

Slide 1



WELCOME TO THE

NORTHEASTERN DISTRICT

MINI INFECTION

PREVENTION BOOTCAMP FOR

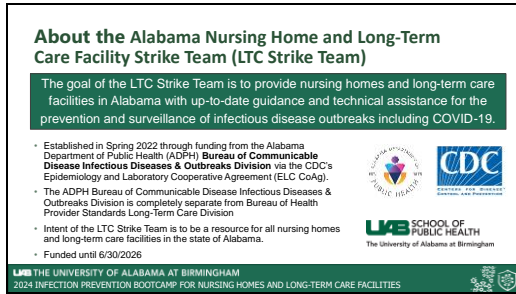
NURSING HOMES AND LONG-

TERM CARE FACILITIES

APRIL 11, 2024

Presented by the:
Alabama Regional Center for
Infection Prevention and Control
Training and Technical Assistance
&
The Alabama Nursing Home and
Long-Term Care Facility Strike
Team

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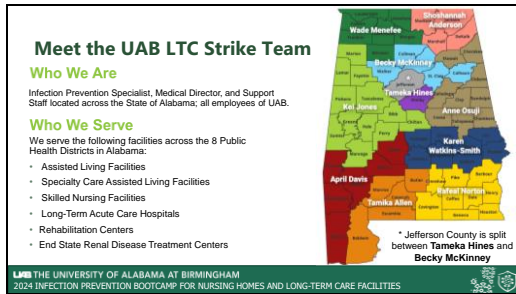
About the Alabama Nursing Home and Long-Term Care Facility Strike Team (LTC Strike Team)

The goal of the LTC Strike Team is to provide nursing homes and long-term care facilities in Alabama with up-to-date guidance and technical assistance for the prevention and surveillance of infectious disease outbreaks including COVID-19.

- Established in Spring 2022 through funding from the Alabama Department of Public Health (ADPH) Bureau of Communicable Disease Infectious Diseases & Outbreaks Division via the CDC's Epidemiology and Laboratory Cooperative Agreement (ELC CoAg).
- The ADPH Bureau of Communicable Disease Infectious Diseases & Outbreaks Division is completely separate from Bureau of Health Provider Standards Long-Term Care Division
- Intent of the LTC Strike Team is to be a resource for all nursing homes and long-term care facilities in the state of Alabama.
- Funded until 6/30/2026

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Meet the UAB LTC Strike Team

Who We Are

Infection Prevention Specialist, Medical Director, and Support Staff located across the State of Alabama; all employees of UAB.

Who We Serve

We serve the following facilities across the 8 Public Health Districts in Alabama:

- Assisted Living Facilities
- Specialty Care Assisted Living Facilities
- Skilled Nursing Facilities
- Long-Term Acute Care Hospitals
- Rehabilitation Centers
- End State Renal Disease Treatment Centers

Map of Alabama showing health districts and team members: Wade Monfefe, Shonhannah Anderson, Becky McKinney, Tameka Hines, Anne Osoji, April Davis, Tamika Allen, Karan Watkins-Smith, and Wafred Haynes.


* Jefferson County is split between Tameka Hines and Becky McKinney

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Mini-Regional Infection Prevention Bootcamps for LTC Facilities

❖ April 26, 2024 in Mobile County



Coming to a County near you!

Registration for the bootcamps will be available on our website at least one month prior to the bootcamp.

<https://sites.uab.edu/itcstrikeam>

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Learn More About the Alabama Nursing Home and Long-Term Care Facility Strike Team



WEBSITE
<https://sites.uab.edu/itcstrikeam/>

EMAIL
itcstrikeam@uab.edu

REQUEST A FREE IP CONSULTATION, TRAINING OR TECHNICAL ASSISTANCE ON OUR WEBSITE OR EMAIL US

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About the Alabama Regional Center for Infection Prevention and Control Training and Technical Assistance (ARC IPC)

- The ELC CoAg tasked ADPH with the creation of a regional center for infection prevention and control consultation and support services in Alabama
- Purpose of this regional center:
 - Enhance capacity for infection control and prevention
 - Build infection prevention and control and outbreak response expertise

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Learn More About the Alabama Regional Center for Infection Prevention and Control Training and Technical Assistance



WEBSITE
<https://uab.edu/arcipc>

EMAIL
arcipc@uab.edu

SIGN UP FOR OUR NEWSLETTER
<https://uab.edu/arcipc>

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Thank You to Our Co-Sponsors



Learn more: <https://sites.uab.edu/dsc/>

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Housekeeping

- Please make sure you signed in!
- CEs
- Training Evaluation
- Certificates of Participation
- Questions
- Restrooms

CEUs approved for this bootcamp:

Nursing: The Deep South Center for OH&S is an approved provider of continuing education units for nurses by the AL Board of Nursing (Provider ABNP0420 Expiration Date 12/16/2026) and has awarded this program 4.5 CEUs. All other professionals are awarded .38 CEUs


Nursing Home Administrator: The Board of Examiners of Nursing Home Administrators has reviewed and approved the seminar for continuing education credit for licensed nursing home administrators in the State of Alabama for 3.5 hours.

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Lori Lloyd, BSN, RN


- Infectious Disease and Outbreaks Division
- Emergency Management Division



ALABAMA DEPARTMENT OF PUBLIC HEALTH
EST. 1875

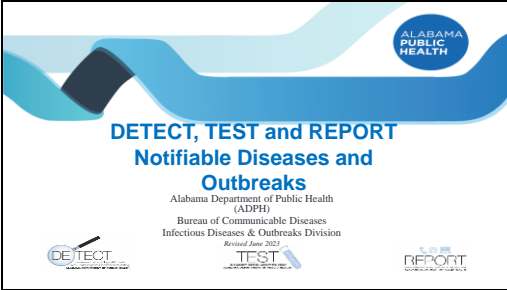
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DETECT, TEST and REPORT
Notifiable Diseases and Outbreaks

Alabama Department of Public Health
(ADPH)
Bureau of Communicable Diseases
Infectious Diseases & Outbreaks Division
Revised June 2023



ALABAMA PUBLIC HEALTH

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Important Information

- You must attend the **entire program**. **No partial credit will be awarded**
- There is no commercial support or sponsorship for the program
- There will be no endorsement of products displayed in conjunction with the activity






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Purpose of this Presentation

To provide the audience knowledge of:

- Divisions within the Bureau of Communicable Disease
- Notifiable Disease Rules
 - Diseases and conditions
 - When & how to report to public health
- Identification of an outbreak and how reporting protects the public
- Healthcare-associated infections reporting & surveillance
- Reporting animal bites/exposures (rabies)






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Objectives

At the completion of the presentation the audience should:

- Be knowledgeable of the Notifiable Disease Rules
- Be able to verbalize who should report, how to report, and when to report reportable diseases and conditions
- Be able to verbalize what constitutes an outbreak
- Be knowledgeable of Alabama's healthcare-associated infections reporting rules & surveillance program




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Notifiable Disease/Condition Awareness Campaign

- DETECT - Decrease Epidemiological Threats with Environmental Controls and Testing
- TEST - Take Epidemiological Specimens Today
- REPORT - Rules for Every Provider and Organization to Report on Time




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DETECT, TEST, REPORT (DTR)

DTR Notifiable Diseases awareness campaign emphasizes different disease control actions needed to reduce the impact of Alabama's reportable diseases and create a robust notifiable disease system.




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Bureau of Communicable Diseases

- Infectious Diseases & Outbreaks (ID&O),
<http://www.alabamapublichealth.gov/infectiousdiseases>
- Immunization (IMM),
<http://www.alabamapublichealth.gov/immunization/>
- Sexually-transmitted Infections (STI),
<http://www.alabamapublichealth.gov/STD/>
- Tuberculosis (TB),
<http://www.alabamapublichealth.gov/TB/>






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Infectious Diseases & Outbreaks (ID&O) Mission

To protect the residents of Alabama and prevent illness by investigating and monitoring infectious (e.g., Salmonella, influenza, and hepatitis), Zoonotic (e.g., rabies, spotted fever rickettsiosis, and West Nile fever), and Environmental (e.g., Legionnaires' disease, chemical, and toxin) diseases, conditions, and exposures.






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Infectious Diseases & Outbreaks (ID&O) Division

- Epidemiology, Surveillance, & Informatics
 - track disease occurrence, develop investigative tools for data collection, and compile data for comparison and reporting
 - report a subset of the information obtained from providers & patients during investigations to the CDC and various surveillance systems
- Investigations - Emerging & General Infectious Diseases & Outbreaks
 - conduct disease investigations and outbreak response
 - provide education and training






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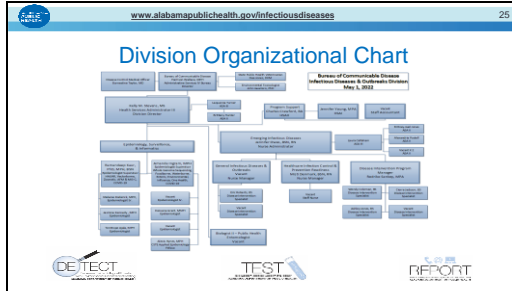
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Infectious Diseases & Outbreaks (ID&O) Division

- Healthcare Infection Control & Prevention Readiness
 - Infection Control Assessment for Readiness (ICAR)
 - Infected Healthcare Worker Assessment
 - Responder/Return Traveler Monitoring
 - Outbreaks in Healthcare facilities
- ADPH Subject Matter Experts
 - Medical Officers/Assistant State Health Officers
 - State Epidemiologist
 - State Public Health Veterinarian
 - Environmental Toxicologist
 - Public Health Entomologist



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Notifiable Diseases/Conditions

- **Purposes of Reporting Notifiable Diseases**
 - Help prevent diseases & transmission
 - Education to the public
 - Confirm disease
- ADPH administrative code authorizes and requires reporting
<http://www.alabamaadministrativecode.state.al.us/docs/hlth/420-4-1.pdf>
- Required by law, Code of Alabama, Section 22-11A-1,
<http://alisondb.legislature.state.al.us/alison/codeofalabama/1975/22-11A-1.htm>

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Notifiable Diseases/Conditions

- **Liability** – Reporters of cases or suspected cases of notifiable diseases, outbreak, or cases of public health importance will have immunity from civil or criminal liability,
<http://alisondb.legislature.state.al.us/alison/codeofalabama/1975/22-11A-2.htm>
- **Penalty** - failure to report is a misdemeanor and upon conviction a fine of \$100-\$500 can be imposed,
alisondb.legislature.state.al.us/alison/codeofalabama/1975/22-11A-6.htm

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ADPH is exempt from Health Insurance Portability and Accountability Act (HIPAA) Privacy Rules

ADPH is a public health authority as defined by HIPAA to collect or receive protected health information (PHI) for the purpose of surveillance, investigations, and interventions of notifiable diseases, without authorization of the patient.

<http://www.cdc.gov/mmwr/pdf/other/m2e411.pdf>



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Who Must Report

- Physicians
- Dentists
- Nurses
- Medical Examiners
- Hospital Administrators
- Nursing Home Administrators
- Laboratory Directors*
 - *Must submit electronically
 - ADPH expects multiple reports
- School Principals
- Child Care Center/Head Start Directors




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Minimum Data Elements

- Name of disease or health condition
- Patient's
 - Name
 - DOB
 - Gender
 - Ethnicity
 - Race
 - Address
 - Phone
 - Payor source
- Date of onset, date of lab results, and/or date of diagnosis
- Reporter's
 - Name
 - Phone
 - Facility
- Additional Information
- Supplemental Investigation






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Disease Investigation Process

- ID&O receives notifiable disease reports and/or labs
- District Investigators investigate based on reports and cases are submitted to the CDC
 - Complete investigation form
 - Review labs
 - Call healthcare provider
 - Call patient / parents
 - Document information in Alabama NEDSS Base System (ALNBS)






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Controlling the Spread of Disease

Our mission of protecting the public from diseases and outbreaks hinges on controlling the transmission and spread of disease. This can be accomplished by the timely identification and reporting of disease in combination with providing timely education and control measures to healthcare providers and the public.






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Isolation vs. Quarantine

- Isolation relates to behavior of a person with a confirmed diagnosis / disease.
 - This behavior separates people with an infectious disease from people who are not sick.
- Quarantine refers to the timeframe and behavior following exposure to an infectious disease or close contact with a person with a confirmed case of disease.
 - This behavior separates non-ill persons exposed to an infectious disease to see if they become sick.



