

# Addressing Gaps in Institutional Multi-Drug Resistant Organism (MDRO) Infection Prevention and Control

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**Introduction:** There has been an alarming rise in Multi-Drug Resistant Organism (MDRO) infections, particularly Healthcare-Associated Infections (HAIs), in recent years both within the Greater Cincinnati area and the world as a whole. This rise has been exacerbated by the COVID-19 pandemic as preventative measures necessarily fell on the priority list as institutions struggle to contain COVID-19 infections and faced high staff turnover.

Noting this, the Cincinnati Health Department (CHD) applied for and received the Healthcare-Associated Infections/Antimicrobial Resistance (HAI/AR) grant through the National Association of County and City Health Officials (NACCHO). NACCHO receives support from the Centers for Disease Control and Prevention (CDC), and the HAI/AR grant allows for a comprehensive approach to manage infectious threats on a local level. Through this grant, CHD set off to conduct infection control policy and performance assessments, strengthen any outdated or incomplete antimicrobial stewardship plans, and enhance HAI and MDRO reporting and information access between facilities.

There were three phases to this project. Phase 1 involved monitoring and identifying trends on an institution level for MDROs such as *Candida auris* (*C. auris*) and *Carbapenemase-producing carbapenem-resistant Enterobacteriales* (*CP-CRE*). Infections via these organisms have been identified as occurring primarily in healthcare settings and long-term care facilities (LTCFs) among vulnerable patients, such as those with implanted devices, open chronic wounds, recent surgeries, etc. Phase 2 involved going on site with these institutions with the highest priority given to those with higher transmission of these organisms. Role-specific and general education on infection prevention, control, and treatment for clinical and nonclinical staff was provided. Phase 3 was then to take the information gathered about barriers these institutions faced and advocate to the Ohio Department of Health (ODH) and CDC for appropriate support. Phase 3 also involved creating small “mini-series” videos on infection control and prevention practices in response to institution requests for customizable use in the future.

Education and policy change recommendations were all formed based on the most current recommendations by the CDC, as well as work that has been done in pilot programs implementing infection prevention strategies that consider the threat of resistant infections, quality of life of the patients, and capabilities and funding of facilities. Each phase of the project is still occurring concurrently at CHD. There are direct avenues of communication between CHD and these facilities to provide comments, suggestions, requests, and any questions they may come across to help shape each of the phases as needed. It is hoped that in addition to enhancing the protection of patients, staff, and public at large from these infectious threats, that this might serve as an example for other jurisdictions to use to ensure widespread compliance in the fight against MDROs.

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## Introduction

- There has been an alarming rise in Multi-Drug Resistant Organism (MDRO) infections, particularly Healthcare-Associated Infections (HAIs), in recent years both within the Greater Cincinnati area and the world as a whole.
- This rise has been exacerbated by the COVID-19 pandemic as preventative measures necessarily fell as institutions struggled to contain COVID-19 infections and faced high staff turnover.



Figure 1: NACCHO spotlight on CHD

## HAI/AR Grant

- The Cincinnati Health Department (CHD) applied for and received the Healthcare-Associated Infections/Antimicrobial Resistance (HAI/AR) grant through the National Association of County and City Health Officials (NACCHO).
- NACCHO receives support from the Centers for Disease Control and Prevention (CDC), and the HAI/AR grant allows for a comprehensive approach to manage infectious threats on a local level.
- Through this grant, CHD set off to conduct infection control policy and performance assessments, strengthen any outdated or incomplete antimicrobial stewardship plans, enhance HAI and MDRO reporting, and facilitate information access within the Greater Cincinnati area.

## Internship Responsibilities

- Developing educational materials for infection prevention and control practices in a setting- and role-specific manner
- Assisting with outbreak monitoring for key MDROs in CHD's jurisdiction
- Presenting educational materials and facilitating demonstrations for proper infection control and prevention strategies

