Candida auris- snart i Sverige?

Maria Werner

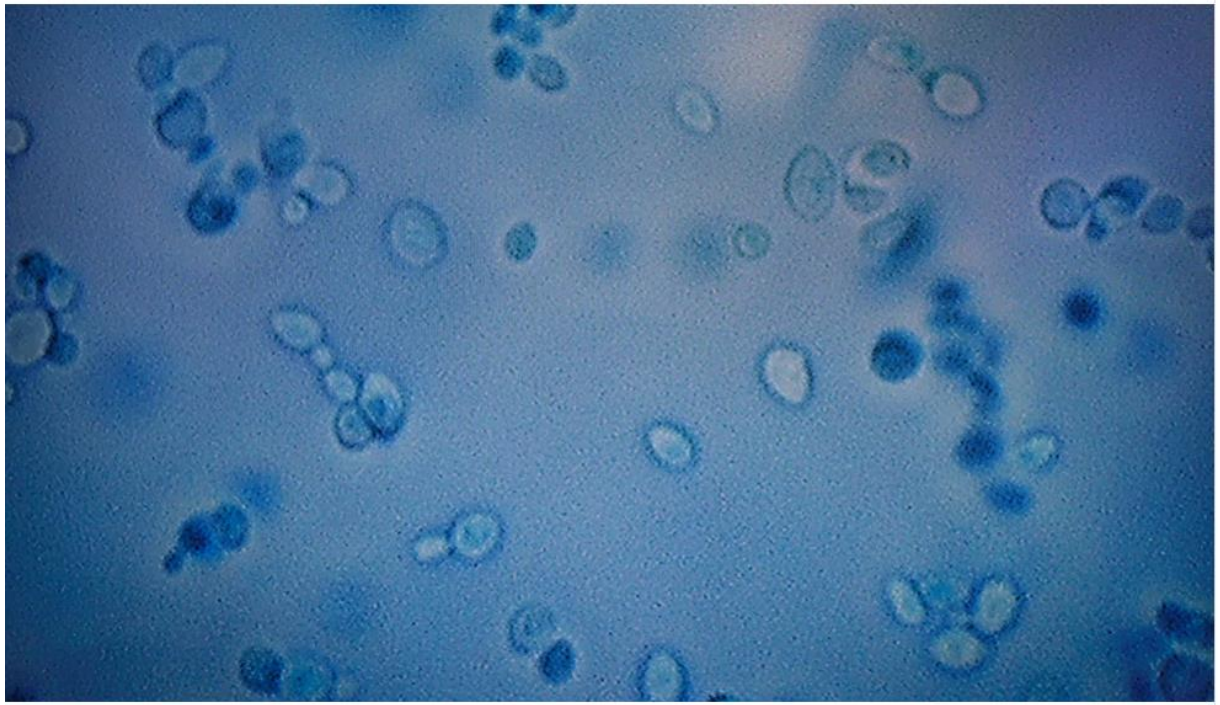
Vårdhygien, SÄS, Borås

DAGENS NYHETER.

Vetenskap

En mystisk infektion sprider sig över jorden – och omgärdas av hemlighetsmakeri

UPPDATERAD 2019-07-24 PUBLICERAD 2019-07-24



Borås Tidning

Mystisk resistent svamp nytt hot – Säs förbereder sig

BORÅS | Artikeln publicerades 20 augusti 2019

Kommentera

Foto: Fredrik Sandberg/TT

Snabba odlingssvar är ett måste för att begränsa spridningen av den multiresistenta svampen candida auris. Trots att den ännu inte dykt upp i Sverige har Folkhälsomyndigheten inskärpt vaksamhet på sjukhusen. För Säs del kommer eventuella odlingar att ske på högutrustade Sahlgrenska i Göteborg.

På flera håll i världen gäckar en mystisk svamp sjukvården. Den är resistent mot de flesta läkemedlen och har varit mycket svår att sanera.

Det saknas fall i Sverige, men Folkhälsomyndigheten har beordrat skärpt uppmärksamhet. På Södra Älvsborgs sjukhus har vårdhygienläkarna lystrat till maningarna.

Det handlar om mikroben Candida auris, som från att ha varit i stort sett okänd även

KONTAKT
Nyhetsredaktionen
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tipsa@bt.se
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The New York Times

Candida Auris: The Fungus Nobody Wants to Talk About

Rany Williams disinfecting a bathroom at Mount Sinai Hospital in Brooklyn during a demonstration of deep-cleaning techniques the hospital used to contain Candida auris. Hilary Swift for The New York Times

Vårdhygieniskt problem

- Förkärlek för sjukhusmiljö

- Svårdiagnostiserad

- Svårbehandlad >90 % av isolaten resistenta emot fluconazol.

Påvisad resistens ibland emot samtliga antifunginer: azoler, echocandiner och polyener (Amfotericin)

