

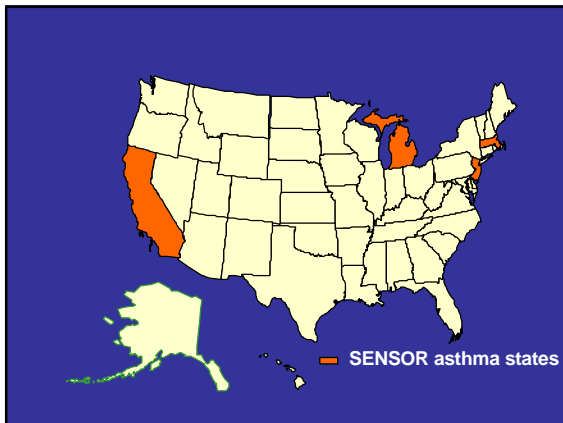
## Work-Related Asthma: Lessons from Massachusetts Surveillance

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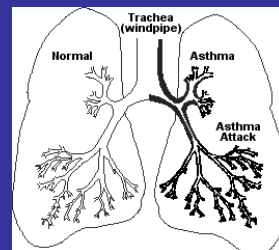


## Sentinel Event Notification System for Occupational Risks (SENSOR)

- Funded by National Institute for Occupational Safety and Health (NIOSH)
- Active state-based surveillance for 'sentinel' work-related conditions
- Analysis of industries, occupations and exposures
- Prevention



Inflammatory disorder of the airways  
hyperresponsiveness and reversible  
airway obstruction or narrowing

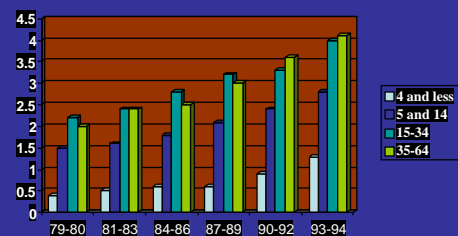


## Public Health Impact of Asthma\*

- 10.2 million adults (4.4 million children) reported asthma in last 12 months
- 6.8 million adults had an asthma episode (3.8 million children)
- 8.1 million outpatient adult visits for asthma (5.8 million outpatient pediatric visits)
- Children have higher rates than adults

\*1998 CDC, NCHS

## People with Asthma By age & years: US 1979-94 CDC/NCHS MMWR



## What Proportion of Adult Asthma is Attributable to Work?

- Range of estimates 2-33% (Blanc 1999)
  - Incidence 21% in HMO population (Milton 1999), 16% in clinic population (Tarlo 2000)
  - American Thoracic Society 15% (2003)
- BRFSS random digit dialed survey of adults 18 years+

## Work-Related Asthma Questions in the 2001 BRFSS

- Have you ever been told by a HCP that you had asthma?
- Do you still have asthma?
- Were you ever told by a doctor or other medical person that your asthma was related to any job you ever had? (onset at 16+)
  - Yes No Never worked Don't know Refused
- Did you ever tell a doctor or other medical person that your asthma was related to any job you ever had?
  - Yes No Never worked Don't know Refused

## Prevalence of Self-Reported Work-Related Asthma (WRA) among Adults (18+) in Massachusetts Behavioral Risk Factor Survey, 2001

	%	Est.#
Currently have asthma	9.5	465,500
Told by doctor WRA	6.0	27,900
Told doctor WRA	4.7	21,855
Told to or by doctor WRA	9.7	45,153

## Surveillance of Work-Related Asthma (WRA)

- Mandatory reporting by physicians of cases of WRA (confirmed and suspected)
- 1993 to present, 900 cases reported, of whom about 480 have been interviewed
- Track industries, occupations and exposures that cause or exacerbate WRA
- Design interventions to reduce WRA

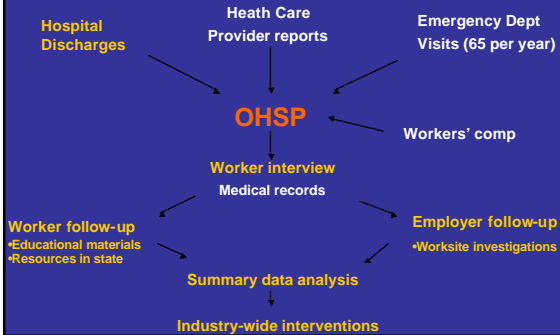
## Surveillance case definition

- Health care professional diagnosis consistent with asthma  
AND
- An association between symptoms of asthma and work
- Includes both new onset (OA, RADS) and work-aggravated asthma

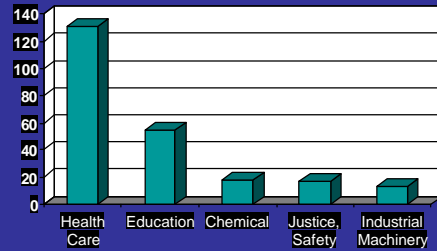
## MA Surveillance System for Work Related Asthma



