WORK-RELATED ASTHMA:

• Michael Pysklywec, MD MSc CCFP(EM) DOHS FCBOM
  Occupational Health Clinics for Ontario Workers
  McMaster University, Department of Clinical Epidemiology & Biostatistics

• Sonia Lal CRSP, RPIH
  Clinical Occupational Hygienist/Health & Safety Specialist
  Occupational Health Clinics for Ontario Workers
Partnerships
Objectives for industry workers and managers

Upon completion of this session, participants should be able to:

• Gain understanding about the hazards which cause WRA (work-related asthma)
• Recognize WRA in working adults with new-onset asthma, or a recent deterioration of existing asthma
• Know where to go for treatment
• Assist workers to reduce or prevent workplace exposures by good work practices
• Understand the initiatives for PREVENTION of work-related asthma in workplaces.
Have you ever seen a case of work-related asthma?

1. Yes, many.
2. Yes, a few.
3. Possibly, I’m not sure.
4. Never.
What is your occupation?

1. Physician
2. Nurse
3. Pharmacist
4. Respiratory Therapist
5. Health and Safety professional
6. Worker
7. Union officer
8. Joint Health and Safety Committee Member
9. Other
Epidemiology
How much adult asthma is related to work?

1. 1 – 2 %
2. 10 – 25%
3. 50%
4. 80%

2. 10 – 25%
Canadian Prevalence of WRA

• Johnson et al, 2000
  • 7% (27/383) of all asthmatics had probable OA (healthcare, hairdressers, baker, agriculture)
  • 16% (60/383) had probable or possible OA

• Tarlo et al, 2000
  • 7% (51/682) of all asthmatics had asthma that was worse at work
    ▪ 25/51 (49%) were thought to have work-related aggravation of their asthma (second-hand smoke, stress, paint, dust, etc.)
    ▪ 16/51 (31%) were thought to have sensitizer-induced OA (cedar, isocyanates, grain, flour, hairdresser, etc.)
    ▪ 10/51 (20%) were possible OA/aggravation (flour, rubber, metal plater, carpenter, etc.)
    ▪ None had irritant-induced OA

International data

• Kogevinas, Zock, Jarvis et al, Lancet 2007 - A study with 7000 participants in 13 countries showed a population attributable risk (PAR) of OA between 10 - 25%
• Toren, Blanc, BMC Pulm Med 2009 – systematic analysis showed PAR of 16.3%
Holness et al, 2007

- Survey of 65 respirologists and 600 family physicians in Ontario
- 92% of respirologists and 57% FD’s reported taking occ. history “always/most” of time
- Barriers to not obtaining work history:

<table>
<thead>
<tr>
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<th>Spec.</th>
<th>FD</th>
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<tbody>
<tr>
<td>Time constraints</td>
<td>60%</td>
<td>86%</td>
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<tr>
<td>Lack of knowledge of WSIB</td>
<td>60</td>
<td>74</td>
</tr>
<tr>
<td>Forget to ask</td>
<td>40</td>
<td>67</td>
</tr>
<tr>
<td>Patients unable to provide</td>
<td>40</td>
<td>47</td>
</tr>
</tbody>
</table>
Poonai et al, 2005

- Surveyed 42 patients with OA to examine factors that delayed diagnosis (Toronto)
- Mean time to diagnosis = 4.9 years
- Length of time from symptom onset and reporting of symptoms = 0.61 years

Physician did not ask about work-relatedness 41%
Afraid of lost work time 37.5%
Afraid of forced job loss 33%
Underestimation of symptoms by patient 27%
Patient did not reveal that symptoms worse at work 18%
Work-related asthma is not uncommon (10-25%) but often under-recognized
Classification
What is asthma?

