

Beginnings: The Occupational Health Program at the University of Alberta, 1984-1999

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Abstract. The Occupational Health Program (OHP) at the University of Alberta played an important and pioneering role in the specialty of occupational medicine in Canada between 1984 and 1999. Its history illustrates the opportunities and obstacles in one of the smallest and most unusual medical specialties in Canada. After an auspicious beginning in 1984, with support from industry, labour, government, and the university, the OHP encountered, but overcame, many problems subsequently as a result of underfunding, organizational placement, and, after changes in leadership, interference from the provincial government department responsible for occupational health. The history of the OHP illustrates problems of small training programs and the unique problems of occupational medicine but also its potential as a model for medical training out of hospital that responds to population health as well as individual care.

Keywords. Alberta, occupational health, occupational medicine, fellowship

Résumé. Le programme de santé au travail (Occupational Health Program) de l'Université d'Alberta a joué un rôle majeur de pionnier pour la spécialité de la médecine du travail au Canada entre 1984 et 1999. Son histoire illustre les facteurs favorables et les obstacles rencontrés dans le développement d'une des spécialités médicales les moins usuelles. Après des débuts prometteurs en 1984 avec l'appui de l'industrie, des travailleurs, du gouvernement et de l'université, le programme a dû composer avec divers problèmes résultant d'un sous-financement, de sa localisation et d'interventions de l'organisme de santé au travail du gouvernement provincial à la suite de changements de direction. L'histoire du programme donne prise également sur les difficultés inhérentes aux petits programmes de formation et à la médecine du travail, et peut même constituer un modèle pour une formation médicale hors de l'hôpital qui réponde aux besoins de la santé des populations et des soins aux individus.

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Mots-clés. Alberta, santé au travail, médecine du travail

The Occupational Health Program (OHP) at the University of Alberta played an important and pioneering role in the specialty of occupational medicine in Canada between 1984 and 1999.¹ The OHP was an unusual example of cooperation among industry, labour, government, and academia. Its story illustrates the greatest opportunities, seemingly intractable obstacles, and inherent contradictions in one of the smallest and most unusual medical specialties in Canada.

The Royal College has described occupational medicine as a "preventive medical discipline that deals clinically and administratively with the health needs of both individuals and groups with respect to their working environment and specifically involves the recognition, evaluation and control of occupational diseases and injuries."² This definition, while accurate, barely hints at how important occupational medicine can be in the lives of tens of thousands of injured workers and their families in Canada, or the influence of physicians in the field in proposing, applying, or providing the basis for employment standards and workers' compensation criteria. Occupational medicine is not driven by advances in medical science, such as the development of new drugs, but by changes in employment, the economy, and technology.³ It therefore represents an unusual model in medicine, an ambulatory care specialty with both strong clinical and population health components, each of which emphasizes prevention and program management skills. These same features, which give occupational medicine its unique character, unfortunately also tend to separate the field professionally from its sister medical specialties.

Occupational medicine was conceived as and strives to be a rational, scientific approach to the medical aspects of work and health risks. The reality is that occupational medicine is embedded in a complicated social context of labour-management relations, government regulation, workers' compensation, and political agendas. These are issues about which many people, including physicians, have strong opinions. It is not surprising that occupational medicine is a Rorschach test onto which people tend to project their personal and ideological attitudes, usually finding fault in the abstract without closely examining the solutions made possible and progress actually achieved by occupational medicine.

The history of the OHP is at once unique to a time, place, and situation, and representative of similar programs. Although names and details change, most similar programs in North America have experienced the same struggle for credibility and acceptance and to overcome common problems, including dependency on unstable external sources of support and the strings that come attached.

This story begins with my arrival in 1984, at the age of 34, to establish the new program as the founding professor in the newly established chair and ends with my departure in 1998. Subsequently the Program, and the Department of Public Health Sciences of which it was a part, were taken in other directions. In this paper, references to the incumbent chair are to me, personally. Where intention is attached to the Occupational Health Program or the incumbent chair, the motivation should be understood to refer to my own and the responsibility for actions taken is my own.

BACKGROUND

The leading historical figures in Canadian occupational medicine were J. J. Grant Cunningham in the early 20th century and Ernest Mastro-matteo, his protégé, in the late part of the century, both of whom were active in Ontario. Although best known for their work in practice and regulation, both were involved in education, mostly postgraduate, and helped to support the then-designated School of Hygiene (later School of Public Health) in offering a program leading to a Diploma in Industrial Health at the University of Toronto. Organized academic training in Quebec began with the establishment of the School of Occupational Health (now absorbed into the joint Department of Epidemiology and Occupational Health) at McGill University in 1974. Rodney May, in various provincial government positions, stimulated the establishment of a network of academic programs during this period in Ontario, a program at Dalhousie University in Nova Scotia, and a leadership program in occupational health nursing at Grant MacEwan Community College in Alberta.⁴ In the 1980s, McMaster University introduced a three-month certificate, followed by a Diploma of Occupational Health and Safety, under the leadership of David Muir. Fellowship training in occupational medicine, however, was subsumed under community medicine and was not specialized.

Proponents of a fellowship in occupational medicine organized around the Canadian Board of Occupational Medicine (CBOM), which was set up and still functions as a certifying body for physicians, who enter the practice of occupational medicine in mid-career without fellowship credentials, through a combination of study, audited experience, and examination. CBOM was important in the development of the specialty for many reasons, including demonstrating the sufficient numbers of interested physicians to support a viable specialty, the unity of the content of occupational medicine, and its advocacy for a Royal College fellowship training program. It remains critical to occupational medicine practice because it is the means of demonstrating competency for most practitioners in the field.

Occupational medicine was finally recognized as a separate specialty by the Royal College in 1984, the same year that the OHP began at the University of Alberta—decades later than in the UK and the US. This delay was not the result of lack of achievement in the field, as research of remarkably high calibre had been produced in Canada for years, especially from McGill University and the University of Toronto, nor did it necessarily reflect a lack of appreciation for occupational medicine, since many programs in community medicine incorporated training in the field. Rather, it seemed to arise from a preference for “lumping” rather than “splitting,” aggregating all medical fields with a population component into the specialty of community medicine. Proponents of community medicine generally opposed the formation of the new specialty, mostly on the grounds that a recognized specialty in Canada would be too small to be viable but also sometimes because they believed that occupational medicine was integral to community medicine theory and practice.

