



## Algorithm to identify *Candida auris* based on phenotypic laboratory method and initial species identification

### PURPOSE

*Candida auris* is a multidrug-resistant yeast that has been found in multiple countries, including the United States. *C. auris* can cause invasive infections, be passed from person to person, and persist in the environment. Its severity, communicability, and drug resistance makes correctly identifying *C. auris* crucial to treating patients and preventing infections. However, this is challenging because traditional phenotypic methods frequently misidentify *C. auris*. This algorithm details the steps needed to determine the correct *Candida* spp. based on the tests and equipment available in your lab.

### TABLE OF CONTENTS – ALGORITHMS BY METHOD

1. Bruker Biotyper MALDI-TOF
2. bioMérieux VITEK MS MALDI-TOF
3. VITEK 2 YST
4. API 20C
5. BD Phoenix
6. MicroScan
7. RapID Yeast Plus
8. Summary of this algorithm in table form

*Please note that these algorithms are based on our current knowledge about misidentification of C.auris and may change as we learn new information.*

Identification Method

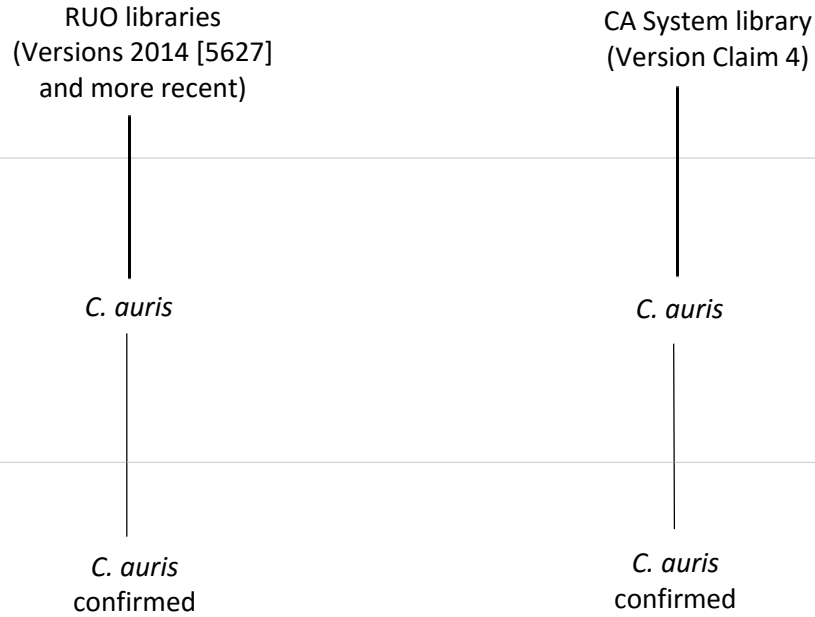
Database/ Software

Initial finding

Determination

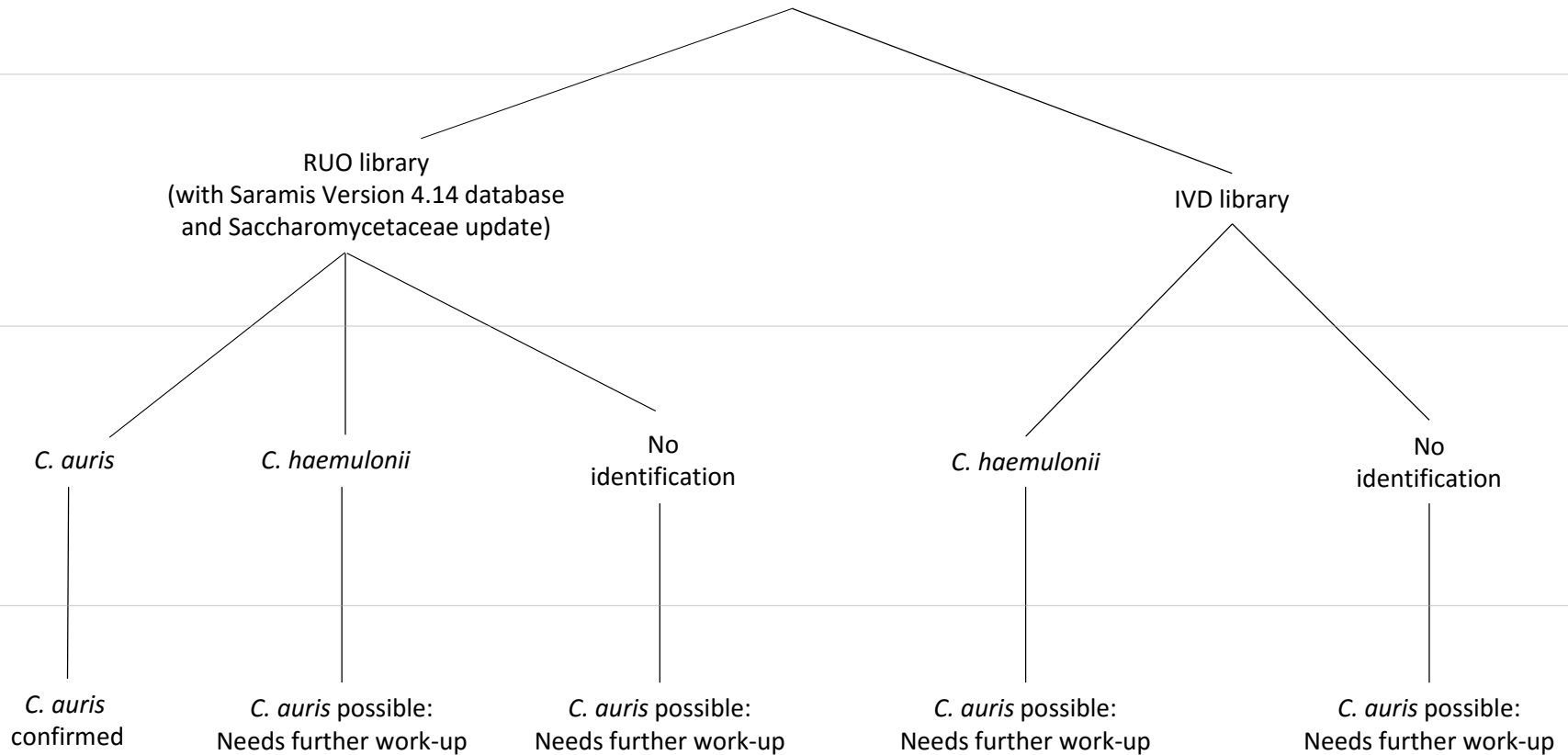
Next steps

# Bruker Biotyper MALDI-TOF



**C. auris confirmed:**  
Place patient in transmission-based precautions, report to CDC ([candidaauris@cdc.gov](mailto:candidaauris@cdc.gov)), and notify state and local health departments.

