

Safe And Effective Use Of Bleach For Disinfection In Healthcare



Agenda

Introductions

Bleach Use in Dialysis

Reflection

Questions

Learning Objectives

Explain why bleach is an effective disinfectant

Explain the difference between sanitation and disinfection

Identify contact times when using bleach as a disinfectant

Discuss effective bleach dilution for use in healthcare settings

Identify PPE needed when using bleach



Bleach



Sodium Hypochlorite

is the active ingredient that kills bacteria, fungi, and viruses, including COVID-19 and Influenza.



Bleach-PROS

Strong and effective disinfectant, killing bacteria, bacterial spores, fungi, and viruses

Widely available

Low cost

Recommended surface disinfectant for healthcare facilities

Bleach-CONS

Bleach expires 1 year from production. Avoid overstocking.

Loses potency if stored incorrectly

- Keep out of direct sunlight and temps > 77 F
- Discard unused mixtures 24 hours after preparation

Potency reduces over several months after opening, even with proper storage, so that standard dilutions are not longer effective.

Emits a toxic gas when exposed to direct sunlight or when mixed with certain chemicals (e.g., vinegar).

Deactivated by organic materials (i.e., surfaces must be cleaned before use to be effective).

SANITIZATION VS DISINFECTION

Sanitization

- Use to make something clean and hygienic by using water, detergent, and friction
- Reduces pathogenic agents on surfaces
- Used in areas where food is prepped or eaten

Disinfection

- Sanitization is done prior to disinfecting
- Use of chemicals that work by killing any remaining germs on surfaces
 - ✓ Use and EPA-registered hospital disinfectant
 - ✓ Follow label instructions for proper use



Contact Times

Nonporous surfaces
by wiping : contact
time of \geq to 10
minutes

Disinfection by
immersion of items:
contact time of 30
minutes

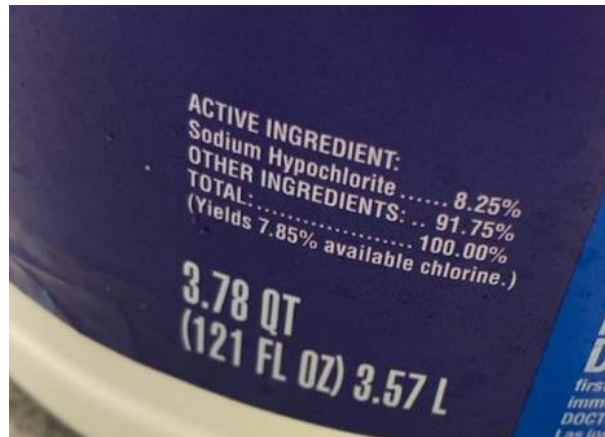
Diluted household
bleach disinfects
within 10-60 minutes
contact time

Contact times vary
for different uses

All surfaces should be
wet with disinfectant
and allowed to air dry



BLEACH DILUTION CALCULATOR



Bleach concentration	%
Desired chlorine concentration	ppm ▼
Desired chlorine volume	US gal ▼
Required bleach volume	US fl oz ▼

Bleach: Recommended Dilution

Nonporous Surfaces

1:100 dilution (500-615 ppm) of 5% sodium hypochlorite is the usual recommendation for disinfection or 500 ppm.

Bleach concentration	8.25 %
Desired chlorine concentration	500 ppm ▾
Desired chlorine volume	1 US gal ▾
Required bleach volume	24.09 ml ▾

Bleach concentration	5 %
Desired chlorine concentration	500 ppm ▾
Desired chlorine volume	1 US gal ▾
Required bleach volume	39.75 ml ▾

Is it better to have a higher than recommended concentration?

Potential to injure workers and patients

- Toxic gas when exposed to sunlight
- It is an irritant and can burn tissue!
 - mucous membranes
 - skin
 - airways
- Damaging to surfaces-can erode metals and surfaces

Bleach: Recommended Dilution

Blood Spills

Blood Spills: 1:10 dilution (5,000-6,150 ppm)

Bleach concentration	8.25 %
Desired chlorine concentration	5,000 ppm ▾
Desired chlorine volume	1 US gal ▾
Required bleach volume	240.9 ml ▾

Bleach concentration	5 %
Desired chlorine concentration	5000 ppm ▾
Desired chlorine volume	1 US gal ▾
Required bleach volume	397.5 ml ▾

PPE USE during preparation and use of bleach

Protect your eyes, mouth and nose from splashes



Protect your skin



Key Take-aways

Do

- Do-Clean the surface prior to disinfection

Do

- Do-Use regular, unscented bleach containing 5%-9% sodium hypochlorite

Do

- Do-Read and follow the directions on the product container

Do

- Do-Wash your hands after removing gloves and cleaning and disinfecting

Do

- Do-Cover bleach solutions to slow degrade

Key Take-aways

Do Not

- Do not-Mix bleach with other cleaners, vinegars, ammonia, or acids

Do Not

- Do not-Touch your eyes

Do Not

- Do not-Inhale bleach fumes

Do Not

- Keep bleach solution over 24 hours after mixing

RESOURCES

CDC

[Cleaning and Disinfecting With Bleach | CDC](#)

[Environmental Surface Disinfection in Dialysis Facilities: Notes for Clinical Managers \(cdc.gov\)](#)

NIH-National Library of Medicine

[Use of disinfectants: alcohol and bleach - Infection Prevention and Control of Epidemic- and Pandemic-Prone Acute Respiratory Infections in Health Care - NCBI Bookshelf \(nih.gov\)](#)

OMNI Calculator

[Bleach Dilution Calculator \(omnicalculator.com\)](#)

WHO (Infographics)

[bleach-dilution-and-guidance-for-visitors-20200622.pdf \(who.int\)](#)

