

CLEANING TO REDUCE THE RISK OF THE H1N1 FLU VIRUS & OTHER DISEASE OUTBREAKS

Science-based strategies for preventing disease in K-12 school systems
Includes Specific Guidelines and Recommendations

Compiled from published literature, research, and cleaning standards from:



Executive Summary

In late 2007, there were a number of MRSA outbreaks in school districts across the country, resulting in at least five student deaths. And now in 2009, the H1N1 pandemic is posing an even greater threat to the health of our communities. And every year, seasonal flu hits, often resulting in school closures and worse. Disease and infection are constant threats, and K-12 schools are especially at risk.

The obvious first response in any of these situations is to close the school for cleaning. Now, school officials are being urged to rethink cleaning strategies to reduce the risk of disease and focus on prevention rather than reaction.

The Science Behind Cleaning Forces a Shift in Cleaning

There is a growing body of work and evidence on the science of cleaning. We now know more about how disease spreads, how long germs live in various environments, and how cleaning procedures and tools can impact the healthy environment in a school. As a result, there is a **fundamental shift from cleaning for appearance to cleaning for health.**

We need to rethink:

- *What* we clean
- *When* we clean
- *Who* shares in the cleaning responsibility
- *How* we clean

With the current pandemic flu outbreak and the serious threat it poses to the K-12 school population, the time to act is now.

CLEAN to minimize the risk of disease outbreak

The best way to deal with disease is not to treat it, but to prevent it. A critical component of prevention in schools is hygienic cleaning of surfaces, especially those that come into direct contact with skin (Common Touch Points.) The more we understand about disease and how it is transferred, the more clear the importance of cleaning becomes. In fact it's considered by many healthcare professionals and environmental scientists as our first line of defense against infectious disease.

Lessons from the Cruise Industry

Schools can look to the cruise industry to learn how to respond to outbreaks. You may recall in 2002-03, thousands of cruise passengers became ill with the Norwalk-virus, which was being spread from direct and indirect contact with an infected person. Once an outbreak was declared onboard, the role and function of the entire ship's staff changed—everyone took responsibility for protecting the ship—all hands on deck. The cruise ship Amsterdam, of Holland America Line, for example, reported that 573 crew members spent 10 days deep cleaning the ship after a November voyage was cancelled due to illness. Workers wiped down remote controls, clock radios and even Bibles using disposable wipes with powerful disinfectant chemicals. In addition, 2,500 pillows were replaced, and all linens were steam cleaned.

In many ways, the K-12 school building is similar to a cruise ship—large numbers of people in tight closed quarters who share public areas and equipment. The cruise ship industry saved itself by adjusting their routine cleaning programs to focus on disease prevention as well as implementing an “outbreak cleaning” mode. School systems find themselves in the same position with the H1N1 pandemic. If schools hope to minimize absenteeism during this outbreak, a new, more effective approach to cleaning must be implemented.

Purpose of this Paper

Understanding the role of cleaning and revamping current cleaning procedures and tools is critical. There are practical and affordable strategies that can be deployed for cleaning for health which will be covered in this paper, including:

1. Present new cleaning strategies to protect building occupants during normal school sessions and during disease outbreak.
2. Heighten the awareness that cleaning is the first line of defense against disease and present practical strategies for expanding the role of school personnel in both routine and outbreak cleaning.
3. Identify scientifically proven cleaning methods and tools that most effectively combat the spread of disease.

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A Pandemic Is Declared – Section 1

On June 11, 2009, the [World Health Organization](#) (WHO) signaled that a global [pandemic](#) of novel influenza A (H1N1) was underway by raising the worldwide pandemic alert level to [Phase 6](#). This action was a reflection of the spread of the new H1N1 virus, not the severity of illness caused by the virus. At the time, more than 70 countries had reported cases of novel influenza A (H1N1) infection and there were ongoing community level outbreaks of novel H1N1 in multiple parts of the world.

Since the WHO declaration of a pandemic, **the new H1N1 virus has continued to spread**, with the number of countries reporting cases of novel H1N1 nearly doubling. The Southern Hemisphere’s regular influenza season has begun and countries there are reporting that the new H1N1 virus is spreading and causing illness along with regular seasonal influenza viruses. In the United States, significant novel H1N1 illness has continued into the summer, with localized and in some cases intense outbreaks occurring. The United States continues to report the largest number of novel H1N1 cases of any country worldwide, however, most people who have become ill have recovered without requiring medical treatment.

Given ongoing novel H1N1 activity to date, CDC anticipates that there will be more cases, more hospitalizations and more deaths associated with this pandemic in the United States into the fall and winter. The novel H1N1 virus, in conjunction with regular seasonal influenza viruses, poses the potential to cause significant illness with associated hospitalizations and deaths during the U.S. influenza season.

A Virus Emerges

Novel influenza A (H1N1) is a new flu virus of swine origin that first caused illness in Mexico and the United States in March and April, 2009. It’s thought that novel influenza A (H1N1) flu spreads in the same way that regular seasonal influenza viruses spread, mainly through the coughs and sneezes of people who are sick with the virus...

