



**THE NEED FOR QUALITY CLEANING
TOOLS IN EDUCATIONAL FACILITIES**



INTRODUCTION

Every year as summer draws to an end, families across the country start crossing items off their back-to-school checklists. Along with backpacks and school supplies, planning for the beginning of the school year includes ensuring immunizations are up-to-date and physicals are completed. Schools often prepare students and families with helpful information about how to prevent common back-to-school illnesses, because whether it is the common cold, strep throat, or gastroenteritis, the start of the school year usually brings an onslaught of ‘bugs’ or infections.¹

Cleaning, which the CDC describes as a process that “removes germs, dirt, and impurities from surfaces or objects by using soap (or detergent) and water and mechanical action,”² has been shown to reduce the risk of infection and troublesome allergic symptoms by reducing the number of germs or microbes (e.g. bacteria, viruses, and molds) living in an environment.³⁻⁴ Accordingly, effective and efficient cleaning has been championed for years by a multitude of professional and regulatory organizations ranging from the American Academy of Pediatrics to the Department of Education to the Healthy Schools, Healthy People Program, a collaboration of the American Cleaning Institute and the CDC.⁵⁻⁹

THE CONTAMINATED CLASSROOM

So, how does cleaning help reduce infection transmission? By removing infection-causing microbes, or pathogens, from school surfaces commonly touched by little (and big) hands. And research indicates that there are plenty to be found. A study of 72 surfaces, ranging from pencil sharpeners to paper towel dispensers, in six Washington state classrooms found norovirus on 22 percent of surfaces, respectively.¹⁰ In a 2019 study evaluating respiratory viruses on school desks in a Colorado public elementary school, researchers found the odds of a student encountering a virus on a desk to be 20 percent, increasing to more than 60 percent if the student switched classrooms for classes and encountered five different desks throughout the day.¹¹ Viruses aren’t the only threat; bacteria can lurk on a multitude of surfaces. A study of 90 athletic facility surfaces among ten different schools found MRSA on nearly half (46 percent) of them.¹² And researchers from the University of Arizona found teachers’ desks to have 20 times more bacteria than the desks of the other professions they studied, including doctors, lawyers, accountants, bankers, and news reporters.¹³

MICROFIBER: THE KEY TO EFFECTIVE CLEANING

The CDC describes cleaning as a process that reduces the presence of “germs, dirt, and impurities”, but just *how* that cleaning is performed is critical. The CDC states that “the actual physical removal of microorganisms and soil by wiping or scrubbing is probably as important, if not more so, than any antimicrobial effect of the cleaning agent used.”¹⁴ Research has shown that cleaning with microfiber products optimizes the removal of dirt, debris, and microorganisms compared to other textiles,¹⁵⁻¹⁸ in large part because physical removal is what microfiber does best.

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Microfiber is comprised of exactly what the name implies—“micro” or incredibly small fibers, each of which can penetrate the nooks and crannies in a surface, removing the microbes that may be seeking refuge within them.¹⁹ Collectively, these small fibers endow each microfiber cleaning tool with a large surface area which enhances absorption of fluids and provides a greater capacity for trapping microbes and particles. Further, these ‘targets’ are naturally drawn to microfiber. This is because microfiber has a net positive charge in use which electrostatically attracts the negative charge held by dust and bacteria.

Not surprisingly, a number of state health departments and professional education organizations advocate the use of microfiber for surface cleaning, citing that microfiber’s cleaning capability is superior to paper towels, cotton cloths, and mops.^{8,20-23} While the CDC does not specifically endorse any cleaning products, they highlight microfiber’s removal of soils and microorganisms in a number of guidance documents, stating “Microfiber cloths are often preferred over cotton for both cleaning cloths and mop heads because microfiber absorb more dirt and microorganisms than cotton.”²⁴⁻²⁵

CLEANING CASE STUDY IN A GA ELEMENTARY SCHOOL: SUPERIOR MICROBIAL REMOVAL

Recognizing the critical need to mitigate the risk of infection for the safety of their students and staff, the I.C.E. Coordinator of Environmental Services for Fulton County, GA, Mr. Eric A. Flint, decided to undertake a study in the spring of 2021 to assess the impact of utilizing Rubbermaid Commercial Products (RCP) Light Commercial Microfiber Cloths versus a generic microfiber for surface cleaning in an elementary school. The study involved microbial sampling of five surfaces in each of six kindergarten and first grade classrooms to assess for the level of bacteria during the baseline period when generic microfiber was used by custodial staff and again during the intervention period when RCP Light Commercial Microfiber was used. The school's cleaning protocol occurred at the end of each day and included spray application of disinfectant followed by surface wiping. For the study, the only change in protocol was a switch from generic microfiber for surface wiping to RCP Light Commercial Microfiber.