bioMérieux VITEK MS  
MALDI-TOF



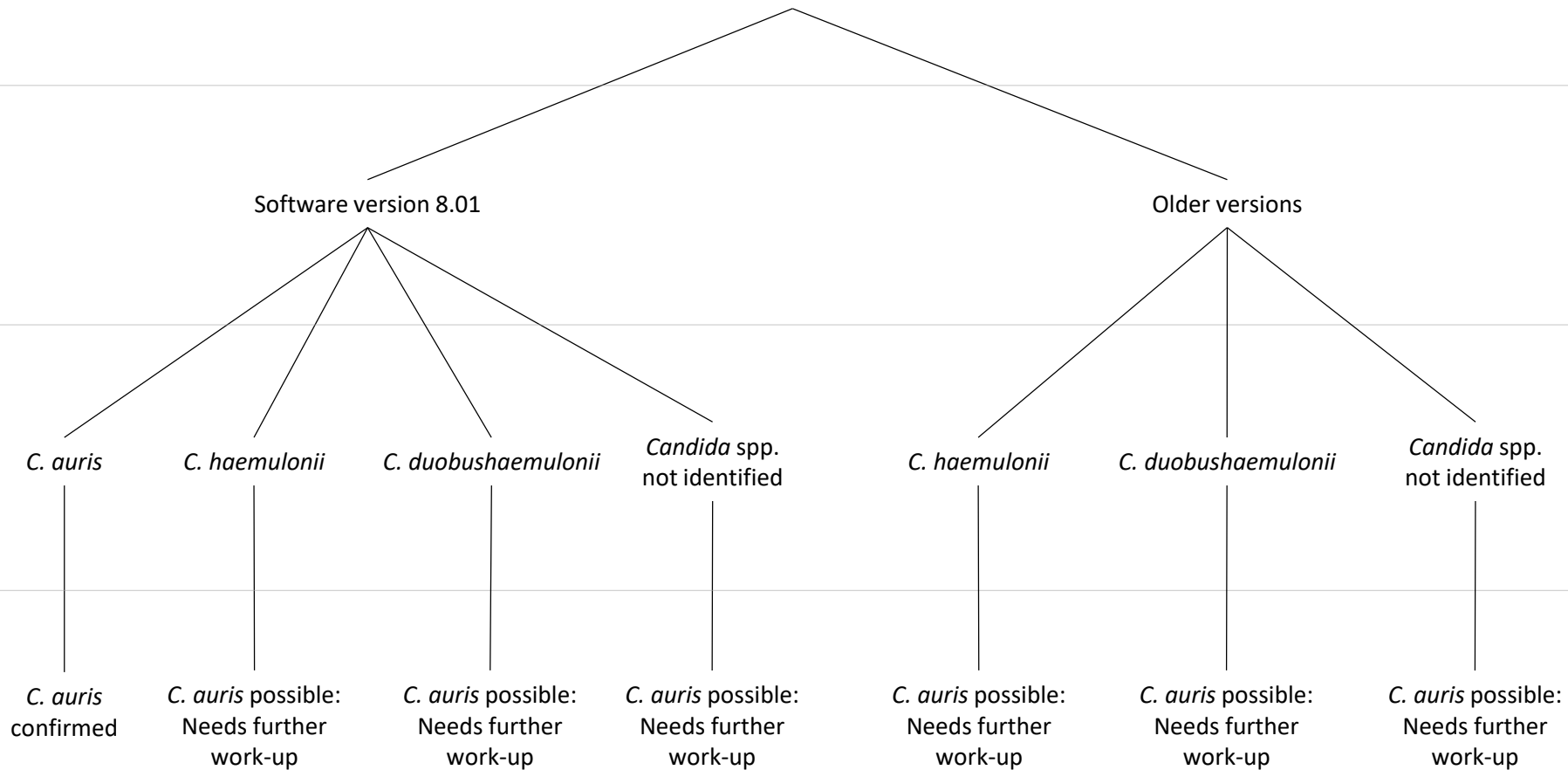
***C. auris* confirmed:**

Place patient in transmission-based precautions, report to CDC ([candidaauris@cdc.gov](mailto:candidaauris@cdc.gov)), and notify state and local health departments.

***C. auris* possible:**

Further work-up needed to determine if actually *C. auris*. Send isolates to a reference lab, a state public health lab, a regional lab, or CDC for further identification. Place patient in transmission-based precautions and notify state and local health departments and CDC ([candidaauris@cdc.gov](mailto:candidaauris@cdc.gov)).