Historik

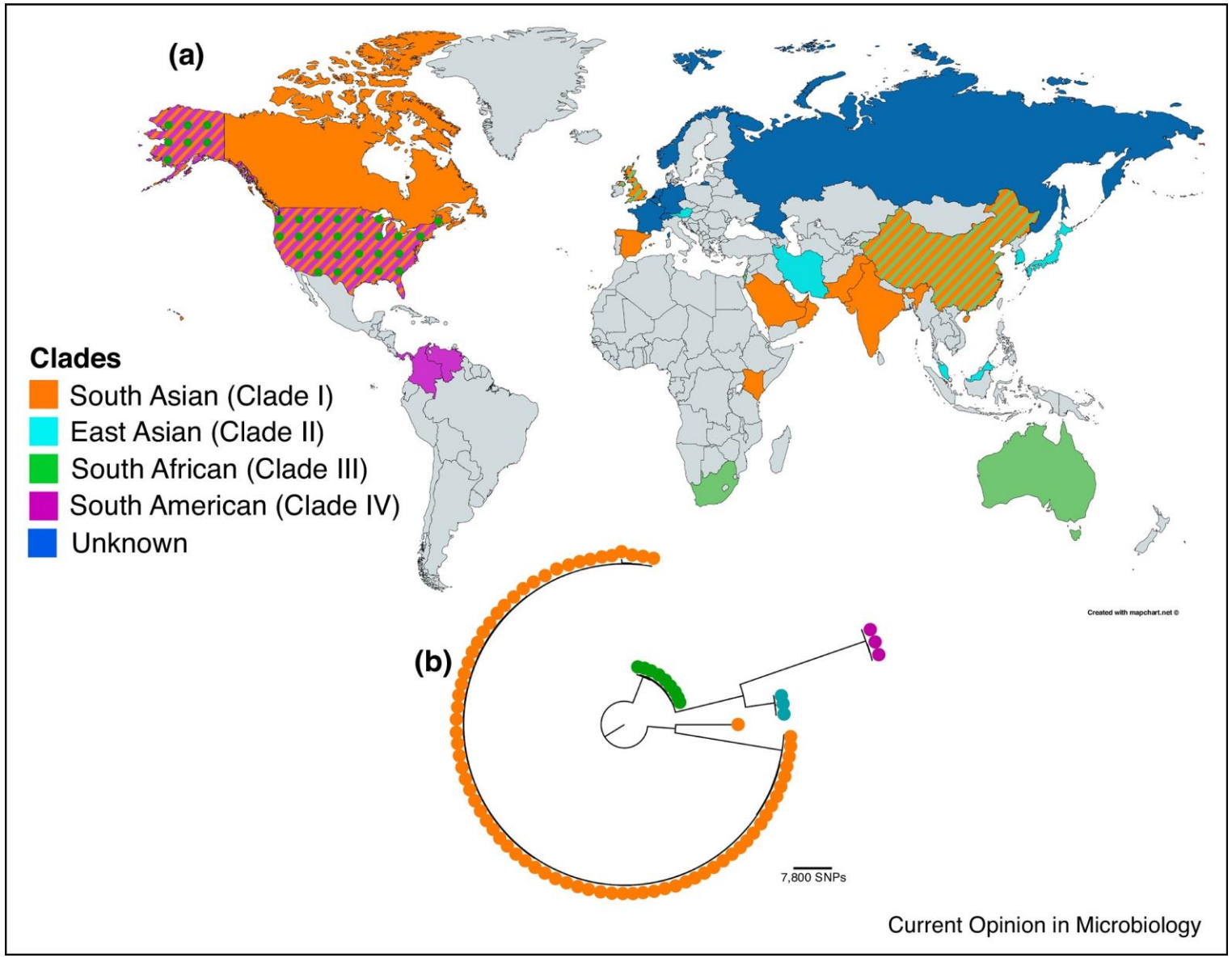
Japan 2009 (öronsekret)

Ungefär samtidigt i Syd Korea . Retrospektiv us i blodisolat från 1997.

Globalt med samtidighet: 4 kloner av C. auris

Minimal genetisk diversitet i varje klon: Södra Asien (klon I), Syd Afrika (klon III), Syd Amerika (klon IV) and Ost-Asien (klonII)

Ev klon V : Iran


(a)
Clades
South Asian (Clade I)
East Asian (Clade II)
South African (Clade III)
South American (Clade IV)
Unknown
Created with mapchart.net ©
(b)
7,800 SNPs
Current Opinion in Microbiology

Mysteriet Candida auris - Varför samtidigt en överförbar och invasiv sjukdom i medel och höginkomstländer ?

- Jackson BR, Chow N, Forsberg K, Litvintseva AP, Lockhart SR, Welsh R, Vallabhaneni S, Chiller T. On the Origins of a Species: What Might Explain the Rise of *Candida auris*? *J Fungi (Basel)*. 2019 Jul 6;5(3):58. Olika hypoteser

Förbättrad diagnostik?

Motsägs av undersökning av historiska material från >40 olika länder 1997-2016 > 40000 isolat . Candida auris första isolat 2009.

Men, diagnostik ”dålig” i låginkomstländer

Genetisk kartläggning

- Genetisk diversitet tar lång tid att utveckla
- Flera distinkta kloner *C. auris* tyder på att den funnits länge på jorden

Speciella egenskaper

Tillväxer i upp till 42 grader

Tillväxer i hypersalin miljö (10% NaCl)

Varför nu?

- Sjukvården- möjliggör spridning
- Ökad virulens?
- Kontakt med miljön +ökat resande?
- Azoler i miljö och humanmedicin
- Hypotes:
- Räkodlingar (Asien) exponentiell ökning sedan 70-talet med återkommande epidemier (virus,bakterier).

Antibiotikabehandling och tillförsel av probiotika *C. haemulonii (släktskap auris)* för att stabilisera miljön i dammarna. Optimal miljö för C auris

Epidemier med svampinfektioner i djurvärlden

- Amfibier *(*chytridiomycosis- *Batrachochytrium dendrobatidis*).

Endemisk svamp från Ostasien som spritts över jorden genom djurhandel och smittat amfibier . Stora konsekvenser.

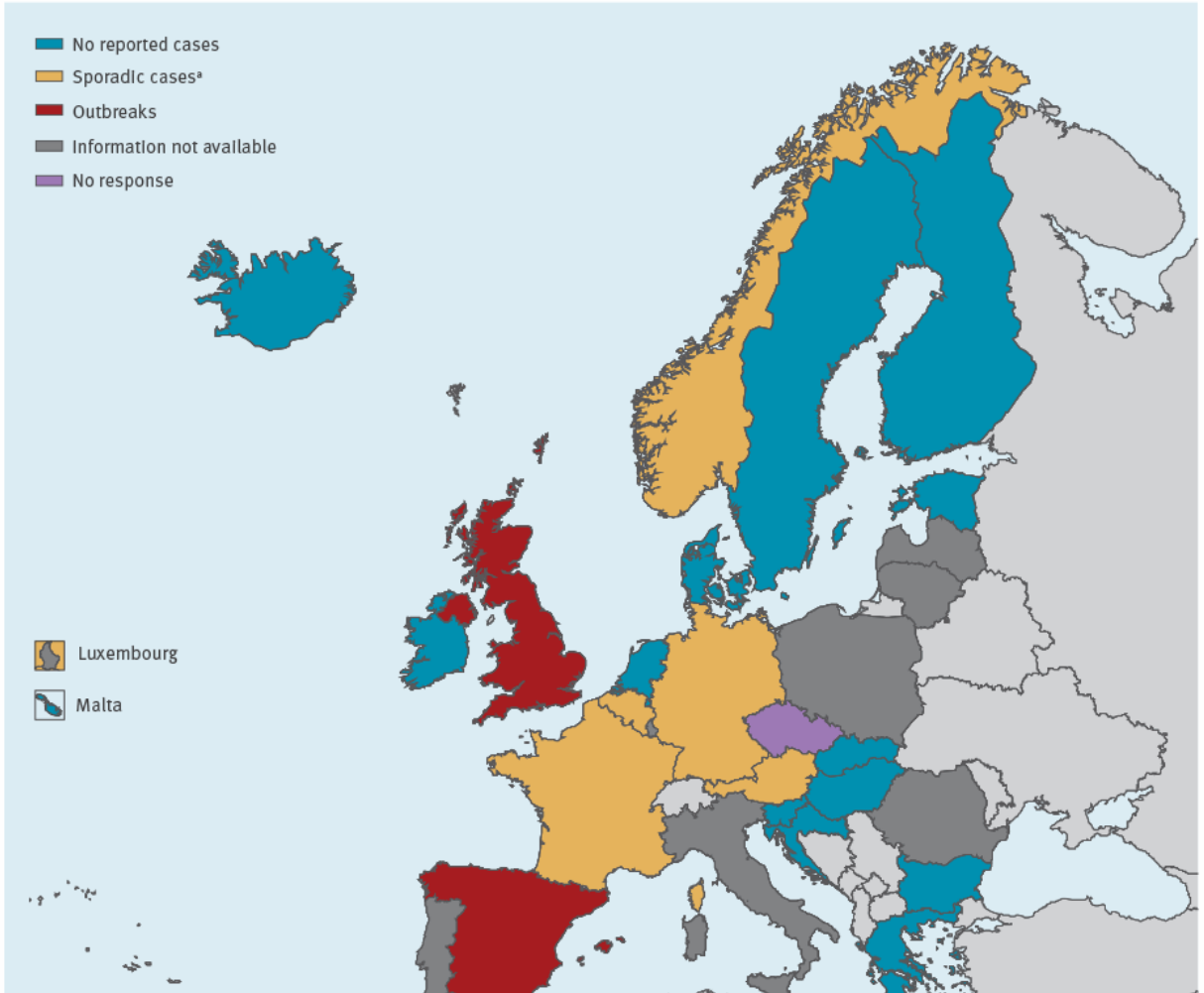
- Fladdermöss (White-nose syndrome - *Pseudogymnoascus destructans)* Dödat > 5 miljoner fladdermöss i Nord-Amerika senaste decenniet (utrotningshot) . Ursprungligen från norra Europa

