



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.

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*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

RUO libraries
(Versions 2014 [5627]
and more recent)

CA System library
(Version Claim 4)

C. auris

C. auris

C. auris
confirmed

C. auris
confirmed

***C. auris* confirmed:**

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

Identification Method

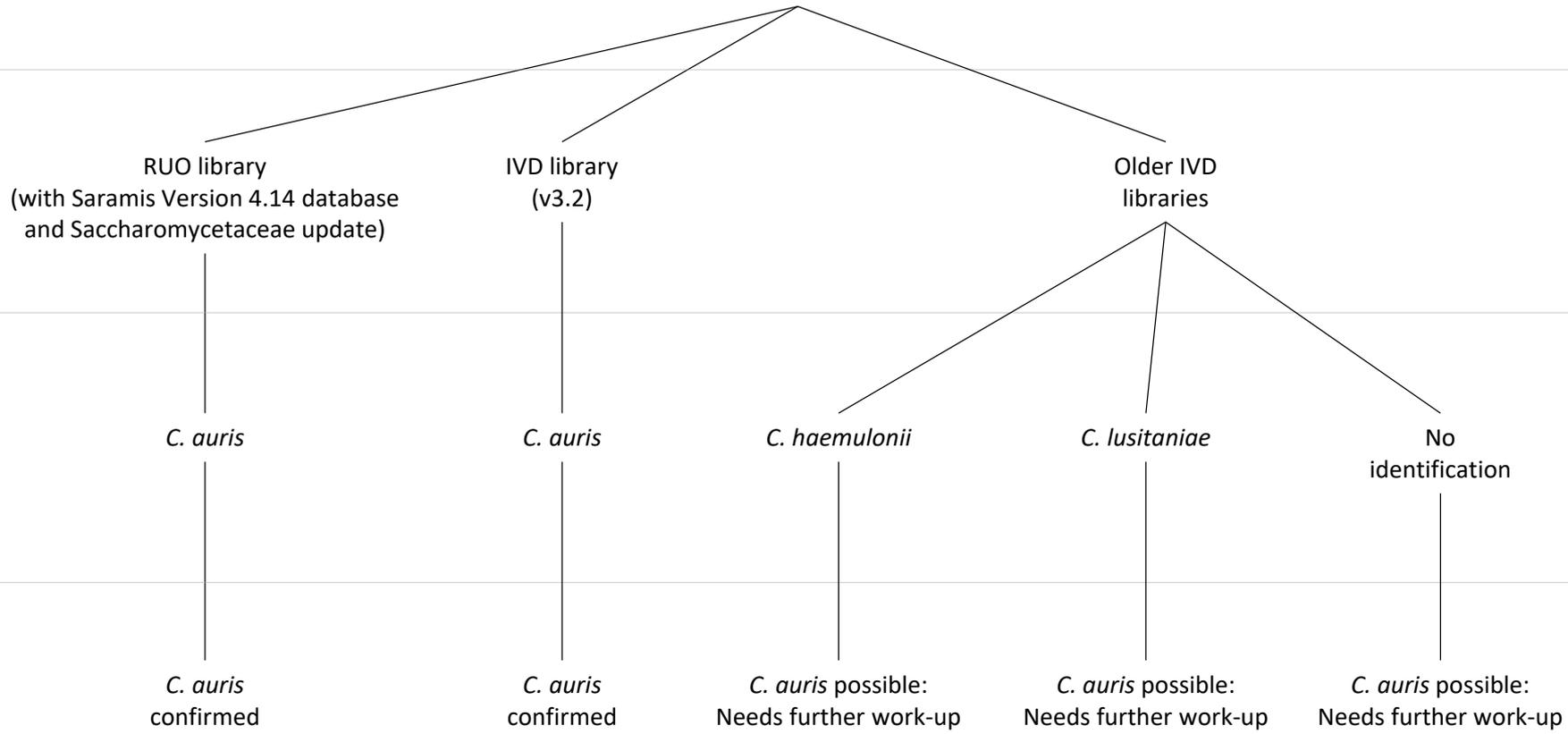
Database/ Software

Initial finding

Determination

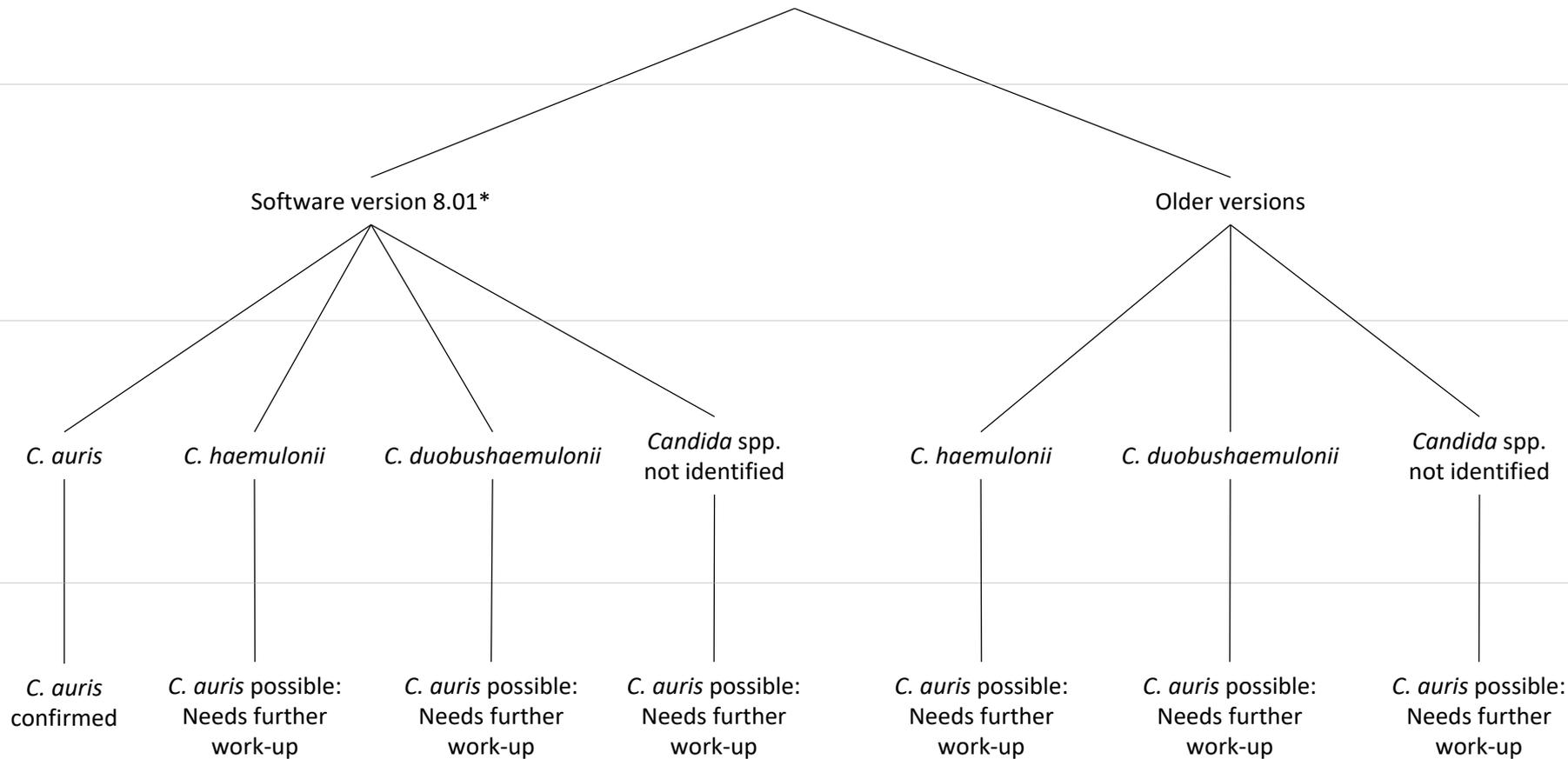
Next steps

bioMérieux VITEK MS MALDI-TOF



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

VITEK 2 YST

