



An Exploration of the Effects of Funding Cutbacks to Ontario Medical Schools:
Privileging Research over Education.

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Abstract

A pilot qualitative study called “ The challenges of meeting societal need in medical education” was carried out to shed light on why Canadian medical schools have been slow to make the necessary changes to their education and research activities in order to improve their social responsiveness. The purpose of this paper is to focus in particular on how Ontario medical schools have dealt with recent funding cutbacks. In this paper, I argue that the funding cutbacks to Ontario medical schools have actually advantaged and prioritized the research mission of Ontario medical schools and have had adverse effects on the mission of education within an institution that tends to subordinate educational values.

Introduction

It has been widely accepted and argued that medical schools should respond to the most pressing health needs of society (Boelen, 1999; Inui, 1992; Murray 1995; Suleiman, 1999; White & Connelly, 1992). The relationship between medical schools and societal needs has been described using terms such as ‘social contract’ (Byrne & Wayslenki, 1996; Parboosingh, 2003; Richards, 1990; White & Connelly, 1991), ‘social responsibility’ (Murray, 1995), ‘social accountability’ (Boelen, 1999; Butler, 1992) and ‘social responsiveness’ (Gastel, 1999; Kauffman, 1999; Suleiman, 1999). Throughout the world, many conferences, reports, and projects have dealt with this issue and have made recommendations for changing the education and research activities of medical schools (Bloom, 1988; Maudsley, 1999; White & Connelly, 1991; Van Niekerk, 1999). It has been argued though, that Canadian medical schools have been very “slow to respond” and make the necessary changes to improve their social responsiveness (Murray, 1995).

In a recent pilot qualitative study, I investigated why Ontario medical schools have been ignoring social responsiveness (Shahjahan, 2001). As a result of this study, a number of barriers were identified and this paper focuses in depth on one of these barriers in particular. In this paper, I look at issues relating to funding cutbacks to medical schools. This is important to examine in depth because this focus helps to address the current gap in research on the effects of governmental funding cutbacks on Ontario medical schools. It contributes to an understanding of these effects and aims to reinforce the notion that these cutbacks prioritize a particular agenda within Ontario medical schools, and helps to recognize the ramifications of funding cutbacks on higher education in this era of academic capitalism³.

Description of research method and argument:

This paper is based on data collected from interviews with four key informants, a literature review and a document analysis. Four key informant interviews of approximately one hour were conducted using a semi-structured format in January 2001. These interviews were audio-taped and transcribed. Interviewees were medical educators who had been involved in some way with changing medical education in their respective medical schools and the Educating Future Physicians of Ontario project⁴. They had also been faculty members for at least four years in medical schools situated in the Ontario region.

In this paper, I argue that the recent cutbacks to Ontario medical schools have prioritized the *research* mission of Ontario medical schools and have had adverse effects on the mission of education within an institution that already subordinates educational values. I begin by examining the internal culture of Ontario medical schools. I look at how the internal culture of medical schools gives priority to a research mission rather than an education mission. I then analyze the effects of the funding cutbacks in terms of how the changes strengthen the research mission of medical schools at the expense of its education mission.

Looking at internal culture:

For the purpose of this paper, internal culture is defined as the composite of values and ideologies shared by people within the medical school. In light of this notion, I first look at how education and research are valued in medical schools. An important starting point, then, is to look at how education is valued in medical schools. One of the participants was involved with a survey in her medical school that looked into the value structure of the faculty members. She found that when members of the faculty were asked what the order of their

priorities were between research, clinical services and education. They felt that the hierarchy of priorities was research first, then clinical services and education last. She added that research brought greater academic acknowledgement and rewards, and was also an important part of the university's main mission. Furthermore, she believed that clinical services were valued second in importance, especially in North America, because medical schools depend on earnings from clinical services. In fact, a randomized survey of the clinical faculty members on the incentives and barriers to undergraduate medical teaching at University of Toronto medical school in 1998, found that "over 75% of the respondents believed that the Faculty priority was research and 88% indicated that it appeared that the Faculty valued research more than teaching during promotion through the professorial ranks" (University of Toronto, 2001, p. 7). The idea that research is valued more highly than teaching is supported by similar claims in the literature by Bloom (1988), Stiller & Dirks (1993), Price (2000), Haley (2001). As such, it can be assumed that this is the case at other Canadian medical schools.

