like outbreak investigation, surveillance, population health assessment, determinants of health, or planning and evaluation, and little or no practical experience. Public health enjoys relatively low prestige in the discipline, which emphasizes aetiological and clinical research. As a result of these factors, there is a shortage of appropriately trained individuals. PHAC's Field Epidemiology program provides additional practical training for a few individuals, but will be small even after it is doubled in size. Epidemiology programs in Schools of Public Health tend to be more oriented towards public health.

e) Health promotion/education

These disciplines provide much needed expertise in health education, community development and advocacy. Educational backgrounds are more variable than any of those described above. The University of Toronto MSc program offers a stream in health promotion, but many of the people working in the field have social science qualifications but lack training specifically in public health. Again, programs based in Schools of Public Health would be more oriented towards public health.

f) Public Health Nutrition

This small discipline is specifically trained in population nutrition. For example, in Ontario, public health nutritionists must have a masters degree in community health to practise. This follows the professional requirements to become a dietitian, which are regulated by colleges in each of the provinces.

g) Others

It is impossible to draw a firm line around the disciplines to include, but the net should be cast fairly widely. It should certainly include communications specialists, administrators, planners/evaluators, medical microbiologists, etc. Training of these professionals does not usually include public health. Given the breadth of the determinants of health, environmental and urban planning can have a major

impact on the health of the population, as do policy and law. Of course, all health professionals influence the population's health, so all should know some public health—probably more than they know at present. Indeed, everyone should know something about determinants of health—suggesting a broad outreach function for Schools of Public Health.

2.2 a) Short-Term Actions:

i) Ensure the minimum dataset for education capacity (CIHI) includes public health programs and provides regular reports on the production capacity of public health education programs and the public health educator workforce.

This work would greatly expand the brief overview presented above, and would provide a great deal more precision. It has begun in a small way with the surveys of MPH programs and the profile of community medicine residency programs. Further developments should be overseen by the proposed Steering Committee on PHHR Workforce Education, working with CIHI.

ii) Establish formal mechanisms for public health and post-secondary education planners to discuss public health workforce needs.

Agreed, but it requires a national public health perspective, best provided by PHAC. This has begun in a small way, but needs a permanent mechanism—yet another function for the Steering Committee on PHHR Workforce Education.

Sixteen programs might make one wonder if we shall be wringing our hands about the glut of public health personnel in a few years. The USA has 77 accredited MPH programs (32 in Schools of Public Health and 45 in Departments of Preventive Medicine), and the Rule of Ten suggests that Canada might be expected to have about 8 such programs. The US programs produce about 7,000 MPH graduates per year, but the majority go to work in managed care programs. This would suggest that the equivalent number for Canada would be well under 700 per year. But in the absence of any information regarding how many programs or how many graduates we need, one does not know whether 16 programs and 3-400 graduates is too few or too many. This points to the need for a systematic study of needs for public health professionals, as discussed in the section on the Public Health Workforce, above.

iii) Establish a link among PHAC, the Health Council of Canada and other relevant national organizations regarding public health issues.

A start has been made, primarily through the formation of the Pan-Canadian Public Health Network. SARS and the water quality episodes have helped to provide an “in” for public health, although the focus needs to be much broader than communicable diseases. “Other relevant national organizations” should include CPHA, AFMC, RCPSC (Public Policy Committee), CAUSN, and other organizations listed in Section III of this report.

2.2 b) Medium-Term Actions:

i) Work with the education system and the regulatory systems to develop a range of appropriate training options for public health professionals based on the public health competencies (e.g., short courses, Diploma, BSc, MPH/MSc, PhD; distance, part-time, full-time; continuing

education; interprofessional education including management, leadership and emerging issues. This important activity is well underway, and will continue with the national consultation in October 2005. Again, it needs public health input and a national perspective. Provinces and territories are understandably concerned about any increases in entry-to-practice qualifications. Given the importance of a population orientation and of multidisciplinary environment for instruction, the highest priority for enhancing public health workforce education is professional masters programs, and many of these are underway. Unfortunately, [the proposals for] these programs have had to be developed in relative isolation, so there is no assurance that essential topics will be covered. It is vitally important that these programs, especially the ones within a given region, be brought together to discuss content and methods, and that they be provided with appropriate planning guidelines. A good start has been made in the meeting convened in March 2005 and in the Guidelines Development Group that is emerging from it. Equally important (and more difficult) is confirmation that we have about the right number of programs developing, and with appropriate geographic distribution.

RECOMMENDATION 3: Ensure that current and proposed MPH programs conform to guidelines regarding content and educational methods, that the number and distribution of such programs is appropriate to Canada's needs, and that the programs within each region collaborate where appropriate.

The next question is the setting in which students will be trained. We assume that many MPH programs will be offered by faculties of medicine, health sciences, etc. It would be ideal to have all public health disciplines trained in the same setting, since they will work in the same setting, but this is probably not feasible without massive changes to the educational system. What is feasible is to develop Schools of Public Health, or equivalents, to provide graduate education in public health. A "School of Public Health" offers graduate teaching and research programs in all areas of public health in an environment with a population orientation. This population orientation, emphasis on health promotion and protection (not treatment), and a multidisciplinary nature make these the preferred sites for education of public health professionals. Provision of continuing education is an important function for these schools. It is desirable to have educational programs in each region, in order to provide closer links to practice and greater access for students. Several **educational models** are set out in Panel 2. Many of the arguments set out therein apply equally to MPH programs.

Model A, a single traditional institution, no matter how good, will not be able to develop strong links to practitioners and governments across the country: we need expertise spread across the country. Model B could provide this to some extent, but does not ensure expertise in all key topics in all areas. We need more than one school, preferably one per region. These might be traditional (model C) or virtual (model D); to the extent that other universities contribute to the regional Schools of Model C the distinction between the two becomes somewhat blurred. Model E will not do: it would be unwise to let the market work here, since this would be wasteful and would likely lead to low quality programs with no assurance that the better ones would survive. It will therefore be important to monitor the situation and attempt to influence it, through eligibility for grants and contracts, hiring practices, and (especially) communications; the current guidelines project is a good start, and must continue.

Panel 2. Educational Models for Public Health	
<i>Advantages</i>	<i>Disadvantages</i>
A. Centralized Model: “Canadian or National School of Public Health”. This would be a “bricks and mortar” institution located at a Canadian university.	
Could become a true centre of excellence. High visibility.	Not likely acceptable to provinces or (other) universities. Poor access for many Canadians. Does not provide a centre of expertise in each region.
B. Virtual School of Public Health. This would be a network of institutions teaching public health, ideally representing all regions of the country.	
Could represent many institutions, drawing upon the strengths of each. Would probably be cheaper in the short run.	Would lose some of the advantages of educating students together. Would not ensure strengths in each region.
C. Regional Schools: preferably one per region, each involving bricks and mortar. They could (and should) form a coordinated network. Other regional universities could contribute.	
Closer links to practice, less travel for students. Could link to Collaborating Centres.	Costly: some regions may have difficulty mounting same. Some provinces and universities would still be unhappy.
D. Regional virtual Schools, preferably one per region, each involving some or all of the regional institutions that teach public health.	
Ensures centre of expertise in each region, while drawing upon expertise of many regional institutions.	Would lose some of the advantages of educating students together. Administratively messy.
E. Laissez faire: universities to develop as they wish, with no external coordination	
“The Canadian Way”: politically easier, fewer unhappy people. Most convenient for students.	Gaps and duplication of expertise are likely. Poor quality control. Probable over or under-supply of graduates.

