



Infection Prevention

IN REHABILITATION



Hospital-Associated Infections

In listing the “minimum infection prevention practices” for safe care, the CDC puts hand hygiene as the first standard precaution that a health care worker should take. “Hand hygiene remains the most effective and least expensive measure to prevent transmission of pathogenic organisms in healthcare setting,” yet compliance with this simple practice ranges between 30-50%.² The unfortunate truth is that even with 100% adherence to hand hygiene guidelines, it is still possible to spread and even contract infectious diseases within the therapeutic setting.



Electrotherapy

With reusable medical devices, facilities are expected to have policies that address handling and cleaning procedures.¹ With electrotherapy, devices and lead wires are expected to be cleaned regularly, but what about the reusable electrodes? Evidence shows that bacteria can attach to electrodes and be transferred across treatments,³ meaning that bacteria can be reintroduced to the patient during subsequent treatments— potentially when the patient is more prone to infection. Common means of disinfecting clinical instruments would quickly deteriorate self-adhesive reusable electrodes; and non-adhesive reusable electrodes, which are multi-patient use, retain bacteria 25% of the time after being “cleaned.”⁴ Either situation leaves the possibility of spreading infectious bacteria throughout a facility to other patients and staff.





After a stimulation treatment has concluded:

- The physical therapist turns off the device
- The contaminated electrode is removed and placed in a bag and stored with other electrodes
- The physical therapist completes paperwork and hands off to staff

Each action can transfer pathogens from the electrode via the therapists hands to other surfaces inside the treatment area, where it then can be further spread to staff and patients.

Dissection: The Spread Of Infection

As the diagram above illustrates, even when adhering to the World Health Organization's *moments of hand hygiene*, it is possible to spread infectious diseases from patients to health care workers and other patients.



THE SOLUTION IS MICROBLOCK

MicroBlock is a **bactericidal and bacteriostatic electrode** that kills infectious bacteria, including:

- E. cloacae (CRE)
- S. aureus (MRSA)
- E. coli (ESBL)
- E. faecalis (VRE)
- P. aeruginosa and A. baumannii (Multi-Drug Resistant)

MicroBlock's antimicrobial gel contains benzethonium chloride (BEC), an additive known for its antiviral properties, and has demonstrated a more than 4 log₁₀ reduction against each of these microorganisms.**

MicroBlock Antimicrobial Electrodes



The table below illustrates the opportunities for risk mitigation from replacing typical self-adhesive reusable electrodes with MicroBlock antimicrobial electrodes.

| TYPICAL SELF-ADHESIVE ELECTRODES | MICROBLOCK |
|---|--|
| Can collect bacteria from the patient's skin To retain moisture, electrodes are stored in a pouch between treatments, at room temperature - conditions that promote bacterial growth | MicroBlock kills bacteria on and around the electrode Between treatments MicroBlock maintains its ability to kill disease-causing microbes while stored in its resealable pouch |
| Electrode is reused on patient, reintroducing bacteria to patient | MicroBlock is reused on patient, continuing to kill bacteria on and around the electrode, to help protect against infection |





1. National Center for Emerging and Zoonotic Infectious Diseases. GUIDE TO INFECTION PREVENTION FOR OUTPATIENT SETTINGS: MINIMUM EXPECTATIONS FOR SAFE CARE. September 2016.
2. Flanagan E, Chopra T, Mody L. Infection prevention in alternative health care settings. Infectious disease clinics of North America. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3061468/>. Published March 2011. Accessed May 23, 2019.
3. Knight KL, Draper DO. Therapeutic Modalities: the Art and Science. Philadelphia: Wolters Kluwer Health/Lippincott Williams & Wilkins; 2013.
4. Albert NM, Bena J, Runner J, et al. Contamination of Reusable Electroencephalography Electrodes, a Multicenter Study. American Journal of Infection Control. 2018;46(6). doi:10.1016/j.ajic.2018.04.013.

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** A log reduction, or log kill rate, is the standard for measuring infection prevention. A 4 log₁₀ reduction kills 100 times more pathogens than a 2 log₁₀ reduction.