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The Third Hand: Low Rates of Stethoscope Hygiene on General Medical Services

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Hand hygiene is a proven and guideline-recommended safety practice, although clinicians and particularly physicians are unreliable at performing it.[1] Like hands, stethoscopes can carry pathogens from patient to patient. In 1 study, stethoscopes were as likely to be contaminated after use with methicillin-resistant *Staphylococcus aureus*–positive patients as the provider's hands.[2] Furthermore, like hands, stethoscopes can be effectively decolonized with alcohol.[3,4] However, although hand hygiene rates have been extensively studied,[1] and hand hygiene has been linked to reductions in nosocomial infection,[5] stethoscope hygiene is less well studied and emphasized less by guidelines.[6] Several surveys have documented low self-reported compliance with stethoscope hygiene.[7–10] Of 150 healthcare workers, 48% reported stethoscope hygiene between daily and weekly, 37% did stethoscope hygiene monthly, and 7% did stethoscope hygiene annually or never.[8] Of 1401 doctors asked about their stethoscope hygiene beliefs and practices, 76% believed that stethoscopes could transmit infection, but only 24% reported cleaning their scopes regularly.[9] Moreover, of 308 students, 22% had never done stethoscope hygiene, and <4% did it consistently.[10] However, we were unable to find any data on observed rates of stethoscope hygiene. Thus, we observed student and trainee physician stethoscope hygiene performance during hospital medicine rotations as part of the baseline data-collection phase of a quality-improvement effort linked to hand hygiene efforts.

METHODS

Attending hospitalists (I.H.J., B.M., and A.A.) and 1 graduate assistant (J.W.) at 3 sites observed stethoscope hygiene opportunities over an 11-month period. Stethoscope hygiene was counted as performed if a patient-specific stethoscope was used in an isolation room, or if any type of cleaning (alcohol gel, alcohol wipe, or cleansing cloth) was performed on a stethoscope carried out of the room. Observers also recorded whether stethoscope hygiene opportunities occurred in isolation rooms or nonisolation rooms, and noted if stethoscope hygiene was obviously triggered by an attending's stethoscope hygiene behavior (eg, a trainee asked an attending why he performed stethoscope hygiene, then performed it him or herself). Trainees were not aware that their stethoscope hygiene behaviors were being recorded.

RESULTS

We observed 352 opportunities for stethoscope hygiene, in which doctors or students used stethoscope hygiene in 58 encounters (16%). Twenty of the 58 stethoscope hygiene events occurred only after a trainee observed an attending physician perform stethoscope hygiene. Eliminating stethoscope hygiene events that were triggered by attending physicians, stethoscope hygiene was performed in 38 of 332 opportunities (11%). There was a significant difference between the rate of stethoscope hygiene performed in isolation versus nonisolation rooms: 24/29 (82.7%) versus 14 of 303 (4.6%) ($P < 0.001$ by Pearson χ^2 statistic). In isolation room stethoscope hygiene, in which the type of hygiene was recorded, 18 of 20 (90%) involved use of an isolation stethoscope, and 2 of 20 (10%) involved cleaning of a personal stethoscope.

DISCUSSION

Stethoscope hygiene is rarely performed by trainees. Stethoscope hygiene performance depends on the isolation status of the patient, with more than 80% performance in isolated patients and <5% in nonisolated patients.

Although little is known about the rate of infection related to stethoscopes, colonization of stethoscopes with nosocomial bacteria is well described.[2] Transmission of pathogens from patient to patient by stethoscopes could undermine the benefits of hand hygiene programs, as patients are commonly exposed to unclean stethoscopes.

Our observations are limited by several factors. We used a convenience sample of general medicine trainee behavior at academic medical centers; the behavior of attending physicians, ancillary staff, and nonacademic physicians may be different. Moreover, attending behavior may have prompted more episodes of stethoscope hygiene performance than we recorded, because we only noted when stethoscope hygiene was clearly related to

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attending behavior. The very low rate of stethoscope hygiene after contact with nonisolation patients represents a current and potentially serious safety threat. Future research might be able to quantify the risk associated with uncleaned stethoscopes or demonstrate the effectiveness of stethoscope hygiene programs. The effect of modeling on hand hygiene and stethoscope hygiene[10,11] and on stethoscope hygiene in our data suggests a method for improving stethoscope hygiene.

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