

Antibacterial cleaning products may create health problems

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APHA, Washington DC, November 7, 2007

Messages

- Cleaning products associated with asthma
 - Widespread, unrecognized
- Disinfectants are hazardous ingredients
- Promotion of disinfectants in fear messages
- Unions and technical data made a change
 - Collaboration of union, MassCOSH and Massachusetts Department of Public Health enhanced ability to protect

Cleaning products ingredients

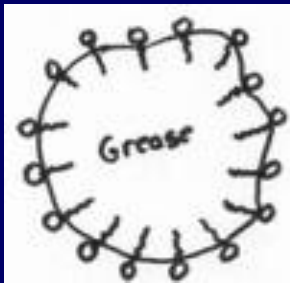
- Surfactants – help dissolve soil
- Builders – improve dissolving
 - Water softeners, pH modifiers, chelating
- Solvents – dissolve oils grease, reduce streaking on glass
- Aerosol propellants
- Disinfectants – kill or inactivate microorganisms on hard surfaces
- Other – fragrances, dyes, abrasives

Common activity, hazards underestimated



- US: 3 million of 128 million employed as cleaners
- Bystander exposure, 26% near cleaning
- Retail (Calvert 2007 PHR;122:232) Teens / Work (Brevard 2003 EHP; 111:13)
- Home and work, additive
- Cleaning products 16% of non-drug 2006 Poison Center calls, 27% of substances (MA, RI) / Nationwide, 2nd or 3rd in AAPCC database
- Spray cleaners at home (Zock 2007 Am J Resp Crit Care Med 176:735)

How cleaning products work



- Dissolve soils, keep in solution
 - Water based and solvent based have solvents
- Nonpolar soils
- Polar soils
- Surfactants' role
 - Polar (water-loving) end
 - Nonpolar (water-hating) end
 - Break up soil, suspended by surfactant

Cleaning products and WRA

CA, MA, MI, NJ 1993-1997

Rosenman et al 2003 JOEM 45(5):556-63

Cleaning product	# cases
Unspecified	104
Bleach	43
Acids, bases, oxidizers	23
Disinfectants	20
Carpet cleaner	17
Floor stripper/wax	16
Ammonia	14

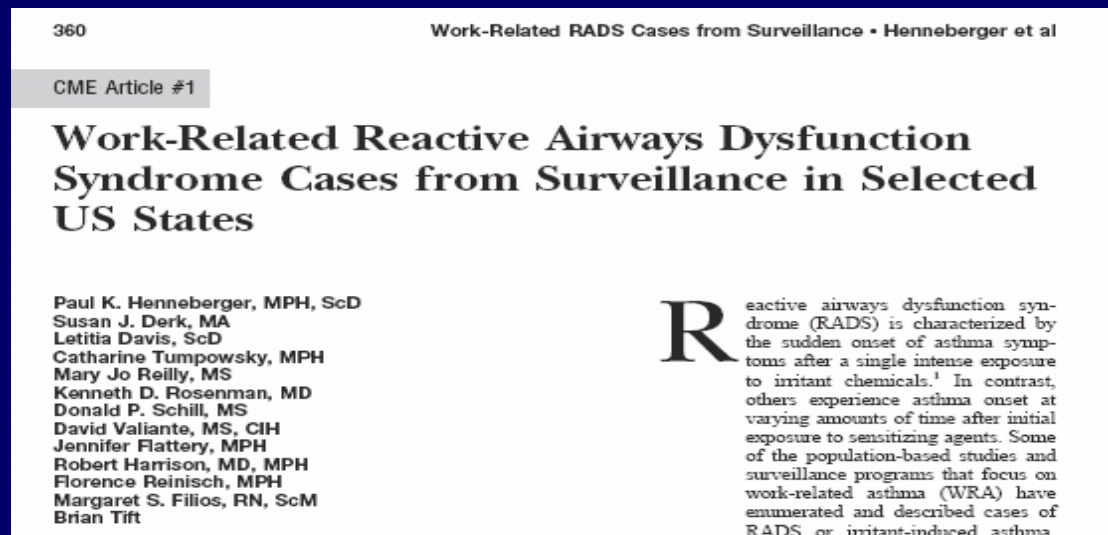
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Cleaning Products and Work-Related Asthma • Rosenman et al

Cleaning Products and Work-Related Asthma

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RADS asthma, MA, NJ, CA and MI, 1993-1995 JOEM 2003;45:360-368



