



Preventing Multidrug Resistant Organisms (MDRO) in International Hospitals: A Survey & Needs Assessment

The Society for Healthcare Epidemiology of America (SHEA) is conducting a study to better understand the capabilities of infection prevention teams globally, related to prevention of multidrug resistant organisms (MDRO). The following is a survey which will gather data exclusively from international sites, and will assess respondents' current practices in terms of infection prevention and control staffing, policies and resources, as well as those related to antimicrobial stewardship, laboratory testing, and information technology (IT). Barriers to optimal infection prevention and control will also be assessed.

The survey will be open for one month and will close. The results will be submitted to Infection Control and Hospital Epidemiology for publication. Thank you for your participation.

One respondent per facility is requested. You may need to consult with your other colleagues to complete all questions as necessary.

1. Please indicate your role at your institution. Check all that apply: *

- Hospital Epidemiologist
- Associate Hospital Epidemiologist
- Infectious Disease Specialist
- Administration
- Infection Control Practitioner (ICP)
- Infection Control Manager (Lead ICP)
- Director of Antimicrobial Management/ Stewardship
- Pharmacist
- Microbiologist
- Other

2. In what kind of hospital do you practice? Check all that apply: *

- Teaching (presence of any medical trainees)
- Non-teaching
- Public/Government
- Private

3. Is your hospital accredited by any regulatory body (local, state/provincial, and/or federal)? *

- Yes
- No

4. How many beds does your hospital have?*

- <200 beds
- 200-500 beds
- >500 beds

5. Which type(s) of patient rooms are most common in your inpatient areas? (Select the 1 type that is most common (>50% o rooms); if evenly split between 2 or more, select each type).*

- Single Patient Rooms
- Semi-private Rooms (shared by 2 people)
- Shared Rooms (up to 4 people)
- Wards (>4 people)

6. Does your hospital have an electronic health record? *

- Yes
- No

7. Which of the following staff members are involved in your Infection Control program in your hospital? Check all that apply:*

- Infection control certified nurses or other staff
- Hospital epidemiologist or infectious diseases physician
- Other physician
- Hospital administration
- Microbiology staff
- Nursing
- Environmental facilities staff
- Pharmacists
- Employee/ Occupational health
- Other

8. Infection control staff in your hospital are:*

- Dedicated for infection control duties (full-time)

- Dedicated for infection control duties (part-time)
- Have both infection control and other clinical/administrative responsibilities
- Other



Prevention of Multi-Drug Resistant Organisms (MDRO)

MDRO are generally defined as bacteria that are resistant to 3 or more classes of antibiotics, and include methicillin-resistant *Staphylococcus aureus* (MRSA), vancomycin-resistant *Enterococci* (VRE), carbapenem-resistant *Enterobacteriaceae* (CRE) and other MDR Gram-negative bacteria such as *Acinetobacter* and *Pseudomonas*, among others.

9. Does your hospital have a written policy on MDRO prevention?*

- Yes
- No
- Don't Know

10. Does your hospital have on site microbiology capability? (If no, continue to question 10.b)

*

- Yes
- No

10. a. If yes, are the following tests available:

- Antibiotic susceptibility testing
- Strain typing
- Neither

10. a.i. Does your hospital have tests to detect MDROs? Check all that apply:

- Automated antibiotic susceptibility testing (e.g. VITEK, etc.)
- Disc diffusion tests
- MIC testing (manual or E Test)

- Polymerase chain reaction (PCR)
- Modified Hodge test (for CRE)
- MALDI-TOF (Matrix-assisted laser desorption/ ionization-time of flight)
- Don't Know
- No
- Other

10 b. If no, is an off site lab used? (If no, continue to question 11)

- Yes
- No

10. b. If yes, are the following tests available:

- Antibiotic susceptibility testing
- Strain typing
- Neither

10. b.i. Does your hospital have tests to detect MDROs? Check all that apply:

- Automated antibiotic susceptibility testing (e.g. VITEK, etc.)
- Disc diffusion tests
- MIC testing (manual or E Test)
- Polymerase chain reaction (PCR)
- Modified Hodge test (for CRE)
- MALDI-TOF (Matrix-assisted laser desorption/ ionization-time of flight)
- Don't Know
- No
- Other

11. Does your hospital place patients infected or colonized with any of the following MDRO into contact precautions? Contact precautions is defined as the use of additional barrier precautions (gowns/gloves), in addition to standard precautions used for all patients. **Check all that apply:***

- Methicillin Resistant Staphylococcus Aureus (MRSA)

- Vancomycin Resistant Enterococci (VRE)
- Extended Spectrum Beta Lactamase (ESBL)- producing Gram-negative bacteria
- Carbapenem-resistant Enterobacteriaceae (CRE)
- MDR Pseudomonas
- MDR Acinetobacter
- None (if chosen, skip to question 16)
- Other

12. Does your hospital place patients infected or colonized with any of the following MDRO into private rooms? Check all that apply:

- Methicillin Resistant Staphylococcus Aureus (MRSA)
- Vancomycin Resistant Enterococci (VRE)
- Extended Spectrum Beta Lactamase (ESBL)- producing Gram-negative bacteria
- Carbapenem-resistant Enterobacteriaceae (CRE)
- MDR Pseudomonas
- MDR Acinetobacter
- None (if chosen, skip to question 16)
- Other

14. In general, how long do you keep patients in contact isolation? (START HERE)

- Active Illness Only
- Duration of same hospitalization that MDRO was identified
- Until surveillance cultures are negative
- Indefinitely
- Depends on the organism (Go to 14.a.)

