
XYLEX™
PROTECT
POWERED BY BIOSAFE®

Why do we need XYLEX™ PROTECT?

General disinfectants

- When used properly, disinfectants work temporarily, but sometimes incompletely, on a variety of high-touch surfaces

Surface cleanliness

- Surfaces can harbor germs through microbial exponential regrowth, or recontamination between cleaning over the course of 24hrs

Healthcare-associated infections (HAIs)

- High-touch surfaces are a known vector for the spread of HAIs, and it is not feasible to clean and disinfect all surfaces every hour, or even every several hours, so a barrier product is very advantageous

What is XYLEX™ PROTECT?

XYLEX™ PROTECT is a safe and clinically proven clean surface technology. It…

- Clean surface technology protects surfaces with by a barrier mechanism
- Enables more thorough and complete disinfection
- Helps maintain consistently low ATP levels for 30 days when part of a standard cleaning and disinfection protocol

Disinfection in the Healthcare System

High-touch surfaces in hospitals must be disinfected daily to maintain safety

Cleanliness is assessed by measuring ATP (adenosine triphosphate) levels in relative light units (RLUs)

Results can be obtained in 15s giving instantaneous feedback on cleanliness levels

- < 25 RLUs for general hospital
- < 10 RLUs for operating room

⚠ Transmission of HAIs (healthcare-associated infections) is related to contaminated surfaces and equipment.

Regimented disinfection efforts are linked to a reduction of bacterial transmission and control over HAI outbreaks.

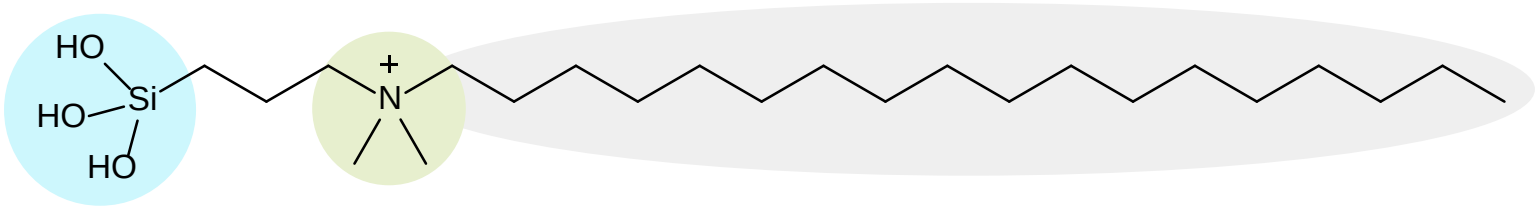
Levels can reach 10,000+ RLUs in high-touch areas *<u>with disinfection!</u>*

Cleaning procedure:

- Disinfect high-touch surfaces (general disinfectant cleaning)
- Measure ATP level to confirm it is below required level
- Disinfect surface again 12-24 hours later

Clean Surface Technology

BIOSAFE uses a silane quat technology

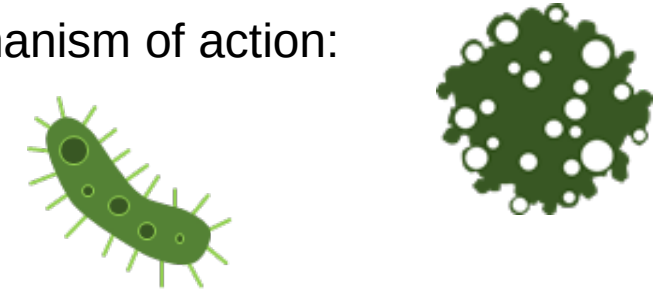


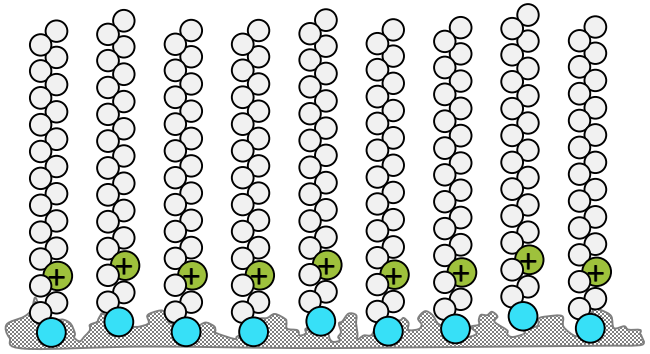
Hydroxyl groups can bind to surface, immobilizing the molecule

Positive charge on nitrogen electrostatically attracts negatively-charged microbe membranes

Long alkyl chain inserts into microbe membranes, exposing the DNA and disabling the microbes

Mechanism of action:



