Overview of Outbreaks in Long Term Care facilities in Southwest Virginia

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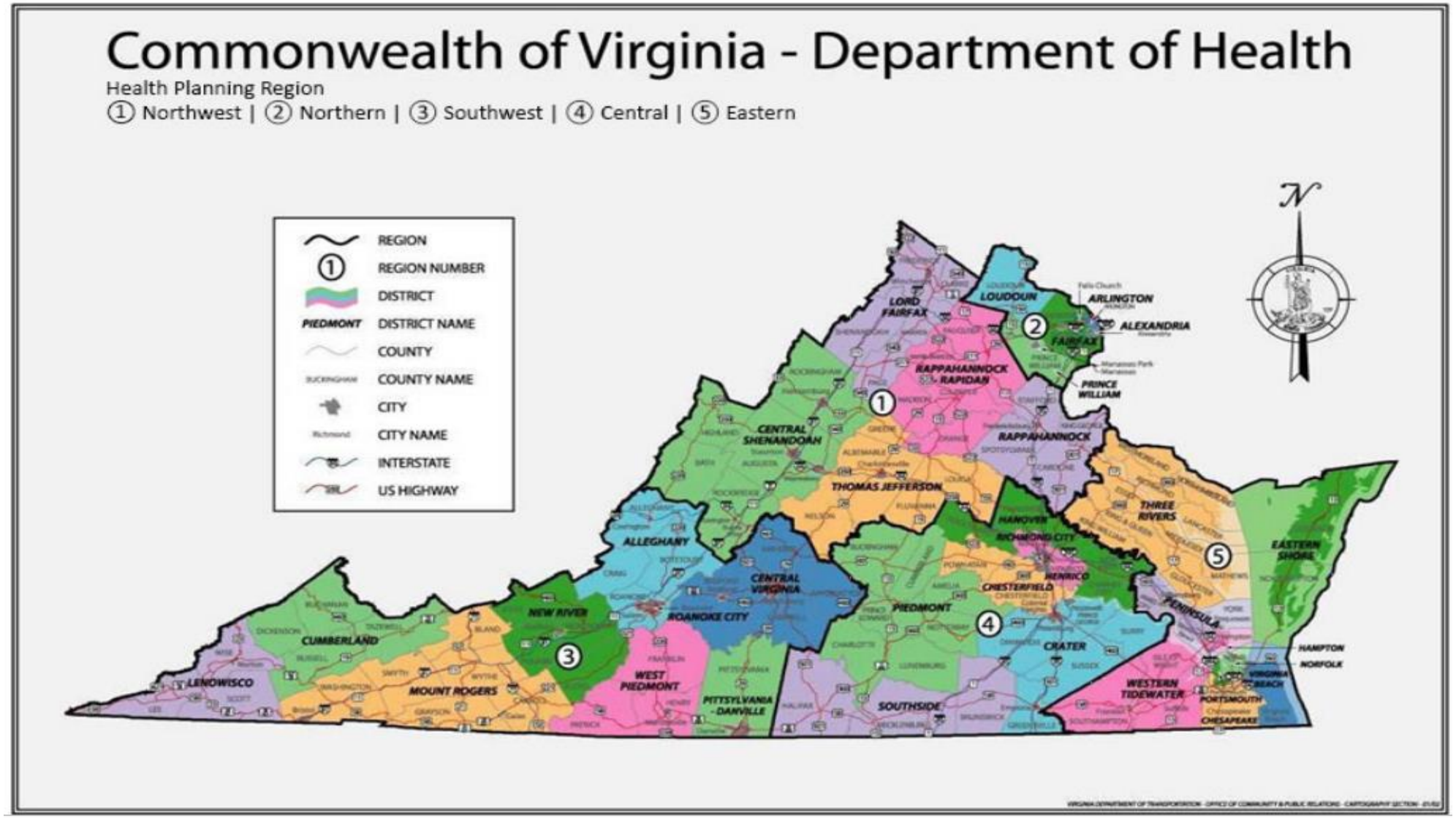
Objectives

- Participants will be able to use the term outbreak correctly and able to apply the disease and outbreak reporting requirement for their facility
- Participants will have knowledge regarding resources available for outbreak management
- Participants will have a better understanding of the management of an outbreak associated with antimicrobial resistance

Commonwealth of Virginia - Department of Health

Health Planning Region

① Northwest | ② Northern | ③ Southwest | ④ Central | ⑤ Eastern



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Virginia Reportable Disease List

VIRGINIA REPORTABLE DISEASE LIST

Reporting of the following diseases is required by state law (Sections 32.1-36 and 32.1-37 of the Code of Virginia and 12 VAC 5-90-80 of the Board of Health Regulations for Disease Reporting and Control). Report all conditions when suspected or confirmed to your local health department (LHD). Reports may be submitted by Confidential Morbidity Report Portal (Epi-1 form), computer-generated printout, CDC or VDH surveillance form, or upon agreement with VDH, by means of secure electronic submission.

