

Biggest Breakthrough in Healthcare: A Clean Hospital Room

NEXT ISSUE: THE BUSINESS CASE FOR ANTI-INFECTION DEVICES

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The Biggest Breakthrough in Healthcare: A Clean Hospital Room

By **BETSY MCCAUGHEY, Ph.D.**

A 180 degree change in how doctors and hospital administrators think about germs is likely to almost eliminate the biggest risk of being hospitalized: getting an infection. Until now, doctors and hospital administrators routinely dismissed questions about cleanliness by saying “germs are everywhere.” But at a recent meeting of the Society for Healthcare Epidemiologists of America in Atlanta, the focus was on making patients’ rooms germ-free by testing for bacteria after clean-

ing and using ultra-violet light and room fogging machines. Finally, the medical community is acknowledging that inadequately cleaned rooms and equipment are to blame for infections and doing something about it. “There’s been a complete turnaround,” says Curtis Donskey, M.D., from the Cleveland Veterans Affairs Medical Center.

In 1970, when antibiotics cured most hospital infections, the Centers for Disease Control and Prevention and the American Hospital Association

advised hospitals to stop testing surfaces for bacteria. Visually clean was enough, even though bacteria are invisible.



To this day, most hospitals don’t test, even in operating rooms, and neither does the Joint Commission that accredits U.S. hospitals. Meat processing plants get a more rigorous inspection for cleanliness.

Patients have no control over which room they’re assigned, but it’s the biggest predictor of who picks up a hospital germ such as VRE (vancomycin-resistant Enterococcus) according to Tufts University researchers. (Clinical Infectious Diseases, 2008) A germ from one patient lingers on a bedrail or other object for even two weeks and then is picked up on the hands of a doctor treating another patient – a deadly chain reaction. Even when doctors and nurses clean their hands, they become recontaminated seconds after washing – as soon as they touch a keyboard, bedrail, or other bacteria-laden object.

The deadly HIV virus is easy to kill on surfaces. But the most prevalent hospital infection, Clostridium difficile or C. diff, has a hard shell that makes it toughest to kill. Robert Orenstein, M.D., of the Mayo Clinic in Rochester, Min., reduced C.diff by 80% by wiping surfaces around the patient’s bed daily with bleach and testing surfaces regularly to guard against the biggest challenge, human oversight. (Medscape, March 23, 2010)

Human error is prompting the develop-

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Betsy McCaughey, Ph.D. Chairman

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A Clean Hospital Room

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ment of automated disinfection devices. Bleach wipes work better than these options, but only if cleaning is thorough. It usually isn't. A 2007 survey of hospitals from Washington, D.C., to Boston showed that cleaners overlooked half the objects. Toilet seats were cleaner than bedrails. (Data presented at the SHEA meeting, abstract 280)

Ultra violet disinfection devices, being adopted by hundreds of hospitals, are effective wherever the light hits directly, but less so going around beds or corners.

Hydrogen peroxide vapor machines, also being rapidly adopted, fill the room evenly with a germ killing fog, regardless of corners or angles, but require a dedicated operator and sealing the room for at least a half hour. Johns Hopkins tested machines made by Bioquell Inc. and found that they reduced the spread of drug-resistant bacteria to

patients by 64%, including reducing the spread of VRE by 80%. Hopkins has purchased the machines to decontaminate rooms after they are occupied by patients infected with these germs (Johns Hopkins press release, 12/31/2012) Donskey called hydrogen peroxide misting the "gold standard" for room disinfection.

Another alternative, Altapure, uses peracetic-acid, which sterilizes the room with a dense cloud of evenly dispersed droplets. Still another, silver-based Steriplex, kills even C. diff without being toxic. The Huntsman Cancer Center in Utah reports zero infections in a bone marrow transplant unit during a six-month trial using Steriplex.

Some doctors at the Atlanta meeting predict it will take five years for the Joint Commission to decide how hospitals should test surfaces and whether machines are cost-effective. Five years – another 500,000 deaths at current rates. No

wonder many hospitals aren't waiting.

How much more evidence is needed to prove that a clean room is better than a dirty one?

The Atlanta meeting also showcased a new study that will likely change how hospitals are constructed or renovated. Memorial Sloan Kettering Cancer Center in New York City and two other hospitals found that outfitting intensive care units with copper bedrails, overbed tables, IV poles, computer mice, and other frequently touched surfaces cut infection rates by more than half. Copper naturally and continuously kills bacteria before they can contaminate caregivers' hands. The scientists called the findings "far reaching." (*Infection Control and Hospital Epidemiology*, May 2013)

Betsy McCaughey is a former Lt. Governor of New York State and Founder, Chairman of the Committee to Reduce Infection Deaths (RID)



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Key To Improving Hand Hygiene: Make It Easy

Betsy McCaughey, Ph.D.

As long as hospital surfaces are inadequately cleaned, caregivers' hands become re-contaminated seconds after they are cleaned, as soon as they touch a bedrail, or IV pole, or computer mouse.

