NC Department of Health and Human Services

Infection Prevention, Outbreaks, and the Role of Public Health

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North Carolina Division of Public Health
Communicable Disease Branch

Fall 2026

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Objectives

- Describe legal framework for disease surveillance, investigation, and response
- Review outbreak surveillance data and trends over time
- Discuss when to call public health
- Discuss role of public health in infection prevention and outbreak response
- Describe an outbreak response in a long-term care setting

Public Health: Legal Framework

Public Health Laws and Rules

- General Statutes
- NC Administrative Code Rules

Health Director's Authority (State and Local)

- Surveillance
- Investigation
- Control Measures

Public Health Law

General Statutes §130A-144: Investigation and Control Measures

(a) The **local health director shall investigate**… cases of communicable diseases and communicable conditions reported to the local health director

(b) Physicians, persons in charge of medical facilities or laboratories, and other persons shall… **permit a local health director or the State Health Director to examine, review, and obtain a copy of medical or other records…**

(d) The **attending physician shall give control measures**… to a patient with a communicable disease or communicable condition and to patients reasonably suspected of being infected or exposed to such a disease or condition.

(e) The **local health director shall ensure that control measures**… have been given to **prevent the spread** of all **reportable communicable diseases** or **communicable conditions** and **any other communicable disease or communicable condition that represents a significant threat to the public health.**

(f) All **persons shall comply with control measures**, including submission to examinations and tests…

http://reports.oah.state.nc.us/ncac.asp

Public Health Law

10A NCAC 41A .0103: Duties of local health director: report communicable diseases

(a) Upon receipt of a report of a communicable disease or condition… the **local health director** shall:

(1) immediately **investigate** the circumstances… [to] include the collection and submission for laboratory examination of specimens necessary to assist in the diagnosis and indicate the duration of control measures;

(2) determine what **control measures** have been given and ensure that proper control measures… have been given and are being complied with;

(c) Whenever an **outbreak of a disease or condition** occurs which is not required to be reported… but **which represents a significant threat to the public health**, the local health director shall give appropriate control measures… and **inform the Division of Public Health**

http://reports.oah.state.nc.us/ncac.asp

Public Health Law

10A NCAC 41A .0101: Reportable diseases and conditions

- **80+ reportable diseases and conditions**
  - Timeline of reporting varies between immediately and within 7 days
- **Laboratory** reporting requirements

http://reports.oah.state.nc.us/ncac.asp

Public Health Law

- **10A NCAC 41A .0106**
  - Infection Prevention – Reporting of Healthcare Associated Infections
- **10A NCAC 41A .0201**
  - General Control Measures
- **10A NCAC 41A .0206**
  - Infection Prevention – Health Care Settings; 1992
- **10A NCAC 41A .0202 - .0205**
  - Control Measures for HIV, Hepatitis B, STDs, TB

http://reports.oah.state.nc.us/ncac.asp

NC Division of Public Health Mission

North Carolina Public Health works to promote and contribute to the highest possible level of health for the people of North Carolina.

NC SHARPPS Program

SHARPPS

Surveillance for Healthcare-Associated Infections and Resistant Pathogens Patient Safety

Mission

To work in partnerships to prevent, detect, and respond to events and outbreaks of healthcare-associated and antimicrobial resistant infections in North Carolina.

SHARPPS Program Activities

Surveillance, Investigation & Response	Prevention, Education & Training	Monitoring & Evaluation	Communication
• HAI Reporting to NHSN • MDRO Surveillance • DHSR Infection Prevention Breach Reporting • Outbreak & Exposure Management • Infection Prevention Gap Surveillance	• Antimicrobial Resistance & Stewardship • Infection Control Assessment & Response (ICAR) • Partnerships	• Data Validation • Identification, evaluation of aberrant data (CLABSI, CDI, etc.)	• HAI Data Reports • Webinar Updates • Partnerships

Interim Guidance on the Use of PPE for Health Care Personnel Providing Care to Patients with Suspected or Confirmed SARS-CoV-2

NC DPH no longer recommends routinely donning an isolation gown and gloves for patients with suspected or confirmed SARS-CoV-2 except in situations where there is a reasonable anticipation of contact with potential infection material, per Standard Precautions.

When providing care to patients with suspected or confirmed SARS-CoV-2, in addition to Standard Precautions, health care personnel should wear the following PPE including:

- **A fit-tested, NIOSH-approved particulate respirator with N95 filters or higher**
- **Eye protection (i.e., goggles or a face shield that covers the front and sides of the face)**

- These recommendations are not regulatory in nature. Health care facilities should ensure they meet regulatory requirements.
- Please note this guidance does not apply to nursing homes regulated under the NC Division of Health Service Regulation (DHSR) Nursing Home Licensure and Certification Section. These facilities are still required to develop and implement policies and procedures that are in line with currently posted CDC guidance.

https://www.dph.ncdhhs.gov/epidemiology/communicable-disease/covid-ppe-memopdf/download?attachment

When Should Public Health Be Called?