Training requirements and guidelines for accreditation of fellowship training programs were approved by the Royal College in 1986.⁵ The first qualifying examinations were offered in 1988 and were sat largely by faculty intending to teach in the newly established programs. The University of Alberta, the University of Toronto, and McMaster University applied for approval of training programs at the earliest possible time, in 1987. All three were approved by the Royal College but McMaster was unable to implement its plans, so only the two universities initiated programs, both in 1989. McGill, the obvious *primum inter pares* given its excellence in the field, was constrained from applying by the policy of the Quebec government, which did not recognize occupational medicine as specialty separate from community medicine and would not support a training program.

Although the two active training programs produce only a handful of fellows, and sometimes none in a given year, those fellows provide leadership for a field dominated by practitioners who move into the field in mid-career. The practice of occupational medicine has attracted hundreds of practitioners without Royal College fellowship credentials, many of them certified (or recognized by the new designation of fellowship) by the CBOM. The paucity of formal training programs, the impracticality of interrupting a career in medicine to retrain in a traditional fellowship model, and the multiplicity of routes of entry into occupational medicine has led to an on-going tension in the field over credentials and standards of preparation. The reality is that while the fellowship plays an essential role for leadership activities, the viability of the field as a whole depends on, and indeed is enhanced by, the entry of good practitioners in mid-career because fellowship training programs will never be able to meet the demand, let alone the unfilled need, for

such services. For that, the CBOM-recognized mid-career entrants to the field are critical.

The year 1984 was also pivotal for occupational medicine in Canada in other ways. The Ontario and Quebec provincial occupational medicine associations had just combined in the first of two such mergers to form a new national organization, now known as the Occupational and Environmental Medical Association of Canada (OEMAC). Locally, the Alberta Occupational Health Society, an important organization the membership and activity level of which served as a barometer of vitality in the field, had just rebounded from a decline in activity; it would thrive for nine more years and then run out of steam in 1993.⁶ Both these organizations strongly supported the new training program in Alberta. Perhaps surprisingly, so did the CBOM, because the new program soon became involved in distance education that supported preparation for its parallel route to certification by examination.

The development of the field of practice in Canada has since deviated from the specialist-consultant model implied in the original training requirements, which was inevitable given the population health content of the field.⁷ Even so, it is now recognized as a subspecialty of internal medicine by the College.

ORIGINS

In the 1970s, a number of industrial disasters and a run of highly visible fatalities in Alberta, mostly in the coal industry, provoked a political response in the form of a royal commission to evaluate occupational health and safety in the province. The Gale Commission, as it was called, handed down a series of recommendations in 1975, which included a call for strengthening the provincial government agency for occupational health and safety and the founding of a permanent academic chair in occupational medicine at the University of Alberta. The objective was to create a centre of excellence that would provide trained practitioners, conduct research relevant to Alberta workers and, frankly, to provide a safe haven in academia for occupational health when, as expected, political attention would flag again.

Mr. Neil Reimer, President of the Energy and Chemical Workers Union, was a member of the Gale Commission and after it dissolved became the champion for the academic chair. He persuaded four companies to contribute funds: NOVA (a pipeline and oil company), PetroCanada, Celanese Canada, and Shell Canada. These funds were matched by the new provincial agency, then called Alberta Workers' Health, Safety and Compensation (AWHSC). Even so, the interest on the total amount available was not sufficient to support a chair, so the university breached the gap. The University of Alberta created a permanent

position at the rank of full professor and created an endowment with the funds already raised in order to support an operating fund for the chair. Notwithstanding generous support from the initial donors, the OHP was badly underfunded from the beginning and much of its history revolves around the search for financial stability and dealing with unacceptable strings attached to financial support.

A previous department chair, the well-known Dr. Stanley Greenhill (a Scottish peer famous for taking his seat in the House of Lords and orating whenever in London), had a strong interest in occupational medicine and taught the subject to medical students. Dr. Robert Orford, then executive director of Alberta's occupational health agency, taught the course after Dr. Greenhill retired in 1981. He also became the leading advocate for an occupational health program at the University of Alberta, after an earlier start-up attempt at the University of Calgary did not succeed. Recruitment to the academic chair was difficult. The pool of specialized talent in Canada was very small and not to be moved. The search soon focused on candidates in the UK and the US. The author was eventually chosen, probably in part on the strength of having already had the experience of starting a new academic program in environmental and occupational health at a university in California.

The new academic chair was placed in the Department of Health Services Administration and Community Medicine, which in 1992 was renamed (while the incumbent chair also served as acting department chair) the Department of Public Health Sciences. This was at best an awkward arrangement. The Department was dominated by non-physician faculty in health services management and policy, who saw themselves as being on the vanguard of healthcare reform. Because of this commitment and the way in which it was expressed, the departmental faculty had a reputation for being antagonistic or even hostile to physicians. This reputation would prove to be an obstacle to the OHP in winning credibility with the rest of the medical faculty. When health services in the province were regionalized in the early 1990s, creation of the Capital Health Authority gave the OHP a new set of reporting relationships, clinical contacts, and advocates in administrative positions that ultimately lent stability to clinical services and better integrated the OHP into the mainstream structure of provincial health care.

THE OCCUPATIONAL HEALTH PROGRAM

Table 1 summarizes the stated objectives of the new academic program when it began. These objectives were intentionally broad, signaling that the new program would not limit itself to medicine or to educational activities. The Occupational Health Program (OHP) was given its broadly inclusive name ("health" instead of "medicine") in order to

Table 1
Objectives of the Occupational Health Program
as formulated in 1984

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1. To conduct research into occupational health problems, with a particular emphasis on developing new and useful insights and their application to occupations and industries of significance in Alberta.
 2. To conduct research of a basic nature that provides new knowledge of general interest using the unique opportunities inherent in occupational health research to investigate problems of [more general] scientific interest.
 3. To develop educational and training opportunities in occupational medicine appropriate for various levels: undergraduate, postgraduate and continuing education.
 4. To provide necessary and authoritative consultation services, when possible, and to resolve substantial problems affecting industries or workers in Alberta.
 5. To provide authoritative consultation services for individual patients and practical assistance to their physicians.
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signal that it would embrace other fields related to the workplace and health.

