



# **XYLEX™** PROTECT

POWERED BY  BIOSAFE®

Active Ingredient: 3-(Trihydroxysilyl) propyldimethyl octadecyl ammonium chloride

CAS#: 199111-50-7



# 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 **with disinfection!**



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

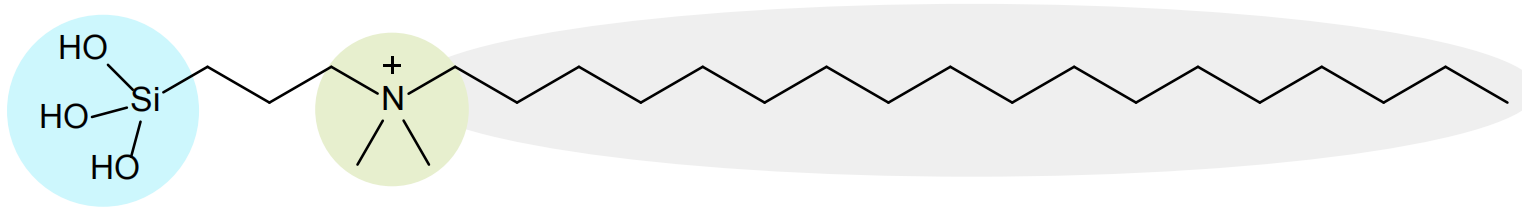




# Clean Surface Technology (CAS#: 199111-50-7)



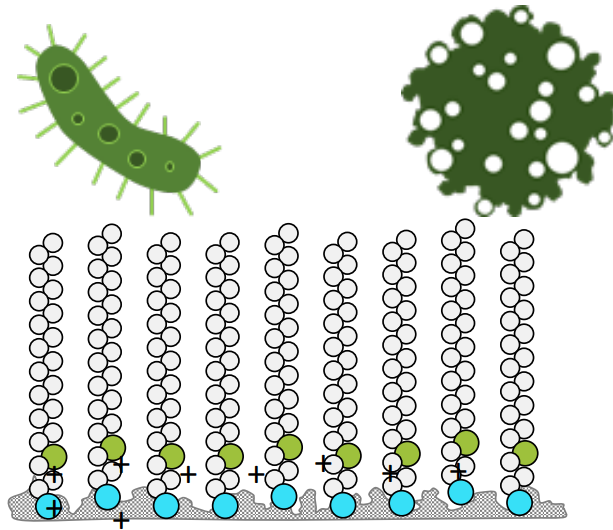
**BIOSAFE uses a silane quat technology**



**Active Ingredient:** 3-(Trihydroxysilyl) propyldimethyl octadecyl ammonium Chloride

**Cas no.:** 199111-50-7

Mechanism of action:



