



**Department
of Health**

***Candida auris* in New York State Healthcare Facilities: An Update for Clinical Staff**

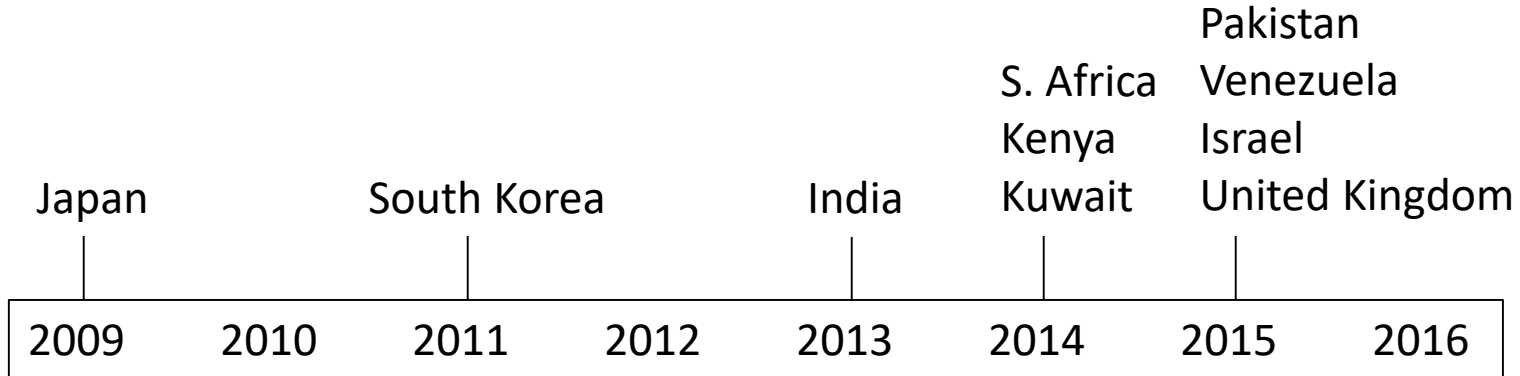
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Outline

- Background
- Emergence in New York State
- Infection control
- Identifying and reporting *C. auris*
- NYSDOH prevention and control activities