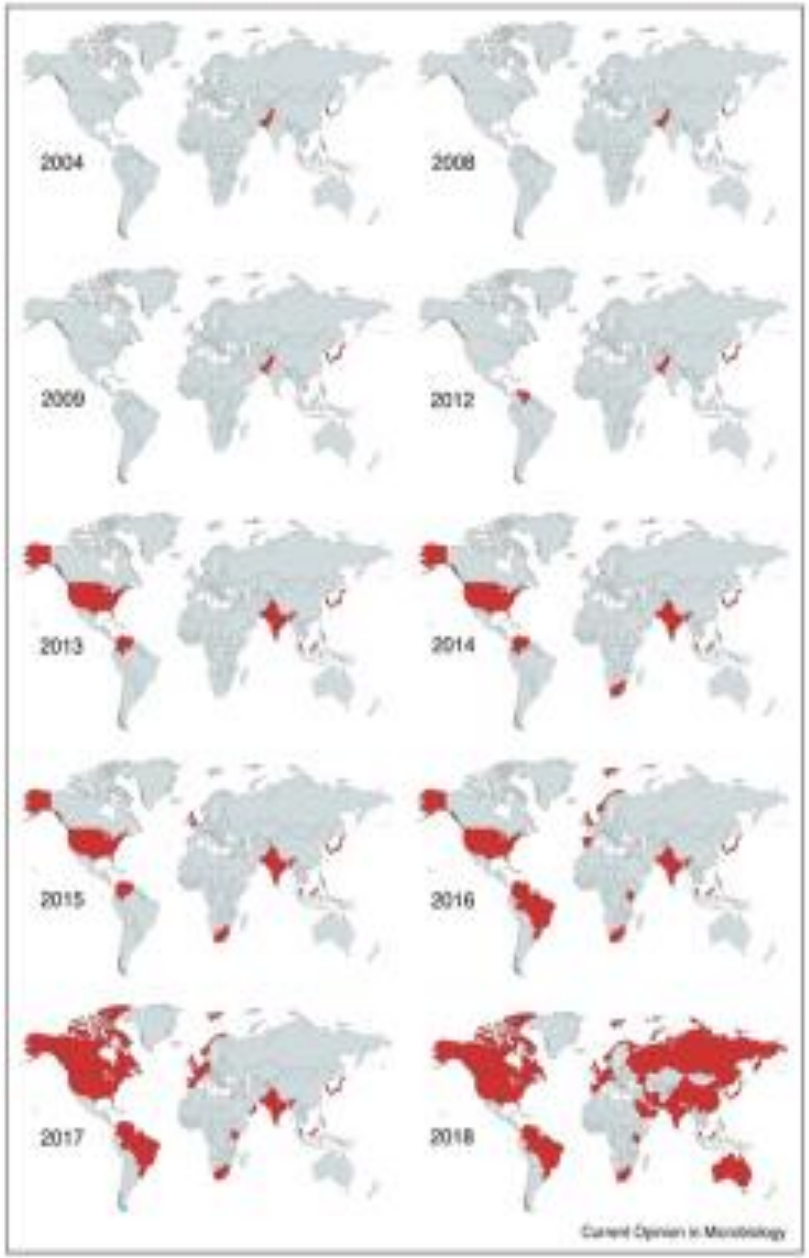
- .

Hur spridda är Candida auris infektioner

- Aktuella data
- CDC har statistik för USA och globalt
- ECDC kartläggning 2018 Europa