From the beginning, the OHP had to satisfy disparate and perhaps unrealistic goals. The clients and supporters of the Program made it clear that they expected a centre of excellence but one that would make a practical difference in the community. The university at the level of the Dean expected a centre of excellence in research. The local medical community wanted a venue to send their more difficult and refractory patients for consultation or disposal. Department faculty, which was almost entirely focused on students in the health services administration program, wanted a physician to take over the unwanted task of teaching medical students.

Teaching of medical students was the first activity on the agenda together with applications for research grants. The new program obviously had to address issues in the oil, gas, and petrochemical sector but it also had to be broader than one industry, credible to all parties, neutral between labour and management, and self-directed. Strategically, it was important for the new program to reach beyond medicine to meet other educational needs, to diversify its research agenda, and to provide services other than clinical consultation. In order to achieve balance, the endowment was named the Tripartite Fund for Occupational Health and Safety, in order to acknowledge that although the funds came from industry and government, the fund itself would not have existed without the efforts of organized labour. To assert the autonomy of the new chair and to underscore its independence from corporate donors, the new chair accepted an invitation to join the Board of Directors of the

new Alberta Federation of Labour Occupational Health Centre. The OHP provided the Centre with clinical support for many years, in keeping with Canada's tradition of independent worker-centred clinics.⁸

For the first five years, the program developed reasonably well, enjoying the support of the provincial government. The early success of the program was due in part to the active support of Herb Buchwald, the Executive Director, and senior staff at AWHSC, the provincial occupational health and safety agency. Over the previous decade AWHSC had earned a reputation for leadership across North America for the quality and innovation of its regulatory and educational activities. The government of the day, under Premier Peter Lougheed, had a light touch. Many of the senior staff of AWHSC had academic interests themselves, were already convinced of the role and value of academic programs, and were involved in teaching in the successful occupational health nursing program at Grant McEwan Community College.⁹ Figure 1 shows the OHP faculty and staff as of 1988.

This alignment of interests did not last. "The Division" (as the part of AWHSC that dealt with occupational health was called by insiders, because it had begun as the Division of Industrial Health of the Department of Labour in the 1970s) soon became the focus of political scrutiny, which led to reorganization. It was unusual in Canada for

Figure 1



Photograph of the faculty and staff of the OHP in 1988. Standing: Dr. John W. Markham, Peggy Szumlas (MSN graduate student), Kathleen Lasell (secretary), Dr. Tee L. Guidotti, Lori Benner (research assistant), Shelly Koch (temporary research assistant). Seated: Shona Kelly (research associate), Dr. Vivian Qweck (research assistant), Dr. Myrva Cottle (research associate).

a provincial government agency responsible for occupational health to report at cabinet level and some politicians believed that this might promote over-regulation or send an anti-business message. The Division was separated from the Workers' Compensation Board of Alberta with respect to ministerial responsibility and initially combined with community health in a new department. It was then separated again and was eventually shuffled into Alberta Labour. At each step along the way, the relationship between this once-powerful government agency and the OHP weakened, as did the strength and political clout of the Division.

By 1988, political attitudes toward occupational health, in general, were changing, from enthusiastic support first to neutrality and then to distrust, because regulation of any kind was perceived as discouraging to business. Ministerial oversight varied dramatically during these sequential transitions. Jim Dinning, later to become a leading contender for the premiership, was highly motivated to excel in his first cabinet appointment and was highly supportive. He initiated a plan for long-term financial stability for the OHP. However, he was appointed to another position in Cabinet before it could be approved and implemented. Ian Reid, who succeeded him, was himself a physician from Edson, an industrial city, and treated occupational injuries and was aware of the full range of occupational health problems. In what seemed a promising and logical development, Dr. Reid was made Minister responsible for both occupational health and the environment. Dr. Reid continued to push for the financial plan, which was by then stalled by a downturn in the economy. He also mitigated, to the extent that he could, the effects of downsizing, cutbacks, and reorganization in the Division.

However, in 1989 Dr. Reid was reassigned in a Cabinet shuffle and Peter Trynchy, a member of the Alberta Legislative Assembly who was returning to Cabinet after a period on the back bench, was given the single portfolio of occupational health and safety. A new executive director of the agency, which by then was known as Alberta Occupational Health and Safety (AOHS), was brought in to hew more closely to the political agenda and moved immediately to curtail its size and influence. Morale at AOHS plummeted. These changes profoundly affected the working relationship between the leadership of Alberta Occupational Health and Safety and that of the Occupational Health Program, although there were always good relations at the level of the professional staff.

The OHP came to be regarded with suspicion by the new executive director as a possible threat, because it was an independent voice. For example, around 1990 there was a new policy in AOHS to encourage employers in high-risk industries to form "safety associations," which had a mandate to share management and technical expertise. This was

a mainstay of the policy of "internal responsibility" by which employers would monitor their own experience. The claims for success of these safety associations in reducing injury rates were extravagant and frankly not believable, which was pointed out on more than one occasion by faculty of the OHP.¹⁰

A funding formula was ultimately approved for occupational health programs in the province but the pathway was circuitous and the end result disappointing. Briefly, the mandate for the Occupational Health and Safety Heritage Grant Program, which was previously the major provincial conduit for grant support in the field, was about to expire. At a meeting of financial contributors to the original fund called to review progress, the executive director had announced his intention to ensure the financial viability of the OHP, at a stroke cutting off enthusiasm and interest on the part of the donors in providing further funding and ensuring dependence on the provincial department. The executive director of the Division then devised a plan to invest the balance of the fund in an annuity to benefit existing academic programs because the financial yield of endowments at the time was not attractive. There was considerable pressure to include the University of Calgary in any arrangement. The Minister of the day declared that the full amount had been "awarded" to the University of Alberta but with a requirement that occupational medicine activities be supported at the University of Calgary, without specifying the nature of such activities, the degree of support, or the proportionate share of the funds to be allocated. This, of course, set the two universities up for an inevitable conflict. In the event, there were no substantive negotiations. When (predictably) the two universities did not agree in their initial positions, the Minister declared (within days of the first and only meeting) that he was disappointed at their intransigence and promptly disbursed a much lesser amount, which was to be split evenly between both institutions.

