A Collaborative Evidence-Based Approach
to
Making Healthcare a Healthier Place to Work

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SUMMARY

Difficulties in recruitment and retention, high rates of work injuries, illnesses and absences from work, and escalating costs plague Canada’s healthcare system. The well being of the healthcare workforce merits serious consideration by healthcare decision-makers.

It is increasingly well documented that a collaborative problem-solving approach is more effective in addressing workplace health concerns than an adversarial approach. Combining this with strategies based on good evidence is key to success. On this premise, a collaborative approach, in which healthcare workers and managers work together to identify and implement evidence-based initiatives to improve the health and working conditions of healthcare workers, was therefore trialed in British Columbia beginning in July 1999. A province-wide needs assessment was conducted, world literature was reviewed, focus groups were held with the various stakeholders, and direct input sought from researchers as well as local practitioners. Cost-benefit analyses were conducted and key decision-makers brought together to reach agreements.

“Best practice” guidelines were therefore developed on patient handling, complete with a training program and funding agreements to obtain the capital equipment needed. An innovative best practice program was also developed to promote early safe return-to-work for injured hospital workers. Other evidence-based pilot programs are being developed, implemented and evaluated.
Results to date illustrate that a collaborative evidence-based approach, where all parties work together in the face of challenge, is the way forward in addressing the occupational health needs of the healthcare workforce.
BACKGROUND

"Healthcare providers and administrators are the backbone of our healthcare system. They are trained to promote good health, to care for and comfort the sick, to expand what we know about health and healthcare and to improve the effectiveness of the way the healthcare system functions... If one of the goals of the healthcare system is to promote health and prevent illness and injury, it may be logical to start with those who work in the system."(CIHI 2000)

Canada’s healthcare workers are retiring early and there are insufficient new recruits (CIHI 2001). The Canadian Nurses Association predicts that within the next ten years, Canada will experience a shortage of nurses approaching 60,000, almost 25% of the current nursing labour force. Deteriorating working conditions are among the causes noted (CPRN 2001). The impact of staff shortages and shrinking budgets on patient care plays a crucial role in determining the future of hospital and community care across the country. It is also increasingly well documented that job stress, related to understaffing and a poor work environment, can have a negative impact on the health of nurses, the rate of nurse turnover and nurse injuries (O’Brien-Pallas et al. 2001).

Working conditions in the healthcare sector are a worldwide problem. The American Nursing Association (ANA), for example, reported that 87.9% of nurses recently surveyed indicated that workplace health and safety issues influenced their decisions about the kind of nursing work performed and their continued practice in their field of nursing, and 75.8% indicated that unsafe working conditions impact their ability to deliver quality care. Stress was listed as a major health concern by 70.5%, 59.4% feared a severe back injury, 45.3% feared developing a deadly disease,
24.7% feared being assaulted, 20.9% feared developing latex allergy, and 18.1% feared having a car accident because of fatigue at the end of a shift (ANA 2001).

In Canada as well, stress and burnout plague the healthcare workforce. In their survey of job stress in healthcare workers, Sullivan and colleagues (1999) found a disproportionately high level of distress associated with psychological job demands, job security and social support at work among registered nurses, nursing assistants, orderlies and nursing attendants. And the National Population Health Survey reported that 11% of nursing assistants sought healthcare attention for mental health reasons compared to 7% of other Canadians (CIHI 2001).

Healthcare workers are not only at higher risk for mental health problems than other Canadians (MacDonald and Davidson 2000), but Canadian healthcare workers are at higher risk of acquiring infectious diseases, such as tuberculosis (Schwartzman et al. 1996). They are exposed to a variety of chemical hazards (Yassi 1998), with latex allergies a particularly strong concern (Sussman et al. 1998). Blood and body fluid exposure, and the potential to develop HIV and other blood borne diseases is also an ongoing concern for the healthcare work force (Yassi et al. 1995: Shapiro et al. 1992: McGreer et al. 1990).

As noted recently in a national conference on this subject (Lowe 2002), the healthcare workplace is complex, with many healthcare associations, practitioners and policy makers working to provide high quality care under considerable political and public pressure. Difficulties in recruitment and retention, high rates of work injuries, illnesses and absences from work, and the
troublesome exposures to biological, chemical, physical, ergonomic and psychosocial workplace hazards noted above contribute to the escalating costs plaguing Canada’s healthcare system.