RECOMMENDATION 4: Establish five Schools of Public Health, one per region. These would offer at least MPH, MSc and PhD degrees and continuing education programs, and contribute to residency programs in community medicine. Such a school might be sponsored collaboratively by more than one university, provided that students

are regularly brought together. The planning process may be facilitated by provision of Academic Chairs in Public Health and grants-in-aid, available to only one school per region.

Location of these Schools within universities is important, so it is worth discussing the two major options listed in Panel 3.

Panel 3. Location of Schools of Public Health within Universities	
<i>Advantages</i>	<i>Disadvantages</i>
A. Within professional schools (medicine, nursing, etc.)	
Have more influence if located in a powerful Faculty.	Professional schools focus on individual health, and thus have a fundamentally different approach from public health.
B. Freestanding faculty or within a faculty of health sciences	
Able to develop own identity, not overshadowed by more powerful clinicians.	More complex to start something from scratch. Potentially disruptive to separate public health from other epidemiology (or would it all move to the Schools of Public Health?). Faculties of medicine would complain.

RECOMMENDATION 5: In general, Schools of Public Health should be either free-standing Faculties or should be located in a Faculty of Health Sciences, rather than within a health professional school or faculty.

It is also important to achieve more coordination of and collaboration among educational programs. This might be facilitated through incentive grants rewarding joint projects, and/or sponsored conferences to bring people from various programs together.

RECOMMENDATION 6: Provide grants or other incentives to education programs to work collaboratively with other programs. Again, these might take the form of Academic Chairs in Public Health and grants-in-aid or contracts.

Objective 2.3: Identify best practices in public health education and professional development

2.3 a) *Short-Term Actions:*

i) *Develop capacity to review best practices in education and professional development.*

“Best Practice” is largely about making sound policy and program decisions, and there is much experience in this area. A report from the Centre for Health Promotion in the University of Toronto³⁰ identified seven approaches, based on principles, (voluntary) guidelines, service standards, outcomes, what works (effectiveness), “tell me what to do” and combinations of the above. But a rigorous approach suggests that in order to be categorized as best practice, an approach should have a strong theoretical basis and should have been formally evaluated, preferably in comparison to alternative approaches.

Several programs are available for determining best practices. SEARCH Canada (Swift Efficient Application of Research in Community Health) is an Alberta partnership program helping health organizations support decisions about health care planning and priorities with sound, locally relevant evidence, through the development of their people. The purpose of the program is to increase the capacity throughout Alberta to acquire, aggregate, interpret, and apply health information to individual, regional, and provincial health decisions and programs, and to facilitate more effective management of the health system. This would be very relevant to public health units and practitioners, but apparently SEARCH Canada does not look at best practices in education or personnel development. A very thorough discussion in the Canadian Journal of Public Health³¹ recommended the creation of a Canadian Population and Public Health Evidence Centre and Research Network, which could take on this function. Selecting approaches for Canadian public health should be a high priority.

RECOMMENDATION 7: PHAC, CPHA, CIHR-IPPH and university representatives should name a work group to identify suitable approaches for identifying best practices in public health education and encouraging educators to use them.

ii) Examine the programs that prepare public health providers.

It is unclear whether this means examine them for relevance or examine them for quality. Assuming that objective 2.2 referred to relevance, we shall assume that this one refers to quality. While PHAC can credibly comment upon the content of such programs, their pedagogical approach would better be assessed by organizations accustomed to examining educational programs, viz., accreditation bodies. It is essential to have similar high standards across the country—more so than with personal health services, since communicable diseases, behavioural and environmental risk factors know no boundaries. This implies certification of professionals and accreditation of educational programs as well as health units. Programs for accreditation of educational programs exist in both the USA and Europe. In the US, The Council on Education for Public Health (CEPH) accredits both Schools of Public Health and graduate programs of public health outside such schools.³² In Europe, the Association of Schools of Public Health Panel in the European Region (ASPHER) operates a Public health Education European Review (PEER) program comprising a self-assessment study followed by a review by team of peers using established criteria. Panel 4 lists three possibilities for accreditation of Canadian programs:

RECOMMENDATION 8: Establish an accreditation system for public health education programs, probably through CEPH or ASPHER. (This is actually a medium-term activity.)

Panel 4. Options for Accreditation of Schools of Public Health	
<i>Advantages</i>	<i>Disadvantages</i>
<p>A. Add public health to US Accreditation program The CEPH accredits US Schools of Public Health. Adding Canadian programs would parallel the process used by medical schools: Canadian schools do their own accreditation to North American standards, with an American observer present.</p>	
<p>No need to set up a new agency. Credibility of an established agency. Ensures that Canada meets international standards. Probably ready sooner.</p>	<p>The Canadian situation is not identical to the US (e.g., funding of universities, scope of public health). The US program may enforce too much uniformity of schools and programs.</p>
<p>B. Add public health to the PEER program operated by the Association of Schools of Public Health in the European Region. This organization already has experience of accrediting Schools in many different countries.</p>	
<p>Similar to A, above.</p>	<p>The Canadian situation is not identical to that in Europe.</p>
<p>C. Develop a Canadian Public Health Education accreditation program</p>	
<p>Could be developed to meet our own needs.</p>	<p>Probable higher cost. Would take longer time to establish. Might be harder to maintain quality.</p>

iii) Identify innovative ways to educate public health professionals that reflect current and anticipated demands (e.g., regional schools of public health, interprofessional education). Again, PHAC can stimulate such activities and provide incentives, but implementation of recommended approaches will have to be undertaken by educational institutions. Regional schools of public health have already been discussed. Distance education is a particularly promising approach, already being used by PHAC's Skills Enhancement program and by several universities (including one complete MPH program). One of its most important applications is continuing professional development for persons already employed by public health organizations, especially for the many public health workers who work in remote communities with limited access to education facilities.

Interprofessional education, although theoretically desirable, has rarely proven feasible at the undergraduate level, and may best be achieved at the graduate level (through Schools of Public Health). Perhaps the ideal situation would start with a Bachelor of Science in Public Health (BScPH), adding discipline-specific or research training later, but this is unlikely to happen in the foreseeable future (partly because many students do not know what they want to do when they start university). It may happen spontaneously with the growth of BHSc programs, if they can be encouraged to develop a population perspective.

RECOMMENDATION 9: Commission a study of the desirability of creating under-

graduate programs in public health.

It is regrettable that PHNs and PHIs are trained separately from other public health workers. But as long as different disciplines are educated in different universities, and as long as the entry qualification for these workers remains an undergraduate degree (and P/Ts are likely to reject any proposal to require a graduate degree), it is hard to see how this can be achieved. But it may be appropriate to consider whether baccalaureate nursing graduates could be better prepared for practice as public health nurses; at present a rather long working-in period is necessary.