After complicated maneuvering, the OHP received its share of the funds in 1990 but the annual operating grant (structured as an annuity) was further reduced by a new encumbrance and amortized over five years. Under the terms of the award, the University of Alberta received a one-sided mandate requiring it to create an entirely new health promotion program to be designed to the satisfaction of AOHS and supported out of the funds made available. This requirement encumbered two-thirds of the grant, reducing the effective operating grant for the OHP itself to one third of the already reduced amount.

A new entity, then called the Northern Centre for Occupational Health and Safety, was also required to be set up, unnecessarily duplicating the structure of the existing OHP. (The University of Calgary created a parallel Southern Centre, but had no already existing program.) On the surface, this resembled a proposal that had been put forward by

both universities two years before for centres modelled on a network that had recently been implemented in the state of New York.¹¹ The arrangement imposed on the Alberta universities was quite different from that proposal, however, because it imposed a heavy commitment of non-medical services and de-emphasized research and clinical services. It also treated the two universities quite differently, by mandating support for an expensive program at one but putting no such requirement on the other.

A further bad sign was the imposition of a new and redundant "advisory board" of AOHS staff, which reported directly to the Executive Director of the Division and bypassed the well-functioning advisory committee for the OHP that had already existed for several years.¹² Not surprisingly, within weeks, the new "advisory committee" tried to exert control over the OHP beyond its mandate of project oversight. In one remarkably candid meeting (unfortunately without witnesses), a senior official who led the advisory committee slammed her fist down on the desk of the incumbent chair and informed him that the business of the OHP was to make the minister look good and that this business of supporting research was nonsense. By 1995, relations between the AOHS had deteriorated even further and might be described as tense. There was little pretense of respect for the autonomy of the academic program. Mid-level functionaries from the "Division" openly attempted to interfere in the affairs of the OHP, to dictate whom they wished to have adjunct appointments, and to demand personal favours. Then, abruptly, most of the senior staff left the agency and the resignation of the Deputy Minister for Alberta Labour, which had absorbed AOHS by then, was, in the ineluctable formula of bureaucracy, accepted reluctantly with appreciation for services rendered over many years. Oddly, there was no media coverage of whatever had happened, although it was clear that the turn of events had nothing to do with the OHP. From that point forward, attitudes improved and the OHP was even consulted for suggestions on reconstructing the occupational health and safety regulatory infrastructure within Alberta Labour.

The new leadership took over a department with greatly diminished capacity in the area of occupational health and safety. Preoccupied with reviving what was left of the old "Division" (a term that had ceased to be much used by then), it had little interest in what the OHP was doing and so did not object when the Northern Centre was renamed the Northern Centre for Work, Environment and Health and took on a new mission as the OHP's outreach program, managing contract work, consulting, and non-clinical service commitments. Later, the Northern Centre became the OHP's lead entity for work on environmental health projects.

This turn of political events relieved the political pressure on the OHP for a time but left it without much external support. Fortunately,

a new partner emerged: the Workers Compensation Board (WCB) of Alberta. The new chief executive officer, John W. F. Cowell, was an eminent occupational physician himself, previously both medical director and a vice-president of NOVA, one of the original donors to the Tripartite Fund. He saw an opportunity for the OHP to help carry out his agenda of transforming the WCB. Under his sponsorship, the WCB provided both an operating grant and a contract for services in training WCB medical staff and supporting development of evidence-based policies and procedures. This forward-looking project brought the OHP relative operating independence through 1999.

One way in which the OHP responded to this destabilizing history was to diversify its activities in order to avoid excessive dependence on any one funding source and to seek stronger allies, both political and scientific. Faculty enjoyed an excellent relationship with Alberta Environment and a good working relationship with Alberta Health, an unusual feat given that the two agencies were not always in harmony. Engagement in environmental health initiatives was both one way to achieve diversification and a logical extension of core expertise in occupational health. The OHP, revising the mission of the Northern Centre, used the Centre to initiate new projects in environmental health and risk communication in the 1990s which achieved considerable success, and by 1997 there were almost as many projects in the OHP portfolio in environmental health as in occupational health. However, they will not be described here, in order to keep the emphasis in this article on occupational health.

TEACHING

The single most important duty of the new chair was to teach in the medical curriculum. For most of the period, Alberta was unique in having 12 contact hours devoted to occupational and environmental medicine, among the most in North America.¹³ The time was used to cover topics that were relevant and practical for primary care providers, such as common occupational injuries and illnesses, evaluating fitness for duty and return to work, the basics of environmental health, and the workers' compensation system. The course received favourable student evaluations. Alberta students did well on the relevant parts of the Licentiate of the Medical College of Canada (LMCC) examination, in part because the University of Alberta reprised their teaching during a week-long mandatory review course in the fourth year. After 1997, when the curriculum changed to case-based learning, teaching in occupational medicine continued embedded in cases of occupational asthma and a musculoskeletal disorder.

Over the 14 years of the OHP, and until the curriculum in Alberta converted, faculty of the OHP (essentially, the incumbent chair) taught approximately 2000 students the basics of occupational medicine, which, assuming certain rates of emigration out of province and then-current career selection patterns, would have meant that approximately 25% of the primary care providers in the province by 2000 would have been so instructed, not counting those reached through the many continuing education programs.

A handful of students came from out of province, and one from the UK, to study occupational medicine with the OHP. Their experience was structured with abundant clinic time, directed readings, and whenever possible a small project that could be completed while they were in Edmonton.

Over the ensuing years, as faculty resources permitted, students were taught in graduate programs in epidemiology, occupational health nursing, business administration, and environmental sciences, as well as physicians in postgraduate training in several specialties and medical students. The educational rationale was to emphasize a team approach to occupational and environmental health problems and the practical reason was to achieve a critical mass for new class offerings, such as a graduate seminar in inhalation toxicology, which could not have been supported otherwise. Graduate students also brought a perspective and dedication to research that gave physicians in fellowship training a different point of view and balance.

