The Value of Community Partnerships in Addressing Occupational and Environmental Health

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Outline

1. What do we know about occupational disease and injury?

2. Why is it useful to connect occupational and environmental health?

3. How can we develop partnerships to best promote knowledge translation (i.e. use evidence to bring about needed changes)?
Dimensions of the problem

**Difficulties in measurement**

- Etiological Difficulties-Distinguishing Occupational from Non-Occupational Diseases
- Few “occupational-specific” diseases (examples)

- **Health Impairment and the Definition of Disease** (examples)
  
  Boundary between health and disease not clear-cut, but a continuum:

  No observed effect – homeostatic or adaptive effects – early effect of debatable health significance – early health impairment – manifest disease
Occupational vs. non-occupational diseases

**Hepatitis**
- viral? alcohol-induced?
  - chlorinated hydrocarbons?

**Leukemia**
- radiation-induced? benzene?
  - “naturally occurring”?

**Lung Cancer**
- smoking? coke ovens?
  - asbestos? other?
Dimensions of the problem

Difficulties in measurement cont’d


**Silicosis**  -? CXR Changes, ? ↓ PFT, ? symptoms
SUBSTANCES WHICH CAUSE LIVER DAMAGE

Antimony
Arsine
Beryllium
Bismuth
Cadmium
Copper
Indium
Manganese
Nickel
Phosphorus
Selenium
Acrylonitrile
Benzene
Carbon tetrabromide
Carbon tetrachloride
Chlorinated benzenes
Chloroform
Cresol
DDT
Dimethyl sulfate
Dioxane
Epichlorhydrin
Ethyl alcohol
Ethylene chlorohydrin
Ethylidene dichloride
Hydrazine
Methyl alcohol
Methyl chloride
Methylene dianiline
Naphthalene
Phenol
Pyridine
Styrene
Tetrachloroethylene
Toluene
Trichloroethane
Trichloroethylene
LIVER
Normal

Angiosarcoma
Each agent → Variety of disorders depending on numerous characteristics of the exposure and individual affected:

**CO:**
- Small dose, healthy person → drowsiness
- Small dose, person heart disease → angina

**Benzene:**
- Irritant to skin and mucous membranes
- Single exposure → headache, dizziness, fatigue, etc.
- Chronic low dose → aplastic, anemic, Leukemia

**Chromium:**
- Allergic contact dermatitis or asthma, cancer, i.e.
  different mechanisms, different organs affected

**Synergism:**
- Two exposures acting together may have a greater than additive effect.
Physicians and other health professionals have a vital role in recognizing occupational disease. Contrary to the drawing above, there is no simple test. The suspicion and the determination of work-relatedness depends primarily on a careful occupational history.

(Drawing by Nick Thorkelson.)
It is crucial to clearly understand working conditions and exposures.
(Drawing by Nick Thorkelson.)
Dimensions of the problem

Difficulties in measurement cont’d

- The State of Medical Knowledge, Exposure Records and the structure of Occupational Medical Services.
  - Poor training in occupational medicine
  - Neither patient nor doctor knows history of exposure
    - Discher Study
    - Woodwind and Fordmiller Study
  - Type I errors (not defining work-relatedness) more common than Type II errors (falsely attributing disease to workplace)
  - Management- orientation of occupational medical services potentially problematic
Major occupational diseases, today

- Musculoskeletal disorders
- Diseases associated with job stress (cardiovascular disease, mental health)
- Hard-to-diagnose CNS impacts of solvents and other exposures
- Hearing impairment, and non-auditory effects of noise
- Hypersensitivity disorders (allergic skin and respiratory disorders, especially asthma; other)
- Occupational lung disease (including COPD)
- Cancer
Biological agents
SARS / Respiratory Illness

- Healthcare workers frontline of defense against infectious diseases

- Occupational transmission of SARS:
  - Canada: 438 cases (51% were HCWs, 3 deaths)
  - Similar situation internationally (e.g. Hong Kong, Singapore)

- Psychological impact of SARS extremely high
  - Treating sick colleagues was difficult
  - Concerns about transmission to friends and family
  - Anxiety about working with suspect SARS cases
Bloodborne pathogens of concern:

- Occupational exposure results in (WHO):
  - 2 million HCWs reported needlestick injuries per year
  - 2.5% HIV infections among HCWs
  - 40% of Hepatitis C and Hepatitis B infections among HCWs
- 90% of reported occupational infection occur in US and Europe... but 90% of occupational exposures occur in developing world
- Approximate risk of transmission after exposure to an infected source is:
  - HIV – 0.3%
  - Hepatitis C – 3%
  - Hepatitis B – 30%
Physical agents
Some Common Physical Hazards in Workplaces

- Vibration
- Noise
- Heat
- Cold
- Ionizing Radiation
- Non-ionizing Radiation
Chemical agents
Some Common Chemical Hazards in Workplaces

- Pesticides
- Formaldehyde
- Carbon Monoxide
- Diesel Exhaust
- Coal Tar Pitch
- Volatiles
- Wood Dust
- Silica
- Grain Dust
- Asbestos
- Lead
- Chromium
Ergonomic hazards
Psychosocial Factors

RN BURNOUT
WHY NURSES ARE LEAVING THE PROFESSION.