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Report within 4 hours of Presumptive Diagnosis Immediate, Extremely Urgent

Anthrax, human	Smallpox
Botulism *	Tularemia
Plague	Viral hemorrhagic fever
Polio myelitis, paralytic	Cases related to nuclear, biological, or chemical terroristic agents
Severe Acute Respiratory Syndrome- associated Coronavirus (SARS-CoV)	

* Must request permission from Infectious Diseases & Outbreaks before testing

*Select Agents, <http://www.selectagents.gov/Select%20Agents%20and%20how%20to%20use%20an%20SA.html>






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Botulism

- Contact ADPH **immediately** upon suspicion
- **Time is of the essence**
- Testing must be approved by Public Health
- For infants, physician may contact California Public Health directly
 - **(510) 231-7600**
- Release of antitoxin will be coordinated by ADPH for patients \geq 1 year old






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How to REPORT

- Immediate, Extremely Urgent must be reported within 4 hrs of **presumptive** diagnosis by telephone
- 24/7/365 Phone: 1-800-338-8374



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Report within 24 hours Presumptive Diagnosis Immediate, Urgent

Bacillus anthracis	Menigeococcal Disease (Neisseria meningitidis)*
Cholera	Novel influenza A virus infections (i.e., potential new strain)
Coronavirus (COVID-19) (SARS-CoV-2)	Portulacis
Diphtheria	Shigella infection, nonparatyphic
<i>E. coli</i> shiga toxin-producing (STEC)	Rabies, human and animal
Haemophilus influenzae, invasive disease*	Rift Valley Fever
Hemolytic uremic syndrome (HUS), post-diarrheal	Tuberculosis
Hepatitis A, including ALT	Typhoid fever
Legionellosis	Yellow fever
Measles (rubella)	Outbreaks of any kind
	Cases of public health importance

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How to REPORT

Immediate, Urgent must be reported within 24 hrs of **presumptive** diagnosis

- Phone: 1-800-338-8374 (still requires a lab report)
- Contact your local District Investigator
- Email lab report and patient demographics to cdifax@adph.state.al.us
- Fax lab report and patient demographics to (334) 206-3734
- Online, REPORT Card: <https://epiweb.adph.state.al.us/redcap/surveys/?s=H37ENPSADD>

the lab report can be attached here electronically or the reporter will receive a call requesting the lab report

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Legionnaires' Disease

- Legionella* is transmitted environmentally, not person to person
- A single case can represent a threat to hundreds, especially vulnerable populations
- Both respiratory culture & urine antigen (UrAg) testing are critical
 - Cultured specimens can isolate **all** species and serogroups of *Legionella*.
 - UrAg only tests for one serogroup
 - Isolating *Legionella* from clinical specimens helps public health prevent additional cases

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ID&O Investigations and Cases

Disease	Investigations		Cases	
	2019	2021	2019	2021
Influenza-associated pediatric mortality	2	0	2	0
Legionellosis	114	162	72	80
Listeria	11	16	9	10
Lyme disease	299	192	87	91
Malaria	9	10	9	10
Nasal Influenza A Virus Infections	4	2	0	0
Pharyngitis/tonsillitis	1	2	0	0
Psittacosis	1	0	0	0
Q fever	7	9	2	9
Syphilis	1025	885	1025	877
Typhoid	207	107	497	98
Bacterial Foodborne Diseases	1488	929	429	196
Yersinia (Furunculosis)	4	3	0	0
Typhemia	13	3	4	0
Typhoid fever	2	6	9	8
VISA (Staph. aureus, vancomycin resistant)	2	0	1	0
VRSA (Staph. aureus, clindamycin, vancomycin resistant)	4	1	3	1
Measles (non-childen)	42	42	42	39
Zika virus	139	1	0	0
Total	5229	3323	2802	2649

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Emerging Infectious Diseases

Emerging means infections that have increased recently or are threatening to increase in the near future. These infections could be:

- Completely new (MERS, Middle East Respiratory Syndrome)
- Completely new to an area (Chikungunya in Florida, Ebola, Avian Influenza)
- Reappearing in an area (Dengue in Alabama and Texas)
- Caused by bacteria that have become resistant to antibiotics, (VRSA Vancomycin-resistant *Staphylococcus aureus* and drug-resistant TB)

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Emerging Infectious Diseases

- These diseases are often travel related. Always check the latest travel health notices found on the CDC website.
<http://www.cdc.gov/travel/destinations/list>
- CDC and ADPH recommend clinicians inquire about international travel as a part of patient screening.

Example of waiting room signage






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Alabama Emergency Response Technology ALERTs

- ADPH has created the Alabama Emergency Response Technology (ALERT) to push Health Alert Network (HAN) messages via email to healthcare providers statewide.
- MDs receive ALERTs via e-mail per the Board of Medical Examiners (BME) database. The Center for Emergency Preparedness obtain updated email addresses from the BME database monthly.






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Healthcare-associated Infections

- Healthcare-associated infections (HAIs), also known as nosocomial infections, are infections that patients get while receiving treatment for medical or surgical conditions.
- HAIs occur in all settings of care, including hospitals, surgical centers, ambulatory clinics, and long-term care facilities such as nursing homes and rehabilitation facilities.






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Healthcare-associated Infections

- The Healthcare Infection Reporting Rules mandate Alabama hospitals to report certain HAIs to ADPH using the National Healthcare Safety Network
 - catheter-associated urinary tract infections (CAUTI)
 - central line-associated blood stream infections (CLABSI)
 - surgical site infections (SSIs) associated with colon surgeries and abdominal hysterectomies
- For more information related to HAI visit our website at <http://www.alabamapublichealth.gov/hai>






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Infection Control Assessment Readiness (ICAR) Tool & Visits

- Maintain a state inventory of healthcare settings with an infection control point of contact at each facility
- Use CDC readiness assessment tools to assess healthcare facilities and determine gaps in infection control
- Address gaps (mitigate gaps)






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Rabies

- Rabies is a deadly viral disease that infects the central nervous system of mammals. It is almost always fatal to humans.
- It is transmitted through **saliva or other direct contact with infected neural tissue.**
- It is preventable if proper post-exposure treatment protocol is followed before a person becomes symptomatic.



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How to Report Rabies Exposures

- Notify your local County Health Department
- Must be reported within **48 hours.**

OR

- Complete an **ADPH Rabies Exposure Report** located online at:
<http://www.alabamapublichealth.gov/infectiousdiseases/index.html/>






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Outbreaks, Clusters, Cases of Public Health Importance, & Environmental Exposures

1. **Outbreak:** two or more individuals with similar illness and from different households resulting from a common exposure, such as ingestion of a common food. Outbreaks may also represent more than the expected number of cases.
2. **Cluster:** an unusual aggregation of cases grouped in time or space. The purpose of identifying clusters is to trigger further investigations to determine whether they might represent an outbreak.
3. **Case of public health importance:** an unusual individual case determined by a reporting healthcare provider.
4. **Environmental Exposure:** any serious human exposure to an environmental contaminant.






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Outbreaks

- An outbreak is defined as 2 or more similarly ill people, from separate households, with a common exposure.
- Single cases of certain rare and serious conditions will be investigated, such as gastrointestinal anthrax, botulism, or nosocomial legionella.

Outbreaks of Any Kind are reportable within 24 hours and include both notifiable diseases and diseases **not** required individually to be reported (e.g., norovirus, head lice, flu).






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Outbreak Investigations

- Multiple ADPH Internal Partners may be involved in an outbreak investigation:
 - Bureau of Communicable Diseases (BCD)
 - Bureau of Clinical Laboratories (BCL)
 - Bureau of Environmental Services (BES)
 - General Counsel (GC)
 - Office of Radiation Control (ORC)
 - Center for Emergency Preparedness (CEP)



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Surveillance Line List

Facilities may be directed to complete a surveillance line list or the DI may request information to complete the line list

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Specimens

- Stool
- Stool
- More Stool
- Blood
- Sputum
- Nasal

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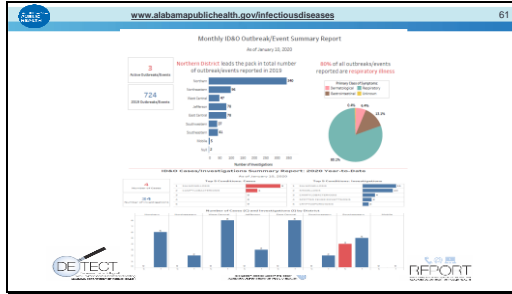
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ADPH DTR One-page Flyers

- Bleed-Through
- Botulism
- C-diff
- Cryptosporidium
- Exclusion and Readmission Criteria for Contagious Diseases in Schools and Childcare Centers
- Childcare Exclusion Supplement
- E. Coli
- Enterovirus D68 (EVD68)
- Enterovirus D68 (EVD68) Spanish
- Ethi Disease
- Food Cross Contamination
- Hand, Foot, and Mouth Disease
- Head Lice
- Influenza
- Influenza A (H1N1) and Flu
- Kawasaki Disease
- Lepidoptera
- Lymphocytic Choriomeningitis Virus
- Meningococcal Disease and Vaccines
- Mononucleosis
- Monkey and Squirrel
- Outbreak Investigation Actions
- PFOS and Fish Consumption Advisory
- Psittacosis Flyer
- Rabies Flow Chart
- Rabies Prophylaxis
- Rabies Prophylaxis Providers
- Redneck Measles
- Salmonella
- Scabies
- Shingles
- Shingles
- Specimen Collection Public Specimens Healthcare Provider
- Stop Dog Bites
- Tickborne Diseases
- Vibriosis

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Clean Hands Save Lives

- For **healthcare settings**, CDC recommends using alcohol-based hand sanitizer unless hands are visibly dirty.
- For **community settings**, including schools and home, CDC recommends washing hands with soap and water because handwashing reduces the amounts of all types of germs and chemicals on your hands, including when hands are visible dirty or greasy. If soap and water are not readily available, hand sanitizers with at least 60% alcohol can help protect you from getting sick from germs.

<https://www.cdc.gov/handwashing/>

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Why is Hand Sanitizer Best for Healthcare Workers?

- Quick and easy way to clean hands, so it improves hand hygiene compliance in healthcare settings.
- Effectively reduce the number of germs that may be on the hands of healthcare workers.
- Improves skin condition with less irritation and dryness than soap and water.
- Can be used in the absence of a sink with soap and water as an effective method of cleaning hands.

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When is Hand Sanitizer Not Best for Healthcare Workers?

- When hands are visibly soiled.
- After caring for a patient with infectious diarrhea.
- Before eating.
- After using the restroom.

REMEMBER

Alcohol-based hand sanitizers do *not* eliminate all types of germs. Soap and water are more effective than hand sanitizers at removing certain kinds of germs, like *Cryptosporidium*, *norovirus*, and *Clostridium difficile*. Although alcohol-based hand sanitizers can inactivate many types of microbes very effectively when used correctly, people may not use a large enough volume of the sanitizers or may wipe it off before it has dried.

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Handwashing

How should you wash your hands?

- Wet your hands with clean, running water (warm or cold), turn off the tap, and apply soap.
- Lather your hands by rubbing them together with the soap. Be sure to lather the backs of your hands, between your fingers, and under your nails.
- Scrub your hands for at least 20 seconds. Need a timer? Hum the "Happy Birthday" song from beginning to end twice.
- Rinse your hands well under clean, running water.
- Dry your hands using a clean towel or air dry them.

www.cdc.gov/handwash

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Hand Sanitizer

How to use Alcohol-Based Hand Sanitizer?

Washing hands with soap and water is the best way to reduce the number of germs on them in most situations. If soap and water are not available, use an alcohol-based hand sanitizer that contains at least 60% alcohol. Alcohol-based hand sanitizers can quickly reduce the number of germs on hands in some situations, but sanitizers do *not* eliminate all types of germs and might not remove harmful chemicals.

Hand sanitizers are not as effective when hands are visibly dirty or greasy.

How do you use hand sanitizers?

- Apply the product to the palm of one hand (read the label to learn the correct amount).
- Rub your hands together.
- Rub the product over all surfaces of your hands and fingers until your hands are dry.



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ADPH Contact Information

- County Health Department (CHD)
<http://adph.org/administration/assets/countylist.pdf>
- District Investigators (DI)
<http://www.alabamapublichealth.gov/infectiousdiseases/area-investigators.html>
- Infectious Diseases & Outbreaks (ID&O)
1-800-338-8374
Epidemiology@adph.state.al.us
<http://www.alabamapublichealth.gov/infectiousdiseases/index.html>






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www.alabamapublichealth.gov/infectiousdiseases 68

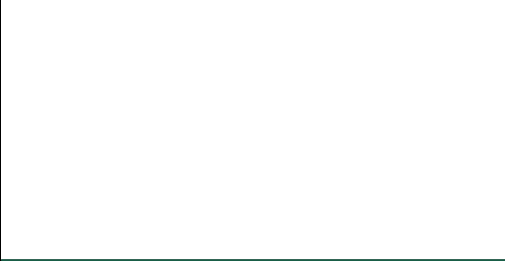


Questions?