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

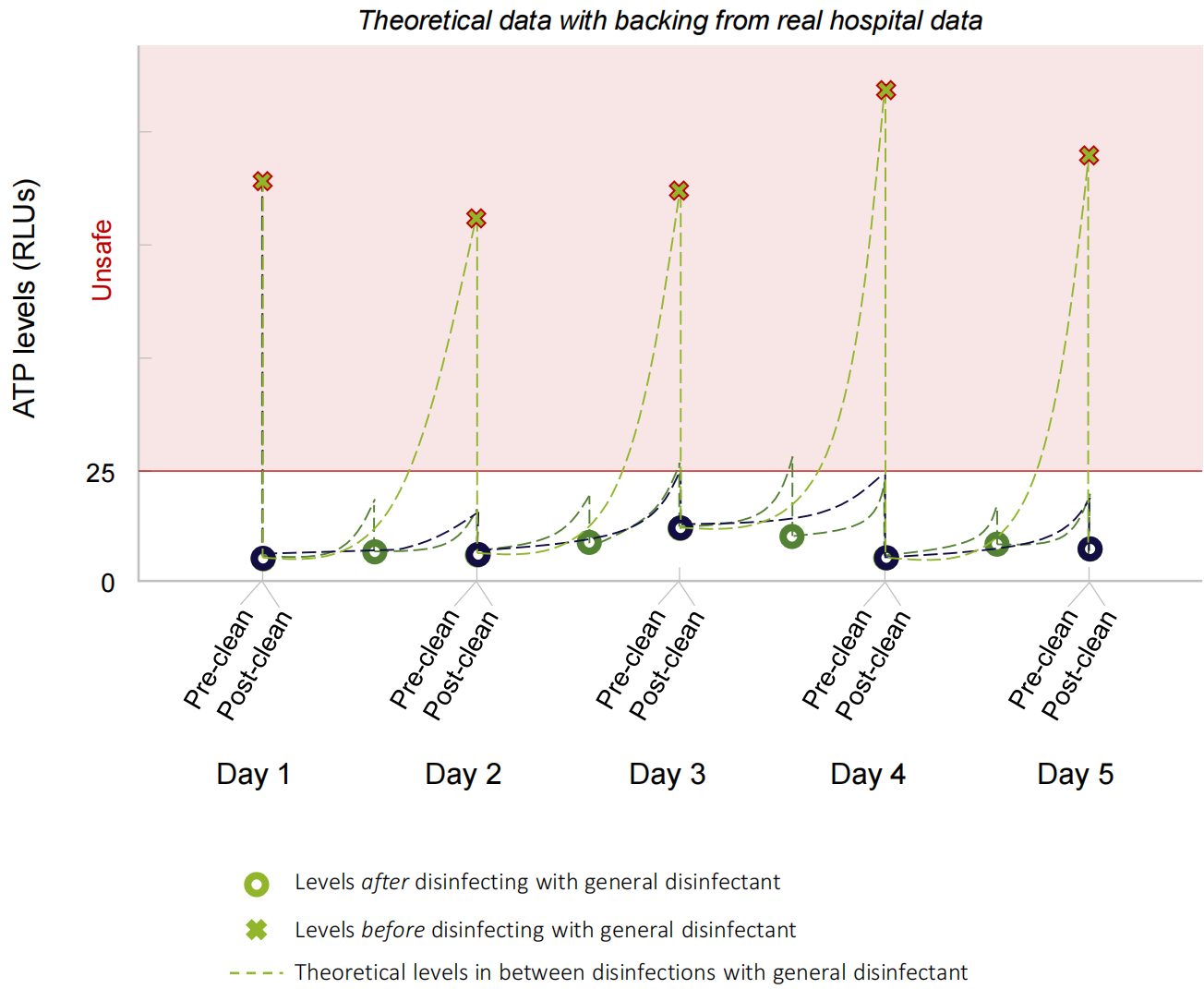
Gelest's collaboration with a hospital system has allowed us to collect clinical data on our product's use

