

07-11

STATEMENT OF POLICY

Multi-Drug Resistant Organisms

Policy

The National Association of County and City Health Officials (NACCHO) urges state and federal partners to provide adequate support, through increased funding and technical assistance, to local health departments to monitor, prevent, and control the spread of multidrug-resistant organisms (MDROs).

Technical support activities include providing training and appropriate guidance materials, enhancing laboratory capacity, improving disease surveillance, and expanding data access among health departments in collaboration with long-term care, acute care, and outpatient facilities.

NACCHO strongly suggests the inclusion of local health department representation to provide input on MDRO policy development through participation in national, state, and local stakeholder meetings and committees that establish, review, and refine national MDRO surveillance, prevention, and containment strategies.

Effectively addressing MDROs also requires consideration of related topics covered in NACCHO's policy statements [Antimicrobial Stewardship and Resistance](#), [Healthcare-Associated Infections](#), and the [National Healthcare Safety Network](#).

Justification

MDROs are germs, often bacteria, resistant to one or more antimicrobial drugs. In most instances, MDRO infections have signs and symptoms similar to infections caused by microbes that can be treated with antimicrobial drugs; however, options for treating patients with MDRO infections are often extremely limited. For people living with MDRO infections, leaving isolation and use of personal protective equipment as primary control measures can lead to stigmatization and decrease in quality of life.¹ As such, MDROs are associated with increased lengths of hospital stay, costs, and mortality.² Monitoring, preventing, and controlling MDROs is a national priority, which requires healthcare facilities as well as federal, state, and local agencies, including health departments, to assume responsibility.

In the past, most MDROs were encountered primarily in healthcare settings, such as acute care hospitals, which typically have dedicated infection prevention staff who can intervene and prevent further spread.³ MDROs are increasingly occurring in settings that may not have certified infection prevention and control professionals on staff such as long-term care facilities, nursing homes, day care centers, schools, correctional facilities, and recreational facilities. These



settings require more support from local health departments when cases arise.⁴ As an essential public health service, local health departments work to prevent, investigate, and control infectious diseases and other community health hazards.

There are a number of examples of the growing trend of MDROs and associated infections that state and local health departments are facing including the list below. In the U.S., local and state health departments bear the brunt of this burden related to investigating outbreaks and devising control measures.²

- Carbapenem-resistant Enterobacteriaceae (CRE) are considered an urgent threat by CDC, as they have become resistant to nearly all available antibiotics.⁵ As a result nearly half individuals with bloodstream infections from CRE bacteria die will from the infection.⁵
- Methicillin-resistant *Staphylococcus aureus* (MRSA) has progressed from being an organism primarily associated with infections acquired in healthcare settings to one that regularly infects individuals in the community, causing over 80,000 infections per year.^{5,6}
- Multidrug-resistant (MDR) tuberculosis (TB) makes up 3.3 percent of new TB cases worldwide, and extensively drug-resistant (XDR) TB makes up 9.0 percent of MDR-TB cases.⁷ A major outbreak of XDR TB could constitute a substantial drain on public health resources and quickly deplete existing state and local TB budgets, negatively impacting progress toward TB elimination.
- Antibiotic-resistant *Neisseria gonorrhoeae* is also a growing public health concern, especially since the U.S. gonorrhea control strategy relies on effective antibiotic therapy.⁸ There are an estimated 550,000 drug resistant infections each year.¹⁵ Given the ability of *N. gonorrhoeae* to develop antibiotic resistance, it is critical to continuously monitor gonococcal antibiotic resistance and encourage research and development of new treatment regimens for gonorrhea.⁹
- Vancomycin-resistant enterococci (VRE) have been increasing in prevalence for three decades.¹⁰ In 2017, there were an estimated 54,500 cases in hospitalized patients. Thirty percent of all healthcare associated enterococcal infection are resistant to vancomycin.¹⁵
- In recent years, *Candida auris*, a multi-drug resistant yeast, has emerged as an urgent global threat. It was first identified in Asia in 2009 but did not begin spreading in the United States until 2015. Since 2018, reported cases of *C. auris* have increased 318% when compared to the average number of cases reported in 2015 to 2017.⁵ Individuals without symptoms can carry and transmit *C. auris*, so public health workers screen other patients to identify those colonized with the same resistance patterns, indicating on-going spread. This screening can provide more targeted interventions, including additional infection control mitigation efforts.

Increased federal funding, additional staffing, and technical support will allow state and local health departments to continue and/or increase the following activities:

1. Building on existing relationships with schools, correctional facilities, healthcare facilities, and other community partners to provide education and guidance;
2. Creating regional plans to address MDROs;
3. Providing education in settings that may not have certified infection prevention and control professionals on staff, such as long-term care facilities, nursing homes, day care centers, schools, correctional facilities, and recreational facilities;
4. Preventing MDRO transmission in healthcare and community settings;

5. Promoting effective treatment, in accordance with national guidelines;
6. Coordinating with public health laboratories, including the Antibiotic Resistance Laboratory Network, as appropriate, on laboratory testing to guide containment of these organisms;^{12, 13}
7. Improving surveillance for MDROs including through use of new and emerging strategies such as wastewater testing;¹⁶
8. Expanding the capacity for outbreak detection and response;^{2,14}
9. Conducting onsite infection control assessments;^{12, 13} and
10. Improving antimicrobial use by promoting implementation of stewardship practices.