REPORT IMMEDIATELY

- Anthrax *(Bacillus anthracis)*
- Botulism *(Clostridium botulinum)*
- Brucellosis *(Brucella* spp.)
- Cholera *(Vibrio cholerae* O1/O139)
- Coronavirus infection, severe (e.g., SARS-CoV, MERS-CoV)
- Diphtheria *(Corynebacterium diphtheriae)*
- Disease caused by an agent that may have been used as a weapon
- *Haemophilus influenzae* infection, invasive
- Hepatitis A
- Influenza-associated deaths if younger than 18 years of age
- Influenza A, novel virus
- Measles (Rubeola)
- Meningococcal disease *(Neisseria meningitidis)*
- Outbreaks, all (including foodborne, healthcare-associated, occupational, toxic substance-related, waterborne, and any other outbreak)
- Pertussis *(Bordetella pertussis)*
- Plague *(Yersinia pestis)*
- Poliovirus infection, including poliomyelitis
- Psittacosis *(Chlamydophila psittaci)*
- Q fever *(Coxiella burnetti)*
- Rabies, human and animal
- Rubella [a], including congenital rubella syndrome
- Smallpox (Variola virus)
- Syphilis *(Treponema pallidum)*, congenital, primary, secondary, and other
- Tuberculosis, active disease (*Mycobacterium tuberculosis* complex)
- Tularemia *(Francisella tularensis)*
- Typhoid/Paratyphoid infection (*Salmonella* Typhi, *Salmonella* Paratyphi (all types))
- Unusual occurrence of disease of public health concern
- Vaccinia, disease or adverse event
- Vibriosis (*Vibrio* spp.)
- Viral hemorrhagic fever
- Yellow fever

REPORT WITHIN 3 DAYS

- Amebiasis *(Entamoeba histolytica)*
- Arboviral infections (e.g., CHIK, dengue, EEE, LAC, SLE, WNV, Zika)
- Babesiosis *(Babesia* spp.)
- Campylobacteriosis *(Campylobacter* spp.)
- *Candida auris*, infection or colonization
- Carbapenemase-producing organism, infection or colonization
- Chancroid *(Haemophilus ducreyi)*
- Chickenpox (Varicella virus)
- Chlamydia trachomatis infection
- Coronavirus disease 2019 (COVID-19 or SARS-CoV-2)
- Cryptosporidiosis *(Cryptosporidium* spp.)
- Cyclosporiasis *(Cyclospora* spp.)
- Ehrlichiosis/Anaplasmosis *(Ehrlichia spp., Anaplasma phagocytophilum)*
- Giardiasis *(Giardia* spp.)
- Gonorrhea *(Neisseria gonorrhoeae)*
- Granuloma inguinale *(Calymmatobacterium granulomatis)*
- Hantavirus pulmonary syndrome
- Hemolytic uremic syndrome (HUS)
- Hepatitis B (acute and chronic)
- Hepatitis C (acute and chronic)
- Hepatitis, other acute viral
- Human immunodeficiency virus (HIV) infection
- Influenza, confirmed *
- Lead, blood levels
- Legionellosis *(Legionella* spp.)
- Leprosy/Hansen's disease *(Mycobacterium leprae)*
- Leptospirosis *(Leptospira interrogans)*
- Listeriosis *(Listeria monocytogenes)*
- Lyme disease *(Borrelia* spp.)
- Lymphogranuloma venereum *(Chlamydia trachomatis)*
- Malaria *(Plasmodium* spp.)
- Mumps
- Neonatal abstinence syndrome (NAS)
- Ophthalmia neonatorum
- Rabies treatment, post-exposure
- Salmonellosis *(Salmonella* spp.)
- Shiga toxin-producing *Escherichia coli* infection
- Shigellosis *(Shigella* spp.)
- Spotted fever rickettsiosis *(Rickettsia* spp.)
- Streptococcal disease, Group A, invasive or toxic shock
- *Streptococcus pneumoniae* infection, invasive and <5 years of age
- Syphilis *(Treponema pallidum)*, if not primary, secondary, or congenital
- Tetanus *(Clostridium tetani)*
- Toxic substance-related illness
- Trichinosis (Trichinellosis) *(Trichinella spiralis)*
- Tuberculosis infection
- Vancomycin-intermediate or vancomycin-resistant *Staphylococcus aureus* infection
- Yersiniosis *(Yersinia* spp.)

LEGEND

- Reportable by directors of laboratories. Additional condition-specific requirements for directors of laboratories available here. These and all other conditions listed must be reported by physicians and directors of medical care facilities.
- Laboratories must submit initial isolate or other initial specimen to the Division of Consolidated Laboratory Services (DCLS) within 7 days of identification. All specimens must be identified with patient and physician information, and the LHD must be notified within the timeframe specified below.
- Include available antimicrobial susceptibility findings in report.

a Laboratories report AFB, *M. tuberculosis* complex or any other mycobacteria, and antimicrobial susceptibility for *M. tuberculosis* complex.
b Includes submission of *Candida haemulonii* specimens to DCLS.
c Laboratories that use EIA without a positive culture should forward positive stool specimens or enrichment broth to DCLS.
d Includes reporting of *Photobacterium damselae* and *Grimontia hollisae*.
e By culture, antigen detection by direct fluorescent antibody (DFA), or nucleic acid detection.