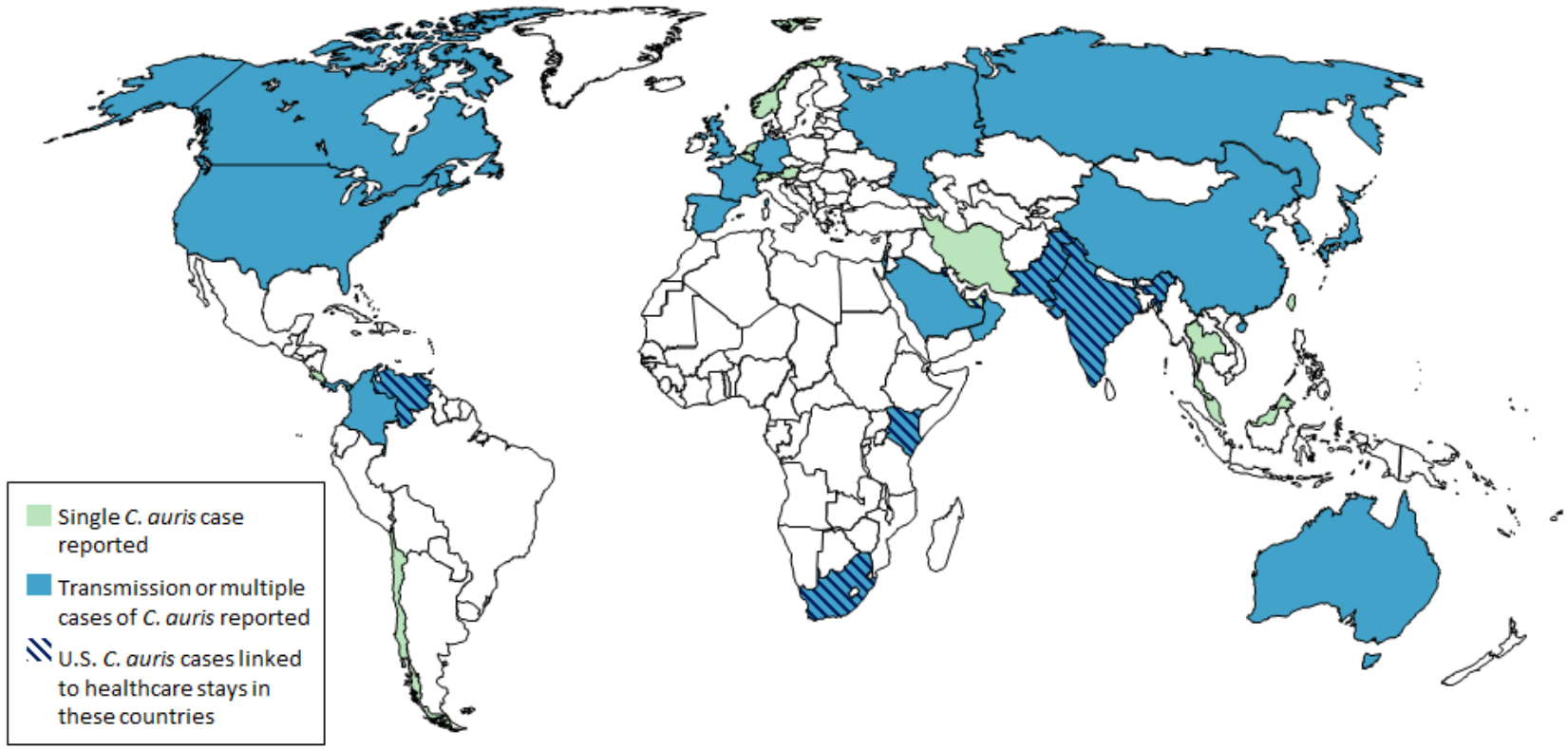
Geographic distribution of *Candida auris* cases reported in European Union / European Economic Area countries, 2013–2017 (n = 620)





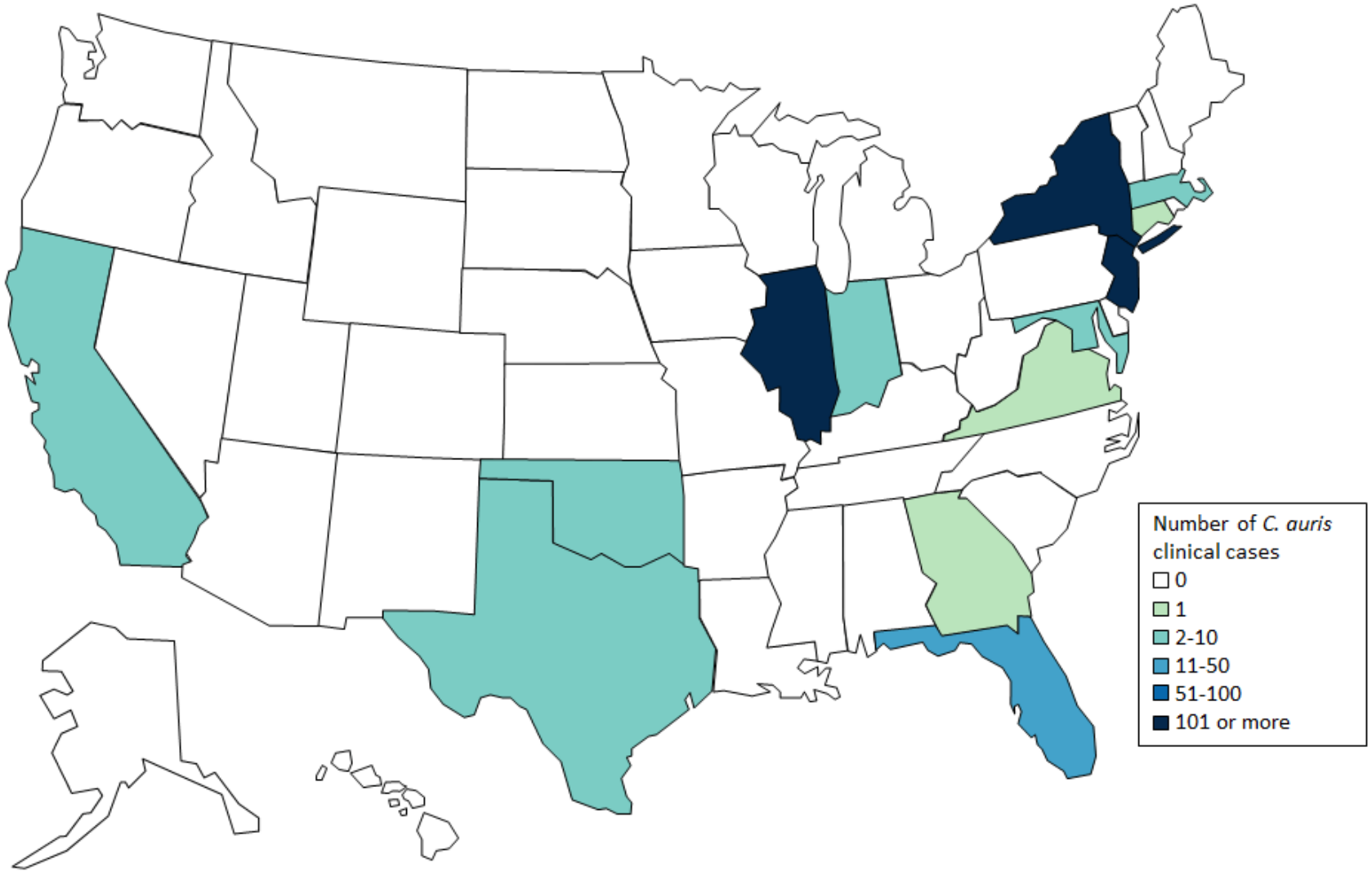
Johanna Rhodes, Matthew C Fisher,
Global epidemiology of emerging Candida auris,
Current Opinion in Microbiology,
Volume 52,
2019,
Pages 84-89,