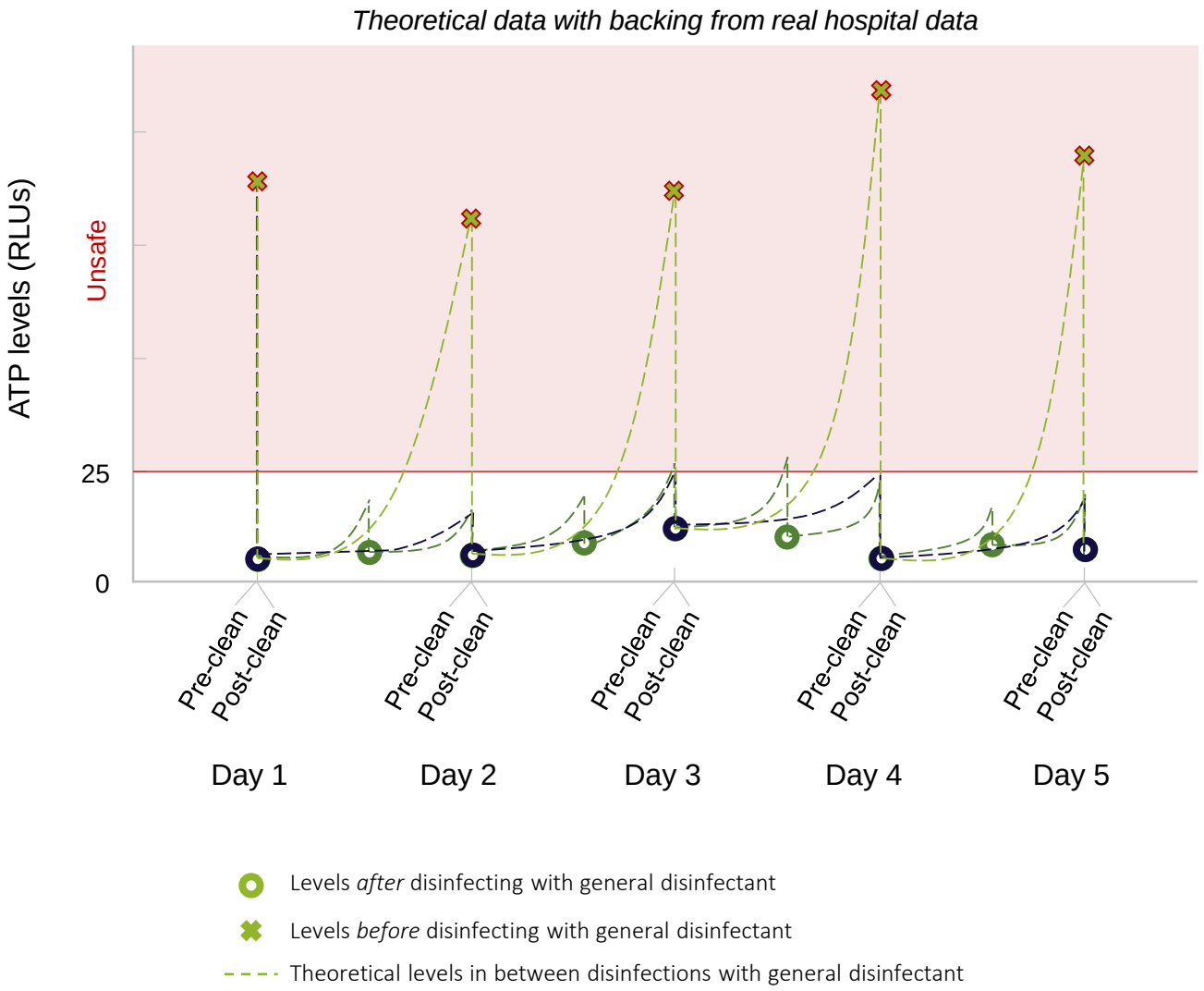


Gelest's collaboration with a hospital system has allowed us to collect clinical data on our product's use

Keeps surfaces clean!

- ✓ No leaching or migration of ingredients
- ✓ Protects the surface from microbial colonization
- ✓ Provides a long-lasting clean
- ✓ Easy surface coverage

