



**Getting the Bugs Out of the
System:**

Infection Control Concepts for EMS

**George Ralls MD, FACEP
Eagles 2010**

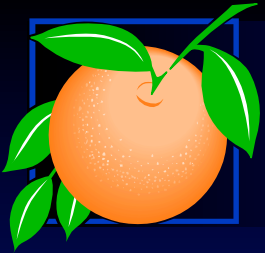
The background is a dark blue gradient. In the center, there is a circular frame made of a thin blue line. Surrounding this frame are several stylized, overlapping leaves in a lighter shade of blue. The leaves have a simple, elongated shape with a central vein.

No Disclosures

Eagles 2010







Concerning Pathogens

- **Methylcillin Resistant Staphylococcus Aureus (MRSA)**
- **Vancomycin Resistant Enterococcus (VRE)**
- **Clostridium Difficile (C. Diff)**
- **Klebsiella Pneumoniae**
- **Pseudomonas Aeruginosa**



Hepatitis, HIV, TB, Rotavirus, Norwalk, Influenza

**No studies have identified
quantitative relationships
between microbial
contamination levels and
health care associated
infection**



MRSA Colonization:

- ❖ General Population: 1%
- ❖ ED Workers: 16%
- ❖ EMS Workers: 15%



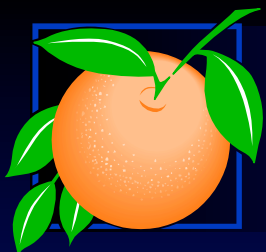
MRSA on 1/3 of EMS stethoscopes

**MRSA transmitted from
a colonized person to
household contacts in
approximately 50% of
cases**



**Over 25 studies
reported clear evidence
of MRSA transmission
from health-care
workers to patients**





Bioterrorism



- **Anthrax**
- **Plague**
- **Small Pox**
- **Botulism**
- **Tularemia**
- **Hemorrhagic Fever**

Cleaning: Removal of visible soil from objects and surfaces accomplished manually

Disinfection: Eliminates many or all microorganisms, except bacterial spores

Sterilization: Destroys or eliminates all forms of microbial life

Critical items: Enter sterile tissue

Semi-critical items: Contact mucous membranes or non-intact skin

Noncritical items: Contact intact skin



ZIMEK[®]
A Proven Technology
for Rapid Decontamination




Dri-Mist® Micro-Particle Generator





Quarternary Ammonium Compounds

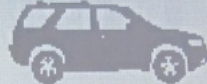
 Vision290™

Select a Vehicle

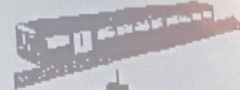
Automobile



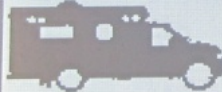
SUV



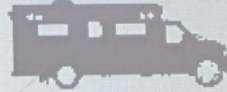
Other



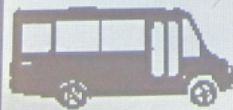
EMS / Van



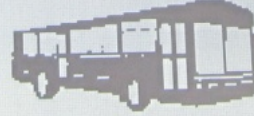
EMS (Extended)




Bus (Shuttle)



Bus (Full Size)