[Thank you](#)



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2024 INFECTION PREVENTION BOOTCAMP FOR NURSING HOMES AND LONG-TERM CARE FACILITIES



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 SCHOOL OF PUBLIC HEALTH

 THE UNIVERSITY OF ALABAMA AT BIRMINGHAM

 ALABAMA NURSING HOME & LONG-TERM CARE FACILITY STRIKE TEAM



 Long Term Care Facility Infection Prevention Mini-Bootcamp

ENVIRONMENTAL HYGIENE IN LTC WITH LIMITED RESOURCES


 MARCH 7, 2024



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Objectives

- Identify the role of preventing HAIs through environmental surface disinfection
- Identify ways to interrupt the Chain of Infection
- Define cleaning, contact time, low level disinfection, and the Spaulding Scheme and its relation to disinfection
- Review why cleaning and disinfection are important in the long-term care facility setting
- Describe Standard precautions and indications on when it is utilized
- List potential modes of infection transmission within LTC settings
- List high touch surfaces in the LTC environment
- List important steps when performing cleaning and disinfection
- Discuss sequence and pattern for cleaning and disinfection of resident rooms
- Describe steps to clean and disinfect reusable equipment
- Describe the frequency the cleaning and disinfection should occur
- Explain the importance of staff performing demonstrated competency
- List ways to perform continuous quality improvement



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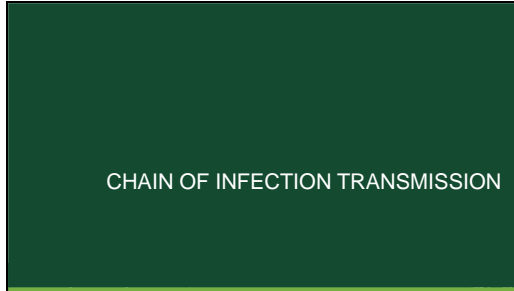
According to Centers for Disease and Control

- Healthcare Associated Infections (HAIs)**
 - 1 to 3 million serious infections occur every year in nursing homes, skilled nursing and assisted living facilities.
 - Infections include urinary tract infection, diarrheal diseases, antibiotic-resistant staph infections, and many others.
 - Infections are a major cause of hospitalization and death; as many as 380,000 people die of the infections in LTCFs every year.
- Reducing HAIs is critical to improving patient safety and controlling healthcare costs.


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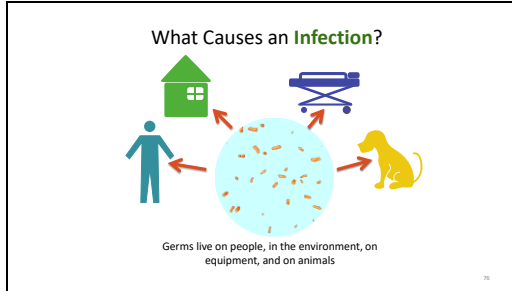
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Germs Can Persist in the Environment

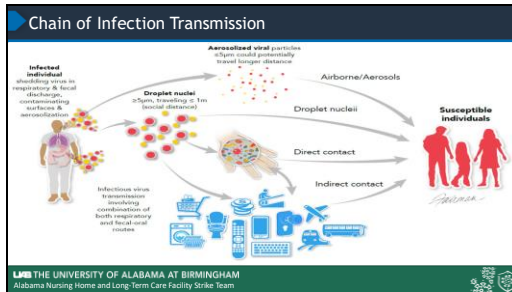
Germs or pathogens of concern, such as *C. difficile*, *E. coli*, *Enterococcus species*, Hepatitis B virus, *Norovirus*, *S. aureus*, can survive for long periods of time if proper cleaning and disinfection are not performed.

Susceptible residents can become infected or colonized with pathogens if they have direct or indirect contact with contaminated surfaces or equipment.

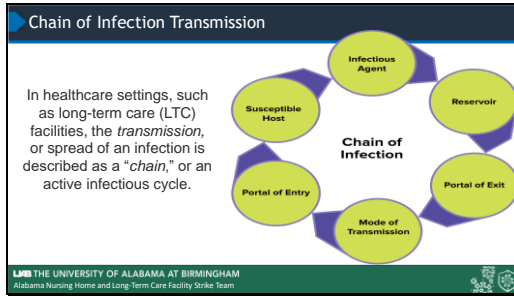
 Clostridium difficile (spores) 5 months	 Escherichia coli 1.5 hours to 18 months
 Enterococcus spp. 5 days to 4 months	 Hepatitis B virus > 1 week
 Norovirus 8 hours to 7 days	 Staphylococcus aureus 7 days to 7 months

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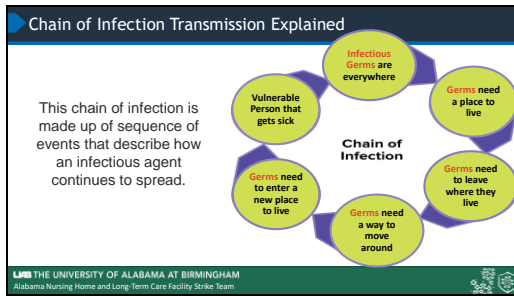
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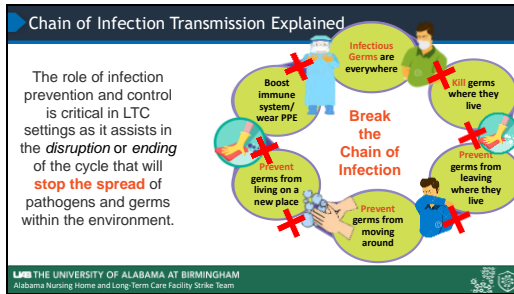
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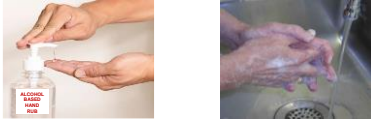
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Break the Chain of the Infection Cycle

Germ are primarily spread through the hands of healthcare providers. Therefore, hand hygiene remains the #1 way to prevent the spread of infection.

Hand hygiene includes:

- Hand sanitizing with an alcohol-based hand rub
- Hand washing with soap and water




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**BASIC CONCEPTS OF
CLEANING AND DISINFECTION
IN LTC SETTINGS**

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Core Components of Environmental Cleaning and Disinfection in Hospitals



<https://www.cdc.gov/hai/prevent/environment/surfaces.html>

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Importance of Cleaning and Disinfection

Contaminated surfaces alone are not directly associated with transmission of infections to either residents or staff.


The organisms from contaminated surfaces are spread through hand contact with the surfaces.

Cleaning and disinfection environmental surfaces is fundamental in reducing the potential to contribute to the incidence of healthcare-associated infections.

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Fomites

- Fomites are inanimate objects that are most likely to transfer the pathogens deposited by the infected host into a susceptible host.
- Examples of fomites are door handles, faucet handles, and bedside tables.
- Examples of diseases caused by fomite transmission are the common cold, influenza, Meningitis, and COVID-19



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Importance of Cleaning and Disinfection

Housekeeping surfaces require regular cleaning and removal of soil and dust.


- Dry conditions favor the persistence of gram-positive cocci in dust and on surfaces.
- Moist, soiled environments favor the growth and persistence of gram-negative bacilli.
- Fungi are also present on dust and grow in moist, fibrous material.

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Environmental Surfaces

In the long-term care facility setting, environmental surfaces refer to:

- Surfaces of resident care equipment.
- Housekeeping surfaces, which are divided into two categories:
 - Surfaces with minimal hand contact (e.g., floors, ceilings, and windowsills).
 - Surfaces with frequent hand contact, also known as **high-touch surfaces** (e.g., frequently touched areas such as: doorknobs, bedrails, and light switches)



High or Frequently Touched Surfaces

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Ideal Characteristics of Finishes, Furnishes, and Other Surfaces


Characteristic	Selection guidance
Cleanable	Avoid items with hard-to-clean features (e.g., crevasses). Do not use carpet in patient care areas. Select material that can withstand repeated cleaning.
Easy to maintain and repair	Avoid materials that are prone to cracks, scratches, or chips, and quickly patch/repair if they occur. Select materials that are durable or easy to repair.
Resistant to microbial growth	Avoid materials that hold moisture, such as wood or cloth, because these facilitate microbial growth. Select metals and hard plastics.
Non-porous	Avoid items with porous surfaces, such as cotton, wood and nylon. Avoid flexible plastics, such as polypropylene, in patient care areas.
Seamless	Avoid items with seams. Avoid upholstered furniture in patient care areas.

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Basic Infection Control Concepts in Cleaning

- Cleaning is not the same as disinfection or sanitization. Cleaning should occur **before** disinfecting or sanitizing surfaces.
- Cleaning is defined as the physical removal of all foreign material from objects
 - This may be achieved by using surfactants, detergents, soaps, enzymatic products, or mechanical action of washing or scrubbing the object.



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Basic Infection Control Concepts in Disinfection

- The Spaulding Classification System is the strategy of disinfection of inanimate objects and surfaces based on the degree of risk involved in their use.
- Per the Spaulding Classification System, environmental surfaces are considered a non-critical risk because they only contact intact skin.
- Non-critical resident equipment and environmental surfaces should be cleaned followed by either low- or intermediate-level disinfection.

Spaulding Classification of Objects	Application	Level of Germicidal Action Required
Critical	Entry or penetration into sterile tissue, cavity or bloodstream	Sterilization
Semi-critical	Contact with mucous membranes, or non-intact skin	High-Level Disinfection
Non-critical	Contact with intact skin or environmental surfaces	Low or Intermediate-level Disinfection

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Basic Infection Control Concepts in Disinfection

Disinfection is a process that reduces the number of microorganisms (except for bacterial spores) on inanimate objects. This is achieved by using hospital detergent and disinfectant or chemical sterilant.

Low-level Disinfection:

- Destroys all vegetative bacteria (except tubercle bacilli) and most viruses. Does not kill bacterial spores.
- Examples of low-level disinfectants include hospital disinfectants registered with the Environmental Protection Agency (EPA) with a HBV and HIV label claim.
- Generally appropriate for most environmental surfaces.

Intermediate-level Disinfection:

- Kills a wider range of pathogens than a low-level disinfectant. Does not kill bacterial spores.
- EPA-registered hospital disinfectants with a tuberculocidal claim are considered intermediate-level disinfectants.
- Should be considered for environmental surfaces that are visibly contaminated with blood.
 - Low-level disinfectant with label claim against HBV and HIV could also be used.

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Disinfectant Selection

- Decisions about product selection should be made in consultation with environmental services staff.
- Select and use disinfectants that are EPA-registered and labeled for use in healthcare settings.
 - Typically have "hospital-grade disinfectant" or "hospital disinfectant" on the label.

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Other Considerations in Disinfectant Selection

Broad Spectrum Claims	Material Compatibility
Safe - Nontoxic	Nonflammable
Ease of Use	Nonflammable
Acceptable Odor	Contact Time
Economical/Low cost	Environmentally Friendly

https://www.cdc.gov/ha/prevent/resource-limited/supplies-equipment.html#anchor_1586813879077

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PROPER USE OF
CLEANERS AND DISINFECTANTS

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How to Read a Disinfectant Label



<https://www.cdc.gov/ha/i/pdfs/HowToReadALab>

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How to Read a Disinfectant Label

Read the entire label.
The label is the law!

Note: Below is an example of information that can be found on a disinfectant label.

Active Ingredients: What are the main disinfecting chemicals?

EPA Registration Number: U.S. laws require that all disinfectants be registered with EPA.

ACTIVE INGREDIENTS:
Propylamine, C14, C16, C18, C12, C14, C16
Disinfecting Benzyl Ammonium Chloride.....10.0%
OTHER INGREDIENTS:.....90.0%
TOTAL:.....100.0%

Signal Words (Caution, Warning, Danger): How risky is this disinfectant if it is swallowed, inhaled, or absorbed through the skin?

CAUTION

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registered with EPA.

Directions for Use (Instructions for Use): Where should the disinfectant be used? What germs does the disinfectant kill? What types of surfaces can the disinfectant be used on? How do I properly use the disinfectant? Contact Time: How long does the surface have to stay wet with the disinfectant to kill germs?

Directions for Use: It is a violation of Federal law to use this product in a manner inconsistent with its labeling.

For Disinfection of Healthcare Organisms: Sepsis/shock sepsis, Pseudomonas aeruginosa.

To Disinfect Hard, Nonporous Surfaces: This disinfectant solution: Mix or wipe with disinfectant solution. Allow solution to stay wet on surface for at least 10 minutes. Rinse well and air dry.

PRECAUTIONARY STATEMENTS: Hazardous to humans and domestic animals. Wear gloves and eye protection.

CAUSES MODERATE EYE IRRITATION. Avoid contact with eyes, skin or clothing. Wash thoroughly with soap and water after handling. Avoid contact with foods.

FIRST AID: IF IN EYES: Hold eye open and close slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. **IF ON SKIN OR CLOTHING:** Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes.

POISON CONTROL: Call a Poison Control Center (1-800-368-5648) or doctor for treatment advice.

STORAGE AND DISPOSAL: Store this product in a cool, dry area away from direct sunlight and heat. When not in use, keep center cap of lid closed to prevent moisture loss. Nonrefillable container. Do not reuse or refill this container.

Precautionary Statements: How do I use this disinfectant safely? Do I need PPE?

First Aid: What should I do if I get the disinfectant in my eyes or mouth, on my skin, or if I breathe it in?

Storage & Disposal: How should the disinfectant be stored? How should I dispose of expired disinfectant? What should I do with the container?

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Proper Use of Cleaners and Disinfectants

Follow the instructions for use included in the product labeling. This is important to ensure the pathogens specified on the label will be killed. Below are a few instructions to be sure not to miss.