Indeed, teaching in medicine is often looked upon as subordinate as compared to the other duties of medical practitioners. Authors such as Haley (2001) support the impressions of the medical educators involved in my study that clinical faculty complain about leaving their private practices to fulfill their teaching obligations. In most cases, these faculty members lose income for the time they are away from their offices, and the university does not compensate for that lost income. In February 2001, about 1,600 clinical faculty members at the University of British Columbia conducted a weeklong service withdrawal to protest what they said was poor treatment and lack of respect on part of the university. They were protesting the high volume of teaching activities for which they claimed that they did not get paid (Haley, 2001). In addition, Price (2000) has pointed out that over the years in Canadian medical schools, there has been an increasing emphasis away from teaching activities towards research productivity.

Murray (1995) has suggested that Canadian medical schools work from an internal cultural paradigm that prevents them from addressing the priority health needs of society. How this has come to be true is essential to investigate. It is a way by which to understand why medical schools are sometimes referred to as "ivory towers" or separated from the societies in which they are located – the so called "town and gown" relationship. A participant of mine clarifies what these terms mean:

It refers to the relationship between the public, "town", and this university, "gown". The university has a place in society by providing an intellectual contribution, but a medical school, provides both an intellectual contribution and a service contribution.

One of the consequences of this is seen in the following example. One participant mentioned that in her medical school, a community advisory group was created to investigate the school's social responsiveness and present the findings to the government. However, little action was taken with the recommendations that resulted from the study. As she states:

Wonderful, you know you could say in a document to [the] government, we have a community advisory program committee, we have it so that programs are filtered through this committee. It's a wonderful thing to say, but are they socially responsible? Are they socially responsible institutions right now, just because they have this committee that's available? ...They have done step one, right? But they need to move ahead and forge more and say "Ok, what does this mean to be

socially responsible?” In those medical institutions it would mean that, they want the voice of the community, they will hear the voice of the community and they will involve the voices of the community at the levels of training. That’s what it means, [it] doesn’t mean just having a committee.

Medical schools often face difficulties when it comes to implementing changes. The question is: why did this medical school not move beyond step one? The informant quoted above answers this question by drawing attention to the lack of knowledge of medical schools about their surrounding communities:

It’s not [the schools’] fault, that they have their own tunnel vision because it is what they have been taught and that’s the only thing they have been exposed to all their life. But they’re very much a doctor mentality...[I]n terms of the physicians, [they] are the center of the world...[P]hysicians don’t know everything, they are in their own ivory tower and they don’t actually recognize what’s going on at the ground level, and I truly believe that is true.

Here the informant points to a disconnect between the community’s needs and the schools’ knowledge of these needs along with the prevailing attitude of physicians as the major roadblocks towards implementing change.

These ideas have a long history in scholarship relating to medical students. For instance, Becker et al. (1961) in *Boys in White* pointed out how the schools detached students from the community, as did Merton et al. (1957) in *The Student Physician*. Haas and Shaffir (1991), for example in their study of socialization at McMaster medical school, showed that the training process of medical students, “elucidates a process of alienation and separation from lay society that characterizes professionalization and lies at the heart of the loss of idealism and objectification of clients” (Haas and Shaffir, 1991, p. 99). They add that as medical students professionalize, they gradually adopt those symbols - language, tools, clothing, and demeanor - which represent the profession, and it is these symbols that identify and separate the bearer from the outsider. Socialization into a profession involves the adoption and manipulation of symbols and symbolic behaviour which creates an imagery of competence. However, the result of this process is that it separates the profession from those they are intended to serve. This socialization process may explain how the people within the medical school adopt an indifferent attitude towards society (Beagan, 2000). This also explains why graduates of medical school may not adopt a community-oriented perspective towards the practice of medicine.