Countries from which *Candida auris* cases have been reported, as of August 31, 2019



- Single cases of *C. auris* have been reported from Austria, Belgium, Chile, Costa Rica, Greece, Iran, the Netherlands, Norway, Switzerland, Taiwan, Thailand, and the United Arab Emirates.
- Multiple cases of *C. auris* have been reported from Australia, Canada, China, Colombia, France, Germany, India, Israel, Japan, Kenya, Kuwait, Malaysia, Oman, Pakistan, Panama, Russia, Saudi Arabia, Singapore, South Africa, South Korea, Spain, the United Kingdom, the United States (primarily from the New York City area, New Jersey, and the Chicago area) and Venezuela; in some of these countries, extensive transmission of *C. auris* has been documented in more than one hospital.
- U.S. cases of *C. auris* have been found in patients who had recent stays in healthcare facilities in India, Kenya, Kuwait, Pakistan, South Africa, the United Arab Emirates, and Venezuela, which also have documented cases.
- Other countries not highlighted on this map may also have undetected or unreported *C. auris* cases.

U.S. Map: Clinical cases of *Candida auris* reported by U.S. states, as of July 31, 2019



Cases are categorized by the state where the specimen was collected. Most probable cases were identified when laboratories with current cases of *C. auris* reviewed past microbiology records for *C. auris*. Isolates were not available for confirmation. Early detection of *C. auris* is essential for containing its spread in healthcare facilities.

Clinical cases of *Candida auris* reported by U.S. states, as of July 31, 2019

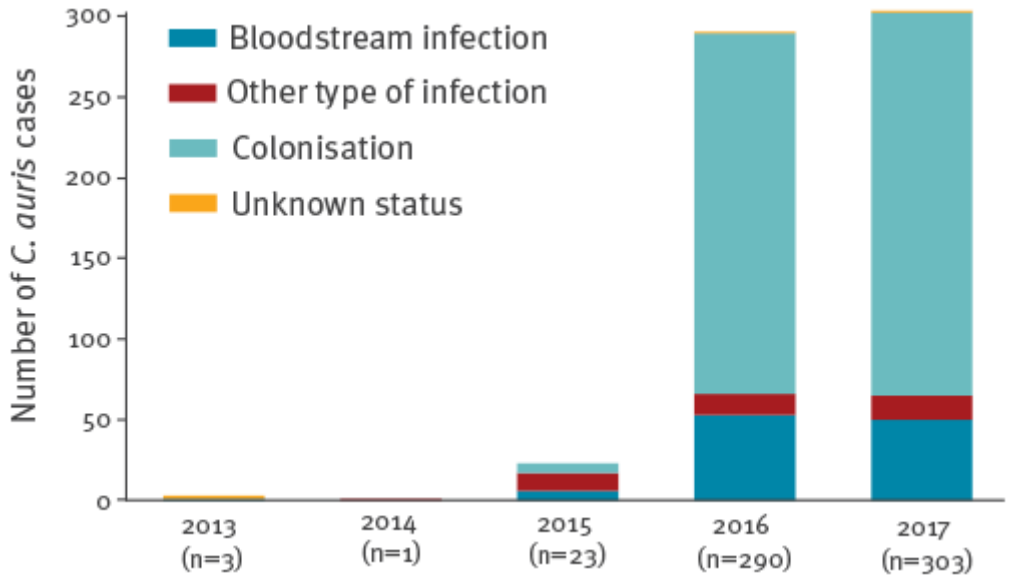
Viktigt med korrekt diagnostik

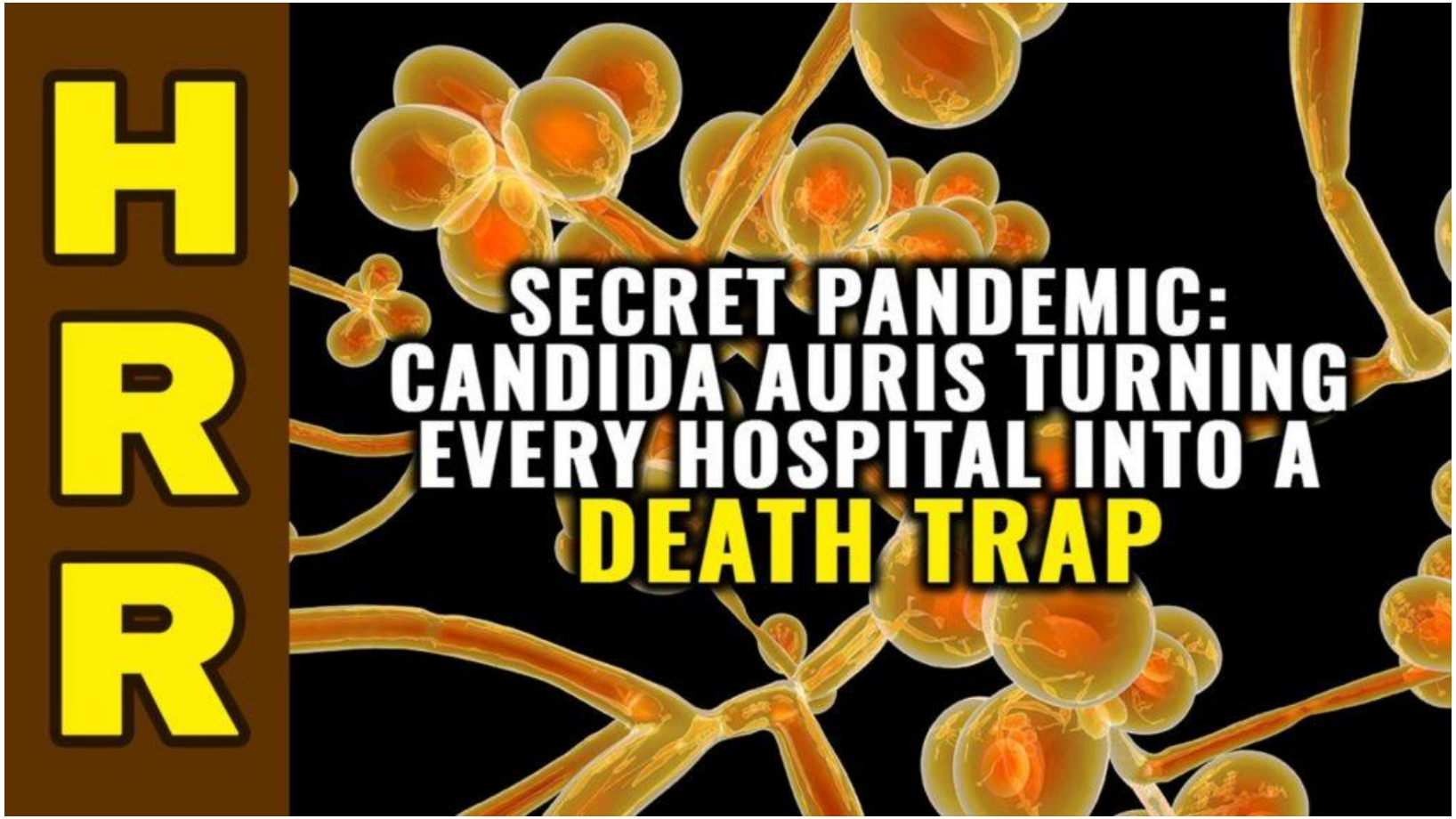
- Traditionell svampdiagnostik missvisande resultat vid artbestämning av C. auris.

