



Multidrug-Resistant Organisms (MDRO)

What does MDRO mean?

According to the CDC "For epidemiologic purposes, MDRO's are defined as microorganisms, predominantly bacteria, that are resistant to one or more classes of antimicrobial agents. Although the names of certain MDRO's describe resistance to only one agent (e.g., MRSA, VRE), these pathogens are frequently resistant to most available antimicrobial agents."

Is my patient at higher risk of an MDRO infection?

Some patients are at higher risk than others. The following exposures might place animals at higher risk for acquisition of an MDRO.

- Housed in shelter/sanctuary/rescue setting
- Received overnight care at a referral veterinary hospital/clinic
- Imported into the US from another country
- Received veterinary care outside the US

Are all patients suspected or known to be carrying an MDRO managed the same way?

No, depending on the organism, infection location, symptoms, and clinical findings, patients with MDR infections are either labeled with a yellow or red collar.

- Yellow collar - Contact Precautions required. Wear gloves and practice good hand hygiene before and after handling the patient.
- Red collar - Mini-Isolation/Barrier Precautions required. Wear gloves, gown, and practice good hand hygiene before and after handling the patient. Additional PPE (mask, eye protection, poly boots) may be required depending on the organism and source of infection (i.e. open wound). Barrier precautions separate infectious patients from other patients by providing a physical barrier and visual reminder about clean or dirty workflow areas. For respiratory cases the barrier must be 6 feet.



When is a patient cleared of their MDRO?

- Once the current MDRO infection has resolved and is no longer considered infectious, the Infection Control Team will adjust the alert to be "History of MDR"
- The attending clinician should email Infection Control (vmcic@umn.edu) when:
 - The site can be recultured.
 - The site cannot be recultured until the patient has discontinued antimicrobial treatment and the previous MDRO site is "cleared" per the attending clinician.

How to determine yellow vs red patient ID collar

Precaution level	Yellow collar	Red collar
MDR patient with no discharge or drainage	✓	
MDR patient with discharge or drainage that is completely covered/bandaged	✓	
MDR patient with discharge or drainage that is NOT completely covered/bandaged		✓
Incontinent patient with MDR UTI		✓
History of MDRO alert on record patient presenting with open wound drainage or incontinence		✓

All infectious patients must be identified with a yellow or red collar

Contact Precautions	Wear gloves. Wash hands and/or use alcohol-based waterless hand wash before and after any patient contact.	
Mini Isolation Precautions	Wear gloves and protective gown for all patient contact. The patient shall be kept in a designated area with limited personnel (for respiratory cases 6 ft barrier around patient). Wash hands before and after working with patients.	

Cleaning tips following an MDRO patient visit

1. Clean – Thoroughly clean the surfaces ensuring removal of any visible debris
2. Disinfect – Apply Rescue (1:16 concentration). Ensure surfaces remain wet for the required contact times.
 - For spray - a 5-minute contact time
 - For wipes - ensuring a 1-minute contact time
3. Allow surface to air dry or wipe down before use.

Are precautions needed for patients with a history of MDRO infection(s)?

- Yes, these patients should be identified with a yellow collar and contact precautions are to be used for all patient contact.

If a patient with a history of MDRO infections presents with signs of a new infection do I need to take contact or mini-isolation precautions?

- Yes, patients with a history of previous MDRO presenting with a new potential infection should be handled and housed utilizing contact or mini isolation precautions, identified with a yellow or red ID collar, and if admitted an infection control card should be utilized.

How to know what level of precautions to take

YELLOW collars for contact precautions. Infectious patients that need to be identified but do not require isolation.

- Patient with an MDRO alert and no open wound drainage or incontinence
- Patient with a history of MDRO with no open wound drainage or incontinence

RED collars for mini or full isolation requirements. Infectious patients considered high risk of spreading infection to people and other animals.

- Patient with a history of MDRO with open wound drainage or incontinence
- Patient with an MDRO alert and with open wound drainage or incontinence

Culture tips:

- If you have previous culture results (from the VMC or rDVM) include what organisms were seen on the new culture request.
- Use appropriate aseptic culture techniques and materials when collecting samples. Consult with Clinical Pathology for guidance.
- When possible submit cytology along with culture to aid in culture interpretation and treatment decisions.
- Please review rDVM culture results. Infection Control should be notified of concerning or MDRO organisms (vmcic@umn.edu).

Patient transportation & scheduling:

- Patients with MDRO or history of MDRO should be scheduled as outpatients
- Restrict movement of MDRO patients to necessary medical treatments or trips to the bathroom.
- MDRO patients should wait in the car until transportation can be arranged for them throughout the hospital.
- Pet and owner should be roomed immediately on arrival
- Animals should be transported via carrier, cart or gurney if they are incontinent or have a draining wound(s)

To minimize the risk of contamination MDRO animals require:

- Dedicated personnel with minimal hand offs
- Procedures (e.g., imaging, sedation, anesthesia, surgery etc.) scheduled at the end of the day
- Induction & recovery in outpatient surgery by dedicated personnel