FELLOWSHIP TRAINING IN OCCUPATIONAL MEDICINE

In earlier decades, there had been individually outstanding clinical and research programs in occupational medicine in Canada, notably at McGill, Queen's, Toronto, and McMaster. Most of these programs received provincial support and conducted their training programs through departments of community medicine. Aggregating all medical fields with a population component into the specialty of community medicine may have had practical advantages, since smaller fellowships are proportionately more costly to manage, but, it was argued, the policy did not accommodate the technical complexity of occupational medicine and its intrinsic requirement for a high level of clinical expertise.

The new fellowship faced practical and existential challenges in 1984. As noted, three institutions applied and were approved for accreditation and one never opened. Toronto, the natural leader, was eventually able to admit and train a small number of trainees over time, largely through funding sources external to the province, but was always limited in the number of candidates it could accept.

Due to a remarkable set of circumstances, the University of Alberta was able to establish its program first. In Alberta the allocation of fellowship training positions was left up to the individual institutions. The Associate Dean for Postgraduate Medical Education was Dr. George Goldsand, a stalwart of the Royal College and true visionary. He believed that occupational medicine could provide a new model for medical training and practice. He encouraged the program and was generous in allocating positions, allowing the OHP to have, at times, four or five trainees at a time and support for up to five years of training. Alberta therefore assumed the burden of a national leadership position it was actually ill-equipped to carry, given its small size, the other demands on the OHP, and the vicissitudes of politics.

The second hire into the OHP was Dr. John W. Markham, who had had a distinguished career in the field in Saskatchewan and who had been the author of that province's occupational health and safety legislation, the first in the nation in 1972. Dr. Markham was appointed director of the fellowship training program in 1988. Dr. Markham also introduced a Distance Learning Program, modeled on the University of Manchester, which provided convenient training for physicians entering the field in mid-career and preparation for the CBOM examinations.

From that point forward, the OHP usually functioned with two physicians and enjoyed the active participation of many adjunct faculty, supported by the rest of the Department as needed. Dr. Jim Cheng, in particular, was outstanding in the role of fellowship training director. Dr. Rodney May, also well known in the UK, had built the admirable occupational health infrastructure with the Alberta government in the 1970's which made the OHP possible. Dr. May later built infrastructure in two other provinces before going back to the UK, but then returned to Alberta from a corporate position with ITT UK and became a mainstay of the training program.¹⁴

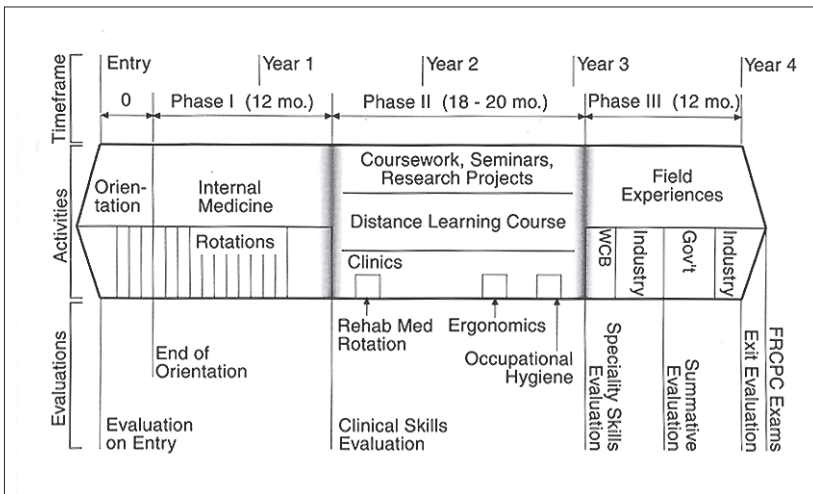
The fellowship attracted trainees a steady stream of well-qualified Canadian candidates, mostly from Alberta but also from Atlantic Canada, and went international with the admission of two physicians from Saudi Arabia under a training agreement with the Kingdom.

Twelve fellowship candidates were trained after the initiation of the program in 1990 and had either finished or were still in their program by 1999. Three became medical directors of major oil companies (two in Alberta and two in Saudi Arabia; one became a director in two companies), two became academic program directors (neither in Alberta), three took positions at the workers' compensation board in Alberta (one as medical director) and three took positions in government in Alberta.

Figure 2 provides an overview of the fellowship training program. The first year was mostly a standard first year of internal medicine. The second year featured rotations to medical services relevant to

occupational medicine, such as dermatology, neurology, and respiratory medicine. The third featured an early rotation at Syncrude, the leading company in oilsands development, at a convenient time, in order to solidly ground the physician in best practices in occupational health and safety management. This was followed by coursework and service in the Occupational Medicine Consultation Clinic. Trainees participated as instructors in the Distance Learning Course, which not only provided useful teaching experience but connected the trainee to a network of colleagues across Canada. Time was carved out of the third and fourth years for learning experiences in rehabilitation medicine, ergonomics, and occupational hygiene and research projects. The fifth year was normally spent in a few longer field placements and special experiences tailored to their interests or in research projects, such as the evaluation of a rapid saliva HIV antibody test. Most residents spent a long period during their last year at Shell Canada, which had an exceptionally good and well-staffed occupational health department and served as the program's "finishing school."

Figure 2

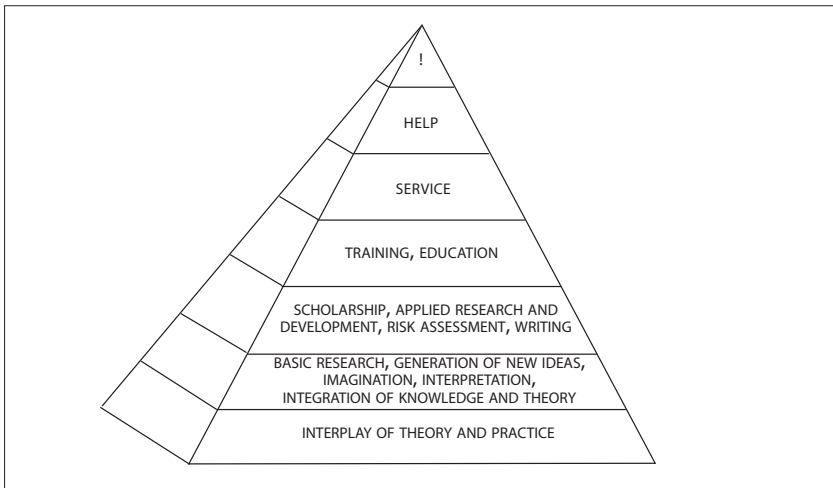


Schema of the fellowship training program in occupational medicine at the University of Alberta.