This socialization process does not totally explain the “tunnel vision” referred to above. I argue that the origins of this tunnel vision can be found in the reductionist and positivist approach to the construction of biomedical knowledge. This “involves faith in rational solution of medical problems, disinterested concern for patients and society, and dedication to the competence in practice and to the community of science which transcends personal interest” (Bloom, 1988, p. 296). Advanced technology is regarded as the source of effective interventions for most bodily illnesses (White & Connelly, 1991). Secondary and tertiary care is important in this approach (Bloom, 1988). Furthermore, the power differential between specialty and community practice play out in the construction of medical knowledge. For instance, one of my informants commented that such a power difference manifests itself in who can contribute to the production of knowledge and what knowledge gets included in the medical curricula:

Now the large departments are often large, not because of the educational needs of the institution, but because of the clinical needs that are based on secondary and tertiary hospital care. This is going to mean more specialists and sub-specialists, and the research agenda...I mean our school has far more internal medicine specialists and sub-specialists than it does people like me who are in primary care, probably 5 to 1. And it becomes very difficult for a really small department to give the same kind of educational contribution as a very large department.

This informant's claims are supported by a study on the chilly climate for primary care in academic medicine where they found that clinical faculty reflected "the specialty-dominated, research-oriented tertiary care focus" (Block et al., 1996). As they state further: "because of the numerical dominance of specialists and sub-specialists on the clinical faculties of medical schools, faculty attitudes as a whole strongly reflect these cultures (p.681). In this study, Block et al. concluded:

[T]he values of traditional biomedicine and medical education continue to emphasize specialized knowledge and competence as opposed to breadth of knowledge; biological factors as opposed to social and emotional factors in health; and inpatient as opposed to outpatient care and training...[W]e believe that the negativity toward primary goes beyond benign professional rivalry and is deeply rooted in the culture of medicine (p. 682).

This helps to explain how and why the participants in my study believe that medical schools undermine the community and the social contract. Instrumental, technical and the pursuit of scientific knowledge are at the root of today's academic medical culture.

The emphasis placed on having a distinctive, ever-growing body of knowledge leads to less emphasis on the processes associated with applying such knowledge to complex societal problems (Richards, 1990). The comments of one of my informants support this last point:

And to me one of the challenges that it is here, is very like what people refer to as dissemination of information. How do you disseminate something in medicine? That is a paradigm— knowledge starts here and it works its way down. I don't believe that paradigm. The current paradigm says 'the problem is always knowledge, and if they just had the knowledge, you could disseminate that knowledge so that people would use it and it would change'. And I think my work suggests that very often the problem is not knowledge— it is a reflection of other barriers that exist within the system.

The ethic of trying to solve medical problems by finding information-oriented answers takes precedence over actually translating knowledge into practice.

Moreover, as Richards argues, this kind of intellectual endeavor of medical schools becomes a "knowledge trap" to avoid addressing societal problems (1990). Specifically, problems are defined such that they only fit into a biomedical knowledge base. For instance, even many of the current medical education initiatives are based on a positivistic biomedical research framework (Cribb & Bignold, 1999). This can be seen through the examination of medical education journals where "the overwhelming majority of articles are couched in a broadly 'positivistic'

framework and focus on the formal curriculum and specific interventions or innovations rather than considering the cultural context of the medical school as a [social] institution” (Cribb & Bignold, 1999, p. 204). Staying within this theoretical paradigm prevents medical researchers and educators from looking at problems from a community’s viewpoint. This kind of tunnel vision can be seen clearly in the following narrative from one of my informants who talks about the resistance he faced from within his institution with respect to medical students doing community based activities:

There is a corporate “we” that is currently saying: ‘we’ve gone overboard with respect to our community oriented teaching or education. We need to do more teaching in the sciences. We need to establish a new approach because we are being outrun by new findings in gene therapy or genomics. We think we should know a lot more about what proteins do or don’t do and their effects on genes and genes sequencing’....[As a result] faculty generally were not very favourably disposed to having students go out in the community.

As a result, the medical profession does not truly listen to the public. Listening to the public is one of the most important steps to responding in their health problems. Medical schools end up working from an internal paradigm, by which it appears that problems that need to be addressed originate from the inside.

The reward system within Ontario medical schools also supports the research mission as the highest priority. Price points out that in Canadian medical schools, promotion and salary increases are judged mainly on research activities and peer-reviewed publications (2000). He adds that there is little reward for excellence in teaching and clinical care. An informant commented:

So I’m sure you know often people in universities are promoted just based on the number of publications they produce in research. [It] doesn’t matter what the publications are, just the number of them.

