

Review Article

Sanitization Walk-Through Gates During COVID-19 Pandemic: Effective or A False Sense of Protection?

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Abstract

The novel coronavirus (COVID-19) pandemic has spread globally to more than 200 countries with more than 5 million confirmed cases. World Health Organization and other global public health organizations have issued guidelines to prevent the community spread of virus. These include basic measures like repeated hand washing, social distancing, and cough etiquettes. Advice regarding disinfection of surfaces have also been circulated. Due to the infodemic and misinformation public and even institutions particularly in the developing world have adopted certain unproven measures which have the potential to do more harm than good. We describe one such measure being commonly used called Sanitization walk through gate or anti-viral gate. We discuss how this tool is totally ineffective in protecting against the spread of COVID-19 and only offers a false sense of security. There are concerns that such measures may discourage public to forgo the established and recommended practices in favor of these strategies.

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Introduction

The novel coronavirus (COVID-19) originated from Wuhan City, China and was declared a pandemic by the World Health Organization (WHO) in March 2020. As of 14th June, there are more than 7.6 million confirmed cases with 427,000 fatalities all around the globe. This pandemic has overwhelmed the healthcare systems even in the developed world. The WHO has issued guidelines to prevent the spread of this virus. These include simple and effective measures like frequent handwashing with soap and water, using alcohol-based hand sanitizers, wearing a mask along with adopting cough etiquettes and social distancing. If the public adheres to these measures it will be sufficient to weaken or break the chain of infection and slow down the spread.

Challenges of Misinformation and Infodemic

The COVID-19 pandemic has brought additional challenges of information overload and

infodemic in its wake. Despite clear guidelines by public health organizations and health experts, people particularly in the developing countries have adopted some highly unconventional containment practices having no scientific basis or evidence.

There are videos circulating on social media in which people are spraying disinfectants on their clothes and soles of shoes before entering their homes after outdoor visits. Roads are being washed with bleach and chlorine solutions. People stand in front of mist fans filled with disinfectant solutions to “disinfect” themselves. A similar product available commercially is the “Walk-through disinfection gates”, “sanitization gates”, “sanitation tunnels” or “anti-viral gates”. These sanitization gates have been installed in developing countries like China, India, Malaysia, Mexico, Turkey, and Pakistan. The person walking through these sanitization gates is sprayed by a fine mist of disinfectant with a hope to achieve disinfection. There are modified versions available

too. These include motion sensors which turn on the spray automatically as a motion of a person entering the doorway is detected. Some of these Walk-through gates are also equipped with Ultraviolet lamps for added disinfection.

The Concept of Disinfection

The idea of disinfecting everything originates from the concept that COVID-19 virus can survive on various surfaces. The virus survives outside the host body on inanimate surfaces for variable times and subsequently can be transmitted to susceptible hosts when they are in contact with these contaminated surfaces. How much this secondary route of transmission contributes to the spread of disease is difficult to ascertain but has significantly affected the minds and practices of the people across the globe. Therefore, practices like sanitization walk-through gates have been adopted widely without considering basic concepts of transmission, disinfection, decontamination and antisepsis.

Health Authorities perspective

WHO and Centre of Disease Control and Prevention (CDC), USA has issued comprehensive and detailed guidelines for the public as well as for cleaning and disinfection of communities, schools and workplaces. Instead of flooding the areas with disinfectants and spraying, a targeted approach is recommended for cleaning high touch surfaces like doorknobs, counter tops, tables, payphones etc. Soap and water solutions are suggested for personal use in hand washing as well as for surface cleaning of outdoor areas. Disinfectants like alcohol preparations can be used on surfaces depending upon the level of use and particularly high touch areas.

Effectiveness of disinfectant use demands certain conditions to fulfil. The active chemical in the disinfectant, concentration, contact time, the spectrum of activity and manufacturer's instructions are some of the key elements which determine the effectiveness of the disinfectant. If these requirements are not met, the effectiveness of the disinfectant becomes doubtful and may result in a waste of resources and a false sense of protection among users. This may be far more dangerous than not using the disinfectant at all.

When in contact with skin, higher concentration of surface disinfectants may damage the intact skin, eyes and lungs. Conversely, skin-compatible antiseptic solutions are not meant to disinfect inanimate surfaces. To the best of our knowledge and after a literature search, there is no one chemical solution which offers equal and

simultaneous antisepsis/disinfection for both living tissues and inanimate surfaces/ objects when used in the same concentration and equal contact time. Even if there was such an ideal chemical, there is no standardized method of achieving complete disinfection. So, walk-through sanitization gates and similar devices fail to offer an effective basic mechanism for achieving decontamination or "cleanliness" in the first place. WHO has specifically recommended that bleach and disinfectant should be used carefully to disinfect surfaces only.

A False Sense of Security: More Harm than Good

Widespread spraying of 0.5 % chlorine was previously used during the Ebola crisis. It resulted in ocular, respiratory and skin irritation of those who were exposed to this disinfection technique.⁶ Experts have warned that these walk-through sanitization gates have more disadvantages than any of the advantages claimed by the manufacturers.¹⁰ There is no clear scientific evidence to support the use of these disinfection gates. A quick Medline search using keywords "sanitization walk through gates", "antiviral gates" did not return any search result. The spray or fogging of disinfectants (formaldehyde, phenol-based agents or quaternary ammonium compounds) is neither supported by CDC in 2003 Guidelines for Environmental Infection Control in Health-Care Facilities nor the 2008 Guideline for Disinfection and Sterilization in Healthcare Facilities. Fogging does not ensure equal covering of disinfectant mist over the surfaces in effective concentration. Additionally, walking through the mist does not ensure the adequate contact time of 30 seconds which is of key importance in achieving germ-free results.⁶

The washed-out fluid from the process requires proper collection and disposal which is usually neglected in many cases. It is not only an environmental hazard but nuisance for the public. Some variants of these sanitization walk through gates have Ultraviolet (UV) lamps installed to offer the theoretical additional benefit of antimicrobial effect of UV light. There is a substantial concern that brief but repeated and uncontrolled UV exposure may cause skin and retinal damage resulting in more harm than good.

In our opinion, the greatest drawback of this practice is providing a false sense of cleanliness or "purification" among the users. After people walk through these sanitizing gates, they may feel entitled to forgo hand washing and social distancing which are the main strategies recommended to break the COVID-19 chain of contagion. People will thus neglect the recommended and effective ways of

preventing transmission. In addition, developing countries have limited resources and cannot afford to waste finances on installation of these sanitization gates. These funds should be reserved for a better and proven strategy against COVID-19. By resorting to the use of these walk-through sanitization gates, substantial resources would be spent on a modality with no real scientific backing, achieving inadequate decontamination and still being used as an alternative to the effective mode of hand washing. In some instances, this hoax has been promoted as therapy for disease, as if it were a way of freeing the person walking through it from the viral illness as well.

Conclusion

We recommend against the use of these commercial sanitization walk through and anti-viral gates which have no scientific basis or medical research to support their use. Such attempts at disinfection should be discouraged as they only offer a false sense of security against COVID-19. Besides, this is also a waste of resources which can be better utilized in providing evidence-based and scientifically proven preventive measures against COVID-19. Before implementing any similar health-related measure against COVID-19 administrative and public health authorities should consult the national and international guidelines and local experts for current science-based techniques. There is an urgent need to ban the sale and use of such items to prevent the public from being a victim of deception at such demanding times.

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