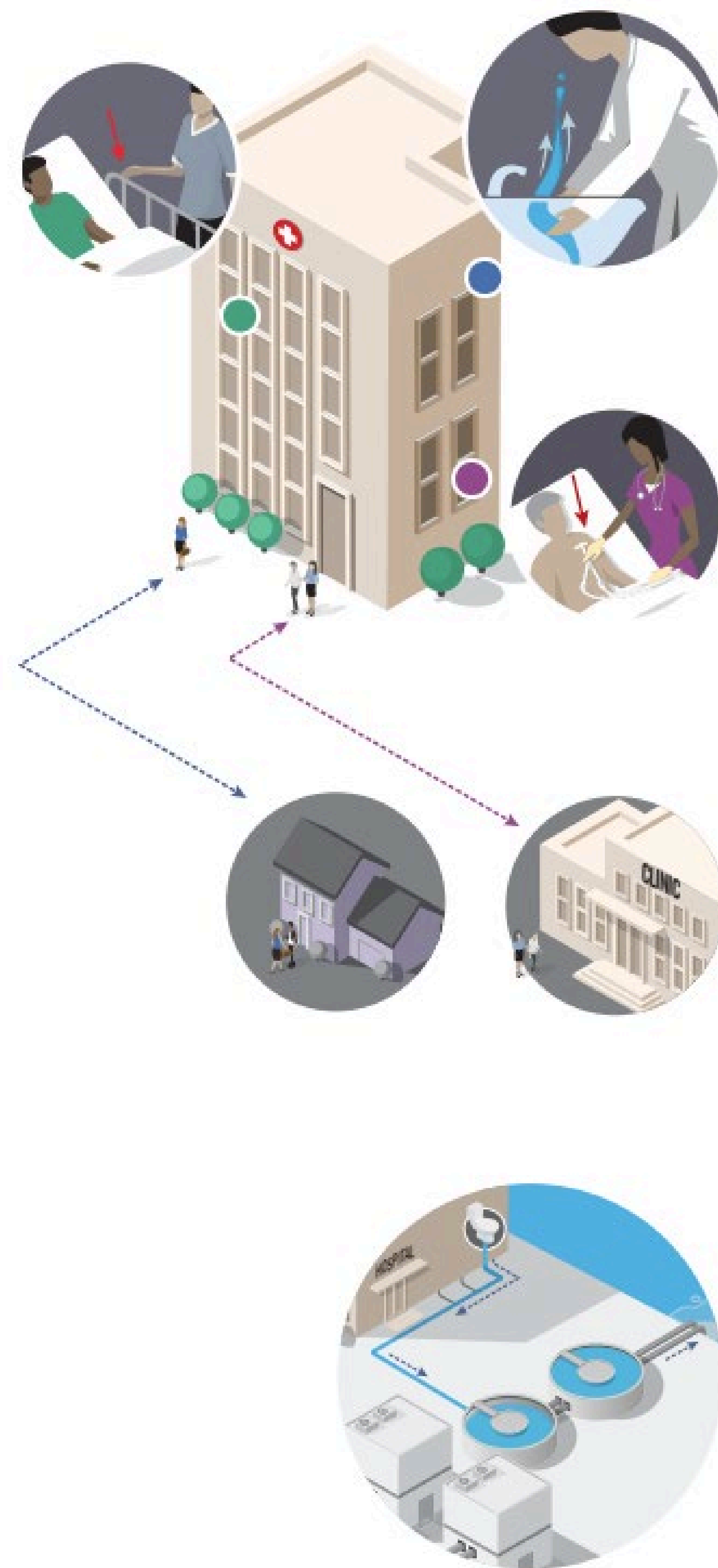


Figure 2: CDC's depiction of healthcare facilities' potential for infection spread

## Project Description

### Phase 1

- Phase 1 involved monitoring and identifying trends on an institution level of MDROs such as *Candida auris* (*C. auris*) and *Carbapenemase-producing carbapenem-resistant Enterobacterales* (CP-CRE).
- Institutions of interest included primarily healthcare settings and long-term care facilities (LTCFs).
- Particular attention was paid to patients with risk factors such as implanted devices, open chronic wounds, recent surgeries, etc.

### Phase 2

- Phase 2 involved going on site with these institutions.
- Highest priority was given to those with higher transmission of these organisms.
- Role-specific and general education on infection prevention, control, and treatment for clinical and nonclinical staff was provided.

### Phase 3

- Phase 3 was then to take the information gathered about barriers these institutions faced and advocate to the Ohio Department of Health (ODH) and CDC for appropriate support.
- Phase 3 also involved creating small "mini-series" videos on infection control and prevention practices in response to institution requests for customizable use in the future.