RECOMMENDATION 10: Consider developing short orientation courses to public health for new PHNs, probably by Schools of Public Health or MPH programs.

iv) Assess the potential to use simulation to educate the workforce in public health skills and competencies.

This is unlikely to be feasible in the short run, since computer simulations are currently few in number and take much time and money to develop. Scott and Edwards are optimistic regarding their use in educational programs, mainly to bring the neophyte decision-maker up to the level of the novice decision-maker.³³ They are worth pursuing over the longer term.

v) Develop common standards and expectations for continuing education.

Continuing education should be a high priority for workforce development; opportunities are currently rather limited. Education budgets are the first to go when cutbacks occur. Often staff do not have access to resources to attend conferences/workshops or to pursue ongoing education initiatives. We need to provide formal recognition to those public health providers and employers that support ongoing education, e.g., grants provided to public health workers who present at conferences; in return, their PowerPoint presentations would go onto a national website so that they become available to others.

Developing common standards and expectations is a reasonable next step. It will require consultation between providers, managers and educators, and would be a useful activity for a task force, overseen by the proposed Steering Committee. But we must go beyond developing standards: we must develop more and better programs, and this should be a major task of MPH programs and Schools of Public Health. The programs might be sponsored by PHAC, NGOs like foundations, or professional societies. There is no clearinghouse of educational opportunities, so it is difficult for public health workers to be informed about opportunities.

Regulated professions like nursing and medicine have requirements for ongoing maintenance of competence identified in their provincial/territorial professional regulation bodies, but this is not true of the unregulated professions like environmental public health professionals, nutritionists or epidemiologists. Partly this relates to the size of the professions and their history as being a public health profession. For example, nursing has a long history with processes/mechanisms in place and also a strong advocacy/lobby voice, while public health epidemiologists are relatively new to the scene and are organized to the same degree, e.g., there is no national association of public health epidemiologists.

RECOMMENDATION 11: Provide formal recognition to those public health providers and employers that support ongoing education. This might take the form of certifi-

cates or awards, or eligibility to receive trainees.

RECOMMENDATION 12: Create a clearinghouse that maintains lists of continuing education opportunities for public health workers.

RECOMMENDATION 13: Encourage MPH programs and Schools of Public Health to provide continuing education programs for public health professionals, focussing on practical skills. This might be done through sponsorship of courses or provision of grants to enrollees.

vi) Work with partners to develop and submit a proposal for a project on interprofessional public education for community/population centred practice to the Health Canada^a Interprofessional Education for Collaborative Patient-Centred Practice Initiative.

The second call for proposals under this program has a deadline of 2005 September 30, and the terms of reference as set out on the website (<http://www.hc-sc.gc.ca/english/hhr/interprofessional/>) do not mention the possibility of a population focus, so this particular opportunity may not work out. A report on the overlap between public health and primary care has already been noted. A specific example would be training family physicians in public health during an optional third year of residency. This would support the increasing integration between public health and primary care (see below) and would provide partially trained public health physicians, some of whom might go on to full residency training in community medicine.

2.3 b) Medium-Term Actions:

i) Identify the education and technologies required to respond to emerging needs (e.g., informatics, genomics, management, communication). Evaluate education initiatives.

Again, this requires discussion among the various organizations involved—not just P/Ts. Some sort of scenario project may be useful.

Public Health Informatics is not well developed in Canada (or elsewhere, although CDC has a Fellowship Program in the USA). At a very practical level, Ontario Health Intelligence Units provided a high level of expertise to public health units and other community agencies, starting in 1995, but the program was eliminated in 2005. A similar program would help public health units to make better use of population health information in their planning and decision-making, and would contribute to the search for best practices, referred to earlier. The British Public Health Observatories (<http://www.nwpho.org.uk/network>) are a more highly developed example.

2.3 c) Long-Term Actions:

i) Develop an incentive or reward system that recognizes innovation in education.

This might take the form of funded chairs for programs, or prizes or scholarships for their students. Expensive programs like chairs would probably have to be funded by PHAC or by provincial or

^a JTG report said F/P/T, apparently in error

territorial governments, but prizes could be awarded by NGOs like the CPHA and scholarships by NGOs or CIHR-IPPH.

Objective 2.4: Increase capacity to train public health workers with the appropriate competencies .

2.4 a) Short-Term Actions:

i) Assess the need for highly specialized training programs (e.g., community medicine, population-focussed epidemiology) to develop people with the required competencies.

This might be taken on by the proposed Steering Committee, probably through the use of consultants (but bearing in mind that any specialist is likely to argue that more members of her specialty are needed).

A special needs assessment for Community Medicine residency programs is probably not needed; we just need to allow the existing ones to function better.

Population-focussed Epidemiology is better developed in Europe than in North America, especially at Erasmus University in Rotterdam, Department of Public Health Sciences. In order to demonstrate the value of this population-based approach, it would be useful to send some Canadians to visit Erasmus, or to invite some people from Erasmus to visit Canada.

ii) Develop scholarship and incentive programs to attract people to high priority areas (e.g., public health informatics, public health management).

Excellent educational programs will do nothing to strengthen the public health workforce if they do not attract students. Provision of special funding should indeed attract people to high priority areas, which might sometimes require study outside the country. Lectures and conferences on these topics should help to interest people in these areas.

Community Medicine: Residency training will appeal to physicians only if (a) they have tried clinical practice and wish a change, or (b) it gives them the option of concurrently obtaining clinical qualifications. Provinces must provide more re-entry residency posts. Failing this, federal agencies must provide them. Failing that, we must provide conjoint training with Family Medicine, subsidizing the clinical training if necessary.

RECOMMENDATION 14: Urge provinces to allow and to fund more re-entry posts for community medicine. If they will allow but not fund them, provide funding.

RECOMMENDATION 15: In order to encourage new medical graduates to select community medicine, subsidize their clinical training if necessary.

Population-focussed Epidemiology: as noted earlier, most North American textbooks almost ignore this topic, and most graduate programs offer few courses in it. Students therefore have little or no exposure to the field, so it is little wonder that they express little interest in it. Providing funding for theses on applied topics encouraged graduate students to work in this area when it was tried by the Health Information Partnership of Eastern Ontario.

RECOMMENDATION 16: Fund a special session or lecture at the biannual conference of Canadian Society for Epidemiology and Biostatistics; provide a prize for work in this area, either at CSEB or in individual graduate programs. Provide funding for theses on applied topics to encourage graduate students to work in this area.

iii) Work with the Public Health Task Group of the Association of Faculties of Medicine of Canada and the Canadian Association of Schools of Nursing to increase exposure to public health in entry level education.

More exposure of health sciences and other undergraduates to public health would help raise its profile, and should enhance recruitment. This important initiative should at least make undergraduates more aware and earlier aware of public health as a possible career path. Provision of model curricula and teaching resources would also help. Other possibilities to attract students are undergraduate electives, perhaps offering travel money for same.

RECOMMENDATION 17: In addition to the JTG recommendation, PHAC should work with professional organizations to develop model curricula and teaching resources, and to provide travel funds and (where appropriate) stipends to students taking electives in public health.