Is the disinfectant in a ready-to-use format?

- Do not mix or dilute unless specified in the label.
- Follow instructions for how frequently fresh solution should be prepared.
 - Dilute solutions can be a reservoir for pathogens.
- Do not "top off" or add new solution to containers of old solution.

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Proper Use of Cleaners and Disinfectants

Follow the instructions for use included in the product labeling. This is important to ensure the pathogens specified on the label will be killed.
Below are a few instructions to be sure not to miss.

Is a cleaning step required before application?

Even if you are using a one-step cleaner and disinfectant, if the surface is grossly soiled, a distinct cleaning step may be required before application of the disinfectant.



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Proper Use of Cleaners and Disinfectants

Follow the instructions for use included in the product labeling. This is important to ensure the pathogens specified on the label will be killed.
Below are a few instructions to be sure not to miss.

What is the contact time?

Read the label:

- How should the disinfectant be applied?
- How long should it remain in contact with the surface?
- How many towelettes or how much disinfectant is required for the area you are disinfecting?



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What is the Contact Time?



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Proper Use of Cleaners and Disinfectants

Follow the instructions for use included in the product labeling. This is important to ensure the pathogens specified on the label will be killed.
Below are a few instructions to be sure not to miss.

Is the disinfectant compatible with the surface on which it will be used?

Ensure staff know which disinfectants are intended to be used on which surfaces and under which circumstances.



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**CLEANING AND DISINFECTION
REVIEW WITH RESIDENT
EQUIPMENT**

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**Reviewing
the
Instructions
for Use**

ASSURE PLATINUM
TELEMONITORING SYSTEM



Quality Assurance / Quality Control
(QA/QC) Reference Manual

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Example of Reviewing the Instructions for Use

(Per the Instructions for Use)

To reduce the chance of infection:
Before performing a blood glucose test, observe the following safety precautions:

- All components that contact blood samples should be treated as biohazards capable of transmitting viral diseases between patients and healthcare professionals.
- A new pair of clean gloves should be worn by the user before testing each patient.
- Wash hands thoroughly with soap and water before putting on a new pair of gloves and performing the next patient test.
- Use only an auto-disabling, single-use lancing device for each patient.
- The meter should be cleaned and disinfected after use on each patient.

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Reviewing the Instructions for Use

- The meter should be **cleaned and disinfected after use on each patient.**
- The cleaning procedure is needed to **clean** dirt, blood and other bodily fluids off the exterior of the meter **before** performing the **disinfecting** procedure. The disinfecting procedure is needed to prevent the transmission of blood-borne pathogens.
- **Always wear the appropriate protective gear, including disposable gloves.**
- Select a wipe from the table below and **carefully review the manufacturer's instructions.**
- **Clean and disinfect** the meter following step-by-step instructions in this QA/QC Reference Manual. Use caution as to not allow moisture to enter the test strip port, data port or battery compartment, as it may damage the meter.
- ARKRAY has tested and validated the durability and functionality of the Assure Platinum meter with the most used EPA-registered wipes. Our testing confirmed the wipes listed below will not damage the functionality or performance of the meter through 3,650 cleaning and disinfecting cycles.

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Reviewing the Instructions for Use

MIFU LISTED ACCEPTABLE DISINFECTANTS

Manufacturer	Disinfectant Brand Name	EPA #
Clorox® Professional Products Company	Clorox® Healthcare Bleach Germicidal Wipes	67619-12
	Dispatch® Hospital Cleaner Disinfectant Towels with Bleach	56392-8
Professional Disposables International, Inc. (PDI)	Super Sani-Cloth® Germicidal Disposable Wipes	9480-4
Metrex® Research	CaviWipes™	46781-8

Clorox and Dispatch are trademarks or registered trademarks of Clorox. Sani-cloth is a trademark or registered trademark of PDI. Metrex and CaviWipes are trademarks or registered trademarks of Metrex.

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Reviewing the Instructions for Use

Additional options for cleaning and disinfecting the Assure Platinum meter. If you choose to follow Options 1 or 2 below, we recommend you create supporting documentation to justify your choice. Choosing a product not listed in the table above could shorten use life or affect performance of the Assure Platinum meter.

Option 1

- Obtain a commercially available EPA-registered disinfectant detergent or germicide wipe. A list of EPA-registered disinfectants can be found at the following website: www.epa.gov/pesticide-registration/selected-epa-registered-disinfectants
- Carefully review the manufacturer's instructions.
- Remove wipe from the container and gently squeeze out excess liquid.
- Clean and disinfect the meter following step-by-step instructions listed below in this QAVDC Reference Manual.
- Use caution as to not allow moisture to enter the test strip port, data port or battery compartment, as it may damage the meter.

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Reviewing the Instructions for Use

- Option 2
- Clean the outside of the blood glucose meter with a lint-free cloth dampened with soapy water or isopropyl alcohol (70-80%).
- Disinfect the meter by diluting 1mL of household bleach (5-6% sodium hypochlorite solution) in 9mL water to achieve a 1:10 dilution.
- Use a lint-free cloth dampened with the solution to thoroughly wipe down the meter.
- Use caution as to not allow moisture to enter the test strip port, data port or battery compartment, as it may damage the meter.

If you have any questions, please contact Technical Customer Service at 800.818.8877, option 5.

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Reviewing the Instructions for Use

CLEANING AND DISINFECTING PROCEDURES

Step 1
Wear appropriate protective gear such as disposable gloves.

Step 2
Open the cap of the disinfectant container and pull out 1 towellette and close the cap.

Step 3
Wipe surface of the meter to clean blood and other body fluids. Carefully wipe around the test strip port by inverting the meter so that the test strip port is facing down. This prevents disinfectant liquid from entering the meter.

CAUTION
Do not let liquid from the wipe saturate the test strip port, data port or battery compartments.

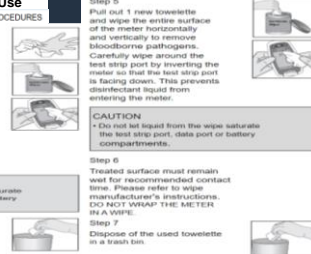
Step 4
Dispose of the used towellette in a trash bin. The meter should be cleaned again in each disinfection step.

Step 5
Pull out 1 new towellette and wipe the entire surface of the meter horizontally and vertically to remove bloodborne pathogens. Carefully wipe around the test strip port by inverting the meter so that the test strip port is facing down. This prevents disinfectant liquid from entering the meter.

CAUTION
Do not let liquid from the wipe saturate the test strip port, data port or battery compartments.

Step 6
Treated surface must remain wet for recommended contact time. Please refer to wipe manufacturer's instructions. **DO NOT WRAP THE METER IN A WIFE.**

Step 7
Dispose of the used towellette in a trash bin.



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RECOMMENDED PERSONAL PROTECTIVE EQUIPMENT FOR ENVIRONMENTAL CLEANING TASKS / CLEANING IN SPECIFIC AREAS

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USE PERSONAL PROTECTIVE EQUIPMENT

Examples of Recommended Personal Protective Equipment



- Follow the cleaner and or disinfectant's instructions for use or the safety data sheets recommendations regarding PPE
- Use PPE based upon the anticipated tasks to be performed or based Standard Precautions upon anticipated exposures to blood and body fluids.
- Follow all posted transmission-based precautions.

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Type of cleaning task	Required personal protective equipment for cleaning staff
Routine cleaning (standard precautions)	None (unless spills or contamination risk—see below)
Terminal cleaning (standard precautions)	Reusable rubber gloves
Blood and body fluid spills and high contamination risk areas (e.g., cleaning bed of an incontinent patient, labor and delivery wards)	Gown and/or plastic apron Reusable rubber gloves Face mask with either goggles or face shield
Droplet precautions (routine and terminal cleaning)	Gown and/or plastic apron Reusable rubber gloves Face mask with either goggles or face shield
Contact precautions (routine and terminal cleaning)	Gown and/or plastic apron Reusable rubber gloves
Airborne precautions (routine and terminal cleaning)	Respirator (N95 or FFP2), fit tested Reusable rubber gloves
Preparation of disinfectant products and solutions	According to specifications in SDS (manufacturer instructions) If SDS not available, then: <ul style="list-style-type: none"> Chemical-resistant gloves (e.g., nitrile) Gown and/or apron Face mask with either goggles or face shield

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Process for Cleaning and Disinfection

Develop a standardized process to ensure that you are cleaning and disinfecting surfaces appropriately.

- Always work from the cleanest surfaces to the dirtiest surfaces.
- Work from top to bottom.
- Consider establishing a consistent process or pattern for cleaning and disinfecting surfaces in the room.
- Wipe surfaces in a manner to prevent recontamination.

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Using Cleaning Equipment Appropriately

Microfiber mops and cloths are preferred for most cleaning and disinfection in healthcare settings.

- Change cleaning cloths frequently.
- Change microfiber mop heads after use in each room.
- Environmental services carts should not enter resident rooms, and supplies brought into the room should be limited to the minimum necessary for that space.

Trishman, A. N., Marckham, K., & Allen, M. J. (2015). Microfiber cloths reduce the transfer of Clostridium difficile spores to environmental surfaces compared to cotton cloths. *Infection Control and Hospital Epidemiology*, 40(2), 198-201.

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Breaking the Chain of Transmission in the Environment

A colonized or infected resident can contaminate environmental surfaces and noncritical equipment. Microorganisms from these contaminated environmental surfaces and noncritical equipment can be transferred to a susceptible resident in two ways:

- If the susceptible resident directly meets the contaminated surfaces.
- If a healthcare personnel, caretaker, or visitor meets the contaminated surfaces and then transfers the microorganisms to the susceptible resident.

The diagram illustrates the cycle of infection: an 'Infectious agent' (green starburst) is transferred from a 'Colonized or infected resident' to 'Contaminated hands or gloves of healthcare personnel, caretakers, visitors' and to 'Contaminated environmental surfaces and noncritical equipment'. From these contaminated points, the infectious agent is then transferred to a 'Susceptible resident'.

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Breaking the Chain of Transmission in the Environment

The diagram shows the chain of transmission being disrupted. An 'Infectious Agent' is transferred to a 'Colonized or Infected Resident'. A hand with a starburst (representing the infectious agent) is shown with a red 'X' over the path to a 'Susceptible Resident'. Another path from the 'Colonized or Infected Resident' goes to 'Contaminated hands or gloves of healthcare personnel, caretakers, visitors', which then leads to 'Contaminated environmental surfaces and noncritical equipment'. A red 'X' is placed over this path, with an illustration of a cleaning spray bottle next to it, indicating that cleaning and disinfection break the chain. Another 'X' is placed over the direct path from the contaminated hands to the susceptible resident, indicating that hand hygiene breaks the chain.

Appropriately cleaning and disinfecting and performing hand hygiene will disrupt chain of infection events and ultimately prevent the spread of transferring infections to others.

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Cleaning Carpeting


- Harder to keep clean and cannot be reliably disinfected, especially after spills of blood or body fluids.
- Recommended practices:
 - Minimize use in high-traffic zones within resident care areas or where spills are likely.
 - Vacuum on a regular basis with equipment designed to minimize dust dispersion.
 - Periodically deep clean using a method that minimizes production of aerosols and leaves little to no residue.
 - Promptly spot clean spills of blood or body fluids.

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Cleaning Upholstered Furnishings

- Pose challenges with cleaning and disinfection.
- Recommended practices:
 - Minimize use in areas with increased potential for body substance contamination.
 - Maintain in good repair; promptly repair tears and holes.
 - If furniture in a resident's room requires cleaning to remove visible soil or body substance contamination, promptly move that item to a maintenance area.



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The Policies & Procedures clearly define the terms like "cleaning" and "disinfection." It also identifies the following:

- Purpose
- Responsibility
- Procedures (to include instructions from the Manufacturer)
 - Process
 - Including the supplies that are necessary for cleaning and disinfecting environmental surfaces
 - PPE needed
 - Process for exposure or spill
 - Process when variations to procedure are to be performed

Environmental Cleaning and Disinfection Template

Define the location, frequency and extent of cleaning
Cleaning refers to the removal of visible soil and that surface through the physical action of scrubbing with a brush or sponge and water. The goal is to remove the majority of organisms in a facility and reduce their numbers. This goal is achieved through the use of appropriate cleaning agents and techniques. Cleaning agents should be used in accordance with the manufacturer's instructions. Cleaning agents should be used in accordance with the manufacturer's instructions. Cleaning agents should be used in accordance with the manufacturer's instructions.

Identify the location, frequency and extent of disinfection
Disinfection refers to the use of an agent to kill a wide range of organisms on a non-porous surface. Disinfection is achieved through the use of appropriate disinfectants and techniques. Disinfectants should be used in accordance with the manufacturer's instructions. Disinfectants should be used in accordance with the manufacturer's instructions. Disinfectants should be used in accordance with the manufacturer's instructions.