Background

Rapid Emergence Since 2009



C. auris around the World

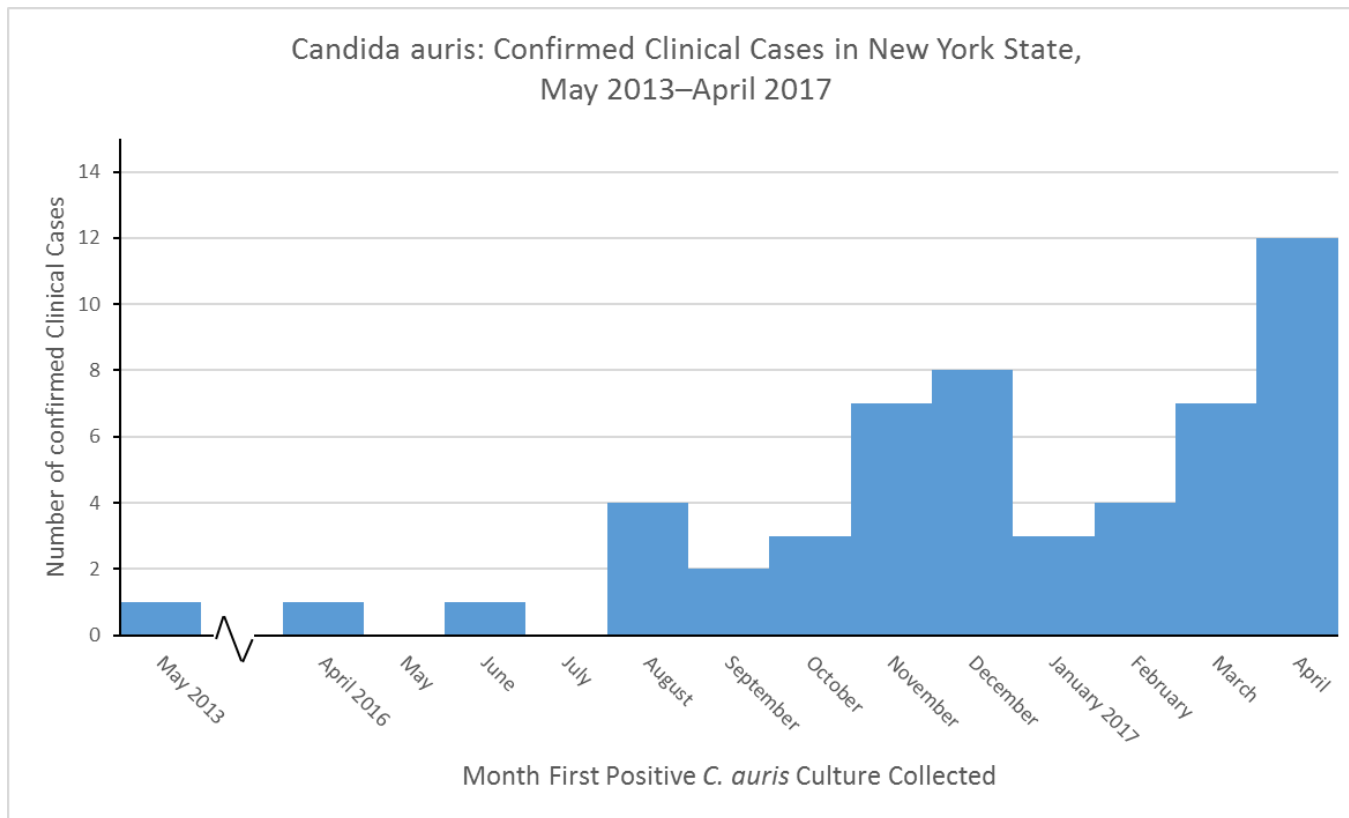
- Lockhart 2016: 54 isolates from Pakistan, India, South Africa, Venezuela, and Japan
 - Susceptibility testing
 - 93% resistant to fluconazole, 54% to voriconazole, 35% to amphotericin B, 7% to echinocandins, 6% to flucytosine
 - 41% resistant to ≥ 2 classes, 2 isolates resistant to 3 classes
 - Whole genome sequencing
 - 4 clades: South Asia, South Africa, South America, East Asia
 - Minimal differences among isolates within a geographic cluster
 - Suggests simultaneous emergence rather than spread
 - Surveillance
 - SENTRY: 15,271 Candida isolates 2004-2015, four *C. auris* identifications after 2009