ALL REPORTS ARE CONFIDENTIAL AND SHOULD INCLUDE -

1. *the disease or condition diagnosed or suspected*
2. *patient's name, date of birth, age, sex, race/ethnicity, pregnancy status, address, and telephone number*
3. *physician's name, address, and telephone number*
4. *method of diagnosis, if available*

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Effective January 2023

For more info, please visit https://www.vdh.virginia.gov/clinicians/

- **Updated January 2023**
- **Report to your local health department (LHD)**
- LHD Contact Information:
  - http://www.vdh.virginia.gov/local-health-districts/

State Law REQUIRES certain diseases to be reported

Some must be reported immediately, and others within a 3-day window

http://www.vdh.virginia.gov/content/uploads/sites/13/2018/11/Reportable_Disease_List.pdf

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Disease Reporting Regulations

Where to look

- The VDH website
  - Contains links to Virginia's disease reporting regulations and resources.

- Virginia's Legislative Information System
  - Code of Virginia
    - Title 32.1 Chapter 2:
    - Disease Prevention and Control
  - Administrative Code
    - Title 12 Agency 5 Chapter 90:
    - Regulation for Disease Prevention and Control

Who Needs to Report?

Physicians

- Report when treats or examines any person who is suffering from or who is suspected of having a reportable disease or condition.
- Reports person's name, address, age, date of birth, race, sex, and pregnancy status for females; name of disease diagnosed or suspected; the date of onset of illness; available laboratory tests and results; and the name, address, and telephone number of the physician and medical facility where the examination was made.

Laboratories

- Report any laboratory examination of any clinical specimen, whether performed in-house or referred to an out-of-state laboratory, which yields evidence, by the laboratory method indicated or any other confirmatory test, of a disease listed in 12VAC5-90-80 B.
- source of the specimen and the laboratory method and result; the name, address, age, date of birth, race, sex, and pregnancy status for females (if known) of the person from whom the specimen was obtained; and the name, address, and telephone number of the physician at whose request and medical facility at which the examination was made.

Persons in charge of a medical care facility

- the occurrence in or admission to the facility of a patient with a reportable disease listed in 12VAC5-90-80.
- patient's name, address, age, date of birth, race, sex, and pregnancy status for females; name of disease being reported; available laboratory tests and results; the date of admission; medical record number; date expired (when applicable); and attending physician.

For questions about determining whether you need to report refer to Section 90 of Chapter 90

Who needs to report?

Adult Daycare and Assisted Living Facilities

- Licensed by Virginia Department of Social Services (VDSS)Required to report all suspected or confirmed outbreak to VDSS and the local health department.

Hospitals and Nursing Homes (Skilled Nursing Facilities also)

- Required to report single cases for the conditions on the Virginia reportable Disease List, including all suspected or confirmed outbreak to the local health department.

Correctional Facilities:

- Required to report all suspected or confirmed outbreaks to the local health department. Physicians practicing within the facility are required to report when a physician treats or examines any person who is suffering from or who is suspected of having a reportable disease or condition.

General Outbreak Definition

- It is an increase in the number of cases of illness above the baseline
- The etiologic agent is suspected or identified
- Clinical criteria for the illness is also considered
- There is laboratory confirmation as identified by the Centers for Disease Control (CDC)
- Onset of illness should be withing 1 incubation period
- There is a very specific definition that is more complex and applied based on evidence obtained by public health

What is Outbreak Classification

- Outbreaks fall into 2 categories for classification
  - Confirmed
    - Clinical and laboratory criteria identified by CDC for confirmed cases of illness
  - Suspected
    - Clinical and laboratory criteria identified by CDC that is not as stringent but still meets the criteria for the etiologic agent

Reporting Requirements for Outbreaks

- **Section 80** of **Chapter 90** of the Virginia Administrative Code details what diseases must be reported and specifies those that must be reported immediately.

  Paragraph A

  *Outbreaks, all (including foodborne, health care-associated, occupational, toxic substance-related, waterborne, and any other outbreak)

  Paragraph F

  Outbreaks. The occurrence of outbreaks or clusters of any illness that may represent a group expression of an illness that may be of public health concern shall be reported to the local health department immediately by the most rapid means available, preferably by telephone.

Resources for LTC Facilities

- The largest resource for your LTC facility is making contact with your local health department!
- Potential resources
  - Peer review information
  - Recommendations
  - Infection Prevention onsite assistance
  - Guidance over the phone
  - Testing

What are carbapenemases?

- Carbapenemases are enzymes (proteins) that make carbapenem and other β-lactam antibiotics ineffective
- Examples of carbapenemases:

✓ KPC, NDM, OXA-48, OXA-23, OXA-24/40, VIM, IMP

- Carbapenemase genes encode for carbapenemase enzymes, e.g., bla_{KPC}, bla_{NDM}

✓Found on mobile genetic elements that can be transferred within and between bacterial species

What are carbapenemase-Producing Organisms?