RESEARCH

When the OHP began, some stakeholders saw research as a distraction from what they considered to be its mission of teaching and clinical service. The incumbent chair explained the utility of research to them using Figure 3. There was never any question that the Program required

Figure 3



Schema for the role of research and service in an occupational health program representing the academic policy of the OHP; contemporary figure from 1985 for a presentation to a sponsoring industry.

a strong research base, of course. Research in occupational health has certain characteristics that distinguish it from more traditional biomedical and population research, in that it usually combines both, requires permission of third parties to access exposed or occupationally defined populations, critically depends on assessment of exposure in order to define risk, has a very small behavioural component compared to other public health sciences, and is embedded in a frequently contentious labour-management context. All occupational health programs are faced with these challenges.¹⁵

Grant funding for occupational health research in the days before the Canadian Institutes of Health Research was difficult to obtain. The principal funding agency for occupational and environmental health, epidemiology, and health services at the time was the National Health Research Development Program (NHRDP), a program supplemental to the Medical Research Council and conceived as a vehicle for mission-oriented research support. NHRDP recognized two main criteria: scientific merit and relevance to federal priorities. Since the Canadian federal government had, and still has, a very limited role in occupational health beyond protecting the health of government employees, proposals to NHRDP usually foundered on the relevance criterion.

The applied nature of occupational health research also worked against funding from the research councils for biomedical research, unless the question were obviously generalizable to other issues in medicine. Most occupational health research is at least nominally about

particular health risks in particular occupations and industries. However, exposure on the job, together with taking medications, are the only opportunity society allows for the ethical exposure of human beings to levels of potentially toxic or dangerous hazards significant for health implications. Viewed in this light, there is much of interest in occupational medicine for biomedical research generally. Investigators in the field only rarely describe the value of their work in such broad terms, however.

Traditional sources of grant support for biomedical research, which at the time for population, environmental, and health services fields, were limited to the Medical Research Council or the Alberta Heritage Foundation for Medical Research, did not favour the ad hoc or expedited arrangements which are often required to capture research opportunities in occupational medicine. Research in occupational health is usually opportunistic and problem-directed. A typical scenario is that a problem is encountered in a particular workforce or industry and an opportunity arises to study it, often in association with an enforcement action that imposes deadlines or with only limited time to gather data or to accommodate restrictions imposed by reluctant employers. For example, the OHP once had an opportunity to study a group of workers with exceptionally high exposure to carbon disulfide but was given only two day's notice.¹⁶

Fortunately, there were sufficient sources of alternative support in Alberta to develop a reasonably robust research program overall, although individual projects were often difficult to support. From the outset, the incumbent chair adopted a strategy for integrating research, educational, and service missions, which is represented in Figure 3. The OHP was fortunate in the early years to recruit three multi-talented research associates, Gloria Lauris (now with Health Canada), Shona Kelly (later at the University of Nottingham and now in Australia), and Dr. Merva Cottle (PhD physiologist, now retired) because versatility and resourcefulness are required in this eclectic field. For example, Ms. Kelly brought to the OHP experience in data management, expertise in pesticide toxicology, and training in ergonomics, a very unusual combination of skill sets.

The flagship research project of the new OHP, and its major research activity until 1990, was a cohort mortality study of firefighters in both Edmonton and Calgary, one of the largest in terms of person-years up to that time.¹⁷ This study, and several smaller studies nested within it, was supported by the Occupational Health and Safety Heritage Grant Program. The funding source brought it to the attention of a member of the Legislative Assembly, who denounced it in *Hansard*, as frivolous, unnecessary, and wasteful. Notwithstanding this lack of appreciation, the study and the line of investigation it initiated ultimately played a

major role in shaping workers' compensation policies and legislation across Canada regarding presumption for occupational disease.

An important purpose of the firefighter study at the time was to build a team capable of conducting sophisticated epidemiological studies in the oil, gas, and petrochemical industry, including oilsands. The team unravelled quickly after the firefighter study was completed because of obstacles in the province to pursuing such studies. Despite the support of the powerful Energy Resources Conservation Board and several oil companies, relevant studies in the oil or gas sector always seemed to be blocked, in large part because of the poisoned legacy of a hugely expensive and mismanaged study in Pincher Creek. The story of how epidemiological studies of the oil and gas industry and of air quality were discouraged in the province for a full decade has been described elsewhere in detail.¹⁸ The *de facto* moratorium was not broken until 2001, with the Western Canada Study, a major environmental study of health effects downwind of gas facilities—on cattle, as human health studies were apparently still too sensitive a topic.¹⁹ The OHP did manage to do other work with the oil and gas sector and made useful contributions. Toxicological investigations of the mechanism of hydrogen sulfide toxicity in rats were also conducted, which led to insights that challenged the conventional view that sulfide primarily acts like cyanide in the brainstem.²⁰

When, in 1990, as described above, the OHP was obliged as a condition of funding to develop a health promotion program, it was clear that it was a priority of the Minister's office for reasons other than scientific merit, because such programs are popular and politically inoffensive. Even so, the incumbent chair wanted the project to be scientifically meaningful although the budget was not adequate for the purpose. An eclectic and savvy research associate named Lynda Ford was recruited to the Northern Centre and together an unusual strategy was shaped. Rather than select a community in which to attempt to organize a new (and expensive) intervention and to measure the improvement from baseline, the Northern Centre sought to partner with a community that was already well organized, for which the OHP could provide a new element of strategic direction, coordination, technical assistance, and evaluation. The rationale was that if an innovative strategy for behavioural change were better than conventional interventions, it should result in detectable further improvement in a community that had already experienced conventional interventions. On that basis, the mayor of Fort McMurray invited the OHP (in the form of the Northern Centre) to work in that community, giving rise to the Fort McMurray Demonstration Project in Social Marketing.²¹ By partnering through existing infrastructure and with community groups, media, and employers, the OHP was then able to leverage its relatively modest

contribution into a large-scale, five-year community health and safety promotion trial, evaluated against an appropriate reference community. In 1995, Fort McMurray was inducted as the first North American city to join the World Health Organization's Safe Community Network.²²

