Clean for Health

Nancy Bernard, MPH
School Environmental Health and Safety
Green Clean Schools Leadership Summit
July 30, 2015
Our Mission

To protect and improve the Environmental Health and Safety condition of schools in Washington state.
School Environmental Health and Safety

- Animals
- Control of Communicable & Zoonotic Diseases
  - Disinfection and Green Cleaning
- Hazardous Chemicals
  - Arts, Science Labs, CTE
- Indoor Air Quality
  - Asthma, Mold, Ventilation, Filtration
- Injury Prevention
  - Athletics, Playgrounds, Fall Protection
- Integrated Pest Management
- Lighting
- Noise
Cleaning Products – How Much is Too Much?

- Irritation:
  - Respiratory, Skin, Eye
- Burns
- Endocrine Disruptors
- Reproductive Hazards
- Persistent Bioaccumulative Toxins (PBTs)
Children are More Susceptible

- Breathe more air for their size.
- Lower to the ground – more pollutants.
- Growing rapidly.
- Brain grows until twenties!

“As children grow and mature, their bodies may be especially vulnerable to certain chemical exposures during critical windows of development.”
Why Green?

- Better Health
- Better Attendance
- Academic Improvement
- Improved Indoor Air Quality
- Reduce Asthma
- Reduce Sensitization
- Improved Environment
- Reduced Exposure to Toxins

**Green Cleaning** for schools protects public health without harming the health of staff, building occupants and the environment. The best way to reduce cleaning chemical exposures for students and staff is to implement a cleaning for healthy schools program.

_National Association of School Nurses_

Clean – Sanitize – Disinfect?

- **Cleaners, Soaps, Detergents**
  - Remove dirt/organics.

- **Sanitizers**
  - Reduce germs from surfaces – 99.9%.

- **Disinfectants**
  - Destroy or inactivate germs and prevent them from growing.
Worried?

- *Clostridium difficile* (C. diff)
- *Enterovirus D68*
- Influenza
- Measles
- MRSA
  *Methicillin Resistant Staphylococcus aureus*
- Norovirus
- *Pertussis*
  Whooping Cough
The Basics

- Wash your hands with plain soap and water – often!
- Cover your cough or sneeze.
- Avoid touching your eyes, nose, or mouth.
- Stay out of spit zones.
- Get vaccinations.
- Good ventilation.
- Stay home when ill.
- Support Public Health.
Electric Hand Dryers

“Modern hand dryers are much worse than paper towels when it comes to spreading germs, according to new research. Airborne germ counts were 27 times higher around jet air dryers in comparison with the air around paper towel dispensers.”

“jet–air” and warm air dyers studied

Hand Sanitizers

- Not a substitute for hand washing.
- Not effective on dirty hands.
- At least 60% alcohol.
- Hands should stay wet for 10-15 seconds.
- Not considered effective on non-enveloped viruses/spores.
- Flammable / Poison
- Preferred: Fragrance free.
- Not recommended:
  - Benzalkonium chloride / “quat” based / non-alcohol / “natural”
Custodial and Maintenance the Front Line

- OSHA–NIOSH Information Sheet
  - Protecting Workers Who Use Cleaning Chemicals, July 2012
  - [www.cdc.gov/niosh/docs/2012–126/](http://www.cdc.gov/niosh/docs/2012–126/)
Most Commonly Reported Lost Time Injuries to Janitors and Custodians

- Skin irritation or burns: 36%
- Eye irritation or burns: 40%
- Breathing chemical fumes: 12%
- All other: 12%

Lost time injuries are those that are so serious, the worker is off work for three days or more.
### Floor Stripper Ingredients and Risks to Users

**Strippers are most dangerous to eyes and skin – even when diluted.**

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>Effect</th>
</tr>
</thead>
<tbody>
<tr>
<td>Butoxyethanol</td>
<td>Absorbs through skin. Damages blood, liver, kidneys, developing babies.</td>
</tr>
<tr>
<td>Monoethanololamine</td>
<td>Absorbs through skin. Damages blood, liver, kidneys, developing babies. Can damage eyes and skin.</td>
</tr>
<tr>
<td>Sodium hydroxide or Sodium Metasilicate</td>
<td>Can cause blindness and severely damage skin.</td>
</tr>
</tbody>
</table>

Protect Yourself:
Cleaning Chemicals
and Your Health

Working with cleaning chemicals can cause:
- Coughing
- Wheezing
- Red, Itchy Eyes
- Skin Rashes
- Skin and Eye Burns
- Shortness of Breath
- Sore Throat
- Headaches or Dizziness
- Nosebleeds
- Asthma

If you have health problems that you think are caused by using cleaning chemicals, tell your supervisor and ask to see a doctor.

What You Need to Know
Do not mix cleaning products that contain bleach and ammonia. Dangerous gases can be released and can cause severe lung damage.

Your employer is required to provide a safe workplace that includes:
- Sufficient ventilation (airflow) when using cleaning chemicals.
- Protective clothing, gloves, and safety goggles, when needed.
- Labels on containers of cleaning chemicals.
- Training on the hazards of cleaning chemicals you are using and safe work practices.

Your employer must train you to:
- Know the hazards of cleaning chemicals BEFORE using them.
- Know how to use and store cleaning chemicals safely.
- Know how and when to dilute cleaning chemicals you are using.
- Know what to do if there is a spill or other emergency.
- Know how to obtain and use hazard information on labels and material safety data sheets (MSDS).
- Know how and when to use protective clothing, gloves, and safety goggles.

Remember
- Wash your hands after using cleaning chemicals and before eating, drinking, or smoking.