In the healthcare sector in British Columbia, the injury rate in 1998 was 7.4%; this was 54% higher than the rate for all BC workers, which was 4.8%. Workers in the healthcare industry accounted for 376,523 days lost to injury in 1998, representing 11.3% of days lost to injury by all workers in BC (WCB of BC 2000). The purpose of this article is to describe the collaborative development and implementation of evidence-based best practices to reduce injury rates and time loss in healthcare, adopted in BC in 1999, and to report on the results of these efforts to date.

**THE BC COLLABORATIVE EVIDENCE-BASED APPROACH:**
Shared concern over spiralling injury rates and their financial impact brought key players together to devise an alternate approach to the typically fractious bargaining table. An agency was formed, the Occupational Health & Safety Agency for Healthcare (OHSAH), with the specific mandate to work with all members of the healthcare community to develop guidelines and programs to promote best health and safety practices and safe early return to work, implement pilot programs and facilitate sharing of best practices. Programs were developed with the input of both those responsible for budgets and the big picture as well as those providing services and hands-on care. The agency board of directors therefore included healthcare leaders representing both the workforce (including union representatives of nursing staff, therapists, technicians, support staff and others) and the employers, with close collaboration with the health ministry, and the Workers’ Compensation Board (WCB). Active board involvement was integral from the outset: sub-committees of the board identified training needs for the sector, criteria for
the disbursement of funding, and principles by which to operate a prevention/return-to-work initiative.

There was a recognised need to work with researchers with skills in generating evidence for decision-making, because all guidelines and procedures were to be evidence-based. Bringing research into policy-making can help resolve conflict and increase the likelihood of consensus. As noted by Lomas (2000), conflict feeds on uncertainty, and the involvement of researchers’ analytic abilities in jointly designed studies reduces uncertainty, thereby starving conflict of one of its nutrients. The link between researchers and health professionals was optimized, such that program implementations could also be evaluated, and disseminated as best practices where applicable.

In Canada, the implementation of partnerships specifically for the purpose of encouraging evidence-based decision-making has only recently received attention from research foundations (Lomas 2000). Thus partnerships between researchers and decision-makers are still in their infancy, with researchers still largely holding their traditional focus on curiosity-driven research detached from policy concerns, and decision makers often still operating with little understanding of research and in an environment with acute policy pressures (Lomas 2000). The newly created agency was seen as a synthesis between research and decision-making, - the goal being the collaborative identification of evidence-based best practices. As the ultimate outcome measures - fewer injuries and costs province-wide, and improved recruitment and retention of healthcare workers – would not be known for years, satisfaction by all parties with the progress made in
implementing evidence-based programs, with successful results in some pilot projects, were deemed to be reasonable goals against which to evaluate success.

**A PROVINCE-WIDE NEEDS ASSESSMENT:**

The agency began by conducting a province-wide needs assessment survey. Following approval by chief executive officers (CEOs), both labour and management representatives on joint health and safety committees were surveyed to obtain a balanced view of occupational health and safety programs and organizational characteristics of healthcare facilities currently in place. A list of 673 member institutions was obtained from the Health Employers Association of BC, consisting of all the unionized healthcare institutions, representing over 90% of healthcare institutions in the province, and well over 95% of the healthcare workforce. All facilities with less than 15 beds or 15 employees (106) were then excluded as it was felt that a special questionnaire designed for the needs of small institutions would be warranted. As well, interviews were not conducted at institutions that were found to be administrative offices only (15), closed or about to close (7), or no longer unionized (14). Institutions where a management only (4) or a labour only (3) survey was obtained were considered as incomplete responders. Finally twelve CEOs declined participation in the survey, a refusal rate of 1.8%.

Surveys were completed in 512 institutions, of which 40.4% were long-term facilities, 17.9% were acute-care hospitals, 14.5% were home support agencies, 12.0% were mental health facilities, 7.2% were community health services, and 8.0% were miscellaneous other services such as adult day care, drug and alcohol treatment centres, and child development centres. The questions addressed workplace culture, support and relationships, as well as specific details about
biohazards, chemical hazards, physical hazards, violence, disability management programs, accommodation of injured workers, and the working environment.

Survey responses were entered into a database and linked to injury data obtained from the WCB. The proportion of facilities with written occupational health and safety policies and training programs are shown by sub-sector in Table 1. Comprehensive results were circulated to the agency board members and programs were then mapped out based on existing evidence.