**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

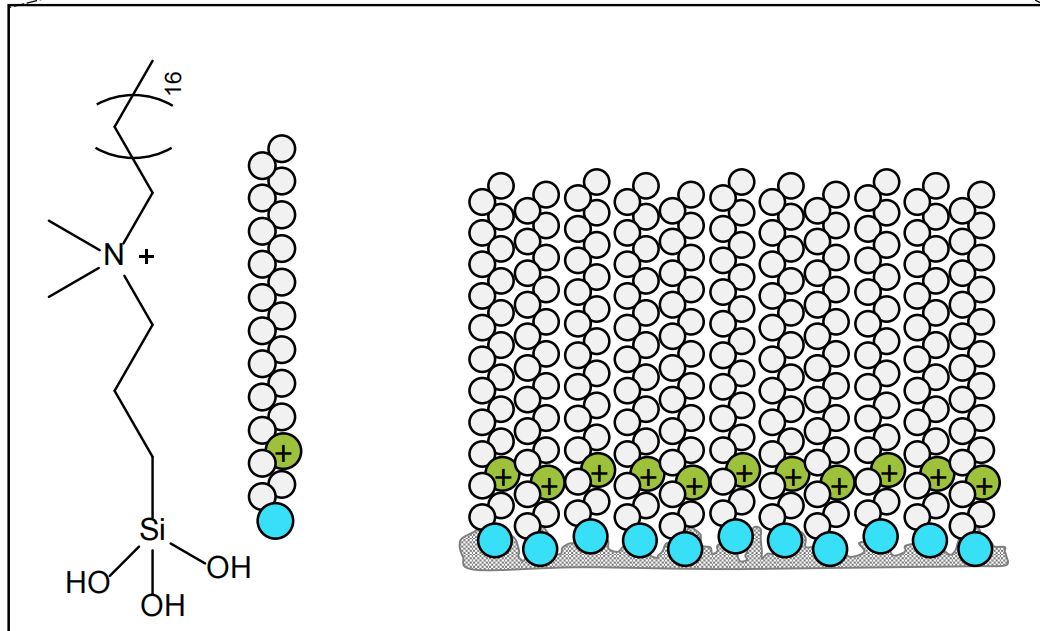
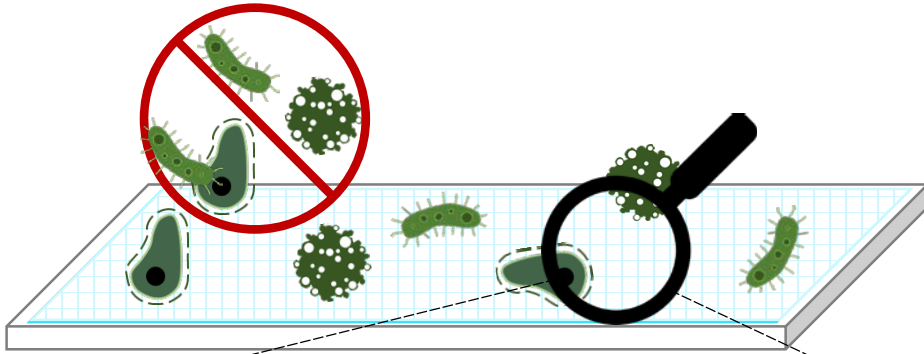
-  + 5-10 minutes
-  + 0 employees
-  + XYLEX 1x/month
-  Small cost



# 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



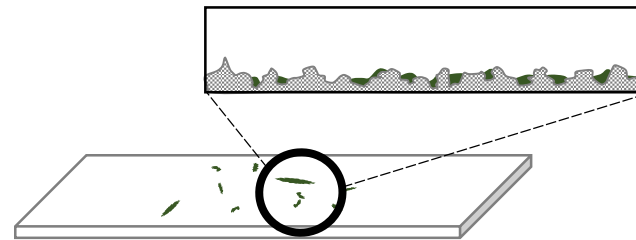
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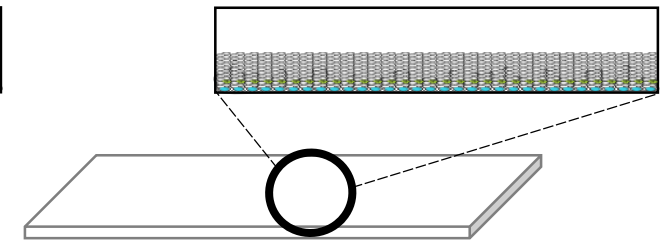
Active ingredients in Biosafe create a self-assembled monolayer

