Guidelines for the Management of Methicillin Resistant *Staphylococcus aureus* in Rhode Island LongTerm Care Facilities

INTRODUCTION

The presence of methicillin-resistant *Staphylococcus aureus* (MRSA) in long-term-care facilities (LTCF's) is well established. Concerns about MRSA have led some LTCF's to restrict the admission of those known to be infected or colonized.[1] [2]Admissions (and readmissions) should not be based on MRSA status alone, but on the ability of the facility to provide necessary care to the resident. LTCF's should be prepared to implement appropriate infection control measures for all prospective or current residents colonized or infected with MRSA.[3]

The best methods for the management of MRSA in long-term-care facilities continue to be debated among infection control professionals. Proponents for the strictest measures see nursing homes as reservoirs for increasing numbers of MRSA colonized residents. [4] [5] [6] When admitted to a hospital, these residents put patients at risk for colonization and infection. With nursing home admissions reflecting higher acuity, more patients go back and forth between the two types of facilities and a shared, consistent, strict approach is seen as advantageous. Reducing the reservoir of colonization is considered an important goal.

Supporters of less stringent guidelines acknowledge the extent of MRSA colonization in LTCF's, but point out a lack of data documenting transmission of infection within the LTCF setting.[1] [2] [7] [8] The inherent differences between long term and acute care are cited as reasons for measures that are specific to the extended-care setting. Maintenance of a home like atmosphere (including as much socialization and mobility as possible), limited private room availability, residents with dementia (and the units designed with their wandering in mind), and limited resources are some of the relevant areas.[1] [2]

The work group assigned the task of writing this guideline struggled with these concerns. Guidelines specific to long-term-care, issued from other states, were reviewed. Literature describing appropriate measures for acute settings was reviewed and discussed with a view to what can practically be implemented in a LTCF.[4] Material in this guideline has been adapted from the 2000 Guideline for the Management of Antimicrobial Resistant Microorganisms in Minnesota Long-Term-Care Facilities[3] and the1996 Centers for Disease Control and Prevention (CDC) publication "Guideline for Isolation Precautions in Hospitals",[9] as well as the practical experience of the advisory group members.

RISK FACTORS FOR MRSA COLONIZATION & INFECTION IN LTCF RESIDENTS[1 2]

- Functional status decline
- Use of broad spectrum antibiotics
- Chronic illness
- Presence of pressure ulcers
- Use of IV catheters, urinary catheters, naso-gastric tubes
- Prior hospitalization

INFECTION CONTROL MEASURES

HAND HYGIENE

- Hand hygiene significantly reduces the potential for MRSA transmission via contaminated hands. Handwashing with an antimicrobial soap, or the use of an alcohol-based, waterless product must be done after contact with residents with MRSA. (Best practice would be use of the alcohol product.)
- The use of a waterless alcohol-based hand rub should be **strongly considered** in the care of all LTCF residents. Recent studies show that such products are as effective as antimicrobial soaps, may increase handwashing compliance, and are not harmful to hands.[10]

STANDARD PRECAUTIONS (SP)

- Standard precautions (SP) are important in the care of **ALL** residents, whether or not they are known to have MRSA.[9] Colonization with MRSA is often unrecognized and other infectious organisms may also spread in LTCF's. Emphasis should be placed on hand hygiene and appropriate glove use.
- **Most** LTCF residents with MRSA colonization of ONLY the nares can be cared for using SP. Some residents with nares colonization may need Contact Precautions (CP); modified as necessary for LTCF's. This determination should be made after an evaluation of the resident.
    - Criteria for choosing SP should include: residents without symptoms of an upper respiratory infection and with good personal habits related to hand to face contact, tissue use and hand hygiene.
    - Criteria for choosing CP should include: residents with the runny nose, sneezing, and coughing associated with an upper respiratory infection;

residents whose hands/fingers are likely to be contaminated with material from the nose; and residents who have been linked to a facility outbreak of MRSA infection.

CONTACT PRECAUTIONS (CP)

- Contact precautions are indicated for all residents infected with MRSA, and those colonized residents who are more likely to shed MRSA into the environment.
- Modifications to CP are usually necessary for the LTCF environment although facilities may choose the stricter interpretation favored by many acute care facilities. Usual modifications involve patient placement and patient movement.
    - Placement - Most LTCF residents with MRSA do not require a private room.
        - Limited room availability usually leads to cohorting of two residents with MRSA or selection of a non-compromised roommate. A non-compromised room-mate has intact skin, no invasive devices, tubes or drains (intravenous catheters, urinary catheters, gastrostomy tubes etc.), is not significantly immunocompromised and is not colonized or infected with a different antibiotic-resistant organism. Careful attention must be given to technique that minimizes cross-contamination
        - Placement in a private room is the best practice for:
            - residents with MRSA pneumonia and uncontained respiratory secretions, and
            - residents with a tracheostomy who have a MRSA colonized or infected respiratory tract with uncontained respiratory secretions.