In addition to studies on energy workers, firefighters, health and safety promotion, and risk perception described above, faculty of the OHP studied occupational risks in sawmills, the pulp and paper industry, and pesticide container recycling, and among transit workers, and the toxicology of sulfides (hydrogen sulfide and organic sulfides). Most occupational health programs carry into environmental health an interest in air quality and toxic exposures and the OHP was no exception. On the environmental side, the OHP worked on air quality issues in Alberta, characterizing and describing the health risk in numerous contaminated sites, global climate and ecosystem (primarily boreal forest) change, and children's environmental health.

SERVICE

As in clinical specialties, service activities are the lifeblood of occupational medicine programs. They engage the faculty in real-world problems and keep them current and closely in touch with local employers and workers. They often lead to research activities, information on the direction of technology, and employment trends in the community, and provide earned revenue that is particularly valuable because it is free from the restrictions of grants and internal budgets.

Clinical Service

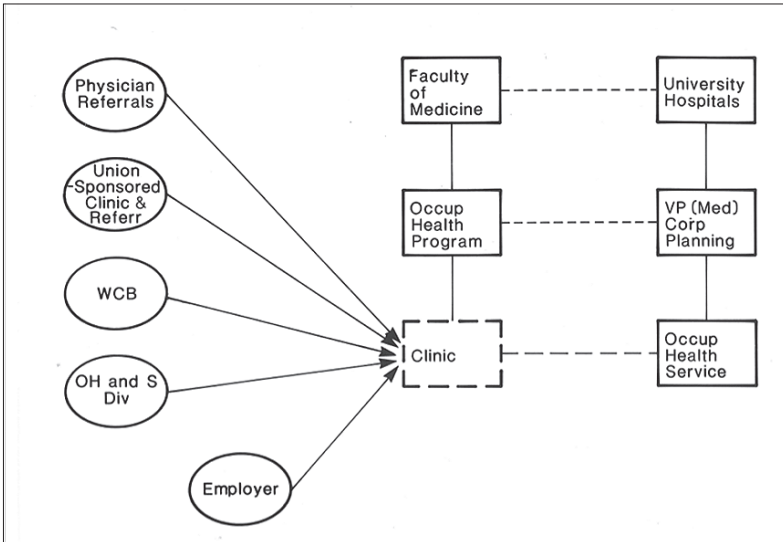
The principal clinical service activity of the OHP was the Occupational Medicine Consultation Clinic, which later came under the formal sponsorship (but not budget) of the Capital Health Authority (CHA) when health care was regionalized in the province. (The regional health authorities no longer exist in Alberta.) Over the 14 years, approximately 3,000 patients were seen by nine attending physicians and formed the teaching population for fellowship trainees and students. The most common diagnoses were similar to those in other academic occupational medicine clinics: reactive airways disease, musculoskeletal repetitive strain injuries, suspected toxicity (often involving misinterpretation of hair or blood trace element analysis). About 19% of cases were not occupational; they usually involved indoor air quality issues at home or suspected pesticide toxicity. There were extraordinary teaching cases (e.g., silicotuberculosis initially misdiagnosed as sarcoidosis, manganese toxicity, recovery from hydrogen sulfide toxicity, lead toxicity, severe solvent-related neurotoxicity) while others provided the opportunity, important in this field, to teach the difference between malingering,

symptom exaggeration, and psychosomatic disease. Most of the work of the clinic was in diagnosis, assessing causation and determining work-relatedness rather than providing treatment; cases requiring continuity of care were referred to or back to appropriate physicians in the community. The value of this clinic was to identify occupational disorders, to advise on management for conditions more commonly seen in occupational settings, to manage occupational implications (such as fitness to return to work, work capacity, and accommodation), to evaluate for workers' compensation claims, and to advise on preventive measures. At relatively low cost to the province, the clinic also played an important role in rationalizing the insurance management of a select group of difficult patients, sending those with probable occupational disorders into the workers' compensation system, ruling out occupational disorders in others, and discouraging improbable claims or those without merit.

A second venue for clinical service was the Occupational Health Service for the 7000 employees of what was then the University of Alberta Hospitals. The incumbent chair in the OHP took over as Medical Director in 1987, an arrangement that lasted two years and ended because it took too much time away from academic program development. The employee health service needed a lot of work but fortunately there was a staff of extremely capable nurses led by a certified occupational health nurse who was tireless and very efficient. Close co-operation continued between the academic program and the hospital employee health service until the latter was absorbed by the new CHA during regionalization in about 1994, at which time the employee health service was significantly downgraded at the site. However, as if by way of offering a consolation prize, the Occupational Medicine Consultation Clinic was shuffled into the CHA clinic structure, which gave it a new and official standing in Alberta's health care system. In later years, the CHA's employee health system became a teaching rotation for the fellowship training program, which met the requirement by the Royal College for programs to offer practicum experiences in at least two industries.

Figure 4 illustrates the clinical services system, reporting relationships, and referral patterns in 1988, at which time the Occupational Medicine Consultation Clinic (dashed-line box) was under the authority of the academic OHP and the connection was strongest with the UAH Occupational Health Service.

Figure 4



Organization, reporting relationships (solid lines), coordinating relationships (dashed lines) and referral patterns (arrows) of the Occupational Medicine Consultation Clinic (dashed line box) and the Occupational Health Service for employees of the University of Alberta Hospitals, as they existed in 1988.