Given that patient handling was, by far, the greatest source of injury and time loss, it clearly had to receive the greatest attention. In addition, despite the fact that the average duration of time loss claims in hospital workers is much higher than in all other industries, as shown in Figure 1, the needs assessment revealed that only 57.5% of healthcare establishments reported having any return-to-work program (Ostry et al. 2000). The literature suggests that establishing a workplace-based program that integrates primary and secondary prevention is effective and cost-beneficial (Yassi et al. 2001). This thus also had to receive agency focus, as did the need to enhance senior management commitment. Establishing best practice guidelines for patient handling; piloting programs for integrated prevention and early return-to-work; and funding for stakeholders to create, establish and evaluate possible best practices based on their own needs were the agency’s primary focus. As well, funding was sought from the Canadian Institutes of Health Research (CIHR) for nine applied research projects to further inform the mission of the agency, with attention paid to the areas identified as being in greatest need, including the homecare sector, whose ongoing rates were higher than in all other sub-sectors, as shown in Figure 2.
BEST PRACTICES FOR PATIENT HANDLING:

The programs that were designed to address patient handing injuries included synthesizing evidence from the literature and local practice, evaluating cost-benefit, and establishing programs:

**Synthesizing Evidence for Knowledge Transfer:** Safe patient handling guidelines were developed through an extensive national and international peer review process in combination with utilizing local best practices identified in the province-wide survey. All facilities that ranked highly in the needs assessment survey were visited by agency staff, who collected the policies and training materials used at these facilities, noted equipment utilized and observed staffing and other issues (Ostry et al. 2000). The guidelines (OHSAH 2000) developed through international and national scientific expert review, followed by focus groups of users and decision-makers have been disseminated in the form of handbooks, available upon request to healthcare workers throughout the province; 12,000 have been distributed throughout the province to date.

Funds were obtained from the Health Evidence Application and Linkage Network (HEALNet), a National Centre of Excellence, to design, implement and evaluate tools to promote evidence-based approaches to prevention and management of injury and disability among healthcare workers. Thus, in addition to the handbook, a website - WEBSITE - was developed (Workplace Evidence-Based Tools for Injury Prevention and Safety), with the goal of improving the understanding of all workplace parties on the evidence, including training, policies, procedures, staffing and especially equipment to assist healthcare decision-makers in preventing and managing injuries among healthcare workers (Lee and Yassi 2002). The real test of the usefulness of the handbook and website for the dissemination of evidence-based best practices
will be evaluated on the extent to which it will reduce injury rates, time loss, morbidity and costs. Healthcare workers across BC are now using the handbook, and accessing the WEBTIPS site as well as providing feedback on its applicability and usefulness.

Evaluating Cost-Benefits of Interventions: In order to determine whether the measures proposed are effective and cost-beneficial, the cost-benefit of implementing a "no lift" policy was evaluated in the extended care unit of a BC hospital which had installed 65 mechanical ceiling-mounted lifts, and implemented the training and policy aspects of the best practices identified. OHSAH researchers retrospectively reviewed records to identify all staff musculoskeletal injuries (MSIs) that occurred in the unit during a three-year period before the intervention and during a 1.5-year follow-up period. Staff completed a survey pre- and post-intervention assessing prevalence of MSI symptoms (Ronald et al. 2002). An economic evaluation (Spiegel et al. 2002) was then conducted, complete with a sensitivity analysis which considered the implications of increasing costs to the WCB in the industry overall during this period. The project’s payback period was determined, to consider the time it would take to recover the capital investment amount over the estimated twelve-year lifespan of the ceiling lift equipment.

The evaluation of the ceiling lift and training intervention revealed that both staff and residents preferred the lifts to manual methods, fewer staff members reported working in pain following the intervention, the incidence of lift/transfer injuries decreased by 58% (Ronald et al. 2002), and the costs were reduced by 69% (Spiegel et al. 2002). A payback period of 3.85 years was conservatively estimated for the investment. Considering the trend towards escalating costs during this period, the payback period would actually be within two years (Spiegel et al. 2002).
Healthcare leaders throughout the province; including key CEOs and senior vice presidents of healthcare regions throughout the province, healthcare union leaders, the ministry and the WCB, were then brought together by the agency to brainstorm solutions to the ever-spiraling injury rates and costs associated with patient handling. Presentations were made on initiatives from other jurisdictions, including Quebec, where specified standards that accommodate ceiling lifts were included as part of the building code for long-term beds in all new facilities (OHSAH 2001).