Establish policies and procedures to support the activities for the activities
Environmental cleaning and disinfection are essential for maintaining a safe and healthy facility. Environmental cleaning and disinfection are essential for maintaining a safe and healthy facility. Environmental cleaning and disinfection are essential for maintaining a safe and healthy facility. Environmental cleaning and disinfection are essential for maintaining a safe and healthy facility.

Responsibility, authority and accountability for cleaning and disinfection
Environmental cleaning and disinfection are essential for maintaining a safe and healthy facility. Environmental cleaning and disinfection are essential for maintaining a safe and healthy facility. Environmental cleaning and disinfection are essential for maintaining a safe and healthy facility. Environmental cleaning and disinfection are essential for maintaining a safe and healthy facility.

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At a minimum, your policy should address:

- the types of cleaning and disinfection products used in the facility, considering their label claims and compatibility with different surfaces
- frequency with which cleaning and disinfection of environmental surfaces in different locations in the facility should be performed. For example, immediately if surfaces are visibly soiled, or daily for high-touch surfaces in resident rooms
- the locations in the facility where carpeting and upholstered furnishings are and are not allowed
- and the proper storage and maintenance of cleaning and disinfection products and equipment.

Environmental Cleaning and Disinfection Template

Define the location, frequency and extent of cleaning
Cleaning refers to the removal of visible soil and that surface through the physical action of scrubbing with a brush or sponge and water. The goal is to remove the majority of organisms in a facility and reduce their numbers. This goal is achieved through the use of appropriate cleaning agents and techniques. Cleaning agents should be used in accordance with the manufacturer's instructions. Cleaning agents should be used in accordance with the manufacturer's instructions. Cleaning agents should be used in accordance with the manufacturer's instructions.

Identify the location, frequency and extent of disinfection
Disinfection refers to the use of an agent to kill a wide range of organisms on a non-porous surface. Disinfection is achieved through the use of appropriate disinfectants and techniques. Disinfectants should be used in accordance with the manufacturer's instructions. Disinfectants should be used in accordance with the manufacturer's instructions. Disinfectants should be used in accordance with the manufacturer's instructions.

Establish policies and procedures to support the activities for the activities
Environmental cleaning and disinfection are essential for maintaining a safe and healthy facility. Environmental cleaning and disinfection are essential for maintaining a safe and healthy facility. Environmental cleaning and disinfection are essential for maintaining a safe and healthy facility. Environmental cleaning and disinfection are essential for maintaining a safe and healthy facility.

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Resources:

- CDC, Guidelines for Environmental Infection Control in Health-Care Facilities (2003): <https://www.cdc.gov/infectioncontrol/pdf/guidelines/enviromental-guidelines.pdf>
- CDC, Guideline for Isolation Precautions (2007): <https://www.cdc.gov/infectioncontrol/pdf/guidelines/isolation-guidelines.pdf>
- EPA, Selected Disinfectants: <https://www.epa.gov/pesticide-registration/selected-epa-registered-disinfectants>
- OSHA, Bloodborne Pathogens Standard: <https://www.osha.gov/SLTC/bloodbornepathogens/index.html>
- OSHA, Guidance for Cleaning Industry Worker Safety Considerations: <https://www.osha.gov/SLTC/cleaningindustry/index.html>

Environmental Cleaning and Disinfection Template

Define the Infection Prevention and Control (IPC) Practice
Cleaning refers to the removal of visible soil from surfaces through the application of detergent and a suitable cleaning technique. This does not involve the use of disinfectants.

Low-level disinfection refers to the use of an agent that destroys all vegetative bacteria, most fungi and some viruses. Low-level disinfection is typically used for non-critical surfaces. Examples of low-level disinfectants include quaternary ammonium compounds, phenolics, and alcohol. Disinfectants of this level are not sporicidal and do not kill bacterial spores.

Intermediate-level disinfection refers to the use of an agent that kills a wide range of pathogens that are not resistant to heat and chemical action. Disinfectants of this level include glutaraldehyde, hydrogen peroxide, and bleach. Intermediate-level disinfection is used for semi-critical surfaces such as endoscopes and reusable respiratory circuitry.

High-level disinfection refers to the use of an agent that kills all microorganisms, including bacterial spores. High-level disinfection is used for critical surfaces such as heat labile endoscopes and reusable respiratory circuitry.

Responsibility parties which are responsible for infection risk mitigation

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MAINTENANCE OF SUPPLIES

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Housekeeping Cleaning Carts

- Housekeeper's carts commonly used to transport supplies throughout the facility can serve as a source of pathogen transmission if they are not regularly cleaned and disinfected.
 - For example, in an outbreak of drug-resistant *Enterobacteriaceae* at a healthcare, the organism was identified on an environmental services cart, suggesting a potential role in transmission.
- Carts should not enter resident rooms and should be cleaned and disinfected at least daily.



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Utility Room Maintenance

- Dedicate space to store cleaning and disinfection products and equipment.
 - Maintain separation between clean and dirty equipment.
- Cleaning and disinfection schedules should include clean and dirty utility areas.
- Designate staff to monitor supply levels in these areas and restock, as appropriate.



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TRAINING, COMPETENCY, AND PERFORMANCE MONITORING

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<p>Training should be provided:</p> <ul style="list-style-type: none">• Upon hire.• Annually.• When new products are introduced.• When new policies and procedures are developed.• In response to deviations from recommended practices.	<p>Verify competency following each training.</p> <p>Hands-on training and direct observation of practices are particularly important when assessing competency for environmental cleaning.</p> <p>Maintain documentation that education and competency assessment were performed.</p>
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Performance Monitoring

- Performance monitoring and feedback ensure adherence to facility policies and procedures.
- Frequency and locations of audits should be informed by your annual IPC risk assessment.
 - More frequent monitoring may be performed on higher acuity units or the rooms of residents on Transmission-Based Precautions.
- Results of performance monitoring should be documented and shared to reinforce adherence to recommended practices.
- Self-assessment checklists and signoff sheets can be helpful reminders, but these alone are not sufficient.




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Auditing

- Methods for auditing cleaning and disinfection practices vary.
 - There are pros and cons to each of these methods.
- Facilities could consider implementing more than one approach to performance monitoring.
- Visually inspecting the cleanliness of a room after cleaning and disinfection has been performed.
- Visual assessment, alone, is not sufficient to ensure that all surfaces have been properly cleaned and disinfected.
 - Just because a surface appears clean does not mean that it was disinfected.




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Methods for Assessment of Cleaning and Cleanliness

It is best practice to perform routine, standardized assessments of environmental cleaning (i.e., practices, level of cleanliness) in order to:

- ensure that environmental cleaning procedures are being performed according to best practices and facility policy
- use results to inform program improvement (e.g., training resource allocation)




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Direct Performance Observations

- Observe staff practices with the assistance of a checklist.
 - Confirm they have prepared and applied cleaners and disinfectants in accordance with facility policies and procedures.
 - Confirm they have addressed all required surfaces in the room.
- Staff may modify their typical practices if they are aware they are being observed.



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Fluorescent Markers

- Apply fluorescent markers before cleaning and assess the markers using special lighting after cleaning.
 - If the marker is still present after cleaning, it objectively indicates the surface was not adequately cleaned.
- This method would not identify deviations in preparation of cleaning and disinfection products or in how products were applied.




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Methods for Assessing the Level of Cleanliness

- Adenosine triphosphate (ATP) bioluminescence assay systems measure residual organic matter, both microbial and non-microbial, that is left on a surface after cleaning.
- Provides objective quantitative results that can be used to track and document improvement in daily cleaning practices.
- Method would not identify deviations in preparation and use of cleaning and disinfection products.
- Method is unable to measure virus, bacteria, fungus or parasites.




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Bacterial Culture of Surface

- **Not recommended for routine use;** This method lacks a defined threshold or benchmark for determining the level or status of cleanliness (e.g., colony-forming units per surface area)
- Environmental cultures—the only direct measurement of levels of microbial contamination after cleaning. In this process, cultures are taken (by swabbing or use of RODAC or contact agar plates) after an item is cleaned. Swabbing can indicate the presence of a specific bacteria on a surface. Contact agar plates can show the level of bacterial contamination on an area of a large, flat surface.
- May be useful for identifying source of outbreaks and/or environmental reservoirs – *use only with the direction of ADPH*



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Provide Performance Feedback

Results of monitoring should be documented and shared.

- Additional information about options for evaluating environmental cleaning available on CDC website.

[CDC Options for Evaluating Environmental Cleaning](#)


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Prevention is Key

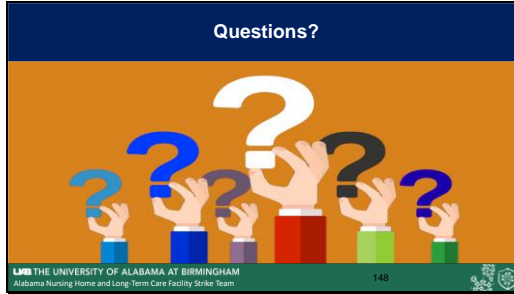
Environmental hygiene is an important prevention tool intended to reduce the spread infections.

PREVENTION IS KEY!

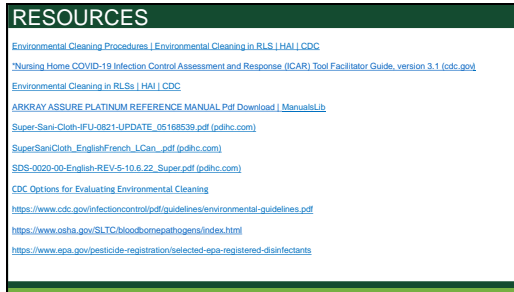


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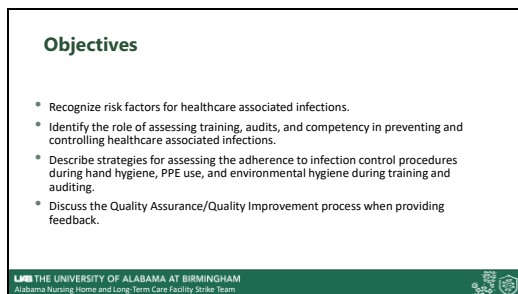
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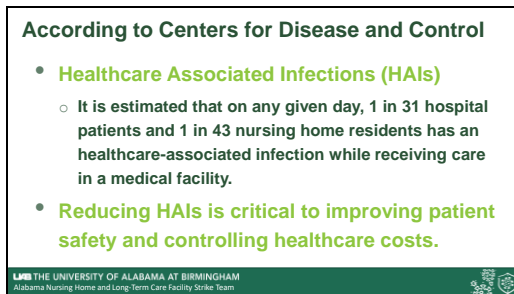
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We have the infection prevention playbook...



... *but* the question remains why are infections continuing to occur within healthcare settings?

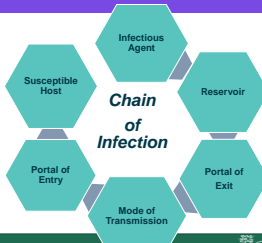
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BASICS IN INFECTION PREVENTION

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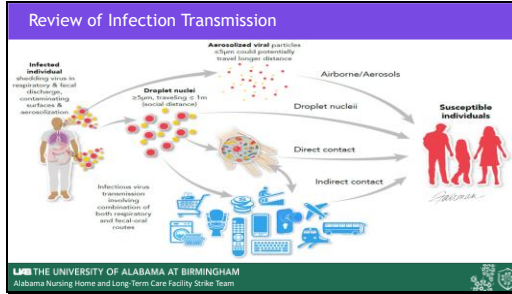
Review of the Chain of Infection Transmission

In healthcare settings, the *transmission*, or spread of an infection is described as a "*chain*," or an active infectious cycle.



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Fomites

- Fomites are inanimate objects that are most likely to transfer the pathogens deposited by the infected host into a susceptible host.
- Examples of fomites are door handles, faucet handles, and bedside tables.
- Examples of diseases caused by fomite transmission are the common cold, influenza, Meningitis, and COVID-19

A magnifying glass is shown over several colorful, stylized virus particles. The bottom of the slide features the logo for 'THE UNIVERSITY OF ALABAMA AT BIRMINGHAM' and the text 'Alabama Nursing Home and Long-Term Care Facility Strike Team'.

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Environmental Surfaces

In the healthcare setting, environmental surfaces refer to:

- Surfaces of resident care equipment.
- Housekeeping surfaces, which are divided into two categories:
 - Surfaces with **minimal** hand contact (e.g., floors, ceilings, and windowsills).
 - Surfaces with **frequent** hand contact, also known as **high-touch surfaces**

A photograph of a hospital room with red arrows pointing to various high-touch surfaces: the bed frame, bedside table, chair, and door handle. The caption above the photo reads 'High or Frequently Touched Surfaces'. The bottom of the slide features the logo for 'THE UNIVERSITY OF ALABAMA AT BIRMINGHAM' and the text 'Alabama Nursing Home and Long-Term Care Facility Strike Team'.

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What are High Touch Surfaces?

The Room is the Resident.