Reasons for Concern

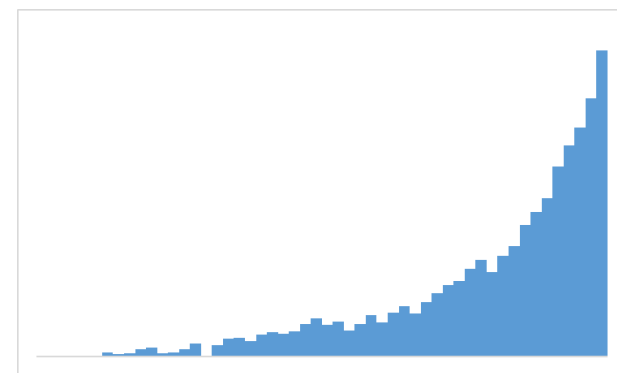
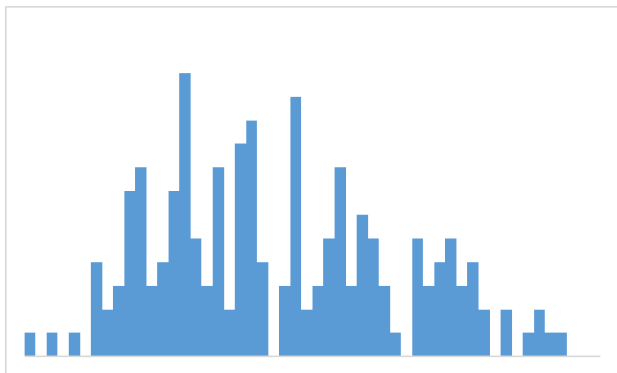
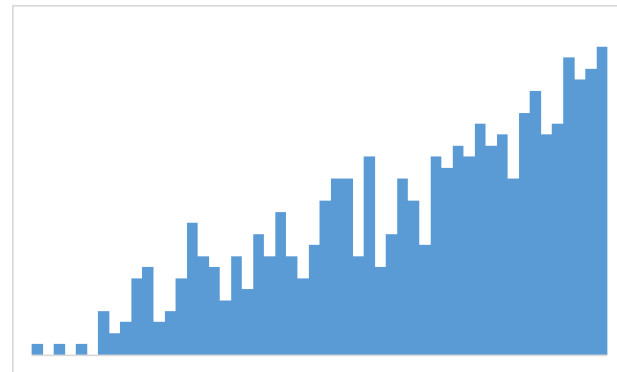
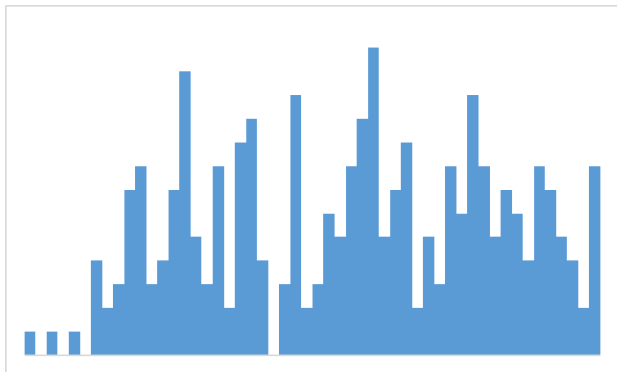
- Challenging to identify
 - MALDI-TOF or sequencing required to correctly identify *C. auris*
- Often multi-drug resistant
 - Usually resistant to fluconazole
 - Variable susceptibility to other azoles, amphotericin B, and echinocandins
 - Some have been resistant to all 3 classes of antifungal medications
- Transmitted within healthcare facilities
 - Outbreaks in multiple countries
 - Persistent colonization
 - Survives for long periods in the hospital environment

Emergence in New York State

Epidemiologic Curve



The Future



The Future

- India
 - Chowdhary 2013: *C. auris* represented 5% of candidemia in pediatric hospital, 30% of candidemia in tertiary general hospital
 - Chakrabarti 2015: *C. auris* isolated from 19/27 ICUs throughout India, 5.2% of ICU *Candida* isolates
- Kenya
 - Okinda, 2014: *C. auris* accounted for 38% of hospital-acquired candidemia
 - *Candida albicans* 27%