2.4 b) Medium-Term Actions:

i) Plan and implement regional training programs to provide the small volume, highly specialized providers required to meet health needs.

Yet again, this requires a venue for continuing discussion among PHAC, CPHA, P/Ts and universities: another task for the Steering Committee. For some of these fields we may need only one training centre in Canada, at most.

Community Medicine: residency programs might be encouraged to cooperate more in order to make optimal use of expertise available in specific programs, as happens in Montreal and in Toronto-Hamilton.

Population-focussed Epidemiology: We need to encourage universities to teach more population epidemiology. Possibilities include academic chairs (currently under development). Expanding the Field Epidemiology program (also underway) will provide more opportunities for young epidemiologists to obtain practical experience.

ii) Assess the potential for virtual schools of public health.

This recommendation is very relevant to section 2.2b and Recommendation 3, above. It refers to collaborative programs in which several universities would collaborate in providing educational programs in public health. The concept is closely related to provision of distance education. Several universities have already developed programs using distance education as either the only mode of instruction (Lakehead) or as one of several options (Waterloo). The Regional Training Centres of the CHSRF/CIHR CADRE program (Capacity for Applied Development Research and Evaluation in Health Services and Nursing) may provide a model for inter-university collaboration. The Skills Enhancement for Health Surveillance courses of PHAC are an important resource, and PHAC is

prepared to fund development of other training products and tools.

Objective 2.5: Enhance the capacity of the public health sector to provide practice placements

This is a key area. Strengthening linkages to practice will strengthen training and research, and in particular should make more practical placements available. Academic chairs in public health should help to develop such linkages.

2.5 a) Short-Term Actions:

i) Raise awareness of barriers to successful practice placements.

These barriers are likely to include financial pressures on health units (which led to loss of a THU in Ontario), criteria for academic promotion (which do not reward working with practitioners), and the exclusively academic background of most faculty members. Only the last is susceptible to immediate action.

RECOMMENDATION 18: Conduct a study of barriers to successful practice placements (possibly through a contract), produce a report, and call a meeting to seek solutions.

ii) Pilot different approaches to increase practice placements (e.g., backfilling positions, creating dedicated teaching positions in health units, creating teaching health units, providing subsidies for student travel).

These are sound suggestions, and this report can only support them. The process of developing placements would be facilitated by availability of academic chairs in public health, which are discussed in objective 2.6 b) i, below, and are already under development.

iii) Assess the capacity of the Field Epidemiologist Program to meet local, provincial and national needs, and expand it if required.

Agreed, and already underway. Further expansions are probably needed.

iv) Identify best practices in practice placements (e.g., how long should placements be, how they should be delivered).

This might best be done in association of the study of THUs recommended above, and would involve canvassing training programs, placements and recent graduates, and examining the experience in other countries. The basic study might be the subject of a contract, perhaps let to an MPH program or a School of Public Health.

Objective 2.6: Enhance the capacity for public health research and education .

2.6 a) Short-Term Actions:

i) Reinforce public health as a distinct practice and identify the research and education required

to support the field.

This will be strongly supported by the identification of required competencies and by the presence of faculty members with experience (preferably concurrent experience) in public health practice. Continued involvement of the CIHR-IPPH will facilitate appropriate research funding and communications mechanisms. A start was made at a national meeting and three regional workshops convened by Health Canada's Office of Surveillance Coordination in 2004, to determine what needs to happen to advance collaborative and successful population and public health research across Canada. That conference made a number of recommendations concerning on-going dialogue, a national public health agenda, linkages that need to be nurtured, appropriate education and communications strategies, sustainable funding, and necessary infrastructure.

ii) Assess the potential to use the skills enhancement model to enhance other public health skills and competencies.

This seems particularly appropriate for continuing professional development.

iii) Develop more teaching health units that combine practice and academic learning.

Ontario's Teaching Health Units (THUs) were based on the teaching hospital model. There can be no doubt that they were successful in increasing the amount and visibility of teaching in public health, in terms of rotations (clerkships), electives, seminars, and graduate theses. They also brought Medical Officers of Health on to university faculties. In some cases they provided stipends for graduate students. Their PHRED successors were more broadly based, to support all public health units, and placed more emphasis on public health research. A CIHR-IPPH-supported project reviewed similar initiatives in other provinces.³⁴

RECOMMENDATION 19: PHAC should work with P/Ts to encourage the development of some sort of teaching health units, in association with public health educational programs, providing guidelines and perhaps funding.

iv) Establish formal university-affiliated positions in public health departments responsible for teaching and continuing education.

The Public Health Chairs that PHAC is currently developing will do this. The Teaching Health Units did the same thing, although their continuing education function was not always as well developed as it should have been or should be in future.

v) Encourage two CIHR institutes—the Institute of Population and Public Health and the Institute of Health Services and Policy Research—to give priority to research that would contribute to understanding PHHR issues.

Given its leadership in the public health training project, the IPPH would not seem to require much encouragement. Since researchers follow the money, special competitions on PHHR topics are in order.

2.6 b) Medium-Term Actions:

i) Increase opportunities for public health teaching and applied research (e.g., chairs, clinician scientists, practitioner exchanges, consortia of academic institutions).

All of these have already been discussed, in other contexts, and all are very desirable. Some financial lubrication from governments and their agencies would be helpful.

RECOMMENDATION 20: Establish at least one academic chair in public health in each region, to be held by persons with practical experience in public health as well as credible academic qualifications. Ensure that their academic appointments bear appropriate criteria for advancement.

ii) Develop practitioner-scientist responsible for practice relevant research and education.

Much can be learned from the experience in the clinical medical disciplines, which have found that very few people can do all three things well (practice, teaching, research). It is probably realistic to think of two streams, equivalent to clinician-educator and clinician-researcher; the former is more workable than the latter, and probably more important. It would be helpful to provide external funds for such appointments. But the real problem will be getting universities to recognize these streams and to use appropriate criteria for their tenure and promotion: written criteria are not always followed in practice, and the bias towards basic research runs deep. Changing the current practices will probably require extended negotiations with individual university administrations and faculty associations.