One remedy is to improve surface cleaning, and this newsletter focuses on ways to accomplish that. But another remedy is to improve hand hygiene. Research shows that the most frequently overlooked hand hygiene obligation is after touching objects near the patient's bedside. Hand sanitizer dispensers placed outside the patient's room or across the room are inconvenient. Body-worn or ergonomic dispensers solve that problem.

Sprixx, a Santa Barbara, California company, has designed a dispenser that can be worn on the belt or attached to clothing. At Dartmouth-Hitchcock Medical Center in New Hampshire, a study showed that use of Sprixx dis-



pensers reduced VAP (ventilator associated pneumonia) infections by 61% in a 26 bed ICU. The dispenser can be operated with one hand, so even busy caregivers can rigorously observe hand hygiene without dropping what they are doing. The devices can also record when and how often caregivers use the

disinfectant.

"This Sprixx device and measurement system has demonstrated an ability to support a higher level of clinical hand hygiene adherence which has resulted in significant infection rate reductions," concludes Dr. Randy Loftus, an intensivist at Dartmouth-Hitchcock.


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*If you'd like to participate
in the fall issue, please
contact*

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RID'S Innovative Products Newsletter Fall, 2013

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CRE Heightens the Importance of Hospital Room Disinfection

By: BETSY MCCAUGHEY, Ph.D.

In 2011, the lethal germ known as CRK—short for carbapenem-resistant Klebsiella—raced through the National Institutes of Health Medical Center in Bethesda, Md. Antibiotics couldn't stop it. Infection-control precautions recommended by the Centers for Disease Control and Prevention could not contain it. Six patients died because of it, including a 16-year-old boy.

In January 2013, public-health researchers released alarming data in the journal *Infection Control and Hospital Epidemiology* showing that the same germ that swept through the NIH is invading hospitals across the country. Researchers writing this month in another medical journal, *Emerging Infectious Diseases*, warn that CRK poses "a major threat to public health." Since the discovery of CRK in 2000, it has been found predominantly in New York City and the mid-Atlantic region. But Los Angeles County, one of the few places where CRK is being tracked, detected 356 cases in the second half of 2012. "Upwards of fifty percent" of patients who contract CRK die, according to NIH researchers.

Klebsiella infections generally are treated with powerful antibiotics called carbapenems, but the Jan. 25 data reveal that increasingly this medical weapon of last resort is not working. Drug resistance in Klebsiella infections is up 4,500% since 2002—from 0.1% to 4.5%, and that's just among known cases. Medical institutions are clearly moving closer to a post-antibiotic era. Current measures recommended by the Centers for Disease Control will not

control the spread of this germ, even when hospital personnel follow the measures meticulously. That was the stunning conclusion reached by NIH researchers.

The NIH outbreak began in June 2011 when a 43-year-old woman with lung disease was admitted to the medical

"We have the technology to contain these drug-resistant germs. What is needed is the will to do it."

center from a New York hospital. Her chart alerted NIH that she was carrying CRK, so medical staff immediately isolated her and wore gowns, gloves and masks when treating her. All CDC contact and isolation precautions were followed, researchers later confirmed.

The woman recovered and left the hospital. But after three weeks, a male cancer patient in the same hospital who had no contact with the woman came down with CRK. Ten days later, a female patient with an immune disease fell victim. Both died. Week after week, more patients were hit with

CRK. Researchers traced every infection back to the germ introduced into the hospital by the 43-year-old woman. "The outbreak was finally contained by implementing tougher standards," said the NIH researchers—standards tougher than CDC guidelines.

First, to halt the outbreak, the NIH screened all patients for CRK. Patients unknowingly pick up the germ and carry it in their gastrointestinal tract for weeks without symptoms. Nurses who treat these unidentified carriers inadvertently transport the germ from bedside to bedside. The NIH used a relatively new rapid-test technology, then isolated every carrier.

Since 1991, the CDC has recommended testing all hospital patients for the AIDS virus but not for bacteria that cause hospital infections. Hospital infections kill five times as many Americans as the AIDS virus. Moreover, becoming infected with AIDS is difficult, but picking up a drug resistant hospital germ is as easy as touching a bed rail or nurse's glove.

The second step that the NIH implemented was more rigorous cleaning than the CDC calls for. Rooms were double-cleaned with bleach and then misted with a hydrogen peroxide sprayer—another relatively new technology. Bacteria can live on equipment for days and then contaminate the hands of unsuspecting caregivers. When cleaning is inadequate, a patient assigned to a room previously occupied by the carrier of a superbug is put in danger.

In the 1980s, the CDC, the American Hospital Association and state health

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Germs

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departments responded quickly to the AIDS threat, revamping hospital protocols on needles, sharp equipment and bodily fluids to prevent AIDS from becoming a hospital-acquired epidemic.

Where is that determination now? The

National Institutes of Health researchers urged the CDC to make CRK a reportable disease like AIDS. How can the CDC and public-health agencies control this new threat when they don't even know how many cases are occurring and where?

We have the technology to contain these drug-resistant germs. What is

needed is the will to do it. Otherwise patients with cancer, organ transplants and other immune-compromised conditions may find themselves worrying: Is it safe to go to the hospital?

Ms. McCaughey, a former lieutenant governor of New York, is founder and chairman of the Committee to Reduce Infection Deaths.



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