Microbial samples were collected in the morning, prior to the arrival of staff and students, on three different dates during the baseline and intervention periods, and sent to a third-party laboratory for processing. Results were reported as colony forming units (CFUs) so that the levels of bacteria on each surface could be quantified. All microbial sample information was provided to an outside statistical analysis firm.

Their analysis of the 180 samples collected throughout the study demonstrated a **statistically significant reduction (p-value<0.00001) in bacteria on the tested classroom surfaces when RCP Light Commercial Microfiber was used** compared to the generic microfiber. Specifically, the average level of bacteria yielded by surface samples decreased by 83.4 percent upon inclusion of RCP Light Commercial Microfiber Cloths in the daily custodial cleaning procedures in comparison to the usage of generic microfiber. The statistical analysis firm concluded, "These results indicate that the quality of cleaning materials is an important factor that dictates the efficacy of custodial procedures and that RCP Light Commercial Microfiber Cloth outperforms generic microfiber at a statistically significant level within educational settings."

THE VALUE OF QUALITY MICROFIBER SYSTEMS: RUBBERMAID COMMERCIAL PRODUCTS

Just because a product is labeled “microfiber” doesn’t mean it is *quality* microfiber. Not all microfiber performs equally, particularly when it comes to the removal of microorganisms.²⁶⁻²⁷ This underscores the need for utilizing quality, high-split, warp-knit, durable microfiber with evidence-based microbe removal to achieve optimal cleaning results. In fact, in their “Cleaning for Healthy Schools Infection Control Workbook,” the National Cleaning for Healthy Schools and Infection Control Workgroup cautions, “when purchasing microfiber, make sure it is from a reputable manufacturer”, citing the broad range in quality and design among products sold under the term ‘microfiber.’⁸

They further advocate choosing products whose “fibers are split and are a smaller denier measurement.”

This refers to microfiber manufactured from a combination of polyester and polyamide polymers which can then undergo a chemical process called “splitting” that separates the polymers at their interface, further reducing the size of each fiber. The highest quality microfiber measures less than one denier, a unit of measurement for fiber thickness. For reference, the average human hair is roughly 20 denier.

Backed by a team of engineers and scientists, Rubbermaid Commercial Products has been setting the bar for high-quality cleaning products for years. RCP Light Commercial Microfiber, available as [cloths](#) and as [mop pads](#), has:

- **High Split Factor:** 16-split in over 95 percent of fibers, each of which is incredibly fine, measuring less than one denier. This translates into maximized surface area and microbe and particle removal.
- **Enhanced Microbe Removal:** Third-party laboratory testing has shown RCP Light Commercial Microfiber removes 99.7 percent or more of tested microorganisms on VCT with water only, including MRSA, *Clostridioides difficile* (C.diff), *Pseudomonas aeruginosa*, Feline calicivirus (a surrogate for norovirus), and OC43, a common human coronavirus.
- **Durable Design:** The warp-knit microfiber can withstand up to 200 launderings without bleach and 100 launderings when performed according to CDC parameters for laundering healthcare textiles.
- **Color Coding:** Designed to assist in cleaning by area or task and reduce the risk of cross-contamination.
- **Versatility:** The microfiber can be used for wet cleaning or dry dusting on all surface materials.

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THE IMPORTANCE OF ERGONOMICS

Microfiber's value isn't just limited to achieving cleaner surfaces; it also lies in enhanced productivity for custodial staff. Studies from the University of California Davis and the University of Massachusetts Lowell found that replacing cotton mops with microfiber mopping systems resulted in improved worker productivity, reduced chemical and water usage, and may reduce the potential for worker injury.^{16,18} These benefits have real merit for a workforce often tasked with doing more in less time and suffering from a turnover rate reported to be as high as 254 percent.²⁸

Rubbermaid Commercial Products recognizes that effective cleaning rests, literally and figuratively, on the shoulders of the invaluable men and women who perform the job every day. And the job can take a very real physical toll. Rinsing out heavy mops, washing down floors and walls, and lifting heavy trash bins can strain the back, neck, shoulders, and wrists. The problem intensifies as much of the work is often repetitive.