Reportable Diseases and Conditions	"Outbreaks"	Infection Prevention Breaches
10A NCAC 41A .0101	When any disease is above normal baseline for the setting	

Who Should Be Called?

- Your supervisor/manager
- Your local health department

Other Resources

- NC Division of Public Health 24/7 Epidemiologist On Call
  - (919)733-3419
- SHARPPS Program: nchai@dhhs.nc.gov
- SHARPPS Infection Prevention Program: infectionprevention@dhhs.nc.gov

What Happens After Public Health is Called?

- Data Review
- Clinical Investigation
- Environmental Investigation
- Control Measures
- Communication
- Notification
- Laboratory Support

When is it an Outbreak?

- Anything above what is normally seen for any given time period for that setting
- If you aren't sure, call your local health department
- In a **long-term care facility setting**, an outbreak is generally defined as two or more individuals with the same illness
- Caveat to this rule:
  - One case of certain disease = outbreak
    - Diseases not normally seen (Avian flu, MERS, Ebola, novel resistant organisms)

Outbreak Assistance

Public Health can assist with

- Determining if it is an outbreak
- Guidance, tools and onsite support
- Facilitating and coordinate call with partners
- Written recommendations

Examples of Response

- Multidrug Resistant *Acinetobacter* (CRAB) in a nursing home
- Acute Hepatitis B among shared glucometer patients
- Potential *C. auris* transmission in dialysis facility
- Post-op endocarditis among patients receiving same surgical device
- Legionellosis associated with healthcare facilities
- National responses:
  - Non-tuberculosis mycobacterium (NTM) and heater-cooler units
  - Resistant *Pseudomonas* and artificial tears
  - Necrotizing fasciitis following cosmetic surgery
  - *Paraburkholderia* in ultrasound gel

Outbreak Example

Tuesday, October 12

- Local health department is notified the infection preventionist at a local hospital
- 4 cases of acute Hepatitis B
- Residents of the same assisted living facility

Investigation Methods

- **Evaluated infection control practices**
  - Observations
  - Interviews
- **Searched for additional cases**
  - Serologic testing of all residents
  - Hospital records, surveillance databases
- **Epidemiologic study**
  - Potential healthcare exposures
  - Risk factors

HBV Outbreak in Assisted Living Facility

Cases identified	8
Mean age	70.6 years
Hospitalized	8 (100%)
Died	6 (75%)

Exposure	Attack rate (%) Exposed	Not exposed
Assisted BGM	8/15 (53)	0/25 (0)
Injected medication	4/16 (25)	4/22 (18)
Phlebotomy	4/25 (16)	4/15 (27)
Blood transfusion	0/1 (0)	8/38 (21)
Catheter device	0/3 (0)	8/37 (22)
Wound care	1/8 (13)	6/28 (21)

Infection Control Observations

- **Glucose Meters**
  - Used for more than one resident
  - Not disinfected between uses
- **Adjustable lancing devices**
  - Used for more than one resident



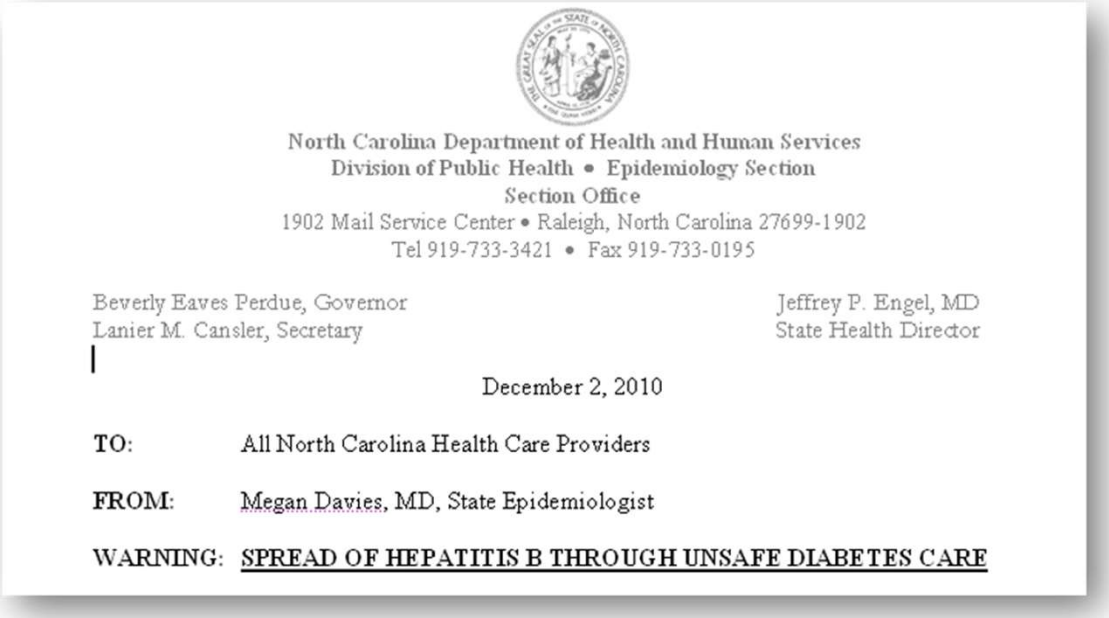


Recommendations to Facility

- Use single-use disposable lancets
- Purchase and use individual glucose meters for each resident
- Vaccinate all susceptible residents