III. PROPOSED ROLES FOR NATIONAL ORGANIZATIONS

Generic Organizations

Public Health Agency of Canada

- Overall coordination
- Provide training placements for residency and MPH programs
- Fund chairs in public health
- Provide studentships
- Enter into exchange agreements with health units and universities
- Provide training: Field Epidemiology program
- Provide or contribute to CPD, including Skills Enhancement Courses

Canadian Public Health Association

- Perform advocacy
- Provide leadership
- Liaison with field

CIHR–Institute of Population and Public Health

- Encourage and fund applied public health research
- Encourage and fund educational research
- Provide studentships in applied areas

Council of Pan-Canadian Public Health Network

- Press provinces to provide re-entry residency posts for community medicine
- Press public health organizations to develop an evidence-based culture

Council of Deputy Ministers

- Commit to implementing Strategy

Discipline-specific organizations

Nursing:

- Canadian Association of University Schools of Nursing
 - Encourage undergraduate education in public health
 - Implement core competencies

Inspection:

- Canadian Institute of Public Health Inspectors
 - Implement core competencies

Medicine:

- Association of Faculties of Medicine of Canada

Encourage undergraduate education in public health

Provide appropriate examination questions for licensing examinations

Royal College of Physicians and Surgeons of Canada (no change)

Accredit residency programs in community medicine

Certify special lists in community medicine

National Specialty Society for Community Medicine

Liaise with RCPSC re training requirements and programs

Contribute to developing undergraduate curriculum for medical schools

Sponsor continuing education courses

Epidemiology:

Canadian Society of Epidemiology and Biostatistics

Increase emphasis on population-focussed epidemiology

IV. SUMMARY LIST OF RECOMMENDATIONS FOR ACTION IN 2005-06

RECOMMENDATION 1: Develop a Steering Committee on Public Health Workforce Education representing PHAC, F/P/Ts, CPHA, CIHR-IPPH, and universities and colleges offering educational program in public health, which will meet regularly to review the progress made on implementing the recommendations of the various reports and identify additional actions that may be needed. In order to facilitate implementation of its recommendations, the Committee would report to the Council of the Pan-Canadian Public Health Network.

RECOMMENDATION 2: Evaluate the relevance of the Public Health Skills Audit Tool and similar tools (if available) to Canada.

RECOMMENDATION 3: Ensure that current and proposed MPH programs conform to guidelines regarding content and educational methods, that the number and distribution of such programs is appropriate to Canada's needs, and that the programs within each region collaborate where appropriate.

RECOMMENDATION 4. Establish five Schools of Public Health, one per region. These would offer at least MPH, MSc and PhD degrees and continuing education programs, and contribute to residency programs in community medicine. Such a school might be sponsored collaboratively by more than one university, provided that students are regularly brought together. The planning process may be facilitated by provision of Academic Chairs in Public Health and grants-in-aid, available to only one school per region.

RECOMMENDATION 5: In general, Schools of Public Health should be either free-standing Faculties or should be located in a Faculty of Health Sciences, rather than within a health professional school or faculty.

RECOMMENDATION 6: Provide grants or other incentives to education programs to work collaboratively with other programs. Again, these might take the form of Academic Chairs in Public Health and grants-in-aid or contracts.

RECOMMENDATION 7: PHAC, CPHA, CIHR-IPPH and university representatives should name a work group to identify suitable approaches for identifying best practices in public health education and encouraging educators to use them.

RECOMMENDATION 8: Establish an accreditation system for public health education programs, probably through CEPH or ASPHER.

RECOMMENDATION 9: Commission a study of the desirability of creating undergraduate programs in public health.

RECOMMENDATION 10: Consider developing short orientation courses to public health for new PHNs, probably by Schools of Public Health or MPH programs.

RECOMMENDATION 11: Provide formal recognition to those public health providers and employers that support ongoing education. This might take the form of certificates or awards, or eligibility to receive trainees.

RECOMMENDATION 12: Create a clearinghouse that maintains lists of continuing education opportunities for public health workers.

RECOMMENDATION 13: Encourage MPH programs and Schools of Public Health to provide continuing education programs for public health professionals, focussing on practical skills. This might be done through sponsorship of courses or provision of grants to enrollees.

RECOMMENDATION 14: Urge provinces to allow and to fund more re-entry posts for community medicine. If they will allow but not fund them, provide funding.

RECOMMENDATION 15: In order to encourage new medical graduates to select community medicine, subsidize their clinical training if necessary.

RECOMMENDATION 16: Fund a special session or lecture at biannual conference of Canadian Society for Epidemiology and Biostatistics; provide a prize for work in this area, either at CSEB or in individual graduate programs. Provide funding for theses on applied topics to encourage graduate students to work in this area.

RECOMMENDATION 17: In addition to the JTG recommendation, PHAC should work with professional organizations to develop model curricula and teaching resources, and to provide travel funds and (where appropriate) stipends to students taking electives in public health.

RECOMMENDATION 18: Conduct a study of barriers to successful practice placements (possibly through a contract), produce a report, and call a meeting to seek solutions.

RECOMMENDATION 19: PHAC should work with P/Ts to encourage the development of some sort of teaching health units in association with public health educational programs, providing guidelines and perhaps funding.

RECOMMENDATION 20: Establish at least one academic chair in public health in each region, to be held by persons with practical experience in public health as well as credible academic qualifications. Ensure that their academic appointments bear appropriate criteria for advancement.

V. REFERENCES

APPENDIX I: LIST OF ACRONYMS

ACHDHR	Advisory Committee on Health Delivery and Human Resources
ACPHHS	Advisory Committee on Population Health and Health Security
AFMC	Association of Faculties of Medicine of Canada
AMOH	Associate Medical Officer of Health
CAUSN	Canadian Association of University Schools of Nursing
CIHI	Canadian Institute for Health Information
CIHR	Canadian Institutes of Health Research
CIPHI	Canadian Institute of Public Health Inspectors
CPD	Continuing Professional Development
CPHA	Canadian Public Health Association
F/P/T	Federal/Provincial/Territorial governments
IPPH	Institute of Population and Public Health (of CIHR)
JTG	Joint Task Group on Public Health Human Resources
MOH	Medical Officer of Health
NGO	Non-governmental organization
PH	Public health
PHAC	Public Health Agency of Canada
PHHR	Public Health Human Resources
PHI	Public Health Inspector
PHN	Public Health Nurse
PHRED	Public Health Research, Education and Development partnership (Ontario)
RCPSC	Royal College of Physicians and Surgeons of Canada
RHA	Regional Health Authority (Council, Board)
SEARCH	Swift Efficient Application of Research in Community Health
THU	Teaching Health Unit

APPENDIX II:

PROFESSIONAL MASTER'S PROGRAMS IN PUBLIC HEALTH APPENDIX II:

PROFESSIONAL MASTER'S PROGRAMS IN PUBLIC HEALTH

This is an interim report of a two-stage survey conducted in early 2005. The first questionnaire was completed by 11 universities in March 2005; the results were deemed to be of sufficient interest to warrant updating and collection of additional information. A refined and expanded questionnaire was completed by 8 universities in June 2005; 4 of them had also completed the first questionnaire, for a total of 15 universities. A 16th university, believed to have a relevant program, did not respond to either questionnaire. By "professional master's programs in public health" we mean primarily course-oriented programs that include a practicum and are intended to prepare graduates for the *practice* of public health, as distinct from teaching or research.

Italicized responses are drawn from the preliminary questionnaire circulated in February 2005.