- Unfair scheduling
- Paper work
- Arrogant doctors
- No respect
- Mandatory overtime
- No time for breaks
- Non-nursing duties
- Inadequate orientation
- Stress
- Short staffing
- Rotating shifts
- No time for family
- Low pay
- Floating
- No job security
- No promotions
- Poor benefits
- High turnover
- Threat of lawsuits
1. What do we know about occupational injury and disease?

- They have existed throughout history

- They are highly varied – including health impacts of biological, chemical, physical, ergonomic and psychosocial hazards at work

- There is no clear distinction between what is and isn’t an occupational disease

- We have no real idea of the magnitude of the problem – depends on definitions
2. Why link environmental and occupational health?

A.)

• Source of the hazard is often the same, and hence control measures can address both concerns
  ▪ Common approach works in many settings, i.e. substituting water-based for solvent-based paints, or using less noisy technology, or encouraging infection control measures....

• Incentives for Prevention
  ▪ Although workplace is usually the site of more intense exposures, the impact in the surrounding community can be a powerful incentive ....(this may re especially true in developing countries)
Example from a developing country

CENTRO HABANA
Municipality
CAYO HUESO
CONSULTORIOS DEL MEDICO DE LA FAMILIA. COSEJO POPULAR CAYO HUESO

LEYENDA

- CMF
- Policlínico
- Hospital
Comprehensive primary health care data collection and follow-up
Cienfuegos - in the central region of Cuba (the industrial heartland of the country) - was the site for a field trip in a CIDA-funded workshop on “Sustainably Managing Environmental Health Risks”
Visit to a thermoelectric plant.

Occupational physician, union leader and various plant personnel provided an introduction.

We then divided into small groups - to tour the plant and perform the given assignments.
After the plant tour, our next assignment related to evaluating the environmental hazards in the region related to the plant.
Dividing into two groups, the environmental health risk management assignment was completed on a boat trip -
The participants - teachers - then prepared what had been learned - using interactive teaching methods.
In another CIDA-funded project related to environmental health risk management problems in Ecuador, we are addressing the occupational problems with pesticides.
Water contamination from agrochemicals is aggravated by the frequent flooding in the region (el Nino)
Mercury Poisoning from Artisanal Mining
Links Between Environmental and Occupational Health cont'

B.)

- Common scientific body and human resource development
  - Scientific knowledge and training to assess and control hazards are generally the same (toxicology, microbiology, ergonomics, psychology, etc.)

- Conceptually useful to use common paradigms
“The air we breathe, the food we eat, how we work, what we earn and how we feel about its fairness, the housing in which we live, the nurturing we receive as youngsters, and the transportation we take as adults … are powerful influences on a population’s health.

The cultural community surrounding the individual … from neighborhood to nation … influences how threats to well-being are construed, or whether they are even perceived.”

- Evans et al. (1994)
Understanding of human health evolved further (cont’d)

Human health in ecosystem context - the Butterfly Model (Borman, 1996)

- External Biophysical Environment
  - Elements: e.g. Air, Water, Climate, Microbes

- External SocioEconomic Environment
  - Elements: Home/Family, Workplace/Worker, Friends/Voluntary org’ns, Political institutions/Healthcare system

- Biophysical Environment
  - Biological & Behavioural Filters

- SocioEconomic Environment
What reduces occupational injury and illness?

**The evidence shows:**
- Senior management commitment
- Worker participation
- Good OH&S practices, consistently applied
- Functional joint OH&S committees
- Integrated prevention and return-to-work programs
- Culture of compliance with safety regulations
- Good data collection systems

The Evidence (cont’d)

• Ontario: **five-fold difference between the best and worst** companies in WCB lost time claim rates (auto assembly plants)

• **“Magnet hospitals”**
  - no trouble recruiting and retaining high-quality trained staff, in spite of a nursing shortage
  - Known as ‘good employers’
  - Organizational characteristics associated with **better healthcare worker health and patient outcomes**

Magnet Facility Characteristics

- Participative management style
- Strong and supportive managers
- Decentralized organization
- Flexible work scheduling
- Adequate staffing
- Good promotion opportunities
- Autonomy and accountability
- In-service and continuing education opportunities

References: See notes below
Breaking down the solitudes

Traditionally, not only has “impact on community” been divorced from “impact on workforce”, but occupational health and safety and workplace health promotion have themselves functioned as two solitudes

- “Wellness committee” – promoting healthy lifestyles – including physical activity, sleeping and eating habits, smoking, alcohol use, etc.
- Occupational health and safety – responding to legislated OHS requirements, focused on physical environment.
Occupational health has evolved

The importance of psychosocial factors in workplace settings is increasingly recognized, as is the need to move from “traditional occupational health and safety” and “health promotion in the workplace” activities to a more comprehensive understanding of workplace organizational factors as determinants of health.

New World of Work
Why link occupational and environmental health?

- Common source of problems for both those working and non-workers (who breathe the air, drink the water, etc.)
- Creates more incentives for prevention
- Common body of knowledge - hence makes sense to train common human resources
- A comprehensive approach is needed to address real world problems.
1. What do we know about occupational disease and injury?

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Occupational Health and Safety Agency for Healthcare in BC

An example of a collaborative evidence-based approach - with considerable success
Why was OHSAH formed?