- Bacteria that produce a carbapenemase enzyme are called carbapenemase-producing organisms (CPO)

✓Enterobacterales (e.g., *E. coli*, *Citrobacter* species) (CRE)

✓*Acinetobacter baumannii* (CRAB)

✓*Pseudomonas aeruginosa* (CRPA)

- Examples include:

✓KPC-producing *Klebsiella pneumoniae*

✓VIM-producing *Pseudomonas aeruginosa*

✓OXA-23-producing *Acinetobacter baumannii*

Why are we concerned about CPOs?

- CPOs can be resistant to all antibiotic classes (pan-resistant)

✓Difficult and more expensive to treat infections

✓Leads to substantial morbidity and mortality

- CPOs cause outbreaks in healthcare settings

✓Carbapenemase genes can be transferred within and between bacterial species

✓Patients can remain colonized for many months

✓CPOs can be persistent in the healthcare environment

✓Risk factors include frequent or extended healthcare exposure, presence of indwelling devices, and antibiotic use

CPOs are a concern everywhere

- CPOs are urgent and serious antimicrobial resistance (AR) threats to human health

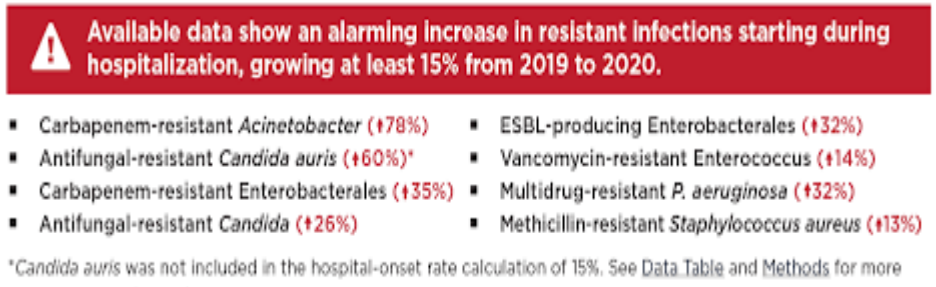
✓CDC 2019 AR Threats Report (www.cdc.gov/antimicrobial-resistance/data-research/threats/index.html)

- During the COVID-19 pandemic, there has been an increase in AR healthcare-associated infections (HAIs)

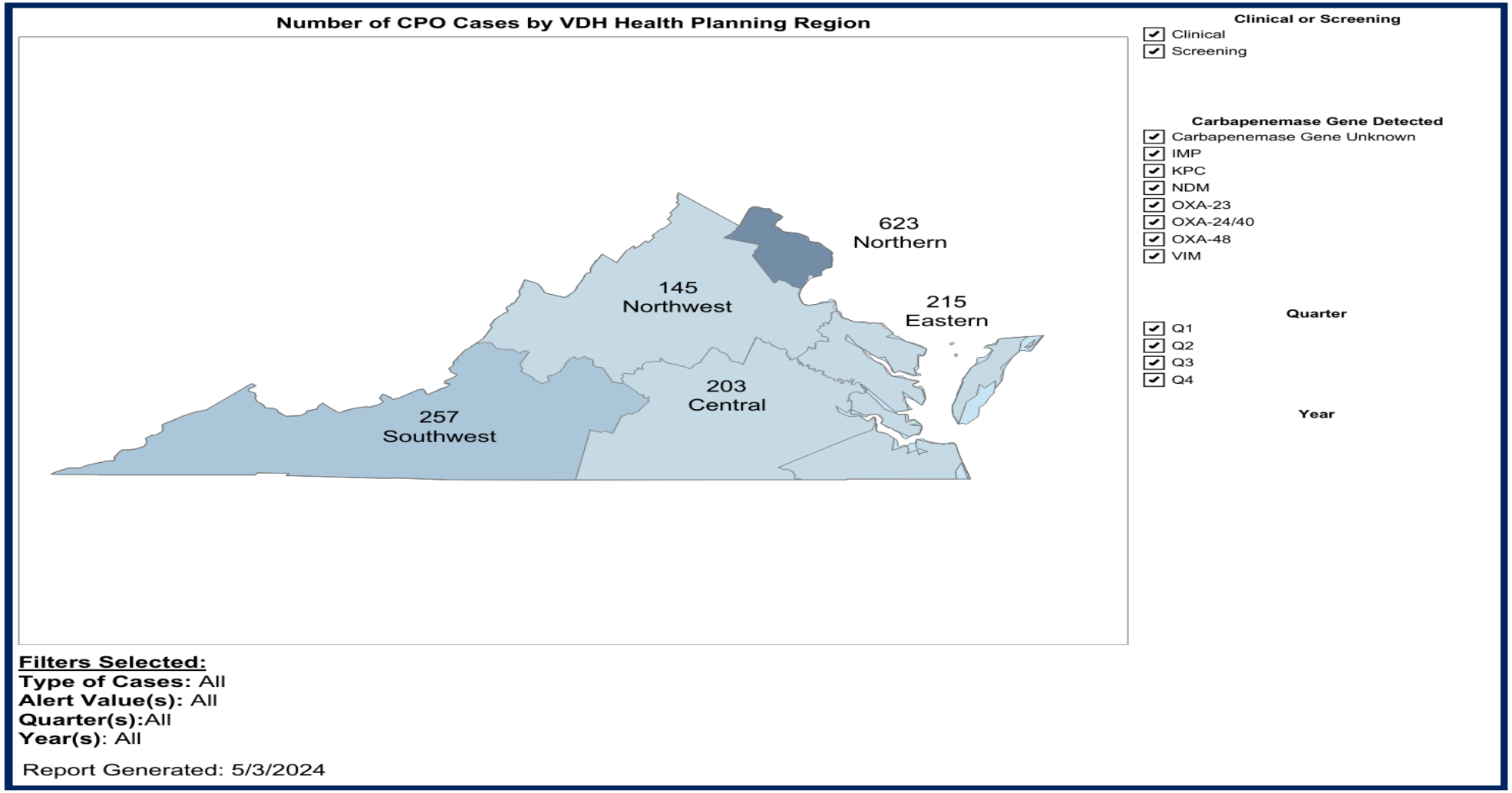
✓Significant increase in antimicrobial use