A resident can touch any or all surfaces in their room during their stay:

- ✓ Paper towel push bars
- ✓ Door handles
- ✓ Blind handles, knobs
- ✓ Call button
- ✓ Microwave
- ✓ TV and TV Remote
- ✓ Bedrail buttons
- ✓ Shower handle
- ✓ Toilet handle
- ✓ Faucet handles
- ✓ Thermostat
- ✓ A/C buttons
- ✓ A/C Unit
- ✓ Fan cord
- ✓ Telephone
- ✓ Cabinet doors
- ✓ Shower knob
- ✓ Linen hamper
- ✓ Light switches
- ✓ Recliner handle
- ✓ Bedside Table


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Germ Persistence in the Environment

Germ or pathogens of concern, such as *C. difficile*, *E. coli*, *Enterococcus species*, Hepatitis B virus, *Norovirus*, and *S. aureus*, can survive for long periods of time if proper cleaning and disinfection are not performed.

Susceptible patient/residents can become infected or colonized with pathogens, if they have direct or indirect contact with contaminated surfaces or equipment.




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Role of Infection Prevention and Control

The role of infection prevention and control is critical in healthcare settings as it assists in the *disruption or ending* of the cycle that will **STOP THE SPREAD** of pathogens and germs within the environment.



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Standard Precautions

Standard Precautions are a group of infection prevention practices that **apply to the care of all patients/residents**, regardless of suspected or confirmed infection or colonization status.

USE STANDARD PRECAUTIONS FOR EVERYONE!

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IMPROVING INFECTION PREVENTION PRACTICES

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Core Infection Prevention and Control Practices

- Leadership Support
- Education and Training of Healthcare Personnel on Infection Prevention
- Patient Family and Caregiver Education
- Performance Monitoring and Feedback
- Standard Precautions
 - Hand hygiene
 - Environmental Cleaning and Disinfection
 - Injection and Medication Safety
 - Risk assessment with Appropriate Use of Personal Protective Equipment
 - Minimizing Potential Exposures
 - Reprocessing of Reusable Medical Equipment
- Transmission-Based Precautions
- Temporary Invasive Medical Devices for Clinical Management
- Occupational Health

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Training should be provided:

- Upon hire.
- Annually.
- When new products are introduced.
- When new policies and procedures are developed.
- In response to deviations from recommended practices.

Verify competency following each training.

Hands-on training and direct observation of practices are particularly important when assessing competency for environmental cleaning.

Maintain documentation that education and competency assessment were performed.


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Training Content

Examples of content that are included in training and assessed during auditing include:

- Hand hygiene
- Cleaning and disinfection of environmental surfaces
- Use of Personal Protective Equipment
- Point of Care Blood Testing



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Fluorescent Marker (FM)



- As an enhanced option for visual observations, use a fluorescent marker (FM) to assess adherence to infection prevention and control procedures.
- FM contains tiny plastic particles that are activated by UV light, revealing themselves as glowing spots and smears on hands and other surfaces
- FM can be purchased as a gel, liquid, or powder.

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Fluorescent Marker (FM)

- In this approach, the FM is considered a "pretend germ" or a "contaminant."
- Intact hard surfaces, are marked with FM, which appears transparent under normal lighting.
- After cleaning, sanitizing, or disinfection has occurred, use an ultraviolet (UV) light, to detect if the FM is still present.
- If the FM is visible, it objectively indicates the surface was not adequately cleaned.

NOTE: This method would not identify deviations in preparation of cleaning and disinfection products or in how products were applied.



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ADVANTAGES VERSUS DISADVANTAGES OF USING FLUORESCENT MARKERS

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Advantages of Observing Cleaning Practices Using Fluorescent Agents

Advantages

- Quick
- Provides immediate feedback on performance
- Minimal training required to perform
- Objective
- Benchmarking is possible
- Relatively inexpensive




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Disadvantages of Observing Cleaning Practices Using Fluorescent Agents

Disadvantages

- Does not assess or correlate to bioburden
- Labor-intensive as surfaces should be marked before cleaning and checked after cleaning has been completed
- Some difficulties documented in terms of removal of markers from porous or rough surfaces (e.g., canvas straps)
- Time-intensive
- Need to vary frequency and objects to prevent monitoring system from becoming known



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EXAMPLES OF HOW TO USING FLUORESCENT MARKERS

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Simulation Tool - Hand Hygiene Training

Hand Hygiene Training

1. Place a small amount of the FM on a staff member's hands.
2. Have staff to wash hands with soap and water per their handwashing policy and procedure.
3. After handwashing is completed, pass the UV light over the surface of the hands.
4. Assess for any residual FM on the surface of the hands, including the nail beds and knuckles.
5. Use the findings as a teachable moment for the trainee to improve upon their handwashing technique.



An example of placing fluorescent marker on hands


Note: Complete removal of the fluorescent marker is more difficult if the skin is dry, chapped, and cracked, which further helps to illustrate the point that bacteria will also be hard to remove on these surfaces.

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Simulation Tool - Hand Hygiene Training

Hand Hygiene Training Teachable Moments

- Use this training to highlight:
 - Facility policy and procedures
 - The importance of the sequence of steps when performing hand hygiene
 - The surfaces of hands
 - The length of time when performing hand hygiene
 - The importance of not contaminating hands during the process
 - Any areas of cleaning improvement



An examples of residual fluorescent marker seen while using a UV light after handwashing was performed.


Note: Complete removal of the fluorescent marker is more difficult if the skin is dry, chapped, and cracked, which further helps to illustrate the point that bacteria will also be hard to remove on these surfaces.

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Simulation Tool - Personal Protective Equipment Training

Personal Protective Equipment (PPE) Training Exercise

1. Don gown and gloves.
2. Lightly place a small amount of the FM on gloved hands and have the trainee to touch different areas on the front of the gown.
3. Doff PPE.
4. Use the UV light to assess for any instances of FM transfer onto the trainee.
5. If FM is seen on the trainee, use this opportunity as a teachable moment and shore up any educational gaps.



Example of a gown with fluorescent marker applied to its surface.


Note: Porous and non-intact environmental surfaces may show residue of the fluorescent marker as these areas are unable to be disinfected.

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Simulation Tool - PPE Training

PPE Training Teachable Moments

- Use this training to highlight:
 - Facility policy and procedures
 - The importance of the sequence of steps when performing PPE Donning and Doffing
 - The importance of not contaminating hands during the process
 - Any areas of transfer found
 - Proper disposal of PPE
 - The importance of performing hand hygiene post glove removal



An example of residual fluorescent marker seen while using a UV light after PPE was doffed.


Note: Porous and non-intact environmental surfaces may show residue of the fluorescent marker as these areas are unable to be disinfected.

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Simulation Tool - Surface Cleaning and Disinfection Training

Surface Cleaning and Disinfection Training

1. Lightly place a small amount of the FM on a designated surface area.
2. Clean and disinfect the surface observing infection control policies.
3. After cleaning and disinfection has been completed, pass the UV light over the surface; intact surfaces with residual FM will glow on the areas that were not cleaned thoroughly. When checking restroom areas for cleanliness, the UV light may be used for the detection of urine without using the FM.



Examples of high touch surfaces


Note: Porous and non-intact surfaces may show residue of the fluorescent marker as these areas are unable to be disinfected.

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Simulation Tool - Surface Cleaning and Disinfection

Surface Cleaning and Disinfection Teachable Moments

- Use this training to highlight:
 - Facility policy and procedures
 - Following manufacturer's instructions for use
 - Use of PPE
 - The importance of the sequence of cleaning and disinfection (clean to dirty, top to bottom, clockwise or counter-clockwise)
 - Observance of wet contact time
 - Use of timer
 - Any residual areas found
 - Proper disposal of PPE
 - The importance of performing hand hygiene post glove removal



Examples of fluorescent marker on high touch surface when using a UV light.

Note: Porous and non-intact environmental surfaces may show residue of the fluorescent marker as these areas are unable to be disinfected.

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AUDITING AND QUALITY IMPROVEMENT

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Quality Assurance/Quality Improvement (QAPI)

Quality Assurance and Performance Improvement (QAPI) is a data-driven, proactive approach to improving the quality of life, care, and services in nursing homes.




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Quality Assurance / Quality Improvement Plan

CMS has identified five strategic elements that are basic building blocks to effective QAPI.




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Observe Staff Practices

- Rounding, or making unannounced visual inspections are a long-standing technique that helps to identify problems before they escalate into serious infection threats.
- Observe staff practices with the assistance of a checklist.
- Staff may modify their typical practices if they are aware they are being observed.




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Performance Monitoring

- Performance monitoring and feedback ensure adherence to facility policies and procedures.
- Frequency and locations of audits should be informed by your annual IPC risk assessment.
 - More frequent monitoring may be performed on higher acuity units or the rooms of residents on Transmission-Based Precautions.
- Results of performance monitoring should be documented and shared to reinforce adherence to recommended practices.
- Self-assessment checklists and signoff sheets can be helpful reminders, but these alone are not sufficient.




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Auditing

- Methods for auditing practices vary.
- Facilities could consider implementing more than one approach to performance monitoring.
- Visually inspecting the cleanliness of a room after cleaning and disinfection has been performed.
- Visual assessment, alone, is not sufficient to ensure that all surfaces have been properly cleaned and disinfected.
 - Just because a surface appears clean does not mean that it was disinfected.




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Auditing Resources

- **Hand Hygiene:** Related Resources | Hand Hygiene | CDC
- **Environmental Cleaning:** Options for Evaluating Environmental Cleanings | HAI | CDC
- **Personal Protective Equipment:** Protecting Healthcare Personnel | HAI | CDC
- **Point of Care Blood Testing:** Prevention during Blood Glucose Monitoring and Insulin Administration | Infection Control | CDC



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Provide Performance Feedback

- Providing feedback helps to increase motivation and engagement with resulting improvements.
- Results of performance monitoring should be documented and shared to reinforce adherence to recommended practices.
- Provide feedback to staff on their compliance with IPC practices and establish goals for improvement.



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PREVENTION IS KEY

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Prevention is Key

Infection Prevention and Control is an important strategy intended to prevent and reduce the spread of healthcare associated infections.

PREVENTION IS KEY!

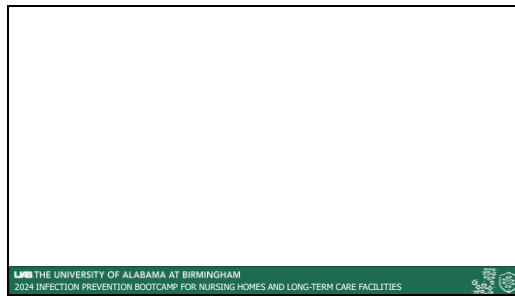


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OBJECTIVES

-  Acknowledge the importance of an antibiotic stewardship program in long-term care.
-  Describe the importance of documentation as related to health-care associated infections.
-  Verbalize a list of signs and symptoms you need to document.
-  Verbalize measures you can take to prevent health-care associated infections.

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ANTIBIOTIC STEWARDSHIP IN NURSING HOMES

4.1 million Americans are admitted to or reside in nursing homes during a year

Up To 70% of nursing home residents received antibiotics during a year

Up to 75% of antibiotics are prescribed incorrectly






CDC Recommends 7 CORE ELEMENTS for antibiotic stewardship in nursing homes.

Your facility has an antibiotic stewardship program in place.

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Side Effects of Antibiotics

-  GI Disturbances
-  C. Difficile can be a side effect of taking antibiotics
Older adults are more prone to getting C. Difficile after taking antibiotics because mobility and immunity
-  Tendinitis and tendon rupture
-  Peripheral neuropathy
-  Antibiotic Resistance

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TRACKING AND REPORTING ANTIBIOTIC USE AND OUTCOMES

Process measures: Tracking how and why antibiotics are prescribed


Antibiotic use measures: Tracking how often and how many antibiotics are prescribed


Antibiotic outcome measures: Tracking the adverse outcomes and costs from antibiotics

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Surveillance Criteria for LTC Facilities

 **Clinical criteria** are meant to assist with making informed decisions on individual residents when care is needed.

 **Surveillance criteria** are used to count true case events and to estimate the actual incidence/prevalence of disease conditions.