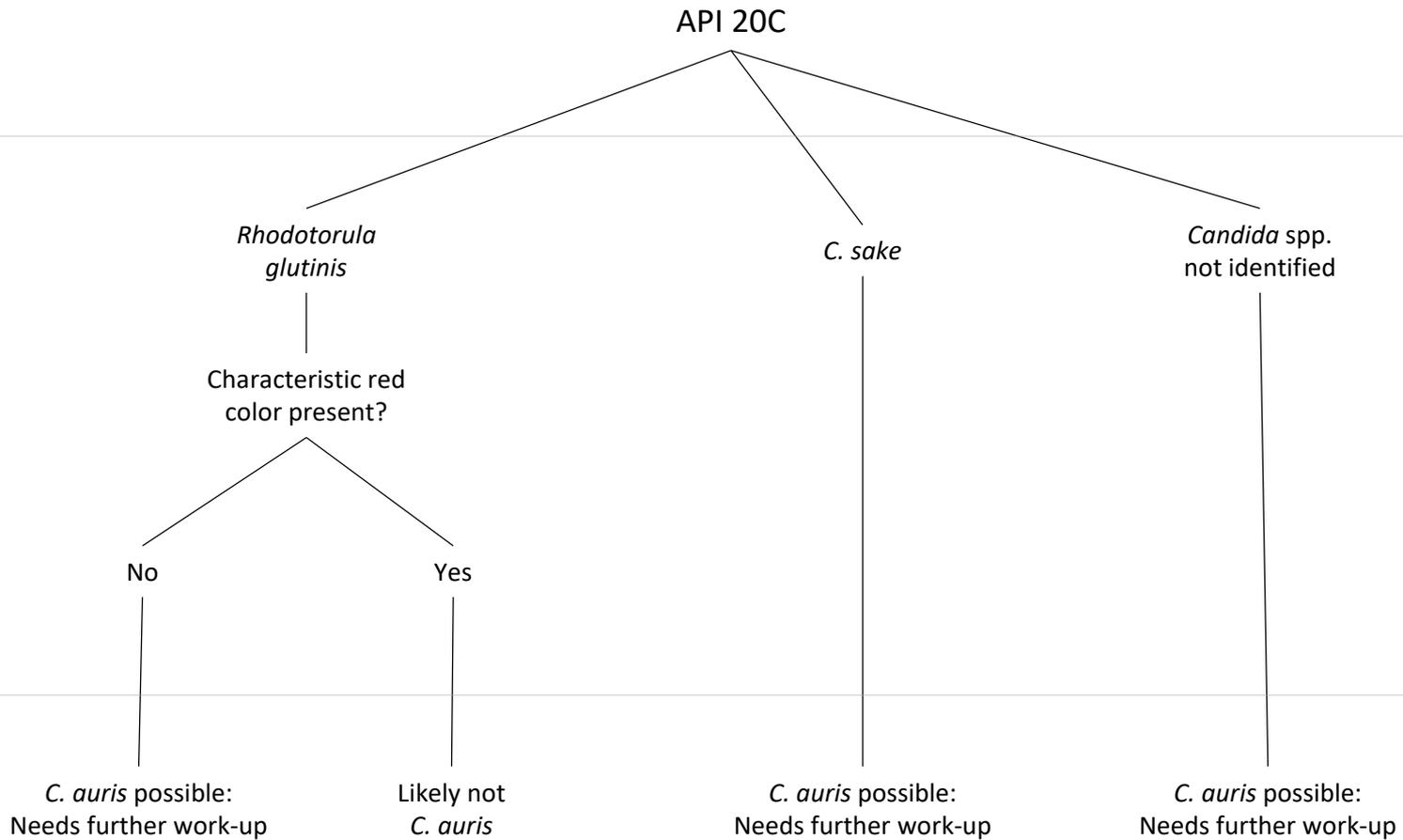
***C. auris* confirmed:**

Place patient in transmission-based precautions, report to CDC (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).

* There have been reports of *C. auris* being misidentified as *C. lusitaniae* and *C. famata*. A confirmatory test such as cornmeal agar may be warranted for these species.



