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Perceptions of Gown and Glove Use to Prevent MRSA Transmission in Nursing Homes

Jennifer S Albrecht, PhD^a, Lindsay Croft, PhD, MS^{a,1}, Daniel J. Morgan, MD, MS^{a,b}, and Mary-Claire Roghmann, MD, MS^{a,b}

^aDepartment of Epidemiology and Public Health, University of Maryland School of Medicine; Medical Science Teaching Facility - Room 334C, Baltimore, Maryland 21201

^bVA Maryland Health Care System; 10 North Greene Street, Baltimore, Maryland 21201

Abstract

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.

Conclusion—Results from this study will inform a strategy to reduce MRSA transmission in long term care.

Keywords

Nursing Homes; Infection Control; Qualitative; Glove and Gown Use; MRSA

Corresponding author: Mary-Claire Roghmann, MD, MS, University of Maryland School of Medicine, 10 South Pine Street, MTSF Room 336, Baltimore, MD 21201, Telephone: 410-706-0062, Fax: 410-706-0098, mroghman@epi.umaryland.edu.

¹Present address: University of Utah School of Medicine, Department of Epidemiology, 30 N. 1900 E, Salt Lake City, Utah 84132
Reprint requests: Leslie Norris, University of Maryland School of Medicine, 10 South Pine Street, MTSF Room 334E, Baltimore, MD 21201

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Introduction

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 one in four nursing home residents are MRSA colonized.^{1–5} Among hospitalized patients with MRSA colonization, up to 30% will develop an infection within 18 months.^{6, 7} 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.⁸ The best approach to preventing MRSA transmission in nursing homes is unknown. Contact Precautions for MRSA are rarely used in community-based nursing homes.⁹ 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 surrogate for transmission to clothing and hands, was substantial with specific care activities (see Methods) conferring the highest risk of transmission (hereafter high risk care activities).¹ 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 6–8 participants in each group.^{10–12} Administrators were a separate group. We recruited nursing home staff in person from three 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.¹ For nursing home staff, we first discussed current gown and glove (e.g. 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 non-verbal 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, two investigators separately performed content analysis of the transcribed audio-recordings and reached consensus on recurring themes that evolved from the data.^{10, 13} 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 three nursing homes participated in focus groups. Thirteen (68%) were geriatric nursing assistants, four (21%) were nurses, and one was another staff member. Seven administrators participated in a separate focus group. Five residents participated in the qualitative interviews, which lasted seven 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 (e.g. 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 (e.g. 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 weren’t 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 gown, the mask, everything for you.” However, staff perceived that use of gowns for residents not on isolation was not supported, ““I don't think the facility is going to like us to have gowns on all the time.”

Staff and administrators both were concerned about patient perceptions of gowns, “If a patient sees you in full garb with your mask and gown and gloves, they're going to think they're under quarantine.” Residents also expressed alarm, “Well, if you're not aware what it's for, you're not sure what they're coming in to do.” However, once residents were informed about the purpose of the gown, they were pragmatic, “Now that I know what it’s for, I think it’s very practical.”

Reaction to Study Results

When we presented study results on transmission to gloves and gowns, administrators were surprised by how high they were “It’s a clean building, clean staff. You think it’s not gonna be that high” and wondered if staff were using proper technique for certain care activities, “Are they handling the linen properly?” Staff weren’t surprised by high rates of transmission associated with specific care activities, noting that “They laid in that bed, you know it was soiled.” Administrators expressed concerns about cohorting residents who are colonized with MRSA with those who aren’t and questioned the legal ramifications of MRSA transmission through healthcare worker contact. They observed that many of the high risk care activities occur without gloves, “It's getting on our hands, and then are we spreading it?” Finally, they suggested that a covered pressure ulcer, even one colonized with MRSA, may give a false sense of security, “Don't we always talk about 'the wound is covered'? Which I think is a false sense of security when you look at this because there's still risk.” This was confirmed by staff, “If (MRSA) is in the wound, and the aides aren't dealing with the wound, then they wouldn't need a gown.”

Nursing homes don’t perform active surveillance for MRSA; consequently, direct care staff don’t know the colonization status of residents, “We don't always know the person has MRSA. We don’t always use gowns and gloves if they're not on contact precautions.” Staff expressed the idea that MRSA is hard to control, “it’s everywhere”, and acknowledged the role they may play in transmission, “It comes from us. Patient to patient, room to room. MRSA is everywhere so it’s really hard and that's how they get it.” Residents themselves contribute to the spread of MRSA, “People come out of the rooms and they're touching here

and there”, even those on isolation, “Even though we've got residents on isolation, therapy is still going to come and get those people.”