✓Lapse in core infection prevention and control practices

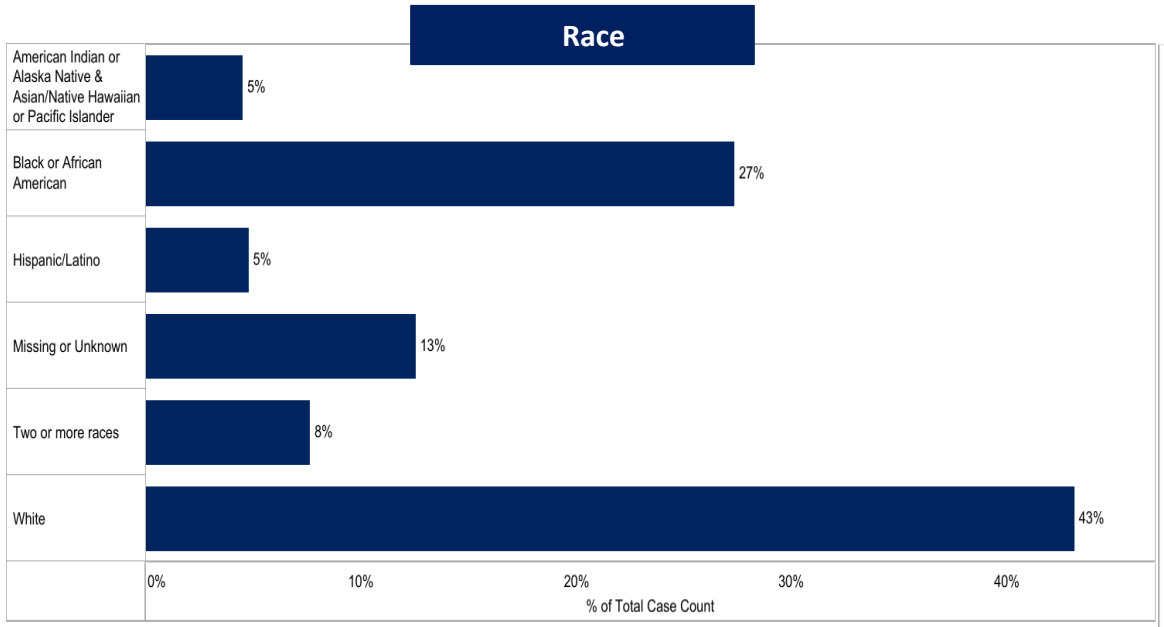
✓CDC 2022 SPECIAL REPORT: COVID-19 U.S. Impact on Antimicrobial Resistance (www.cdc.gov/antimicrobial-resistance/media/pdfs/covid19-impact-report-508.pdf?CDC_AAref_Val=https://www.cdc.gov/drugresistance/pdf/covid19-impact-report-508.pdf)