Stiller and Dirks (1993) claim that it is the quality and quantity of research carried out by medical faculties that largely determine their national and international reputations. Cohen adds that for decades, the medical profession has glamorized technology and placed highly trained specialists on the highest pedestals of medical prestige, by showering them with financial and other rewards (1999). Although this research may be relevant in the long run, as some medical researchers may argue, it tends not to address current health-related social issues. Kaufman points out that research agendas are usually driven by federal grant priorities and their consequent dollar value, prestige, and promotion potential rather than by community health priorities (1999). He adds that “research to address the latter draws little funding, often is seen as pedestrian, and yields little prestige or promise of promotion” (Kaufman, 1999, p. S70). While research and the pursuit of knowledge certainly help the medical profession treat the needs of patients, its prevalence in terms of the medical culture has grown out of balance. At this point it is clear, at the very least, that equal weight should be given to pursuing research and servicing the needs of the community.

Funding cutbacks:

Traditionally Ontario medical schools have been financed by an allocation from university budgets, part of which comes from student tuition. In most provinces, designated funds from the ministries of health are also targeted for medical training. Thus the funding of medical schools is a responsibility of each province (Cohen et al., 1994). In the 1980s and 1990s there were severe government budget (Thorne, 1997). As one participant remarked:

When I talk to the budget people at the medical school, they moan. ...Cuts are taking place every year despite the booming economy. Cuts continue to occur and although it might look like 4% as it is this year, a cut of 4% is in actual real terms much more because of (sic) cuts don't take account of the declining value of the dollar due to inflation. So we can't, this [is] the funny thing about [it], we cannot operate a medical school, probably not a university, but I don't know anything about that, without outside help anymore.

These funding cutbacks have led to a chain reaction of events including desperate attempts by the medical school to search for funds and compensate for the cutbacks that they have had imposed on them. Thus one informant states:

I think people are preoccupied with things other than education within medical schools. I mean if they are primarily concerned with research, primarily concerned with making clinical earnings because of budget constraints, you know, that kind of stuff, then there is less of a chance to make changes in education. If you look at the preoccupation of medical schools on Ontario, in the past 10 years, I would say there has been much more preoccupation with either money or research or both, than there has been [with] education per se.

With the above comments and figures considered, it is clear that funding cutbacks are not about merely the removal of funds from medical schools. They force, in a sense, medical schools to become something different as concerns for making ends meet becomes a priority.

Medical schools try to compensate for lost funds in three major ways. They do so by (i) increasing their dependence on clinical earnings, (ii) raising tuition fees and (iii) attracting more research funding (Thorne, 1997). Considering the first strategy, Ontario medical schools are becoming increasingly dependent upon the clinical earnings of the faculty (Cohen et al., 1994; Price, 2000). One informant said:

When we talk about community teachers—those who don't receive any direct payment or limited direct payment from the university—I think that, as the pressures because of the physician shortage and the stresses within the health care system become more acute, it has been harder and harder for them to continue their educational contribution. Because again, they are balancing it off against an increasing need among patients, against a situation where the hospitals are often under a lot of pressure, and the university doesn't have much to contribute to

offset that. They can't pay these people because the universities don't have financial substitutes. So it's a web.

Ultimately, faculty members are taken away from their teaching and education activities, which consequently become subordinate to clinical activities (Fox, 1999).

Ontario medical schools also compensate for funding lost through cutbacks by raising the tuition fees of medical students. Tuition fees are on the rise because of the reduction in government funding which is coupled with tuition deregulation in Ontario (Thorne, 1997; Johnston, 2001; Taggart, 2001; and Haaf, 2001). For example, the annual tuition fees for medical school at the University of Western Ontario have gone up to \$15,415 in 2004 (University of Western Ontario, 2004), which has risen from \$14,000 in 2001, from \$10,000 in 1998, and \$4,844 in 1997 (Taggart, 2001). Currently, the University of Toronto has the highest tuition fees in Canada, \$17,267 in 2004 (R. Kapur, personal communication, September 12, 2004), which has risen from \$14,000 in 2001 (Johnston, 2001), and from \$11,000 in 1999 (Sullivan, 2000). In a recent study on rising tuition fees and medical school composition, Kwong et al. (2002) compared the rise of medical tuition fees in Ontario with those of other provinces (except Quebec) and found that there was a 116% increase in tuition within the years 1997-2000 compared to a 13% increase in other provinces. The conclusions they reach are interesting:

[W]e found that large increases in tuition fees implemented by medical schools in Ontario are associated with changes in the medical student population. At Ontario medical schools, there are fewer students from lower income families...and more students expecting to graduate with large debts. Ontario medical students report that financial considerations have an increasing influence on their specialty choice and practice location. (Kwong et al., 2002, p. 1027).