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

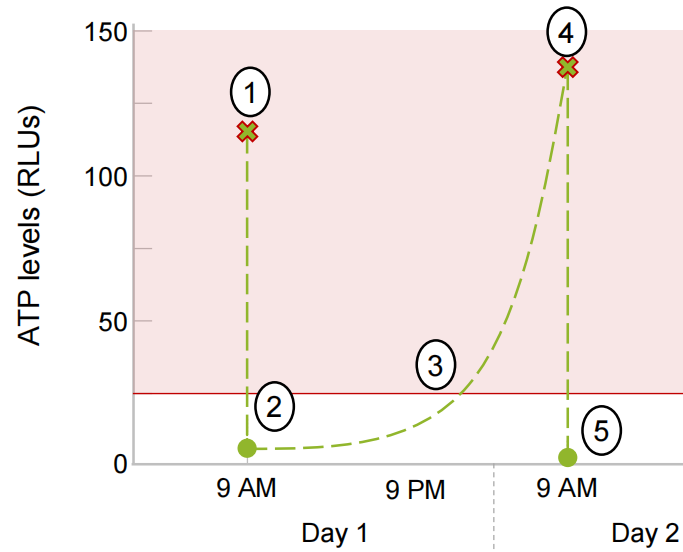


Untreated surface

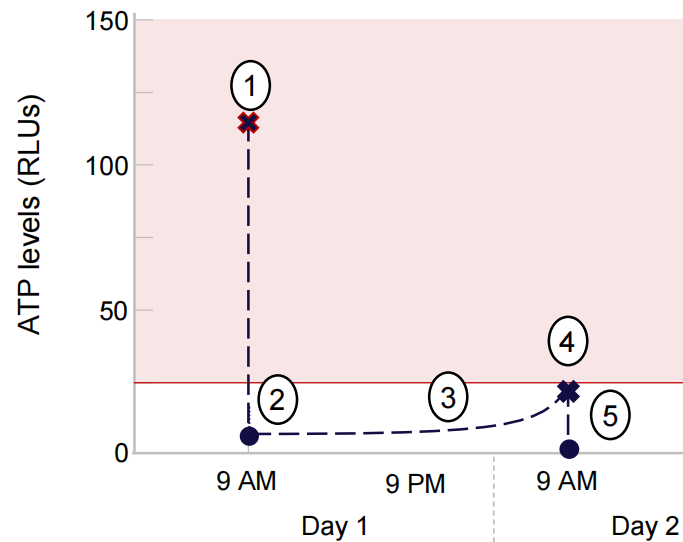
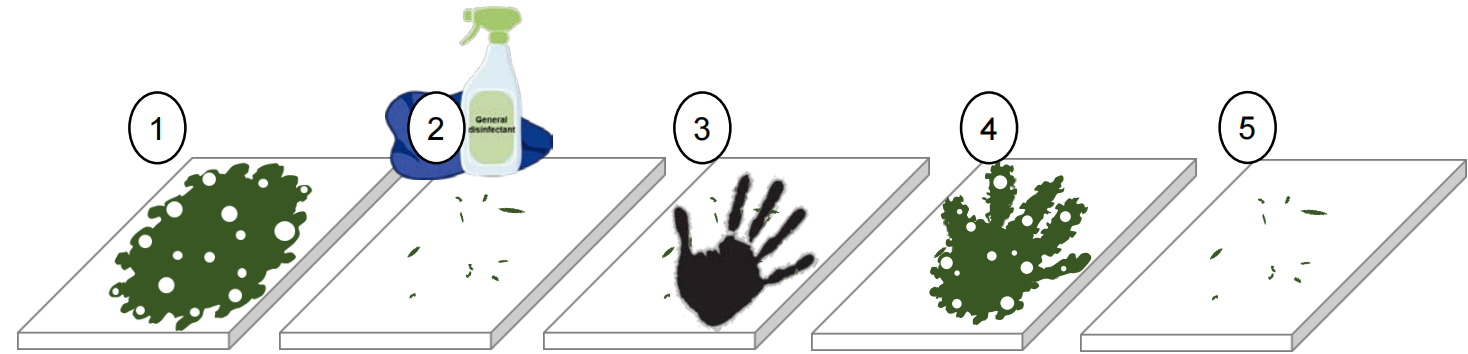