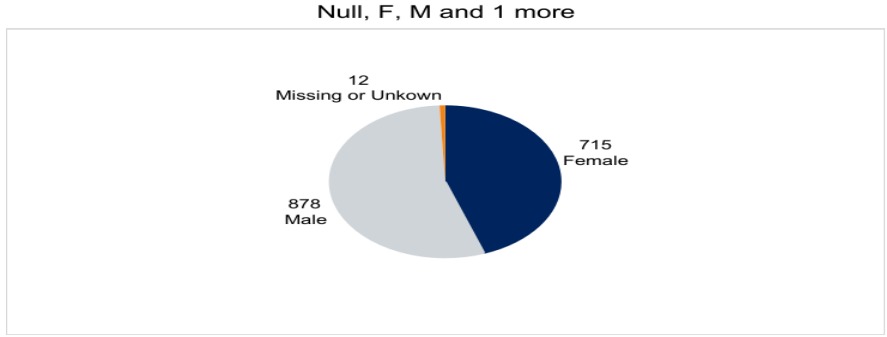


CPO Cases by VDH Planning Region, January 2019-May 2024

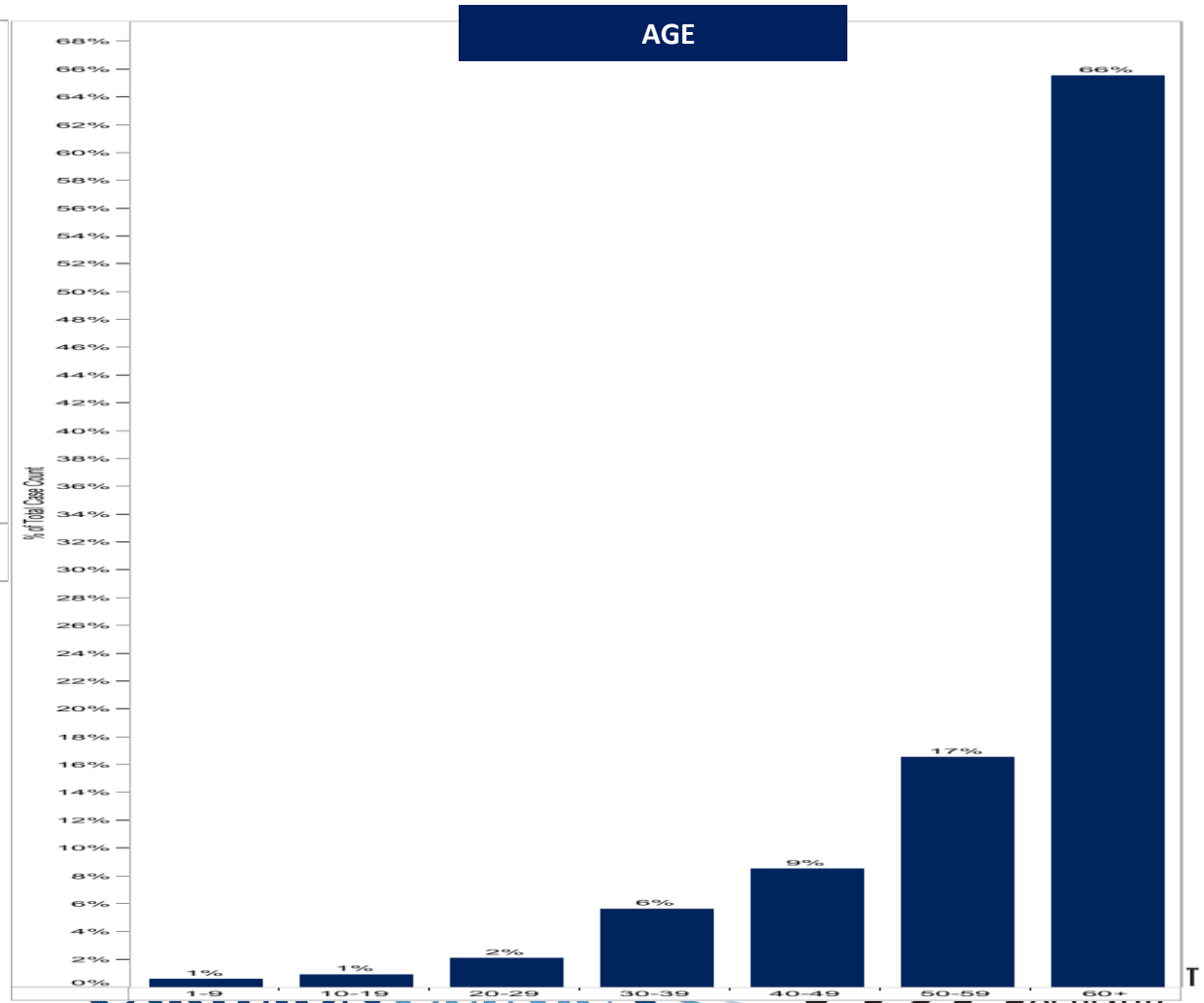


VDH CPO by Race, Age and Sex, January 2019-May 2024

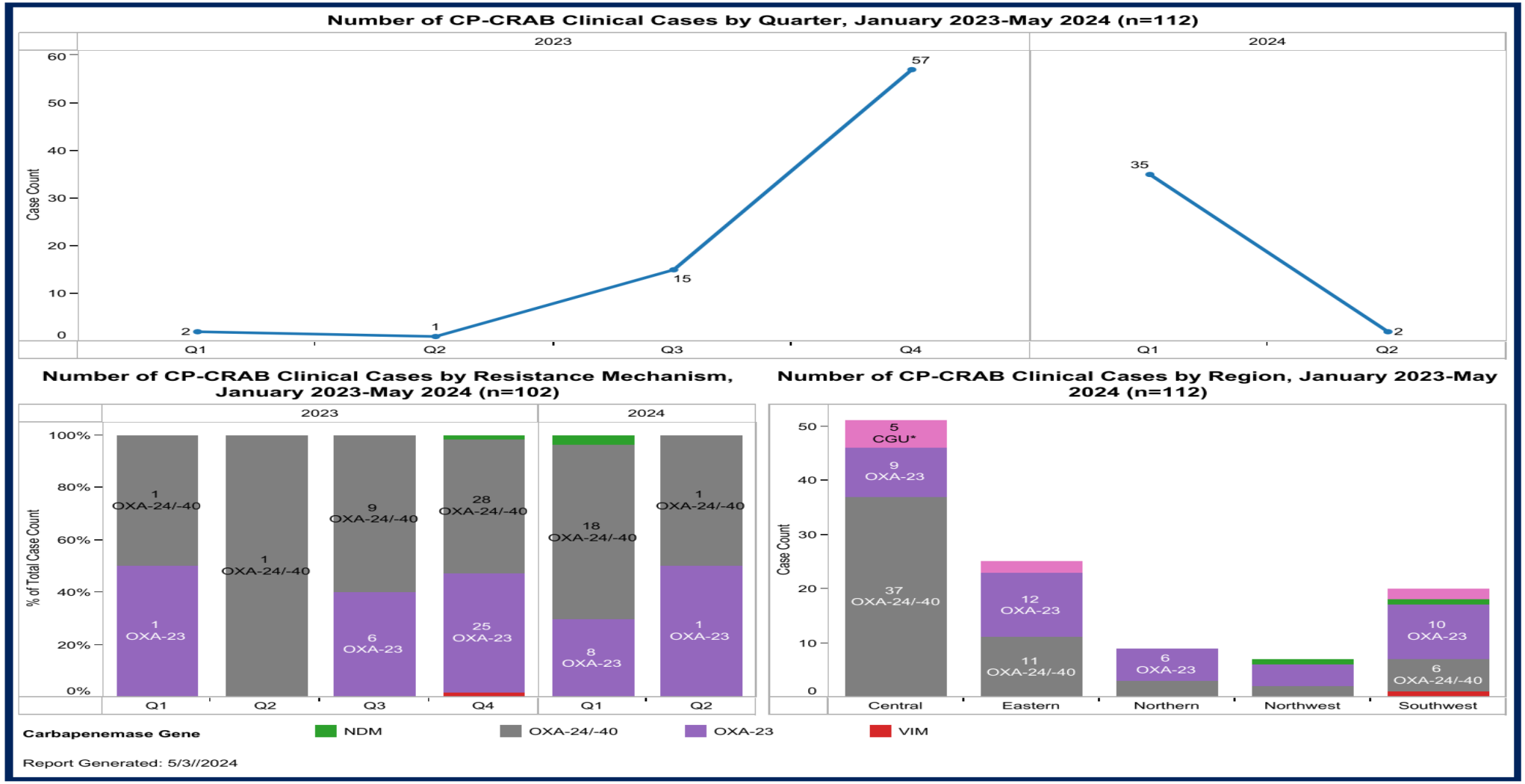




Sum of Case Count and Sex . Color shows details about Sex . The marks are labeled by sum of Case Count and Sex . The data is filtered on Case Count, Condition, State, Investigation Start Date Year, Clinical or Screening, Carbapenemase Gene Detected, Sex and Investigation Start Date (MY). The Case Count filter keeps 1. The Condition filter excludes Candida auris, clinical and Candida auris, colonization/screening. The State filter keeps Virginia. The Investigation Start Date Year filter has multiple members selected. The Clinical or Screening filter keeps Clinical and Screening. The Carbapenemase Gene Detected filter keeps 8 of 8 members. The Sex filter keeps Null, F, M and U. The Investigation Start Date (MY) filter keeps 65 of 75 members.



VDH CP-CRAB Clinical Cases by Quarter, January 2023-May 2024 (n=112)



Initial Report

Initial Report October 2023

- Acute care hospital reports one case of A. baumannii with OXA-23, OXA-24/40 from Facility X
- Acute care hospital begins screening residents/patients from high-risk facilities
- LHD works with Facility X to provide education, internal surveillance to identify additional cases, recommend PPS (declined)