- Chronic lung disease affecting over 3 million Canadians
- Three hallmarks:
  - Reversible
  - Airway inflammation (swelling)
  - Airway constriction (tightening)
- Brought on and aggravated by certain triggers (family history, allergy, allergens, infections, smoking, etc.)
Work-related asthma (WRA)

Occupational Asthma

Sensitizer-induced (allergic)

Work-exacerbated Asthma (WEA)

Irritant-induced (reactive airways dysfunction syndrome: RADS)
Work-related asthma (WRA)

Occupational Asthma

- Sensitizer-induced (allergic)
- Irritant-induced (reactive airways dysfunction syndrome: RADS)

Work-exacerbated Asthma (WEA)
Sensitizer-induced occupational asthma

- Represents the majority of occupational asthma (>90%)

- Clinical features:
  - fulfils the classic criteria for an allergic response:
    - asthma usually occurs in a minority of those exposed
    - asthma develops only after an initial symptom-free period of exposure
  - latency period of sensitization may be weeks to many years
  - Symptoms worsen at work or shortly after work
  - Symptoms improve when away from work (initially – if exposure continues, improvement away may not happen)
Which of the following work exposures may cause sensitizer-induced occupational asthma?

1. paint hardeners
2. iron dust
3. nickel dust
4. flour
5. metalworking fluids
6. talc
7. animal dander
Sensitizers

- There are over 300 known sensitizers, with more every year
  - high molecular weight – generally proteins
    - e.g. latex, flour, animal dander
    - more likely to act as antigens through an IgE mechanism
  - low molecular weight – generally chemicals
    - e.g. isocyanates, metals
    - pathophysiology of mechanism is not well understood

- At particular risk are those with general risk factors for asthma:
  - Atopy, co-existing infections
Bakers

- allergens: cereal flour (wheat, rye, barley), enzymes, contaminants (alternaria, athropodes, aspergillus, dust mites) (Brant 2007)
- High prevalence: between 5 to 24% of subjects may be affected
- Asthma is commonly preceded by rhinitis
- IgE-dependent mechanism
- Skin prick testing in diagnosis of baker’s asthma (Sander, 2004):
  - Sensitivity of 40 and 67%, respectively for wheat and flour sensitization
Case

- A review of Mrs. L’s workplace indicated unavoidable exposure to grain dusts
- Various grains are used in her industry: wheat, rye, oats
- Various enzymes are used in the industry

- There was obvious presence of potential sensitizers; determining which was causing the problem was difficult
Painters

- **Isocyanates**, (also chromium salts, epoxies)
- Approximately 5% of exposed subjects develop OA (note: may also see IIA)
- Isocyanates are also direct irritants to the respiratory tract—significant exposure can cause fatality (?Bhopal)
- Immunological mechanisms involving IgE and IgG have been demonstrated but not consistent (Liu et al, 2003); immunologic testing in humans is of variable use (Tarlo et al, 2008)
- Asthma often develops fairly quickly
- it is marked by its severity and persistence once established
Metal-workers + metal working fluids

- e.g. vanadium, chromium, nickel, platinum, palladium
- For platinum, prevalence was originally very high (>50% of exposed subjects); with appropriate precautions in the work place this figure is now 10%.
- Most sufferers are atopic
- Exposure group may include: chemists, electronics industry, photographers, smelters
Hairdressers (henna, sericin, persulphates)

- Henna, persulphates (oxidizing agent in hair bleach), sericin (hair spray), latex
- Strongly associated with atopic subjects
- Combination of exposure to irritants and allergens in a workplace which is typically poorly ventilated
- Third most common cause of OA in France (Ameille, 2003), behind bakers and painters
Health care workers

- Previously latex
- the proportion of hospital personnel reported as being sensitized to latex varies from 3% to 12%
- Reaction to natural latex protein
- IgE-dependent mechanism
- cross reactivity has been demonstrated between latex, banana, chestnuts and kiwis
- Asthma in the work-place frequently associated with pruritus and ENT symptoms
MANY OTHER INDUSTRIES

Industry specific booklets and fact sheets at the Ontario Lung Association booth and downloadable on the website.

http://www.on.lung.ca/work-related-asthma

NEW worker education web-based tool at http://lung.ca/workrelatedasthma/
Work-related asthma (WRA)

Occupational Asthma

Sensitizer-induced (allergic)

Work-exacerbated Asthma (WEA)

Irritant-induced (reactive airways dysfunction syndrome: RADS)
Irritant-induced occupational asthma