- Cleaning materials leading cause of RADS

Health care workers with WRA, 2005, CA, MA, MI, NJ, 1993-1997 AJIM 2005

AMERICAN JOURNAL OF INDUSTRIAL MEDICINE 47:265-275 (2005)

Work-Related Asthma Among Health Care Workers: Surveillance Data From California, Massachusetts, Michigan, and New Jersey, 1993-1997

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Background Asthma morbidity has increased, posing a public health burden. Work-

- 305 of 1,879 cases = 16%
- Leading exposures
 - Cleaning products 24%
 - Latex 20%
 - Glutaraldehyde 9%

Cleaning products associated with respiratory symptoms

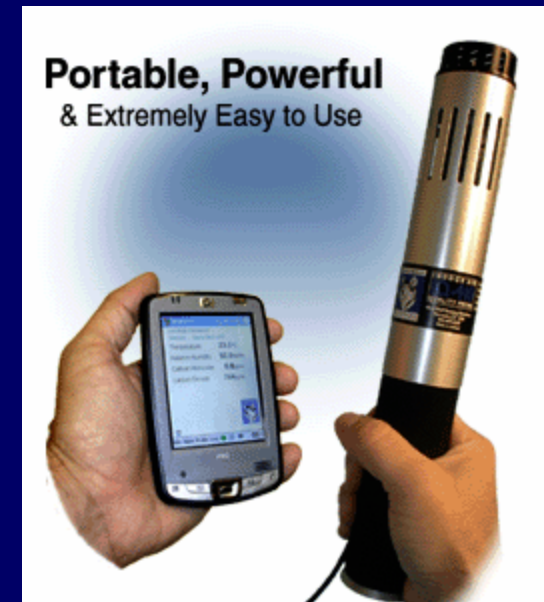
- Short-term respiratory effects of cleaning, with bleach, degreasing chemical sprays, air fresheners in domestic cleaners
 - Medina-Ramon EuroRespJ 2006 27(6):1196
- “Janitors, housekeepers and cleaners” was the occupational group with highest # of occupational asthma in Sao Paulo, Brazil
 - Mendonca AJIM 2003 43(6):611
 - Maçãira OEM 2007 Non-domestic cleaners
- Relative risk of asthma of 1.5 for cleaners compared to administrators in Finland
 - Karjalainen ERJ 2002 19:90-95

Cleaning products associated with respiratory symptoms

- Asthma prevalence for indoor cleaners in Spain 1.7 times rate for office workers
 - Zock Scand J Work Env Health 2001 27:76-81
- 26 papers, reviewed by 2004 (Nazaroff) implicating cleaning as a cause of respiratory health impairment
 - Nazaroff Atmospheric Environment 2004 38:2841
- Summary article 2006 (Rosenman), Cleaning Products-Related Asthma
 - Rosenman Clin Pulm Med 2006;13:221-228
- Household cleaning sprays and adult asthma
 - Zock 2007(Oct) Am J Respir Crit Care Med

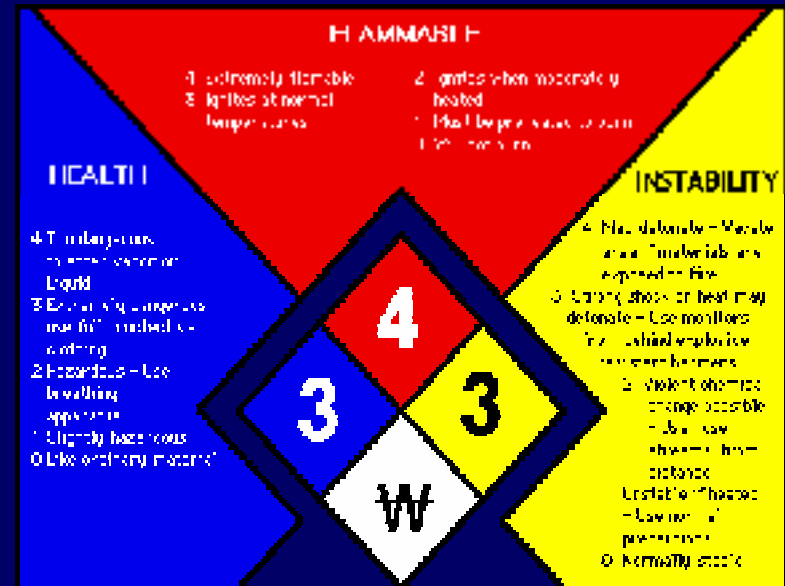
Ongoing research—California, Massachusetts