Direct Communication to Providers

- **Sent to all licensed facilities and providers statewide**



North Carolina Department of Health and Human Services
Division of Public Health • Epidemiology Section
Section Office
1902 Mail Service Center • Raleigh, North Carolina 27699-1902
Tel 919-733-3421 • Fax 919-733-0195

Beverly Eaves Perdue, Governor
Lanier M. Cansler, Secretary

Jeffrey P. Engel, MD
State Health Director

December 2, 2010

TO: All North Carolina Health Care Providers

FROM: Megan Davies, MD, State Epidemiologist

WARNING: SPREAD OF HEPATITIS B THROUGH UNSAFE DIABETES CARE

"Act to Protect Adult Care Home Residents" HB474 (2011)

- **Signed into law May 31st, 2011**
- **Requires**
  - Stronger infection prevention policies
  - Inspection and monitoring of infection prevention activities
  - Reporting of suspected outbreaks
  - Increased training and competency evaluation for medication aides, adult care home supervisors

GENERAL ASSEMBLY OF NORTH CAROLINA
SESSION 2011

SESSION LAW 2011-99
HOUSE BILL 474

AN ACT TO PROTECT ADULT CARE HOME RESIDENTS BY INCREASING MINIMUM CONTINUING EDUCATION, TRAINING, AND COMPETENCY EVALUATION REQUIREMENTS FOR ADULT CARE HOME MEDICATION AIDES, STRENGTHENING ADULT CARE HOME INFECTION CONTROL REQUIREMENTS, AND REQUIRING THE DEPARTMENT OF HEALTH AND HUMAN SERVICES, DIVISION OF HEALTH SERVICE REGULATION, TO ANNUALLY INSPECT ADULT CARE HOMES FOR COMPLIANCE WITH SAFE INFECTION CONTROL STANDARDS.

The General Assembly of North Carolina enacts:

https://www.ncleg.gov/Sessions/2011/Bills/House/PDF/H474v6.pdf

CMS Required Reporting of Infection Control Breaches to Public Health (2014)

DEPARTMENT OF HEALTH & HUMAN SERVICES
Centers for Medicare & Medicaid Services
7500 Security Boulevard, Mail Stop C2-21-16
Baltimore, Maryland 21244-1850

CMS
CENTERS FOR MEDICARE & MEDICAID SERVICES

Center for Clinical Standards and Quality/Survey & Certification Group

Ref: S&C: 14-36-ALL
REVISED 10.28.16

DATE: **May 30, 2014**

TO: State Survey Agency Directors

FROM: Director
Survey and Certification Group

SUBJECT: Infection Control Breaches Which Warrant Referral to Public Health Authorities
****Additional Information has been added to Breaches to Be Referred. This policy memorandum supersedes policy memorandum S&C: 14-36-ALL*****

Memorandum Summary

- ***Infection Control Breaches Warranting Referral to Public Health Authorities:*** If State Survey Agencies (SAs) or Accrediting Organizations (AOs) identify any of the breaches of generally accepted infection control standards listed in this memorandum, they *must* refer them *as directed* to appropriate State authorities for public health assessment and management.

- ***Identification of Public Health Contact:*** SAs should consult with their State's Healthcare Associated Infections (HAI) Prevention Coordinator or State Epidemiologist on the preferred referral process. Since AOs operate in multiple States, the Centers for Medicare & Medicaid Services (CMS) strongly encourages them to notify the appropriate State public health officials to make the referral of information about serious infection control breaches on the part of healthcare providers they survey in that state. Contact information for each state's health departments is identified on the Centers For Disease Control & Prevention's (CDC's) website at: https://www.cdc.gov/HAI/state-based/index.html

https://www.cms.gov/medicare/provider-enrollment-and-certification/surveycertificationgeninfo/downloads/survey-and-cert-letter-14-36.pdf

CMS S&C: 14-36-All (Continued)

