

**EVIDENCE-BASED TESTING TO
VALIDATE THE EFFICACY OF
CLEANING AND DISINFECTION**

A person wearing a dark blue ABM cap with the logo and the text "Building Value". They are also wearing safety glasses and a white N95-style face mask. They are wearing a light blue polo shirt with an ABM logo on the chest and a "CERTIFIED" badge. The background is a blurred indoor setting with overhead lights.

Background

A core value of ABM is dedication to service excellence. Achievement of service excellence requires a strategy that embraces continuous monitoring and evaluation at all levels of performance, ensuring excellence is embedded into corporate and workplace culture. Evidence-Based Testing (EBT) helps us achieve this in our disinfection offerings. Evidence-Based Testing is a recognized approach to cleaning validation that enables an objective evaluation of performance at both the individual and program level.

Evidence-Based Testing devices are designed to quickly quantify the cleanliness of surfaces. If the outputs are accurate and reliable, these devices can be used to validate cleaning was effective. This allows for a continuous loop of training and evaluation as an assurance of performance excellence.

What is ABM's View on Evidence-Based Testing?

ABM will be incorporating Evidence-Based Testing to validate three key areas of concern:

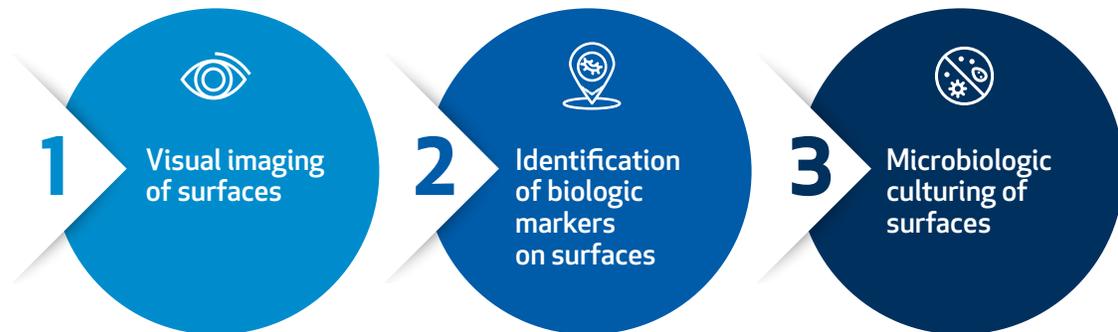


Evidence-Based Testing, when incorporated into the training process, allows our team members to instantaneously measure the quality of the work and illustrates the importance of strictly adhering to our SOPs. Trainers are also able to quantify the efficacy of training methods.

Parallel approaches are used at client sites, allowing our team to evaluate the efficacy of the cleaning being performed. This helps clients verify that their investment in building health and cleanliness is making a quantifiable difference and adds a level of assurance to occupants that they are entering a space with robust, proven cleaning procedures. We recommend that test locations be swabbed prior to cleaning to determine soil load that has developed after the last time the surface was cleaned. That means that some tests will be conducted hours after an initial cleaning, or possibly even the next day, to determine soil load. When testing results fall below acceptable thresholds, a Corrective Action Plan is developed. The testing results will help ABM team members understand if adjustments to the cleaning frequency outlined in the SOW or if reeducation of the workforce is appropriate.

WHAT TYPES OF EVIDENCE-BASED TESTING DEVICES ARE AVAILABLE?

There are three main approaches for Evidence-Based Testing:



Visual imaging of cleaned surfaces can be performed by application of a visual marker, such as a fluorescent powder, marking pen, or solution prior to cleaning, then inspection after cleaning to see if the visual marker has been removed or minimized during cleaning. Although the first-generation visual marking process resulted in heightened attention to cleaning outcomes, it lacked the ability to quantify results as a means of determining how well cleaning was performed. Next-generation visual imaging of surfaces provides photographic evidence of contamination. However, this is still an emerging technology that has not yet reached full performance reliability. The current surface imaging devices also have restrictions for operationalizing, as there are mobility restrictions. As such, this technology is not currently suitable for our use. Our Expert Advisory Council will be watching this technology and reevaluating its use if mobility and reliability improves.

The second category of Evidence-Based Testing evaluates the level of adenosine triphosphate (ATP) on a surface. ATP is an energy-containing compound present in the cells of all living things and its presence on environmental surfaces leaves a biologic marker. This type of Evidence-Based Testing is called ATP testing. Surfaces can be tested using specially designed swabs that identify the presence of ATP and report quantitative results that are provided on-site within seconds after testing.