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Loeb, McGeer and NHSN Criteria


<p>Loeb Criteria are designed for Clinical Use</p> <ul style="list-style-type: none">❖ Establish minimum criteria that should be present before initiating antibiotics❖ Useful for guiding patient care and clinical practice	<p>McGeer and NHSN Criteria are designed for Surveillance</p> <ul style="list-style-type: none">❖ Surveillance definitions are highly specific for benchmarking across facilities❖ Revised McGeer criteria often applied retrospectively to review and count cases❖ Not very useful for diagnosis or necessity of treatment.
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Applying the Loeb Criteria

 Loeb Criteria is applied prospectively, in "real time" to identify cases in which antibiotic initiation is appropriate in LTCF

 Loeb Criteria developed for:

- Urinary Tract Infections (UTIs)
- Skin and Soft-Tissue Infections
- Respiratory Infections
- Fever of Unknown Origin

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Urinary Tract Infection	Minimum Criteria for Collecting Urine starting Antibiotic Therapy
Resident without urinary catheter	<p>Either one of the following criteria:</p> <ul style="list-style-type: none">• Acute dysuria (discomfort, pain, burning) OR• Temp >100° F or 2.4° F above baseline, <p>AND >1 of the following new or worsening symptoms</p> <ul style="list-style-type: none">◦ Urgency (sudden desire to void)◦ Suprapubic pain◦ Urinary incontinence◦ Frequency (needing to urinate 8 or more times a day)◦ Gross hematuria◦ Costovertebral angle tenderness

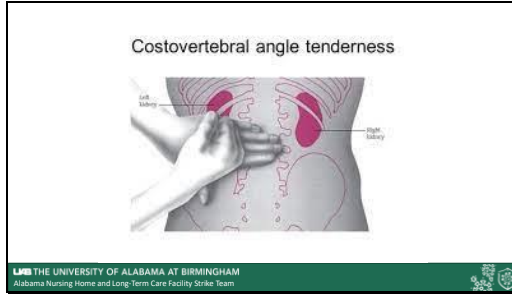
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Slide 204

Urinary Tract Infection	Minimum Criteria for Collecting Urine starting Antibiotic Therapy
Resident with urinary catheter	<p>At Least One of the following criteria:</p> <ul style="list-style-type: none">◦ Rigors – an episode of shaking or exaggerated shivering with a rise in temperature◦ New onset delirium - confusion◦ Temp > 100° F or 2.4° F above baseline◦ New costovertebral angle tenderness

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Please Note

Residents with intermittent catheterization or condom catheter should be categorized as "without catheter"

Antibiotics should not be started for cloudy or foul smelling urine

- **Urine culture should be sent prior to starting antibiotics**

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Respiratory Tract Infections

- Common cold or pharyngitis
- Influenza-like illness
- Pneumonia
- Bronchitis or Tracheobronchitis

The diagram shows a human silhouette with the respiratory system highlighted in orange. Labels include: Nasal Cavity, Pharynx, Larynx, Trachea, Bronchi, and Lungs. Brackets on the right side group these into 'Upper respiratory tract' (Nasal Cavity, Pharynx, Larynx) and 'Lower respiratory tract' (Trachea, Bronchi, Lungs). At the bottom, it reads 'THE UNIVERSITY OF ALABAMA AT BIRMINGHAM' and 'Alabama Nursing Home and Long-Term Care Facility Stroke Team'.


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Lower Respiratory Tract Infection	
Temp 102°F	One of the following: Productive Cough, Respiratory rate >25/minute
Temp 100°F or 2.4°F above baseline	Cough and one of the following criteria: <ul style="list-style-type: none">Pulse >100 beat/minuteRigorsDelirium (disorientation, agitation, hallucinations)Respiratory rate >25 breaths/minute
Afebrile with COPD and >65 YOA	Both of the following: <ul style="list-style-type: none">New or increased coughPurulent sputum production
Afebrile without COPD	All of the following: <ul style="list-style-type: none">New CoughPurulent sputum productionAt least one of the following: Delirium and/or Respiratory rate >25 breaths/minute
With new infiltrate on Chest X-Ray consistent with Pneumonia	At least one of the following: <ul style="list-style-type: none">Productive coughRespiratory rate > 25 breaths/minuteTemp > 100°F or 2.4°F above baseline

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Cellulites, Skin Tissue, or Wound Infection

- Pus at wound, skin or soft tissue site
- Heat (warmth) at affected site
- Swelling at affected site
- Tenderness or pain at affected site
- Serous drainage at the affected site (clear to yellow)
- Fever
- Acute change in mental status
- Acute functional decline



The image shows two feet. The left foot has a small, open ulcer on the heel. The right foot has a larger, more severe ulcer on the heel, labeled as 'Infected ulcer', showing signs of redness and swelling.

Slide 210

Scabies
Maculopapular Rash (flat and raised parts)
Itching Rash



The image is a close-up of human skin showing a maculopapular rash. It consists of several small, raised, red bumps (papules) and flat, red spots (macules) scattered across the skin surface.

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Oral Candidiasis

- Raised white patches on inflamed oral mucosa



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Conjunctivitis

- Pus from one or both eyes for > 24 hours
- New or increased conjunctival erythema (redness)
- may cause itching and/or pain




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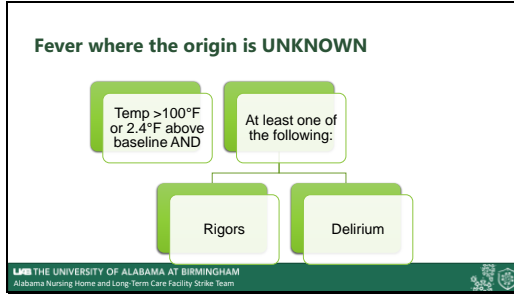
Gastroenteritis

- Diarrhea with ≥ 3 liquid or watery stools above what is normal for the resident within a 24 hour period.
- Vomiting ≥ 2 episodes in 24 hour period
- Abdominal Pain/tenderness



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What can YOU do?

- Observe
- Monitor
- Document

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Documentation

- Documentation is extremely important.
- The IPN must follow very specific criteria to decide if an infection was acquired at your facility.
- Bedside caregivers role is extremely important.

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McGeer Surveillance Criteria

- To meet the criteria for definitive infection, more diagnostic information (lab results) are necessary.
- Surveillance criteria are not intended for informing antibiotic initiation because they depend on information that might not be available when that decision must be made.

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NHSN Surveillance Criteria

- NHSN criteria are used for active, resident-based, prospective surveillance of events.
 - Criteria might be based on lab results alone or include specific signs/symptoms.
 - Criteria are specifically designed to remove subjectivity and ensure accurate, reproducible & comparable surveillance data for a facility over time and across facilities.
- Provides a way for facilities to benchmark infection rates with other US facilities.
- NHSN criteria are not intended for clinical decision making.

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PREVENTION is key



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Hand Hygiene



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Source Control




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UTI risk increase with age


- More than 1/3 of infections in Long term care facilities are UTI's
- More than 10% of women over 65 have a UTI each year.
- This percentage increases to 30% in women over 85.
- Men also tend to experience UTIs as they age



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Preventing Respiratory Infections



- Perform Mouthcare at least twice a day
- Elevated HOB (when possible)
- Keep resident mobile – up in chair and walking
- Avoid contact with visitors that are sick
- Use Source Control as indicated

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You are all part of a team to keep your residents safe and healthy!

- Hand Hygiene
- Observe your resident
- Document – Document – Document
- Report changes



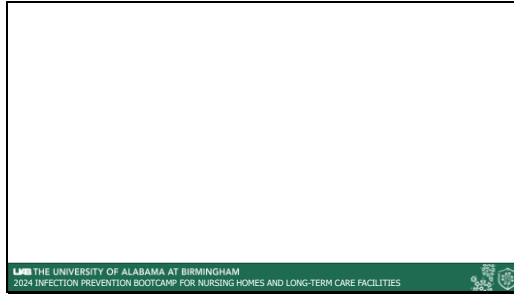
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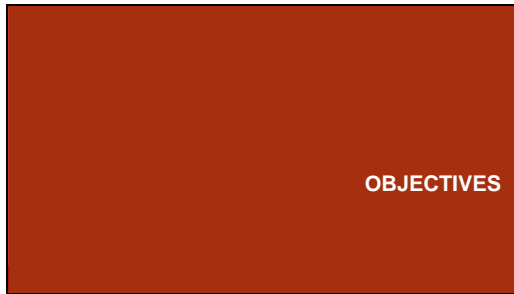
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OBJECTIVES

-  Acknowledge the importance of an antimicrobial stewardship program in long-term care.
-  Identify methods to measure and share outcomes of stewardship interventions.
-  Verbalize a list of core elements of antimicrobial stewardship.
-  Verbalize measures you can take to prevent health-care associated infections.





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ANTIMICROBIAL STEWARDSHIP DEFINED

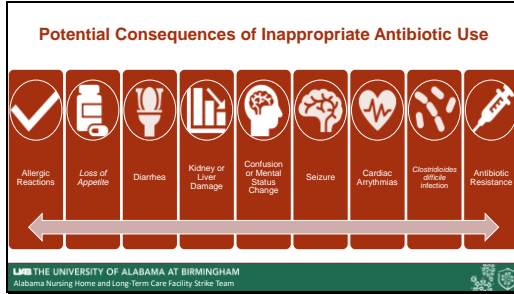
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ANTIBIOTIC USAGE IN NURSING HOMES

 4.1 million Americans are admitted to or reside in nursing homes during a year	 12% of LTCF residents have an infection at any given time
 Up To 70% of nursing home residents received one or more antibiotics during a year	 Up to 75% of antibiotics are prescribed incorrectly

Having an effective Antimicrobial Stewardship Program is important in this setting

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Centers for Medicare & Medicaid Services (CMS) ASP Regulations in Long-Term Care Facilities

Antimicrobial Stewardship is Mandated by CMS

As part of the revised Requirements for Participation, the Centers for Medicare and Medicaid Services (CMS) **required** all long-term care (LTC) facilities to have an antibiotic stewardship program by November 7, 2017.

If a surrogate hasn't visited facility yet, they likely will in 2018 to assess the 7 CDC Core Elements of Nursing Home Antimicrobial Stewardship Programs are in place.

Regulations (F881; 42 CFR 483.80(a)(3)) requiring an ASP that includes:

- Antibiotic use protocols
- System to monitor antibiotic use
- Be reviewed on an annual basis and as needed

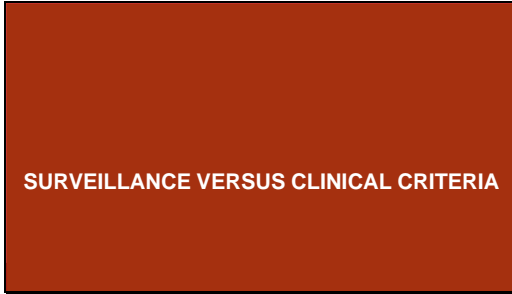
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Antimicrobial Stewardship

Per the **Infectious Diseases Society of America**:


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


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Surveillance Criteria for LTC Facilities

 **Clinical criteria** are meant to assist with making informed decisions on individual residents when care is needed.

 **Surveillance criteria** are used to count true case events and to estimate the actual incidence/prevalence of disease conditions.

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NHSN Surveillance Criteria

- NHSN criteria are used for active, resident-based, prospective surveillance of events.
 - Criteria might be based on lab results alone or include specific signs/symptoms.
 - Criteria are specifically designed to remove subjectivity and ensure accurate, reproducible & comparable surveillance data for a facility over time and across facilities.
 - Provides a way for facilities to benchmark infection rates with other US facilities.
 - NHSN criteria are not intended for clinical decision making.

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Checklist for Antibiotic Stewardship in Nursing Homes

The Nursing Stewardship is a contribution to the Core Elements of Antibiotic Stewardship in Nursing Homes. It is a checklist for the core elements of antibiotic stewardship in nursing homes. It is a checklist for the core elements of antibiotic stewardship in nursing homes.

Checklist number	Percentage
1	100%
2	100%
3	100%
4	100%
5	100%
6	100%
7	100%
8	100%
9	100%
10	100%
11	100%
12	100%
13	100%
14	100%
15	100%
16	100%
17	100%
18	100%
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35	100%
36	100%
37	100%
38	100%
39	100%
40	100%
41	100%
42	100%
43	100%
44	100%
45	100%
46	100%
47	100%
48	100%
49	100%
50	100%

<https://www.ukhsa.gov.uk/antibiotic-stewardship/antibiotic-stewardship-checklist-2014>

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Antimicrobial Stewardship Team

- Administrator/Member of Senior Leadership
- Medical Director
- Director/Assistant Director of Nursing
- Infection Control Preventionist
- Consultant Pharmacist

Meets Regularly



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What are the activities of the Antibiotic Stewardship Team?

START

CREATE A MISSION STATEMENT



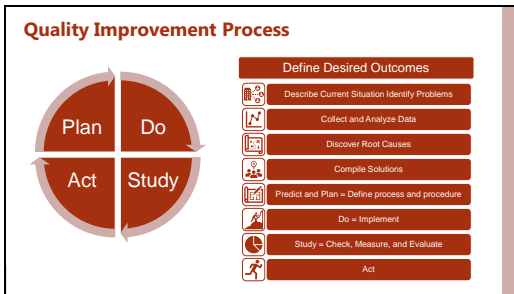
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Quality Assurance and Quality Improvement


Quality Assurance	Performance Improvement
Reactive	Proactive
Episode or event-based	Aggregate data and patterns
Prevent recurrence	Optimizes processes
Anecdotal	Measurable
Retrospective	Concurrent
Audit based monitoring	On-going monitoring
Potential to be punitive	Positive change

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IDENTIFY A PROBLEM

- Start small
- Focus on 1-2 aspects
- Consider starting with any current or known issues
- Review current infections
- Review current antibiotic use
- Use root cause analysis for proactive improvement

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**TRACKING AND REPORTING
ANTIBIOTIC USE AND OUTCOMES**

Process measures: Tracking how and why antibiotics are prescribed

Antibiotic use measures: Tracking how often and how many antibiotics are prescribed

Antibiotic outcome measures: Tracking the adverse outcomes and costs from antibiotics


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PUTTING IT ALL TOGETHER

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Antimicrobial Stewardship Team Meeting



SCENARIO:
During the antibiotic stewardship team meeting, everyone is brainstorming problems related to antibiotics in your facility. You recall a recent case in which a resident was transferred to the hospital for an INR.