CDC anticipates that there will be more cases, more hospitalizations and more deaths associated with this pandemic in the United States over the summer and into the fall and winter.

You are at **greatest risk** of getting infected in highly populated areas, such as in crowded living conditions and in **school**.

...but it is also spread by touching infected objects and then touching your nose or mouth.

The Impact on Schools

For schools, the outbreak of an infectious disease like H1N1 has huge implications including:

- **Student absenteeism.** Students fall behind in their educational progress and schools risk falling below the required attendance levels. This could force closures and elongated school years which few school systems can afford to do.
- **Teacher absenteeism.** Not only do the students suffer from an interruption in the curriculum, but finding and paying for substitute teachers becomes a challenge.
- **Custodial staff absenteeism.** If the custodians become ill, the job of maintaining a healthy, clean environment becomes exponentially more difficult.
- **Impact on school ratings.** Extended absenteeism and disruption in curriculum could adversely affect a school's performance and rating—and ultimately its funding.
- **Disruption to operations.** With high numbers of illness and absenteeism throughout the school system, it becomes difficult to maintain order and consistency in day-to-day operation.
- **Nursing staff strain.** Most schools already suffer from a shortage of nurses. A disease outbreak puts even more pressure on this under-staffed area, not to mention the difficulties when nurses themselves become ill.
- **Collateral damage.** Because viruses like H1N1 are highly contagious, the impact of illness will quickly spread outside the school impacting family health, daycare options, and employment, as examples.

With all of this at risk, every school system needs to seriously evaluate how they can reduce the spread of germs and disease.

How disease spreads



DID YOU KNOW?

Common Touch Points (CTP) have been largely ignored in the past. We now understand that a thorough cleaning of CTP is critical to a sound, healthy school cleaning program.

A key to producing a healthy school building is to understand how diseases are spread from one person to another. Viruses (i.e. influenza (eg H1N1 or swine flu), [norovirus](#), gastrointestinal viruses, etc) and bacterial infections (i.e. E. coli, Salmonella, MRSA, and respiratory infections, etc.) are commonly transmitted “person-to-person” through *direct* contact such as a hand shake or *indirect* contact by touching a surface that has been previously contaminated by an infected person. Examples of these surfaces are door handles, desktops, drinking fountains, sink handles, etc. These surfaces are known as [Common Touch Points \(CTP\)](#). Because germs can survive on many common surfaces for days, properly cleaning CTP is critical to a sound, healthy school cleaning program.

Cross-contamination is also a significant contributor. For example, if a backpack is placed on the restroom floor or countertop, and then subsequently set on a student’s desk, that desktop may now be contaminated as well. Cross contamination also occurs with poor cleaning practices or when cleaning tools become saturated with germs. Therefore hand washing and proper cleaning of CTP is critical to prevent the spread of diseases. The impact of proper cleaning of CTP was illustrated in a recent study by Dr. Charles Gerba of the University of Arizona that found a 50% reduction in illness-related student absenteeism when disease transfer points, including desktops, were disinfected.

A recent study by Dr. Charles Gerba of the University of Arizona revealed a **50% reduction in illness-related student absenteeism** when disease transfer points, including desktops, were disinfected.

Another important aspect in understanding the spread of disease is the human immune system. A strong and healthy immune system is designed to fight off many diseases and can endure exposure to disease-causing organisms. But many people are immunocompromised, that is, their immune system is not healthy and strong and is deficient at fighting off disease. Examples of immunocompromised populations are children, sick or hospitalized people, and the elderly. These people have a higher risk of contracting a disease due to the fact that their immune systems are not fully developed or weakened due to age or sickness.

The H1N1 Virus Attacks the Healthy Population

Unlike many other viruses and bacteria which tend to affect people with underlying health conditions, the elderly, or infants, the H1N1 virus is unique in that it is also putting young and healthy people at serious risk for illness, or even death. Young adults, teenagers, and children, as well as healthy adults such as teachers are being affected. This puts additional responsibility on every school to protect its student and staff population.

Where dangerous dirt thrives and prospers: The invisible world

What you can't see CAN hurt you. In fact, it is the pathogenic [microbes](#), invisible to the human eye, that are the harmful culprits that spread disease. According to health care experts, infectious diseases caused by microbes are responsible for more deaths worldwide than any other single cause.

One sneeze can result in 40,000 droplets being hurled at surrounding students and surfaces at 100 miles per hour. And if the sneezer catches those germs in his hand and then touches his desk, a door, a keyboard, or a railing, everyone who touches those same surfaces are now subjected to potential disease. You can easily see how a single sneeze perpetuates itself and quickly puts many students and staff at risk.

Viruses survive for up to three days

New technology in testing has recently revealed that flu viruses, including H1N1, can survive much longer than previously thought.