References

1. Baron, R., Eilers, R., Haverkate, M. R., Feenstra, S. G., & Timen, A. (2022). A qualitative study examining the impact of multidrug-resistant organism (MDRO) carriage on the daily lives of carriers and parents of carriers with experiences of hospital precautionary measures. *Antimicrobial Resistance & Infection Control*, 11(1). <https://doi.org/10.1186/s13756-022-01141-8>
2. Siegel, J, Rhinehart, E, Jackson, M, and Chiarello, L. (2006). *Management of Multidrug-Resistant Organisms In Healthcare Settings, 2006*. Centers for Disease Control and Prevention (CDC). Retrieved April 25, 2018, from <http://www.cdc.gov/hicpac/pdf/MDRO/MDROGuideline2006.pdf>.
3. Department of Health and Human Services (HHS). (April 2013). National Action Plan to Prevent Health Care-Associated Infections: Road Map to Elimination. A Retrieved April 27, 2022, from HAI Action Plan - Cover, Table of Contents (health.gov).
4. Gandara, A, Mota, LC, Flores, C, Perez, HR, Green, CF, and Gibbs, SG. (December 2006). Isolation of *Staphylococcus aureus* and Antibiotic-Resistant *Staphylococcus aureus* from Residential Indoor Bioaerosols. *Environmental Health Perspectives*. 114(12): 1859-1864. Retrieved April 25, 2018, from <http://www.pubmedcentral.nih.gov/articlerender.fcgi?artid=1764131>
5. CDC. (2019). *Antibiotic Resistance Threats in the United States*. Retrieved April 27, 2022 from <https://www.cdc.gov/drugresistance/pdf/threats-report/2019-ar-threats-report-508.pdf>
6. CDC. (2011). *MRSA Surveillance*. Retrieved April 25, 2018, from <http://www.cdc.gov/mrsa/statistics/MRSA-SurveillanceSummary.html>.
7. World Health Organization (WHO). (2012). *Global Tuberculosis Report 2020*. April 21, 2022, from <https://apps.who.int/iris/rest/bitstreams/1312164/retrieve> .
8. CDC. (February 13, 2009). *MMWR Weekly*. Plan to Combat Extensively Drug-Resistant Tuberculosis. 58(RR-3): 1-41. Retrieved April 25, 2018, from <http://www.cdc.gov/mmwr/pdf/rr/rr5803.pdf>.
9. CDC. (2011). *Antibiotic-Resistant Gonorrhea Basic Information*. Retrieved February 2, 2018, from <http://www.cdc.gov/std/Gonorrhea/arg/basic.htm>.
10. CDC. (January 2018). *Multidrug-Resistant Organism & Clostridium Difficile Infection (MDRO/CDI) Module*. Retrieved May 4, 2018, from www.cdc.gov/nhsn/pdfs/pscmanual/12pscmdro_cdadcurrent.pdf.
11. Lessa, Fernanda C., et al. (February 26, 2015). “Burden of Clostridium Difficile Infection in the United States.” *New England Journal of Medicine*, 372 (9): 825–834. doi:10.1056/nejmoa1408913. Retrieved May 4, 2018, from https://www.nejm.org/doi/full/10.1056/NEJMoa1408913#article_citing_articles
12. CDC, (October 27, 2017) *Interim Guidance for a Health Response to Contain Novel or Targeted Multidrug-Resistant Organisms (MDROs)*. Retrieved May 4, 2018, from www.cdc.gov/hai/containment/guidelines.html.
13. Woodworth, Kate Russell, et al. (April 6, 2018). “Vital Signs: Containment of Novel Multidrug-Resistant Organisms and Resistance Mechanisms — United States, 2006–2017.” *MMWR. Morbidity and Mortality Weekly Report*. 67, (13): 396–401., doi:10.15585/mmwr.mm6713e1. Retrieved May 4, 2018, from <https://www.cdc.gov/mmwr/volumes/67/wr/mm6713e1.htm>
14. Shah NS, Pratt, R, Armstrong L, Robison, V, Castro KG, and Cegielski P. (November 12, 2008). Extensively Drug-Resistant Tuberculosis – United States, 1993 – 2007. *Journal of the American Medical Association*. 300(18): 2153-2160. Retrieved February 2, 2018, from <http://jama.jamanetwork.com/article.aspx?articleid=182876>.
15. CDC. (2019). *Antibiotic Resistance Threats in the United States*. Retrieved April 21, 2022 from .
16. Tiwari A, Kurittu P, Al-Mustapha AI, Heljanko V, Johansson V, Thakali O, Mishra SK, Lehto KM, Lipponen A, Oikarinen S, Pitkänen T; WastPan Study Group; Heikinheimo A. Wastewater surveillance of

antibiotic-resistant bacterial pathogens: A systematic review. *Front Microbiol.* (2022 Dec 15).
doi:10.3389/fmicb.2022.977106, from <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC9798455/>.

Record of Action

Proposed by the Infectious Disease Prevention and Control (IDPC) workgroup

Approved by the NACCHO Board of Directors

November 4, 2007

Updated October 2013

Updated June 2018

Updated July 2023

Updated February 2024