Case Counts as of May 5, 2017

- 53 clinical cases
- 18 screening cases
- 4 probable cases

- All infected persons had other serious medical conditions

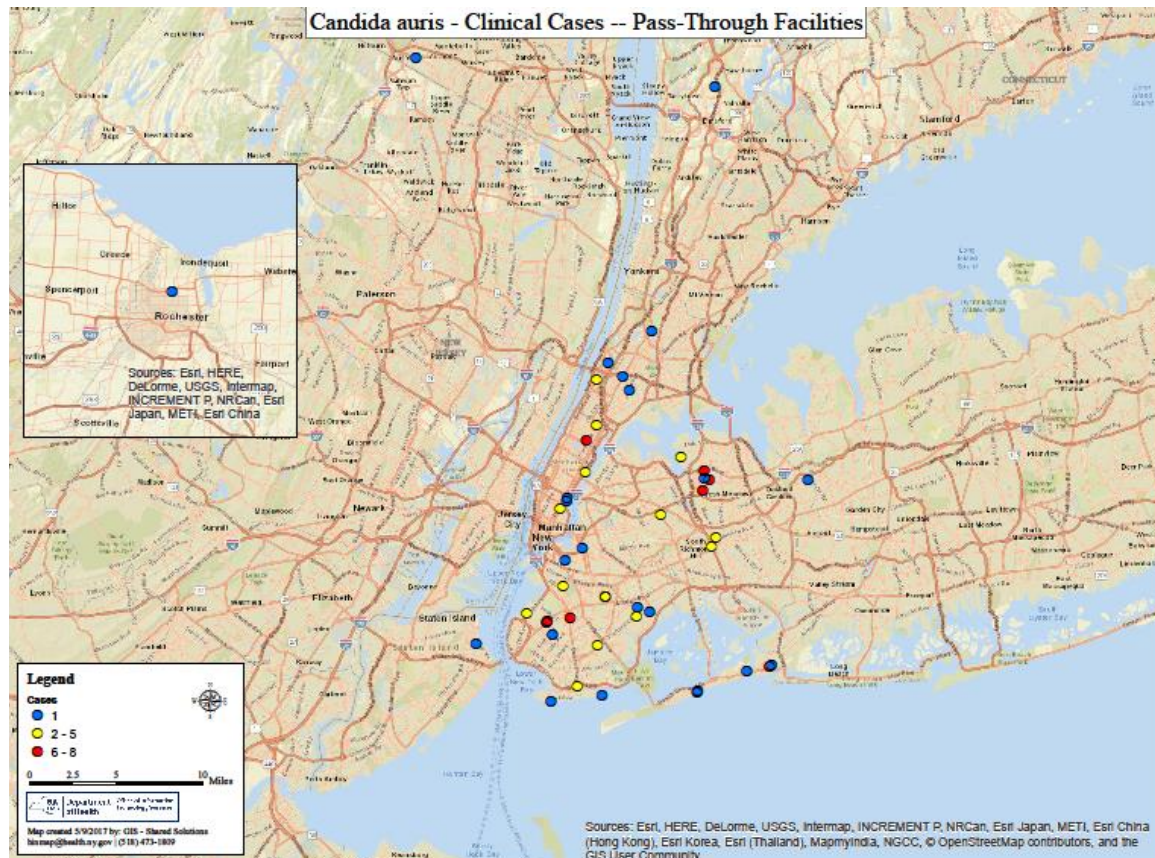
Geographic Distribution

- All but 2 diagnosed in New York City facilities
 - Greatest numbers in Brooklyn, Queens
- One diagnosed in Monroe County (Rochester)
 - Recent admission to involved NYC hospital
- One diagnosed in Westchester County
 - No obvious link to NYC facilities

Facility Involvement

- From 90 days before 1st positive culture to the present
 - 23 NYS hospitals
 - 22 NYS nursing homes
 - 1 LTACH
 - Additionally, 1 hospital outside the US, 1 LTACH in another state, numerous private medical offices, private homes

Geographic Distribution



C. auris in the U.S.

| State | Clinical Cases |
|---------------|----------------|
| Indiana | 1 |
| Maryland | 1 |
| Massachusetts | 1 |
| Illinois | 4 |
| New Jersey | 15 |
| New York | 53 |

<https://www.cdc.gov/fungal/diseases/candidiasis/candida-auris.html>

Resistance

- All but one case resistant to fluconazole
 - Variable resistance to other azoles
- Most cases resistant to amphotericin B
- Only one case resistant to echinocandins
 - Recent development, NYC case
 - The resistant case's isolates were initially susceptible to echinocandins but later developed resistance, a known treatment challenge

Identifying and Reporting *C. auris*

When to Suspect *C. auris*

- *C. haemulonii*
- “*Candida* spp.” after identification attempted, especially if infection not responding to treatment
- *Rhodotorula glutinis* or *Candida sake*, *catenulate*, *famata*, *guilliermondii*, or *lusitaniae*, depending on type of laboratory identification system
- Increase in unidentified *Candida* spp. Infections on a patient care unit, including in urine

Reporting

- Mandated reporting under New York State Sanitary Code
- *Candida auris* not explicitly listed

However:

- “In addition to the diseases listed above, any unusual disease (defined as a newly apparent or emerging disease or syndrome that could possibly be caused by a transmissible infectious agent or microbial toxin) is reportable.”

