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## Original Study

## Perceptions of Gown and Glove Use to Prevent Methicillin-resistant *Staphylococcus aureus* Transmission in Nursing Homes

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## A B S T R A C T

**Keywords:**

Nursing homes  
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**Objectives:** To explore current use and perceptions of glove and gown use in nursing homes.

**Design:** Qualitative study using focus groups and semi-structured interviews.

**Setting:** Three community-based nursing homes in Maryland.

**Participants:** Direct care staff, administrators, and residents.

**Methods:** We conducted three focus groups among nursing home staff, one focus group among nursing home administrators, and five interviews with residents. Topic guides were created based on our recent study results and a review of the literature. Two investigators separately analyzed the transcribed recordings and identified recurrent themes.

**Results:** Direct care staff reported using gowns and gloves primarily as self-protection against contact with bodily fluids, not to prevent MRSA transmission. Glove use was described as common and more acceptable to staff and residents than gown use. Administrators were surprised that MRSA transmission to health care worker hands and clothing occurred during activities when direct care staff perceives no contact with bodily fluids. Staff and administrators expressed willingness to use gowns and gloves for high-risk care activities, particularly if use is targeted toward specific types of residents such as those with pressure ulcers. There was a knowledge deficit about MRSA transmission and infection among direct care staff and residents.

**Conclusions:** Results from this study will inform a strategy to reduce MRSA transmission in long-term care.

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Person-to-person transmission plays a central role in the spread of methicillin-resistant *Staphylococcus aureus* (MRSA) in healthcare settings. MRSA is a common cause of colonization and infection for

patients in hospitals and nursing homes, causing significant excess morbidity, mortality, and cost. Approximately 1 in 4 nursing home residents are MRSA colonized.<sup>1–5</sup> Studies have shown clustering of genetically identical MRSA isolates in long-term care facilities demonstrating patient-to-patient transmission.<sup>6,7</sup> Among hospitalized patients with MRSA colonization, up to 30% will develop an infection within 18 months.<sup>8,9</sup> To prevent MRSA transmission, contact precautions, in which a gown and gloves are used for all care activities, are used for MRSA colonized patients in most hospital settings.<sup>10</sup> The best approach to preventing MRSA transmission in nursing homes is unknown. Contact precautions for MRSA are rarely used in community-based nursing homes.<sup>11</sup> The vast majority of residents with MRSA colonization are cared for using standard precautions in which a gown and gloves are used when contact with bodily fluids is anticipated.

We recently studied how often health care worker clothing and hands became contaminated with MRSA after caring for colonized residents. This demonstrated that MRSA transmission from colonized nursing home residents to health care worker's gown and gloves, a

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surrogate for transmission to clothing and hands, was substantial with specific care activities (see [Methods](#) section) conferring the highest risk of transmission (hereafter high-risk care activities).<sup>1</sup> In addition, residents with chronic skin breakdown such as pressure ulcers, had an even higher risk of transmission during these high-risk care activities. Prior to devising strategies to reduce MRSA transmission, a better understanding of current gown and glove use in nursing homes is needed. Therefore, we conducted a qualitative study to explore current use and perceptions of various approaches to glove and gown use in nursing homes.

## Methods

We conducted a qualitative study among nursing home staff, administrators, and residents to explore current use and perceptions of glove and gown use in nursing homes. Consistent with focus group methodology, we held four 60-minute recorded focus groups with 6 to 8 participants in each group.<sup>12–14</sup> Administrators were a separate group. We recruited nursing home staff in person from 3 nursing homes in Maryland. Administrators from the facility and franchise level were recruited by the Chief Operating Officer. Qualitative interviews were conducted with nursing home residents, and nursing home staff helped identify interested residents able to give informed consent.

Topic guides for the focus groups were based on our recent study results on MRSA transmission in nursing homes.<sup>1</sup> For nursing home staff, we first discussed current gown and glove (eg, what determines use of gowns and gloves, liked and disliked aspects about them). Next, we presented results from our recent study and asked for participants' reactions to them. Results included the high prevalence of MRSA colonization among nursing home residents, high-risk care activities (dressing the resident, transferring the resident, providing hygiene, changing linens, changing a brief, or toilet assist), and resident characteristics associated with higher risk of MRSA transmission (pressure ulcers). We asked participants to suggest new approaches to use of gloves and gowns that would reduce risk of transmission. The topic guide for administrators included an exploration of the importance of preventing MRSA transmission, presentation of study results, and solicitation of ideas for new approaches to use of gloves and gowns that would reduce risk of MRSA transmission. Finally, the topic guide for the resident interviews explored knowledge of MRSA and perceptions of glove and gown use during care activities.