• Represents a small fraction of OA (approx. 6%)
• Onset typically occurs within 24 hours of exposure to a large quantity of a respiratory irritant. That is, unlike sensitizer-induced OA, there is typically no latency period.
• Most will recover after a toxic inhalation injury; some do not
• There is persistence of symptoms beyond 12 weeks, possibly lasting years
• Pulmonary testing shows objective evidence of asthma
• There is some evidence to suggest that chronic, low-level exposure to irritants (dusts, gases, mists, fumes, smoke) that are irritating to the respiratory tract may cause asthma (Balmes 2002)
Work-related asthma (WRA)

Occupational Asthma

Sensitizer-induced (allergic)

Irritant-induced (reactive airways dysfunction syndrome: RADS)

Work- exacerbated / aggravated Asthma (WEA)
CAUSES

Work-Exacerbated Asthma
(also called work-aggravated asthma)

• Exposure to workplace irritants or exertion at work may aggravate pre-existing or concurrent asthma, particularly in patient who have moderate or severe asthma, or who are uncontrolled, because they are not receiving optimal treatment.

• Work-exacerbated asthma represented approximately half of work-related asthma seen in a Canadian clinic studies (Tarlo, 2000).

• People with pre-existing asthma are still susceptible to sensitizers in the workplace
Diagnosis: a multi-step process

1. DIAGNOSE ASTHMA
2. SUSPECT WORK-RELATEDNESS
3. DETERMINE WORK-RELATEDNESS
Suspect work-relatedness!!!

- Careful history is key:
  - Are symptoms worse at work?
  - Did symptoms start in adulthood/with job change?
  - Are they in a high risk industry (e.g. painting, baking, health care)?
  - Are others similarly affected in the workplace?
  - Are symptoms related to unusual episodic exposures such as:
    a) chemical releases or building renovations?
    b) the introduction of new processes or materials?
Suspect work-relatedness: Identify sensitizer or causative agent

- MSDS from worker: look for respiratory sensitizers
- Speak with employer/occupational health nurse
- Literature review of exposures
- OLA Asthma Triggers booklet
- OLA industry-specific information
- Specialist referral
  - OHCOW: access to occupational hygienists and physicians
  - St. Michaels Occupational Health Clinic
Determine Work-relatedness
Tarlo et al, 2008: ACCP Consensus Statement on WRA

- Consider objective testing (particularly when working):
  - Serial peak flow measurements
  - Serial methacholine
  - Immunologic assessments
  - Induced sputum
  - Specific inhalation challenge
- May require specialist (respirologist) referral
Serial peak flow

- Serial peak flow measurements (QID, 2 weeks on and off)
Peak Expiratory Flow Rates (PEFR)

- Careful instruction (effort dependent, need good technique)
- Self-record by patient in triplicate at least 4 times a day (pre-work, mid-shift, post shift, bedtime) on work days and similar times off work.
- Also record symptoms and prn medication use.
- Keep regular meds stable at the lowest dose to adequately control symptoms but not to mask PEF changes
- Record at least 2 weeks at work and 10 days off work
Management of WRA

The three main components of the management of WRA are:
1. Treat the asthma as per the usual guidelines
2. Address issues of workplace exposure
3. Initiate compensation claim, if applicable
What is the best management option for a patient with confirmed sensitizer-induced occupational asthma?

1. N95 mask
2. High-efficiency local ventilation to process
3. Optimize use of inhaled steroid and bronchodilator
4. Remove from work
Management of WRA

- OA (sensitizer-induced)
  - *Remove from exposure:*
    - Longer duration of exposure leads to increased risk of permanence and increased severity of disease
    - Workers can react to very small amounts of exposure

- Irritant induced asthma (RADS)
  - Remove from work until symptoms resolve
  - Return to work should be considered a trial – may react to exposures for long period (some cases up to 2 years)

- Work Exacerbated Asthma (WEA):
  - Control exposure - engineering efforts, modified work
  - Respirator is not a solution
Management of WRA

• Initiate a compensation claim; see the WSIB site for physician forms

• Sentinel health event: consider that others may be similarly affected

• All workers need education and information about managing their asthma, recognition of triggers and what to do about them + + + support.