Additionally:

- “...a cluster or outbreak of cases of any communicable disease is reportable event.”
- Don't assume someone else is reporting

NEW YORK STATE DEPARTMENT OF HEALTH

Communicable Disease Reporting Requirements

Reporting of suspected or confirmed communicable diseases is mandated under the New York State Sanitary Code (10NYCRR 2.10.2.14). The primary responsibility for reporting rests with the physician; moreover, laboratories (PHI 2102), school nurses (10NYCRR 2.12), day care center directors, nursing homes/hospitals (10NYCRR 405.3d) and state institutions (10NYCRR 2.10a) or other locations providing health services (10NYCRR 2.12) are also required to report the diseases listed below.

| | | | | |
|--|---|------------------------------------|-------------------|--|
| Anaplasmosis | Foodborne illness | Influenza | Pollacosis | Streptococcal infection (invasive disease)* |
| Amebiasis | Giardiasis | Laboratory-confirmed Legionellosis | C Fever† | Group A beta-hemolytic strep |
| Animal bites for which rabies prophylaxis is given† | C Gianosis* | Listeriosis | C Cholera* | Rocky Mountain spotted fever |
| Carbuncle* | Genococcal infection | Lyme disease | Rubella | Group B strep |
| Candidiasis† | Haemophilus influenzae* (invasive disease) | Lymphogranuloma venereum | Shigella | Staphylococcus pneumoniae |
| Chancroid | Haemolytic uremic syndrome | Malaria | Shigella | Scarlet fever |
| Chlamydia trachomatis | Hepatitis A | Measles | Shigella | Staphylococcus aureus |
| Campylobacteriosis | Hepatitis A in a food handler | Measles | Shigella | Staphylococcus aureus |
| Chancroid | Hepatitis B (specify acute or chronic) | Measles | Shigella | Staphylococcus aureus |
| Chlamydia trachomatis | Hepatitis C (specify acute or chronic) | Measles | Shigella | Staphylococcus aureus |
| Cholera | Herpes infection, infants aged 60 days or younger | Measles | Shigella | Staphylococcus aureus |
| Cryptosporidiosis | Hospital associated infections (as defined in section 2.2 10NYCRR) | Measles | Shigella | Staphylococcus aureus |
| Cyclosporiasis | | Measles | Shigella | Staphylococcus aureus |
| Diphtheria | | Measles | Shigella | Staphylococcus aureus |
| Ear, eye, nose, throat infection* | | Measles | Shigella | Staphylococcus aureus |
| Ehrlichiosis | | Measles | Shigella | Staphylococcus aureus |
| Encephalitis | | Measles | Shigella | Staphylococcus aureus |

WHO SHOULD REPORT?
Physicians, nurses, laboratory directors, infection control practitioners, health care facilities, state institutions, schools.

WHERE SHOULD REPORT BE MADE?
Report to local health department where patient resides.
Contact Person _____
Name _____
Address _____
Phone _____ Fax _____

WHEN SHOULD REPORT BE MADE?
Within 24 hours of diagnosis:
• Phone diseases in bold type.
• Mail case report, DOH-389 for all other diseases.
• In New York City use form PD-16.

SPECIAL NOTES

- Diseases in bold type require prompt action and should be reported immediately to local health departments by phone followed by submission of the confidential case report form (DOH-389). In NYC, use case report form PD-16.
- In addition to the diseases listed above, any unusual disease (defined as a newly apparent or emerging disease or syndrome that could possibly be caused by a transmissible infectious agent or microbial toxin) is reportable.
- Outbreaks: while individual cases of some diseases (e.g., streptococcal sore throat, head lice, impetigo, scabies and pneumonia) are not reportable, a cluster or outbreak of cases of any communicable disease is a reportable event.
- HIV infection, HIV-related illness and AIDS are reportable on form DOH-4189 which may be obtained by contacting:
Division of Epidemiology and Disease Prevention
P.O. Box 2073, 53rd Station
Albany, NY 12220-2073
(518) 474-4284
In NYC: New York City Department of Health and Mental Hygiene
For HIV/AIDS reporting, call:
(212) 442-3358

ADDITIONAL INFORMATION
For more information on disease reporting, call your local health department or the New York State Department of Health Bureau of Communicable Disease Control at (518) 473-4439 or (866) 881-2809 after hours. In New York City, (866) NYC-0141. To obtain reporting forms (DOH-389), call (518) 474-0548.