XYLEX-treated surface

# XYLEX Technology on Surfaces



Disinfection on *untreated* surfaces



Disinfection on *XYLEX-treated* surfaces

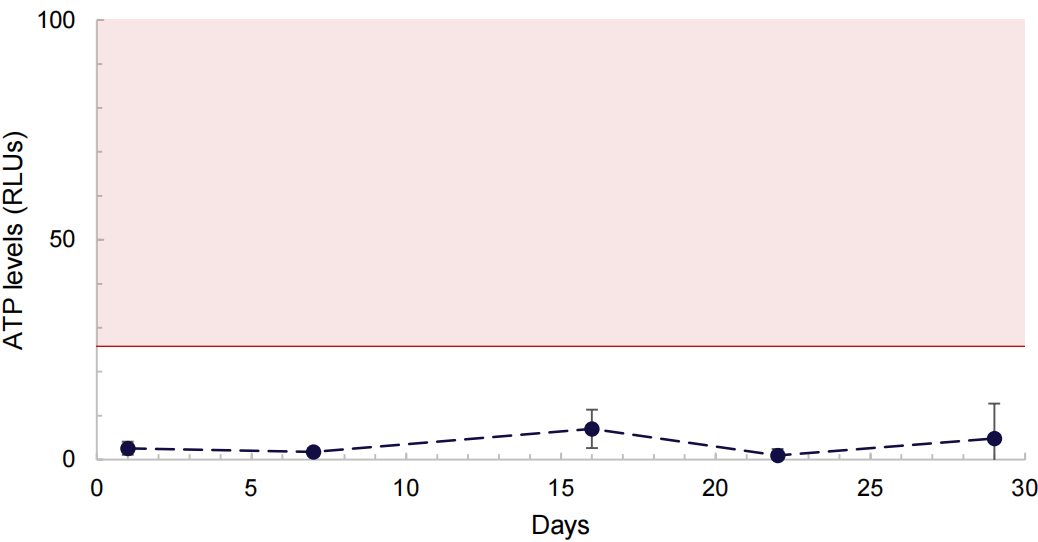




# Cleaning with XYLEX PROTECT

## General Safety: XYLEX PROTECT used 1x per month

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



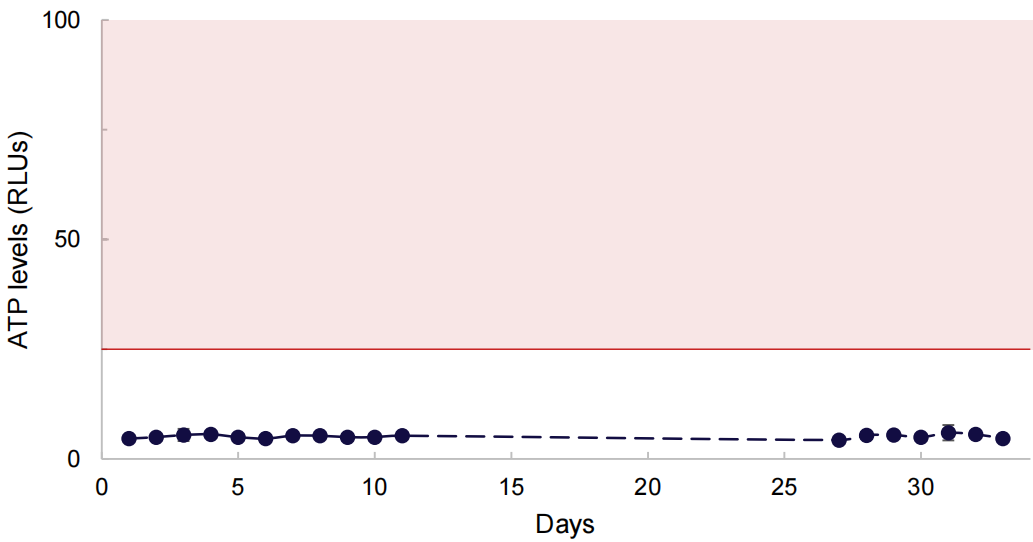
- Day 1
- Cleaning with general disinfectant + XYLEX PROTECT
- Days 2-29
- Daily cleaning with general disinfectant

