



# INFORMATION BRIEF (RAPID REVIEW)

## MEDIKLEAN

Malaysian Health Technology Assessment Section (MaHTAS)  
Medical Development Division  
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## TITLE: MEDIKLEAN

### PURPOSE

This report provides a brief information of the effectiveness, safety and cost-effectiveness of Mediklean, a contactless hand hygiene solutions, in response to a request from the Deputy Director General of Health (Research and Technical Support).

### BACKGROUND

Founded in 2004 by Pastor Nigel Wright, Mediklean is committed to provide effective hand hygiene solutions through innovative, contactless technology. By making hand cleaning easier and safer for everyone, the company aims to reduce the spread of germs and elevate cleanliness standards. These hygiene solutions are designed for high-traffic environments such as healthcare facilities, restaurants, and public spaces.<sup>1</sup>

### Technical Features

Mediklean technology provides a contactless hand hygiene experience. It features a 3-in-1 automated hand hygiene station that integrates handwashing, sanitising, and drying into a single, fully touch-free system. This hassle-free approach promotes better sanitation while ensuring efficiency and ease of use in busy environments.<sup>1</sup>

### Key features:<sup>1</sup>

- i. **Touch-free operation:** Eliminates the need for taps, paper towels, and physical contact, reducing cross-contamination risks.
- ii. **Automated 3-step process:**
  - a. Soap dispensing: automatically releases the adequate amount of soap when hands are detected.
  - b. Water activation: touch-free water flow for thorough handwashing.
  - c. Air drying system: air dryers to remove moisture and eliminate the need for paper towels.



**Figure 1:** The Mediklean product



**Figure 2:** The contactless hand hygiene features

### Benefits

1. Enhanced hygiene: Designed for high-traffic areas, the contactless system eliminates the need for taps and paper towels, and reduce the risk of cross-contamination.
2. Sustainable design: By minimising water usage and eliminate paper towel waste, the system promotes an eco-friendly sanitation.

### Areas for consideration

1. The website mentions the use of a specially formulated Mediklean Antibacterial Solution, however, the main ingredients are not clearly specified.
2. The type of soap or disinfectant compatible with the system has not been specified.
3. The duration of water flow is unclear, raising concerns about whether it allows for thorough handwashing.
4. The method of draining or disposing of used water after handwashing has not been addressed.

## EVIDENCE SUMMARY

A systematic search was conducted across scientific databases, including Medline, EBM Reviews, EMBASE via OVID, PubMed, as well as general search engines such as Google Scholar and the U.S. Food and Drug Administration (USFDA) website. The search term used were “Mediklean” and “contactless hand hygiene”. Last search was performed on 14 February 2025. Only one relevant article was identified, along with an additional article from the Mediklean website, both of which were included in this review.

## EFFICACY/ EFFECTIVENESS

The company referenced this article in relation to the Mediklean Antibacterial Solution. Bondurant SW (2019) conducted a study to evaluate the residual antibacterial effectiveness of two hand sanitiser preparations. One formulation was a non-alcohol, surfactant-based solution containing 0.12% benzalkonium chloride (BK), while the other was a standard commercial ethanol-based sanitiser containing 63% ethanol for comparison. Unlike ethanol, BK is non-volatile and remains on the skin as the product dries. The study evaluated its antibacterial persistence against *Staphylococcus aureus* using a modified technique based on the American Society for Testing and Materials protocol E2752-10, measuring efficacy up to four hours post-application.

A total of 24 healthy participants, aged 19 to 63 years, were enrolled. The volar forearms were used as test sites, with randomisation applied across treatment groups to minimise anatomical bias. Each treatment condition was tested using four replicate samples for two exposure duration (1 and 30 minutes). The BK-based sanitiser demonstrated a significant reduction in bacterial colony-forming units at the three measured time points (1 hour, 2 hours, and 4 hours after application), with mean  $\log_{10}$  reductions of 4.12, 4.16, and 3.75, respectively. In contrast, the ethanol-based comparator showed a reduction of less than 1- $\log_{10}$  reduction over the same period. The differences were highly significant. These findings suggest that the BK formulation provides substantially improved persistent antibacterial activity compared to the ethanol-based sanitiser.<sup>2</sup>

Olufajo OO (2023) conducted an experimental study to develop an automated, standalone handwashing unit for outdoor use. The aim was to reduce recontamination and water wastage from manual faucets. Empirical studies revealed that traditional faucets resulted in 51.32% water wastage. To address this, the researchers designed an automated standalone hand wash unit (ASHU) with a contactless tap system to enhance hygiene and conserve water. Performance tests showed that ASHU reduced water wastage to a maximum of 13.31% and achieved 93% user satisfaction throughout the refill cycle. These results were extracted from the abstract as the full text could not be accessed for review.

## SAFETY

There was no retrievable articles on safety issues related to Mediklean technology. The device uses a non-invasive, low risk procedure, suggesting its general safety for use.

## COST-EFFECTIVENESS

There was no retrievable articles on the cost-effectiveness related to Mediklean technology.

## **CONCLUSION**

Mediklean provides an innovative, contactless hand hygiene solution that integrates handwashing, sanitising, and drying into a touch-free process. The technology is designed to reduce cross-contamination risks and improve hygiene efficiency, especially for high-traffic environments. No studies have assessed the overall effectiveness of the Mediklean system or its long-term performance in real-world settings. Additionally, there is no available data on its safety concerns or cost-effectiveness.

This technology has the potential to be utilised as a contactless hand hygiene system. However, several factors must be considered, including the selection of an appropriate disinfectant when replacing soap, the required handwashing duration, and adherence to proper handwashing techniques.

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