

## **Efficacy in disinfection increases with UVC use**

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Normal daily disinfection is useful, but perhaps not consistently effectively applied. A consideration in the healthcare space, for example, is how to ensure that the surfaces a patient or healthcare staff might touch is adequately disinfected- not necessarily the floor or the walls, but the high touch- high frequency of touch surfaces - the bed rails, the sink, the bathroom. We sought to determine what would offer the best opportunity for success and ultraviolet was found to offer an immediately viable solution. The question that followed, then, was how to best apply ultraviolet energy in a manner that was fast, effective, easy and inexpensive enough for hospital systems to employ.

Ultraviolet light is an electromagnetic wave and it imparts its energy fastest and most effectively when it impacts directly on a surface. The issue is that, as noted by the CDC, high touch high frequency of touch surfaces are both vertical and horizontal surfaces making UVC source orientation an important aspect. How to provide useful energy to dose both angles? The path chosen was to make a system that allows easily dosing both vertical and horizontal surfaces but retains the small physical size needed. This also meant, due to the physics of light energy, that the distance to the surfaces would require applying the energy from different places to usefully dose the surface without overdosing other surfaces.

To make it easy to use the device meant making a small form factor to allow movement through a facility and also compact enough to be able to readily store, while offering few moving parts for operator simplicity. And finally, there was a solid realization that any technology that is too expensive will limit availability in use (imagine having one mop in a hospital) and the lack of availability has a negative impact on the frequency of use, reducing the best possible outcome.

Efficacy is tied to reliance on sound engineering principles and physics, safe use, portability, usability, and affordability.