• Employers and workplace parties also need this information as well as support in determining how they will manage the worker and address exposure issues
Is work exacerbated asthma compensable under WSIB?

1. Yes
2. No
Outcomes and Impact of Work Related Asthma
Expectations of the Workplace

• Provide modified work for worker removed from exposures
  • Encouraged by WSIB to get worker back to work as early as possible
  • This may not be straightforward if exposure not well understood
    • E.g. where is it in the plant, how is it getting to the worker, how much can worker be exposed to
• If not possible – worker will remain off
• Workplace should assess exposures
Ongoing exposure to an allergen at work can lead to permanence of asthma even after leaving the workplace?

1. True
2. False
Health Effects

• Majority of workers continue with symptoms and functional abnormalities even after removed from exposure

• Airway inflammation can persist long after stopping exposure and can become permanent

• OA - maximum improvement in the first 2 yrs once removed from exposure – still improvement but slower
  - If worker is sensitized, s/he can react to very very small amounts of substance – even below detectable levels
  - Irritant induced – symptoms may persistent for months and years after exposure
Outcome of OA

- Systematic review of outcome of OA after cessation of exposure
  - Pooled estimate of rates of recovery was 32% (95% CI = 26 to 38%)
  - Lower recovery with increasing age
  - Shorter duration of exposure correlated with greater chance of recovery
  - HMW agents were associated with greater risk of persistent bronchial hyper-reactivity

Rachiotis et al, 2007
Implication of WRA
Gannon et al, 1993

- UK follow-up study on workers with OA
- 32% continued to have exposure
  - These workers had ongoing decline in PFT’s
  - Median loss of income = 35%
- 68% were removed from exposure
  - Median loss of income = 54%
  - FEV1 improved by 4.6%
  - Greater symptomatic improvement than those still exposed
- Significant physiological, vocation, social, psychological consequence of WRA
Prevention
PRIMARY PREVENTION STRATEGY

Occupational Disease Iceberg:
Occupational Disease Iceberg:

- occupational disease
- aggravated pre-existing disease
- early disease symptoms
- exposure reactions ("exposure symptoms")
- exposed

MONITORING AND CONTROL
Primary Prevention (eliminate/reduce exposure)

<table>
<thead>
<tr>
<th>Source</th>
<th>Path</th>
<th>Worker</th>
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<tbody>
<tr>
<td>elimination</td>
<td>air direction</td>
<td>isolation</td>
</tr>
<tr>
<td>substitution</td>
<td>distance from source</td>
<td>job rotation</td>
</tr>
<tr>
<td>isolation</td>
<td>barriers</td>
<td>training &amp; education</td>
</tr>
<tr>
<td>engineering</td>
<td>change in work process</td>
<td>personal protective equipment (PPE)</td>
</tr>
<tr>
<td>maintenance</td>
<td></td>
<td></td>
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<tr>
<td>local ventilation</td>
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Most effective | Least effective
Prevention Strategy –
General Guidelines for Exposure Control

1. **Identify**
2. **Eliminate**
3. **Substitute**
4. **Engineering Controls**
5. **Administrative Controls**
6. **Personal Protective Equipment**
7. **Exposure-monitoring program**
8. **Continual Improvement**
HOW DO WE IDENTIFY EXPOSURES THAT NEED TO BE CONTROLLED?
1. IDENTIFY

1. Characterize the Exposure Setting
2. Identify Exposure Pathways

Characterize Exposure Setting

- Systematic review of the
  - processes (chemical changes through processes)
  - materials (MSDS, chemical research, consult with suppliers, etc.)
    - chemical behaviour and properties
  - practices
    - consider housekeeping methods (dry versus wet)
    - consider bystander exposures
  - controls

*Occupational Health Team can be of paramount importance to a workplace, in the identification and control of exposures/hazards.*
Bystander Exposures
1. IDENTIFY

2. Identify Exposure Pathways

i. Chemical Behaviour/Properties (refer to MSDS, Chemical Research, Occupational Health professionals)

Avoid dust clouds when folding and disposing of empty bags
Roll bag downwards and away from yourself.