How to Avoid Unsafe Conditions



Option 1. Increase frequency of cleanings and disinfections

- 2x cleaning time
- 2x number of employees
- 2x supplies

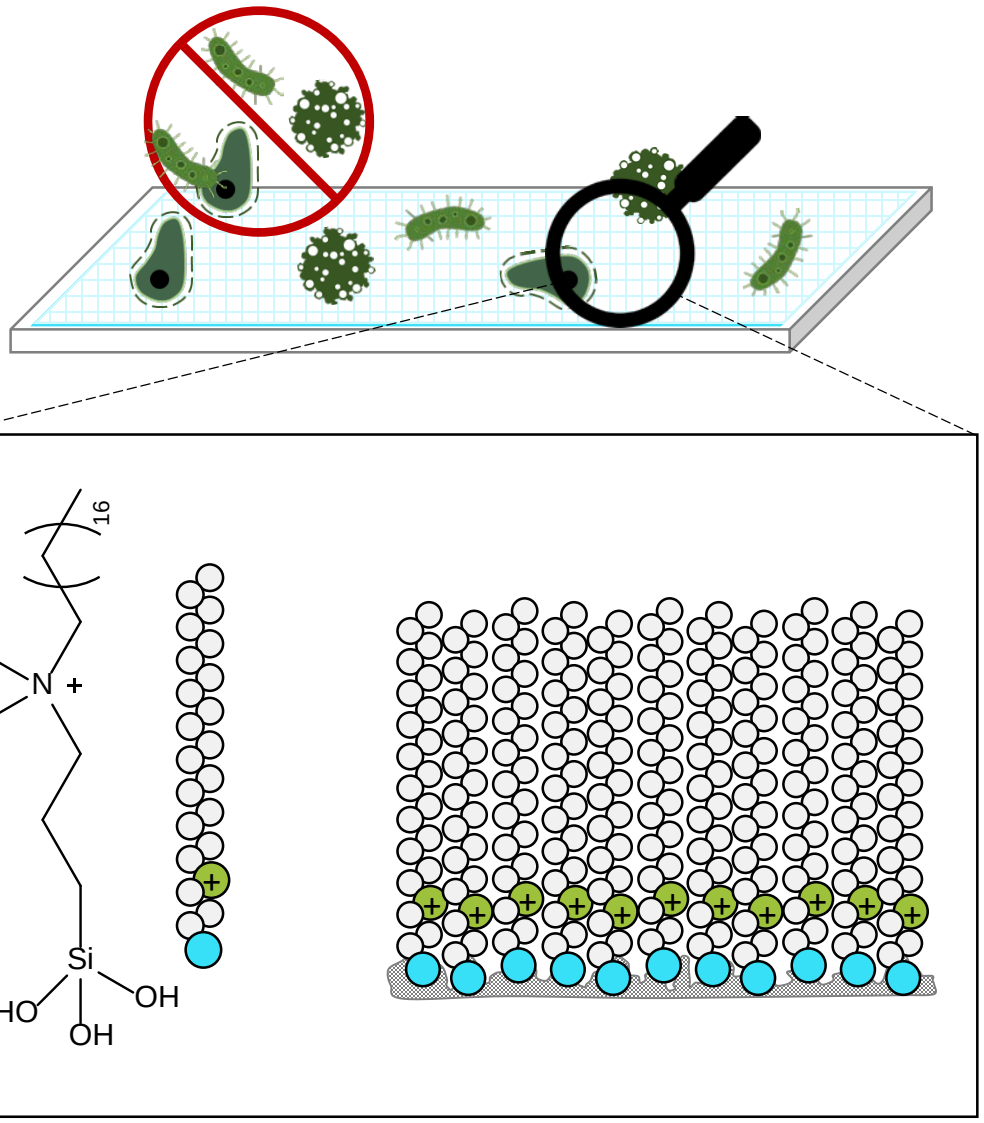
Big cost

Option 2. Protect the surface from microbial growth

- + 5-10 minutes
- + 0 employees
- + XYLEX 1x/month

Small cost

How Does XYLEX (powered by BIOSAFE) Work?



1. Clean and disinfect surface

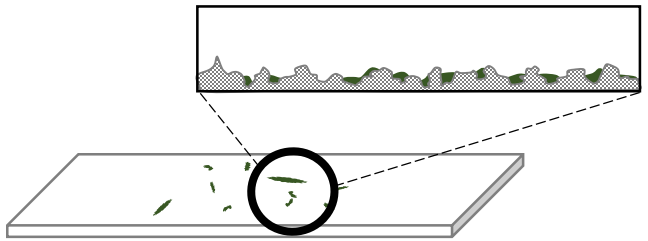
2. Apply XYLEX and *let dry*

3. XYLEX creates a molecular barrier on the surface that protects against microbes

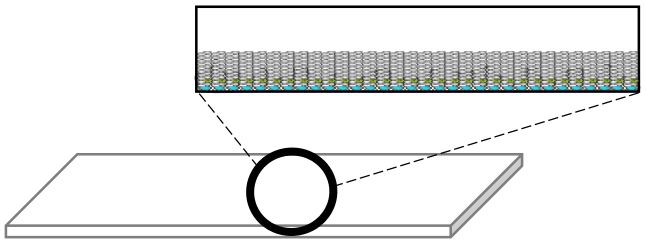
Active ingredients in Biosafe create a self-assembled monolayer

This self-assembled monolayer does not support microbial growth

The monolayer act as a smooth surface that makes general disinfectants more effective than cleaning on a rough, porous surface