ASP Team Meeting

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Antimicrobial Team Meeting

Mission Statement: To use antibiotics only, when necessary, thereby protecting residents from unnecessary antibiotic exposure and adverse events.

Review of Root Cause Analysis:



Resident's family member shared that resident has dark, foul-smelling urine and wants a urine culture ordered to rule out an UTI.

Nurse obtains order for urine culture from on-call provider.

Urine culture results 100,000 cfu/mL gram negative rods. The nurse notifies a different on-call provider, who orders ciprofloxacin.

On day 8 of ciprofloxacin, the resident has an INR of 2.7 and is sent to the Emergency Department.


ASP Team Meeting

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Antimicrobial Team Meeting

Mission Statement: To use antibiotics only, when necessary, thereby protecting residents from unnecessary antibiotic exposure and adverse events.

Review of Root Cause Analysis:



Resident's family member shared that resident has dark, foul-smelling urine and wants a urine culture ordered to rule out an UTI.

What is problem #1?

This would have been a great opportunity for the nurse to discuss the indications for sending a urine culture or the potential side effects of antibiotics with the resident's family member. Without signs and symptoms of infection, it is not indicated to send a urine culture for changes in appearance or smell of the urine, as there may be other non-infection related reasons that better explain this finding.


ASP Team Meeting

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Antimicrobial Team Meeting

Mission Statement: To use antibiotics only, when necessary, thereby protecting residents from unnecessary antibiotic exposure and adverse events.

Review of Root Cause Analysis:



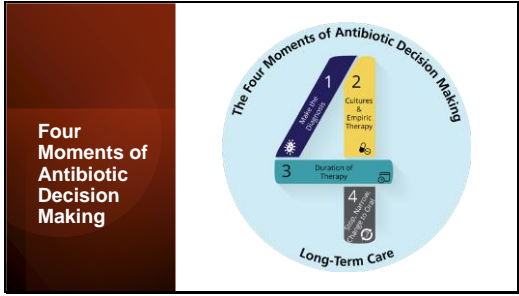
Nurse obtains order for urine culture from on-call provider.

What is problem #2?

Employment of consistent diagnostic criteria was not evidenced in this reviewed case. Antibiotics should be used judiciously and sparingly, ONLY when the appropriate criteria warrants. There was not any governing body or policy in place to question the necessity of the antibiotic order. The reason why it is ordered, (Ex: treatment of UTI) and the Antibiotic stop date should also be included in the order. Also having an infection SBAR may be helpful to include details when calling providers.

ASP Team Meeting

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Moment 1: Make the Diagnosis

to be best point of view.
Diagnosis
identifying of
cause of a disea
diseases by the

- Assess resident for a change in status and there is a concern for an infection
- Consider if changes are suggestive of an infection versus another cause

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LOEB CRITERIA – Resident *Without* Urinary Catheter

Urinary Tract Infection	Minimum Criteria for Collecting Urine starting Antibiotic Therapy
Resident <i>WITHOUT</i> Urinary Catheter	Either <i>one</i> of the following criteria: • Acute dysuria (discomfort, pain, burning) OR • Temp >100° F or 2.4° F above baseline. AND >1 of the following new or worsening symptoms: □ Urgency (sudden desire to void) □ Suprapubic pain □ Urinary incontinence □ Frequency (needing to urinate 8 or more times a day) □ Gross hematuria □ Costovertebral angle tenderness

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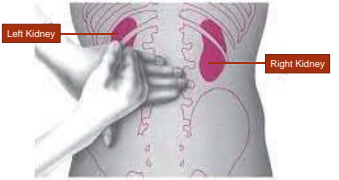
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Urinary Tract Infection	Minimum Criteria for Collecting Urine starting Antibiotic Therapy
Resident <i>WITH</i> Urinary Catheter	At Least <i>One</i> of the following criteria: <ul style="list-style-type: none"><li data-bbox="516 279 868 317">☐ Rigors – an episode of shaking or exaggerated shivering <i>with</i> a rise in temperature<li data-bbox="516 321 868 338">☐ New onset delirium – confusion<li data-bbox="516 342 868 359">☐ Temp > 100° F or 2.4° F above baseline<li data-bbox="516 363 868 380">☐ New costovertebral angle tenderness

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Costovertebral Angle Tenderness



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Please Note:

Residents with an indwelling urinary catheter should be categorized as 'with catheter'


Antibiotics should not be initiated for cloudy or foul-smelling urine

- The following devices are not categorized as an indwelling urinary catheter: intermittent straight in and out catheters, suprapubic catheters, condom catheters, or external urinary drainage devices.
- *Urine culture should be sent prior to starting antibiotics*

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Antimicrobial Team Meeting



Mission Statement: To use antibiotics only, when necessary, thereby protecting residents from unnecessary antibiotic exposure and adverse events.

Review of Root Cause Analysis:

What is problem #3?

There was not any evaluation of resident. The On-call Physician may not have been privy to the resident's medical or medication history. No review of current guidelines to determine if antibiotics was appropriately ordered for the resident based on resident's presentation. There were not any notifications from pharmacy.

Urine culture results 100,000 cfu/mL, gram negative rods. The nurse notifies a different on-call provider, who orders ciprofloxacin.

ASP Team Meeting

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Moment 2: Cultures and Empiric Therapy



Culture to determine what type of infection it is by collecting




Consider if changes are suggestive of an infection versus another cause

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Antimicrobial Team Meeting



Mission Statement: To use antibiotics only, when necessary, thereby protecting residents from unnecessary antibiotic exposure and adverse events.

Review of Root Cause Analysis:

What is problem #4?

No stop date on antibiotic. No monitoring for drug-drug interactions. No follow-up to narrow therapy. No follow-up on the resident to note her response to antibiotics. No notification of the daytime clinician of new prescription.


On day 8 of ciprofloxacin, the resident has an INR of >7 and is sent to the Emergency Department.

ASP Team Meeting

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Moment 3: Duration of Therapy

Every order for antibiotics should include:




the type of infection being treated and an antibiotic stop date written as a calendar date

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Moment 4: Stop, Narrow, Change to Oral


Reevaluate the resident and review results of diagnostic tests.

- Can antibiotics be stopped?
- Can therapy be narrowed?
- Can there be a change to oral antibiotics?



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Antimicrobial Team Meeting Review



PRE-PRESCRIPTIVE INTERVENTION

Resident's family member shared that resident has dark, foul-smelling urine and wants a urine culture ordered to rule out a UTI.

Nurse obtains order for urine culture from on-call provider.

Urine culture results 100,000 CFU/mL gram negative rods. The nurse notifies a different on-call provider, who orders ciprofloxacin.

POST-PRESCRIPTIVE INTERVENTION

On day 8 of ciprofloxacin, the resident has an INR of 2.7 and is sent to the Emergency Department.

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Antimicrobial Stewardship Plan

- * Minimum of one process measure
- * Minimum of one outcome measure
- * Define what is tracked and how it is tracked
 - o Target what you are tracking to align with measurable objectives and why you choose those targets.
 - Based on point prevalence study
 - Based on review of inappropriate antibiotic starts
 - Based on antibiogram
 - o Consider how to handle common topical antimicrobials.
- * May include antibiogram in appendix to plan.

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What *Can* YOU Do?


<p>Monitor for drug-drug interactions.</p> <p><input type="checkbox"/></p> <p><input checked="" type="checkbox"/> Track the number of antibiotic courses started on people who were also on warfarin in the last month.</p>	<p>Primary clinician notified about new antibiotic prescriptions.</p> <p><input type="checkbox"/></p> <p><input checked="" type="checkbox"/> Count the number of antibiotic courses started by a covering provider in the last month.</p>
--	--

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Baseline Data

 In your 150-bed facility over the last month, **15** antibiotic prescriptions were started. 10 by a covering clinician
2 residents were on warfarin

 Surveillance criteria are not intended for informing antibiotic initiation because they depend on information that might not be available when that decision must be made.

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Intervention

- The **dispensing pharmacist** sends an email to regular clinicians about all antibiotics started by an on-call covering clinicians
- The **team**—
 - Notifies the clinicians about this new policy and the reason for the change via an email and signs posted in charting areas
 - Confirms that the dispensing pharmacist has the email and pager numbers for the regular clinicians
 - Asks the pharmacist to keep a copy of the emails sent

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Outcomes

Example:
Clinicians

- Reviewed all the antibiotic prescriptions
- Stopped or changed the antibiotics in 7 of 10 cases



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Sharing/Reporting

Share results with the following people:

- Nursing home staff
- Prescribers/clinicians
- Nursing home management/directors
- Centers for Medicare & Medicaid Services
- Residents and family members

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Pre-prescriptive Interventions

Examples

- Checklist (ex: SBAR) of signs and symptoms for nurses to use before calling a provider about a resident with a change in status
- Prescribing guidelines distributed to staff and clinicians
- Pocket cards distributed to staff indicating minimum criteria for starting antibiotics
- Electronic medical record "stops" to notify providers if a resident does not meet criteria for antibiotic therapy or needs monitoring
- Dose recommendations for residents with decreased kidney function
- Requirement that all antibiotic orders have an indication, dose, and duration

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Post-prescriptive Interventions

Examples:

- Electronic alert or pharmacy institutes an "antibiotic time out" at 48 or 72 hours
 - Require the prescriber to reassess antibiotic prescriptions and verify the need to continue them
- Provider reviews culture results and diagnostic tests to make sure antibiotics are necessary and effective
- Formal review of appropriateness of antibiotic prescriptions by infectious disease-trained consultants 24 to 72 hours after the initial prescription
 - Consultants can be pharmacists or physicians

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Outcome Measures for Post-Prescriptive Interventions

Examples

- Number of antibiotic starts per 1,000 resident-days
- Days of antibiotic therapy per 1,000 resident-days
- Length of therapy
- Treatment Ratio
- Cost of antibiotics
- Use of guideline-concordant antibiotics
- Clostridioides difficile* infection rates
- Adverse events related to antibiotics

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Sample Monthly Summary Reports

Table 2: Number and Status Summary

Table 3: Sample Monthly Summary Report

Month	Number of Resident Days	Number of Antibiotic Rx	Number of Antibiotic Rx Divided by Number of Resident Days	Number of Residents Receiving Antibiotics for UTI (incl. Repeats)	Number of SBAR Forms Used	Number of UTI Kits Met	Number of Biospecimens Collected	Number of Negative Cultures
Jan								
Feb								
Mar								

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Antibiogram

Sample Antibiogram

An antibiogram is tool that is comprised documented organisms detected from clinical specimens and their antibiotic susceptibility patterns—**across all residents**—for a certain time, in nursing homes from specimens sent to the laboratory for testing.

Gram (-)	Aerobic Gram-negatives				B-Lactams		Cephalosporins					Quinolones		Others	
	Amoxicillin	Clasman	Cefepime	Ceftriaxone	Amoxicillin-clavulanate	Meropenem	Cefazolin	Cefepime	Ceftriaxone	Cefuroxime	Ceftazidime	Cefepime	Levofloxacin	Moxifloxacin	Mirapranolol
Escherichia coli	17	100	100	100	100	100	100	100	100	100	100	75	100	100	100
Acinetobacter sp.*	3	100	100	100	100	100	100	100	100	100	100	100	100	100	100
Pseudomonas aeruginosa	13	100	100	100	100	100	100	100	100	100	100	100	100	100	100
Pseudomonas aeruginosa†	1	100	100	100	100	100	100	100	100	100	100	100	100	100	100


* These organisms represent 2 percent of cultures only, for these organisms, 20 cultures and less results will be reported with isolates.
† These isolates were from those who were on antibiotics.

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You are an **IMPORTANT part of the team in keeping your residents safe and healthy!**

Antimicrobial stewardship is the act of using antibiotics appropriately—that is, only using them when truly needed and using the right antibiotic for each infection.

Antimicrobial Stewardship protects the effectiveness of the most important tool in fighting life-threatening bacterial infections: antibiotics.



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QUESTIONS?



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Resources

- <https://www.cdc.gov/antibiotic-use/core-elements/pdfs/core-elements-antibiotic-stewardship-H.pdf>
- <https://www.ahrq.gov/nhguide/toolkits.html>
- <https://www.ahrq.gov/nhguide/toolkits/implement-monitor-sustain-program/toolkit1-start-program.html>
- <https://www.ahrq.gov/antibiotic-use/long-term-care/improve/sustain.html>
- <https://www.ahrq.gov/nhguide/toolkits/help-clinicians-choose-the-right-antibiotic/toolkit3-develop-implement-antibiogram-program.html>
- https://www.ahrq.gov/sites/default/files/wysiwyg/nhguide/5_TK1_T4-Antibiogram_Formats_and_Instructions_Final.pdf

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