HSE - 2003
1. IDENTIFY

Research

• Study the chemical components (chemical name –CAS #)
  • IARC (International Agency for Research on Cancer)
  • ATSDR (Agency for Toxic Substances and Disease Registry)
  • IPCS –(International Programme on Chemical Safety)-INCHEM
  • CCOHS (Canadian Centre for Occupational Health and Safety)
    - http://ccinfoweb.ccohs.ca/cheminfo/search.html
  • NIOSH (National Institute for Occupational Safety and Health)
    • http://hazmap.nlm.nih.gov/
1. IDENTIFY

Exposure Assessment Framework:

Injection
1. IDENTIFY – Case Study #1

2. Identify Exposure Pathways
   iii. Chemical Changes

   • Cable Insulator/Welder – 24 months with new employer:
     • uses Isonel 51 (VPI tank), to coat cables and welds these coated cables to other components
     • Presents with an unexplained rash and blistering on forearms, hands and groin area. Physician provides steroid crème and anti-itch medication (pills) and sends patient home.
Case Study

• Weeks later the patient continues to exhibit signs of rash on forearms, hands, groin area and other areas as well
• Complains of asthma like symptoms, rhinitis and wheezing when watching TV at home in the late evenings.
• Hay fever?
• Co-workers also exhibit signs of rash and respiratory challenges, some of which start reacting as soon as they walk to their work stations, past the Isonel Dip tank, at the start of their shift.
What should be a plausible next step(s) in this situation?

1. Employees should inform supervisor of their symptomology and request MSDS for the products they work with
2. Take the information to an Occupational Health Clinic for further diagnostic investigation
3. Seek medical attention and show Dr. MSDS
4. Not work related – as the patient may have allergies
5. All of the above – except 4?
1. IDENTIFY Case #1

Chemical Changes

2. Identify Exposure Pathways

C. Chemical Changes

Isonel 51 + Heat (Welding, Ovens) = Formaldehyde
1. IDENTIFY Case #1

Chemical Changes:

2. Identify Exposure Pathways
   
   C. Chemical Changes

   Isonel 51 + Heat (Welding, Ovens) → Formaldehyde

   Trichloroethylene + Heat (Welding, Ovens) → HCL

   BisChloromethyl Ether - Lung Carcinogen
MSDSs will clearly indicate the presence of a respiratory sensitizer.

1. True
2. False
Common asthma related statements on MSDSs:

- The product is a respiratory tract sensitizer or causes respiratory sensitization,
- Asthma is a possible health effect

Some potential sensitizers/irritants may not be listed on the MSDS.

WHMIS requires that any sensitizer be listed as hazardous if it is present at concentrations of 0.1% or greater.

- May cause respiratory sensitization
  - Asthma may not be listed as a possible health effect, thus more in depth information would be required
- Is a respiratory irritant and/or can cause asthma-like symptoms
Many hazardous agents’ exposure levels are regulated by Occupational Exposure Levels (OEL) in Ontario for example, which quantify levels to determine:

- if controls are adequate
- If the workplace is within compliance of regulations

Examples:

A) **Ontario Regulation 833**
Sets out specific occupational exposure limits;

(B) **Ontario Designated Substances**

**Critical Importance:**

- Sensitizer levels need only be minimal for exacerbation of symptoms.
- Exposure levels of sensitizers are difficult to quantify – when variable/intermittent
- *Sensitization or symptoms may still occur despite respirator usage (or in a setting where exposures are within limits)*
Which of the following are effective hygiene controls in preventing occupational asthma (all that apply)?