Survival times:

- 8-12 hours on paper or cloth
- 24-48 hours on nonporous surfaces, like doorknobs or desks
- Up to **72 hours** on wet surfaces.

DID YOU KNOW?

...that flu viruses can survive for days—not just hours? This makes aggressive outbreak cleaning absolutely critical to creating a healthy school environment.

This means germs can remain contagious for up to three days in an improperly cleaned school. It also means there is a greater risk that disease will spread further during this time due to cross-contamination.

Previous thinking assumed these germs would die overnight. That has been proven to be false and amplifies the need for a science-based cleaning program.

Attacking the invisible world—Traditional cleaning gets failing grade

“It’s probably better to not clean than to clean improperly because you can spread organisms around the facility without realizing it.”

Charles P. Gerba, PhD
The University of Arizona
Department of Soil, Water & Environmental Science

Recent studies of traditional cleaning methods and products confirm that not all cleaning tools and procedures achieve their intended results. Changes are necessary to make schools as healthy as possible, and to prevent disease by attacking and removing the invisible microbes. And it’s not just a single issue; there are a number of items contributing to the cleaning problem, including:

- Belief that if it “looks clean, it is clean”
- Lack of focus on the Common Touch Points most likely to contribute to the spread of germs
- Outdated cleaning tools
- Mis-use of cleaning chemicals
- Limited custodial staff (the entire responsibility for cleaning falls on custodial team)
- Lack of measurement—the classic business issue that you can’t manage what you don’t measure

Recommendations for addressing each of these will be discussed in more detail in the next section. What follows is additional detail on two of the common problems that are prevalent in schools: outdated tools and mis-use of chemicals.

Outdated tools do more damage than good

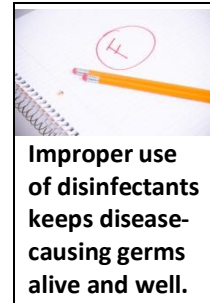
The tools that most school custodians are forced to use have been around for most of the last century: wipers, buckets, mop heads, and so on. Most mop buckets contain dirty, contaminated water, which mops and wipers simply spread around without penetrating tight spaces and grimy crevices. Also, cleaning towels, sponges and mops are proven to accumulate and spread soil, bacteria, and viruses.

In restrooms, only a small portion of the soil is ever removed creating an unhealthy breeding ground for germs and odor-causing bacteria. And worse, workers are forced to wipe dirty, contaminated surfaces by hand and even crawl around filthy restrooms on their hands and knees. Then, the same saturated cleaning cloth, or dirty mop water and mop head that were just in the restroom are now being pushed to the classroom, and later on, to the kitchen.



Mis-use of disinfectants

Coupled with the shortcomings of outdated cleaning tools, another common issue in the spread of disease in schools is the improper use of EPA registered disinfectants. The labels on the disinfectant products provide a confusing guideline for how to effectively disinfect a surface. And rarely is training provided for its proper use. As a result, research reveals that few custodians use disinfectants properly and therefore do not achieve the desired results.



There are three central issues to the proper use of disinfectants:

1. Soil load determines correct cleaning method
2. Minimum “wet” dwell times
3. Selecting the right disinfectant for a targeted germ

Soil load determines correct cleaning method: The presence of soil can interfere with the disinfectant, inhibiting it from killing the targeted germs. There are two cleaning recommendations based on the soil load. If a surface does not have visible soil, there is a “one-step” clean and disinfect process. If the surface has visible soil, then a “two-step” *re-clean then disinfect* process is required. In most school environments, only a one-step process is used, regardless of soil loads.

Minimum “wet” dwell times:

Manufacturers publish minimum “wet” dwell times that are required to kill germs. For example, many disinfectants need a 10 minute dwell time. Therefore, if a disinfectant is used in a spray bottle with the spray-and-wipe method which takes only seconds, it is being misused and the germs live on.

The right disinfectant for the target germ:

Too often, disinfectants are used that do not kill the target germ in an outbreak. Selecting the correct disinfectant is critical; otherwise the cleaning effort is wasted.

Desktop Study: Example of Traditional Cleaning Tools that Fail (and the insights of measurement)

In several standard classrooms, ATP meter readings were taken before and after cleaning.

Cleaning Methods/Tools Used:

- Traditional “spray and wipe” cleaning method
- EPA registered disinfectant
- New, unused microfiber wiping cloth
- The same cloth was used to wipe each desktop in the classroom (one cloth per classroom- approximately 28 desks.)

Results:

The ATP readings showed that only the first few desktops had an improvement in cleanliness while **the vast majority actually became dirtier**. The cloth reached its maximum “load” very quickly and began re-depositing soil as it picked it up. The last desktop reading was often double its starting point. Imagine if the cloth was extended to clean additional rooms, as is the common practice.

Section 2 | A New Model for Cleaning—Cleaning for Health

Schools have a new responsibility to provide a healthy, germ-free environment – especially with the H1N1 influenza virus pandemic. This means moving away from the old models of cleaning and adapting new science-based procedures, tools and products that are proven to reduce the spread of germs. Four key areas of the cleaning program are at issue.

