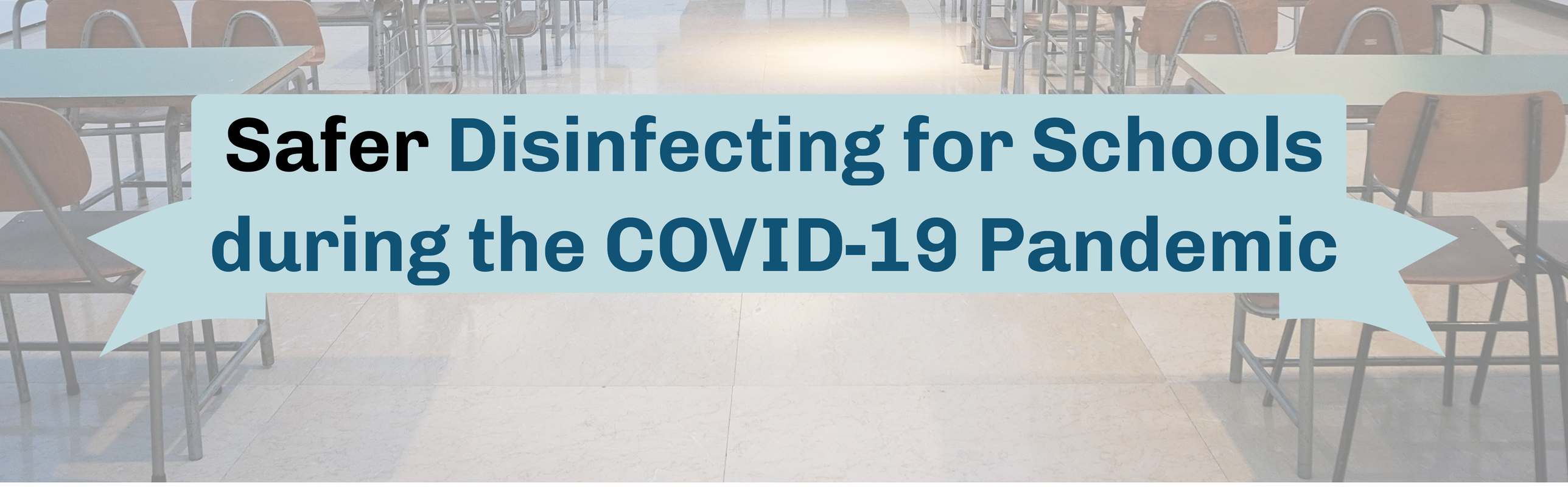

Safer Disinfecting for Schools during the COVID-19 Pandemic

Disinfectants are *not* harmless.

Many of the common types of disinfectants (like bleach or ammonia-based products) have known health effects. These include increased risk of getting asthma and worsening of asthma. Disinfectants should be used only when necessary and less toxic but effective alternatives should be a first choice.

Surfaces *must* be cleaned first.

Cleaning is the manual removal of dirt and germs. Disinfection is killing the remaining germs. In fact, some disinfectants (like bleach) are inactivated by organic material, basically meaning that a dirty or dusty surface will not be disinfected even if you properly use a disinfectant, unless it has been cleaned first. This is particularly problematic as it could mean that you or the children are being exposed to the health risks of disinfectants but are not getting the presumed benefit.

Pick the safest product available.

When disinfecting for COVID, you'll need to be sure that your chosen disinfectant is on the N-list, the list of those disinfectants expected to work against SARS-CoV-2, the virus that causes COVID. From the N-list, look for safer active ingredients, such as citric acid, hydrogen peroxide, lactic acid, ethanol, isopropanol, peroxyacetic acid and sodium bisulfate. (The EPA maintains the list of safer active ingredients, and products that have safer active *and* inactive ingredients here).

Follow package instructions.

In order to disinfect, all disinfectants have a *dwell* or *contact time* listed on their label. This is the amount of time that the disinfectant should remain sparkling wet on the surface to fully disinfect. Again, if this isn't done, the risk is that you or the children are still being exposed to the disinfectants but without getting the presumed benefit of killing the germs.

More Safety Tips

- ✔ Ventilate as much as possible.
- ✔ Spray disinfectants when no one else is present.
- ✔ Target high touch surfaces.
- ✔ Allow re-entry into the space after surfaces are dry and the space has been ventilated.
- ✔ Start farthest from the door and work your way back out.

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Safer Disinfecting for Schools during the COVID-19 Pandemic

from the Western States Pediatric Environmental Health Specialty Unit

Considerations for Fogger or Sprayer Devices

The four points on the front of this handout are of extra concern when considering fogging and sprayer devices. By design, these devices cover many surfaces quickly, meaning that disinfection is *not* targeted at high touched surfaces. That increases exposure to disinfectants. If fogging/spraying products are being used, cleaning should be done first to make them most effective. Use a disinfectant with a safer active ingredient that is approved for use with a fogger/sprayer and make sure that the appropriate dwell/contact time is achieved. Choosing a disinfectant with a short contact time makes it more likely that when it is applied with a fogger/sprayer, it will sit wet on the surface for the required contact time. Both pre-cleaning and the full dwell time are needed for disinfectants to work properly, and a disinfecting plan that intends to spray or fog large areas of a school in a very short time period may not be leaving adequate time for precleaning, nor achieving the dwell time. There are relatively few studies looking at health effects of these devices. Note that the EPA advises against use of disinfectant products with fogger/sprayer devices unless the pesticide product label from the EPA specifically gives directions for that use.

Suggested Additional Reading

- The EPA's N-List tool should be used to find products expected to be effective at disinfecting SARS-CoV-2, the virus that causes COVID-19.
- The EPA's Design for the Environment Antimicrobial Pesticide Program has a list of safer disinfectant products.
- The CDC COVID-19 FAQ page for school cleaning and disinfection has some great information, including simple explanations of the difference between cleaning and disinfecting. It makes the point that it's frequently touched surfaces that need daily cleaning and disinfection and also that surfaces should be pre-cleaned.
- The Toxics Use Reduction Institute (at UMass Lowell) is a research institute that studies cleaning and disinfection. They've put together a disinfection guide for schools, and gave a detailed webinar this summer.
- This is a nice one page handout from the CDC about the steps to clean and disinfect a school properly, but it does not cover selection of safer products.
- Western States PEHSU staff participated in a webinar about school disinfection.
- This scientific research paper discusses the health effects of common disinfectant classes.

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