Breaches to Be Referred

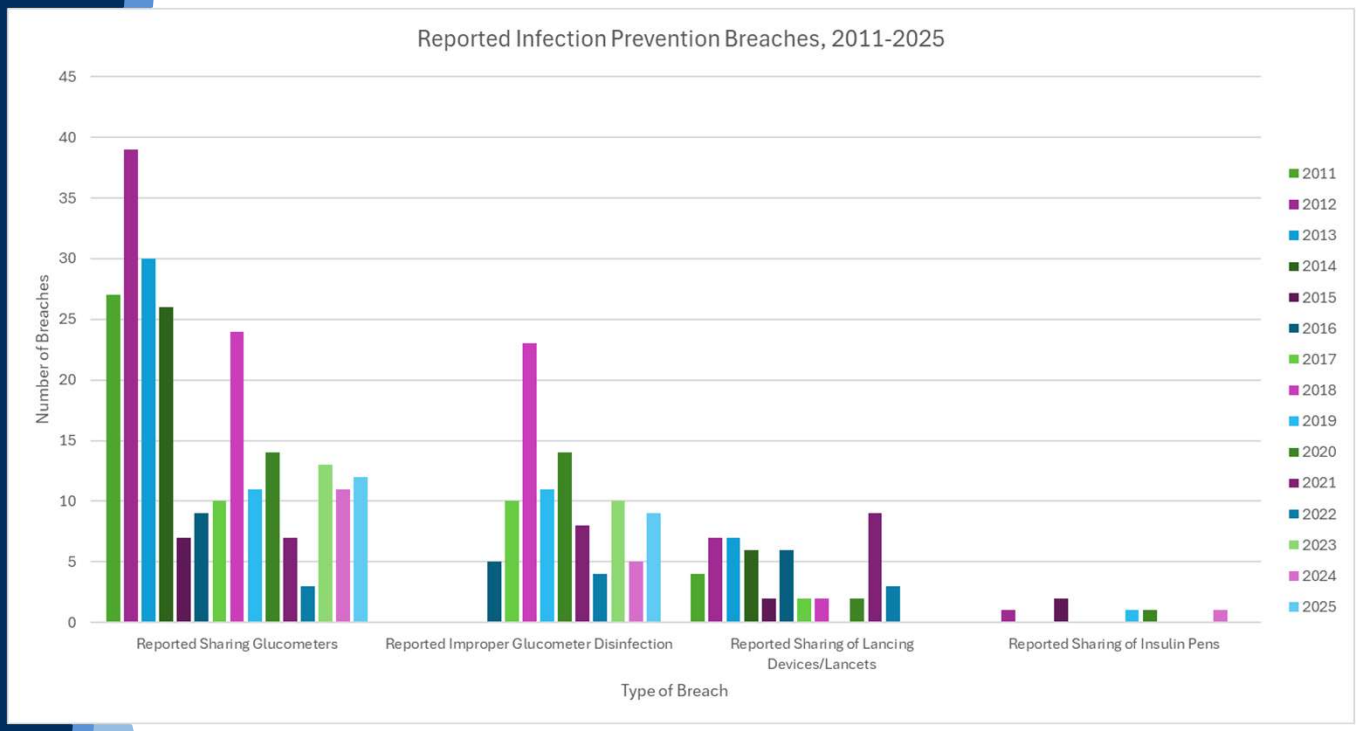
When one or more infection control breaches, that could potentially expose patients to the blood or bodily fluids of another, are identified during any survey of a Medicare or Medicaid-certified provider/supplier, the SA or AO *must* make the appropriate State public health authority aware of the deficient practice. Examples of such infection control breaches *that must be reported* are unsafe injection practices and use of sharps, including:

- Using the same needle for more than one individual;
- Using the same syringe, pen or injection device (e.g. pre-filled, manufactured, insulin or any other *medication or biological*) for more than one individual;
- Re-using a needle or syringe which has already been used to administer medication *or a biological* to an individual, to subsequently enter a medication container (e.g., vial, bag), and then using contents from that medication container for another individual;
- Using the same lancing/fingerstick device for more than one individual, even if the lancet is changed.

The SA or AO should also refer other infection control breaches in addition to those described above if recommended by their State public health authorities or if they believe the breaches require public health assessment and management. Examples of such infection control breaches include, but are not limited to, the following:

- *Improper cleaning and disinfection of endoscopy equipment; and,*
- *Improper cleaning and sterilization of surgical instruments.*

Reported Infection Prevention Breaches 2011-2025



North Carolina Hepatitis Outbreaks, Non-Hospital Settings

Setting	Year	Type	# Incident Infections
Cardiology	2008	HCV	5
ALF	2010	HBV	8
SNF	2010	HBV	6
SNF	2010	HBV	6
Dialysis	2013	HBV	1
SNF	2024	HBV	1
Total			27