- *What* to clean
- *Who* shares in the cleaning responsibility
- *When* to clean
- *Measurement*

What to clean: focus on the right areas

Traditionally, schools have cleaned with the primary purpose of creating a satisfying appearance: “It looks clean. It smells clean. Therefore it must be clean.” Wrong! Shiny floors, for example, look clean and make a good impression. But, new, affordable testing equipment proves that what we once thought was clean (no visible soil, shiny, etc.), is more likely a haven for germs.

Emphasize Common Touch Points

Schools and other facilities typically prioritized floors over Common Touch Points which are defined as a surface or object which is touched or handled frequently by the student body and staff. The desktop is an example of a highly contaminated surface that is often overlooked or minimized in a cleaning program. If not properly cleaned and sanitized, these touch points can serve to spread disease from one person to another. In fact, it is impossible to have a healthy school building if CTP are not emphasized. *The key to minimizing the spread of disease is to clean and sanitize these surfaces frequently.*

The following is a list of the CTP to be targeted and prioritized for sanitation.

CTP Checklist: Critical Areas for Sanitation

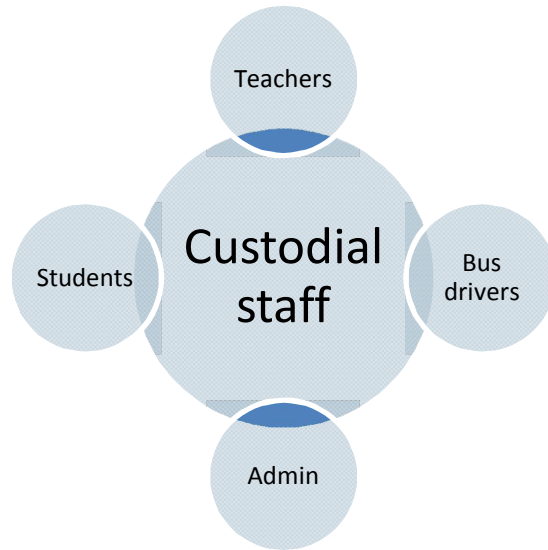
- ✓ Restrooms
 - Toilets/urinals – all parts especially seat & handles
 - Sinks – basin and handles
 - Dispensers – hand towel, tissue, hand soap & CTP such as levers
 - Doors – handles and push plates
 - Stalls – all CTP such as handles, locks and grab bars
 - Floors
- ✓ Classrooms
 - Desk and table tops
 - Chairs
 - Counters
 - Computer keyboards and mice
 - Phone
 - Pencil sharpeners
 - Shared tools
 - Props and toys
 - Door handles/plates
 - Hard floors
 - Carpet (if vomit has been observed)
- ✓ Cafeteria
 - Tables and seats
 - CTP in serving line
 - Door handles
 - Vending machines
- ✓ Athletic areas
 - Wrestling mats, work-out equipment and any other shared equipment
 - Lockers
 - Door handles
 - Showers and handles
- ✓ Office/Conference area
 - Counters, conference tables and shared desks
 - Copy machines and selection pads
 - Door handles
 - High-touch tools (e.g. sign-In clipboards and pens)
- ✓ Entryways
 - Door handles and other Touch Points
- ✓ Stairways
 - Hand railing and other CTP
- ✓ Hallways
 - Door handles and drinking fountains
 - Other CTP (e.g. counters)
- ✓ Buses
 - Seats
 - Grab rails
 - Other CTP

Who shares in the cleaning responsibility – a team effort

It is important to understand that maintaining a healthy school building is not just the responsibility of the custodial department. In fact, most custodial staffs are not sufficient to address the rigors of cleaning for health, especially in a disease outbreak.

The most effective healthy school cleaning program will involve the cleaning staff, teaching staff, bus drivers, other school employees—and the students.

In our current H1N1 outbreak situation, you may need to alter current daily routines and recognize the limited resources of your cleaning staff. For example, less critical duties such as dust mopping and daily trash removal may need to be altered or possibly done by other staff or even students. It is critical to place a high priority on the sanitizing of CTP (Common Touch Points).



| Recommended School Cleaning Team | |
|----------------------------------|--|
| Who | Cleans What |
| Teachers | Hands, desks, classroom CTP |
| Administration/Office | Hands, personal office CTP |
| Custodial staff | Hands, restrooms, desks, stairways, railing, entryways, door handles and other primary CTP |
| Bus Drivers | Hands, bus seats, CTP |
| Students | Hands and assist teachers and administrators when appropriate |

When to clean:

Establish two cleaning procedures: *routine & outbreak*

As you rethink cleaning, there are two recommended cleaning modes:

1. Routine or prevention
2. Outbreak

Routine cleaning (preventative cleaning for health)

[Routine cleaning](#) can also be termed disease prevention cleaning. It includes the procedures for cleaning during normal school sessions, when there is not an outbreak. The objective is to minimize the risk of disease.