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



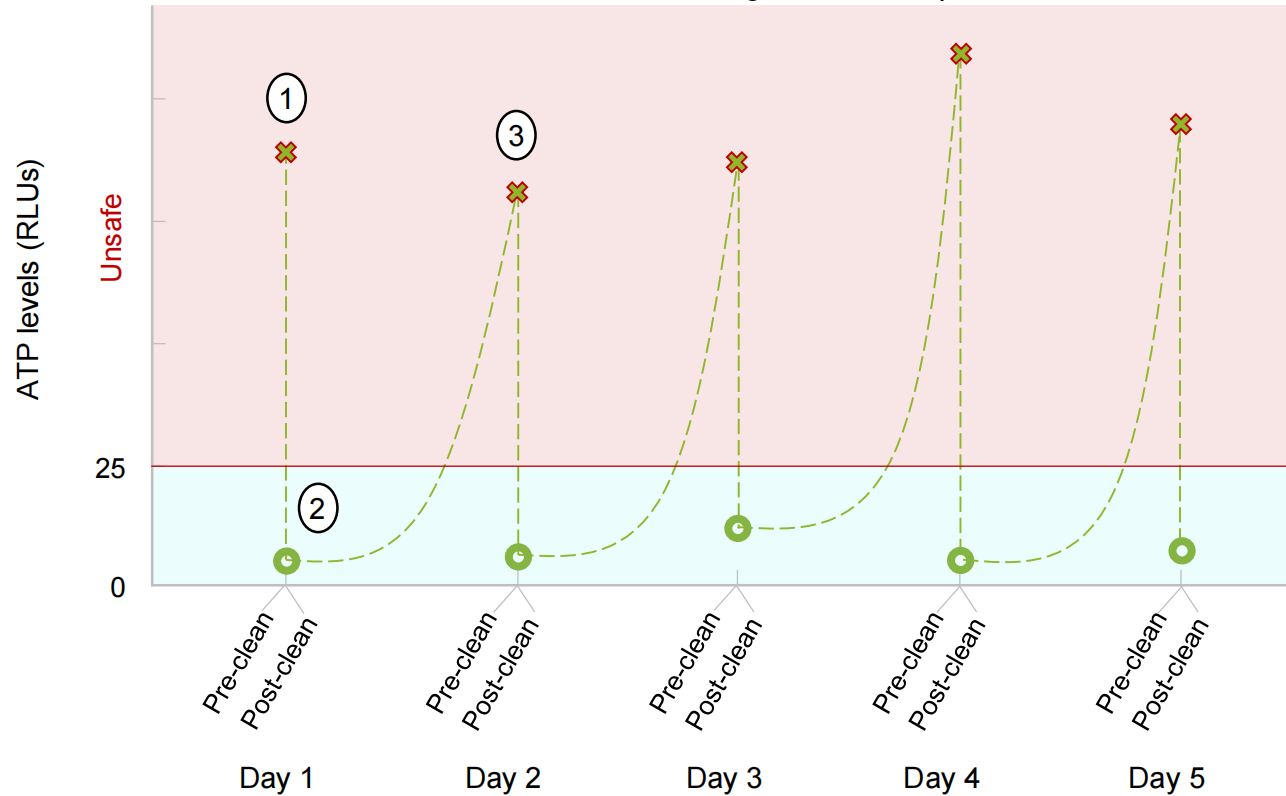
- Days 1-34
- Daily cleaning with general disinfectant + XYLEX PROTECT

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?

