Contaminated re-usable thermometers are a potential vector for dissemination of pathogens

Amrita Rebecca John, MBBS 2, Herleen Rai, MD 1 Heba Alhimi, MD 1, Thriveen Sankar Chittoor Mana, MS 3, Jennifer Cadnum, BS 1; Curtis J. Donskey, MD 1,2,3

1 Research Service, Louis Stokes Cleveland Veterans Affairs Medical Center, Cleveland OH, 2 Geriatric Research Education and Clinical Center, Cleveland VA Medical Center, Cleveland, OH, 3 Department of Medicine, Division of Infectious Diseases, Case Western Reserve University, Cleveland, OH

Background

- Portable medical equipment that is shared among patients may become contaminated with healthcare-associated pathogens, and cleaning of these devices is often suboptimal
- Limited data are available on the potential for contaminated equipment to serve as a vector for pathogen dissemination
- However, previous studies have suggested that the handles of re-usable thermometers may transmit pathogens

Methods

- We used a DNA marker to study the potential for dissemination of pathogens by re-usable thermometers included with portable vital signs equipment used on a long-term care facility (LTCF) ward and on wall-mounted thermometers in hospital rooms
- The DNA marker was inoculated onto the thermometer handles
- Fluorescent marker (DAZO) was used to assess whether the thermometer handles were cleaned
- Hospital rooms: DNA marker and DAZO placed prior to terminal cleaning of room
- RFID technology was used to monitor movement of the equipment
- Polymerase chain reaction was used to monitor spread of the DNA marker
- LTCF: high-touch surfaces in patient rooms, other portable equipment on the ward, and common areas
- Hospital: high-touch surfaces in the room and hands of patients

Results

- LTCF
  - Portable vital signs equipment entered 14 LTCF resident rooms during a 24-hour period
  - DNA marker detected on high touch surfaces in 3 of the 14 (21%) rooms and on 4 other items of shared portable equipment, but not in common areas (Fig. 1)
  - No evidence that the thermometer handle was cleaned based on absence of removal of the fluorescent marker
- Hospital (6 patient rooms)
  - No cleaning of any thermometer handles during terminal cleaning (Fig. 2 and Table 1)
  - DNA marker detected on high-touch surfaces in 2 of 6 (33%) rooms and on hands of 1 of 6 (17%) patients

Conclusions

- Our findings demonstrate the potential for contaminated shared portable equipment such as re-usable thermometers to serve as a vector for dissemination of pathogens in the LTCF setting.
- There is a need for effective strategies to disinfect shared portable equipment between patients.

Table 1. Spread of DNA marker from thermometers in hospital rooms

<table>
<thead>
<tr>
<th>Rooms</th>
<th>Day1</th>
<th>Day2</th>
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<tbody>
<tr>
<td>DNA</td>
<td>3 ft</td>
<td>3 ft</td>
</tr>
<tr>
<td>DAZO</td>
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<td>3 ft</td>
</tr>
<tr>
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References