The rise in tuition has some negative effects in terms of the access to Ontario medical schools and the health care system. There is the growing awareness that with rising tuition fees, many students who come from lower socioeconomic backgrounds will be prevented from pursuing a medical degree (Taggart, 2001; Haaf, 2001; Johnston, 2001, Kwong et al, 2002). For example, data released by METTA (Medical Education Taskforce on Tuition and Accessibility) reveal that tuition increases and the prospect of unmanageable debt may be discouraging low- and middle-income students from applying to medical school (Haaf, 2001). Furthermore, Kwong et al. reported that the "median expected debt at graduation and the number of students expecting very high debt (\$100 000 or more) has increased in Ontario but not elsewhere in Canada" (2002, p. 1027). In addition, the Ontario Medical Association is concerned that, not only will high fees deter some students from attending medical schools in Ontario, but that the fees will also lead physicians to specialize in areas where they may complete their studies quickly or specialties that have the potential to provide a higher income (Johnston, 2001). The repercussions of these effects are interesting. As Duffin asks, for example, "without representatives from all social groups, how will the profession understand, research and solve major health issues?" (2001, p. 53). Moreover, higher tuition fees may result in fewer rural doctors, in part because fewer students from rural areas will be able to afford to go to medical school. This is incredibly important to note as it is students that come from rural areas who are most likely to return to rural areas to practice (Haaf, 2001, Woloschuk & Tarrant, 2002). Ultimately, higher tuition fees

have a negative effect on the composition of the student body of Ontario medical schools, which may translate into significant implications on the future health care system of Ontario.

The third strategy to compensate for the cutbacks is to attract more research funding (Thorne, 1997). The University of Toronto, Faculty of Medicine's, *Strategic Directions and Academic Plan: 2000-2004* emphasizes research and opportunities for research grants. Most of the University of Toronto's Faculty of Medicine research funds come from institutions such as the Canadian Institutes for Health Research (CIHR), Canada Foundation for Innovation (CFI), Ontario Innovation Trust (OIT), Canada Research Chairs program and Ontario Research Development Challenge Fund (ORDFC). In addition, private individuals donate funds to the medical school. For example a \$10- million gift was donated by Anne Tanenbaum towards chairs in biomedical research and a \$13 million dollar donation from Sophie and Stephen Lewar was for cardiovascular research at the University of Toronto (Baichwal, 2001). These grants reinforce the "knowledge trap", by accumulating reductionist science rather than focusing on social problems. As one informant stated:

I would say the research that is done, is done out of the curiosity of the researchers, right? And not out of the mission of directly trying to make a difference to the health of the people. Nevertheless, I think most medical researchers would still argue that, you never know if the stuff that [they are] curious about, [and] have been working on, will do good to somebody. Who knows when, 10 or 20 years from now? That's the nature of science, that kind of discussion, right?

Ironically, governmental cutbacks to medical schools have actually increased the funding for research development. On the federal level, the CFI received an additional \$900 million from Budget 2000. The recent establishment of the CIHR, with double the funding of the former Medical Research Council, has opened up numerous additional opportunities for private funding of research. At the provincial level in Ontario, the OIT established by the government of Ontario plays a crucial role in the infrastructure that supports the medical schools' research platforms, by matching the CFI awards. Similarly, the ORDFC was established by the Ontario government to provide operating grants that complement CFI and OIT funds (Faculty of Medicine, University of Toronto, 2000). The CIHR had donated \$37 million to the University of Toronto for research as of August, 2000 (Easton, 2001). This undoubtedly has steering effects on the agenda of the medical. In general, it places more emphasis on medical research than on medical education.