    - Movement – Restriction of residents to rooms is not recommended for LTCF's. Group activities and socialization serve important purposes in maintaining quality of life.
        - Residents with MRSA may use common areas and group dining facilities if the following criteria can be met:
            - secretions/excretions containing MRSA are covered and contained,
            - resident practices hand hygiene before leaving room (alcohol based hand cleaner recommended), and
            - resident is wearing clean clothes.
        - In some circumstances, restricting movement (for as short a period of time as possible) is the best practice. This "best practice" may be difficult to attain, particularly on dementia units. Individual resident assessment and conscientious attempts to redirect to room are realistic expectations.

- The components of CP that should be emphasized are glove use for all room entry, hand hygiene for caregiver AND resident who leaves room, and dedicated equipment.

- Residents for whom CP, in addition to SP, are indicated include the following:
  - residents with MRSA infected or colonized wounds (Wounds must be fully covered by dressings in order for resident to leave room.),
  - residents with fecal or urinary carriage of MRSA (Urine or stool must be contained in incontinence products, urine bags or ostomy bags OR resident must be continent in order to leave room.),
  - residents with MRSA pneumonia and uncontained respiratory secretions (The best practice would be for resident to stay in room.),
  - residents with a tracheostomy who have a MRSA colonized or infected respiratory tract with uncontained respiratory secretions (The best practice would be for resident to stay in room.),
  - colonized or infected residents linked to a facility outbreak (The best practice would be for resident to stay in room.), and
  - residents with nares colonization and the runny nose, sneezing, and coughing associated with an upper respiratory infection and residents with nares colonization whose hands/fingers are likely to be contaminated with material from the nose (The best practice would be for resident to stay in room.).

CONTACT PRECAUTIONS: GLOVES

- In addition to wearing gloves as necessary for SP, gloves (clean, non-sterile) are worn when entering the room of a resident on CP. Gloves are necessary for:
  - providing direct care (changing clothes, toileting, bathing, dressing changes etc.),
  - handling urine/stool containers or bags, and
  - handling items potentially contaminated by MRSA such as overbed tables, bed rails, bedside tables, bed controls, television controls, IV poles, suction and oxygen tubing, bathroom fixtures, and electronic equipment, especially control knobs.

- Gloves are not a substitute for appropriate hand hygiene.
  - After contact with material that may contain high concentrations of MRSA (urine, stool, wound drainage), gloves should be removed, hands cleaned and new gloves applied before proceeding with other aspects of resident care or contact with the environment. (Avoid touching items in the room with contaminated gloves.)

- Gloves should be removed and discarded and hands cleaned before leaving the resident's room or providing care to another resident.
- Avoid touching potentially contaminated surfaces or items after glove removal and hand hygiene.

CONTACT PRECAUTIONS: GOWNS

- In addition to wearing gowns as necessary for SP, gowns (clean, non-sterile) are worn when entering the room of a resident on CP when:
  - direct care will be provided (bathing, toileting, lifting),
  - contact with secretions/excretions is anticipated (incontinence, uncontained wound drainage, ostomy care, linen changes), and
  - contact with environmental surfaces and items in the room which are likely to be contaminated is anticipated.

- Gowns should be removed and discarded before leaving the resident's room. After gown removal, ensure that clothing does not contact potentially contaminated environmental surfaces.

CONTACT PRECAUTIONS: PATIENT CARE EQUIPMENT

- Dedicate patient care equipment to a single resident (thermometers, blood pressure cuffs, stethoscopes, commodes).
- Equipment that is shared must be cleaned and disinfected before use by another resident. (standard facility disinfectant adequate)

MASKS, EYE PROTECTION, FACE SHIELDS

- Masks are not a routine part of CP. However, masks and eye protection or face shields should be worn during the care of any resident if indicated by SP. These items are indicated during resident care activities that are likely to generate splashes or sprays of blood, body fluids, secretions and excretions. (suctioning or working within 3 feet of a resident who is likely to expel droplet secretions, wound irrigations)
- Transmission of MRSA via the airborne route is controversial and facilities may choose to implement stricter use of masks for caregivers (masks for all room entry).
- Best practice for residents with MRSA pneumonia or a tracheostomy with MRSA infected respiratory tract would be to wear a mask or trach covering if movement outside of the room is necessary.

MICROBIOLOGY PROCEDURES

- Order only oxacillin sensitivity testing (often called a MRSA Screen) when screening for MRSA in the asymptomatic resident or when doing a follow up after a MRSA infection has been treated.
- For nares, a bilateral sample utilizing one (1) swab is recommended.