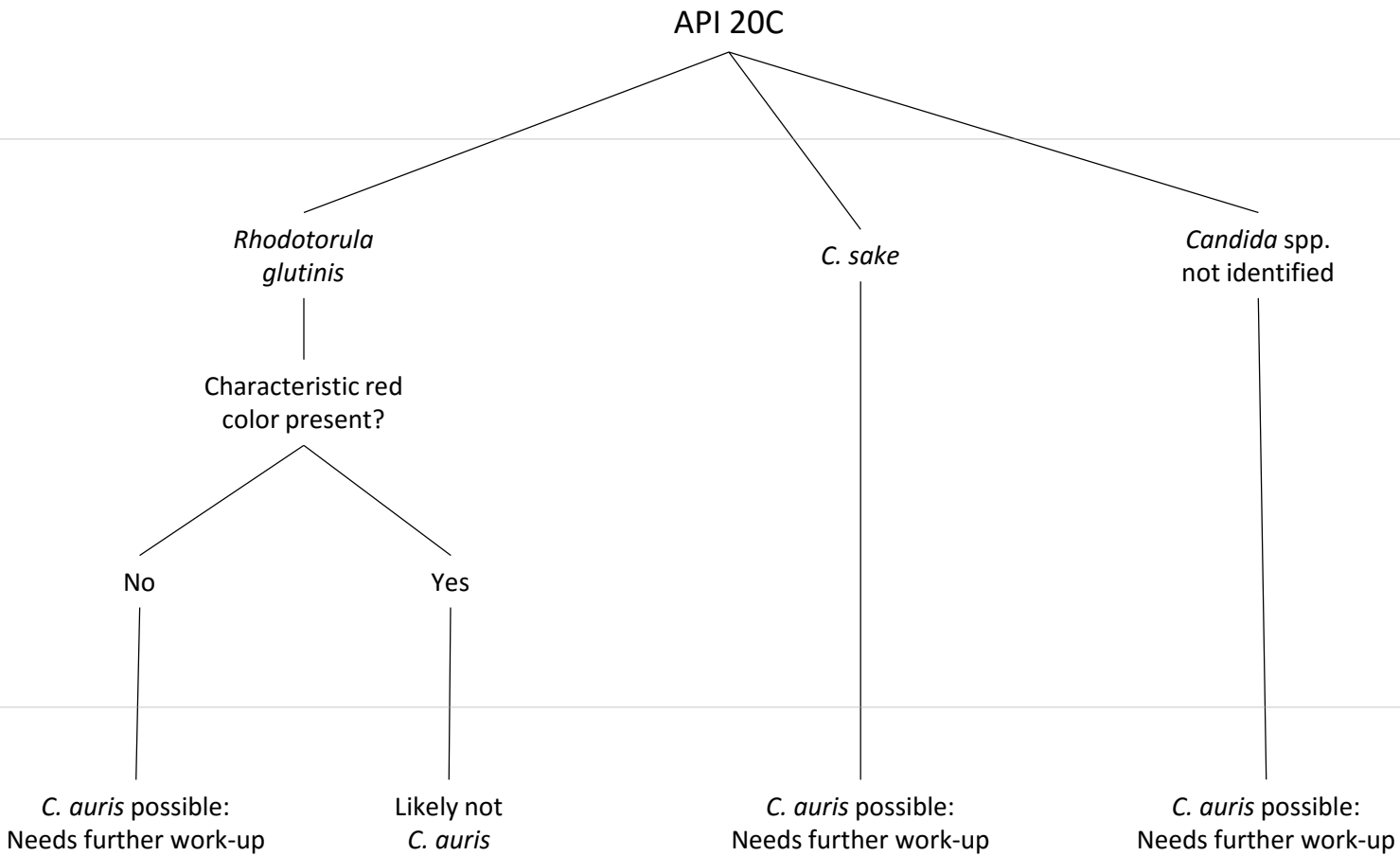
## VITEK 2 YST

***C. auris* confirmed:**

Place patient in transmission-based precautions, report to CDC ([candidaauris@cdc.gov](mailto:candidaauris@cdc.gov)), and notify state and local health departments.

***C. auris* possible:**

Further work-up needed to determine if actually *C. auris*. Send isolates to a reference lab, a state public health lab, a regional lab, or CDC for further identification. Place patient in transmission-based precautions and notify state and local health departments and CDC ([candidaauris@cdc.gov](mailto:candidaauris@cdc.gov)).



**C. auris suspected:**  
Place patient in transmission-based precautions and notify state and local health departments and CDC (candidaauris@cdc.gov). Send any isolates suspected to be *C. auris* to a reference lab, a state public health lab, a regional lab, or CDC for further identification.