1. Product elimination
2. Product substitution
3. Engineering controls, such as local ventilation
4. PPE
Prevention Strategy – General Guidelines for Exposure Control

1. Identify
2. Eliminate
3. Substitute
4. Engineering Controls
5. Administrative Controls
6. Personal Protective Equipment
7. Exposure-monitoring program
8. Continual Improvement
3. Substitute

- The Substitution may involve:
  - Changing the form of the product
    - Ex. choose liquid formulation of a product rather than a powder, as this prevents the release of fine dusts into the air

**Note:** The same critical process of reviewing the new “substitute” should be implemented.
### Table 3

<table>
<thead>
<tr>
<th>Substitutions</th>
<th>Recommendations</th>
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| Methyl methacrylate       | - Methyl methacrylate (MMA) is banned for cosmetic use in Canada  
                           | - Use ethyl methacrylate instead (EMA) (Note that EMA may still cause sensitization) |
| Acrylic nails             | - Use plastic tips or linen strips instead  
                           | - Use light cured gel preparations rather than those requiring use of methacrylates when possible |
| Natural rubber latex gloves| - Use vinyl or low protein powder-free gloves rather than natural rubber latex, as they are less likely to cause allergies |
| Aerosol spray products    | - Use pump dispensers for hair sprays or other pressurized aerosol products |
| Chemical hair             | - Chemical hair straightening  
                           | - Use heat straightening instead of chemicals |
Prevention Strategy –
General Guidelines for Exposure Control

1. **Identify**
2. **Eliminate**
3. **Substitute**
4. **Engineering Controls**
5. **Administrative Controls**
6. **Personal Protective Equipment**
7. **Exposure-monitoring program**
8. **Continual Improvement**
4. Engineering Controls

- **Localize/Generalize/Centralize:**
  - Local exhaust ventilation
    - Take toxic air away from the worker’s breathing zone
  - **Improve general ventilation** in all work areas where there are uncontrolled exposures to fumes, smoke, dusts and other irritants or common allergens
  - **Centralize areas where sensitizers are used to a few key locations** and isolate or enclose those areas; provide local exhaust whenever possible.
  - Safe Enclosures

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Local Exhaust Ventilation

MAINTENANCE OF THESE CONTROLS IS OF CRITICAL IMPORTANCE IN THE PREVENTION OF OCCUPATIONAL ILLNESS

Nail Salon Workers

http://www.asianfortunenews.com/article_0113.php?article_id=46
Local Exhaust Ventilation

Division of Applied Research and Technology Engineering and Physical Hazards Branch EPHB Report No. 005-164
September 2012
DEPARTMENT OF HEALTH AND HUMAN SERVICES Centers for Disease Control and Prevention National Institute for Occupational Safety and Health
Downdraft Table

Division of Applied Research and Technology Engineering and Physical Hazards
Branch EPHB Report No. 005-164
September 2012
DEPARTMENT OF HEALTH AND HUMAN SERVICES Centers for Disease Control and Prevention National Institute for Occupational Safety and Health
In order to control exposures, an employer spends the entire company budget of 45000$ on new ventilation equipment. This will protect the employees from respiratory disease permanently.

1. True
2. False

[Green checkmark for 2. False]
Monitoring the Effectiveness of Controls

- Is the hazard contained?
- Any new hazards created by the control(s)?
- Have workers been informed/educated on the hazards and the implemented controls?
- Did maintenance staff receive training on the new equipment for controls?
- Is there a preventative maintenance program in place?
Prevention Strategy – General Guidelines for Exposure Control

1. Identify
2. Eliminate
3. Substitute
4. Engineering Controls
5. Administrative Controls
6. Personal Protective Equipment
7. Exposure-monitoring program
8. Continual Improvement
6. Personal Protective Equipment (PPE)

◆ PPE is the last line of defense
  • should not be the only method of exposure control when exposures are ongoing and cannot be prevented or significantly reduced by elimination, substitution or engineering/administrative controls.
◆ Provide a detailed respiratory protection program which includes:
  exposure symptoms, controls
  proper respirator selection,
  training in its use,
  fit testing and,
  respirator maintenance/storage
Prevention Strategy –
General Guidelines for Exposure Control

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7. **Exposure-monitoring program**
8. **Continual Improvement**
Training & Education

Employers, in consultation with the workplace health and safety committee (representative), should **provide training and education to workers** to help prevent and manage work-related asthma.