Outbreak cleaning

Your school should shift to more aggressive outbreak cleaning procedures when the illness outbreak in schools reaches 5% of the total student population or 10% of the staff population, if there is any recorded outbreak of a potentially fatal disease such as H1N1, MRSA, E. coli, bird flu, etc., or an outbreak has been declared in your region. [Outbreak cleaning](#) intensifies the overall cleaning and sanitizing effort and incorporates more extreme measures to address the CTP throughout the building.

With the H1N1 pandemic, it is recommended that schools proactively implement outbreak cleaning. During outbreak cleaning it is absolutely critical that all cleaning and sanitizing efforts are being executed properly, according to the guidelines.

It is recommended that each school develop an Outbreak Prevention and Response Plan that details the cleaning procedures and practices during school illness outbreaks. This practice is required for cruise ships by the CDC (Center for Disease Control.) The plan should contain procedures, guidelines, responsibilities, and checklists to ensure cleaning quality during the outbreak.

First line of defense – clean hands

The highest recommendation from the CDC (Center for Disease Control) for fending off disease is a Hand Care program. Health care experts recommend scrubbing your hands vigorously for at least 15 seconds with soap and water, **about as long as it takes to recite the alphabet.**

Students are subject to germs all day, and they are often sent to lunch without washing their hands. Furthermore, hand washing during restroom breaks simply can't be monitored. Other times, when shared educational tools are handled frequently, teachers should instruct hand washing and sanitizing. Look for our specific recommendations on page 20.



Schedule-at-a-Glance

Below are the frequency recommendations for routine cleaning and outbreak cleaning. As the schedule indicates, it is recommended that teachers take responsibility for classroom hygiene, and bus drivers take responsibility for bus hygiene. In addition to helping with CTP cleaning, excess clutter must be controlled to allow for proper cleaning of surfaces. Maintenance staff and other school employees must also participate in outbreak cleaning.

| Cleaning Area | Routine Cleaning Frequency | | Outbreak Cleaning Frequency | |
|---|----------------------------|--------------------|-------------------------------------|-------------------------------------|
| | <i>Day Shift</i> | <i>Night Shift</i> | <i>Day Shift</i> | <i>Night Shift</i> |
| Restrooms (including CTP) | | Daily | Daily | Daily |
| | | Custodial | Custodial | Custodial |
| Classroom desktops & CTP | Daily - end of day | 1x week | Daily | 3x week |
| | Teacher | Custodial | Teacher | Custodial |
| Primary CTP, common areas, hallways, gym, cafeteria, other | 2x week | | 3x day | Fogging |
| | Custodial | | Custodial, Maintenance, Other | Custodial, Maintenance, Other |
| Office/Personal space CTP | Daily | | Daily | Fogging |
| | Self | | Self | Custodial, Maintenance, Other |
| Bus CTP | 2x week | | Daily | |
| | Drivers | | Drivers | |
| Classroom hard floors | | 1x week | | 2x week |
| | | Custodial | | Custodial |

Measurement: The role of testing in the new way to clean

Testing and measurement are at the core of any education. How do you know if the students are learning if you don't test? How do you know where to focus and where to assign more resources if you don't test?

Yet, even with this ingrained focus on testing, most schools have no idea how they are performing in providing a healthy, clean environment for learning.

Admittedly, until recently, there was not an effective and reliable method for testing cleanliness in the school environment. But now, you can **easily and affordably measure Adenosine Triphosphate (ATP)**, the universal energy molecule found in all animal, plant, bacterial, yeast, and mold cells.

ATP hygiene monitoring:

- Provides accurate and traceable verification of the hygienic status of a surface
- Detects the level of microbial contamination on surfaces in just seconds
- Is a key component of a good hygiene program

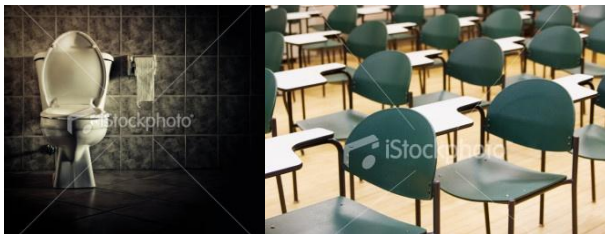
After cleaning, all sources of ATP *should be* significantly reduced. Studies have shown however that this is not always the case, especially when outdated tools like mops and towels are used. Too often, they simply spread germs and cross-contaminate instead of cleaning. So although a surface may look clean, the reality may be far from the truth. Testing allows you to prove the effectiveness of your cleaning program.

DID YOU KNOW?