PLEASE POST THIS CONSPICUOUSLY

DOH-389 (2/11) p2 of 2

Reporting

- As described in previous NYSDOH health alert to laboratories, report to and coordinate with regional epidemiologist to forward suspicious isolates to Wadsworth Center

Infection Control

General

- Applies to both infected and colonized patients
- Standard and Contact Precautions
 - Generally, gown and gloves
- Hand hygiene

Acute care

- Standard and Contact Precautions
- Single room

Long Term Care

- Single room
 - If not available, may cohort with other resident(s) colonized or infected with *C. auris*
- Standard and Contact Precautions
 - Consult with NYSDOH to modify Contact Precautions for highly functional residents who can perform hand hygiene

Cleaning and Disinfection

- EPA-registered hospital grade disinfectant effective against *Clostridium difficile* spores
 - <https://www.epa.gov/pesticide-registration/list-k-epas-registered-antimicrobial-products-effective-against-clostridium>
- Confirm your product(s) meet this specification

Cleaning and Disinfection

- Known to persist in healthcare environments
- All healthcare settings
- Rooms, units, and procedure/treatment areas where colonized or infected patients/residents are located or have been present
- Both daily and terminal cleaning

Monitoring

- Infection preventionists are strongly encouraged to monitor compliance with infection control practices
 - Environmental cleaning and disinfection
 - Procedures and competencies for implementing Standard and Contact Precautions should be in place
 - Hand hygiene observations
 - Personal protective equipment
 - Proper use
 - Availability

Monitoring Environmental Cleaning and Disinfection

- Proper use of disinfectant (preparation, contact time, etc.)
- Objective evaluation of thoroughness
 - Direct observation
 - Fluorescent markers
 - ATP bioluminescence
- <https://www.cdc.gov/hai/toolkits/evaluating-environmental-cleaning.html>

Infection Control Breach Observations

- Contact Precautions and PPE
 - Frontline staff, DON, physicians entering room with no PPE, no hand hygiene
 - Gowns untied, hanging off, no sleeves
 - PPE down the hall in locked cabinet, facility could not locate the key
 - Incorrect statements that no PPE needed if room had just been cleaned
 - Color-coded signs, but frontline staff couldn't recall what the color meant

Infection Control Breach Observations

- Environmental Cleaning
 - Ventilators not cleaned with sporicidal agent (two tested positive after terminal cleaning)
 - Shared equipment such as mechanical lifts not cleaned with sporicidal agent
 - Spray on, immediately wipe off
 - Using inappropriate products (e.g. inadequate kill claims, not intended for healthcare environment)

Persistent Colonization

- Affected persons remain colonized for undefined but usually lengthy durations
- Remain under Standard and Contact Precautions indefinitely unless clearance documented
- Need at least 2 rounds of negative surveillance cultures (not on antifungals) at least 1 week apart before a person can be considered “cleared” – discuss with your NYSDOH regional epidemiologist
- No data and no recommendations for decolonization

Healthcare Personnel

- NYS - several healthcare personnel hands cultured – all negative
- Schelenz, 2016: UK hospital outbreak
 - Cultured 258 healthcare personnel
 - Hands, nose, axilla, groin, throat
 - Only 1 positive in nose
- *C. auris* is not generally considered a risk for healthcare personnel

Communication

- Notify NYSDOH regional epidemiologist of impending transfer or discharge
- Notify receiving facility by telephone
 - Infection or colonization with *C. auris*
 - Level of precautions required
- Include *C. auris* diagnosis prominently on discharge or transfer documentation