• Healthcare system plagued by difficulties:
  - Recruitment and retention
  - Illnesses and absences from work
  - Escalating costs

• Increasing concern about infectious diseases, musculoskeletal injuries, chemical-induced disorders, violence, stress

• High injuries and time loss relative to other sectors

• Unsafe work conditions impact ability to deliver quality care
Working Conditions - Healthcare Sector

- 88% said workplace health and safety influenced decision about kind of nursing work performed;
- 76% unsafe work conditions impact ability to deliver quality care;
- 71% stress major concern;
- 59% feared severe back injury;
- 45% feared developing deadly disease;
- 25% feared assault;
- 21% feared developing latex allergy;
- 18% feared having a car accident due to fatigue.

American Nurses Association (ANA) 2001
Registered nurses, nursing assistants, orderlies and nursing attendants report high levels of distress associated with
› psychological job demands
› job security
› social support

11% of nursing assistants sought healthcare attention for mental health reasons compared to 7% of Canadians

“Stress and burnout plague the healthcare workforce”

Sullivan et al 1999 “Job Stress in Healthcare Workers: Highlights from the National Population Survey” – Hospital Quarterly;

Long Term Disability Claims: MSI/CT and Mental Disorders

Percent of Active Claims

- Musculoskeletal
- Mental Disorders


Values: 0, 10, 20, 30, 40, 50, 60

Graph showing trends in disability claims.
Overexertion from patient handling is the greatest cause of injury.
Other Infectious Diseases

- New & emerging pathogens, e.g. SARS
- Well-known pathogens: e.g. influenza, TB, chicken pox...
- Measles: 42% of cases in WA (1996) were healthcare-related (26% were HCWs)
Violence

• Aggression in the workplace is a growing concern for healthcare workers

• 38% of RNs reported emotional abuse during last 5 shifts

• 40% of violence-related claims in BC come from healthcare workers (but only 5% of workforce)

The healthcare sector was the #1 source of time loss claims in British Columbia...until this year.

<table>
<thead>
<tr>
<th>Subsector</th>
<th>Claims</th>
<th>Days Lost</th>
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<tbody>
<tr>
<td>Healthcare &amp; SS</td>
<td>6,926</td>
<td>259,989</td>
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<tr>
<td>Retail</td>
<td>6,191</td>
<td>189,195</td>
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<td>Gen. Construction</td>
<td>5,863</td>
<td>279,515</td>
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<td>Accom, Food, Leis.</td>
<td>5,280</td>
<td>157,762</td>
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<td>Transportation</td>
<td>5,157</td>
<td>234,519</td>
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<td>Other Services</td>
<td>4,335</td>
<td>154,572</td>
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<tr>
<td>Wood/Paper Prod</td>
<td>3,741</td>
<td>160,694</td>
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<tr>
<td>Metal &amp; Non-metallic</td>
<td>3,186</td>
<td>91,650</td>
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<tr>
<td>Food &amp; Bev Prod.</td>
<td>2,297</td>
<td>67,631</td>
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<tr>
<td>Public Admin</td>
<td>2,262</td>
<td>57,879</td>
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<tr>
<td>All Industries</td>
<td>58,834</td>
<td>2,765,230</td>
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</table>

Higher than:
- Logging
- Manufacturing
- Transportation

9.4% of all days lost in 2003
Staffing and Patient Outcomes

- Demonstrated clearly with SARS outbreak
  - Infectious diseases are a threat to healthcare workers → carry risk of infectious disease transmission to patients, co-workers, and public

- American Nurses Association (2001) survey
  - 76% of respondents said unsafe working conditions impacted ability to deliver quality care
Relationship between working conditions and patient care outcome

• Adequate RN staffing linked to good infection control for patients, reduced patient mortality, and decreased morbidity

• Strong relationship between workload, improved resident outcomes, increased job satisfaction, and higher retention rates
The Most Important Message

• There is not a dichotomy between patient care and the health of the healthcare workforce
  ▪ i.e. disease transmission, vicious cycle of time loss due to injury and stress ➔ short staffing ➔ workload ➔ impact on patient care

• Paying attention to the health and safety of the healthcare workforce is essential:
  ▪ Not only is it the right thing to do for healthcare workers, but also to protect the public, and to ensure the on-going availability of healthy healthcare workers to provide care in the future.
OHSAH’s Mission

To work with all members of the healthcare community to develop guidelines and programs designed to promote better health and safety practices and safe early return-to-work.

To promote pilot programs and facilitate the sharing of best practices.

To develop new measures to assess the effectiveness of programs and innovations in this area.
Our Methods

**Collaborative & Evidence-Based**

- Use evidence, (local and published internationally) to **develop** and disseminate best practice guidelines

- **Create partnership** initiatives with funding based on labour-management cooperation and scientific validity

- **Rigorous evaluation** of effectiveness, and cost-benefit of workplace interventions
Innovations & Programs to Improve Healthcare Worker Health & Safety

1. Ongoing injury prevention e.g. ceiling lift initiatives, patient handling, facility planning, laundries, kitchens

2. Protection from SARS and HBV/AIDS and other infectious diseases

3. Promoting a “Prevention and Early Active Return to Work Safely” (PEARS) program
Innovations & Programs (cont’d)

4. Expanding into particularly challenging service areas such as community care; management of aggressive behaviour

5. Developing innovative technology for health and safety
   - Online learning
   - WHITE™ Database

6. Engaging in knowledge translation – at home and internationally
Ceiling Lifts: An alternative method for patient handling

St. Joseph’s General Hospital

• 65 ceiling lifts installed in extended care unit (funded by WCB)

• Evaluated the effect and cost-benefit of a ‘no-lift’ policy and use of mechanical ceiling lifts
  ▪ Largest study of ceiling lifts to date
  ▪ 7-year analysis from 1995-2001
    – Intervention (1998)
    – Post-intervention (1999-2001)
Ceiling Lift Evaluation Results

- Compensation costs decreased by 40%
- 82% reduction in claims costs for lift/transfer injuries
- Payback period estimated at less than 4 years (factoring in indirect costs)
Ceiling Lifts: Good return on investment?