Green Cleaners

What are they?
- Cleaning products certified by independent organizations as safer to use and less harmful to your health and the environment.
- Cleaners with “green” in their name do not mean it has been certified.

Are Green Cleaners Effective at Cleaning?
- Many have met performance standards for its intended use.
- Also, many green cleaners are “fragrance-free” but still clean effectively. “Clean” does not have an odor!

Safety Reminder
- You may need to use protective clothing, gloves or safety goggles with some certified green cleaners. Ask your employer.

This guidance document is not an OSHA standard or regulation but it contains recommendations that are advisory in nature and intended to assist employers and workers in providing a safe and healthful workplace. The mention of any nongovernmental organization in this document does not constitute an endorsement by NIOSH or OSHA of that organization, its products or services.
Potential hazards hidden in ‘green’ cleaning products, study finds

BY CAREY REED  March 7, 2015 at 12:37 PM EDT

www.pbs.org/newshour/rundown/study-finds-potential-hazards-hidden-green-products/
Choosing Products

- Third Party Certified (Green Seal, UL GREENGUARD)
- EPA Safer Choice
- Neutral pH
- Low hazard rating
- Use only when and where needed
- Meets or exceeds the California VOC requirements
- Say No
  - phosphates, dye, fragrance, butyl cellusolve, nonylphenol ethoxylate
- Disinfectants – EPA approved for the intended purpose

http://www.epa.gov/oppad001/chemregindex.htm
# Safer Products and Practices for Disinfecting and Sanitizing Surfaces

San Francisco Department of the Environment

## Table 1. Summary of Health and Environmental Attributes of 11 Active Ingredients Commonly Found in Surface Disinfectants and Non-food Contact Sanitizers

<table>
<thead>
<tr>
<th>ACTIVE INGREDIENT</th>
<th>CANCER</th>
<th>REPRODUCTIVE TOXICITY</th>
<th>ASTHMA</th>
<th>SKIN SENSITIZATION</th>
<th>AQUATIC TOXICITY</th>
<th>PERSISTENCE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Caprylic Acid</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>Med acute</td>
<td>Low</td>
</tr>
<tr>
<td>Citric Acid</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>None</td>
<td>Low</td>
</tr>
<tr>
<td>Hydrogen Peroxide</td>
<td>No&lt;sup&gt;1&lt;/sup&gt;</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>High acute</td>
<td>Low</td>
</tr>
<tr>
<td>Lactic Acid</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>None</td>
<td>Low</td>
</tr>
<tr>
<td>Ortho-Phenylphenol (OPP)</td>
<td>Known</td>
<td>Suspected</td>
<td>No</td>
<td>No</td>
<td>Very high acute</td>
<td>Low</td>
</tr>
<tr>
<td>Peroxyacetic Acid (PAA)</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>Very high acute</td>
<td>Low</td>
</tr>
<tr>
<td>Pine Oil</td>
<td>No&lt;sup&gt;2&lt;/sup&gt;</td>
<td>No</td>
<td>No&lt;sup&gt;3&lt;/sup&gt;</td>
<td>Yes</td>
<td>None</td>
<td>Low</td>
</tr>
<tr>
<td>Quaternary Ammonium Chloride Compounds (Quats)</td>
<td>No</td>
<td>Suspected</td>
<td>Yes</td>
<td>One compound&lt;sup&gt;4&lt;/sup&gt;</td>
<td>High acute, med</td>
<td>Very High</td>
</tr>
<tr>
<td>Silver</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>High acute</td>
<td>Very High</td>
</tr>
<tr>
<td>Sodium Hypochlorite (Chlorine Bleach)</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>Very high acute</td>
<td>Low</td>
</tr>
<tr>
<td>Thymol</td>
<td>No</td>
<td>No&lt;sup&gt;5&lt;/sup&gt;</td>
<td>No</td>
<td>Yes</td>
<td>High acute</td>
<td>Low</td>
</tr>
</tbody>
</table>
Perfumed, Fragranced, & Scented

- Added fragrances can trigger asthma attacks, allergies, sensitization.
- Eye, skin, and respiratory irritation.
- “Fragrance” – a thousand components.
- Limonene, pinenes, acetone, ethanol, camphor, benzyl alcohol, ethyl acetate, limonene, benzene, formaldehyde, 1,4-dioxane, methylene chloride, acetaldehyde, synthetic musks, phthalates, etc.
- Natural oils – lavender, lemon, etc.
- Look for “fragrance-free,” not “unscented”.
Special Concerns

- Cake toilet deodorizers
  - paradichlorobenzene
- Citrus & Terpene Solvents
  - D–Limonene
- Nano Technology
  - nano–silver
- “Air Fresheners”
- Ozone generators
- Anti–microbial soaps
  - Triclosan / Triclocarban
Evaluation of Ultraviolet Germicidal Irradiation in Reducing the Airborne Cultural Bacteria Concentrations in an Elementary School in the Midwestern United States

May 2015 Journal of Environmental Health
Resources

- Green Clean Schools, Healthy Schools Campaign, The Quick & Easy Guide to Green Cleaning in Schools
- American Association of School Administrators’ Green Cleaning Guide
- Cleaning For Healthy Schools Toolkit
- Informed Green Solutions
- Characteristics of Selected Disinfectants
- Methicillin–Resistant Staphylococcus Aureus (MRSA)
- SF Approved – green products and services that meet San Francisco’s health and environment requirements.
Local School Credits Handwashing Stations with Drop in Absences

Lake Charles, Louisiana
Posted: Nov 21, 2014 3:50 AM PST, By Britney Glaser, KPLCtv.com

Thank You
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Resources available:
www.doh.wa.gov/schoolenvironment
Join my list serve for timely information!