

Multi-Drug Resistant Organisms (MDROs) in School Settings

Standard Operating Procedure (SOP)

A guide for school nurses developed by infection control specialists and public health professionals



Purpose

To provide schools with guidelines and exclusion criteria for students with confirmed MDRO (infection or colonization). This protocol is based on infection control guidelines, and a 3 C's principal, which are cleanliness, containment, and compliance. These guidelines are applicable to all students, whether they are healthy or have underlying health issues that attend childcare facilities and K-12 grade schools.

Infectious Agents

MDROs are bacterial infections resistant to one or more antimicrobial agents, including:

- (MRSA) methicillin-resistant *Staphylococcus aureus*
- (CRAB) carbapenem-resistant *Acinetobacter baumannii*
- (CRE) carbapenem-resistant Enterobacteriaceae
 - *Klebsiella* species
 - *Escherichia coli*
 - *Enterobacter* species
- (VRE) vancomycin-resistant Enterococci
- (VISA) vancomycin-intermediate *Staphylococcus aureus*
- (VRSA) vancomycin-resistant *Staphylococcus aureus*

Definitions

Colonization

MDRO is present in or on the body site; no clinical sign or symptoms of illness or infection are present. A colonized person is sometimes referred to as a “carrier.”

Infection

Presence of an MDRO in a body site accompanied by clinical signs and symptoms of infection (e.g., fever, lesions, wound drainage). Infection usually warrants treatment.

Healthy students

Students with an MDRO infection or colonization who are able to practice cleanliness, contain bodily fluids, and demonstrate compliance.



Total and partial dependent care students

Students unable to practice cleanliness, contain bodily fluids, and demonstrate compliance to these guidelines and are dependent on healthcare personnel and/or school staff for assistance with daily living activities.

Standard precautions

Infection prevention practices used to prevent transmission of any possible infectious diseases from one person to another anytime contact with mucous membranes, secretions, excretions, non-intact skin and blood or body fluids may occur. Standard precautions are applied to **every person every time** to assure that transmission of disease does not occur.

Contact precautions

Transmission based infection prevention practice used for persons with infectious diseases which are spread not only by direct or indirect contact with bodily fluids (e.g., feces, urine, vomit, wound drainage), but also by contact with skin or with equipment or environmental surfaces contaminated by secretions and excretions. Added safeguards to prevent transmission from surfaces as well as bodily fluids must be implemented. Contact precautions must be used in addition to standard precautions. See guidelines below for “Total and Partial Dependent Care Students.”

Infection Control

When a student is diagnosed with a confirmed MDRO infection or colonization, the student and staff should follow standard precautions and possibly contact precautions as well depending on the health needs of the children (see definitions above). Healthy students as defined above diagnosed with MDRO infection or colonization can be cared for using standard precautions with good hand hygiene and use of Personal Protective Equipment (PPE) when necessary. Contact precautions for total and/or partial dependent care students should be followed in addition to standard precautions.



Healthy Students

(Use Standard Precautions)

Hand Hygiene

Student and/or staff should wash hands with soap and water in the following circumstances:

- After touching blood, body fluids, secretions, excretions, wounds, mucous membranes, non-intact skin and contaminated items/ equipment
- After diapering or using the restroom
- Immediately after removing gloves
- Between student contacts
- Before and after student eating or feeding
- Upon arriving to class or transitioning between classrooms
- Alcohol-based hand sanitizer is effective in the interim until hand sink is available, unless hands are visibly contaminated and should be available in classrooms and multiple areas of the school.

Respiratory Hygiene/Cough Etiquette

- Educate students and staff to cover their nose and mouth when coughing or sneezing, use and dispose of tissues, and perform hand hygiene immediately.
- Tracheostomy should be covered when not in use (e.g., button, speaking valve, and humidifier).
- Medical care activities (e.g., suctioning) on MDRO student should occur with at least a 3-foot spatial separation from other students.

Safe Injection Practices

- Use appropriate injection practices intended to prevent transmission of infectious diseases between one student and another, or between a student and staff during preparation and administration of parenteral injections.
- Recommendations for safe injection practices include the following:
 - Use aseptic technique when preparing and administering medications.
 - Cleanse the diaphragm of medication vials with 70% alcohol before inserting a device into the vial.
 - Never reuse a syringe and/or needle.



Personal Protective Equipment (PPE)

- **Gloves**

Gloves must be worn for potential contact with blood, body fluids, mucous membranes, non-intact skin or contaminated equipment. Gloves should not be worn for the care of more than one student. Gloves should not be washed for reuse.

- **Mask/eye protection/face shield**

These PPE items should be worn during activities likely to generate splashes of blood, body fluids, and secretions.

- **Gown/aprons/disposable absorbent pads**

These PPE items should be used to protect skin and clothing during procedures or activities where contact with blood or body fluids is anticipated.

- Hand hygiene should be performed immediately after removing gloves and PPE.
- PPE should be disposed of properly.