- Payback of 1.98 years
- Payback of 3.85 years

Cumulative Costs:
- Ceiling Lifts: Good return on investment?
## Payback Period

### St. Joseph’s General Hospital

<table>
<thead>
<tr>
<th></th>
<th>Costs plateaued</th>
<th>Cost Continue to Rise</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Cost of the Intervention</strong></td>
<td>$344,323</td>
<td>$344,323</td>
</tr>
<tr>
<td>Savings - Year 4</td>
<td>$100,628</td>
<td>$276,665</td>
</tr>
<tr>
<td>Savings - Year 5</td>
<td>$162,690</td>
<td>$444,307</td>
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<tr>
<td>Savings - Year 6</td>
<td>$149,436</td>
<td>$536,633</td>
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<tr>
<td><strong>Total Savings</strong></td>
<td><strong>$412,754</strong></td>
<td><strong>$1,257,605</strong></td>
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<tr>
<td>Average savings/year</td>
<td>$137,584</td>
<td>$419,201</td>
</tr>
<tr>
<td><strong>Payback Period (years)</strong></td>
<td>2.50</td>
<td>0.82</td>
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</table>
Ceiling Lifts: Stakeholder Responses

St. Joseph’s General Hospital

Staff preferred ceiling lifts to manual methods

Joy Le Blanc, Penny Hacking, & Sandra Widden

“No more bed pan use!”

“I don’t work in pain anymore... The lifts lift the patients – and lift our spirits!”

“Thanks to overhead lifts, patient dignity has been reinstated...”
A sense of urgency brought healthcare leaders from across the province together on January 31, 2001 to brainstorm solutions to the ever-spiralling injury rates and costs associated with patient handling.
Provincial “no-unsafe manual lift” policy

March 2001

- Memorandum of Understanding (MOU) spearheaded by HEABC, and the Association of Unions
- OHSAH mandated to assist and produce “report card”
- Ministry contributed $15 million & WCB provided $6 million funding to purchase lifting devices & electric beds
Lessons from the “Ceiling Lift Story”

Success requires:

1. Senior management commitment & worker participation
2. Evidence on effectiveness and cost-benefit
3. Local stories - opinions from front-line workers, managers, patients
4. Decision-makers from government, WCB, unions, Health Authorities
Bagless Laundry Systems

- OHSAH funded two trials of bagless laundry systems – Campbell River & District General Hospital and…

- St. Paul’s Hospital:
  - One year later – zero injuries (previous 5 years - average 3.6 time-loss claims per year)
  - Staff experienced reduced physical discomfort, perceived risk of injury, & physical demands

- An Ergonomics Guide for Hospital Laundries
Improving health and safety in kitchens

• Kitchen workshop in 2000
  ▪ Ergonomic assessments
  ▪ Education & training
  ▪ Cart redesigns
  ▪ Potwasher installations
  ▪ Dishroom remodellings

• An Ergonomics Guide for Kitchens in Healthcare
Patient Handling Consensus Initiative

• Catalogue current practices – input from all health authorities
• Compare best practices
• Draft consensus document outlining best practices

• Apply PH Consensus outcome to:
  a. Influence training curriculum
  b. Enhance efficiency of training (less retraining as move from location to location)
  c. Enhance safety by reducing injury related to patient handling
Facility Planning Task Group

• Maximize delivery of quality patient/client care and worker safety and productivity through timely ergonomic input in the facility planning process

• Task group objectives:
  - Facility planning education
  - Standardized process for ergonomic input into the facility planning process
  - Cost benefit
  - Ergonomic resource guide for facility planning
Participatory Facility Design

An Interior Health and OHSAH Joint Initiative

• East Kootenay Regional Hospital redesign and development

• Project objectives:
  ▪ Optimal workplace health and safety conditions
  ▪ Comfort and efficiency of layout
  ▪ Work quality requirements for IH employees

• The design process included:
  ▪ HCW focus groups, interviews, and observations
  ▪ Workflow and task analysis
  ▪ Design mockups
BBF Exposure Control Plan

• Aims:
  - Eliminate and reduce the risk of exposure to blood and body fluids while at work
  - Assess and analyze risk factors related to BBF exposure in the workplace
  - Implement and evaluate control measures to minimize these risks
Project Locations

- VIHA
  - Risk identification phase nearly complete
  - Safety devices being implemented
- Surrey Memorial Hospital (FH)
  - Risk identification phase nearly complete
  - Safety devices being implemented
- Vancouver General Hospital (VCHA)
  - Risk identification phase to begin mid-November
Our findings thus far....

- Many incidents are **not reported**
- Great deal of ‘**near miss**’ incidents
- Some staff are **unfamiliar** with BBF reporting protocols
- BBF exposures are of concern to staff and they believe **more training** is necessary
- Although **nurses** are most likely to be exposed, incidents occur in **all departments**
- **Organizational, environmental and individual factors** rank relatively high
Concerted response to infectious disease outbreak

- **Provincial SARS Scientific Committee** evolved to Emerging Infectious Disease Working Group (EIDWG)

- **SARS Best Practices Working Group** to provide consistent work practices and personal protective equipment requirements in BC....

