

LEVELS OF DISINFECTION:

CRITICAL: enters sterile tissue or vascular system (needles, scalpels, implants).

STERILIZATION: a process by which all forms of microbial life, including bacteria, viruses, spores, and fungi are destroyed.

SEMICRITICAL: touches mucous membranes (flexible endoscopes, endotracheal tubes etc).

HIGH LEVEL DISINFECTION: kills vegetative bacteria, tubercle bacillus, fungi, lipid and non-lipid viruses but not necessarily high numbers of bacterial spores.

NON CRITICAL: touches intact skin (stethoscopes, table tops)

INTERMEDIATE/LOW LEVEL DISINFECTION: kills most vegetative bacteria. Variation on tubercle bacilli and spores.

It is important in all sterilization and disinfection that bio burden (dirt) be eliminated to facilitate sterilization/disinfection.

METHODS:

STEAM: gold standard

pro:

highly effective

nontoxic

inexpensive

con:

items must be heat and moisture resistant

ETO (ethylene oxide)

pro:

low temp, humidity

con:

difficult to monitor

length of cycle time

toxic to patients, staff and environment

LIQUIDS:

PARACETIC ACID

pro:

broad spectrum of activity

innocuous decomposition

con:

oxidizing agent-can be corrosive

unstable when diluted

HYDROGEN PEROXIDE:

Pro:

broad spectrum effectiveness

environmentally friendly

Con:

may cause a pseudomembrane-like enteritis and

colitis if not rinsed properly

may damage some scopes

aldehydes (gluteraldehyde)

pro:

it works

safe with a variety of instruments

con:

mucous membrane/respiratory irritation in staff

irritation in patients if not properly rinsed

ortho-Phthalaldehyde (Cidex OPA)

pro:

not irritating to respiratory tract

works with a variety of instruments

con:

can stain skin of patients and staff

can stain instruments if not properly rinsed

ENVIRONMENTAL DISINFECTANTS

alcohol

pro:

effective

fast acting

non staining

con:

requires 5 min contact

not sporicidal

no residual activity

damage equipment

dry skin

halogens

(chlorine)

pro:

broad spectrum

low cost

low level irritation/toxicity

con:

corrosive

not sporicidal

some produce carcinogens

iodophors

pro:

effective

versatile

rapid action

low toxicity/irritation

con:

corrosive to metal

may burn tissue

inactivated by organic matter

may stain material

phenolics

pro:

wide spectrum of activity

residual activity

con:

film build up on surfaces

skin irritation and depigmentation

not sporicidal

inactivated by organic matter

improper use-liver damage

quaternary ammonium compounds

pro:

less irritating to hands

“wetting” agent

effective against fungi, bacteria, lipophilic viruses

con:

not sporocidal, tuberculocidal, or against hydrophilic viruses

depressed activity in presence of organic material

active ingredient absorbed by various materials (cotton, wool)

incompatible with soap

REFERENCES:

CDC:

GUIDELINE FOR HANDWASHING AND HOSPITAL ENVIRONMENTAL CONTROL, 1985

Currently being updated

APIC

www.APIC.org

(ASSOCIATION FOR PROFESSIONALS IN INFECTION CONTROL AND EPIDEMIOLOGY)

“APIC INFECTION CONTROL AND APPLIED EPIDEMIOLOGY: Principles and Practice”

MOSBY 1996

See section E “Cleaning, Disinfection and Sterilization”

AORN

(Association of Operating Room Nurses)

**Standards, Recommended Practices & Guidelines
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