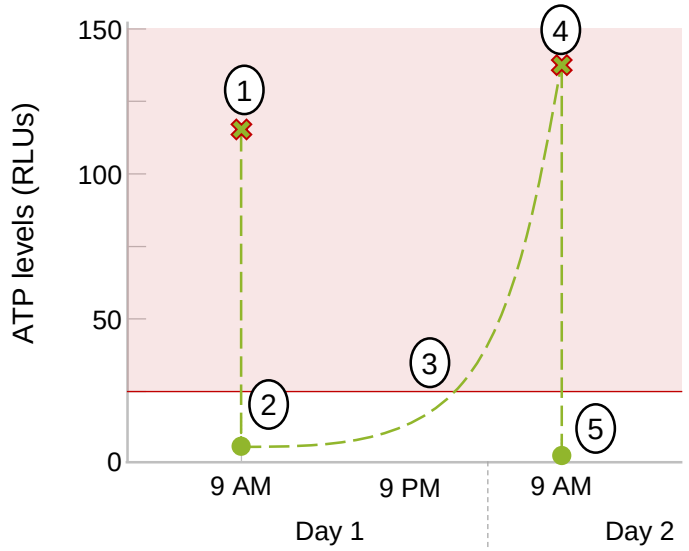


Untreated surface

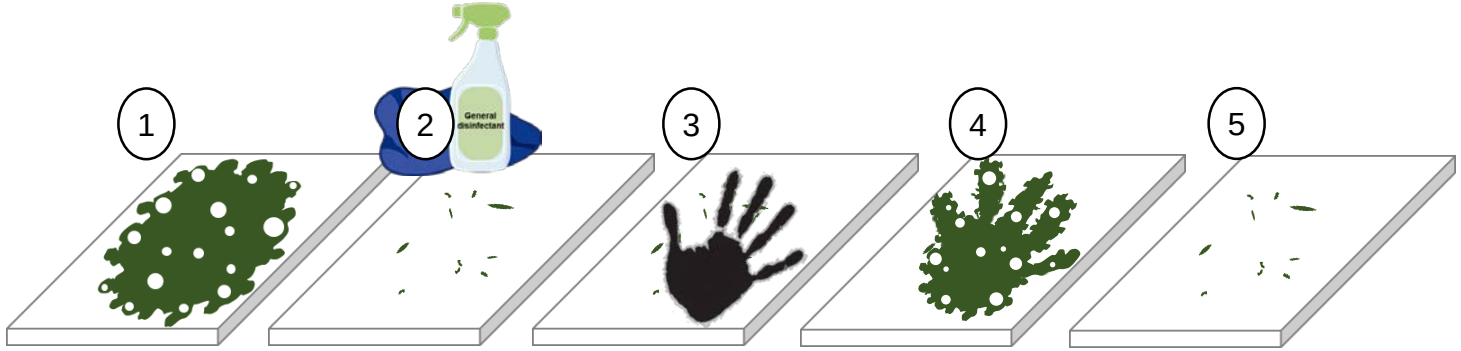


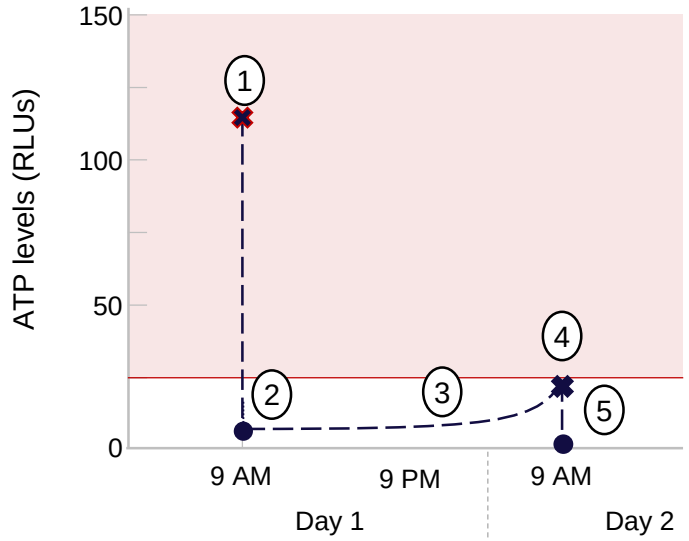
XYLEX-treated surface

XYLEX Technology on Surfaces

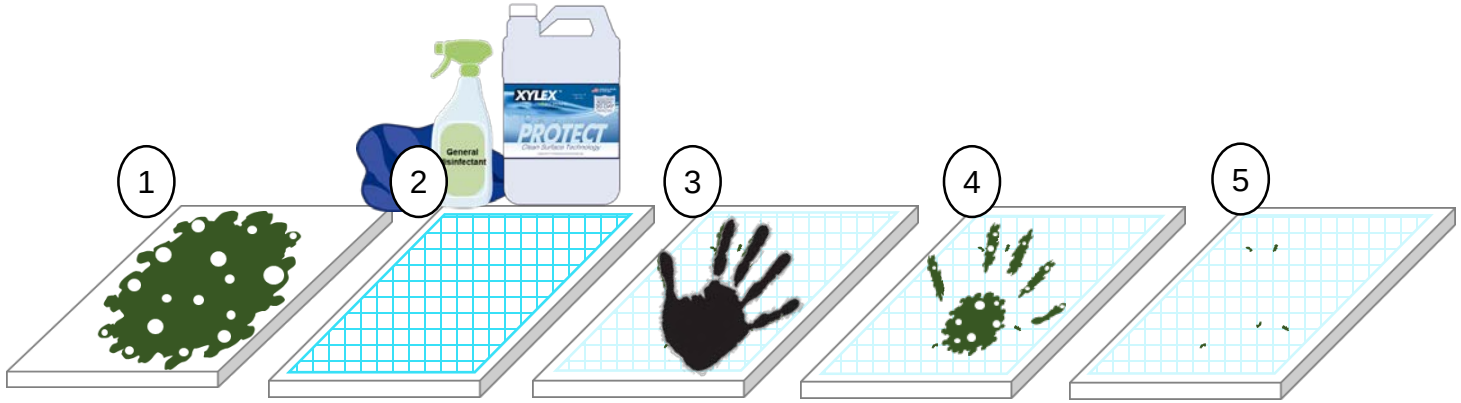


Disinfection on *untreated* surfaces





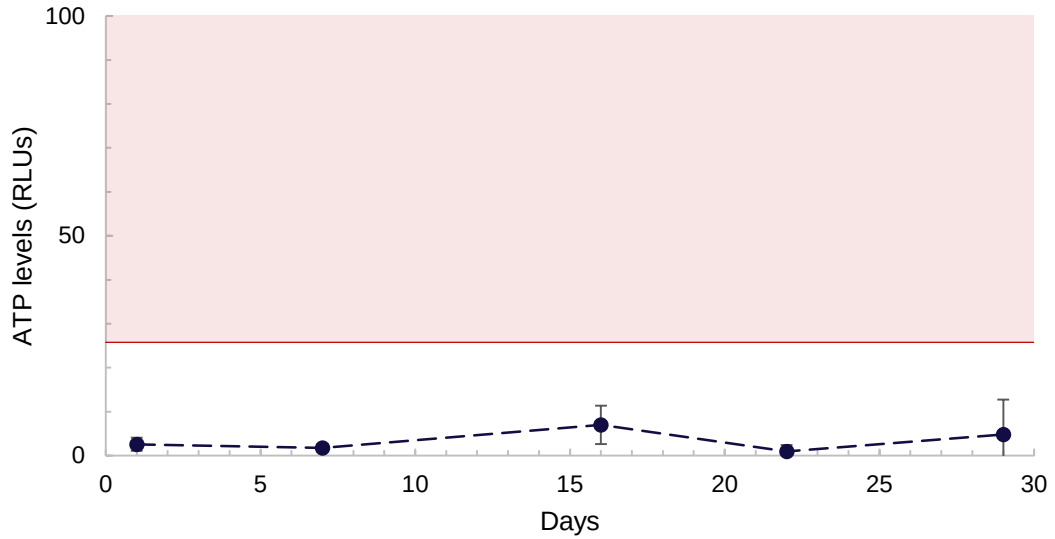
Disinfection on *XYLEX-treated* surfaces