Esc

 UNITRONICS®

 **WARNING**

USE ZIMEK PRODUCTS ONLY

 Vision290™

Vehicle Calculation Results

EMS / Van
Periodic

Begin

Dri-Mist Time



00:15
hour : min




Dwell Time



00:10
hour : min



Esc

 UNITRONICS®

⚠ WARNING

USE ONLY UNITRONICS PRODUCTS ONLY

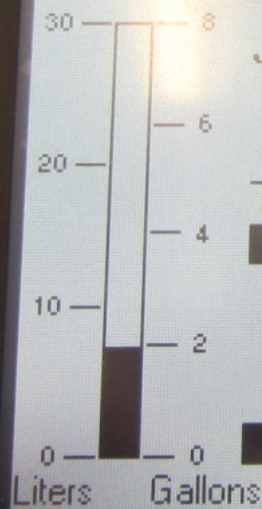


Dri-Mist Active

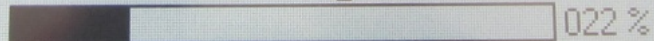
STOP

PAUSE

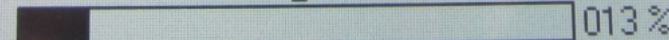
Job 1018 Location: M24



Dri-Mist Cycle
Time Remaining **00:11:36**



Total Time
Remaining **00:21:36**







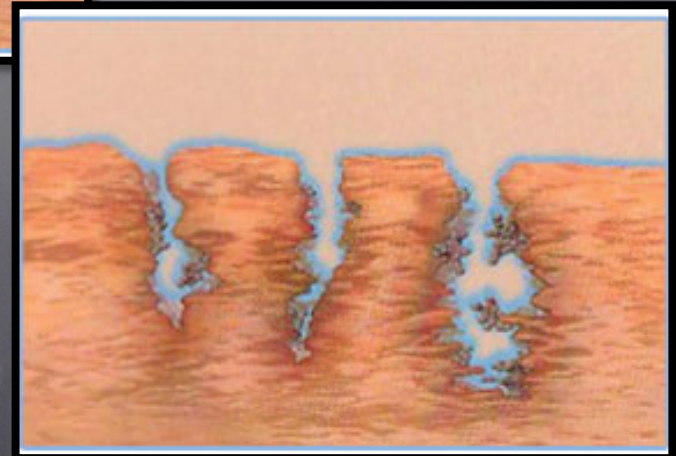
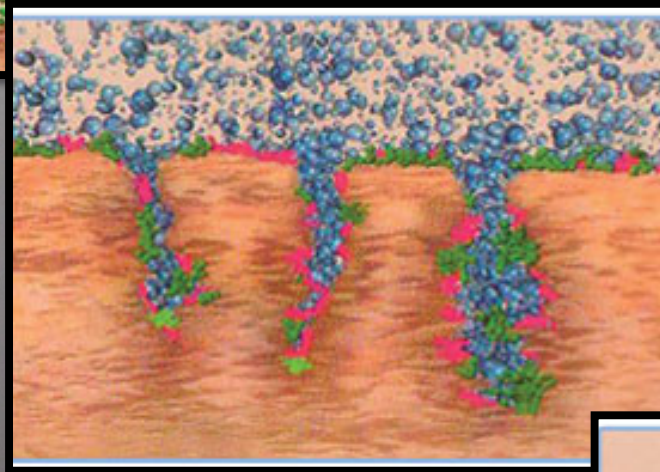
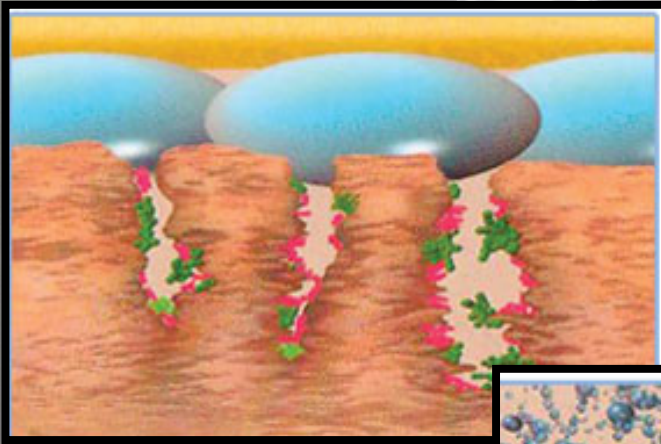
A photograph of a hospital operating room. The room is dimly lit, with several bright surgical lights mounted on the ceiling. A patient is lying on a table in the center of the room, covered with a blue sheet. The walls are dark, and there are some medical equipment and monitors visible in the background.

14 minute dry-mist cycle


10 minute wait/kill time

24 minutes total

← **Spray and Wipe**



MICRO-MIST™ TREATMENTS

 Vision290™


Treatment COMPLETE

Job # 1018

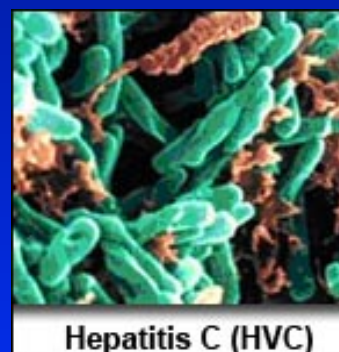
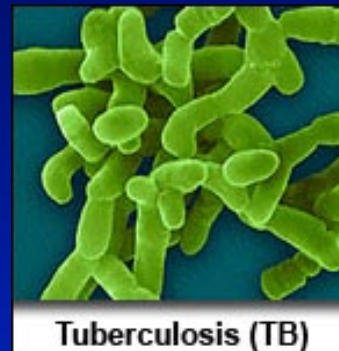
Loc: M24

Disconnect VDO, Replace
Exhaust Cover and Clean the
Inside of All Windows Prior to
Operating the Vehicle.