In two separate hospital case studies RCP's microfiber systems have demonstrated the potential to reduce the risk of injury compared to disposable cloths, spray bottles, and traditional cotton string mops.²⁹⁻³⁰ In the first study, researchers in Brazil used the Rapid Entire Body Assessment (REBA) tool which collects ergonomic in-use data used to calculate a musculoskeletal injury risk score. The RCP microfiber system earned a risk score of 3, indicating a "low ergonomic risk", while use of disposable cloths and spray bottles generated a score of 9, indicating a "high ergonomic risk." Similarly, in the second study, researchers from Australia utilized a workplace biometric analysis technology for EVS staff comparing their movement with traditional cotton string mops and wringer buckets with RCP microfiber systems. They found the RCP microfiber system posed a 20 percent lower movement risk. The cleaner spent 49 percent less time outside of the preferred overall movement range and 33 percent less time outside of the preferred shoulder movement range with the RCP system. Furthermore, electromyography (EMG)—a test that assesses the health of muscle and nerve activity—detected lower activity for the lower back and shoulders, indicating a less work-intensive process when using microfiber as compared to traditional wet mopping.

Rubbermaid offers additional cleaning tools for schools with a special focus on ergonomic products such as the [Adaptable Flat Mop Kit](#), a wringable microfiber mopping system that allows for integration with WaveBrake® buckets and a facility's existing cleaning tools. The system allows schools the opportunity to achieve not only a *better* clean with superior microbe removal compared to generic microfiber as seen in the Fulton County study, but also an *easier*, more ergonomic clean for staff. The pads are 70 percent lighter than traditional string mops when fully soaked and have a no-touch disposal mechanism that reduces the chance of cross-contamination between a soiled mop pad and staff hands.

Further, for smaller spaces, the microfiber pads can be used with the [HYGEN™ Pulse™ Microfiber Mop Kit](#) for bucketless mopping. The mop has a patented onboard reservoir and solution system that evenly dispenses liquid behind the mop when the ergonomic trigger handle is depressed. Weighing only 6 pounds when fully loaded, the system allows for the same efficient clean and enhanced microbe removal, just on a smaller scale.

ENHANCED CLEANING EFFICIENCY AT HINSDALE CENTRAL HIGH SCHOOL

Commercial cleaning staff at Hinsdale Central High School outside of Chicago had their work cut out for them using string mops to clean classroom floors in the 500,000 square-foot facility. Recognizing the importance of floor care, given that 90% of dirt, dust, and bacteria on the floor can be redistributed into the air or onto other surfaces,³¹ the staff mopped floors five times a day.

Looking to enhance efficiency and improve productivity, the cleaning service company opted to trial the Rubbermaid Commercial Products "[Adaptable Flat Mop](#)" wringable microfiber system. Staff immediately noticed that the mop was lighter-weight and easier to move when mopping from room to room, and up and down staircases. It also allowed them to reach corners and underneath desks without bending over or moving furniture.

These ergonomic advantages were complemented by faster drying times, saving staff valuable time throughout their day-to-day cleaning. Speaking of the transition, the cleaning service company director said, "**We were pleasantly surprised with how easy it was to integrate microfiber mopping into our current cleaning process with the Adaptable Flat Mop. It was easier for our staff to use and provides a better clean than string mops.**"

CONCLUSION: REDUCING THE SPREAD OF GERMS IN SCHOOLS

Cleaning is a vital part of a school's operations; it not only enhances the aesthetics of a facility, but also helps reduce the presence of germs.² Per the CDC, cleaning and promoting hand hygiene are important everyday actions schools can take to slow the spread of infectious diseases and protect students and staff.³² As budgets are tightened and custodial staff are tasked with cleaning more, though often with less time and fewer resources, it is imperative for the school to choose the right cleaning products. As the National Education Association states, school administrators must work with custodial staff to ensure that "cleaning and disinfecting is done in the most effective and least hazardous way possible and as part of any broader policy that may be in place—to address... infectious diseases."²⁸ Using quality products with evidence-based efficacy like RCP Light Commercial Microfiber is an important element that will help accomplish this mission, because, ultimately, the value of any cleaning tool is measured by the outcome it achieves. This is at the core of Rubbermaid Commercial Products' design philosophy and the reason the products are put to the test in the very classrooms for which they're engineered. By providing excellent microbe removal, enhanced operational efficiency, and proven durability, RCP Light Commercial Microfiber and its compatible cleaning tools help ensure that schools will achieve an invaluable return on their investment: a clean environment for students to learn and thrive.

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