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High-Quality, Single-Patient Disposable Stethoscopes: Reducing Infection Risk In Isolation Environments

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Recognizing and lowering the risk of infection transmission via stethoscope.

The stethoscope is a patient assessment and monitoring instrument handled by nurses, physicians, and other clinicians that comes in contact with patients during physical examinations. This common practice raises concerns that stethoscopes may become an inadvertent means of distributing microbial pathogens within the hospital, transferring a possible source of infection from one patient to another.[1]

Measures to prevent infection transmission in hospitals have been defined by international standards bodies such as the World Health Organization and federal agencies, including the Centers for Disease Control and Prevention.[2,3] These recommended precautions have been adopted and adapted by local hospitals, and administered by hospital infection prevention staff to mitigate infection risk and create environments where suspected potential carriers are isolated from the rest of the hospital population. Additional protocols for patient management — i.e., transmission precautions — are defined by the basis of transmission: contact precautions, airborne precautions, droplet precautions, etc.[4] The clinical need for stethoscopes to conduct assessments in isolation environments is unchanged.

Clinicians need to regularly evaluate patients using a stethoscope as part of routine assessments. In most hospital settings, an inexpensive disposable stethoscope is provided for use in auscultating each patient individually under isolation precautions.[1,4]

The clinician's dilemma: Compromise care with a disposable stethoscope, or potentially transmit infection with a personal stethoscope.

The limited selection of single-patient disposable stethoscope products available to hospitals can be of such poor quality that they may be virtually unusable — badly designed, made of flimsy materials, and delivering poor acoustics. These disposable stethoscopes are often considered by some to be no better than toys.

This situation creates a dilemma for clinicians. Should they observe the isolation precautions —and use the provided disposable stethoscope — with the possible result that they will be unable to hear the sounds that are essential for patient care? Or should they use their own stethoscopes of known and higher quality to achieve an adequate patient assessment, but increase the potential risk of cross-contamination and infection transmission?

Solving the dilemma: Single-patient stethoscopes with high-quality acoustics.

The dilemma of choosing the stethoscope for assessing patients under isolation precautions can be mitigated by providing cost-effective, high-quality, single-patient stethoscopes. To ensure they are used by clinicians, these stethoscopes must provide sufficient usability and acoustic clarity so that patients can be reliably evaluated. Better single-patient stethoscopes help eliminate the need for clinicians to circumvent the isolation protocol by using their own instruments.

Selection criteria for single-patient disposable stethoscopes.

Stethoscope usability and acoustic clarity are paramount for auscultation of heart and lung sounds. These qualities can be achieved with good stethoscope design, high-quality materials, solid construction, and skilled use. The chestpiece must be well designed so that it can be easily gripped and applied to obtain a good seal against the patient's skin.

The eartips must be conformable, comfortable, and appropriately sized to provide a complete seal at the entrance of the ear canal to help maximize the delivery of physiological sounds and to minimize ambient noise.

Suggestions for encouraging compliance with contact precautions for isolation settings.

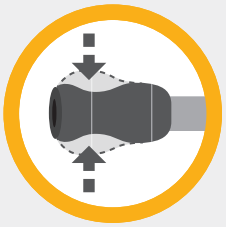
1. Selection and product review criteria for single-patient stethoscopes.

The selection of clinical instruments for institutional use is often made by the hospital's Value Analysis Committee (VAC), a cross-functional team with representation from both clinical and administrative staff. When selecting stethoscopes for single-patient use, the VAC (or an equivalent decision-making group) should be well-informed on the importance of sound quality and usability. The committee should scrutinize the quality of design, materials, manufacturing, usability, and acoustic clarity of each candidate stethoscope. They should also involve clinicians and solicit their input regarding quality and usability.

Device manufacturers can support this process by providing detailed product information, on-site product demonstrations, and training opportunities.

What to look for in Single-Patient Stethoscopes

Optimal acoustic seal that helps maintain acoustic sensitivity for accurate ausculation.



Comfortable eartips that provide a complete seal at the entrance of the ear canal to help maximize the delivery of physiological sounds and minimize ambient noise.

Chestpiece with versatile grip that can accommodate various hand positions and is easy to hold and maneuver.

2. Strategies to help ensure compliance.

The effectiveness of a new single-patient disposable stethoscope solution also depends on clinicians actually using the new equipment with patients. Better rates of adoption can be facilitated by ensuring that all clinicians are fully introduced to the selected patient-specific stethoscope and that they receive sufficient training in how to use it to obtain the best possible sound results. They should have an opportunity to assure themselves that the single-patient stethoscope provided is of high quality and will help them listen effectively. Hospitals should provide a convenient means for clinicians to provide feedback and raise concerns about the usability and quality of single-patient stethoscopes.

Conclusion: Single-patient stethoscopes with high acoustic quality can be an important factor in the success of adopting and maintaining isolation precautions.

Adopting these measures should help resolve the clinical dilemma of choosing between a potentially inadequate disposable stethoscope or using a personal stethoscope that may compromise isolation precautions. Taking these steps also encourages more widespread use of single-patient stethoscopes in isolation environments without sacrificing clarity of sound and, as a result, contributes to reducing the potential for cross-contamination.

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