TBD = to be determined NS = not specified

1. Sponsoring university and department (Department asked only in Round 2)

<u>University</u>	<u>Abbrev.</u>	<u>Department (if applicable)</u>	<u>Rnd 1</u>	<u>Rnd 2</u>
British Columbia	UBC	Health Care & Epidemiology		✓
Simon Fraser	SFU	Faculty of Health Sciences	✓	✓
Alberta	UA	Public Health Sciences (?)	✓	✓
Calgary	UC	?	✓	
Saskatchewan	US	?	✓	
Manitoba	UM	Community Health Sciences	✓	✓
Lakehead	LU	?	✓	
Waterloo	UW	Health Studies & Gerontology	✓	✓
Guelph	UG	Population Medicine	✓	
McMaster	McM	School of Nursing		✓
Toronto	UT	<i>Public Health Sciences</i>	✓	
Ottawa	UO	?	✓	
McGill	McG	<i>Epidem, Biostats & Occup Health</i>	✓	
Montreal	Mtl	Social and Preventive Medicine	✓	
Laval	UL	?		
Memorial	<u>MUN</u>	?		✓
Total	16		11	8

2. Name and address of person completing this questionnaire (Round 2 question)

UBC: Martin Schechter
 Simon Fraser: Charmaine Dean
 Alberta: Nicola Cherry (Kim Raine, Helen Madill)
 Calgary: ?
 Saskatchewan: *Bruce Reeder*
 Manitoba: Lawrence Elliott
 Lakehead: ?

Waterloo: Stephen McColl
 Guelph: Wayne Martin
 McMaster: Helen Thomas
 Toronto: ?
 Ottawa: Rama Nair
 McGill: ?
 Montreal: Louise Seguin
 MUN: ?
 15

3. Name of degree(s) (check all applicable)

MHSc	1	Toronto
MPH	7	Alberta, Saskatchewan, Lakehead, Waterloo, Manitoba, Ottawa probably, McGill
MSc	5	Simon Fraser, Guelph, McMaster, McGill (Applied), Montreal
Other	1	Alberta (Post-graduate diploma)
TBD	1	Calgary
Not stated	<u>2</u>	UBC, Memorial
	17	(2 programs each at McGill and Alberta)

4. If your program offers [will offer] more than one public health degree, at what stage of their training must students commit to a specific degree program? (Round 2 question)

Not applicable	3	Simon Fraser, Manitoba, Waterloo
Upon acceptance	3	Alberta, Guelph, McMaster
At first registration	0	
After first term	1	Montreal
After second term	0	
Later	0	
Not stated	1	UBC
No response	<u>7</u>	UC US LU UT UO McG MUN
	15	

5. Year of first intake of students (historical or projected):

1976	1	Montreal
1978	1	Toronto
1984	1	Guelph
1994	1	McMaster
1996	1	Alberta (specialist streams added 2002)
2002	1	Lakehead
2005	2	Simon Fraser, Saskatchewan
2006	6	Calgary, Manitoba, Waterloo, Ottawa, McGill, Memorial
Not stated	<u>1</u>	UBC

15

6. Number of new full-time faculty members [to be] added in 2004-2006 to support the program:

0	4	<i>Lakehead, Guelph, Toronto, Memorial</i>
1	2	<i>Ottawa</i>
2	1	Montreal
3	1	Alberta, Manitoba
7	1	<i>Saskatchewan</i>
8	1	Waterloo
20	1	Simon Fraser
58	1	McMaster
Unknown	2	<i>Calgary, McGill</i>
Not stated	<u>1</u>	UBC
	15	

7. Do [will] other programs contribute to the MPH program?

Yes	12	SF UA US UM LU UW UG McM UO <i>McG Mtl MUN</i>	
		<u>At your university</u>	<u>At other university(ies)</u> (Round 2 question)
SF		Stats, Bio, Sociol, Geront, Kines	
UA		H Science faculties, law, business	Calgary, Lethbridge, Toronto, UBC
US		<i>Med, Vet, Nurs, Dent, Kin, Physio, Nutr, Pharm, Arts</i>	No re- response
UM		Med Microbiol	Sask? Alberta?
LU		Not stated	?
UW		Sociol, Psych, Plan, Biol, Stats	Toronto, Ottawa, Lakehead
GU		Pathobiology, Clinical studies	None
McM		Epi & Biostats	None
UO		<i>MSc/PhD epi, resid program CM</i>	?
McG		<i>Epi, Biostats, Occ Health, Nutrition, etc.</i>	?
Mtl		H Admin, Occ/Env Health	McGill: Epi & Biostats
MUN		Not stated	?

Nature of contribution (check all that apply) (Round 2 question)

		<u>Your university</u>	<u>Other university(ies)</u>
Cross-appointments	4	UA UM UW McM	0
Accept MPH students	5	UA UM UW McM Mtl	3 UM, UW Mtl
Teach course(s)	6	UA UM UW UG McM Mtl	1 UW
Supervise practica	4	UA UM UW Mtl	1 UM
Other	2	Mtl	1 Mtl

No	0	
TBD	1	Calgary
Not stated	<u>2</u>	UBC, Toronto
	15	

8. Intake of students per year (in steady state) (FT/PT breakdown asked only in Round 2)

	<u>Full-time</u>	<u>Part-time</u>	<u>Total</u>
UBC:	NS	NS	
Simon Fraser	NS	NS	30
Alberta:	12	8	20
Calgary:			<i>to be determined</i>
Saskatchewan:		20	
Manitoba:	5	0	5
Lakehead:			50
Waterloo:	25	25	50
Guelph 10	1	11	
McMaster	18	0	18
Toronto:			75
Ottawa:			<i>10 initially</i>
McGill:			<i>to be determined</i>
Montreal:	20	13	33
MUN:	<u>90</u>	<u>47</u>	<u>342</u>

9. Educational prerequisites for entry to program:

	<u>Degrees</u>	<u>Acceptable disciplines</u>
UBC	Not stated	Not stated
Simon Fraser	<i>UG degree</i>	Not stated
Alberta	4-year degree; stats course	All
Calgary	<i>to be determined</i>	
Saskatchewan	<i>Bachelor's degree</i>	<i>Health or behav sci</i>
Manitoba	4-year degree	Any
Lakehead	<i>4-year degree, ave 70</i>	
Waterloo	BSc, BA, BSW, BScN, etc.	All; must include basic social/natural science
Guelph	HBSc, DVM	Science
McMaster	BScN	Nursing
Toronto	<i>UG degree, ave A-</i>	
Ottawa	<i>UG degree</i>	<i>Health sciences</i>
McGill	<i>to be determined</i>	
Montreal	BSc	H Sci, biol, soc sci
MUN	<i>UG degree</i>	<i>Not stated</i>

10. Work experience prerequisites for entry to program:

	<u>Importance</u>	<u>Nature</u>	<u>Duration</u> (Round 2)
UBC	NS	NS	NS
Simon Fraser	NS	<i>Population health context</i>	NS
Alberta:	Desirable	Relevant to specialization	2-15 years
Calgary:	<i>to be determined</i>		
Saskatchewan:	<i>not required</i>		
Manitoba:	Essential	health (broad)	3 yrs FTE
Lakehead:		<i>healthcare</i>	
Waterloo:	Desirable	PH or managerial/professional health	12 months
Guelph	Desirable	Applied to public health	1-2 years
McMaster	Not considered		
Toronto:		<i>variable with field</i>	
Ottawa:		<i>health-related field</i>	<i>min 1 year</i>
McGill:	<i>to be determined</i>		
Montreal:	Desirable	Health	Any
MUN:	<i>Desirable</i>		