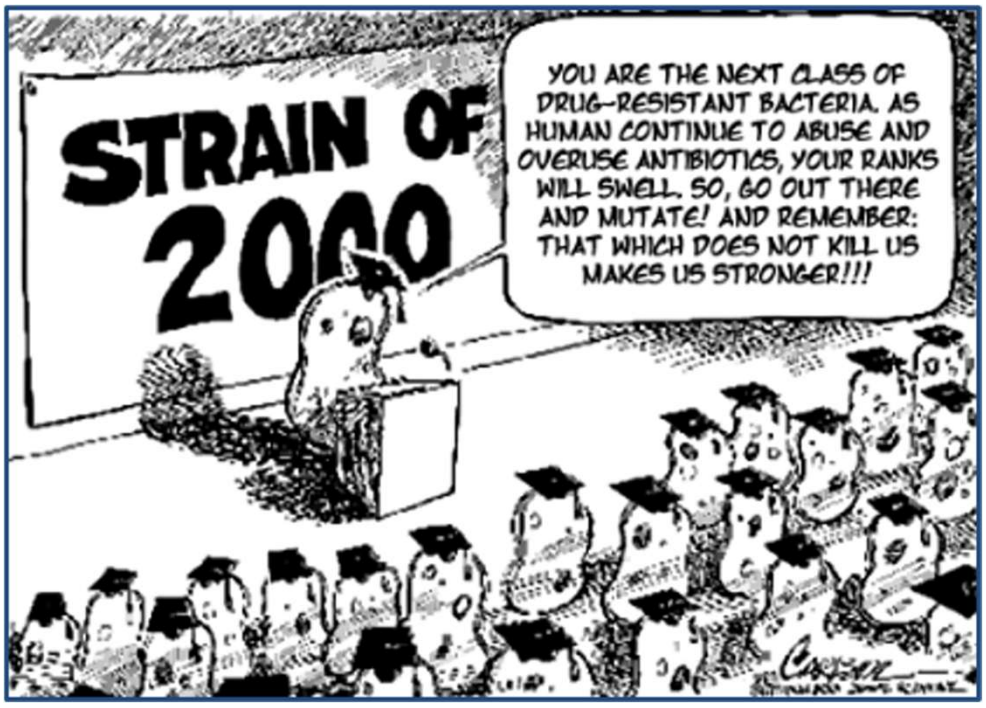
Interested?

2024 North Carolina SNF HBV Outbreak

CDC MMWR *Notes from the Field* Hepatitis B Virus Transmission Associated with Assisted Blood Glucose Monitoring in a Skilled Nursing Facility — North Carolina, 2024

Published August 2025

Multidrug-Resistant Organisms (MDRO)



HOW ANTIBIOTIC RESISTANCE HAPPENS

BE ANTIBIOTICS AWARE
SMART USE, BEST CARE

1
There are lots of germs and a few are resistant to **antibiotics**.



2
When **antibiotics** kill bacteria causing illness, they also kill good bacteria protecting the body from infection.



3
The **antibiotic-resistant** bacteria grow and take over.



4
Some bacteria give their **antibiotic resistance** to other bacteria, causing more problems.



www.cdc.gov/antibiotic-use

https://www.cdc.gov/antibiotic-use/communication-resources/how-ar-happens.html

Significance of MDROs

Affects vulnerable patient populations

- Easily transmitted in and between healthcare settings

Difficult to treat

- Second- and third-line treatments can harm patients by causing serious side effects
- Sometimes impossible to treat

MDROs cause an increase in:

- Mortality
- Length of stays

Estimated up to 20 billion dollars in direct healthcare cost

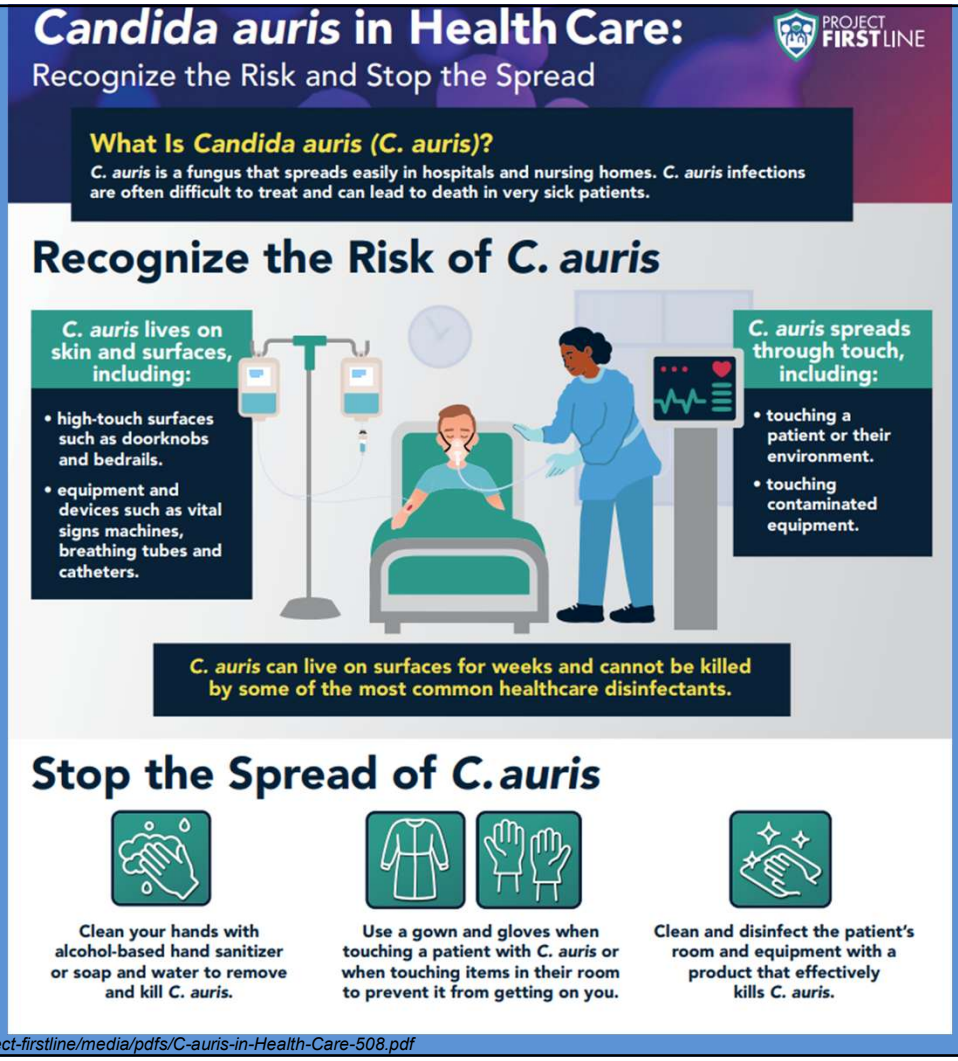
https://www.cdc.gov/antimicrobial-resistance/about/index.html

