

Study Finds Lab Coat to Skin MRSA Transmission

BY DOUG BRUNK

SAN DIEGO — It may be time for North Americans to follow the British in their 2007 ban on white lab coats in the health care setting.

Researchers at Virginia Commonwealth University in Richmond used pigskin as an in vitro model to demonstrate that large inoculums of methicillin-resistant *Staphylococcus aureus* (MRSA), vancomycin-resistant enterococci (VRE), and pan-resistant *Acinetobacter* (PRA) bacteria could be transferred from a white cotton lab coat to pigskin 1 minute, 5 minutes, and 30 minutes after inoculation.

"Previous research has indicated that you could isolate organisms from materials such as hospital curtains, neckties, and lab coats, but we wanted to find out if you could take the inoculum from the cloth of a lab coat, transfer it to skin, and isolate the inoculum from the skin," Dawn L. Butler said in an interview during a poster session at the annual meeting of the Society for Healthcare Epidemiology of America. "We did."

Ms. Butler, a second-year medical student at the university, and her associates diluted MRSA, VRE, and PRA and inoculated them onto swatches of one clean, cotton medical lab coat. Next, they rubbed sanitized pieces of pigskin across the inoculated swatches, and a touch prep of the pigskin onto selective media



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was performed to determine if the inoculated organism could be isolated from the pigskin.

These steps were performed for each of the three study isolates at 1 minute, 5 minutes, and 30 minutes. Selective media were used to prevent the growth of contaminants, followed by incubation of the cloth swatches for 24 hours

in thioglycolate broth to verify the viability of organisms.

All of the swatches had grown organisms on respective selective media at 24 hours, confirming organism viability on the cotton lab coat.

"Everybody criticizes the British for banning white lab coats in the health care setting, saying that nobody's ever shown that lab coats can transmit an infection," Dr. Michael Edmond, chair of the division of infectious diseases at VCU, said at the meeting. "This shows that it's biologically plausible, because in the laboratory we did transmit the organism from the coat to the skin."

In a related poster, 141 physicians from nine VCU departments were surveyed about their attitudes regarding white lab coats. Most of the respondents (90%) were aged 29-39 years. Slightly more than half were men (52%) and the majority were medical residents (42%), followed by interns (35%), attending physicians (17%), and fellows (6%), reported Dr. J. Daniel Markley Jr., a second-year internal medicine resident at the university.

Previous studies have shown that

nosocomial pathogens can persist on fabric for months, but when the survey participants were asked how long a microbe can survive on fabric, 2% said hours, 49% said days, 28% said weeks, 18% said months, and 3% said years.

In addition, 90% of respondents reported wearing white coats daily or most days of the week, yet 62% said that they wait 2 weeks or longer to launder them.

Nearly half of respondents (49%) believed that patient perception of physicians would be adversely affected if white coats were discontinued, yet 74% believed that banning white coats could have a significant effect on hospital-acquired infection.

Dr. Markley also reported that 87% of male physicians would stop wearing ties if recommended, 42% of respondents would stop wearing a watch, yet only 48% would comply with a "bare below the elbow" policy. They wouldn't want to wear a lab coat with short sleeves "because they don't want to be viewed as a dentist," Dr. Markley said.

The researchers had no conflicts to disclose. ■

Health Care–Associated MRSA Rates Fall From 2005 to 2007

BY DOUG BRUNK

SAN DIEGO — The incidence of health care–associated invasive methicillin-resistant *Staphylococcus aureus* infections in the United States fell 12.5% between 2005 and 2007, a decline that was statistically significant.

The decline was even greater among patients with hospital-onset bloodstream MRSA infections, according to preliminary results from a study of data from



The overall incidence of all invasive MRSA infections dropped by a statistically significant 12.5%.

DR. KALLEN

the Active Bacterial Core (ABC) surveillance program. The ABC is a component of the Emerging Infections Program Network, a collaboration between the Centers for Disease Control and Prevention (CDC), state health departments, and universities.

Although the results are encouraging, they are preliminary and require further prospective analysis, lead investigator Dr. Alexander J. Kallen cautioned at the annual meeting of the Society for Healthcare Epidemiology of America.

"The 2007 data set has not been finalized, and although only a small number of additional reports are expected, this may result in some changes in these estimates," said Dr. Kallen, a medical officer with the CDC's Division of Healthcare Quality Promotion in Atlanta.

The ABC surveillance program began tracking MRSA infections in 2004 and includes a catchment area of about 15 million people at facilities in nine states—California, Colorado, Connecticut, Georgia, Maryland, Minnesota, New York, Oregon, and Tennessee.

Dr. Kallen and his associates evaluated only MRSA-causing, invasive health care–associated infections—defined as MRSA isolated from a normally sterile site—in a resident of the surveillance area from 2005 to 2007. This included hospital-onset isolates, defined as isolates cultured more than 2 calendar days after admission when the day of admission is day 0, and health care–associated community-onset isolates, which were cultured 2 days or less after admission in patients with a recent health care exposure. Health care exposures included presence of a central venous catheter at the time of admission, a history of dialysis, an overnight stay in a health care facility, or surgery within the previous year.

To determine population-based incidence by year, the researchers used a denominator based on United States census estimates for the catchment area.

In another component of the study, clinicians at eight of the nine facilities were asked to complete a 42-question survey about MRSA-related infection control practices. Nearly 90% of isolates were from a bloodstream infection; the next most common syndrome was pneumonia or empyema, followed by skin and soft tissue infection, Dr. Kallen reported.

Between 2005 and 2007, the overall incidence of all invasive MRSA infections fell 12.5%, from 42.7 per 100,000 patients to 34.4 per 100,000 patients, which was statistically significant.

When the researchers studied the subset of patients with bloodstream infections, defined as a positive blood culture, they observed a 21% decrease in hospital-onset infections between 2005 and 2007 and a 12% decrease in health care–associated community-acquired infections during the same time period. Both reductions were statistically significant.

Meanwhile, incidence of MRSA bloodstream infections in dialysis patients fell 7% in the time period, a reduction that did not reach statistical significance.

According to the survey portion of the study, nearly 70% of responding facilities performed some type of active surveillance testing. More than 80% of facilities used contact precautions for MRSA patients, used dedicated equipment for MRSA patients, could detect

previously MRSA-colonized or infected patients at admission, and maintained at least simple measures of MRSA incidence or prevalence.

Limitations of the study include the fact that ABC "is a population-based surveillance system and that use of the catchment area population as a denominator for this analysis of health care–associated infections may be suboptimal," Dr. Kallen said.

He went on to emphasize that he and his associates "cannot determine the precise cause for this fall in MRSA incidence from our data. This is one cross-sectional study. However, health care facilities we polled had implemented a large number of MRSA-control interventions."

Dr. Kallen had no financial conflicts to disclose. ■



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