The Lifting Equipment Procurement Project: A major new initiative was then launched in BC, with extensive input of the key decision-makers, to implement “a no manual lifting” policy, complete with a training program and funds dedicated for the purchase of mechanical lifting devices where needed (OHSAH 2001). Both the provincial Ministry of Health Services and the WCB of BC agreed to work collaboratively to provide funding for the purchase of mechanical lifting devices and electric beds in facilities, and $15 million was in fact earmarked for this purpose in 2001-2002. Systems were implemented to track injuries to allow evaluation of rates and trends. Program materials, regarding the purchase and installation of lifting devices as well as training in their use, have been compiled and made available to administrators in hospitals and facilities throughout the province. Finally, the Ministry of Health Services has agreed to allow the carry-over of funds from this fiscal year to the next, to grant time for the purchase of equipment that the program requires. The success of this program, of encouraging the forging of new policy as well as the bringing together of frequently disparate players, has turned heads in this province as well as in other regions across the country.
INTEGRATED PREVENTION AND EARLY ACTIVE RETURN-TO-WORK:

An integrated approach to prevention and return-to-work was again a collaborative effort between board members, stakeholders, and researchers. Principles, to protect the rights of individual workers while at the same time promoting what is best for the workforce and the sector as a whole, were developed (as shown in Table 2), and funds were earmarked to implement programs based on these principles. Principles such as workplace accommodation, evidence-based education, income continuity, in-house rehabilitation, and injury tracking are now part of the Prevention and Early Active Return-to-work Safely (PEARS) program that was developed.

The PEARS program is based on the integration of primary and secondary prevention measures, (preventing the injury; and if unsuccessful, preventing disability by intervening early), combining local best practices with the international literature. Stakeholder agreement was assured because program principles were developed collaboratively. Family physicians as well as occupational physicians, occupational health nurses, physiotherapists, ergonomists, occupational therapists, human resource personnel and union representatives are all involved. Front-line managers are also involved, where appropriate, not only in program design but also through on-site steering committees. Involvement of the family physician was determined essential given the evidence that a pro-active message given by physicians about addressing workplace conditions is a significant factor in decreasing time loss following injuries (Dasinger et al. 2001). Indeed the need “to get all players on side” is being actively promoted to the Canadian Medical Community (CMA 1997; Frank et al. 1998; Campolieti and Lavis 2000).
The PEARs program is being piloted in two large hospitals, using two comparable hospitals as the control groups. The project has been given top priority in both facilities, with rehabilitation space and equipment having been allocated, and on-site program managers hired. The commitment shown by both facilities is highly impressive, given the recent drastic changes in healthcare service and funding to health authorities. Outcomes that will be evaluated include injury rates, time loss and costs, as well as satisfaction of all parties.

**FUNDING FOR STAKEHOLDER-DRIVEN INITIATIVES:**

To stimulate further implementation of evidence-based practice, $2.45 million was budgeted in the agency’s first year for a program originally called “Stakeholder Driven Initiatives”, then later changed to “Partnership Initiatives”. Again a collaborative approach was taken to allocate funds: the involvement of both researchers and decision-makers ensured that the projects funded were those most relevant to the stakeholders and also based on good scientific evidence. Fifty-six projects have been implemented across BC’s healthcare sector, in rural as well as urban areas, in small as well as large institutions, and across all sub-sectors (acute care, long-term care and community-based or homecare) to address workplace conditions for a wide variety of healthcare workers. All projects are being rigorously evaluated. Projects include violence prevention, a homecare support pilot project, ceiling lift trials, adaptive clothing, and projects in laundries, kitchens, sonography, blood-borne pathogens, latex identification etc. Two of the larger initiatives, to prevent violence-induced injuries and addressing injuries in homecare, are profiled here.
Violence Prevention: The needs assessment survey revealed that the only area about which workforce representatives were more concerned than managers was violence (Ostry et al., 2000). Indeed, the literature review conducted revealed that violence is an area of growing concern for Canadian healthcare workers. In a survey of 9000 nurses in Alberta and BC, 38% reported having experienced violence in the last 5 shifts they worked (Shamian and Villeneuve 2000). While most studies of occupational hazards focus on nurses, a large variety of healthcare workers are affected. For example, assaults against healthcare workers in psychiatric facilities, acute care settings, ambulatory care, community mental health clinics, long-term care and home care are well documented across Canada (Shamian and Villeneuve 2000: Yassi and McLeod 2001: Denton et al. 1999: Liss 2000: Yassi 1994: Fernandez et al. 1999: Osler et al. 2001). A survey of violent incidents in an emergency department in BC revealed that all levels of personnel (including nurses, security personnel, admitting clerks, social workers, and physicians) had experienced some form of abuse, with an astounding 92% having experienced physical assault (Fernandez et al. 1999). It was also documented that violence in emergency departments often shifts into the hospital when the patient is admitted, the result being violence in psychiatry, medical, surgical, maternity and even paediatric units (Yassi and McLeod 2001).