Carbapenemase-Producing Organisms

- **Urgent Public Health Threat declared by CDC**
  - **Highly resistant**
  - **Mobile genetic elements, such as plasmids**
- **Include multiple organisms**
  - **Examples: CRE, CRAB, CRPA**
- **Multiple types of carbapenemases genes**
  - **Examples: KPC, OXA, NDM, VIM, IMP**



https://www.cdc.gov/healthcare-associated-infections/php/preventing-mdros/index.html

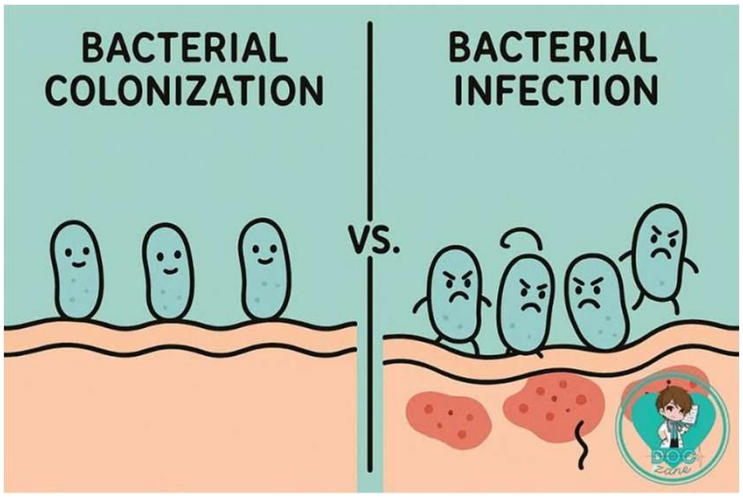


https://www.cdc.gov/project-firstline/media/pdfs/C-auris-in-Health-Care-508.pdf

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Colonization vs. Infection

- **Colonization means the person is carrying an MDRO but does not have symptoms of infection**
  - **Can still transmit to others**
  - **Can become an infection**



https://share.google/bu6XrhrUIsCPX7Zr0

Infection Prevention for Targeted MDROs

Identify

- Communication of result from the lab to your facility
- Interfacility communication
- Screening may be necessary (DPH will guide you)

Transmission-Based Precautions

- Enhanced Barrier Precautions (nursing homes only) or Contact Precautions
- Private room is preferred but cohort residents if necessary

Hand Hygiene

Disinfect surfaces and equipment

- Use an EPA-registered disinfectant effective against the pathogen (*C. auris*=List P)

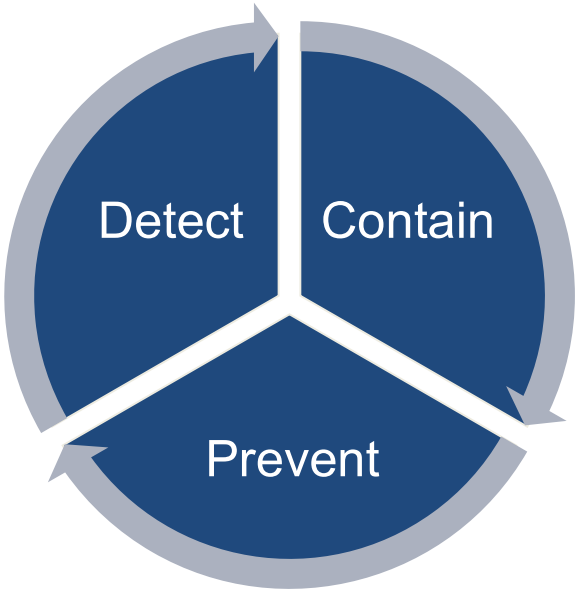
Educate Staff

- What is the organism, why is it important to adhere to infection prevention precautions
- Be sure to include all staff (include OT/PT, EVS, etc.)