Government funding also steers the research agenda of medical schools in a particular direction because of the amount it spends on biomedical research as compared to community health research. This has consequences on the direction of medical education. An example of this steering effect involves the recent establishment of the CFI; with its establishment, the University of Toronto, Faculty of Medicine, has funded six successful institutional proposals. These are (i) Functional Genomics, Proteomics & Bioinformatics, (ii) Bio-Imaging Facilities, (iii) the Functional Imaging Research Network (iv) Initiative in Mammalian Models of Human Disease, (v) an 800 MHz Nuclear Magnetic Resonance Spectrometer and (vi) The Centre for Cellular & Biomolecular Research (Faculty of Medicine, University of Toronto, 2000). The CFI had awarded the University of Toronto a total of \$72.4 million for research as of the year 2000 (University of Toronto, 2000). It is apparent that all six proposals are linked to tertiary care and have little to do with community health or primary health care. This is another example of the reductionist approach to knowledge production and its separation from the community.

By examining the initiatives the provincial government of Ontario is funding, it can be argued that the ORDFC is committed to supporting a province-wide Ontario Genome Initiative with a proposed budget of about \$45 million. It also funds the development of cutting-edge research technology such as the development of photonic and molecular imaging technology (Faculty of Medicine, University of Toronto, 2000). This is a notable shift in the manner in which funding of Ontario medical schools is structured; as medical schools scramble for money due to cut backs, they are increasingly looking to new sources of corporate funds. By means of the corporate link to private money, the schools are able to carry out their research mission and create scientific clinicians rather than community oriented physicians. In this way, the presence of private funding allows the medical school to become less accountable to the public. As one informant states:

There is a strong powerful lobby that exists within the Faculty of Medicine to make this a scientific program and devote curricular time accordingly. Now this is in line with what university has proclaimed itself: a research institution. Now .. [this] University used to be a solely publicly funded institution. It no longer is! It has suffered like all other universities and medical schools specifically in Ontario, [through] brutal budget cuts over the past seven or eight years, with the result that more and more, it's turning to the private sector for research funding. The more it turns to the private sector and also the public sector, by way of federal funding [and] not provincial funding for research, the more it becomes a research oriented institution rather than an institution that's designed to prepare physicians to fill in the needs that exist out there... We are [less and less] accountable to the university as more and more funding come[s] from private sources. So there is an unusual risk of accountability slippage in all of this.

Corporations fund, predominately, the research agenda of the medical schools, and support research in areas that provide immediate applications and which, furthermore, result in the development of marketable products (Buchbinder & Newson, 1990). Corporations build research partnerships with medical schools by their contributions to fundraising campaigns, endowed chairs, and providing money for research infrastructure (Polaris Institute, 2003). Their research dollars are given to research projects that have a technical or applied science pay-off. For example, "UBC has a \$15-million, 3-year research contract with a pharmaceutical company (Merck Frost Canada Inc.) and is discussing joint research ventures with other private-sector partners"(Thorne, 1997, p. 1613). Within Ontario, in 1998, Novartis contributed 1.5 million to the University of Western Ontario for the establishment of a research chair in Xenotransplantation (Polaris Institute, 2003). In addition, GlaxoSmithKline has contributed \$3.75 million to the Structural Genomics Consortium at the University of Toronto, \$5 million to fund basic and clinical research projects in respiratory health to the McMaster University, and \$4 million to the University of Ottawa for research in genetics and pathophysiology of metabolic diseases (GlaxoSmithKline, 2004). When medical schools conduct research activities funded with private dollars, they tend to produce a scientific research oriented curriculum, not a community-oriented curriculum. As an informant asks:

So, how does that affect the universities and their social responsibility for medical education?... They're what drive priorities for the university curriculum. It's why there is such a huge emphasis on biomedical and technological types of things for the medical

school trainees. If you look at that five-year agenda, one of the big things is science. [When] we want more scientists, those are biomedical scientists—why? Well, big money is in there too. The more money you get, [the] more research that's being driven by people in your medical school, the more prestigious your university will be, [and] your faculty of medicine can become.