**Likely not C. auris:**  
No further *C. auris*-related action required.

Identification Method

Initial finding

Determination

Next steps

### BD Phoenix

*C. catenulata*

*C. haemulonii*

*Candida* spp.  
not identified

*C. auris* possible:  
Needs further work-up

*C. auris* possible:  
Needs further work-up

*C. auris* possible:  
Needs further work-up

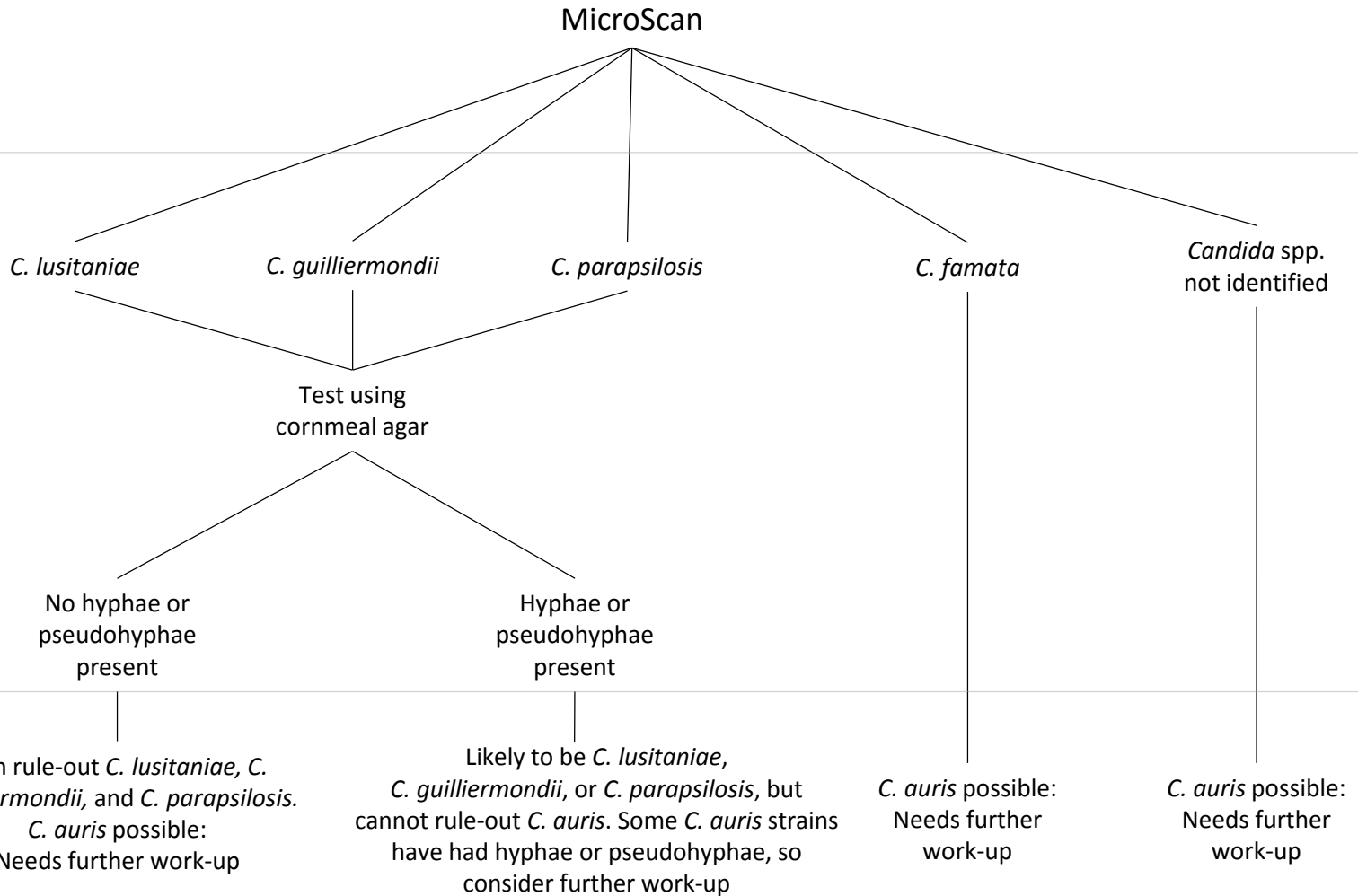
***C. auris* possible:**  
Further work-up needed to determine if actually *C. auris*. Send isolates to a reference lab, a state public health lab, a regional lab, or CDC for further identification. Place patient in transmission-based precautions and notify state and local health departments and CDC (candidaauris@cdc.gov).