Importance of Reducing MRSA Transmission

Nursing home administrators expressed concerns about protecting residents, staff, and community from MRSA. “We have very compromised residents and that could make them more at risk if you spread it to them”, “It's not only the protection of our residents. It's our staff and their family members, our visitors.” MRSA colonization or infection limits ability to take referrals from partnering hospitals, impacting the nursing home's reputation in the community and healthcare costs. Administrators noted, “If they have MRSA then that becomes an issue with how you place people in the buildings” and “Hospitals expect us to take their referral and admit them in a timely manner. If we can't then that could increase hospital length of stay, which could increase costs.”

Suggestions to Control MRSA Transmission

Most staff had not previously thought about protecting themselves from MRSA. Nonetheless, staff and administrators suggested several strategies to reduce MRSA transmission including staff education and changing practice. Although most agreed that universal gown and glove use would reduce MRSA transmission, it was not supported by staff or administrators, who expressed concern about staff objections, burden, and compliance, as well as the perception of the community. “. . .that's a hard line because to put on a gown and glove in every single room would be horrid. It would be horrid to the staff and it would scare the visitors to death”, “They're gonna not use them properly if you put them on everybody, 'cause it's very miserable.” Despite these concerns, administrators questioned whether increased glove use alone would be effective, “Why would we only have them wearing gloves when changing linen when we saw what it did with gowns?” Ultimately, administrators determined that an assessment of technique was required to ensure that staff was properly trained. A few staff also questioned whether proper technique was used “If you're doing it (changing linens) the way you were taught then your risk of infection is very low”. Following assessment of technique, practice changes such as gown and glove use for specific high risk care activities that also considered resident characteristics such as pressure ulcer status could be attempted. Staff suggested that residents could also participate in reducing MRSA transmission by increasing handwashing and one resident also supported an active role for residents.

Discussion

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.

The theme of self-protection as the motivation for gown and glove use is consistent with other studies.¹⁴ Wolf and colleagues reported that perception of risk to self was a stronger motivator of gown and glove use than risk to residents among staff in long term care facilities. The trigger for gown and glove use in this study was contact with bodily fluids, consistent with Centers for Disease Control and Prevention (CDC) guidelines for Standard Precautions.¹⁵ Staff did not consider MRSA prevention when deciding whether to use gowns and gloves unless the resident was on isolation precautions. However, rather than an education deficit on the part of staff, this may suggest lack of consistent guidance or clarity about infection prevention procedures in nursing homes, which has been noted by others.^{14, 16, 17} CDC Isolation Guidelines for long term care suggest implementing or modifying Contact Precautions for MRSA colonized residents based on local case-mix, but are limited by lack of scientific evidence.^{15, 18} This study highlights the practical impact of this knowledge gap and underlines a need for more research on MRSA prevention in nursing homes.

Nursing home residents expressed negative impressions of gown use until they learned that gowns could help prevent MRSA transmission, suggesting that education on MRSA may dispel misconceptions. Negative perceptions of gowns have been previously reported among skilled nursing facility staff, but negative patient views have previously only been associated with contact precautions in the hospital, which include room restriction.^{16, 19} This study adds to the literature by providing evidence that nursing home residents also have negative impressions of gowns. Maintaining a home-like environment for residents must be balanced against the need for infection control procedures in the nursing home. This creates difficulties in reducing MRSA because residents are encouraged to move freely, potentially facilitating MRSA transmission.^{14, 17, 20, 21} Staff and one resident suggested a more active role for residents in prevention of MRSA transmission. Other studies have noted patient movement, sharing of toilets and food, and lack of handwashing as barriers to infection control, while also suggesting a possible role for patients in MRSA reduction strategies.^{14, 21}

Administrators and staff suggested implementing a task-based MRSA reduction strategy that incorporates resident characteristics such as pressure ulcers to reduce transmission risk. A prior study noted that skilled nursing facility staff were willing to change infection prevention practices if they knew the colonization status of the resident, suggesting that clear guidance about strategies for specific task or patients would be acceptable.¹⁶

Limitations of this study include a poor understanding of MRSA among staff, hampering discussion of prevention efforts. This was also an important finding as it suggests that staff may need training on infection control efforts. The participating nursing homes were part of the same system in a single state, possibly limiting generalizability of findings. Finally, family members, who could have provided an additional perspective on glove and gown use, were not included in interviews.