Soiled Student-care Equipment (Personal Medical Equipment)

- Handle in a manner that prevents transfer of microorganisms to others and to the environment; wear gloves if visibly contaminated and perform hand hygiene.
- Clean and/or disinfect equipment between each student's use or when visibly contaminated.
- Use approved EPA-registered products for all cleaning and disinfection (<http://www.epa.gov/oppad001/chemregindex.htm>). Follow manufacturer's recommended instructions for use, amount, dilution, contact time and disposal. (Surfaces must remain wet for entire recommended contact time).

Laundry

- Clothing, linens, and towels heavily soiled with body fluids should be bagged and washed by themselves in detergent with or without bleach using the hottest cycle possible (recommend 160°F). If using lower water temperatures, adding chlorine bleach is effective.

Waste Management

- Place all disposable contaminated items into plastic bags, tie bags securely and dispose in regular garbage.
- Perform hand hygiene immediately.



Dishes and Utensils

- A dishwasher is the preferred method for washing, rinsing, and disinfecting dishes and utensils. If the facility does not have a dishwasher, wash dishes with dish soap and hot water, and disinfect with chlorinated (bleach) water for at least one minute after each use (1 ½ T liquid bleach for each gallon of water).
- Allow to air dry in clean area.
- Do not allow sharing of dishes, cups, utensils or food.
- Use disposable paper or plastic dishes, cups and utensils, when available.

Environmental Measures

- Develop procedures and ensure that routine cleaning and disinfection of environmental surfaces is performed regularly; especially, frequently touched surfaces in classroom areas and throughout school (e.g., doorknobs, diaper changing tables, toilet area surfaces, cabinet handles, wheelchairs, and lifts).
- Dedicate toys, supplies and all types of equipment (including medical and athletic) when possible to the MDRO infected or colonized student. Ensure items are discarded or cleaned and disinfected prior to reuse by another student.
- Shared items found in common areas should be cleaned and disinfected between each student use and on a regular basis with an EPA registered disinfectant.
- Ensure that all staff are regularly trained on infection control practices and review specific surfaces to be cleaned and disinfected (e.g., high-touch surfaces, equipment, wheelchairs, lifts, mats, sporting equipment, dishes, and linens).
- Recommend a cleaning log is maintained to ensure environmental cleaning is conducted according to recommended schedule. Monitor for compliance.
- Ensure that specific individual staff assignments are clear and reviewed regularly.
- Use approved EPA-registered products for all cleaning and disinfection (<http://www.epa.gov/oppad001/chemregindex.htm>). Follow manufacturer's recommended instructions for use, amount, dilution, contact time and disposal. (Surfaces must remain wet for entire recommended contact time).

Swimming Pool/Physical Education/Physical Therapy

- All students and staff with wounds or sores cannot participate in swimming pool activities or close contact sports until healed.
- Open wounds or sores should be kept covered with clean, dry bandages that are taped on all four sides.



- All students and staff must shower with soap and water before entering swimming pool and after pool or athletic activities.
- Do not share towels or any personal items.
- Routinely clean and disinfect locker rooms/equipment/shower areas/high-touch surfaces (e.g., benches, showers, floors, mats, and hand rails) with EPA- registered product. Follow manufacturer’s recommended instructions for use, amount, dilution, contact time and disposal.
(Surfaces must remain wet for entire recommended contact time).
- Properly maintain required chlorine/PH levels in pool.

Transportation

- Staff assisting students diagnosed with confirmed MDRO infection or colonization during transport should wear PPE, as needed.
- Routine environmental vehicle cleaning must be performed according to school district policy.
- If vehicle or surfaces are visibly soiled with bodily fluids, clean appropriately.
 - PPE should be used when cleaning.
 - Use EPA- registered product for cleaning and disinfection. Follow manufacturer’s recommended instructions for use, amount, dilution, contact time and disposal. (Surfaces must remain wet for entire recommended contact time).
 - Maintain at least a 3-foot spatial separation between students with MDRO infection or colonization to accommodate any needed medical care activities.

Total and Partial Dependent Care Students

(Use Transmission- based Contact Precautions in addition to Standard Precautions)

- Use healthy student recommendations as above.
- PPE must be worn during contact with all students with confirmed MDRO infection or colonization.
- Utilize dedicated staff for students with confirmed MDRO infection or colonization, as necessary.



- Medical care activities (e.g., suctioning, catheterizing) on students with confirmed MDRO infection or colonization should occur with at least a 3-foot spatial separation from other students.
- Ensure appropriate placement of students with confirmed MDRO infection or colonization.
 - Cohort MDRO students with others that are infected or colonized with *same* MDRO organism and/or cohort students with others who are *not* considered high-risk (e.g., no invasive devices, not immunocompromised, no wounds).
 - Maintain at least a 3-foot spatial separation between students with confirmed MDRO infection or colonization.