Microbiologic testing can be performed in an effort to target specific microbes of interest. However, there are several drawbacks to this approach. Determining a specific plan of action for testing, sample collection, and results management makes this a more expensive process. Samples generally need to be sent to a lab for testing, which limits the speed of results. Furthermore, microbiologic testing extends beyond performance measurement. As such, ABM will not be incorporating microbiologic testing at this point in time. There are some devices that look to incorporate microbiologic testing for specific pathogens using swabs similar to those used for ATP testing. As these methods mature, ABM will evaluate if these assessments should be incorporated into our program.

HOW DOES ABM DEVELOP AN INDIVIDUALIZED EBT PROGRAM FOR OUR CLIENTS?

ATP was incorporated into our program after positive results from the pilot sites. A standardized implementation package that is applicable across all commercial facilities has been developed. Our program validates the cleanliness of a facility by both:

To achieve these goals, swabbing will be performed before and after cleaning. This process will remain constant across clients and is captured in our SOPs around Evidence-Based Testing. However, the number of samples collected with the ATP testing device is tailored for each facility. A statistically significant number of samples must be collected. To do so, the appropriate number of samples by the square footage in scope for testing, industry risk level, and number of disinfection specialists is calculated.

1

Reviewing of efficacy
of cleaning being
performed

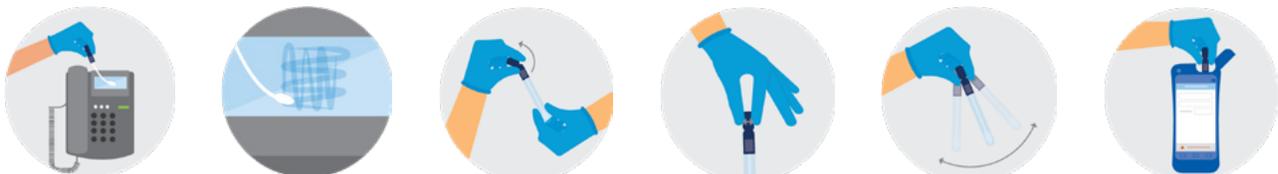
2

Supporting decisions
about cleaning
frequency

Why perform evidence-based testing?

Evidence-based testing (EBT) with adenosine triphosphate (ATP) offers a scientific measurement of the cleanliness of your surfaces. Going beyond the visual assessment of cleanliness, the process of ATP testing, can help fine-tune your disinfection schedule to maximize occupant safety.

To appropriately tailor the offering, ABM representatives must complete an Intake Evaluation Form. This form will be used to finalize a tailored program proposal that outlines the appropriate number of samples.



Supervisors at the client site, after receiving robust training on performing ATP testing, will initiate testing during a 30-day “wash period.” This period of testing is used to establish the baseline for cleanliness at a facility and to incorporate any corrective action. Re-training and education of staff will be performed, as required, to reach a pass rate of greater than 80%. During this time period, frequent check-ins will be held with the client. Reporting will be provided at 30 days to summarize the baselines established in the facility and the average passing RLU score.

Adjustments will be made to the swabbing frequency as needed after the “wash period.” After that point in time, steady-state testing begins. Results will be incorporated into dashboards, which can be shared with clients on a periodic basis. These results will cover average pass rate post-cleaning, average pass rate by surface type post-cleaning, and analysis of RLU levels pre-cleaning.



SOURCES

- Turner, D. E., Daugherty, E. K., Altier, C., & Maurer, K. J. (2010). Efficacy and limitations of an ATP-based monitoring system. *Journal of the American Association for Laboratory Animal Science: JAALAS*, 49(2), 190–195.
- G.S. Whiteley, T.O. Glasbey, P.P. Fahey. (2016). A suggested sampling algorithm for use with ATP testing in cleanliness measurement. *Infection, Disease & Health*, 21(4):169-175.
- Osimani, A., Garofalo, C., Clementi, F., Tavoletti, S., & Aquilanti, L. (2014). Bioluminescence ATP monitoring for the routine assessment of food contact surface cleanliness in a university canteen. *International Journal of Environmental Research and Public Health*, 11(10), 10824–10837.

If you would like to learn more about our EnhancedClean services, please visit EnhancedClean.com or call **866-624-1520** and select **option 3**.

ABOUT ABM

ABM (NYSE: ABM) is a leading provider of facility services in the United States and various international locations. ABM's comprehensive capabilities include janitorial, electrical & lighting, energy solutions, facilities engineering, HVAC & mechanical, landscape & turf, mission critical solutions, and parking, provided through stand-alone or integrated solutions. ABM provides custom facility solutions in urban, suburban and rural areas to properties of all sizes — from schools and commercial buildings to hospitals, data centers, manufacturing plants and airports. ABM Industries Incorporated, which operates through its subsidiaries, was founded in 1909. For more information, visit ABM.com.



Building Value

866.624.1520

ABM.com