Nonetheless, this is the first study to collect qualitative information from residents, staff and administrators relating to MRSA prevention efforts in the nursing home. Many high risk care activities occur without gowns or gloves. Protection of clothing from bodily fluids, rather than MRSA transmission prevention, influences staff decisions to wear gowns and gloves. Staff and administrators are willing to use gowns and gloves for high risk care activities, particularly if gown and glove use is targeted to specific residents such as those with pressure ulcers. New use of gowns and gloves to prevent MRSA transmission and infection should be accompanied by education to direct care staff, residents and family members. Results from this study can inform a strategy to reduce MRSA transmission in long term care.

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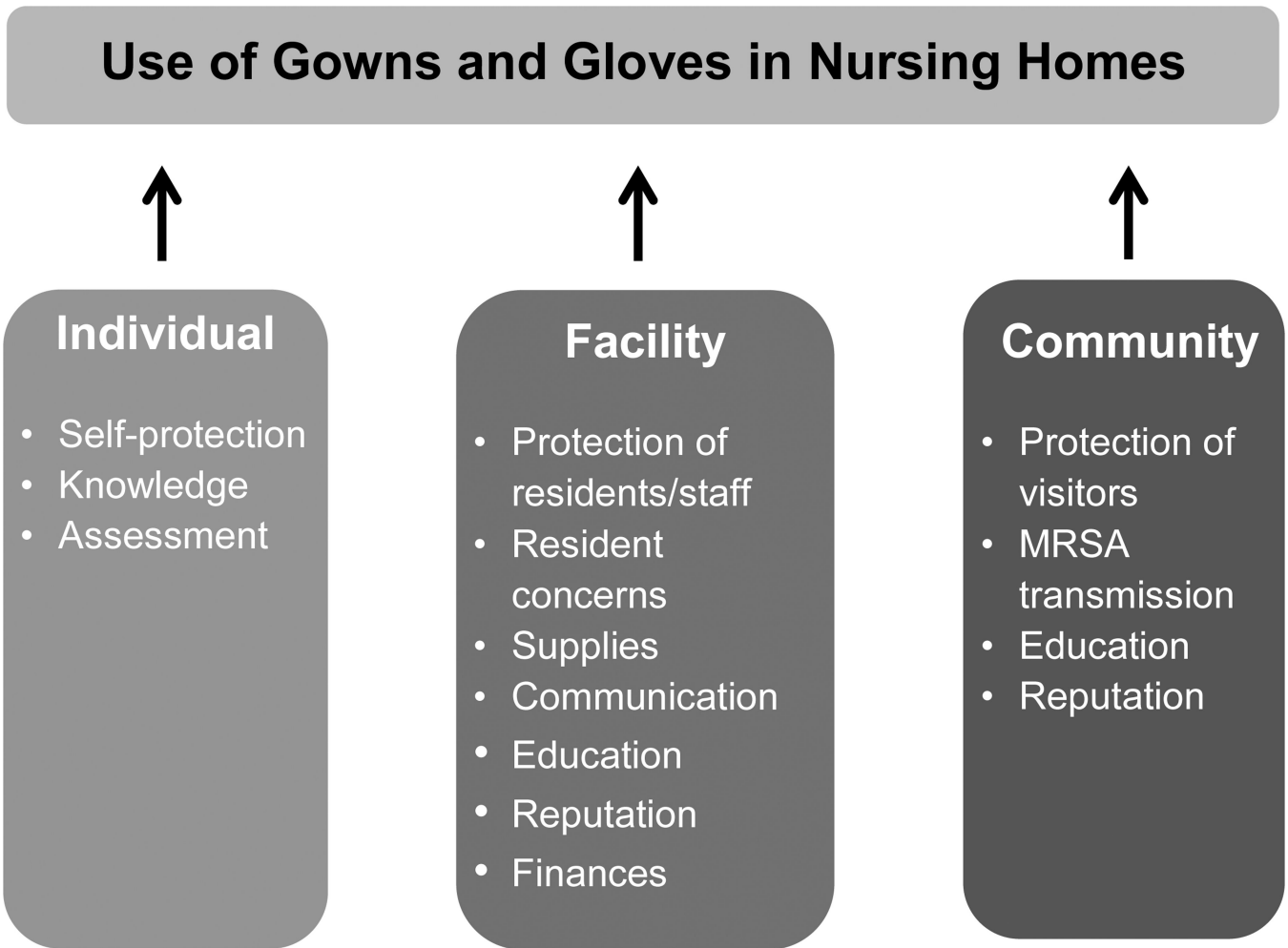


Figure 1. Factors identified by Direct Care Staff and Administrators impacting Gown and Glove Use in Nursing Homes