OK

 UNITRONICS®

- Easy to use and implement
- Safe for electronics
- No toxic residue
- Short unit down time
- Does not eliminate spore forming bacteria
 - Anthrax
 - C. Diff



Hepatitis C (HVC)

Norwalk Virus







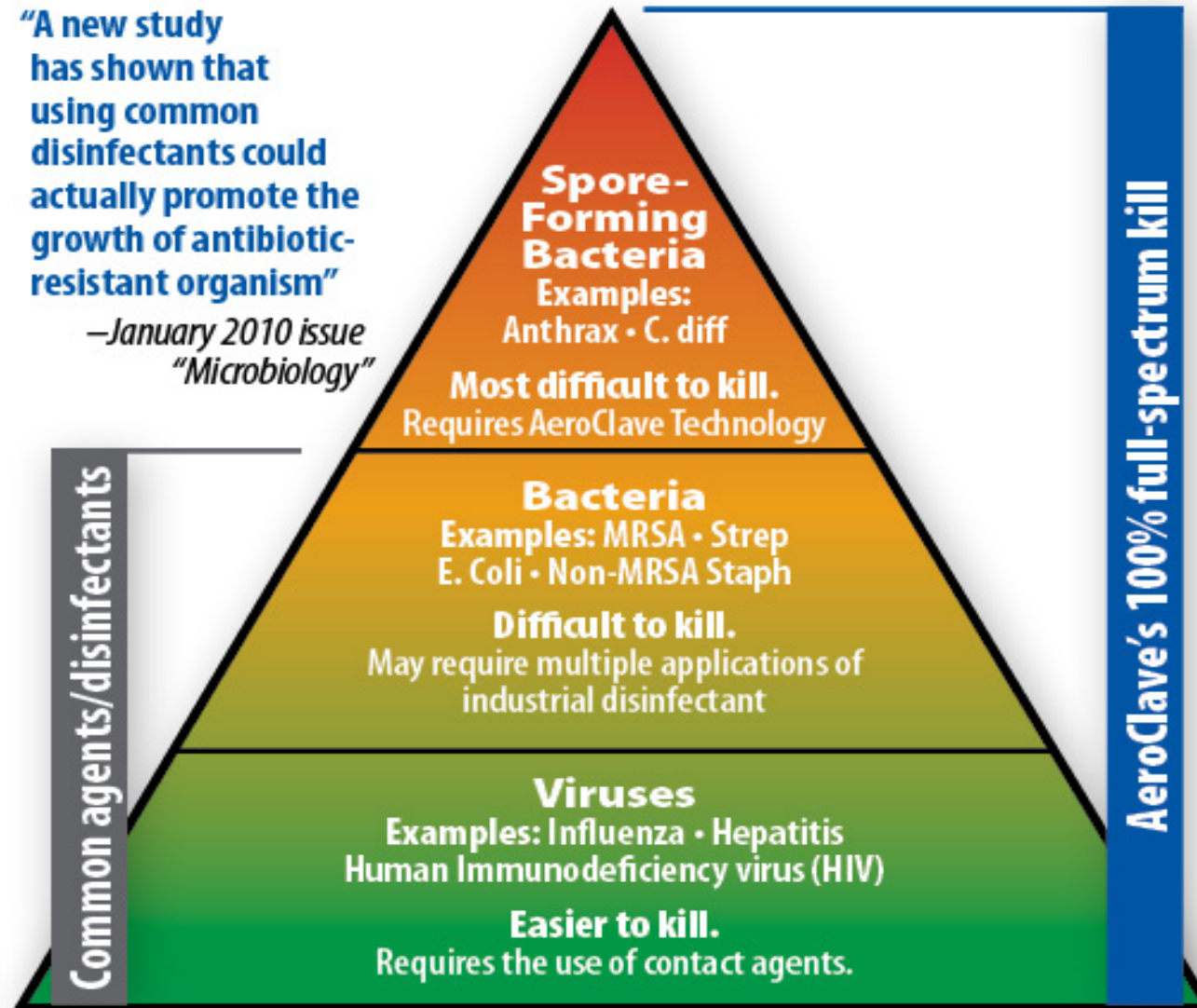




Vaporized Hydrogen Peroxide (VHP®)

**"A new study
has shown that
using common
disinfectants could
actually promote the
growth of antibiotic-
resistant organism"**

*—January 2010 issue
"Microbiology"*



AeroClave's technology is the most cost-effective process to kill the full-spectrum of diseases from easy to kill viruses to spore-forming bacteria.





WARNING!
Do NOT
attempt to
enter
treatment area
when light is
flashing

AeroClave

PORTABLE
ASSET
DECONTAMINATION
SYSTEM





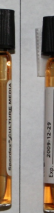
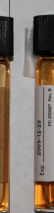
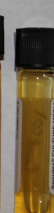

P.A.D.S.