... An [ATP testing meter](#) is a universally recognized tool for measuring the hygiene levels of surfaces to ensure consistent sanitation practices as well as public safety. Testing is a critical component in managing a preventive and outbreak cleaning program.

| Example ATP Ratings | | |
|--------------------------------------|-----------|------|
| Area | Excellent | Pass |
| Desktop, Cafeteria Table, Countertop | <15 | <30 |
| Toilet seat | <15 | <30 |
| Toilet floor | <20 | <60 |
| Soap Dispenser | <20 | <60 |
| Wrestling mat | <50 | <100 |

Which one's dirtier – school toilet or desktop?



In a recent ATP study, the average school desktop was 200 times the level of microbes than the average school toilet seat. Why? Desktops are rarely cleaned.

Section 3 | *How to Clean:* Recommendations & Procedures –

The following are specific recommendations on how to clean each area and the tools and cleaning supplies that will effectively prevent the spread of disease in your school. These recommendations are based on Kaivac’s extensive testing of school environments as well as research conducted by other cleaning researchers.

The Kaivac Cleaning System product lines are at the core of these recommendations as scientific research and in-depth testing have proven their effectiveness in combating the spread of disease. Kaivac products are superior in soil and germ removal, which has also been proven by science. We encourage you to visit the Kaivac web site at www.kaivac.com for valuable educational videos and additional supporting documents and research on fighting disease through proper cleaning.

[Common Touch Points \(CTP\)](#)

[Desktops](#)

[Restrooms](#)

[Cafeteria Tables](#)

[Kitchen](#)

[Bus](#)

[Hand Care Recommendations](#)

[Additional Recommendations](#)

Common Touch Points (CTP) in a school facility

- Door handle, plate, or knob (main entrance, office, classroom, restroom, auditoriums, etc.)
- Locker handle
- Office countertop
- Office chair rail
- Stair or hall rail
- Drinking fountain button
- Vending machine
- Cafeteria table
- Classroom desktop
- Computer keyboard
- Computer mouse
- Restroom faucet knob
- Restroom toilet seat
- Restroom toilet/urinal handle
- Restroom floor
- Restroom dispensers

CTP Tools & Supplies:

Tools

There are two recommendations:

- Kaivac® SmartTowel™ with color code (classrooms = yellow)
- Kaivac® Dry Disposable Wipers

Chemicals

- KaiSan II™




CTP Cleaning Procedures:

1. Using a building schematic, create a map and identify all known CTP within the school building.
2. All custodial/teaching/administrative staff should be briefed and understand the locations of each CTP throughout the building and the proper sanitizing procedures.
3. Select an EPA registered disinfectant/cleaner that has been specifically tested against the outbreak germ and give priority to those products with the shortest dwell time to improve cleaning productivity.
4. Using the spray bottle of disinfectant, either spray the surface to be cleaned or pre-moisten the wiper and clean with one disposable wipe per surface. This prevents cross contamination. Allow the surface to remain wet so that the chemical will achieve its disinfecting point. If using a non disposable, the Smart Towel allows the user to fold the towel into eight numbered cleaning panels. The panels will need to be flipped at regular intervals in order to prevent cross contamination. It is also very important to have a proper laundry program that ensures that the Smart Towels are being sanitized before use.

Desktops

Desktops are one of the most commonly neglected cleaning surfaces in school buildings. Yet students spend approximately 60-75% of their school day at their desks, which are often shared by multiple students. Neglected desktops can have ATP readings from 600-4000 RLU. These ATP levels are higher than many school toilets.

Please note that the custodial staff will be equipped with tools that result in a higher level of sanitation. Because these tools require more training and may involve the daily laundering of materials, it is not feasible to provide them to each classroom. The “teachers” tools remain the same as the previous section on General CTPs (spray bottle / KaiWipes™).

| CTP Tools & Supplies: | CTP Cleaning Procedures: |
|--|--|
| <p>Tools</p> <ul style="list-style-type: none">▪ KaiFly™ Flat-surface System▪ Kaivac Dry Disposable Wipers<ul style="list-style-type: none">▪ KaiWipes™ <p>Chemicals</p> <ul style="list-style-type: none">▪ KaiSan II™▪ A dry aerosol disinfecting fogger  | <p>Teaching/administration staff in class room:</p> <ul style="list-style-type: none">▪ All teaching/administration staff should be briefed and understand what rooms and desktops they are responsible for and the proper cleaning procedures.▪ All teaching/administration staff should be equipped with a spray bottle containing properly diluted disinfectant/sanitizer and dry wipes.▪ Spray disinfectant/sanitizer onto desktops. Allow chemical proper dwell time determined by manufacturers' recommendation. Wipe clean and dispose of wipe in trash receptacle. Use one wipe per desk. <p>Custodial staff:</p> <ul style="list-style-type: none">▪ All custodial staff should be briefed to understand what rooms and desktops they are responsible for and the proper cleaning procedures.▪ All custodial staff should be equipped with KaiFly Flat-surface System▪ For detailed procedures and information go to www.kaivac.com.▪ Use a dry aerosol disinfecting fogger when Prevention Cleaning cannot be done or when extreme outbreaks have occurred. The fogger is to be used as a supplement to the cleaning program to aid in situations that the labor pool is overloaded or the disease is widespread in a specific area.▪ Ensure there is a proper laundry program for sanitizing the microfiber components of the KaiFly system before use. |

Restrooms

Restrooms are a high priority cleaning area due to the high frequency of use and the amount of exposure to bio-hazardous wastes prevalent in all public restrooms. Drips and spills of these various bio-hazardous wastes expose each user to potential contamination. Plus, when people get ill, they tend to use the restroom.