C. auris morfologi är svår att skilja från närbesläktade C. haemulonii. Ett sätt att skilja dem åt är att C. auris växer i högre temperaturer, 42°C.

- Metoder :
- MALDI-TOF som många laboratorier har tillgång till, men med ett referensbibliotek för C. auris.
- rDNA sekvensering av D1/D2, 18S eller ITS (Internal Transcribed Spacer) som kan användas för att korrekt bestämma C. auris.
- PCR metoder
- ***OBS: Feltypning med kommersiella biokemiska metoder***

Candida auris i vilken lokal?

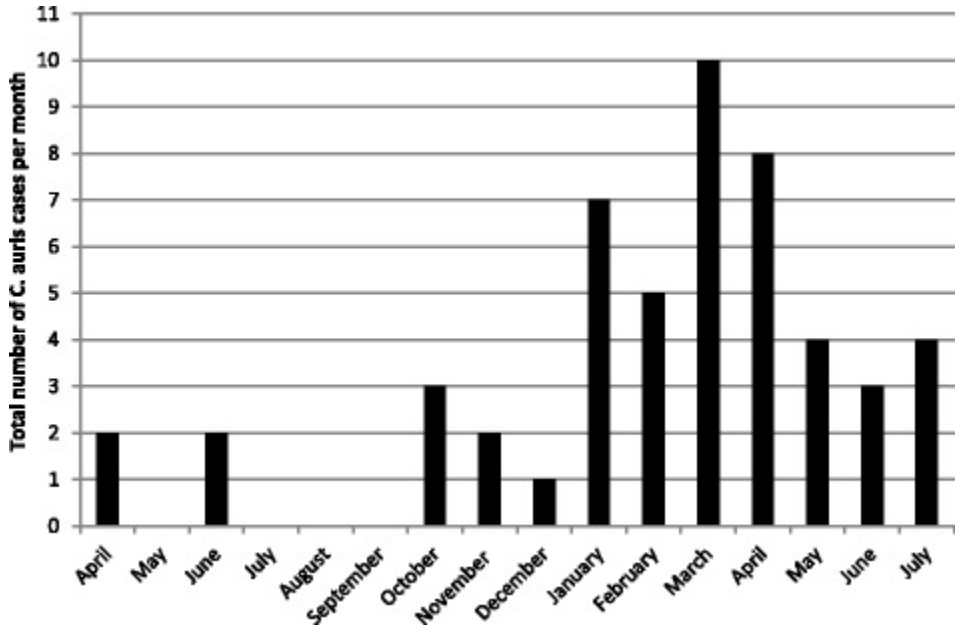



HRR
SECRET PANDEMIC:
CANDIDA AURIS TURNING
EVERY HOSPITAL INTO A
DEATH TRAP

Beskrivna utbrott

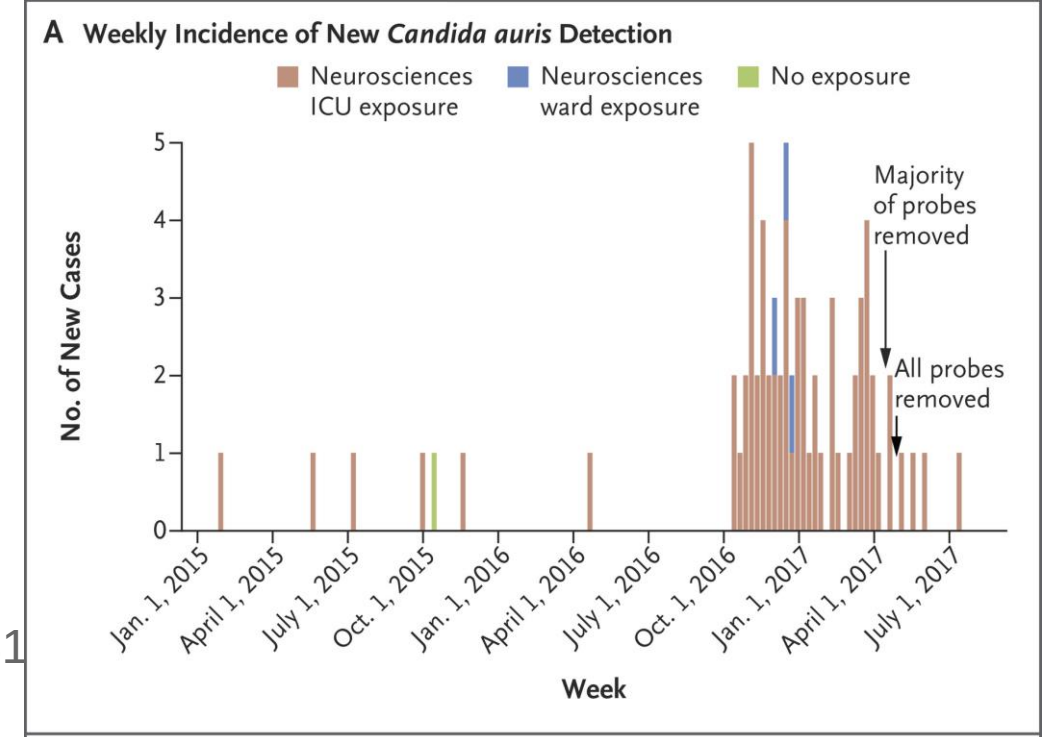
- Syd Korea, Indien, Syd Afrika Pakistan Latin Amerika
- England