- And across Canada **(national grants)**...applicable to all airborne and droplet-spread infectious diseases

- Providing **train-the-trainer** sessions province-wide
“Barriers & Facilitators to Implementing Protective Measures Against SARS & Other Existing & Emerging Infections for Healthcare Workers: A Collaborative Interdisciplinary Study”

- Funded by CIHR
- In collaboration with
  - Health authorities: VCH and FH
  - Unions: BCNU, HSA and HEU
  - Others: BCCDC and WCB
Grant objectives

- Identify organizational, environmental and individual factors that influence HCWs’ behaviour
- Identify differences in these factors between nurses in ON and BC
- Characterize barriers and facilitators to worker compliance with control measures
- Characterize perceptions of those in charge of implementing control measures
- Determine the extent of the difference between perceived and actual risk among healthcare workers
PEARS

Prevention
Early
Active
Return-to-work
Safely

The Integration of:
• Injury Prevention
• Early Intervention
  (Workplace / Employee)
• Return to Work Programming

Through Effective:
• Collaboration and Injury Tracking
Evidence suggests:
integrated (primary and secondary), workplace-based and work-focused approach with cooperative participation of all stakeholders should be highly effective.
PEARS Objectives

Main Objective
• Decrease frequency, duration and severity of injuries – and their associated costs

Also:
• Improve workplace culture by promoting a climate of safety and offering a program with which the employees are content.
**Injury Prevention and Feedback Loop**

**Primary Prevention**
- Consults *(proactive)* – worksite visits / modification
- Targeted comprehensive projects – “culture change” initiatives
- Training and education

**Early Intervention**
Contact ALL reported MSI – follow up with:
- Worksite visit / modification if needed
- Employee assessment – clinical assessment / treatment
- Follow-up – were recommendations appropriate?

**Return-to-Work Planning**
- GRTW programming
- Worksite visit / modification
- Follow-up (were recommendations put in place)
Purpose of PEARs Team

- Follow up on every reported incident
- Problem solve the injury cause
  - Investigate the root cause of all injuries and implement control measures to prevent recurrence and/or future injuries
- Provide sign and symptom relief
  - Assist employees with pain relief and functional restoration as early as possible
Prevention and Early Active Return to Work Safely (PEARS)

• 1-year “pilot” intervention study in Vancouver General Hospital (VGH) & Royal Columbian Hospital (RCH)
  ▪ Parties worked together with the common mission of decreasing injuries & time-loss in healthcare
PEARS Results (VGH)

- **Registered Nurses**
  - Faster return to regular duties
  - Reduction of up to 40% total time loss and up to 44% compensation costs

- **Health Sciences Professionals**
  - Faster return to regular duties
  - Reduction of up to 67% total time loss and 73% compensation costs
Total Time Loss in days per Full Time Equivalent (VGH)

May 99-Apr 00: Registered Nurses = 5.2
May 00-Apr 01: Registered Nurses = 6
May 01-Apr 02: Registered Nurses = 4.9
May 02-Apr 03: Registered Nurses = 3.6

May 99-Apr 00: Health service professionals = 3.6
May 00-Apr 01: Health service professionals = 3.6
May 01-Apr 02: Health service professionals = 3.8
May 02-Apr 03: Health service professionals = 3.3

May 99-Apr 00: Facility support services = 2.3
May 00-Apr 01: Facility support services = 2.1
May 01-Apr 02: Facility support services = 1.2
May 02-Apr 03: Facility support services = 0.75
Total WC B Costs per Full Time Equivalent (VGH)
Conclusions

• PEARLS marked a shift from what was previously occurring at VGH and RCH by;
  • Attempting to integrate primary and secondary prevention
  • Featuring strong union involvement in all aspects of the program design and implementation and
  • Committing to evidence-based decision making with a well established data system being developed
Employees with Access to PEARS in BC

Total BC healthcare workers with access to PEARS - ~37,000
Where PEARLS is taking place

1. Vancouver Coastal – Vancouver Acute and Community
2. Vancouver Coastal – Richmond Health Services Area
3. Vancouver Coastal – North Shore / Coast Garibaldi
4. Fraser Health – Royal Columbian
5. Fraser Health – Queen’s Park
6. Fraser Health – Langley Memorial Hospital
7. Interior Health – Kootenay Boundary
8. Interior Health – Okanagan
9. Vancouver Island – South Island Region
10. Vancouver Island – North Island Region
11. Northern Health Authority
Management of Aggressive Behaviour

- Guidelines: Code White Response
- Code White: trained team response to a disturbance that is a behavioural emergency involving clients in healthcare
- Education and training initiatives underway within JCED program
- CNAC grant with Fraser and HBT: An Integrated Approach for responding to Aggressive and Excessive Behaviours in Complex Care Settings
Risk Factors in Community Care

- Workers work alone, no support from other staff
- No control of work site, must enlist client or family member cooperation
- Equipment not always available
- Access to and within client home may be obstructed or unsafe
- Pressure to perform tasks quickly
Community Care Initiatives

- **Phase I (current)**
  - Pilot initiative with select community care agencies to evaluate program materials (i.e. training materials, risk assessment tool, equipment registry)