Theoretical data with backing from real hospital data



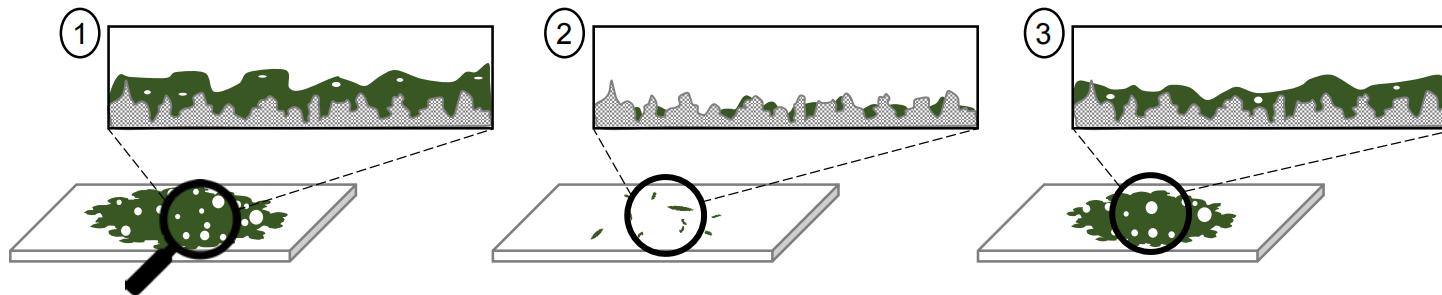
- Levels *after* disinfecting with general disinfectant
- ✕ Levels *before* disinfecting with general disinfectant
- Theoretical levels in between disinfections with general disinfectant

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



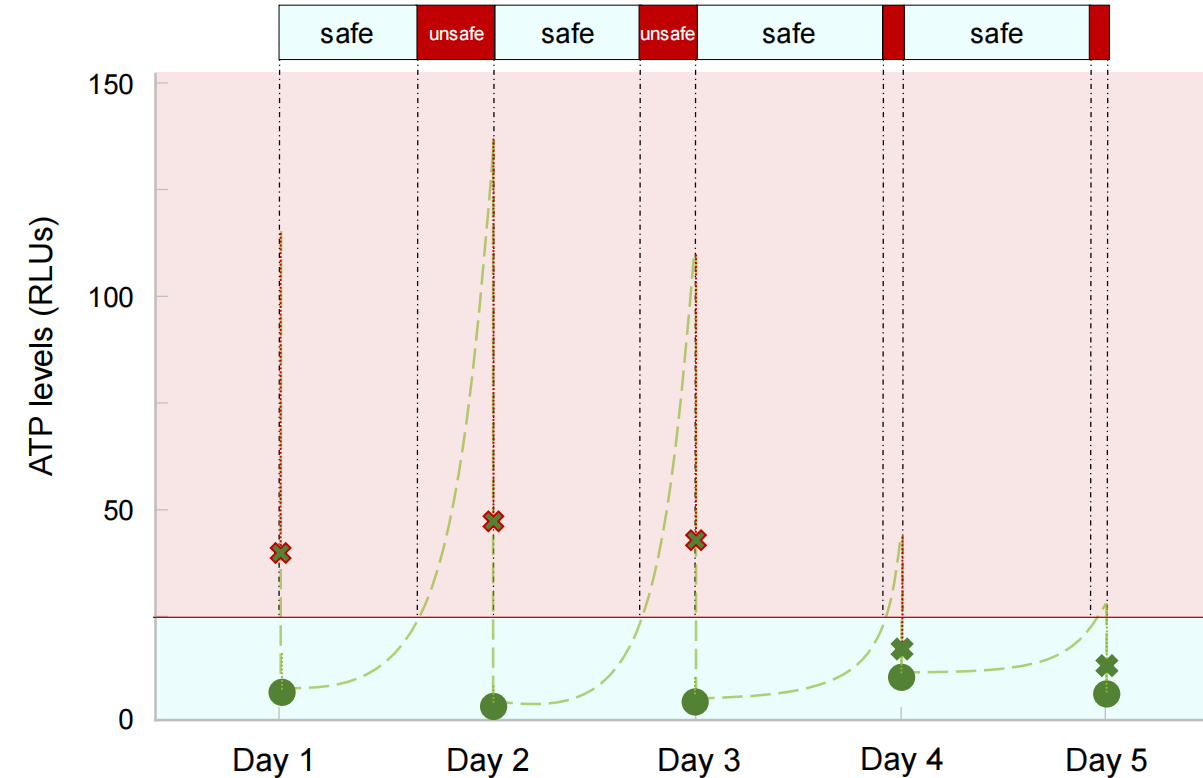
Costly patient infections (\$16k/infection on average)