Code White is used in facilities throughout BC as a response to violence in the healthcare workplace. Agencies were therefore brought together, including the Psychiatry Department of Vancouver General Hospital, the provincial WCB, the RCMP, the Vancouver Police, the Health Employers Association of BC, the Health Association of BC and others, to review the Code White responses currently in use in facilities. The goal was to standardise Code White training and programs throughout BC. Prevention of incidents, responses to incidents, debriefing, and
The provision of training are all being reviewed in this collaborative effort to prevent and respond to violence.

**Preventing Homecare Injuries:** As noted above, the time-loss injury rate is the highest in this sub-sector (the injury rate for community healthcare workers [CHWs] is 12.5%, versus 7.1% in acute care), as shown in Figure 2. The community and continuing care sector is an increasingly important part of healthcare. Care providers, however, often work in people’s homes, which can be isolating (Aronson and Neysmith 1996); they do not work in a standardised, predictable and controlled work environment (Jarrell 1997). Hazards in community healthcare include working alone, and at night, possibly in remote locations. Working spaces are likely not built to institutional specifics and convenience. Pets, hazardous chemicals, contagious diseases and violence may all be risks in the client’s home setting.

Best practices were identified from local evidence combined with the scientific literature. Partnerships were established and indeed the project is a model of collaboration and stakeholder initiative (Hall et al. 2001). CHWs and administrators worked together to assess worker needs, and to develop multi-pronged intervention strategies. These include the training of CHWs, the development of a client-specific risk assessment and management tool, and an equipment registry. Training includes musculoskeletal injury prevention, violence prevention, WHMIS, biohazards etc. The client-specific risk-assessment tool utilises a palm pilot, where risks specific to each client are catalogued and strategies and management are outlined. The equipment registry provides a central bank through which equipment is available to workers on loan. All homecare agencies in the province were invited to participate; these were then allocated into
groups to receive all three, two, or one of these interventions in a multi-armed trial. Additional funding has been obtained from the CIHR to rigorously evaluate this complex program. Although it is too early to determine results, the very development of the interventions, with buy-in from all parties, is itself considered a success.

**COLLABORATIVE FUNDING OF APPLIED RESEARCH:**

Agency use of applied research funding has augmented program interventions, implementations and evaluations. The awarding of almost $2 million from the CIHR for a Community Alliance for Health Research proposal: “Making Healthcare a Healthier Place to Work: A Partnership of Partnerships” was a much welcomed endorsement of this approach. The nine research projects include the study of work organisation, recruitment and retention of nursing staff in four acute care hospitals – which also had funding from the Canadian Health Services Research Foundation (CHSRF); an investigation of why some intermediate care facilities have lower injury rates – which also has WCB funding; an evaluation of the effectiveness and cost benefit of ceiling lifts to reduce musculoskeletal injuries – to augment OHSAS funding of the intervention itself; a multi-site trial of a low-cost repositioning drawsheet; the substitution of a chemical hazard with one less toxic; the homecare intervention described above, and contributions to the HEALNet-funded WEBTIPS project. A Winnipeg-based project that builds on the OHSAS needs assessment work is also linked to this research. The capacity for high quality applied research and the ability of the agency to accomplish its mission been magnified with the complementary funding.
CONCLUSION:

Healthcare workplaces are highly unionized, characterized often by adversarial labour relations, and with a diverse mix of unions and professional associations trying to function under immense political and public pressure (CPRN 2001). The creation of an agency whose very premise was collaboration is providing programs and interventions that bring the players in healthcare together, to identify and share evidence-based best practices. A recent national symposium noted that the challenging nature of the healthcare workplace calls for breaking down the silos that divide healthcare workers, policy makers and practitioners (CPRN 2001). The experiences in the 3-year initial trial of operation in BC suggest that collaborative work in identifying and implementing evidence-based best practices can indeed successfully address the workplace health concerns in healthcare. The decision of the parties in 2001 to renew the agency for a further three years was testimony to the promising nature of this evidence-based collaborative approach.
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