## Urgent Threats

These germs are public health threats that require urgent and aggressive action:

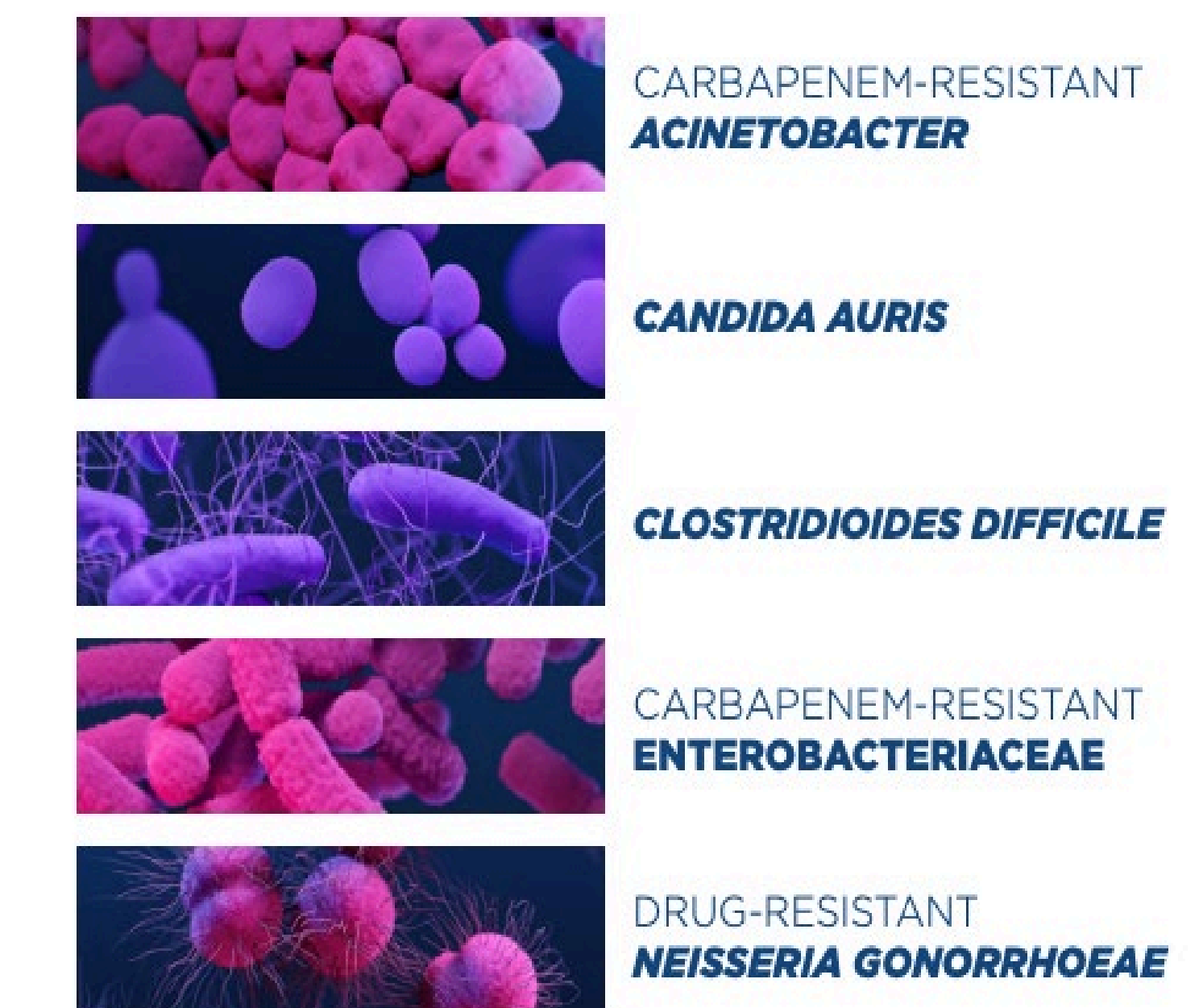


Figure 3: MDROs considered Urgent Threats per the CDC

## Ongoing efforts

- Each phase of the project is still occurring concurrently at CHD.
- There are direct avenues of communication between CHD and these facilities to provide comments, suggestions, requests, and any questions they may come across to help shape each of these phases as needed.
- It is hoped that in addition to enhancing the protection of patients, staff, and the public at large from these infectious threats, that this might serve as an example for other jurisdictions to use to ensure widespread compliance in the fight against MDROs.

## Acknowledgements

Education and policy change recommendations were all formed based on the most current recommendations by the CDC, as well as work that has been done in pilot programs implementing infection prevention strategies that consider the threat of resistant infections, quality of life of the patients, and capabilities and funding of facilities. Images for educational materials adapted from the CDC.