- **Phase II (new)**
  - Expansion of homecare resources and services through further development and promotion of Phase I initiative
Online Learning

Basics of the Workplace Hazardous Materials Information System (WHMIS):

- Animated and interactive
- Provides employees, supervisors and employers with an understanding of core elements
- Modular format
- Quizzes throughout
- Free to BC Healthcare facilities
Online Infection Control Module

• “Enhancing Infection Control Education to Nurses in Rural and Community Practice”
  ▪ Funded by CNAC
  ▪ In collaboration with VCH and PHSA

• Goal:
  To provide e-learning to HCWs across the province, specifically targeting rural and community healthcare nurses
MSDS and Latex Database

- > 8000 MSDS in database
- Search by product or manufacturer
- Allows access regardless of hour

- Allows individuals to find latex-free products used in healthcare
- More than 11,000 products and 700 manufacturers
WHITE™ Database - Modules
WCB Form 7

Employer's Report Of Injury Or Occupational Disease

Employer's Information

Employer's Name: Harrow Health Region
City: Vancouver
Mailing Address: Mainland Hospital 251 Royal Oak Rd
Province: BC
Postal Code: V6L 2H3

Facility Information

Worker's Occu.: RCA
Location Of Facility Where Injury Occurred: Sunshine lodge

Employee's Information

First Name: Janet
Last Name: Bates
Phone #: 604 223 5494
Mailing Address: 9887 Sauders St.
City: Vancouver
Province: BC
Postal Code: V6E KSL
Date Of Birth: 8/16/1967
SIN #: 380140205
Weight: 49 kg
Height: 165 cm
BC Carecard: 2203687412

Submit to WCB
## Contributing Factors

### Incident Investigation/Contributing Factors

<table>
<thead>
<tr>
<th>Equipment/Device</th>
<th>Work Practice</th>
<th>Organizational/Administrative</th>
</tr>
</thead>
<tbody>
<tr>
<td>☑ Malfunctioning</td>
<td>☑ Improper Assessment of Client/Load</td>
<td>☑ Working Alone</td>
</tr>
<tr>
<td>☑ Improper Use</td>
<td>☑ Did Not Follow Appropriate Procedure</td>
<td>☑ Inadequate Information</td>
</tr>
<tr>
<td>☑ Improper/Inadequate Signage</td>
<td>☑ Did Not Use Designated/Appropriate Equip.</td>
<td>☑ Inappropriate Scheduling</td>
</tr>
<tr>
<td>☑ Not Available at Point of Use</td>
<td>☑ Conduct</td>
<td>☑ Lack of Training/Education</td>
</tr>
<tr>
<td>☑ Poor Design</td>
<td>☑ Task Performed for Extended Periods</td>
<td>☑ Lack of Appropriate Equipment</td>
</tr>
<tr>
<td>☑ Other - Specify Below:</td>
<td>☑ Communication</td>
<td>☑ Lack of Personal Protection Equipment</td>
</tr>
<tr>
<td></td>
<td>☑ Unaccustomed</td>
<td>☑ Lack of Safe Work Procedure</td>
</tr>
<tr>
<td></td>
<td>☑ Other - Specify Below:</td>
<td>☑ Perceived Time Constraints</td>
</tr>
</tbody>
</table>

### Environment

<table>
<thead>
<tr>
<th>Temperature</th>
<th>Workplace</th>
<th>Layout/Design</th>
<th>Limited Workspace</th>
<th>Floor Slippery/Uneven</th>
<th>Lighting Inadequate</th>
<th>Excessive Noise</th>
<th>Ventilation Inadequate</th>
<th>Improper Storage</th>
<th>Other - Specify Below:</th>
</tr>
</thead>
</table>

### Patient-Related Factors

<table>
<thead>
<tr>
<th>Unable to Follow Directions</th>
<th>Inconsistent Weight Bearing</th>
<th>Patient Aggressive</th>
<th>Patient Resistant</th>
<th>Made Unexpected Movement</th>
<th>Confused/Dementia</th>
<th>Under Influence of Drugs/Alcohol</th>
<th>Language Barriers</th>
<th>Other - Specify Below:</th>
</tr>
</thead>
</table>

### Worker

<table>
<thead>
<tr>
<th>Inexperienced</th>
<th>Communication Difficulties</th>
<th>Fatigued</th>
<th>Distracted</th>
<th>Pre-Existing Injury</th>
<th>Sick/Medicated</th>
<th>Other - Specify Below:</th>
</tr>
</thead>
</table>
### Corrective Actions Taken