Antimicrobial Stewardship

DPH Response to MDROs

NC DPH works with CDC to perform surveillance on nationally notifiable MDROs



Rapid response and containment through
- Patient screening
- Infection Prevention Assessments

Prevention efforts include
- Education and awareness
- DPH Antimicrobial Stewardship Program

NC DPH Interfacility Transfer Form

https://epi.dph.ncdhhs.gov/cd/hai/docs/InterfacilityTransferInstructionsandForm.pdf

- Standardized format for interfacility communication of patient MDRO status during transfer
- Information needed/desired during transfer all in one place
- Complies with CMS requirements for interfacility communication

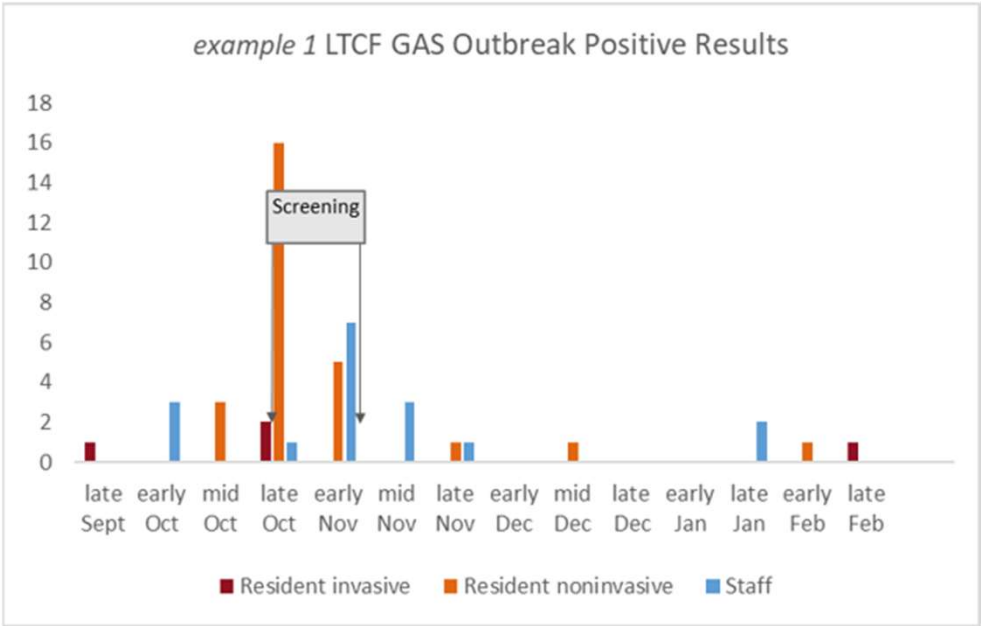
Outbreak Example #2
Group A Streptococcus

LTC residents are at higher risk of invasive Group A Strep (iGAS)

- Older age and comorbidities, breaks in skin, indwelling devices
- Wound care
  - Careful attention to IP practices is essential to prevention transmission

Response to LTC iGAS

- Local and state health department will provide guidance on response steps
  - Identify additional symptomatic cases
  - Identify potential asymptomatic carriers
  - Assess and re-emphasize IP practices



- Screened by culture residents (throats and wounds) and epi-linked staff
- Invasive cases and several non-invasives had wound care as a risk factor
- Site visits - emphasized education on IP and wound care practices
- Sent specimens for sequencing – results indicated transmission in the facility

Why Involve Public Health?

- Expertise and experience in outbreak response
- Access to additional resources
- "Big picture" surveillance
- Threats to public's health

NC Regional Infection Prevention Support (RIPS)

NC DEPARTMENT OF HEALTH AND HUMAN SERVICES
Division of Public Health

Robust infection prevention practices are the backbone for preventing the spread of disease. The Regional Infection Prevention Support (RIPS) program strengthens infection prevention capacity through **training**, **education**, and **consultation** in long-term care settings. The RIPS program uses evidence-based infection control practices consistent with applicable CDC and CMS guidance.



Established in August 2020, the RIPS program provides onsite infection prevention support to all types of long-term care facilities, particularly skilled nursing facilities and adult care homes.

Our mission *is to increase infection prevention knowledge to mitigate and prevent health threats like respiratory illnesses and all other infectious diseases in the long-term care setting.*

RIPS Program Offerings*

- Infection prevention and control assistance that is supportive and consultative rather than regulatory
- Staff training/education around infection prevention measures using practical, hands-on techniques
- Site visits to assess facilities' infection control programs accompanied by written recommendations to improve policies and practices
- In-person infection prevention education



*All services by RIPS are provided at no cost.

Education Modules:

- Infection Prevention & Control
- Hand Hygiene
- Cleaning & Disinfection
- Transmission-Based Precautions and PPE
- Enhanced Barrier Precautions
- Wound Care
- Storage of Supplies
- Occupational Health

Select education modules found at the Infection Prevention Education webpage.