Cleaning with XYLEX PROTECT

General Safety: XYLEX PROTECT used 1x per month

Tested on several high-touch locations
(bathroom doorknobs, sink handles, toilet handles, handrails, light switches)



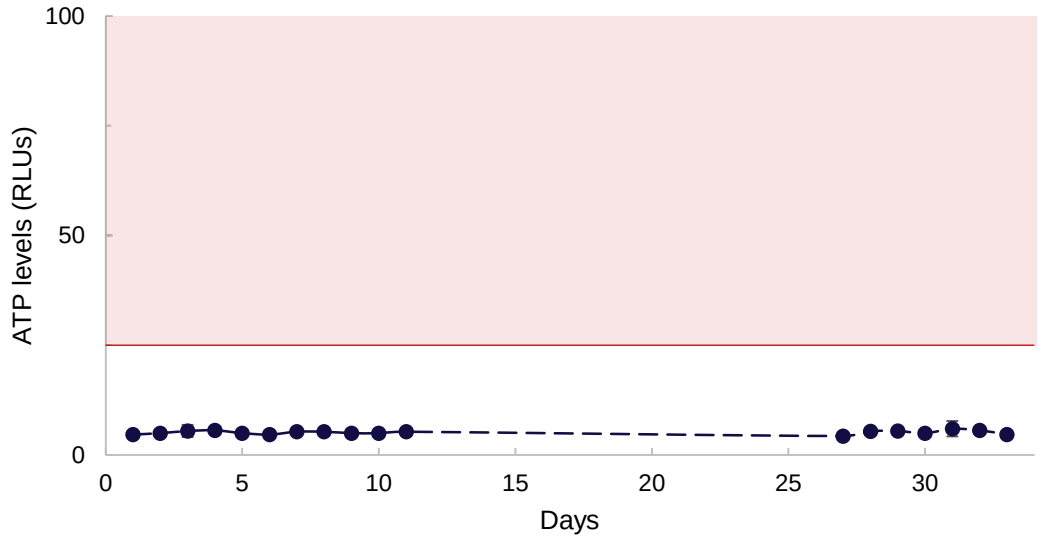
Day 1	Cleaning with general disinfectant + XYLEX PROTECT
Days 2-29	Daily cleaning with general disinfectant

