



## **Hospital Case Study: Hospital Infection Rates Before and After Use of One Zimek System**

### **Hospital Source Information**

The following data is derived from a hospital with 309 patient beds located in the Southern United States. At the request of the infection control department of the hospital which is the source of this information, the identity of the subject hospital shall not be disclosed without the prior written permission of Zimek Technologies, LLC.

### **Results During Acinetobacter Outbreak**

**Only one** Zimek Decontamination System ("System") was sold to the subject hospital in early January of 2008 **on an emergency basis** to remedy a dangerous outbreak of *Acinetobacter* bacteria contaminating numerous patient rooms located in different wards and on different floors which infected a multitude of patients, particularly patients in the ICU ward. It was ultimately determined that the *Acinetobacter* outbreak was primarily transmitted by mobile radiological equipment used throughout the hospital. Hospital cleaning staff performed Zimek's Micro-Mist™ Decontamination Treatments (Zimek technicians conducted one two-hour training session to train the hospital's cleaning staff to use the System). ***The System successfully remedied the outbreak.***

### **Results During Terminal Cleaning**

After the successful resolution of the *Acinetobacter* outbreak, the hospital's overall infection rates were reduced by the continued use of ***the single Zimek System*** as an adjunct to terminal cleaning of select patient isolation rooms, including those in the ICU ward. The System was not used in any other hospital facilities (operating rooms, emergency rooms, etc.). ***It is the opinion of Zimek's management that had more Systems been used on a regular basis and in a wider array of room types during the testing period, infection rates would have been reduced much more significantly than the data demonstrates.***

### **Results After Termination of Zimek's Micro-Mist™ Treatments**

Upon termination of the daily use of the System, infection rates in all categories immediately began to rise.

#### **ACINETOBACTER**



*Acinetobacter* is a gram-negative bacterium which is able to survive on various surfaces (both moist and dry) in the hospital environment, thereby being an important source of infection to debilitated patients.

Occasional strains are isolated from food and some are able to survive on medical equipment and even on healthy human skin.

Outbreaks of *Acinetobacter* infections typically occur in intensive care units and healthcare settings servicing very ill patients.

*Acinetobacter* causes a variety of diseases ranging from pneumonia to serious blood or wound infections.

Source: Center for Disease Control and Prevention, [www.cdc.gov](http://www.cdc.gov)



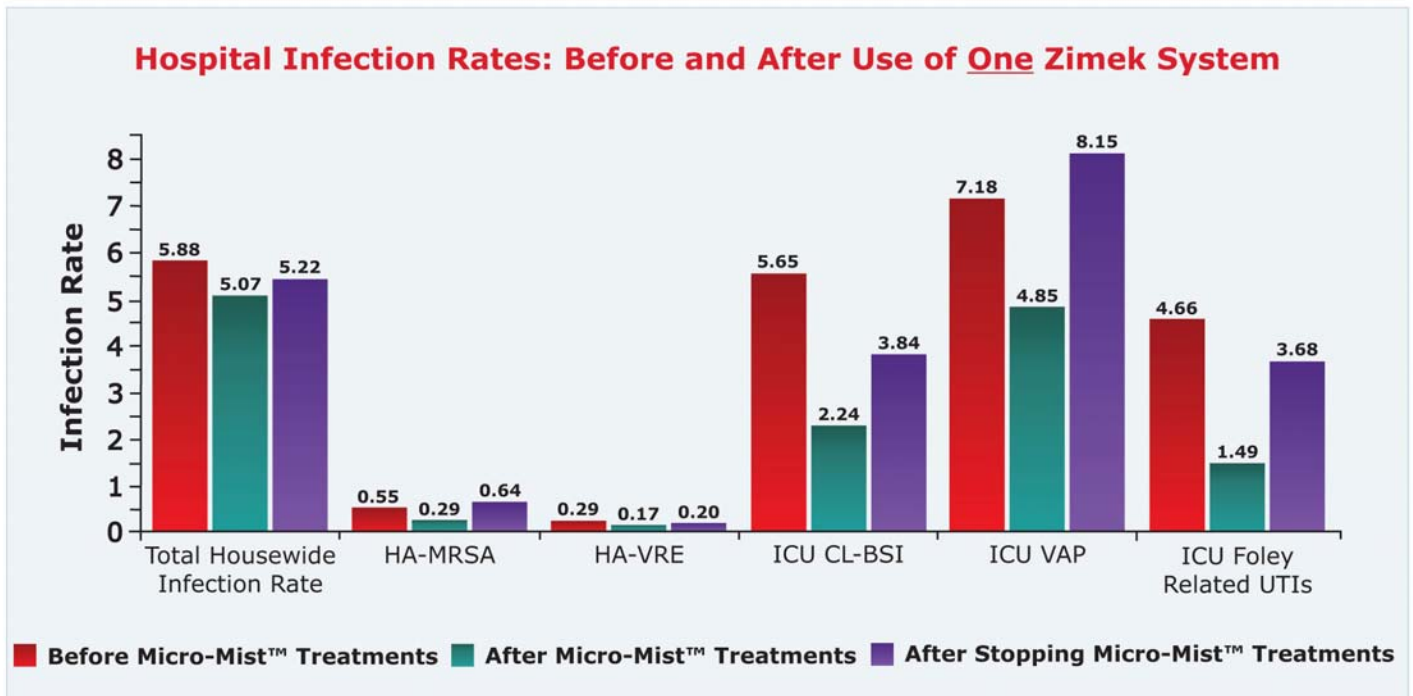
## Hospital Case Study (Continued)

