

11-OH-01

Committee: Occupational Health

Title: CDC and cleaning products health messages

I. Statement of the Problem:

Cleaning surfaces is an important component of preventing the spread of infectious diseases that may be transmitted through hand contact with hard surfaces in health care facilities. In some healthcare locations, surfaces must be cleaned and then disinfected or sanitized to ensure the removal of pathogenic organisms. In homes and schools, cleaning to remove soil is also an important component of a healthy environment.

However, cleaning is not without risks. Cleaning products have emerged as a significant respiratory hazard for workers. More than forty articles have documented both new onset asthma and exacerbation of existing asthma related to use of cleaning products among those using the products and bystanders in the area (See Reference List). Studies have documented elevated rates of asthma and respiratory symptoms among individuals working in commercial and domestic cleaning. Lynde also reported dermatitis among cleaners, frequently associated with work-related asthma symptoms (Lynde 2009). In addition, children exposed to cleaning products in the home, especially spray products, or exposed prenatally have documented adverse respiratory effects (Choi 2010, Henderson 2008, Mendell 2007, Sherriff 2005). Finally, some disinfectant ingredients may promote antibiotic resistance (Carson 2008, Larson 2004, Levy 2001).

Asthma is a significant public health problem. The CSTE 2010 Position Statement on asthma, noted a prevalence (2007) of 23.3 million people, further reporting that 12 million people had an asthma attack in the previous year (CSTE 2010).

Among the more hazardous ingredients in cleaning products are disinfectant additives. Disinfectants are registered pesticides, regulated by the U.S. Environmental Protection Agency (EPA) under the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA). Disinfectants have been documented to cause and/or exacerbate asthma (Blasco 1992, Bourne, 1979, Dijkman 1981, Kramps 1984, Waclawski 1989) – particularly the quaternary ammonium compounds, such as benzalkonium chloride (Bernstein 1994, Burge 1994, Houtappel 2008, Purohit 2000). Johnson and Johnson was required by the EPA to recall a miticide carpet powder and spray, marketed for individuals with asthma after consumers reported asthma attacks and respiratory symptoms 15 to 30 minutes after use (US EPA 2000). More recently, EPA ordered ambulance companies to stop disinfecting ambulances using the Zimek Dri-Mist Micro-Particle Generator with a quaternary ammonium compound and a phenol compound, after more than 100 paramedics reported asthma and irritant type symptoms in New Jersey (US EPA 2011). Disinfectant ingredients have been associated with acute illness reports among working teens, primarily affecting eyes and skin (Brevard 2003). State surveillance systems have also conducted surveillance of antimicrobial exposure resulting in ocular signs and symptoms, followed by neurologic, respiratory and dermal symptoms, and one death (Mehler 2010).

Infectious disease experts state that objects in healthcare settings that are “non-critical” and only come into contact with intact skin do not require disinfection (Rutala 2004). These items, such as bed rails, blood pressure cuffs, patient furniture, wash bowls, etc. should be cleaned thoroughly, and in hospitals, cleaning or use of low-level disinfectants is still being discussed (Maillard 2007, Rutala 2004). Little is known about hand to surface contact in schools and home. A large body of evidences shows a causal link between handwashing and reducing the risk of infection—primarily in the healthcare industry and in developing countries. Studies show that comprehensive infection control programs can reduce disease transmission (Larson, 2004). However, use of surface disinfectants is limited because they are only briefly effective, and are limited in the microorganisms effectively controlled.

Despite the absence of proof about disease transmission from hand contact with “contaminated surfaces,” methods to prevent disease transmission by disinfecting these surfaces have been proposed, promoted and frequently implemented. Arif (2003) found that cleaning workers reported using 66 products, with 48 different respiratory irritants and sensitizers; and domestic cleaners reported more frequent exposures to respiratory irritants and sensitizers than industrial cleaners.