11. Do [will] you have separate streams for: (Round 2 question)

Students with degree in health studies	Yes	0	
	No	5	UA UM UW UG McM
	Not stated	2	UBC SF
Health professionals (MD, BScN, etc.)	Yes	0	
	No	5	UA UM UW UG McM
	Not stated	2	UBC SF
Students with experience working in public health	Yes	0	
	No	5	UA UM UW UG McM
	Not stated	2	UBC, SF
Other sub-groups of students	Yes	0	
	No	5	UA, UM, UW UG McM
	Not stated	2	UBC, SF
Students with degree in health studies	0	<u>Duration</u>	<u>Additional Prerequisites</u>
		0	0

Health professionals (MD, BScN, etc.)	0	0	
Experience working in public health		0	0
Other sub-groups of students		0	0

12. Duration of program for full-time students who do not fit into any of above groups (months) (Round 2 question)

12	5	UA, UM (min), UO, McG, MUN
15	1	UW
16	1	SF
16-22	1	UT
18	1	UG
24	4	US (Exec 12), LU (PT 72), McM, Mtl
TBD	1	UC
Not stated	<u>1</u>	UBC
	15	

13. Number of courses required to complete program (excluding placements, theses, research papers):

6	1	UO (39 hours per course)
7	1	McM (39)
8	2	UG (30), MUN (30 or 36)
9	1	SF (NS)
10	2	UA (39), UM (39)
11	1	US (39)
12	1	UW (36)
13	1	Mtl (45)
20	1	UT (39)
Variable	1	LU (thesis vs project)
Not stated	2	UBC, McG (min 12)
TBD	<u>1</u>	UC
	15	

14. How many of these courses are [will be] mandatory for all students in all streams (i.e., are core courses)? (Round 2 question)

3	1	UA
4	3	UM UG McM
5	0	
8	1	Mtl
9	1	UW
Not stated	2	UBC SF
No response	<u>7</u>	UC US LU UT UO McG MUN
	15	

15. To what extent do [will] the core courses address each of the following areas of public health?
(Round 2 question)

	<u>Dedicated course</u>	<u>Major part</u>	<u>Minimally or less</u>	<u>NS</u>
a. Health promotion	UW McM	UA UM Mtl	UG	UBC SF
b. Disease/injury prevention	UW	UA UM McM Mtl	UG	UBC SF
c. Health protection	UW	UA UM UG McM Mtl	UBC	SF
d. Population health assess	UM UW McM UA UG Mtl		UBC	SF
e. Surveillance	UW McM	UA UM UG Mtl	UBC	SF
No response	7	UC US LU UT UO McG MUN		

16. What is the maximum number of courses taken in other universities for which students can transfer credit to your program? (Round 2 question)

None	0	
1	1	McM
2	5	SF UA UW UG Mtl
3	0	
4+	1	UM
Not stated	1	UBC
No response	<u>7</u>	UC US LU UT UO McG MUN
	15	

17. Is there [will there be] a required thesis or major paper?

	<u>Thesis</u>	<u>Major paper</u>	<u>None</u>	<u>NS</u>
MHSc		<i>UT (varies)</i>		UBC
MPH	<i>LU (optional)</i>	UA US UM UW UO MUN (opt)		UBC SF
MSc		UG McM Mtl		UBC
Other				UBC
TBD	1	UC		
Not stated	<u>1</u>	McG		
	15			

18. Required practica (placements) for each student:

0	1	UG
1	7	SF UA US UM LU for 20 students UW Mtl
1 or 2	1	Toronto
2	2	McM, Ottawa
3+	0	
Variable	1	MUN
TBD	2	UC, McG

Not stated $\frac{1}{15}$ UBC

Duration (months):

1	0	
2	0	
3	3	UM UW UO
4+	6	UA US UM McM UT Mtl
Not applicable	2	LU UG
To be determined:	2	UC McG
Not stated	$\frac{2}{15}$	UBC SF

19. Do you have a person responsible for coordinating practica? (Round 2 question)

Yes	3	UA McM Mtl
No	1	UG
No, but will	1	UM
Not applicable	1	LU
Not stated	1	UBC
No response	$\frac{8}{15}$	SF UC US UW UT UO McG MUN

20. What are your program's criteria for approving a practicum setting? (Round 2 question)

Research excellence	2	UG Mtl
Quality of supervision	6	UA UM UW UG McM Mtl
Quality of learning environment	6	UA UM UW UG McM Mtl
Provides public health services	3	UA UM Mtl
Provides practical experience	5	UM UW UG McM Mtl
Other (specify)		
Local super with masters	1	UM
Relevance to streams	1	UW
Not applicable	1	LU
Not stated	2	UBC, SF
No response	$\frac{6}{15}$	UC US UT UO McG MUN

21. To what extent do required practica provide students with practical experience in each of the following areas? (Round 2 question)

	<u>A great deal</u>	<u>Depends</u>	<u>Little or none</u>	<u>NS</u>
a. Health promotion	Mtl	UA UM UW UG McM		UBC SF
b. Disease/injury prevention	UW Mtl	UA UM UG McM		UBC,

c. Health protection	Mtl	UA UM UW UG McM	SF UBC SF
d. Population health assess	UW	UA UM UG Mtl McM	UBC SF
e. Surveillance	UW Mtl	UA UM UG McM	UBC SF
No response	7	UC US LU UT UO McG MUN	

22. What fields of specialization does the program offer? (Check all applicable)

None	2	McM Mtl
Environmental health	3	UA UW <i>UT</i>
Occupational health	1	UA
Epidemiology	4	UA UM UG <i>UT</i>
Biostatistics	2	UA <i>UT</i>
Health promotion	2	UW <i>UT</i>
International Health	3	UA <i>US</i> UM
Maternal and child health	0	
Health behav/educ	2	<i>US</i> UW
Health Mgmt/Policy	3	UA <i>US</i> UM
Public Health Leadership	1	UM
Health Informatics	1	<i>MUN</i>
Other (specify):		
Clinical epidemiol	1	UA
Health Studies	1	<i>LU</i>
Nursing	1	<i>LU</i>
Nutrition	2	UT MUN
Family medicine	1	UT
Population health	2	US MUN
Comm development	1	MUN
Veterinary PH	1	US
Rural PH	2	US LU
Aboriginal PH	1	US
Any area	1	McM
TBD	3	<i>UC UO McG</i>
Not stated	2	UBC SF

23. By what mechanisms is your agency linked to the community? (Round 2 question)

Community advisory board	2	UA UM
University appointments	4	UA UM UW McM Mtl
Community agency appointments	3	UA UM McM Mtl
Other (please specify)		
Links to PHAC, OMHLTC	1	UG
Periodic consultations	1	Mtl

Not stated	2	UBC SF
No response	7	UC US LU UT UO McG MUN

24. What particular strength(s) does [will] your program bring to public health training in your region?

UBC: not stated

Simon Fraser: *blend of quant and qual methods, emphasis on determinants, inequity, global h*

Alberta: Diversity, flexibility of options, experience, international perspectives of faculty, strong links with and support from local PH community

Calgary: *to be determined*

Saskatchewan: *animal-human health interface, rural health, aboriginal health*

Manitoba: linkages with PHAC, province, RHAs, established strengths

Lakehead: *distance education, rural/northern/remote focus*

Waterloo: research translation, methods, community links, applied problem solving

Guelph: strong epidemiology, expertise in ID, food safety, zoonoses, antimicrobial resistance

McMaster: solid foundation, flexibility

Toronto: *multidisciplinary, comprehensive coverage, rigour, emphasis on practice & research*

Ottawa: *well-established courses, placements at PHAC*

McGill: *methodological and practical*

Montreal: expertise, recognition, accreditation

MUN: *flexibility to pick courses across streams, strong support from local agencies*

25. Is your university considering creation of a School of Public Health? (Round 2 question)

Yes	2	UA UM
No	5	SF UW UG McM Mtl
Not stated	1	UBC
No response	<u>7</u>	UC US LU UT UO McG MUN
	15	

26. What gaps in public health training have you identified as a result of the consultative processes for your program or other means of communication? (Round 2 question)

UBC: not stated

Alberta: multiple!