*ATP levels measured **before** each daily clean (pre-cleaning)*

Data from hospital applying XYLEX PROTECT on day 1 and using regular hospital cleaning protocol on subsequent days

Maximum Safety: XYLEX PROTECT used daily

For higher risk environments, i.e. emergency rooms, operating rooms, intensive care units, neonatal units

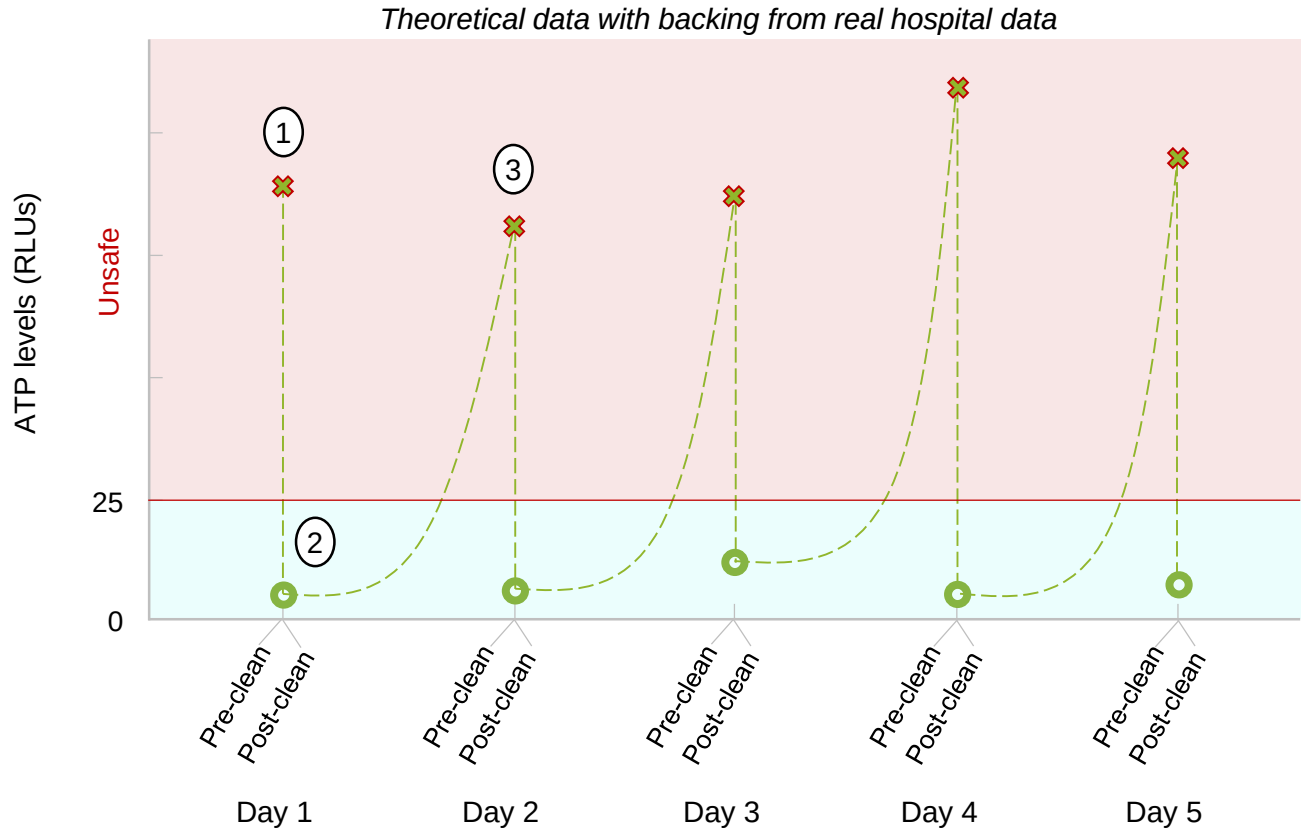


Days 1-34	Daily cleaning with general disinfectant + XYLEX PROTECT

*ATP levels measured **before** each daily clean (pre-cleaning)*

Data from hospital using regular hospital cleaning protocol and applying XYLEX PROTECT daily

What Happens in between Disinfections?