Identification Method

Initial finding

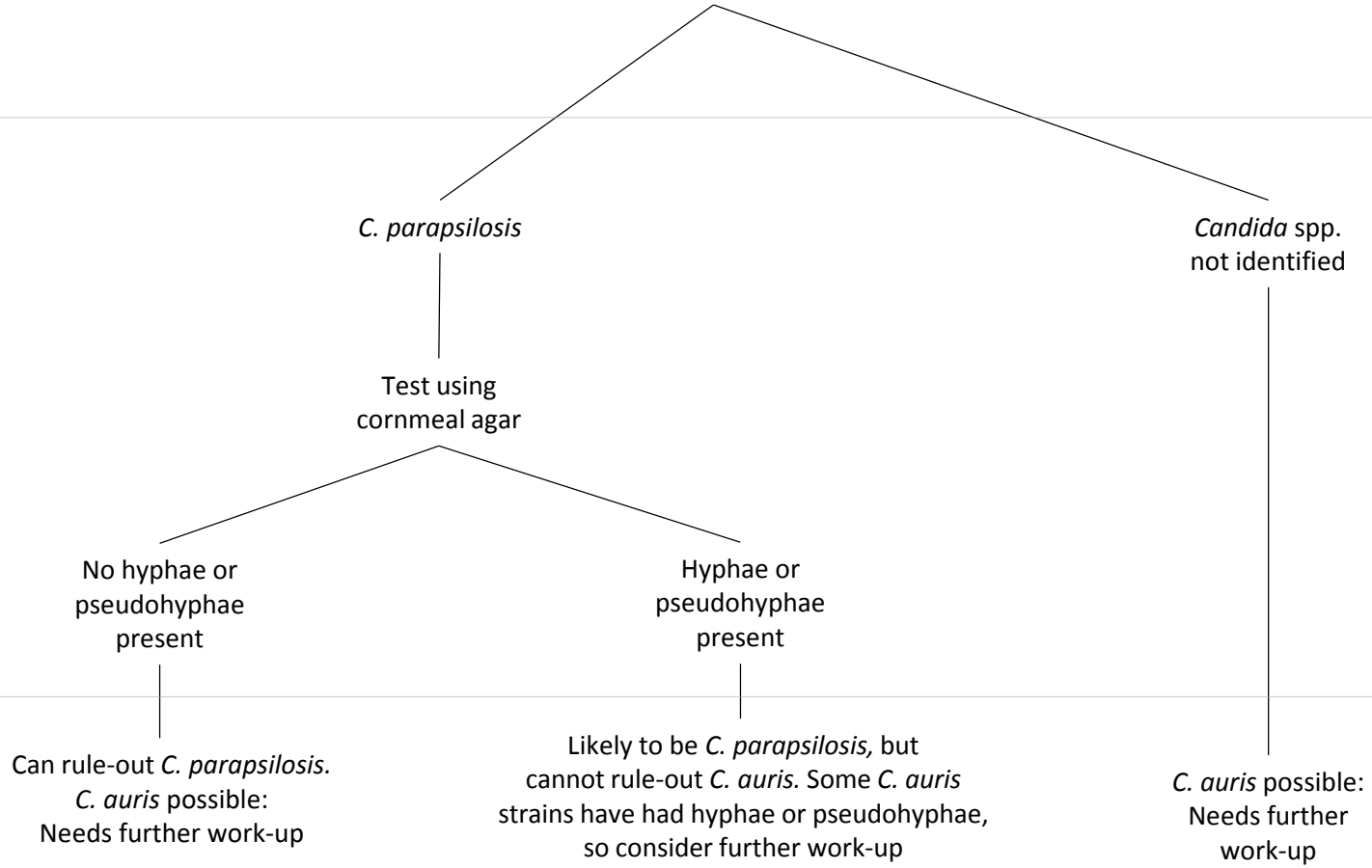
Determination

Next steps



**C. auris possible:**  
 Further work-up needed to determine if actually *C. auris*. Send isolates to a reference lab, a state public health lab, a regional lab, or CDC for further identification. Place patient in transmission-based precautions and notify state and local health departments and CDC (candidauris@cdc.gov).

# RapID Yeast Plus



***C. auris* possible:**  
Further work-up needed to determine if actually *C. auris*. Send isolates to a reference lab, a state public health lab, a regional lab, or CDC for further identification. Place patient in transmission-based precautions and notify state and local health departments and CDC (candidaauris@cdc.gov).



Identification Method	Database/Software, if applicable	<i>C. auris</i> is confirmed if initial identification is <i>C. auris</i> .	<i>C. auris</i> is possible if the following initial identifications are given. Further work-up is needed to determine if the isolate is <i>C. auris</i> .
<b>Bruker Biotyper MALDI-TOF</b>	RUO libraries (Versions 2014 [5627] and more recent)	<i>C. auris</i>	n/a
	CA System library (Version Claim 4)	<i>C. auris</i>	n/a
<b>bioMérieux VITEK MS MALDI-TOF</b>	RUO library (with Saramis Version 4.14 database and Saccharomycetaceae update)	<i>C. auris</i>	<i>C. haemulonii</i> No identification
	IVD library	n/a	<i>C. haemulonii</i> No identification
<b>VITEK 2 YST</b>	Software version 8.01	<i>C. auris</i>	<i>C. haemulonii</i> <i>C. duobushaemulonii</i> <i>Candida</i> spp. not identified
	Older versions	n/a	<i>C. haemulonii</i> <i>C. duobushaemulonii</i> <i>Candida</i> spp. not identified