Exclusions

Students (K-12) and childcare age children or staff with a confirmed infection or colonization associated with a positive culture of an MDRO (e.g., MRSA, CRAB, CRE, VRE, VISA, and/or VRSA) must be excluded from school unless all infectious bodily fluids (e.g., wound drainage, respiratory secretions, urine, and stool) are contained and not spread to others or the environment as defined below with the 3 C's:

Cleanliness

- Proper personal hygiene (clean body and clothing).
- Good hand hygiene by student and staff.
- Environmental cleaning (all surfaces hard and soft, contaminated with drainage, secretions or excretions must be cleaned and disinfected appropriately. (See Environmental Measures above).

Containment

- Appropriate PPE use by staff.
- Drainage, bodily fluids, secretions and excretions are covered or contained.

Compliance

- Students and staff can meet above cleanliness and containment guidelines.

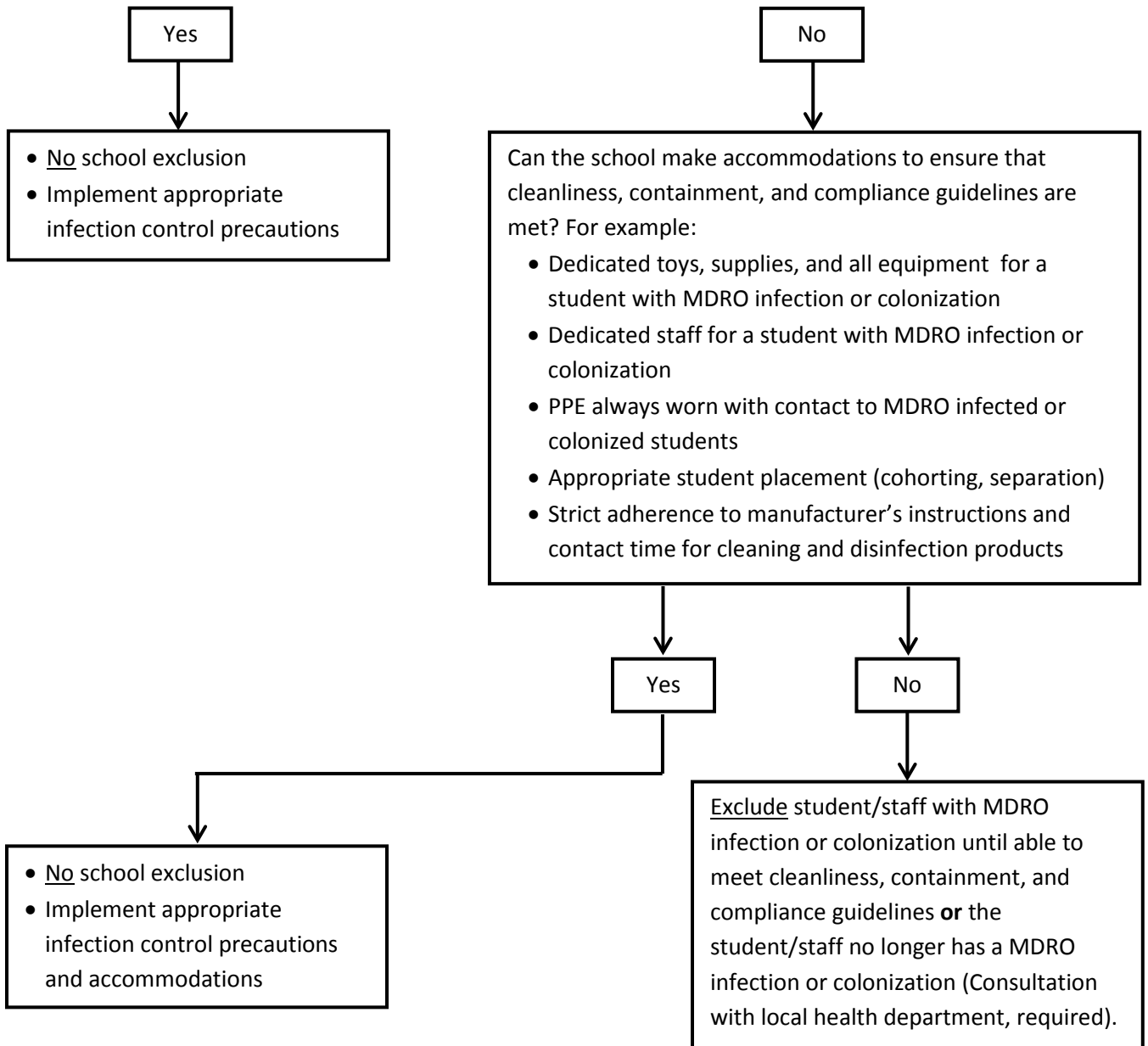
Students unable to comply with the 3 C's may return to school if they no longer have a MDRO infection or colonization. Consultation with the local health department is required for each individual student situation.



Exclusion Algorithm

Can the following be met by the student and staff/school?

- Cleanliness (student hygiene, hand hygiene, and environmental cleaning)
- Containment (bodily fluids are covered or contained by barriers and appropriate PPE use)
- Compliance (student and staff are able to meet all necessary cleanliness and containment guidelines)



Resources

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