Critical areas within the restroom are the toilet seats, toilet and urinal handles, towel and tissue dispensers, sink handles, and soap dispensers. Therefore it is critical that proper cleaning procedures are followed to effectively remove soils and germs and to disinfect these areas.

CTP Tools & Supplies:

Tools & Chemicals


- Kaivac compatible surfaces
 - Kaivac® No-Touch Cleaning® restroom system
 - KaiBosh™
- Kaivac non-compatible surfaces
 - Kaivac SmartTowel™ (restroom color = RED)
 - Kaivac KaiWipes™ dry disposable wipes
 - Spray bottle with:
 - KaiSan II™
- Dry aerosol disinfecting fogger

CTP Cleaning Procedures:

- All custodial staff should be briefed to understand which restrooms they are responsible for and the proper cleaning procedures.
- Cleaning specialists should be equipped with a Kaivac No-Touch Cleaning system.
- For detailed procedures and information go to www.kaivac.com.
- Custodial staff should follow CTP procedures for all areas in the restroom.
- Use a dry disinfecting aerosol fogger if needed as described in the Desktop section.
- Ensure there is a proper laundry program for sanitizing the microfiber items before use.



Cafeteria Tables

| CTP Tools & Supplies: | CTP Cleaning Procedures: |
|--|---|
| <p>Tools</p> <ul style="list-style-type: none">▪ KaiFly™ Flat-surface System <p>Chemicals</p> <ul style="list-style-type: none">▪ KaiSan II™▪ Dry aerosol disinfecting fogger  | <ul style="list-style-type: none">▪ All custodial staff should be briefed to understand what tables they are responsible for and the proper cleaning procedures.▪ All custodial staff should be equipped with KaiFly Flat-surface System▪ For detailed procedures and information go to www.kaivac.com.▪ Custodial staff should follow CTP procedures for non-flat surfaces that are not cleaned with KaiFly.▪ Use a dry aerosol disinfecting fogger if needed as described in the Desktop section▪ Ensure there is a proper laundry program for sanitizing the microfiber items before use. |

Kitchen

Kitchens and food processing areas have been the source of many epidemics and outbreaks. Proper cleaning and disinfection is critical to producing and maintaining a healthy school environment.

| CTP Tools & Supplies: | CTP Cleaning Procedures: |
|--|---|
| <p>Flat surfaces</p> <p>Tools</p> <ul style="list-style-type: none"> ▪ KaiFly™ flat-surface system ▪ Kaivac No-Touch Cleaning system <p>Chemicals</p> <ul style="list-style-type: none"> ▪ KaiSan II™ ▪ Dry aerosol disinfecting fogger | <ul style="list-style-type: none"> ▪ Assigned cleaners (cleaning specialists or kitchen workers) should be briefed to understand which areas of the kitchen they are responsible for and the proper cleaning procedures. ▪ Cleaning staff should be equipped with KaiFly Flat-surface System ▪ For detailed procedures and information go to www.kaivac.com. ▪ Kitchen staff should follow CTP procedures for all non flat surfaces not cleaned with KaiFly. ▪ Custodial staff to utilize Kaivac No-Touch Cleaning system to “spray and vac” the kitchen floors. ▪ Use a dry disinfecting aerosol fogger if needed as described in the Desktop section. ▪ Ensure there is a proper laundry program for sanitizing the microfiber cloths, mops, or other reusable items before use. |

Bus

The bus is often overlooked in a school's cleaning program. But in reality, the bus not only transports children to school, it also transports their residual germs, which we now know can live for up to 72 hours. This not only puts your students at risk, but when buses are shared by multiple schools in a system, the risk spreads to an even larger population. To minimize this risk, we strongly encourage adding cleaning responsibility for the bus drivers.

Common Touch Points on Buses

- Hand rails
- Seats (all touchable surfaces, front and back)
- Wall/Window touch points

*Note that we are recommending disposable wipers instead of SmartTowels or Smart Microfiber Pads due to the degree of difficulty of managing the required proper laundry program.

CTP Tools & Supplies:

- Spray bottle of disinfectant
 - KaiSan II™
- Industrial disposable wipers
- Dry aerosol disinfecting fogger



CTP Cleaning Procedures:

- Bus drivers should be equipped with spray bottle containing properly diluted disinfectant/sanitizer, microfiber wipes and aerosol disinfecting foggers.
- Drivers apply disinfectant/sanitizer on CTP, including seats. Allow proper chemical dwell time by manufacturers' recommendation. Clean with wipes and dispose of wipes properly. Recommended using "industrial paper wipers" because of their large surface areas you can clean two seats per wipe.
- Use a dry aerosol disinfecting fogger to sanitize entire bus on days that Prevention Cleaning cannot be done or when extreme outbreaks have occurred.