DISCONTINUING CONTACT PRECAUTIONS

- Contact precautions may be discontinued when there is documentation of two (2) consecutive negative MRSA screens from previously positive sites.
- Screens should be obtained no sooner than 72 hours after completion of decolonization and/or treatment of infection.
- Screens should be at least 5 days apart.
- When a suitable specimen for follow up is not available (healed wound, no sputum production) the following criteria for discontinuing precautions may be considered:
    - absence of signs and symptoms (as in the healed wound)
    - specimen(s) from closest anatomical site (nares or throat for sputum)

DECOLONIZATION

- Routine decolonization for MRSA carriage in the nares is not recommended for LTCF residents.[1]
- Decolonization attempts would be appropriate for:
    - residents implicated in a facility outbreak, and
    - residents admitted from the hospital with decolonization procedures already underway.

HOUSEKEEPING

- The standard facility disinfectant is adequate. Careful attention should be given to manufacturer's recommended application times and contact times.
- Room Cleaning
    - Rooms of residents with MRSA should be the last cleaned on a unit.
    - All cleaning materials such as cloths or mop heads should be discarded after use (if disposable), or disinfected before use in another room (if reusable).
    - Housekeeping staff should be gowned and gloved while in room and receive instruction on proper removal and disposal of PPE.
- Bathrooms

    - Shared bathrooms (resident with MRSA and resident without MRSA) should be cleaned and disinfected on a daily and "as needed" basis. "As needed" will be determined on a case-by-case basis via nurse assessment of MRSA site(s) as well as resident hygiene.
    - Commodes may be useful when one roommate has MRSA carriage in the urinary or intestinal tract. "Best practice" is for the resident with MRSA to use the toilet and the resident without MRSA to use the commode. This is not always possible or practical. A commode or toilet used by a resident with MRSA should not be used by another resident unless cleaned and disinfected.
- Showers and Tubs
    - Tubs and showers should be cleaned and disinfected per standard facility procedure after use by residents with MRSA.
    - It may be practical to bathe residents with MRSA after other residents.

- Physical and recreational therapy equipment
    - Residents with MRSA should practice hand hygiene before using any equipment.
    - Equipment that becomes soiled with body secretions/excretions should be disinfected before use by another resident.
    - It may be practical to schedule residents with MRSA as the last appointment of the morning or afternoon.

- Trash disposal
    - Standard facility procedures can be followed.
    - Red bags are NOT necessary.

DIETARY SERVICE

- No special precautions (such as paper service) are required. The combination of hot water and detergents used in institutional dishwashers will decontaminate dishes, glasses, cups and utensils.

LAUNDRY

- Standard Precautions are adequate for handling laundry from all residents.
- Soiled laundry, especially linens and towels from residents with uncontained stool, urine or other secretions/excretions, should be handled so that contamination risk to staff and the environment is minimized.
- Gloves and long sleeved gowns should be worn when changing the beds of residents on Contact Precautions.
- Laundry staff should wear gloves and long sleeved gowns when sorting all laundry.

- No special laundering procedure is required. Institutional laundry processes are sufficient for decontamination.

SURVEILLANCE

- Surveillance for MRSA should include the regular review of all culture and susceptibility data. A baseline rate of MRSA infection can be established. This will aid in the detection of an outbreak.
- Screening residents for MRSA should not be a routine measure but may be necessary during an outbreak situation.
- A confidential line listing of residents with MRSA should be maintained.

COMMUNICATION AND EDUCATION

- Inter-facility
    - Long-term and acute-care facilities need to work together in attempts to control the spread of MRSA.
    - Communication of MRSA status of residents is essential for appropriate precautions to be instituted in both types of facilities.

- Resident, Family and Visitors
    - The rationale for the differences in acute and long-term-care precautions should be explained to the resident with MRSA and family members.
    - Residents, family members and visitors should be educated about MRSA and the precautions necessary in the LTCF.
        - Hand hygiene before entering and leaving resident room
        - Glove use if handling secretions/excretions of residents or if assisting with direct care

- Staff
    - Continuing education about MRSA for all staff is encouraged.
        - Healthy people have very little risk of developing a MRSA infection.
        - There are no special precautions for pregnant staff that work with residents with MRSA.

SUMMARY

- This guideline is intended to assist LTCF's in the prevention and control of MRSA while maintaining quality of life for colonized or infected residents.

- Individual resident assessments can be done, using this guideline as a reference. Specific care plans can then be developed which minimize the risk of transmission as well as the restrictions placed on the resident.

DEFINITIONS

- ***Staphylococcus aureus*:** a common species of gram-positive bacteria found on the skin and in the anterior nares of many people.

- **Methicillin Resistant *Staphylococcus aureus* (MRSA):** strains of *S. aureus* that are resistant to methicillin as well as many other antibiotics including oxacillin, nafcillin, cephalosporins and imipenem.

- **Colonized resident:** a resident who is culture (or screen) positive for MRSA, but has no signs and symptoms of infection.

- **Infected resident:** a resident who is culture (or screen) positive for MRSA and has signs and symptoms of infection.

- **Decolonization:** the administration of topical, oral or systemic antibiotics for the purpose of eradicating MRSA colonization.

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