This is how corporate funding takes medical schools away from social responsiveness- the knowledge generated by this kind of funding cannot be shared. The research generated by medical schools also gives corporations a competitive edge. For the corporation to maintain this competitive edge, medical researchers most often sign contracts that do not permit them to share research grant results with other parties such as the community or even to publish the results. For example in 1997, the University of Toronto signed over the rights to any drugs or therapies that emerged from research on Alzheimer's disease to Schering Canada (Muzzin, 1999). This results in the commodification of knowledge and they become "intellectual property" through protections such as patents (Shiva, 2000). Therefore, the knowledge produced is not public knowledge but private knowledge. And private knowledge tends not to be disseminated into the community. In addition, there is some evidence in Canada that supports the notion that when clinical research results go contrary to corporate interests, there have been attempts to suppress those research findings by pharmaceutical companies (Baird, 2003). Alarming, many academic researchers' future prospects and careers depend on renewed industry funding, which may force them to be complacent and not speak against corporate interests (Baird, 2003). This limits the social benefits of the knowledge produced and moves medical schools away from social responsiveness.

With corporate funding, and the emphasis on reductionist biomedical research, education activities become less central and important (Bloom, 1988). As the funding that comes from educational sources such as tuition, competitive training, grant programs and subsidies is dwarfed by private money, "the medical school is forced to maintain itself indirectly on the resources that are allocated to support the goals either of research or of the technology of the specialized tertiary care typical of teaching hospitals" (Bloom, 1988, p. 298). Following the logic of this situation, educational values become secondary to the priorities of funding in medical schools⁵.

Ontario Medical schools cannot ignore the pace at which science and technology is changing the face of medicine and all of the medical schools want to be part of these changes. As one of my informants explains:

[This] university is corporately talking about the rapid changes in science. And so are the other medical schools. They don't want to be left out of major scientific changes that [are] taking place. They all want to be in [on] the act.

The advent of molecular biology and the development of international collaborative projects, such as the Human Genomic Project, has shortened the time to discovery and raised the benchmark for 'excellence' (Stiller & Dirks, 1993). To be competitive in this environment, medical faculties in Canada are establishing strategic alliances or formal relationships to compete for research dollars. The competition for money is international, and Canadian faculties such as the Universities of British Columbia, Alberta, Toronto, Waterloo and McGill University have succeeded in this by developing early academic-industrial partnerships (Stiller & Dirks, 1993).

As Ontario medical schools express concern over public funding cutbacks and are more and more preoccupied with compensating for these funds, it is not readily apparent what advantages these partnerships provide to these medical schools in terms of their research mission. However, as we examine the consequences of public funding cutbacks critically, it is more apparent that these cutbacks provide the medical schools an incentive to strengthen their research mission as funds flow in primarily from research dollars that come from both corporate and government sources. This has a steering effect. That is, medical schools are steered towards a research mission as fewer funds come from public sources for education. In addition, in an era of rapid scientific breakthroughs, Ontario medical schools are pressured to put more emphasis on their research mission rather than their education mission.

Conclusion

As I have shown throughout this paper, the internal culture of Ontario medical schools supports valuing research as their central activities. Furthermore, education is arguably the lowest valued activity. As a result of the emphasis they place on research, Ontario medical schools operate within a unique internal paradigm that separates the medical profession from the society. I have argued that working from this internal paradigm prevents Ontario medical schools from addressing the priority health needs of society and that a reductionist approach within the medical school is a “knowledge trap” that emphasizes a particular kind of highly technical research rather than community-based education. With all of these elements considered, it seems quite evident that Ontario medical schools are falling short of fulfilling the social contract and social responsibilities.

Ontario medical schools have suffered public funding cutbacks and have become preoccupied with raising the lost funds. As a result, faculty members are taken away from their teaching activities and the importance of education activities are subordinated to clinical earnings. As an example, Ontario medical schools are trying to attract research grants to compensate for cutbacks from federal and provincial government sources, which have increased only for funding research. Ontario medical schools are also attracting research grants from corporations. This leads to questions over the mission of the medical school and the ownership of the research findings as well as to the other medical schools’ social responsiveness. Corporate funding is predominantly for research purposes, which subordinates the education mission. Indeed, they might even exemplify Samuel Bloom’s main argument that “medical education’s humanistic mission is little more than a screen for the research mission which is the major concern of the institution’s social structure” (Bloom, 1988, p. 294).