Investigation

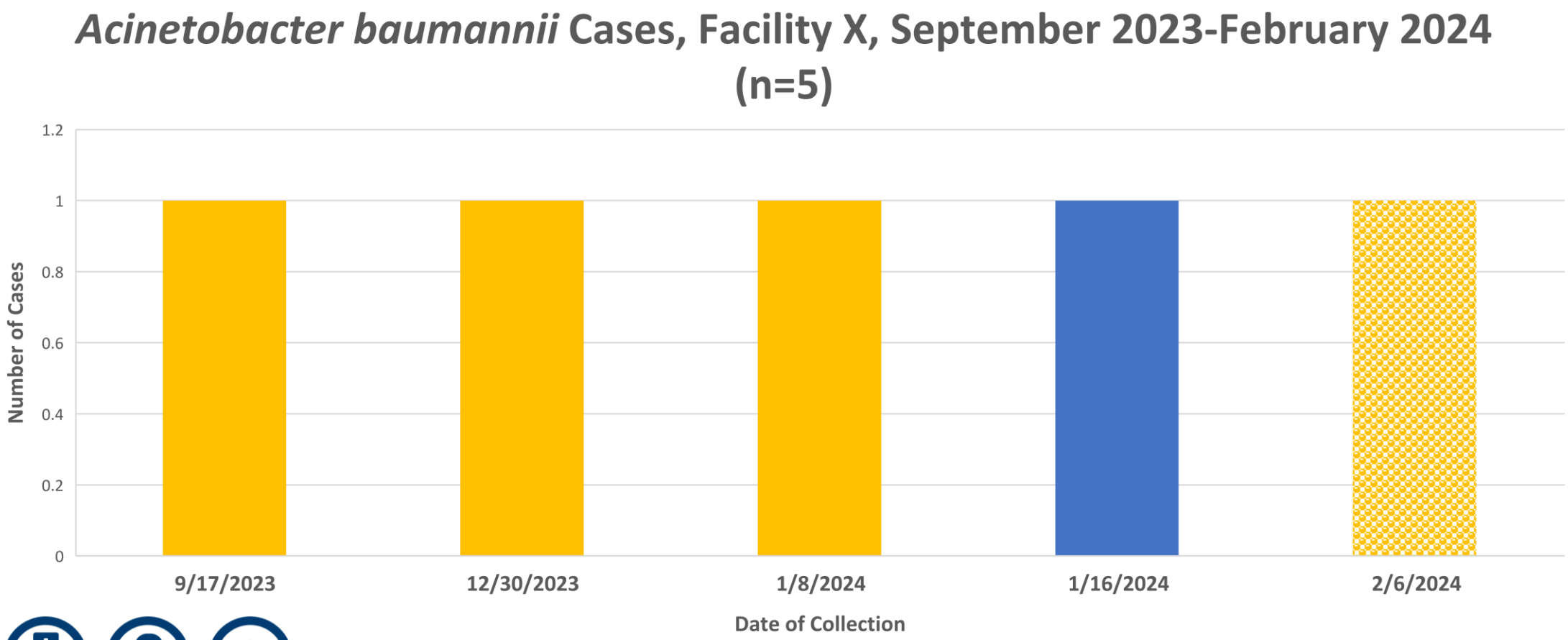
More Cases December 2023-January 2024

- Acute care hospital reports three additional cases, including one colonized, from Facility X
- On-site visit recommended to Facility X to assess IPC practices (declined)
- Recommended PPS (declined)

Investigation February 2024

- Acute care hospital reports a fifth case from Facility X
- Conference calls with Facility X, local- regional- and state-levels, acute care hospital
- IPC on-site assessment agreed upon
- PPS agreed upon

Acinetobacter baumannii Cases, Facility X, September 2023-February 2024 (n=5)



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Challenges

- Facility X had enormous turnover with high-level staff

✓Created delay in accepting recommendations, fostering trust

✓Staff without knowledge of CPOs

✓Staff without access to education/tools regarding CPOs

- Delay with obtaining CPO status from labs

✓Caused a delay with public health response

✓Created delays with IPC with acute care hospital

✓Created delays with IPC with Facility X (some residents had been discharged from Facility X)

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Facility-Based Actions: Early Detection and Initial Response

- **Enhanced surveillance**

✓Perform/access carbapenemase testing for CRE, CRAB, CRPA

✓Screen high-risk residents/patients (epi-linked, ventilator, outbreak facility)

- **Immediate actions**

✓Case report

✓Enhanced barrier precautions (if asymptomatic); contact precautions (if symptomatic), and single-bed room if possible

✓Interfacility communication

✓Investigation

Facility-Based Actions: Early Detection and Initial Response (cont.)

- **Core Response and IPC measures**

✓Good hand hygiene-ABHS preferred

✓EBP/Contact precautions, single room if possible

✓Thorough environmental cleaning and disinfection

✓Routine adherence monitoring

✓Cohorting of patients and HCP

✓Lab surveillance

✓Screening of high-risk contacts

✓Intra- and inter-facility communication

CPO Prevention Strategies With Public Health Support…….

- Build strong foundation for lab surveillance, core IPC practices, antimicrobial stewardship, interfacility communication
- Conduct proactive screening
- Conduct proactive onsite IPC assessments
- Ensure communication
- Actively seek CPO status of all admissions
- Flag medical record for future admissions
- Educate residents/patients/staff

Upcoming Events

- VDH HAI/AR Infection Prevention Education Roadshow

https://www.vdh.virginia.gov/content/uploads/sites/174/2024/04/Infection-Prevention-Educator-Roadshow-2024-.pdf

- VDH HAI/APIC LTC-CIP Prep Courses

https://www.vdh.virginia.gov/content/uploads/sites/174/2024/02/Virginia-2024-LTC-CIP-Prep-Registration-Flyer.pdf

- VDH HAI/AR Cuppa Tea With an IP (every Wed. at 2 pm)

https://redcap.vdh.virginia.gov/redcap/surveys/?s=C7KAYN7MLDKJYKPC

- CDC Project Firstline in Virginia

https://www.vdh.virginia.gov/content/uploads/sites/174/2023/01/Project-Firstline-Roadmap-1.pdf

Thank You!

Questions?

For more information,

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