Some studies have documented bacterial or viral counts on frequently contacted surfaces, but there is sparse information about the transmission of disease from contact with these surfaces (Embil 2009, Larson 2004, Cozad 2003). In fact, virus was inactivated on hands rapidly, even after contact with contaminated surfaces, suggesting that surface cleaning is not the best way to interrupt disease transfer (Weber 2008). Articles that purport to report success in reducing microbial contamination in the home were funded by the manufacturers of the products used in the studies, or their associations (Sandora 2008, Cozad 2003). One Clorox-funded study of 285 students in one school found that a combination of Clorox hand wipes and use of surface disinfectant led to a nonsignificant decrease in days of absence due to gastrointestinal illness, and no decrease in absence due to respiratory illness (Sandora 2008). There is an absence of evidence supporting the use of disinfectant surface cleaners to prevent respiratory disease among otherwise healthy people (Embil 2009, Larson 2004).

Epidemics of SARS and H1N1 have added to the concern about bacteria and virus mediated illnesses, especially among children. Fear has grown about the risks of disease transmission from contaminated surfaces in homes and schools, fueled in part by marketers of cleaning products. Many companies have added disinfectant ingredients to their cleaning products, claiming unsubstantiated health benefits (Jefferson 2009). Parents have demanded “disinfection” of schools following disease outbreaks seeking ways to protect their children. Lysol and Clorox have promoted campaigns about the risks of disease transmission, taking out ads in magazines that feature children who need to be protected from germs, promoting heightened fear of microbes.

CDC, National Center for Infectious Disease partnered with Reckitt Benckiser, Inc.¹ the makers of LYSOL® Brand Products to launch the Ounce of Prevention campaign.

¹ Reckitt Benckiser manufactures LYSOL cleaning and disinfecting products, including LYSOL® multi-surface cleaner, all-purpose cleaner, all purpose cleaner with bleach, antibacterial kitchen cleaner and others. LYSOL® markets its products by promising a “mission for health” <http://www.lysol.com/mission-for-health>

(www.cdc.gov/ounceofprevention). While the campaign's materials (including a poster and a brochure) provide some useful guidelines for preventing infectious disease, including separating meat from other foods during food preparation, and getting vaccinated, they also include recommendations that promote the overuse of cleaning and disinfecting products.

- The materials recommend “**routine**” cleaning and disinfecting of surfaces in kitchens, stating that a disinfectant that “*kills*” germs is preferable to a cleaner that removes germs.² [emphasis added] No guidance is provided to discriminate between appropriate and inappropriate use of disinfection products.
- The Ounce of Prevention brochure³ recommends that we “clean and disinfect... before, *during* and after preparing food (especially meat and poultry).[emphasis added]” Cleaning surfaces thoroughly with soap before and after food preparation should be adequate to prevent contamination of surfaces with bacteria from food. Not only are disinfectant products not necessary, using them *during* food preparation may result in disinfectants contaminating food, resulting in inadvertent ingestion of disinfectants.

The recommendations for disinfectant use are not evidence based. They do not reduce disease and may increase the risks of asthma, upper respiratory symptoms, eye irritation and dermatitis. It should be noted that these materials, which promote routine and indiscriminate use of disinfection products, were funded by a company that makes disinfection cleaning products.

II. Statement of the desired action(s) to be taken:

CDC shall convene a process, to include governmental and academic infectious disease, toxicology and occupational health experts to develop evidence-based recommendations regarding the use of cleaning agents, particularly disinfectants and identify research needs.

CDC shall promote and sponsor research on the indications for using disinfectants in non-healthcare settings and methods to reduce the risk of infectious disease transmission.

CDC and CSTE shall promote education about environmentally preferable products that are third party certified, offering protection to workers and bystanders. Education should provide guidance about how to clean and when disinfectants/pesticides are recommended, and how to use them properly.

III. Public health Impact:

Guidance regarding cleaning and disinfection should be evidence-based, without influence from the companies that manufacture the cleaning products. There is an absence of evidence that routine disinfection in the home will help prevent bacterial and viral disease. There is evidence that use of cleaning products, and disinfectants, harms health, increasing both the risk for developing and aggravating pre-existing asthma and allergic disease.

² www.cdc.gov/ounceofprevention/docs/ooop_poster_eng.pdf; or <http://www.cdc.gov/ounceofprevention/>

³ www.cdc.gov/ounceofprevention/docs/ooop_brochure_eng.pdf

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