14.a. Select all that apply:

	MRSA	VRE	ESBL	MDR Pseudomonas	MDR Acinetobacter
Active illness only	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
During hospitalization	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Until surveillance cultures are negative	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Indefinitely	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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15. IN GENERAL, IF A PATIENT HARBORING AN MDRO IS DISCHARGED AND THEN READMITTED, ARE THEY AUTOMATICALLY RE-ISOLATED?

- Yes for certain MDRO only
- Yes for all MDRO (as defined by my institution)
- No

16. Do hospitals and other healthcare facilities in your area have a notification system to alert each other when patients with MDRO are being transferred? *

- No
- Yes, transfer documents usually mention when patients are infected with MDRO
- Yes, verbal communication usually occurs
- Other

17. Are any additional measures taken to prevent transmission of MDRO to other patients? Check all that apply:*

- Signage to notify staff of the MDRO or isolation status
- Additional cleaning of the patient's room during patient stay (START ON THIS TOMORROW)
- Additional cleaning of patient room after discharge
- Additional equipment cleaning during patient stay
- Additional equipment cleaning after patient discharge
- Cohorting of patients (housing patients with the same MDRO in a shared room)
- Antiseptic bathing (If yes, please indicate below what antiseptic is used and how often)
- Cohorting of healthcare staff such as nurses
- None of the above
- Other

Antiseptic used and how often

◀
▶

18. Do you perform active surveillance at time of admission to identify and isolate patients with mdros? Check all that apply:*

- No (Skip to question 19)
- Yes, MRSA
- Yes, VRE
- Yes, for Carbapenem-resistant Enterobacteriaceae (CRE)
- Yes, for MDR Pseudomonas
- Yes, for MDR Acinetobacter
- Yes, for any other MDRO

18.a. For which patients do you perform active surveillance?

- All patients at time of admission
- Patients being admitted to an intensive care unit (ICU)
- Patients being admitted to a specific, non-ICU unit (such as transplant or oncology unit)
- Patients referred from another health care facility
- Patient epidemiologically linked to another MDRO patient
- All patients in a given area, periodically (point prevalence screening)
- Other

19. Has your facility had any isolates that are resistant to all available antimicrobials? (i.e. "pan-resistant organisms")*

- Yes, Acinetobacter
- Yes, Pseudomonas
- Yes, Enterobacteriaceae
- Don't Know
- Other

20. What are the most important barriers to preventing spread of MDRO in your hospital? (rank the top 3, with 1 being most important) *

- Inadequately trained frontline staff
- Inadequate microbiology/diagnostic services
- Inadequate access to infection data
- Inadequate access to literature/information (textbooks/journals) on infection control

- Inadequate communication and sharing of information with other hospitals
- Inadequate infection control at outside healthcare facilities (i.e., frequent transfer in of patients with MDRO)
- Inadequate administrative support (i.e., infection control not a priority)
- Inadequate resources- supplies (personal protective equipment, alcohol-based hand rub)
- Inadequate resources- staffing (infection preventionists, physicians)
- Other (explain below)

Other

21. Is environmental monitoring (i.e. microbiological testing) of air, surfaces or equipment done in your hospital?

- Yes
- No (if selected, skip to 23)
- Don't Know (if selected, skip to 23)

22. Where is environmental monitoring done in your hospital?*

- All clinical areas (routinely)
- ICUs only
- Other specialty care areas
- As needed (e.g., due to outbreak)
- Other

Antimicrobial Stewardship

Antimicrobial stewardship refers to coordinated interventions designed to improve and measure the appropriate use of antimicrobials, including antibiotics, by promoting the selection of the optimal antimicrobial drug regimen, dose, duration of therapy, and route of administration.

23. Does your institution produce an antibiogram?*

- Yes, annually
- Yes, once every 2 years
- Yes, less frequently than every 2 years
- No
- Don't Know

24. Does your hospital have an antibiotic stewardship programme?*

- Yes, formal (i.e., dedicated staff who are paid part/all of their salary to perform stewardship duties)
- Yes, informal (i.e., staff who perform stewardship duties on a voluntary basis but are not paid specifically for this work) (if selected, skip to 25)
- No (if selected, skip to 25)

24.a. Which of the following are actively involved in antibiotic stewardship committee in your hospital? Check all that apply

- Infectious disease-trained pharmacist
- Other clinical pharmacist
- Microbiologist
- Infection control practitioner
- Infectious disease physician
- Other physician
- Information technologists
- Other

24.b. As part of your stewardship programme, what type of feedback is given to frontline staff regarding their antimicrobial prescribing? Check all that apply

- Staff are restricted from prescribing certain antimicrobials, unless approved
- Hospital- or unit-level feedback on prescribing trends (e.g., doses of particular antimicrobials prescribed each month)
- Individual provider-level feedback on prescribing habits (e.g., doses of particular antimicrobials prescribed each month by that provider)
- Individual provider-level feedback on specific patients (e.g., a recommendation to choose a narrower-spectrum antibiotic based on culture results)
- Any data linking prescribing habits to resistance levels on a hospital- or unit-wide basis

- Antibigram distributed to front line staff
- Don't know
- Other

Hand Hygiene

25. Do you use alcohol (or other waterless disinfecting) handrubs in your hospital?*

- Yes, in ICUs only
- Yes, in all areas
- Not available
- Yes, in any other specific area

26. How does your hospital monitor hand hygiene compliance among health care workers?*

- Direct observation (if selected, answer 26.a.)
- Self-reported behavior (i.e., a questionnaire about hand hygiene performance)
- Video or other electronic monitoring
- Not monitored
- Don't Know
- Other

26.a. Who observes the hand hygiene compliance among health care workers? Check all that apply:

- Infection control staff
- Other "secret" observer (not known to person being observed)
- Frontline staff observe each other
- Don't Know
- Other