



How to select and evaluate Microfiber Mops

The Next Generation of Microfiber Flat Mops

In the last few years, new technologies and systems improvements have been developed to provide for more efficient and productive ways of cleaning. It is interesting to note, however, that one of the basic daily activities undertaken in most hospitals dates back to the 19th century. The string mop was patented in 1893 and is still one of the most utilized floor cleaning tools today. While the string mop has seen its own advancements over the years, a new and improved alternative to the conventional string mop has recently emerged — microfiber flat mopping.

The flat mopping system was initially manufactured in Sweden 15 years ago and later in Korea and China. The system became very popular in Europe due to its innate ability to clean without the use of chemicals. The construction of the microfiber flat mop enables the fibers to attract dust, dirt, and bacteria, and hold the particles and pathogens within the mop until laundered. Once end users embraced this concept and began putting flat mops into practice, the implementation brought about a surge of benefits, including reduced costs, increased labor productivity, and ergonomic advantages, among others. More importantly, with the onslaught of community-acquired infections in hospitals, the microfiber flat mopping system has helped to dramatically reduce opportunities for cross-contamination.

Recently, improvements have been made to the traditional microfiber flat mop. Manufacturers have introduced these new microfiber cleaning systems. *These mops* are made by utilizing Deep Groove microfiber technology called 4DG™ Technology, which is a registered trademark of Clemson University Research Foundation. 4DG™ fiber is produced by using only one polymer and is uniquely designed with deep grooves or channels that run along the length of each fiber. The grooves provide unique features to the fiber that can serve as ducts to move fluid and store and trap substances. Due to its one polymer construction, 4DG™ can endure bleach-safe laundering. In addition, *these mops* contain a multi-fiber blend that provides for additional absorption and is protected with an antimicrobial fiber to inhibit the growth of destructive bacteria on the pad. The blend is resistant to *Staphylococcus aureus* and *Klebsiella pneumoniae*.

Microfiber Flat Mops vs. Conventional String Mops

Introduced 10 years ago to healthcare facilities in the United States, the flat mop system is gradually gaining popularity and proving that it is a more efficient and productive means for floor care. Studies conducted at UC Davis Medical Center in Sacramento, Calif., have shown that microfiber flat mops reduce opportunities for cross-contamination, reduce chemical and water usage, increase productivity, reduce staff injuries and worker's compensation claims, and clean more effectively than conventional string mops.

The traditional string mop procedures suggest that the mop bucket is filled with approximately three gallons of water and either a cleaner or disinfectant. The solution is used to mop three rooms and then dumped. A fresh solution of water and cleaner or disinfectant is then mixed for the next three rooms to be cleaned. Each member of the floor cleaning staff mops approximately 21 rooms per day; therefore, an estimated 21 gallons of water are used per staff member during a shift. The procedure for mopping with a string mop requires that the user place the mop in a mop bucket and wring it out prior to using it on the floor. Dirt that is collected on the mop during the mopping process is then carried from one room to another until the bucket contents are changed, creating large opportunities for cross-contamination to occur.

When using the microfiber flat mop system, mops are placed into a bucket, trough, or pail that holds approximately one to two gallons of water, cleaner, or disinfectant. The number of mops placed in the container depends on the number of rooms to be cleaned during that shift. A single mop is removed and wrung out to the desired degree of wetness and placed on the floor. The mop pad adheres to the flat mop head by Velcro® and the floor is cleaned with a single mop. Once one room is cleaned, the mop is removed from the mop frame and placed in a bag or container for laundering at the end of the shift. The microfiber flat mop never re-enters the container where the clean mops are held. Because one mop per room is used, the possibility for cross contamination to occur is greatly reduced.

Traditional microfiber flat mops do not come without criticism. Because of their bicomponent construction, they may not be laundered using bleach or fabric softener; nor can they withstand high water and drying temperatures. Therefore, special handling is required during the laundry process. The mops also contain a Velcro® backing, which collects hair and dirt particles and wears out quickly after multiple washings. Also, antimicrobial properties are difficult to achieve and seldom seen.

The microfiber flat mop system is used in much the same way as traditional microfiber flat mops; however, there are added benefits. The 4DG™ fiber used enables the mop to collect dirt and pathogens from the floor while simultaneously transporting cleaning solution across an entire patient room. The mop is also 50 percent larger than traditional microfiber mops, allowing it to cover a larger surface area, as well as clean build-up from baseboards. The multi-fiber blend of the pads provides for attributes such as higher absorption and is protected with an antimicrobial agent to inhibit the growth of destructive bacteria on the pad.

There is also no Velcro® backing that will wear out during laundering, and there is no special handling during the laundry process because *the mops* are bleach safe. *The mops* are able to absorb over five times their own weight, trap and store dust and dirt particles, remove scuff marks and transport cleaning solution, which all lead to cleaner floors and the prevention of the transmission of pathogens.

Evaluating Microfiber Mops

Clinicians and purchasing managers want the best floor care implemented within their healthcare facilities to ensure that the highest standards for infection control are being achieved in a cost-efficient manner. Clinicians can easily test the efficacy of the cleaning systems by running comparative trials within their facilities. They will quickly find that the flat mop microfiber system is far advanced over the string mop system and that the microfiber mop cleans better than the traditional microfiber mop. Hospital employees have commented that they were able to pick up dirt with microfiber mops after going over a floor that had initially been cleaned using a traditional looped or string mop. They were then able to pick up additional dirt after going over the floor again with the microfiber mop. The process was reversed, and there was no additional dirt found when the *mop* had been used first. These trials are an indication of a better floor cleaning system that can lead to improved infection control within the hospital.

Purchasing managers will need to look at the total system benefits when evaluating the flat mop systems versus the string mop. String mop heads require replacement every four to six weeks and are disposed of through the solid waste system. Microfiber mops will last several years and cost approximately the same as a string mop head. While a floor care technician may use one string mop during a day, one flat mop is needed per room; however, the large amount of flat mops used per day must be weighed against their durability after months of use. Additionally, greater cleaning and infection control are provided by using the microfiber flat mop. Approximately 21 gallons of floor cleaning solution are used by the string mop process for each worker per shift. The microfiber mop system uses only two gallons of such solution, which amounts to a savings of approximately 90 percent. A similar percentage of savings in cleaning and disinfection chemicals is achieved through use of the flat mop system when compared to the string mop. This constitutes good pollution prevention practices within the healthcare facility.

Trials of microfiber mops have been undertaken at several hospitals, most notably at the UC Davis Medical Center. Microfiber mops have been in use at that hospital for several years and they continue to prefer the flat mop system over the traditional string mop. In 2004, its environmental services department achieved 100 percent compliance on JCACHO testing.

Additional Benefits of Using the Microfiber Flat Mop System

In addition to improved cleaning and infection control, the microfiber flat mop system provides additional benefits compared to the conventional string mop. The microfiber flat mop system leaves less water residue on the floor, which reduces slip and fall injuries. The microfiber mop system weighs less than a wet string mop and is easier to move across the floor of a hospital room, resulting in less muscle soreness and pains felt by the end user. Additional ergonomic benefits are seen because the end user is no longer required to dump out several gallons of water from a bucket every three rooms, which is mandatory with a string mop system. Also, the flat mop system increases labor productivity by 20 percent with the elimination of frequent trips to the supply closet and the improved speed in the mopping process.