Levels *after* disinfecting with general disinfectant

Levels *before* disinfecting with general disinfectant

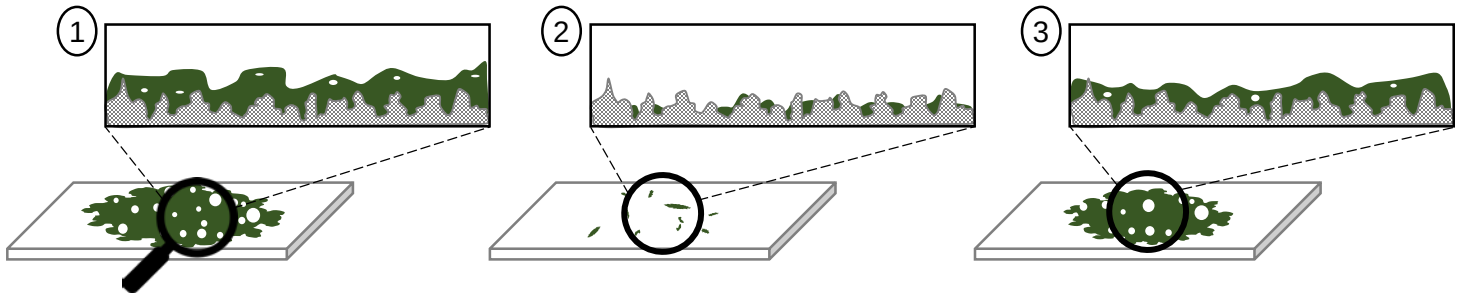
Theoretical levels in between disinfections with general disinfectant

Microbe levels increase exponentially as time increases

ATP levels naturally increase between cleanings which can lead to unsafe surfaces

Current lapses in disinfection

- Fast, urgent influx of patients often rushes cleaning protocols
- Number of individuals performing cleaning leads to inconsistencies
- Safe ATP levels rely heavily on *frequent*, *thorough* disinfections



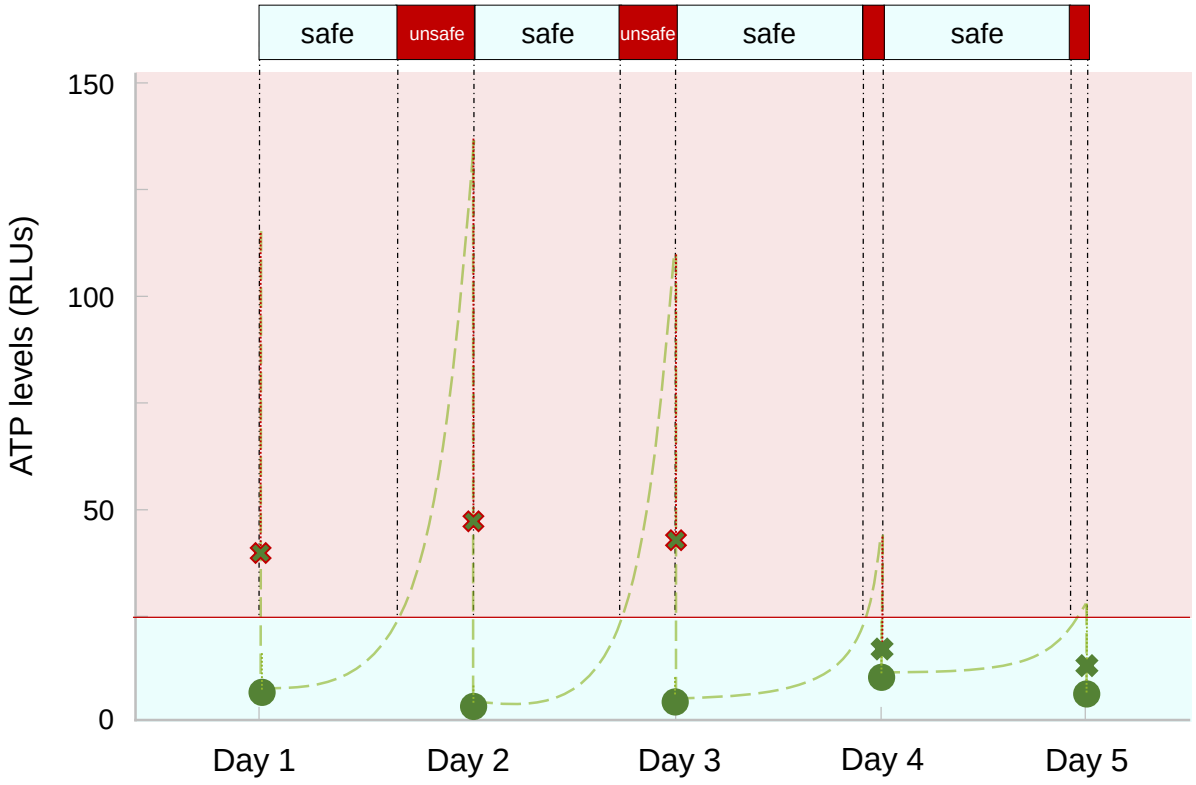
Can lead to

- Unsafe environment for employees and patients
- Costly patient infections ($16k/infection on average)