Notes

1. Social responsiveness is defined as the degree to which a medical school is responding to societal needs (Boelen, 1999). Societal needs can be taken as the priority health concerns of the community, region and nation of which medical school is part. A literature review on social responsibility, medical education and funding cutbacks was carried out by searching through electronic databases such as Medline, Web of Science and CBCA Fulltext Education; relevant information such as funding trends and amounts spent were also collected from the University of Toronto, Faculty of Medicine, *Strategic Directions and Academic Plan, 2000-2004*.

2. Other barriers that were identified were: people related issues (such as faculty, students, and administrators), structure of medical schools, theory versus practice, accreditation, values, and the Ontario health care system.

3. “Academic capitalism” coined by Slaughter and Leslie (1997) refers to the globalizing trend at the end of the twentieth century in which traditional patterns of university professional work was destabilized. This trend emphasized the utility of higher education for national economic activity and preferred market like activity on the part of faculty and institutions (Slaughter and Leslie, 1997, p. 24). Universities since then have moved towards the market ideologically, financially and in terms of policy and practice by forging links with industry and restructuring campuses (Mohanty, 2003, p. 178).

4. The objective of EFPO was to “modify the character of medical education in Ontario to make it more responsive to the evolving needs of society” (Neufeld et al, 1998, p. 1133). This project brought together “the five Ontario medical schools, the Council of Ontario Faculties of Medicine (COFM); a nonprofit, charitable organization, Associated Medical Services (AMS); and the Ontario Ministry of Health”, in a collaborative effort “to determine what the people of Ontario expect of their physicians and how the programs that prepare future physicians should be changed in response” (Maudsely et al, 2000, p. 113). The EFPO project was officially launched in January 1, 1990. It comprised of two phases. The first phase ran for five years, from January 1990 to December 1994. The project continued for a second phase for another four years and concluded at the end of 1998. The first phase focused on “setting an overall framework and direction for change and making the changes sustainable” (ibid, p. 114). The first phase involved: defining the health requirements of Ontario society related to physician education, foster faculty development based on expanded needs of medical education, develop evaluation mechanisms of medical students, develop education programs based on Ontario needs for medical students, and develop leadership in medical education that will sustain the changes in medical education. In phase one, eight physician roles were named and defined after consulting the public: medical expert-clinical decision maker, communicator, collaborator, health advocate, learner, manager, scholar, and “physician as person” (Neufeld et al, 1998, p. 1137). In phase two: EFPO’s focus shifted more towards residents’ education by focusing on four of the EFPO roles; and the project continued to emphasize faculty and leadership development and develop linkages with provincial and national initiatives. For further discussion on EFPO please see Neufeld et al, (1998) and Maudsley et al. (2000).

5. Even when corporations fund education activities they are meant to serve the private corporate agenda rather than the public agenda. For instance, there is a growing awareness that funding from the pharmaceutical industry skew the medical curriculum especially in the context of continuing medical education (CME) (Davis, 2004; Marlow, 2004). The pharmaceutical industry has been reported to be the single largest direct funder of medical research in Canada (Baird, 2003). For instance, in 1998, the industry contributed \$880 million out of the total \$2.1 billion (Lexchin, 2001). Through its financial contributions, this industry to a large extent determines research priorities, especially by funding research on issues linked to drug therapy (Lexchin, 2001). CME programs financed by pharmaceutical companies, “thinly disguise” their efforts to market products (Marlow, 2004). These corporations seem to want medical trainees to know how to use their products, skills that are learned in the medical curricula. Industry funding can skew CME content in various ways to meet the goals of the industry. Davis (2004) states with respect to this skewing:

[It] may be felt in subtle influence of industry on the selection of topics (do medical-school CME curricula devote as much time to the *diagnosis* of hypertension as it does to its *treatment?*), or at a more general level, in what receives support and what does not (courses on social pathology are less common than those, say, on diseases with specifically “medical” management) (p. 149).

If Ontario medical students cannot learn about these corporate products, or Ontario medical schools take initiatives that go contrary to the interests of corporations, then they threaten these medical schools by withdrawing and refusing research funds or donating their funds elsewhere (see Guyatt, 1994; Lexchin, 1994; Sterns, 1994).

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