A training program should help workers to:

- **Identify the agents** that can cause work-related asthma, exposures/hazards related to Occupational Asthma
- Understand the *controls implemented* and when/if they are failing
- Understand the process of *reporting concerns* in the workplace and of seeking immediate medical attention.
- Recognize the *symptoms* of work-related asthma
- Follow *safe work practices* to reduce exposure to these agents (inclusive of spills, handling, housekeeping etc.)
Case Study

• Call Center employee:
  • Experiencing flu like symptoms
  • Unexplainable rash on face and arms
  • Difficulty breathing
  • Difficulty concentrating
  • Increasingly absent from work
  • Works in corner of 2nd floor call center (open concept offices with 25 workers) next to kitchen, restroom, and large window. Also has a skylight above this area of the office.

• Call Center:
  • Newly appointed JHSC members
  • Company safety department took measurements for: Carbon Dioxide, Temperature, Relative humidity, Carbon Monoxide.
    • Results were all within normal levels except for Relative humidity (recorded at higher than normal levels) – this was resolved immediately)
What Should be the Plausible Next Step?

A. Consult with maintenance
B. Interview the worker
C. JHSC to conduct an investigation and interview workers
D. Consult the Occupational Health Team to get assistance with an investigation
E. All of the above
Case Study
Case: Health Care Industry

- Sari is a nurse working in the gastrointestinal investigation unit in an acute care hospital.
  - Job includes cleaning and sterilising medical instruments and equipment after procedures.
  - A variety of cleaning agents are used as well as gluteraldehyde for cold sterilisation.

- Symptoms:
  - tendency toward cough, undue shortness of breath, especially when cleaning equipment.
  - Symptoms also after work, on exertion and has been waking up with coughing.
  - Symptoms improved while on 2 weeks vacation
What do you think could be wrong with Sari?

1. Sensitizer induced asthma
2. Irritant induced asthma
3. Work exacerbated asthma
4. Work related asthma
5. She has a recurring cold
Case – Health Care Primary Prevention

• Sari is diagnosed with sensitizer induced asthma and it is believed that the sensitizing agent was gluteraldehyde.

• The occupational health and safety manager, recognizing that gluteraldehyde is a sensitizer, is working his way through “control” options and is starting at the optimum point - exploring eliminating it from the GI unit and replacing it with something else.
In this example, machine compatibility with the new agent must be considered.

1. True
2. False
KEY SUMMARY POINTS:

• Work-related asthma is **not rare** and is often **under-recognized**

• Most work-related asthma is due to **sensitizers** in the workplace (similar to other occupational allergies such as dermatitis and rhinitis)

• You play a key role in **suspecting/recognizing** WRA

• Those with sensitizer-induced WRA need to avoid any exposure to exposure: often requires **removal from work**

• **Early recognition and management** is key to minimize permanence and severity

• **Preventing** exposure is key to reducing incidence

REVIEW QUESTIONS ➔ ➔
How much adult asthma is related to work?

1. 1 - 2 %
2. 10 – 25%
3. 50%
4. 80%
Which of the following work exposures may cause sensitizer-induced occupational asthma?

1. paint hardeners
2. iron dust
3. nickel dust
4. flour
5. metalworking fluids
6. talc
7. animal dander
What is the best management option for a patient with confirmed sensitizer-induced occupational asthma?

1. N95 mask
2. High-efficiency local ventilation to process
3. Optimize use of inhaled steroid and bronchodilator
4. Remove from work

✓ 4. Remove from work
Is work exacerbated asthma compensable under WSIB?

1. Yes
2. No
Which of the following are effective hygiene controls in preventing occupational asthma (all that apply)?

1. Product elimination
2. Product substitution
3. Engineering controls, such as local ventilation
4. PPE
This workshop provided a clear and concise presentation on work-related asthma.

A. Strongly Agree
B. Agree
C. Somewhat Agree
D. Neutral
E. Somewhat Disagree
F. Disagree
G. Strongly Disagree
This information on WRA will be useful to me in my job.

A. Strongly Agree
B. Agree
C. Somewhat Agree
D. Neutral
E. Somewhat Disagree
F. Disagree
G. Strongly Disagree
With thanks to:

THE LUNG ASSOCIATION™ Ontario

Occupational Health Clinics for Ontario Workers

Centre de Santé des Travailleurs(ses) de l’Ontario

Health & Safety Ontario