<b>API 20C</b>		n/a	<i>Rhodotorula glutinis</i> (with characteristic red color present) <i>C. sake</i> <i>Candida</i> spp. not identified
<b>BD Phoenix</b>		n/a	<i>C. catenulata</i> <i>C. haemulonii</i> <i>Candida</i> spp. not identified
<b>MicroScan</b>		n/a	<i>C. lusitaniae</i> * <i>C. guilliermondii</i> * <i>C. parapsilosis</i> * <i>C. famata</i> <i>Candida</i> spp. not identified
<b>RapID Yeast Plus</b>		n/a	<i>C. parapsilosis</i> * <i>Candida</i> spp. not identified

\* *C. guilliermondii*, *C. lusitaniae*, and *C. parapsilosis* generally make hyphae or pseudohyphae on cornmeal agar. If hyphae or pseudohyphae are not present on cornmeal agar, the isolate should raise suspicions of being *C. auris* as *C. auris* typically does not make hyphae or pseudohyphae. However, some *C. auris* isolates have formed hyphae or pseudohyphae. Therefore, it would be prudent to consider any *C. guilliermondii*, *C. lusitaniae*, and *C. parapsilosis* isolates identified on MicroScan and any *C. parapsilosis* isolates identified on RapID Yeast Plus as possible *C. auris* isolates and further work-up should be considered.

**If *C. auris* is confirmed:** Place patient in transmission-based precautions, report to CDC (candidaauris@cdc.gov), and notify state and local health departments.

**If *C. auris* is possible:** Further work-up is needed to determine if actually *C. auris*. Send isolates to a reference lab, a state public health lab, a regional lab, or CDC for further identification. Place patient in transmission-based precautions and notify state and local health departments and CDC (candidaauris@cdc.gov).