Other Service Activities

Service activities other than patient care involved the incumbent chair and later the OHP staff in a wide variety of interesting and professionally useful issues, including the evaluation of evidence in setting occupational exposure levels, assessment of hazardous situations and contaminated sites, emergency planning standards, air pollution studies, and advisement on a number of highly specialized problems, ranging from oilfield exposures to formulating criteria for accepting workers' compensation claims for asbestos-related disease.²³

These activities were professionally rewarding. However, a characteristic of occupational medicine practice is that it also involves the practitioner in many uncompensated service activities. For academic faculty, these usually come in the form of invitations to serve on task forces and committees, usually sponsored by agencies of government, some of which are current or potential sources of funding. For clinical practitioners based in the community, these invitations usually involve service to local government or employers or schools, most of which are possible sources of referrals and business. Faculty active in an occupational health program that sponsors a clinic are in both positions. It is prudent to accept such invitations, because there is an unspoken understanding that lack of enthusiasm may close off future opportunities for support

or business. Therefore, the occupational physician is obliged to serve in the uncertain hope that it may "lead to something" while knowing as a near certainty that refusal will cut off any chance of working with that agency in the future. Several agencies abused this situation, involving physicians in the OHP in lengthy or open-ended, unproductive commitments with no compensation to the OHP, program advantage or, in some cases, even recognition.

In occupational medicine important articles often do not reach those who need to read them. The OHP launched a series of occasional papers called Alberta Studies in Occupational Health, packaging the work of the OHP into self-contained reports that were individually mailed to those in and out of government who were most concerned with the particular topic. A complete set of the series of 19 issues was deposited in the libraries of the University of Alberta, the University of Calgary, and Alberta Labour. A recent on-line check of the Alberta Labour collection showed that most have since disappeared from their repository.

CONCLUSIONS

Every academic program is a product of the circumstances that gave rise to it, the personality of the founders, and the initial events in its history. The OHP is no exception and allowance has to be made for the particularities of its history and the times as they were in Alberta. However, some general insights can be derived. Academic programs in occupational medicine expand the scope of intellectual activity and practice, raising new opportunities at relatively low cost to the institution. They do so with relevance beyond specific occupations and hazards, although the research may be highly focused. As has been demonstrated above, these programs are inherently vulnerable to attempts at external manipulation, both politically and with respect to funding.

New academic programs representing unfamiliar fields in medicine must also win credibility with their peers. Where they are placed is important in this respect, because a new program inherits the reputation of its host department and faculty. It did not help the OHP to be the only physician-centered academic unit embedded in a predominantly non-medical department within a highly traditional medical school, especially given that the Department was widely perceived, fairly or unfairly, to be anti-physician in attitude. New programs, particularly those that satisfy a long-unmet need, are also subject to unrealistic expectations for service when they begin and may face a bias among their stakeholders in the community against commitment to discovery-driven research. This presents a management challenge for the program leader because those expectations will not change and will set the political agenda that follows.

Training programs for physicians and graduate education are often kept separate because of their different professional goals and cultures. The OHP demonstrated that medical education and graduate education are perfectly compatible. It is beneficial that graduate students and fellowship trainees mix freely because occupational health in the real world is managed by teams with both medical and non-medical expertise and professionals must learn to work together. In the end, occupational and environmental health sciences have common roots and belong together, just as epidemiology and toxicology are complementary as the essential basic sciences of the field.

Table 2
List of Faculty and Staff Attached to the OHP in 1990

| Faculty and Staff | |
|--|---|
| Head | Tee L. Guidotti, MD, MPH, FRCP(C), CCBOM |
| Residency Director | John W. Markham, MD, DPH, DIH, FRCP(C), CCBOM |
| Secretary | Kathleen Lasell |
| Research Associate | Lynda Watson Ford |
| Research Assistants | Gian S. Jhangri, MSc, Msc. (part-time) Malynda Wheeler (Fort McMurray) Veronica Clough |
| Consultant Epidemiologist | Colin L. Soskolne, PhD |
| Adjunct Faculty | Brian Alleyne, MSc Jim Cheng, MB, BS, DPH, DIH, FRCP(C) David Chisholm, MD Ray Copes, MD, MSc, DIH, CCBOM John W.F. Cowell, MD, MSc, CCBOM Erwin Fischer, MB, BS, MPH, FRCP, FRCP(C) Graham W. Gibbs, PhD, MSc David Gibson, Msc Geoffrey C. Granville Geoffrey Jamieson, MD, MSc, DIH, CCBOM Don Johnston, MD, MSc, CCBOM Linton Kulak, MD, MSc, FRCP(C) Rodney May, MB, MFCM, DIH, FRCPC, FFOM Bob Rogers, PhD Michael G. Prior, PhD, MSc, BVS, MRCVS Ken Yoshida, PhD, ROH, CSS |
| Advisory Committee to the Occupational Health Program | |
| Mr. Neil Reimer | (Chairman) |
| Dr. David Chisholm | Shell Canada |
| Mr. Murray Ross | Celanese Canada (deceased 1989) |

Table 2 (Continued)

| | |
|-------------------------------------|--|
| Mr. Dan Horigan | Canadian Organization of Small Business (Alberta Branch) |
| Mr. Reg Basken | Energy and Chemical Workers' Union |
| Ms. Susan Ruffo | Alberta Federation of Labour Workers' Health Centre |
| Dr. Graham Gibbs | Alberta Community & Occupational Health |
| Dr. Dennis Stokes | Alberta Environment |
| Dr. Ray Copes | Alberta Medical Association, Section on Occupational Medicine |
| Ms. Carole Hunter | Alberta Occupational Health Nurses Association |
| Dr. Tee L. Guidotti | Director, Occupational Health Program (ex-officio) |
| Residency Advisory Committee | |
| Dr. Alex Herbert | Division of Pulmonary Medicine, Dept. of Medicine |
| Dr. Jim Cheng | Private practice |
| Dr. Ken Harrison | Dow Canada |
| Dr. Byron Lauber | Workers' Compensation Board of Alberta |
| Dr. Ken Nickerson | Syncrude |
| Dr. John W. Markham | Residency Director |
| Dr. Tee L. Guidotti | Ex-Officio |
| First Resident | Vern Lappi^a |

^a In 1993 Dr. Lappi became the first graduate of the fellowship training program and the first program-trained fellow in occupational medicine in Canada.

NOTES

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