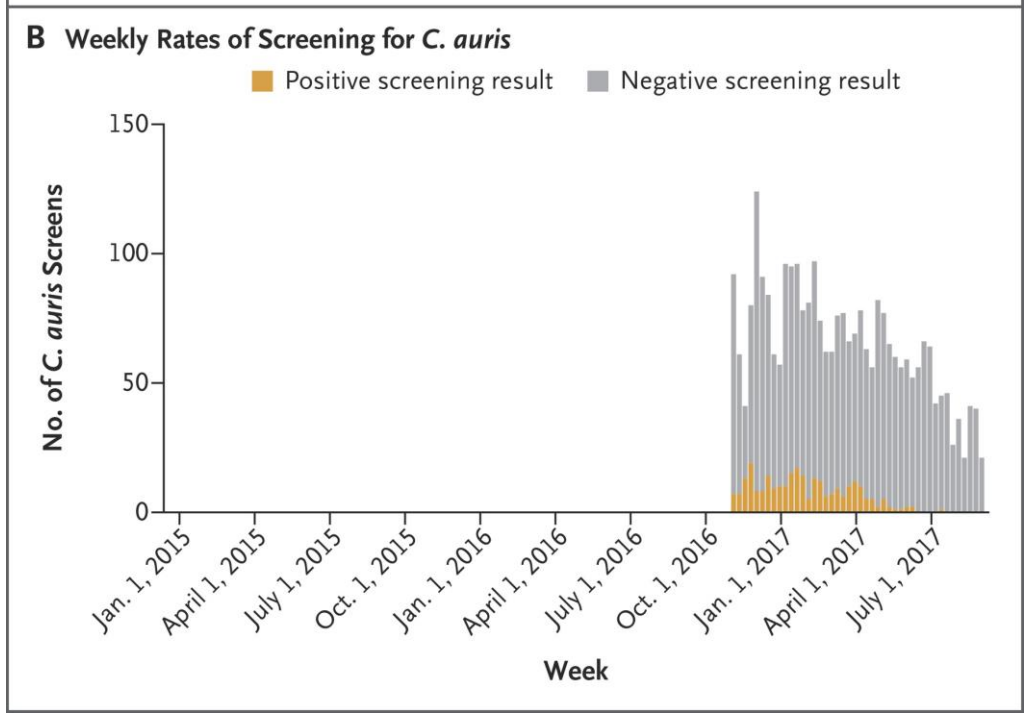
Royal Brompton, Thorax IVA London 2015



Eyre et al.
N Engl J Med 2018; 379:1322-1331

Syd Afrika klonen

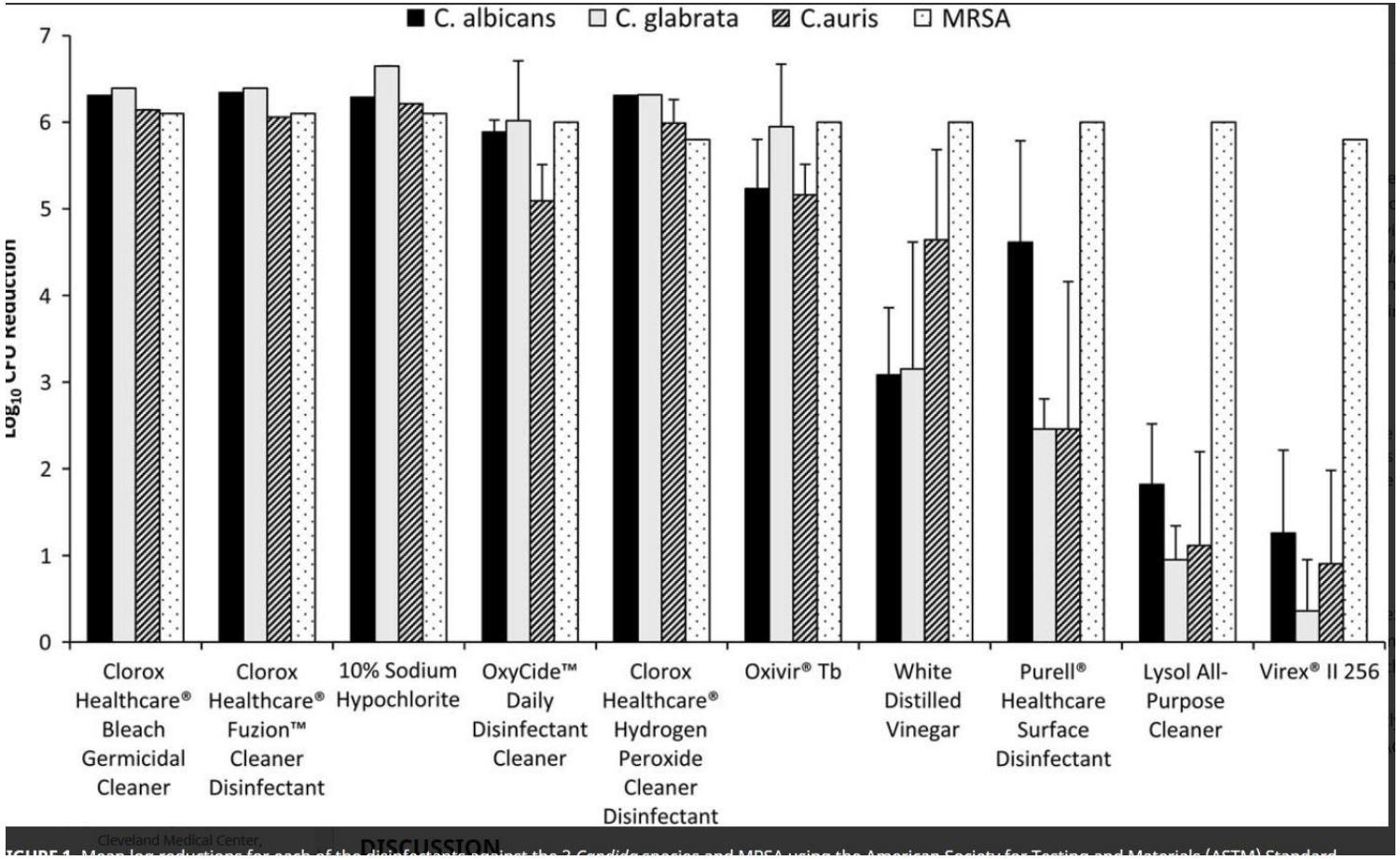




Axill termometer
OR 6.80; 95% [CI], 2.96 to 15.63; P<0.001)
Fluconazol
OR 10.34; 95% CI, 1.64 to 65.18; P=0.01).