# Cleaning with XYLEX™ PROTECT

## Disinfection on *untreated* surfaces

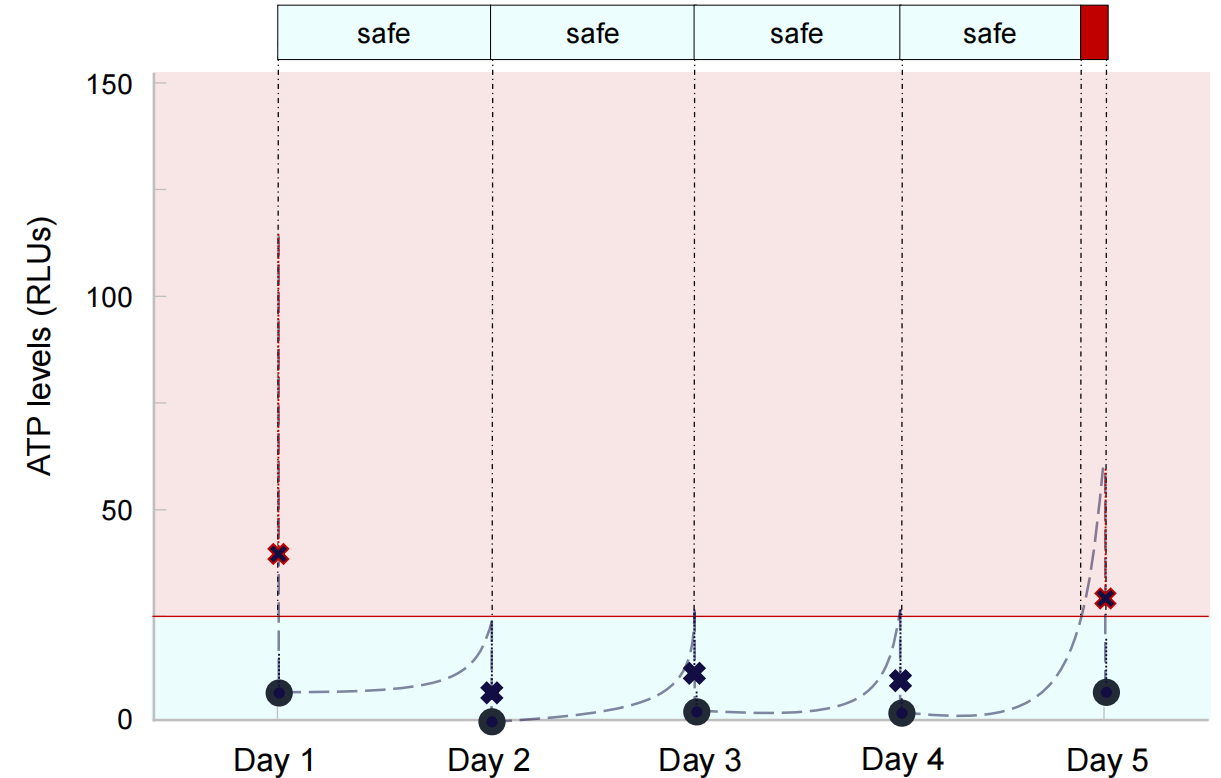
Data from hospital using best-practice hospital disinfecting protocol



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