One moderator (J.A.) and one co-moderator (L.C.) conducted the focus groups and interviews. The co-moderator made note of all nonverbal cues. Following the informed consent process, we obtained verbal consent from each participant. The moderator and co-moderator had no prior relationships with any study participants. Participants were informed that the moderator and co-moderator were not involved in the prior gown and glove study and had no opinions about the topics. Study participants were compensated for their time.

Using the topic guides as a framework, 2 investigators separately performed content analysis of the transcribed audio-recordings and reached consensus on recurring themes that evolved from the data.<sup>12,15</sup> This study was approved by the Institutional Review Board at the University of Maryland, Baltimore. All study participants gave verbal informed consent.

## Results

Nineteen staff from 3 nursing homes participated in focus groups. Thirteen (68%) were geriatric nursing assistants, 4 (21%) were nurses, and 1 was another staff member. Seven administrators participated in a separate focus group. Five residents participated in the qualitative interviews, which lasted 7 minutes on average. Several themes were

identified ([Figure 1](#)). Self-protection was the primary theme among direct care staff while protection of residents/staff and reputation were the most common themes among administrators.

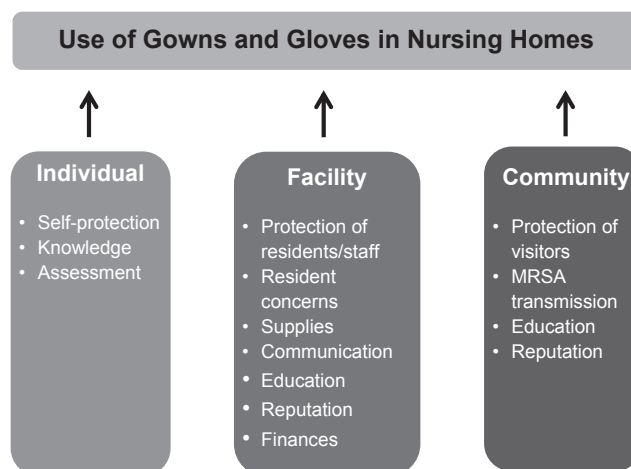
### Current Glove Use

Direct care staff reported that glove use was based upon resident contact; "If you're going to be handling the resident in any way, then you're going to wear gloves," but could also be determined by assessing resident characteristics and needs; "My tell-all sign is a lot of times if I can look at people and they have like rashes or something that I know that could be transferred, I definitely put gloves on." Glove use was most often reported for morning care, diaper changes, dressing changes, and transfers. Direct care staff reported not wearing gloves for indirect care activities (eg, tying shoes, passing water or remote), but inconsistent responses suggest ambiguous guidance on glove use resulting in dependence on knowledge, assessment, and desire for self-protection. For example, staff also reported no glove use for activities involving direct resident contact such as transfers or ambulation.

Glove use was considered routine by nursing home residents and most seemed to prefer it; "If they're coming in contact with me, yes, I think it's preferable." Residents felt protected when staff wore gloves, but it was not clear what they felt protected from despite probing the issue. Residents also thought that gloves protected the healthcare worker from contact with bodily fluids, "They should wear them for their protection. They don't know what they're going to touch."

### Current Gown Use

Gown use was guided by desire to protect clothing from bodily fluids, "If you're doing something with the resident where bodily fluids are gonna splash back on you then you want to protect yourself." Assessment of resident characteristics (eg, evidence of feces/urine on resident's clothing, severe rash, or open wounds) rather than knowledge of tasks to be performed determined gown use; "I mean you can walk in and assess the situation and then I'll just take a few steps back out, get a gown, and try again." Most staff thought that gowns afforded little protection from bodily fluids and many were not sure if the gowns protected against MRSA. "I don't feel like they're really protecting you. If they get wet usually you're still wet." Nursing home residents on isolation precautions have a supply cart outside the room with gowns and gloves on it. This cart provides a visual cue to don gloves and gown. "They have a little cart set up that has the gloves, the



**Fig. 1.** Factors identified by direct care staff and administrators impacting gown and glove use in nursing homes.

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