Rengöring - Desinfektion

Cadnum. Effectiveness of Disinfectants Against Candida auris and Other Candida Species Volume 38 - Issue 10 - October 2017



Cleveland Medical Center,

DISCUSSION

Moore at al Journal of Hospital Infection Volume 97, 2017, Pages 371-375

Table I. Reduction (log_{10}) in *Candida auris* and *Candida albicans* viability after exposure to chemical disinfectants and antiseptics under clean and dirty conditions

	Surface disinfectant		Antiseptic skin cleanser		Skin disinfectant	
	1000 ppm chlorine (5 min)		10% povidone-iodine (2 min)		2% chlorhexidine gluconate in 70% IPA (2 min)	
	Clean conditions[a]	Dirty conditions[b]	Clean conditions[a]	Dirty conditions[b]	Clean conditions[a]	Dirty conditions[b]
***C. auris* clade/strain**						
South Asian	>4.66	>4.88	>4.66	>4.88	>5.18	>5.18
South African	>4.79	>5.03	>4.79	>5.03	>5.06	>5.06
Japanese/Korean	>4.98	>4.98	>5.08	>5.08	>5.36	>5.36
Multi-drug-resistant	>4.69	>4.69	>4.56	>4.56	>5.21	>5.21
C. albicans						
ATCC 10231	>4.86	>4.56	2.57 ± 0.06 [c]	3.16 ± 0.05 [c]	>5.06	>5.30
Clinical isolate	>4.61	>4.61	>4.46	>4.46	>5.30	>5.30

IPA, isopropyl alcohol.

a

Table II. Reduction (log_{10}) in *Candida auris* and *Candida albicans* viability after exposure, under clean and dirty conditions, to 2% chlorhexidine gluconate [i.e. 4% chlorhexidine gluconate (antimicrobial hand and body wash) diluted 1:1 with water] for contact times ranging from 1 to 2 min J

	Clean conditions[a]			Dirty conditions[b]		
	1 min	90 s	2 min	1 min	90 s	2 min
C. auris clade/strain						
South Asian	1.34 ± 0.04	1.53 ± 0.02	1.55 ± 0.15	1.08 ± 0.00	1.17 ± 0.05	1.15 ± 0.06
South African	2.35 ± 0.26	2.52 ± 0.08	2.63 ± 0.65	1.88 ± 0.13	2.01 ± 0.09	2.04 ± 0.09
Multi-drug-resistant	2.30 ± 0.05	2.35 ± 0.06	2.49 ± 0.05	2.34 ± 0.06	2.44 ± 0.02	2.45 ± 0.06
C. albicans						
ATCC 10231	2.83 ± 0.07	3.43 ± 0.36	3.57 ± 0.24	2.78 ± 0.09	3.29 ± 0.15	3.36 ± 0.36

Slutstädning och hygienrutiner
Candida auris ECDC

Klordesinfektion 1 000 ppm
Väteperoxid.
Engångsutrustning
Medicinskteknisk utrustning enligt bruksanvisning

Ej miljö eller medarbetarscreening

Rekommendation ECDC utbrottskontroll

Övervakning

Fullgod diagnostik och rapportering

Kontaktspårning

Vård

- Isolering
- Kohort vård
- Intagningsstopp
- Långärmad skyddsutrusning -handskar
- Dekolonisering (ingen säker rekommenderad metod)

Screening

- Näsa, **axill, ljumske**, hals , rectum or faeces, infarter urin, sår , drän och luftvägsprov .

Screening ECDC

- *Admission screening for C. auris carriage and pre-emptive isolation of patients who are transferred from, or have recently been admitted to hospitals that have detected C. auris cases should be considered*. This implies that affected facilities need to notify the receiving healthcare facilities and clinicians in the case of transfer of patients with C. auris carriage or infection. Moreover, gathering reliable epidemiological data through *notification of C. auris cases to public health authorities* and exchange of information through electronic early warning platforms, such as the Epidemic Intelligence System (EPIS), will enable informed and coordinated risk management actions by public health authorities across the EU/EEA.

Screening- CDC

- **Close healthcare contacts**
- –
- Patients who have had an **overnight stay in a healthcare facility outside the United States** in the previous one year, especially if in a country with documented *C. auris* cases. *Strongly consider screening when patients have had such inpatient healthcare exposures outside the United States and have infection or colonization with carbapenemase-producing Gram-negative bacteria. C. auris co-colonization with these organisms has been observed regularly.*

RAPID RISK ASSESSMENT

Candida auris in healthcare settings – Europe

First update, 23 April 2018

Main conclusions and options for response

Candida auris poses a risk for patients in healthcare facilities across Europe due to its propensity to cause outbreaks and its antifungal resistance. Difficulties with laboratory identification and lack of awareness of this *Candida* species may delay early detection increasing the potential for horizontal transmission. *C. auris* was first identified in 2009 and within a few years has emerged as a cause of healthcare-associated infections. Outbreaks have been reported in countries in five continents. The number of reported *C. auris* cases in European countries has increased significantly since the last ECDC rapid risk assessment on *C. auris* in December 2016. There continues to be a need to raise awareness of *C. auris* in European healthcare facilities, so that they may adapt their laboratory testing strategies and implement enhanced infection prevention and control measures where necessary.

Options to reduce identified risks: prevention of transmission of *C. auris* in healthcare settings

Laboratory detection of *C. auris*

Recognition of *C. auris* requires that isolates of *Candida* species from invasive infections are accurately identified to the species level. A correct identification of *C. auris* is possible using either Matrix-assisted laser desorption/ionization time-of-flight (MALDI-TOF) mass spectrometry, provided that *C. auris* is included in the reference profile database, or DNA sequencing of specific domains of the ribosomal genes. When these tests are not available at clinical laboratory level, referral of non-*albicans Candida* spp. invasive isolates to a reference mycology laboratory is advisable, especially if identified by biochemical tests as *Candida haemulonii, Candida famata, Candida sake, Rhodotorula* species *or Saccharomyces* species. This is particularly important for hospitals with an increased incidence of infection by non-*albicans Candida* species or those that admit patients transferred from a facility reporting a *C. auris* outbreak. Where *Candida* species isolates are tested for antifungal susceptibility, resistance to fluconazole is another characteristic that should prompt tests to speciate

Folkhälsomyndigheten

Sverige -Folkhälsomyndigheten

Diagnostik –på plats ? Upptäcker vi isolat än från blod?

Medvetenhet?

Anmälningspliktig?

Aktuell för screening? I så fall när?

Följsamhet ECDC?