#### Incident Investigation/Employee Details

<table>
<thead>
<tr>
<th>Description</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Person Responsible for Corrective Action:</td>
<td>Tony Harris</td>
</tr>
<tr>
<td>Person Responsible for Corrective Action (Date):</td>
<td>05/26/2003</td>
</tr>
<tr>
<td>Maintenance Requisition Submitted:</td>
<td>Yes</td>
</tr>
<tr>
<td>Maintenance Requisition Submitted (Date):</td>
<td>05/05/2003</td>
</tr>
<tr>
<td>Corrective Action Communicated To Staff:</td>
<td>Yes</td>
</tr>
<tr>
<td>Corrective Action Communicated To Staff (Date):</td>
<td>06/05/2003</td>
</tr>
<tr>
<td>Any Time Loss Subsequent To Injury Date:</td>
<td>Yes</td>
</tr>
<tr>
<td>Any Time Loss Subsequent To Injury Date (Date):</td>
<td>05/24/2003</td>
</tr>
<tr>
<td>Written Safe Work Procedures Required/Updated:</td>
<td>Date: 05/28/2003</td>
</tr>
<tr>
<td>Training Required/Provided For Specific Task:</td>
<td>Date: 08/07/2003</td>
</tr>
<tr>
<td>Equipment - Repair/Replace/Purchase:</td>
<td>Date: 06/26/2003</td>
</tr>
<tr>
<td>Environment - Change/Modify Workstation or Substitute/Eliminate Product:</td>
<td></td>
</tr>
<tr>
<td>Patient/Resident Related Incidents - Lift/Transfer Re-Assessed Or Care Plan/ADL Card Updated:</td>
<td></td>
</tr>
</tbody>
</table>
# Claims Cost Report

**Claim Cost for Department by Facility**

<table>
<thead>
<tr>
<th>Facility</th>
<th>Department</th>
<th>WageLoss</th>
<th>Health Care</th>
<th>Rehab</th>
<th>Total ClaimCost</th>
<th>FTE</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Panama House</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>ECU II</td>
<td>$46,955.07</td>
<td>$2,480.00</td>
<td>$300.00</td>
<td>$49,735.07</td>
<td>5</td>
</tr>
<tr>
<td><strong>Royal Jubilee</strong></td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>ECU I</td>
<td>$8,818.00</td>
<td></td>
<td></td>
<td>$8,818.00</td>
<td>2</td>
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<tr>
<td></td>
<td>ECU II</td>
<td>$35,182.00</td>
<td></td>
<td></td>
<td>$35,182.00</td>
<td>31</td>
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<tr>
<td></td>
<td>Emergency Overflow</td>
<td>$5,200.00</td>
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<td>$5,200.00</td>
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<tr>
<td></td>
<td>House Keeping</td>
<td>$58,460.00</td>
<td>$932.00</td>
<td></td>
<td>$59,392.00</td>
<td>7</td>
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<tr>
<td><strong>Sunshine Lodge</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td></td>
<td>ECU I</td>
<td>$542,964.22</td>
<td>$4,880.00</td>
<td>$559.00</td>
<td>$548,403.22</td>
<td>57</td>
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<tr>
<td></td>
<td>ECU II</td>
<td>$264,744.00</td>
<td>$1,350.00</td>
<td></td>
<td>$266,094.00</td>
<td>39</td>
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<tr>
<td><strong>Tudor House</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>ECU II</td>
<td>$56,265.00</td>
<td>$2,100.00</td>
<td></td>
<td>$58,365.00</td>
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<tr>
<td><strong>Total</strong></td>
<td></td>
<td>$1,018,588.29</td>
<td>$11,742.00</td>
<td>$859.00</td>
<td>$1,031,189.29</td>
<td>148</td>
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</table>

*Print Date: 10/07/2000*
### Influenza

<table>
<thead>
<tr>
<th>Record ID</th>
<th>Immun. Date</th>
<th>Vaccine Name</th>
<th>Vaccine Lot #</th>
<th>Expiry Date</th>
<th>Clinic Name</th>
</tr>
</thead>
</table>

**Record ID:**

**Vaccine Name:** Agrippal

**Date of Immunization:** 09/26/2002

**Comment:**

**Medical Contraindication:**

**Clinic Name:** Handsom Clinic

**Address:** 3768 Seth Avenue

**City:** Victoria

**Province:** BC

**Postal Code:**

**Phone #:**
## Influenza Immunization Report

### Facility: Royal Jubilee

#### Influenza Immunization - No / Expired

<table>
<thead>
<tr>
<th>HCW ID</th>
<th>HCW Full Name</th>
<th>Medical Contraindication</th>
<th>Influenza Immunization</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>PIN001</td>
<td>Pink, Gemma</td>
<td>Yes</td>
<td>Agrippal</td>
<td>8-Sep-2002</td>
</tr>
<tr>
<td>PLU001</td>
<td>Plum, Susan</td>
<td>Yes</td>
<td>Agrippal</td>
<td>8-Sep-2002</td>
</tr>
<tr>
<td>RIC001</td>
<td>Rice, Judy</td>
<td>Yes</td>
<td>Begrivac</td>
<td>8-Sep-2002</td>
</tr>
<tr>
<td>ROB001</td>
<td>Roberts, Gail</td>
<td>Yes</td>
<td>Agrippal</td>
<td>8-Sep-2002</td>
</tr>
<tr>
<td>ROG001</td>
<td>Rogers, Dana</td>
<td>Yes</td>
<td>Agrippal</td>
<td>2-Dec-2001</td>
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<tr>
<td>ROS001</td>
<td>Ross, Paty</td>
<td>Yes</td>
<td>Begrivac</td>
<td>8-Sep-2002</td>
</tr>
<tr>
<td>TRU001</td>
<td>Trunk, Laine</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>TRU002</td>
<td>Truman, Fiona</td>
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<tr>
<td>VAS001</td>
<td>Vaessen, Cynthia</td>
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<tr>
<td>WLI001</td>
<td>White, Patricia</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>WLI002</td>
<td>Wilkins, Mary</td>
<td></td>
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<td></td>
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<tr>
<td>WRG001</td>
<td>Wrangler, John</td>
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<td></td>
</tr>
<tr>
<td>RYA001</td>
<td>Ryans, Alicia</td>
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<td></td>
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</tr>
<tr>
<td>LOV001</td>
<td>Lovegrove, Marcus</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>REY001</td>
<td>Reynolds, Lucinda</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Summary of Facility: Royal Jubilee

- Total count of staff at Royal Jubilee: 53

Personnel who:
- Yes - have had immunization: 37 (70%)
- No - have not had immunization / expired: 16 (30%)
Mental Health
(Mental health outcome, job satisfaction...)