- Peak exposures of 2-BE exceed REL and TLV, Skin
 - Dilution enhances absorption
- Measurable for 15-20 min, long time to return to background
- Prolonged release, cumulative
- Ammonia released when “quats” are used

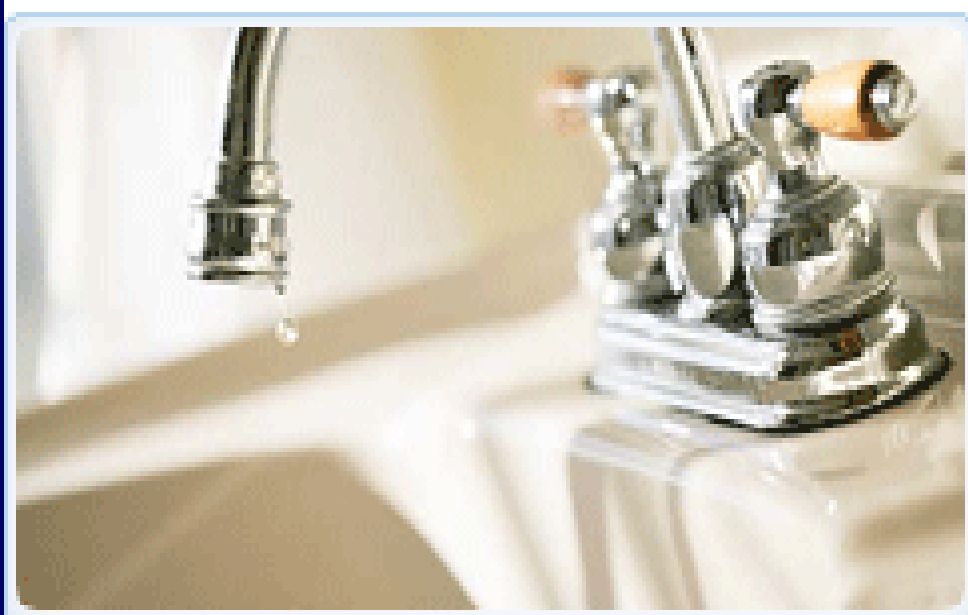


Cleaner characteristics

- Individual ingredients
 - Carcinogens, asthmagens, teratogens, neurotoxins
 - Toxicology
 - Flammability
- Volatility
- Method of use
- Hazard rating of whole product
 - NFPA
 - HMIS
- Performance
- Environmental harm
- Personal protective equipment



“Fear” messages



Just because a surface looks clean, doesn't mean that germs are gone.



Promotion of disinfection in fear messages



News supplement Boston Globe Parade magazine October 14, 2007

News supplement Boston Globe Parade magazine October 14, 2007



- Target women, children, feature clean surfaces
- 9 of 16 pages advertisement



Fear messages

Startling News About Your Underwear Beware of your dirty underwear! Just touching it could make you sick.

When it comes to germs, dirty underwear is just about the worst thing you can touch, according to Dr. Germ, a.k.a. Charles Gerba, a microbiologist and clean water expert at the University of Arizona.

Here's the real shocker: Your clean underwear isn't much better. There is about a 10th of a gram of feces in the average pair of dirty underwear.

<http://webcenters.netscape.com/userve.com/home realestate/package.jsp?name=fte/dirty underwear/dirtyunderwear>



Never Spray Athletes with Chemical Germicides

Summer 2006, SEIU 615 told MassCOSHH that their members who cleaned the bathrooms at Logan Airport on midnights had many health problems associated with cleaning. Members described lack of training, no dilution instructions in Spanish, supervisors mixed chemicals to enhance cleaning, and used the strongest products at night. MassCOSHH provided assistance in Spanish and health/tech help.

Review of MSDS

Summarize hazards, identify worst

- Meeting summarized key demands—safer products, no mixing, training, no changes without warning, directions in Spanish
- Union was successful in winning changes
- Lessons
 - Publications not sufficient
 - Science and technical information as resource
 - Backing union in accuracy of demands
 - Impact / success re DPH grants
 - Champions in positions to help
 - Promoted work on 3rd party certification

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