Cleaning with XYLEX™ PROTECT

Disinfection on *untreated* surfaces

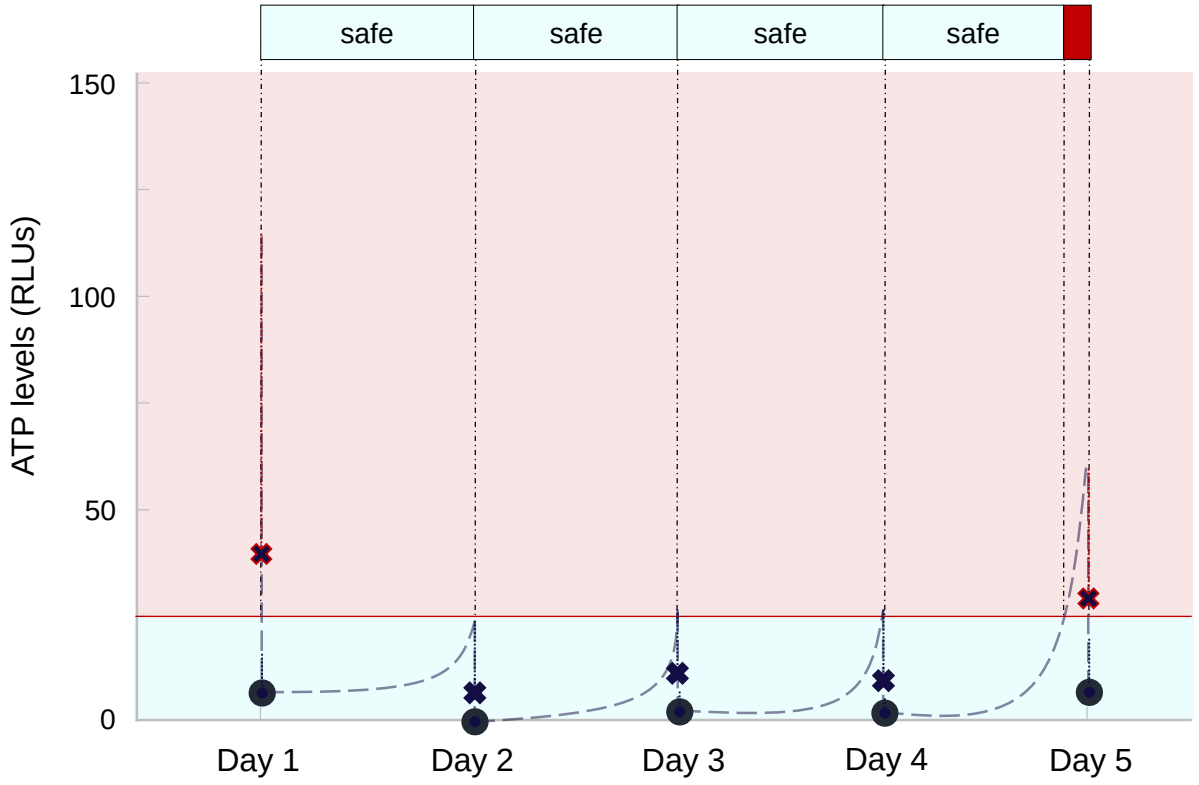
Data from hospital using best-practice hospital disinfecting protocol



Inconsistencies in cleaning combined with microbial growth, lead to ***unsafe conditions 10-30% of the time***

Disinfection on *XYLEX™-treated* surfaces

XYLEX™ PROTECT applied day 1; regular hospital disinfecting protocol on subsequent days



Surfaces stay safe and clean despite cleaning inconsistencies

With an increased need for cleaning and safety during the pandemic, XYLEX™ PROTECT can be used in public spaces as well. Easy application for public restrooms, elevators, door handles, keyboards, etc.

HOW TO USE?

DO

- Clean and disinfect surface before applying
- Spray on or soak/wet a clean microfiber towel and apply liberally
- Leave surface wet with XYLEX™ PROTECT and **allow to dry**
- Buff any haziness off of high-gloss surfaces
- Reapply at least once per month

DO NOT

- Use XYLEX™ PROTECT in the place of a disinfectant
- Wipe the surface dry – you will remove the barrier protection
- Mix with other chemicals or cleaners
- Dilute
- Worry – XYLEX™ PROTECT is working 24/7