Infection Control
(respiratory infection morbidity, mortality [SARS], Influenza vaccine uptake, BBF...)

Development of outcome indicators, survey instruments, tracking database; evaluation and cost benefit analysis; knowledge translation

Patient Error
(Medication errors, falls, nosocomial infection...)

Staff Injury
(MSI, time loss...)

Determinants of “safety culture” (e.g. policies and procedures, training, staffing, workload, communication, etc.); also impact of these outcome on access to healthcare
How effective has this approach been?

• OHSASH gained credibility, recognition, and achieved huge success:
  ■ decreasing injuries, time-loss, and costs;
  ■ creating central expertise, shared services and products; and
  ■ attracting millions into the province in grant funds.

• OHSASH gained national and international acclaim (i.e. Knowledge Translation award)
Decreasing Injuries

Healthcare Industry Injury Rate
1996 to 2003

Note: 1996 injury rates have been estimated based upon reclassification of CU’s that occurred in 1999.
Decreasing time loss

Days Lost Per 100 FTE

Year


Days Lost Per 100 FTE

100 150 200 250 300 350
## Cost Savings from Reduced Injuries

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute</td>
<td>-$12,230,916</td>
<td>-$21,550,714</td>
<td>-$33,432,873</td>
<td>-99%</td>
<td>-$67,214,503</td>
</tr>
<tr>
<td>CHSS</td>
<td>-$2,056,650</td>
<td>-$3,813,030</td>
<td>-$5,291,109</td>
<td>-105%</td>
<td>-$11,160,789</td>
</tr>
<tr>
<td>LTC</td>
<td>$0</td>
<td>-$7,484,579</td>
<td>-$13,843,252</td>
<td>-61%</td>
<td>-$21,327,831</td>
</tr>
<tr>
<td>STC</td>
<td>-$694,599</td>
<td>-$1,762,418</td>
<td>-$2,678,003</td>
<td>-95%</td>
<td>-$5,135,020</td>
</tr>
<tr>
<td>HSS</td>
<td>-$967,406</td>
<td>-$1,029,278</td>
<td>-$1,522,564</td>
<td>-71%</td>
<td>-$3,519,248</td>
</tr>
</tbody>
</table>

**Total Savings:** $108,357,391
Engaging in Knowledge Translation

- OHSAH received 2004 CIHR “Excellence in Health Research” Knowledge Translation Award
- Invited to participate in international conferences
  - Keynote address: International Conference on Occupational Health for Healthcare Workers in Japan
  - CIHR World Conference of Science Journalists
  - 2004 Healthcare Ergonomics Conference
  - Plenary session at 2004 AWCBC Congress
How did OHSAH win the Knowledge Translation Award?

1. Research agenda was set by the stakeholders themselves – the very mission of OHSAH IS KT!
   • Hence decision-makers identified the issues/concerns that were important to them

2. Applied sound scientific principles, used qualitative and quantitative research methods.

Conclusion: When research is driven by stakeholder needs, and conducted with attention to high quality methodology → the findings are applied...and get good results!
What can we learn from OHSAH’s success?

- Bipartite approach is effective
  - Senior management commitment is key
  - Involving front-line workers is crucial

- Evidence-based methods work
  - Local & international knowledge, qualitative and quantitative methods, with rigorous evaluation, including cost-benefit analysis

- Take comprehensive approach
  - Not just MSIs or incidents, but workplace culture
  - Link to benefit to the community (patients, the public) – not just the workforce.
Bringing it together

• Sometimes the stakeholders for occupational health and for environmental health are different – and both perspectives need to be addressed
  ▪ For healthcare: it means tying worker safety to patient/public safety
  ▪ For other sectors: it means tying worker health to community health

• Commitment to the shared mission determines success.
## University & Community Expectations of Academic Researchers

<table>
<thead>
<tr>
<th>Functional Activity Area</th>
<th>Valued Academy Expectations</th>
<th>Community Expectations</th>
</tr>
</thead>
</table>
| Research                 | • Scholarly publications (peer reviewed) | • Manuals and working papers  
• Project evaluation |
| Applied research agenda  | • External grants           | • Funded projects  
• Problem-solving initiatives |
| Teaching                 | • Supervision of student research  
• Professional mentoring | • Facilitate workshops  
• Training & development of paraprofessionals |
| Service                  | • University & collegiate service  
• Professional associations | • Engage in collaborative & social action research  
• Participate on civic & community boards |
Benefits of Collaboration

- Parties retain ownership of the solution
- Participation enhances willingness to implement solutions
- Potential to discover novel, innovative solutions enhanced
- Mechanisms for coordinating future actions can be established
Conclusion

- Need to take a comprehensive approach
- Bi-partite collaboration is essential
- Address community as well as workforce concerns
- And promote evidence-based decision-making – (partnering with the research community) to bring research into practice