

New Study Finds Methicillin-Resistant Staphylococcus Aureus (MRSA) on Glucose Test Strips and in Vials



TESTED POSITIVE FOR POTENTIALLY HARMFUL PATHOGENS

In 2011, **1 in 25** U.S. acute care hospital patients acquired at least one healthcare-associated infection (HAI), resulting in **722,000** annual HAIs². HAIs can be acquired from endogenous and exogenous sources, and multiple studies point to contamination risk from medical devices, facility furnishings, healthcare workers, and fellow patients^{3,4,5,6,7}. However, a paucity of data exists on the potential for infectious disease transmission via point-of-care diagnostic testing systems¹.

A recent study¹ set out to identify the type and prevalence of bacterial pathogens on glucose test strip vials used in the Assisted Monitoring of Blood Glucose (AMBG), including drug-resistant strains like **MRSA**.

METHODS

This study examined 200 open vials of glucose test strips (n=50 strips/vial) to determine the presence of select bacterial pathogens. Vials were collected from a single hospital's inpatient, outpatient, and emergency departments.

RESULTS

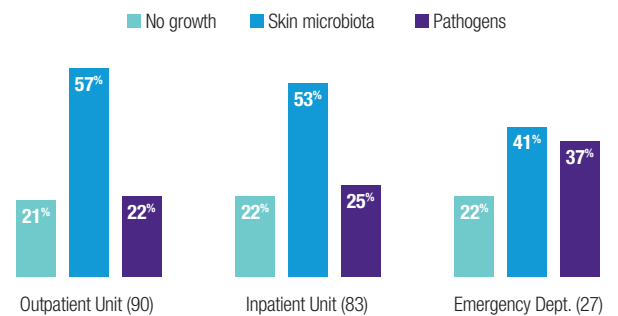
From the 200 vials tested, 215 microorganisms—including MRSA—were found.

- 79% (158 of 200) vials tested positive for at least one microorganism.
- Bacterial pathogens were recovered from all three hospital locations (inpatient, outpatient, and emergency departments).
- The number of test strips remaining in vial (range 1 to 48) was not related to the number of microorganisms recovered.

CONCLUSION

- Harmful pathogens are frequently present on glucose test strips and test strip vials.
- Current protocols for AMBG may not adequately protect patients from potential HAIs.

CULTURE RESULTS BY LOCATION



Isolate Identification	# Recovered	Typical Habitat
Coagulase-negative staphylococci	109	Skin
<i>Enterococcus</i> species	29	Skin, Oral/GI
<i>Staphylococcus aureus</i>	25	Skin, Oral/GI
<i>Bacillus</i> species	24	Skin
Alpha-hemolytic streptococci	23	Skin
Group D streptococci	1	Skin, Oral/GI
<i>Klebsiella oxytoca</i>	1	Oral/GI
<i>Klebsiella pneumoniae</i>	1	Oral/GI
<i>Proteus</i> species	1	Oral/GI
MRSA	1	Skin, Oral/GI
Total	215	

¹"Evaluation of Glucometer Test Strips for the Presence of Potential Pathogens Including Methicillin-Resistant Staphylococcus aureus, Clostridium difficile, and Vancomycin-Resistant Enterococci" DeAnna Fuller*, Kelli Newcomer, Jayme Talbott, Ryan Relich, and Thomas Davis. Indiana University School of Medicine. Indianapolis, IN. This study was supported by Abbott Laboratories.

²CDC HAI Prevalence Survey Magill SS, Edwards JR, Bamberg W, et al. Multistate Point-Prevalence Survey of Health Care-Associated Infections. N Engl J Med 2014;370:1198-208.

³Dancer, S.J., Stewart, M., Coulombe, C., Gregori, A., and M. Viridi. 2012. Surgical site infections linked to contaminated surgical instruments. J Hosp Infect. 81:231-238.

⁴French, G.L., Otter, J.A., Shannon, K.P., Adams, N.M., Watling, D., and M.J. Parks. 2004. Tackling contamination of the hospital environment by methicillin-resistant Staphylococcus aureus (MRSA): a comparison between conventional terminal cleaning and hydrogen peroxide vapour decontamination. J Hosp Infect. 57:31-37.

⁵Hornbeck, T., Naylor, D., Segre, A.M., Thomas, G., Herman, T., and P.M. Polgreen. 2012. Using sensor networks to study the effect of peripartetic healthcare workers on the spread of hospital-associated infections. J Infect Dis. 10:1549-1557. Prevention, 2009. (accessed November 11, 2012) URL: http://www.cdc.gov/ncidod/dhqp/pdf/Scott_CostPaper.pdf

⁶Trillis, F., Eckstein, E.C., Budavich, R., Pultz, M.J., and C.J. Donskey. 2008. Contamination of Hospital Curtains with Healthcare-Associated Pathogens. Infect Cont Hosp Ep. 11:1081-1085.

⁷Weber, D.J., Rutala, W.A., Miller, M.B., Huslage, K., and E. Sickbert-Bennet. 2010. Role of hospital surfaces in the transmission of emerging health care-associated pathogens: norovirus, Clostridium difficile, and Acinetobacter species. Am J Infect Cont. 38:S25-S33.