To request a RIPS visit or to ask an infection prevention question, please email: **infectionprevention@dhhs.nc.gov**

This service is provided by NCDHHS Division of Public Health supported by federal funding.
www.ncdhhs.gov • NCDHHS is an equal opportunity employer and provider. • 07/2026

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NCDPH Infection Prevention Education Website

https://www.dph.ncdhhs.gov/programs/epidemiology/communicable-disease/information-health-departments-and-providers/infection-prevention-education

Education Modules

Enhanced Barrier Precautions

- Slide Deck: Enhanced Barrier Precautions (PPTX)
- Facilitator Guide: Enhanced Barrier Precautions (PDF)
- Real-Life Scenarios:
  - Scenarios for Frontline Staff (PDF)
  - Scenarios for Facility Leadership (PDF)

Cleaning and Disinfection

Infection Prevention & Control

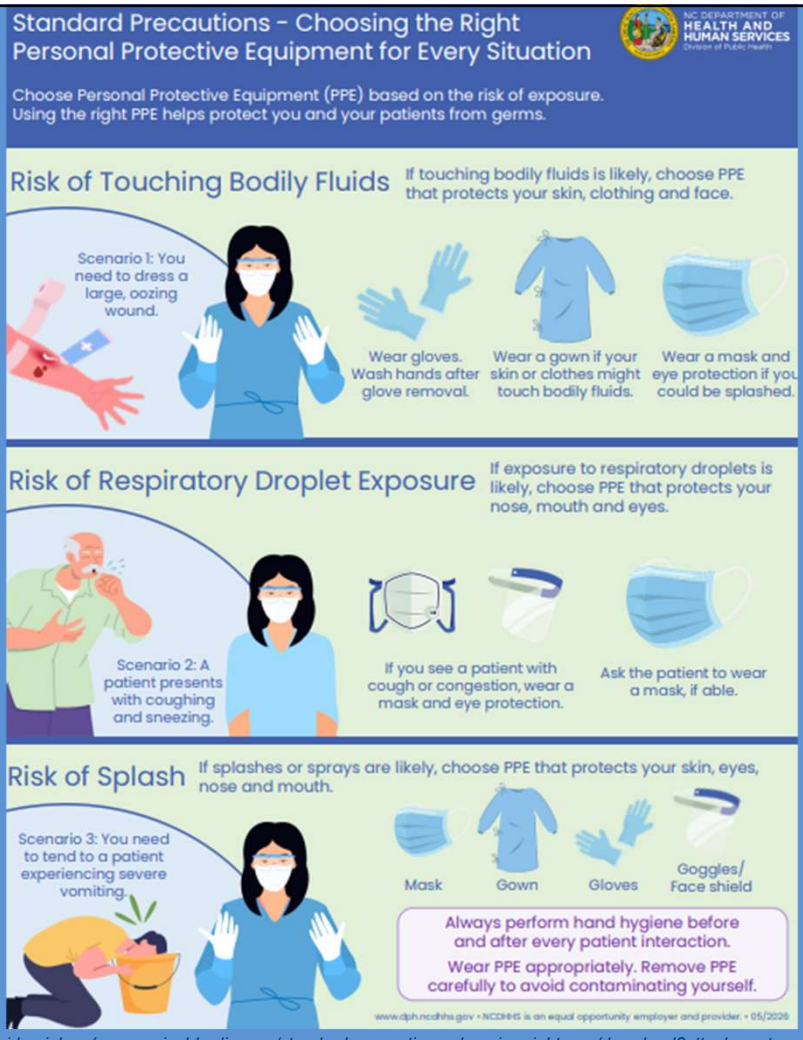
Transmission-Based Precautions and PPE

Wound Care

Print/Share Materials

Patient Education | For Local Health Departments | For Health Care Facilities

Preview Image	Download Link & Description
	Dialysis Safety Trifold Brochure
	C. Auris Information for Patients and Families Trifold



https://www.dph.ncdhhs.gov/epidemiology/communicable-disease/standard-precautions-choosing-right-ppe/download?attachment

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Resources

- **NC Division of Public Health, SHARPPS Program**
  - https://epi.dph.ncdhhs.gov/cd/hai/program.html
- **NC DPH Infection Prevention Education**
  - https://www.dph.ncdhhs.gov/programs/epidemiology/communicable-disease/information-health-departments-and-providers/infection-prevention-education
- **CDC Project Firstline**
  - https://www.cdc.gov/project-firstline/index.html
- **CDC MDRO**
  - https://www.cdc.gov/healthcare-associated-infections/php/preventing-mdros/index.html
- **NC DPH Antimicrobial Stewardship**
  - https://epi.dph.ncdhhs.gov/cd/antibiotics/stewardship.html
- **CDC Group A Strep in Long-Term Care**
  - https://www.cdc.gov/group-a-strep/php/ltcf-toolkit/transmission.html

Thank you!

Contact us:

infectionprevention@dhhs.nc.gov