Hand Care Recommendations

The CDC recommends that schools implement a hand care program as a first line of defense against the H1N1 virus.

Hand sanitizers are formulated to kill 99.99% of the germs and bacteria that students face every day. They come in two varieties: alcohol-based and non-alcohol formulations.

Alcohol-based sanitizers



As schools proceed to become healthier with their cleaning practices, the alcohol versions have become less attractive because they are flammable, expensive and are potentially dangerous to students.

Non-alcohol-based sanitizers



Non-alcohol hand sanitizers are much safer and less expensive, and have been proven to be as effective against germs and bacteria.

The CDC has recognized that both types of sanitizers are acceptable in fighting the spread of germs. Because of the additional benefits of non-alcohol hand sanitizers, these formulations are preferred.

Proper usage key to effectiveness

The two primary considerations for proper hand sanitization are location and frequency.

Location pertains to the placement of dispensers where students and faculty can use sanitizer. This becomes quite strategic, and requires some planning. Typically inside classrooms and offices at the entryway (not in hallway) are the best location for dispensers; this covers both students entering and exiting a room. Another strategic area to place dispensers is anywhere students congregate and commonly use equipment or tools, such as the cafeteria or gymnasium.

The second consideration for using hand sanitizer is **frequency**. Hand sanitizer is expensive and using it after every sneeze or cough is not efficient or manageable. We recommend focusing on the most vulnerable times of a student's day: prior to lunch and after recess. When students share tools or equipment, such as after a gym class or science lab are also times when hand washing should be encouraged.

Hand sanitizing before lunch and after recess/lunch should be required.

Additional Recommendations

Personal Protection Equipment

- Gloves
- Facemasks in known outbreak areas

Non-Custodial Tools

- Spray bottle of disinfectant
 - KaiSan II™
- Kaivac KaiWipes™ dry disposable wipers
- Dry aerosol disinfecting fogger (spray can)
- Facial tissue in every area

Management Tools

- Measurement device – ATP meter
- Documentation tools – Checklist for measurement and visual checklist

Section 4 | Definition of Terms

ATP – Adenosine triphosphate is the universal energy molecule found in all cells of living organisms.

ATP Meter – a tool which measures the amount of ATP on a surface measured in RLU-- Relative Light Units. ATP Meters are commonly used in the food processing industry to objectively measure the effectiveness of cleaning methods at removing biocontaminants such as microorganisms, blood, fecal matter, saliva, or other unwanted potentially harmful biological matter. ATP Meters have different scales for RLU's. For the sake of this document, the ATP Meter used was a SystemSure II from Hygiena.

Common Touch Points (CTP) -- a surface or object within the school building which is touched or handled frequently by the student body and staff. If not properly cleaned and sanitized, these touch points can serve to spread disease from one person to another. The key to minimizing the spread of disease is to frequently clean and sanitize these surfaces.

Microbes/Germs – microscopic organisms that can potentially cause disease or adverse health issues in humans, including viruses, bacteria, allergens, and mold spores.

Outbreak Cleaning – Defined cleaning procedures during disease outbreaks such as flu season or when the illness outbreak in schools reaches 5% of the total student population, or 10% of the staff population, or if there is any recorded outbreak of a potentially fatal disease such as H1N1, MRSA, E. coli, bird flu, etc.

Pandemic - An [epidemic](#) of [infectious disease](#) that is spreading through human populations across a large region; for instance a [continent](#), or even worldwide. A widespread endemic disease that is stable in terms of how many people are getting sick from it is not a pandemic. Further, [flu pandemics](#) exclude [seasonal flu](#). Throughout history there have been a number of pandemics, such as [smallpox](#) and [tuberculosis](#). More recent pandemics include the [HIV](#) pandemic and the [2009 flu pandemic](#). (Wikipedia)

Routine Cleaning – Defined cleaning procedures during normal school sessions. The objective of routine cleaning is to *prevent the spread of germs and disease* through consistent and routine cleaning using products and tools that are scientifically proven to kill or remove germs.

Next Steps

Thank you for taking the time to educate yourself on the importance of cleaning for health—particularly in this high-risk time.

Our responsibility to provide clean healthy schools is serious. Research over the past few years has revealed that proper cleaning greatly reduces the spreading of disease, yet that same research teaches us that traditional cleaning not only is ineffective, it often makes the problem worse through cross-contamination.

If you hope to combat the outbreak of disease, NOW is the time to move to the new model of cleaning for health.

We can help you achieve a healthier school environment using innovative tools and products that are scientifically PROVEN to be effective in killing germs and minimizing the spread of germs.

Call us to arrange a product evaluation of the Kaivac's cleaning systems and tools.

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