### Hospital-Acquired Infection Rates – A Southern U.S. Hospital Case Study\*

	Total Housewide Infection Rate	HA-MRSA	HA-VRE	ICU CL-BSI	ICU VAP	ICU Foley Related UTIs
Before Micro-Mist™ Treatments	5.88	0.55	0.29	5.65	7.18	4.66
During Micro-Mist™ Treatments	↓ 5.07	↓ 0.29	↓ 0.17	↓ 2.24	↓ 4.85	↓ 1.49
<b>Reduction of Infection Rates During Micro-Mist™ Treatments</b>	<b>-13.8%</b>	<b>-47.3%</b>	<b>-41.4%</b>	<b>-60.4%</b>	<b>-32.5%</b>	<b>-68.0%</b>
After Termination of Micro-Mist™ Treatments	↑ 5.22	↑ 0.64	↑ 0.20	↑ 3.84	↑ 8.15	↑ 3.68
<b>Increase of Infection Rates After Stopping Micro-Mist™ Treatments</b>	<b>+2.9%</b>	<b>+54.7%</b>	<b>+15.0%</b>	<b>+41.7%</b>	<b>+40.5%</b>	<b>+59.5%</b>

\* Data is based upon the number of patients infected per 1,000 patients treated.

CL-BSI = central line blood stream infections • VAP = ventilator-associated pneumonia • UTIs = urinary tract infections





## Hospital Case Study (Continued)

### Life-Saving Benefits

In the United States, 1 in 20 hospital *patients* are *infected with a hospital-acquired infection*, and 1 in 20 of them *die*. Assuming Zimek reduced the number of infected patients by over 16 patients, then it can be forcefully argued that there is an 80% likelihood that at least one life was saved. Hospital management determined that, due to “necessary budget reductions,” they were forced to reduce the hospital’s cleaning staff, and thus there would not be anyone available to operate the Zimek System as part of a proactive daily terminal cleaning protocol (*it will now be used only in the event of serious infection outbreaks*).



### Hospital Decontamination Recommendations

Had more Zimek Decontamination Systems been deployed at the subject hospital, significant additional reductions in infection rates would almost assuredly have been achieved. Zimek recommends that a minimum of one Zimek System be used to decontaminate every 50-75 patient rooms pursuant to a dedicated disinfection protocol which allows for a periodic and regular disinfection of all patient rooms, particularly the mandatory cleaning and disinfection of patient isolation rooms upon patient turnover. Additionally, one Zimek System should be dedicated for use in decontaminating operating rooms on a frequent basis.