MAYO CLINIC

EDITORIAL

February 2020
Volume 4
Number 1

MAYO CLINIC
PROCEEDINGS
Innovations, Quality & Outcomes

New Scope for the Stethoscope

Health care–associated infections have steadily increased over the last several decades. The annual cost of such infections is more than 25 billion dollars.[1] While gloves and hand hygiene have prevented spreading of infections from physical contact, stethoscope still exists as a potential vector.[2-4] There have been several articles which concluded that stethoscopes are known vectors of transmitting infections such as methicillin-resistant *Staphylococcus aureus*, vancomycin-resistant *Enterococcus faecium,* and various other micro-organisms that respond to only a narrow spectrum of antibiotics.[4-6]

For nearly the last century, stethoscopes continue to be of prime importance in making patient care decisions, especially in fast-paced settings such as the emergency department and intensive care units.[7] These settings require heavy decision making from clinical exams. The use of the stethoscope is vital in such situations. For example, the stethoscope can be used to determine if a patient in respiratory distress is breathing fast because of a pneumothorax, pneumonia, or congestive heart failure. If the patient who had been involved in a recent motor vehicle crash has pneumothorax or hemothorax, the use of a stethoscope would add useful information beneficial to immediate management for that patient. Being a physician's companion around their neck and more readily available than x-rays, computed tomography scans, and ultrasound machines, stethoscopes will continue to be the mainstay in critical care situations.

Except for the introduction of digital stethoscopes, not a lot has been modified in the basic design of stethoscopes. Some physicians opt for disposable stethoscopes and some prefer sanitizing their personal stethoscopes with alcohol wipes or Oxivir wipes, but the vast majority have been unable to clean their stethoscope between every patient evaluation. Centers for Disease Control and Prevention guidelines recommend using a US Environmental Protection Agency–registered disinfectant for stethoscopes not contaminated with blood and for a tuberculocidal agent or a 1:100 dilution of a hypochlorite solution for stethoscopes with visible contamination of blood; however, these solutions still require a few minutes to clean the stethoscope.[8,9]

Although a few authors in the past have suggested diaphragm covers in scientific literature, most of those studies lacked a robust design and methodology.[10] A potential solution to the problem has been suggested by Vasudevan et al in their manuscript, where a disposable aseptic diaphragm barrier was noted to remain sterile at 24 hours. The authors concluded that barriers prevented the growth of anaerobes, antibiotic-resistant bacteria, yeasts, and body samples. Since the diaphragm is the main part of the stethoscope that comes in contact with the patient, the ease of application and removal of aseptic barriers on the diaphragm offers a ray of hope to this unresolved problem.

Sarathi Kalra
Department of Emergency Medicine
University of South Alabama
Mobile, AL

Sujan Reddy
Department of Neurology
University of Texas Houston
Houston, TX

Potential Competing Interests: The authors report no competing interests.

Correspondence: Sarathi Kalra, Department of Emergency Medicine, University of South Alabama, 2451 University Hospital Drive, Mobile, AL (Sarathikalra@gmail.com).

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