Calgary: –

Saskatchewan: –

Manitoba: applied training in PH practice, health services management

Lakehead: –

Waterloo: not stated

Guelph: need active link to public health delivery systems

McMaster: not applicable (long-established program)

Toronto: –

Ottawa: –

McGill: –

Montreal: objectives for placements, evaluation of programs

MUN: –

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1. Last JM. *A Dictionary of Public Health*. New York: Oxford University Press, in press.
 2. Mowat D. *What's happening in public health human resources and training?* 2005 January 30
 3. Sub-Committee on Public Health Capacity (D Keays-White, Chair; D. Butler-Jones, Vice-Chair) of Public Health Working Group. *Survey of Public Health Capacity in Canada. Highlights Report to the Federal/Provincial/Territorial Deputy Ministers of Health*. Advisory Committee on Population Health, January 2001.
 4. Underwood and Associates. *Environmental Scan of Health Human Resources In Public Health in Canada*. Prepared for the Centre for Surveillance Coordination of Health Canada, May 2002
 5. Shah CP, Musto R. *Health Care System Reform and Primary Health Care Renewal: The Contribution of the Community Medicine Specialist*. Canadian National Specialty Society for Community Medicine, 2003.
 6. CIHR–IPPH Ad Hoc Committee on the Future of Public Health in Canada (John Frank, Erica Di Ruggiero, Brent Moloughney, eds). *The Future of Public Health in Canada: Developing a Public Health System for the 21st Century*. April 2003. 46 pp.
 7. Advisory Committee on Public Health. *Survey of public health capacity in Canada. Highlights. Report to the Federal, Provincial and Territorial Deputy Ministers of Health*. Ottawa: ACPH, 2001.
 8. CIHR–Institute of Population and Public Health. *Building a Sustainable Public Health Research Infrastructure in Canada*. Proceedings of a national meeting about what needs to happen to advance collaborative and successful population and public health research across Canada. May 2003.
 9. National Advisory Committee on SARS and Public Health (Naylor Report). *Learning from SARS: Renewal of Public Health in Canada*. October 2003. 224 pp.
 10. Senate Committee on Social Affairs, Science and Technology (M Kirby, Chair). *Reforming Health protection and Promotion in Canada: Time to Act*". 14th Report, November 2003.
 11. Pan-Canadian Public Health Education Initiative. *Summary of Three Regional Workshops*. 2004 March 5.
 12. Partners in Public Health. *Report of the F/P/T Special Task Force on Public Health* (Perry

- Kendall and Ian Shugart, Co-chairs). 2004 May 26. 40 pp plus appendices.
13. Partners in Public Health. *Report of the F/P/T Special Task Force on Public Health* (Perry Kendall and Ian Shugart, Co-chairs). 2005 January 12. 7 pp.
14. F/P/T Strengthening Public Health System Infrastructure Task Group (Perry Kendall and David Mowat, Co-Chairs). *Improving Public Health Infrastructure in Canada*. 2005 February 14 (draft). 85 pp.
15. Joint Task Group on Public Health Human Resources (Brian Emerson and Dorothy Pringle, co-chairs). *The Development of a Draft Set of Public Health Workforce Core Competencies*. January 26, 2005. Xi pp.
16. Moloughney B. *The development of a draft set of public health workforce competencies*. Prepared for F/P/T Public Health Human Resources Joint Task Group. September 2004. 63 pp.
17. Public Health Human Resources Joint Task Group. *Building the Public Health Workforce for the 21st Century. A Pan-Canadian Framework for Public Health Human Resources Planning*. April 22, 2005. 36 pp.
18. Kiefer L. *The Landscape of Community Medicine Residency Training in Canada: An Environmental Scan*. March 2005
19. Canadian Public Health Association (per Paula Stewart). *Enhancing Collaboration between Primary Health Care and Public Health in Canada. Discussion Paper*. April 26, 2005
20. Nevis Consulting Group. *Public Health Workforce Development: Australia, England and the United States*. February 2004.
21. Institute of Medicine. *The Future of Public Health*. Washington, DC: National Academy Press, 1988.
22. Committee on Educating Public Health Professionals for the 21st Century (Gebbie K, Rosenstock L, Hernandez LM (eds). *Who Will Keep the Public Healthy? Educating Public Health Professionals for the 21st Century*. Washington: Institute of Medicine, 2003. 304 pp.
23. ASPH Education Committee. *Core Masters in Public Health Competency Development*, version 1.0, October 2004-May 2005.
24. Ridout L, Gadiel D, Cook K, Wise M. *Planning framework for the Public Health workforce*. Melbourne: National Public Health Partnership, 2002.
25. Nutbeam D. *National Public Health Education Framework Project. Final report*. July 2002.

26. Russell S. *Public health/health promotion research workforce: development, progression and retention. Final Report.* April 2004.
27. Baumann A, Underwood J, Meagher-Stewart D, Blythe J, Clark J. *Development of a preliminary plan to have epidemiology included in university schools of nursing curricula throughout Canada.* McMaster University. 2004 March 31. 37 pp
28. www.ciphi.ca
29. These are full members of the Association of Public Health Epidemiologists of Ontario (Personal communication from P Holowaty).
30. Kahan B, Goodstadt M, Rajkumar E. *Best Practices in Health Promotion: a Scan of Needs and Capacities in Ontario.* Toronto: University of Toronto, Centre for Health Promotion, March 1999.
31. Kiefer L, Frank J, Di Ruggiero E, Dobbins M, Manuel D, Gully PR, Mowat D. Fostering evidence-based decision-making in Canada. Examining the need for a Canadian Population and Public Health Evidence Centre and Research Network. *Canad J Public Health* 2005; 96 (3): I-1--I-15.
32. Details at www.ceph.org
33. Scott S, Edwards N. *Decision Support Tools for Community Health Policy and Program Decision-Making.* University of Ottawa: Community Health Research Unit Monograph, April 30, 2005 (draft)
34. Ontario PHRED partners. *Building Public Health Research, Education and Development in Canada: a Five Site Consultation.* Submitted to CIHR–IPPH. 2002 July 31. 53 pp.