1	2	3	4	5	6	7	8	Control
								

Test date: 3/18/2009



2 Hour Cycle Time



- **Zimek:**

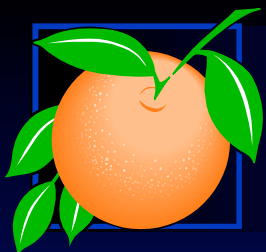
- **\$53,000**
- **\$5.00 per cycle**
- **Disinfectant; not sporicidal**
- **24 minute cycle time**



- **Aeroclave:**

- **P.A.D.S. set up \$250,000**
- **\$56.00 per cycle**
- **Sterilization; kills all organisms**
- **2 hour cycle time**





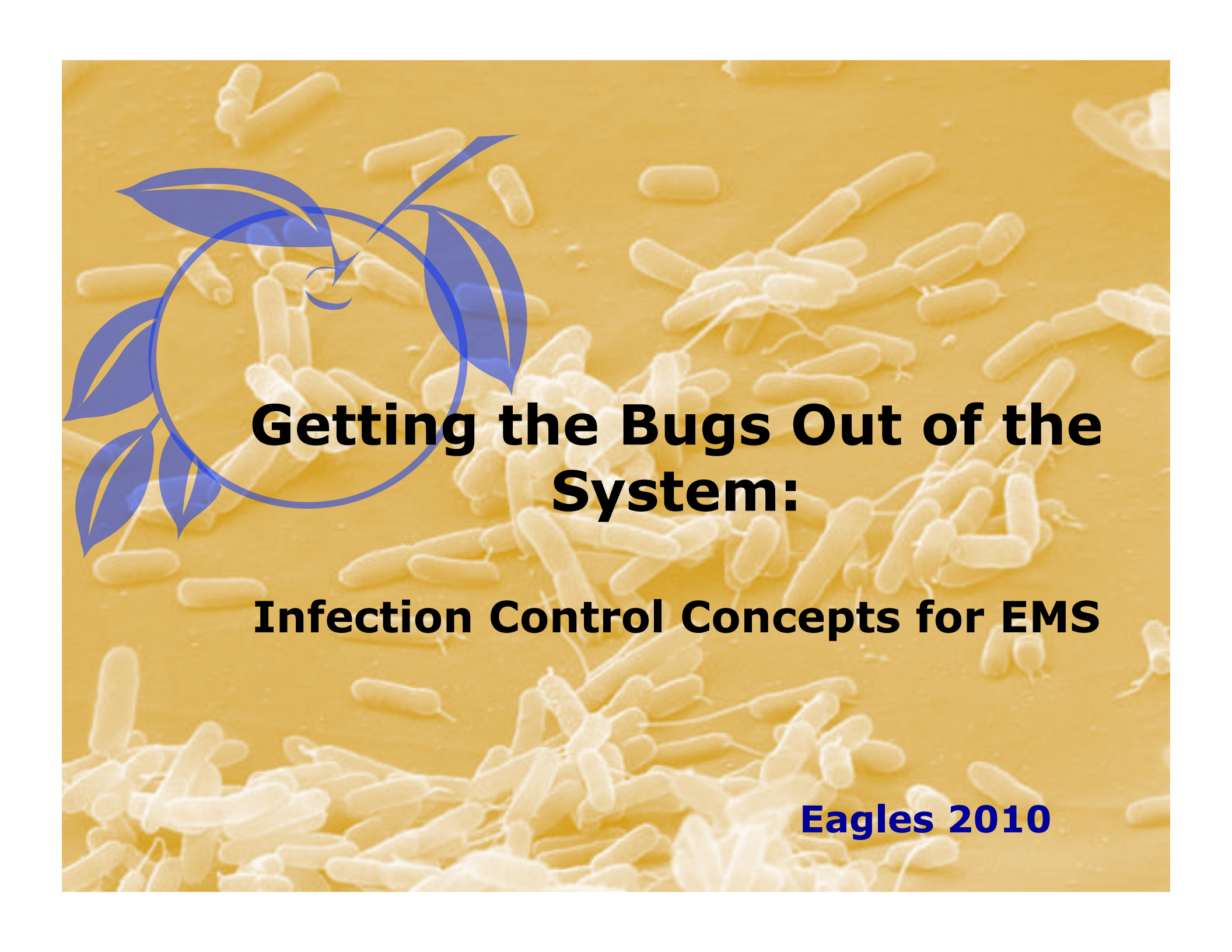
Summary

- **Healthcare associated infections may be an issue for EMS**
- **Develop a policy**
 - **Local needs and funding**
 - **It doesn't need to be expensive or complicated**
 - **Take fear and surprise out of the equation**

www.Zimek.com



www.Aeroclave.com

The background of the slide is a microscopic view of numerous rod-shaped bacteria, likely E. coli, scattered across a yellowish-gold surface. On the left side, there is a blue graphic logo consisting of a circular shape with several leaves extending from it, resembling a stylized plant or tree.

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