## Massachusetts Surveillance System for Work-Related Asthma



## MA. SENSOR Data: WRA Cases by Industry, 1993-2002 n=450



MA DPH SENSOR Data, 2003

## WRA in Four SENSOR States Leading Industries by State 1993-1999

CA	MA	MI	NJ
Health Services (17%)	Health Services (29%)	Transportation Equipment (43%)	Health Services (16%)
Educational Services (14%)	Educational Services (13%)	Health Services (11%)	Chemical Manufacturing (11%)
Justice, Public Order, Safety (8%)	Justice, Public Order, Safety (4%)	Fabricated Metal Products (5%)	Educational Services (8%) / Food & Kindred Products (8%)

SOURCE: Provisional SENSOR asthma data, CA, MA, MI, NJ

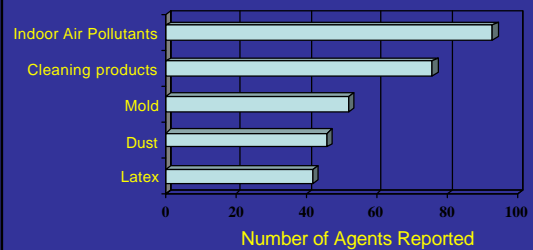
## Asthmagens (known sensitizers)

- Chemicals
  - Isocyanates, cyanoacrylate, Cr<sup>6</sup>, epoxies, styrene, metal working fluids, formaldehyde, diesel exhaust
- Biological agents
  - Some molds, cockroach, laboratory animals
- Cleaning products and sterilants
  - Quats, glutaraldehyde, monoethanolamine
- Metals
  - Nickel, stainless steel, platinum

## Asthmagens (known sensitizers)

- Pesticides
  - Chlorpyrifos, diazinon, malathion
- Cosmetology products
  - Formaldehyde, methyl methacrylate, henna, persulfate
- Paints and coatings
  - anhydrides, cross-linkers, isocyanates, amines
- Natural products
  - Latex, baking flour, wood dusts

## MA SENSOR Data: Most frequently reported exposures, 1993-2002 n=450



\* Up to 3 agents were reported for each case

MA DPH SENSOR Data, 2003

## Flour dust in bakery



## Example: isocyanate exposure in packing department



## Example: isocyanate exposure in packing department



## Bus cleaner removing graffiti

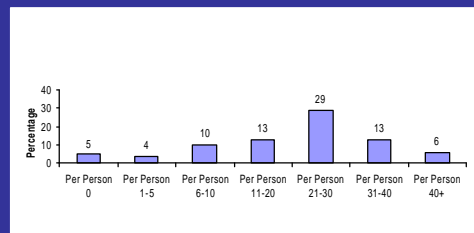


## WRA in Four SENSOR States Cases Associated with Cleaning Agents, 1993-1997 n=236

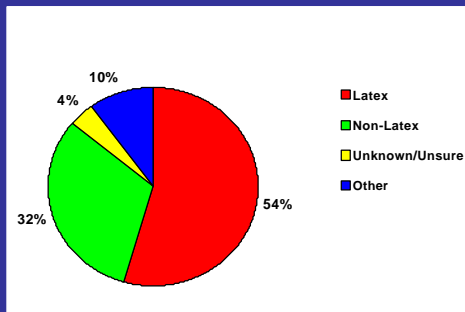
Cleaning agent	No. Cases
Cleaning materials, unspecified	104
Bleach	43
Acids, bases, oxidizers	23
Disinfectants	20
Carpet cleaner	17
Floore stripper/waxes	16
Ammonia	14

Reference: JOEM Vol. 45, Number 5, May 2003

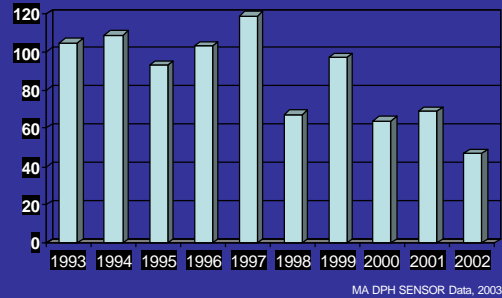
## Survey on Use of Gloves in Daycare Settings, Pairs of Gloves Worn Per Day/Per Person n=89 Respondents



## Types of Gloves Used n=91 Respondents



## MA SENSOR data: WRA cases reported by year



- Sentinel surveillance provides information about industries, occupations and exposures
  - Health care and educational services
  - Identification of new agent(s)
- Intervention to improve workplaces
- Dissemination of information
- Public health prevention opportunities for practitioners

## Red cedar dust in pencil manufacturing plant