Education

- Frontline staff (environmental services, CNAs, etc.)
 - We are planning to create and make available additional materials focused on these groups
- New house staff and medical students starting in July
- Other new staff

Patient/Resident Management

- Multidrug-resistant organisms are common
- It is expected that healthcare facilities, including nursing homes, maintain the capacity to manage infection control for patients or residents infected or colonized with *C. auris* or any MDRO

NYSDOH Prevention and Control Activities

Goals

- Prevent transmission and further spread in affected facilities
- Define the extent of the problem
- Delay and blunt the impact of this organism in New York and the US

When We Find a Case

- NYSDOH regional epidemiologists contact facility
- Ensure appropriate infection control measures are in place
- Case investigation (e.g. medical record review, location tracking)
- Surveillance cultures of contacts (e.g. roommates)
- Point prevalence surveys of affected units
- Environmental cultures of surfaces
- Site visit

Laboratory Investigation

- Wadsworth Center
 - Support affected facilities (supplies, shipping)
 - Culture, susceptibilities, PCR
 - Isolates and also primary clinical and environmental samples

Timeline

May 2013: First NY case
(retrospectively identified in 2016)

June 2016: CDC Clinical Alert



November 2016: CDC MMWR describing US *C. auris* cases



Sept/Oct 2016:
CDC-NYSDOH
Epi-Aid #1

December 2016:
CDC-NYSDOH
Epi-Aid #2

March 2017: CDC updates
recommendations for
healthcare facilities and
laboratories

July 2016: NYSDOH learns
about NY cases

November 2016: NYSDOH Updated
Advisory for facilities and laboratories

Dec/Jan 2016-7:
NYSDOH webinar

May 2017: NYSDOH Advisory
and updated webinar

August 2016: NYSDOH Advisory
for facilities and laboratories



DATE: August 17, 2016
TO: Hospitals, Nursing Homes, Diagnostic and Treatment Centers, Clinical Laboratories, Local Health Departments, NYSDOH Regional Epidemiologists, and Westchester Center
FROM: NYSDOH Bureau of Healthcare Associated Infections (BHA)

Health Advisory:
Alert to New York State Healthcare Facilities regarding the Global Emergence of Invasive Infections Caused by the Multidrug-Resistant Yeast *Candida auris*
Please distribute immediately to:
Hospital Epidemiologists, Infection Preventionists, Laboratory Directors, Infectious Diseases Physicians, Critical Care Medicine Physicians, Medical Directors, Nursing Directors, Risk Managers, Administrators and Pharmacy Directors



DATE: November 3, 2016
TO: Clinical Laboratories, NYSDOH Regional Offices, Local Health Departments
FROM: NYSDOH Bureau of Healthcare Associated Infections (BHA)

Health Advisory:
Alert to New York State Clinical Laboratories
Identification and Reporting of Suspected *Candida auris* Isolates
Please distribute immediately to:
Laboratory Directors, Hospital Epidemiologists, Infection Preventionists



DATE: May 5, 2017
TO: Hospitals, Nursing Homes, Diagnostic and Treatment Centers, Clinical Laboratories, Local Health Departments
FROM: NYSDOH Bureau of Healthcare Associated Infections (BHA)

Health Advisory:
Update to Healthcare Facilities Regarding Multidrug Resistant Yeast *Candida auris* in New York State
Please distribute immediately to:
Hospital Epidemiologists, Infection Preventionists, Case Managers/Care Coordinators, Laboratory Directors, Infectious Disease Physicians, Critical Care Medicine Physicians, Medical Directors, Delayed Unit Directors, Nursing Directors, Risk Managers, Administrators, Pharmacy Directors and Directors of Environmental Services

Current Activities

- Required webinar for NYC hospitals and nursing homes Thursday, May 11, 2017
- On-site reviews of hospitals and nursing homes in Brooklyn and Queens to assess compliance with infection control requirements
- Continued testing of patient and environmental samples at Wadsworth Center
- Roundtable with healthcare leadership to discuss guidelines, infection control, and *C. auris* response

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