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Hospitalist Update

Will mobile phone use increase the incidence of healthcare associated infections?

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Nosocomial infections are a major concern for both patients and clinicians. Hospital related infections cause significant mortality (20%) [1] and morbidity and, in the majority of cases, are preventable. In addition to the human cost, the emergence of multi-drug resistant organisms has made management of hospital acquired infections more complex and expensive. The National Health Foundation is thus working to decrease the rate of hospital associated infections in a number of ways.

Nosocomial infections not only cause significant mortality and morbidity but also significantly increase hospital costs. One study estimates that at least 2 million hospital acquired infections occur in the U.S. each year [10], resulting in at least 19,000 deaths and contributing to mortality in 80,000 other cases. [11]. Those patients that survive their infection have a longer hospital stay, increasing the cost of their care; in addition, this augments their physical and mental stress, leading to other potential complications. According to the Institute of Medicine, as many as 98,000 patients die of avoidable medical errors in American hospitals each year and result in additional annual costs totaling $11 billion; in a 1992 review, the annual cost to treat nosocomial infections was $4.5 billion in the U.S. [12] A Michigan study [13] revealed that the acquired bacteremia added $34,508 to the cost of the hospitalization. The need to identify risks for hospital acquired infection and to instill preventive measures is thus critical to safe, cost-effective care.

Over the past decade, studies have examined the healthcare setting as a potential source of contamination and risk for infection. These studies have demonstrated contamination from a variety of environmental sources including doors, bed rails, blood pressure cuffs, thermometers, stethoscopes and computers [2-7] and strict attention to preventive measures such as hand washing has been advocated [8-9]. Pagers and mobile phones have become ubiquitous among healthcare professionals and may harbor bacteria (cont)

(continued) that prove to be an important link in the transmission of nosocomial infections.

In their review [14], Brady et al found that 9-25% of mobile communication devices are contaminated with pathogenic bacteria; they recommended staff education, strict hand hygiene measures, guidelines for regular cleaning of mobile devices and the restricted use of such devices in high risk areas such a operating rooms, intensive care units and burn units. A Turkish study [9] failed to identify antimicrobial resistant bacteria on mobile devices but this is of uncertain clinical significance. Engineering modifications, such as use of keyboard covers, disinfection of computer hardware surfaces and hand washing (with or without gloving) are measures recommended to eliminate infection from medical computer equipment by Nelly et al [15].

What about the use of mobile phones by patients and their visitors? Over 84% of swabs from the mobile phones of patients were positive for microbial contamination in a recent study [16]; almost 12% grew bacteria known to cause nosocomial infection and 6.9% grew Staph aureus (as did 31.4% of nasal swabs from these patients). Another study [17] demonstrated a significantly higher contamination of patient mobile phones compared to those of healthcare workers (39.6% vs. 20.6%, p=.02). There were also more multidrug resistant pathogens on the patients' mobile phones, including MRSA, extended-spectrum beta-lactamase-producing E. coli and Klebsiella species, high-level aminoglycoside-resistant Enterococcus species and carbepenem-resistant Acinetobacter baumanii. Clearly, patients and their visitors should be educated about the regular cleaning of cell phones and hand hygiene following their use.

Mobile technology has added another avenue of nosocomial infection and these devices are increasingly being used by hospitalists, patients, visitors and other health care workers. Hospitalists should lead the effort to combat this relatively new and increasing threat, primarily by enforcement of hand hygiene before and after patient contact. Whether regular cleansing of mobile communication devices would reduce the rate of nosocomial infection awaits further study.

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CASE REPORT LEIF CHRISTIANSON, MD

CROHN'S DISEASE & ENTEROCUTANEOUS FISTULAS

CASE:

A 51 year old female with a past medical history of Crohn's disease presented from an outside hospital with complaints abdominal discomfort and swelling (initially diagnosed as a ventral hernia at an urgent care center) followed by the spontaneous drainage of feculent material. At her local hospital, a fistulogram was performed which demonstrated an 8mm wide enterocutaneous fistula associated with a 7cm wide collection of fluid in the anterior abdominal wall.

On arrival at UMHC, the patient was found to be very malnourished, underweight and deconditioned. Labs revealed electrolyte imbalances and a hemoglobin of 7.3 for which she was transfused with 2 units of PRBCs. Her initial management consisted of fluid resuscitation, electrolyte replacement, administration of TPN and skin care. Refeeding syndrome was of concern and her electrolytes were thus closely monitored during the early stages of her recovery. Gastroenterology and General Surgery were consulted for their assistance and recommendations. A CT of the abdomen/pelvis demonstrated that the fistula likely originated at the terminal ileum and that it was associated with a 2x10x10 cm intra-abdominal abscess that drained through the fistula. The patient was placed on levofloxacin and metronidazole. Gastroenterology recommended drainage of the abscess and planned to start a TNF-alpha inhibitor once the abscess resolved. General Surgery did not feel that the patient was a good surgical candidate due to her poor nutritional status as well as the early stage of the fistula; they did not recommend additional drainage procedures since the abscess was noted to be draining through the fistula on the CT scan. They plan to follow her as an outpatient and will consider surgery at a later date if conservative measures fail.