RESEARCH CLINICS: CHOOSING THE RIGHT DISINFECTANT

INTRODUCTION:

Choosing the right disinfectant for a location or specific situation depends upon many factors, including; microorganism being targeted, degree of contamination, organic matter load, contact time required, stability of the disinfectant (i.e. shelf-life), toxicity of the chemical present in the disinfectant, type of material being treated, and cost.

Failure to select an appropriate disinfectant or improper use of a disinfectant can lead to failure to remove all contamination, which can lead to exposure. Alternatively, damage to equipment may occur due to the properties of the chemicals present in the disinfectant applied.

BEST PRACTICES[1]:

1. **Evaluate your biological material:** Specific target: Lipid enveloped virus? Vegetative bacteria? Spore? Intracellular? Broad spectrum: Targets all three major classes of organisms, bacteria, fungi, and virus
2. **Evaluate the organic content:** Organic load can impact the effectiveness of a disinfectant or how it should be applied to be effective
3. **Evaluate your equipment:** Is the equipment sensitive to chemical exposure? Can it be immersed?
4. **Contact time matters:** Follow the instructions for the specific disinfectant selected and apply for the correct duration
5. **What Personal Protective Equipment (PPE) is required?** Ensure you evaluate what PPE is required; for both the biological material and the chemical nature of the disinfectant
6. **Consider any potential chemical reactions:** What else is potentially present on the surfaces to be cleaned? How will it react with the disinfectant?

ENVIRONMENTAL PROTECTION AGENCY (EPA) REGISTERED DISINFECTANTS

The EPA[2] provides lists of antimicrobial products that have been proven to be effective against common pathogens. Use of listed EPA-registered products consistent with the product labeling complies with OSHA requirements for Occupational Exposure to Blood Borne Pathogens[3]. Users must read the label to locate the EPA registration number and ensure product is approved for the intended biological agent.

CLINIC DISINFECTANTS – ENVIRONMENTAL SURFACES[4]:

The Center for Disease Control and Prevention (CDC) provides extensive recommendations regarding disinfection and sterilization. Disinfectant selection should be based as follows:

- An EPA-registered hospital disinfectant should be used for housekeeping purposes in patient care areas.
- Spills of blood or other potentially infectious materials (OPIM) must be disinfected using an EPA-registered tuberculocidal agent, a registered EPA product with specific label claims for HIV or HBV, or freshly diluted hypochlorite solutions.
- If using sodium hypochlorite solutions; small spills (<10 mL) of blood or OPIM can be treated with a 1:100 dilution, large spills (>10 mL) should treated with a 1:10 dilution. This can be followed with a terminal disinfection using a 1:100 dilution.
- An EPA-registered sodium hypochlorite product is preferred but generic, household bleach solutions (1:10 dilution) can be used.
- Use of sodium hypochlorite solutions is recommended for *Clostridium difficile* spores.

CUSTODIAL OPERATIONS:

Custodial Operations may be responsible for cleaning and disinfecting areas connected to patient care areas (e.g. restrooms, waiting rooms). Custodial Operations must be contacted to be made aware of any potential changes to disinfectant requirements, frequency of cleanings, or for specific requests in these areas.

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REFERENCES:

1. Disinfectant Selection: Cornell University, Environmental Health and Safety
2. United States Environmental Protection Agency
3. OSHA, Occupational Exposure to blood borne pathogens
4. CDC Guidelines for Disinfection and Sterilization in Healthcare Facilities, 2008