C. auris possible:
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.

API ID 32C

C. intermedia

C. sake

Saccharomyces kluveri

Candida spp.
not identified

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

BD Phoenix

C. catenulata

C. haemulonii

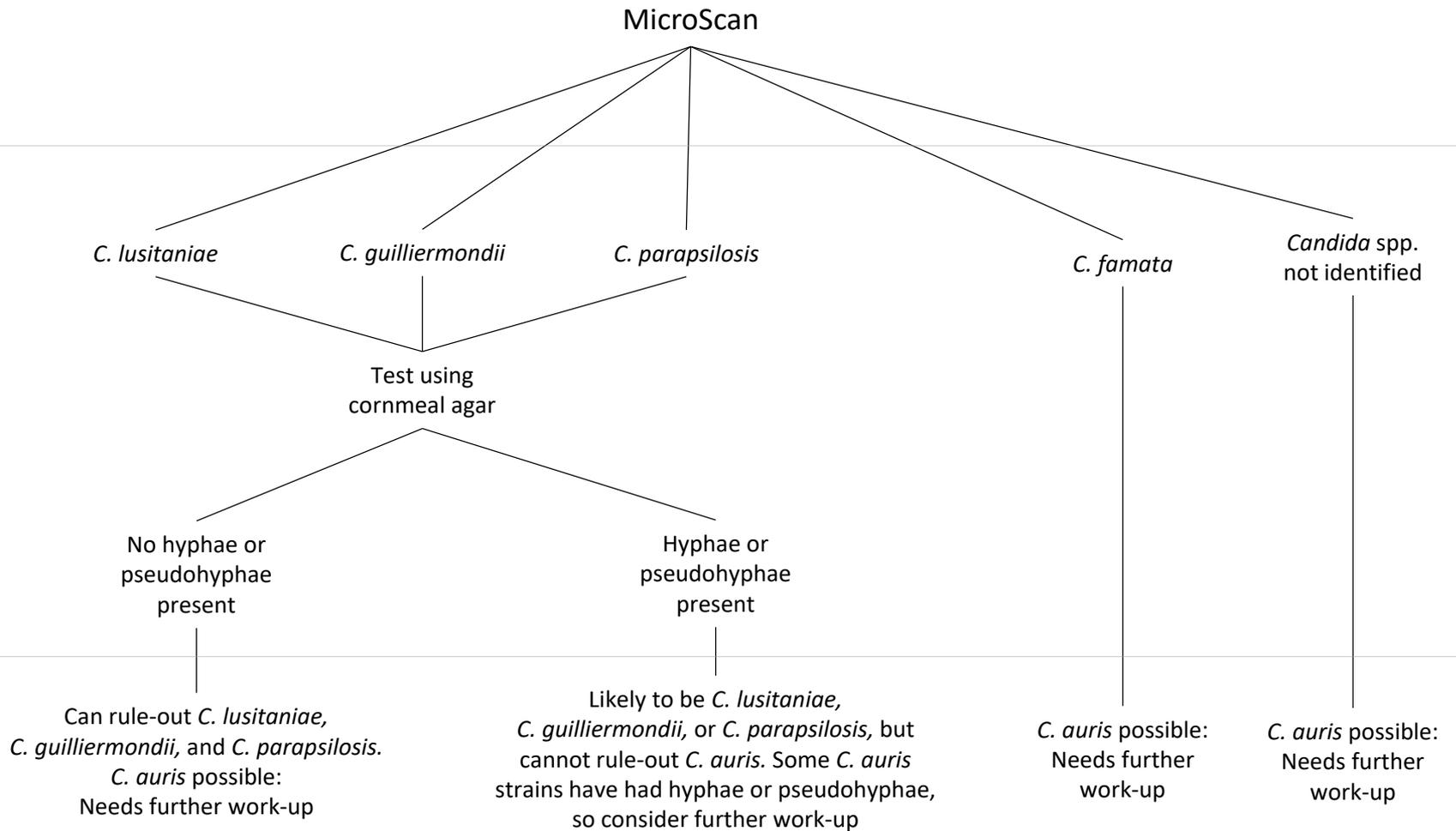
Candida spp.
not identified

C. auris possible:
Needs further work-up

C. auris possible:
Needs further work-up

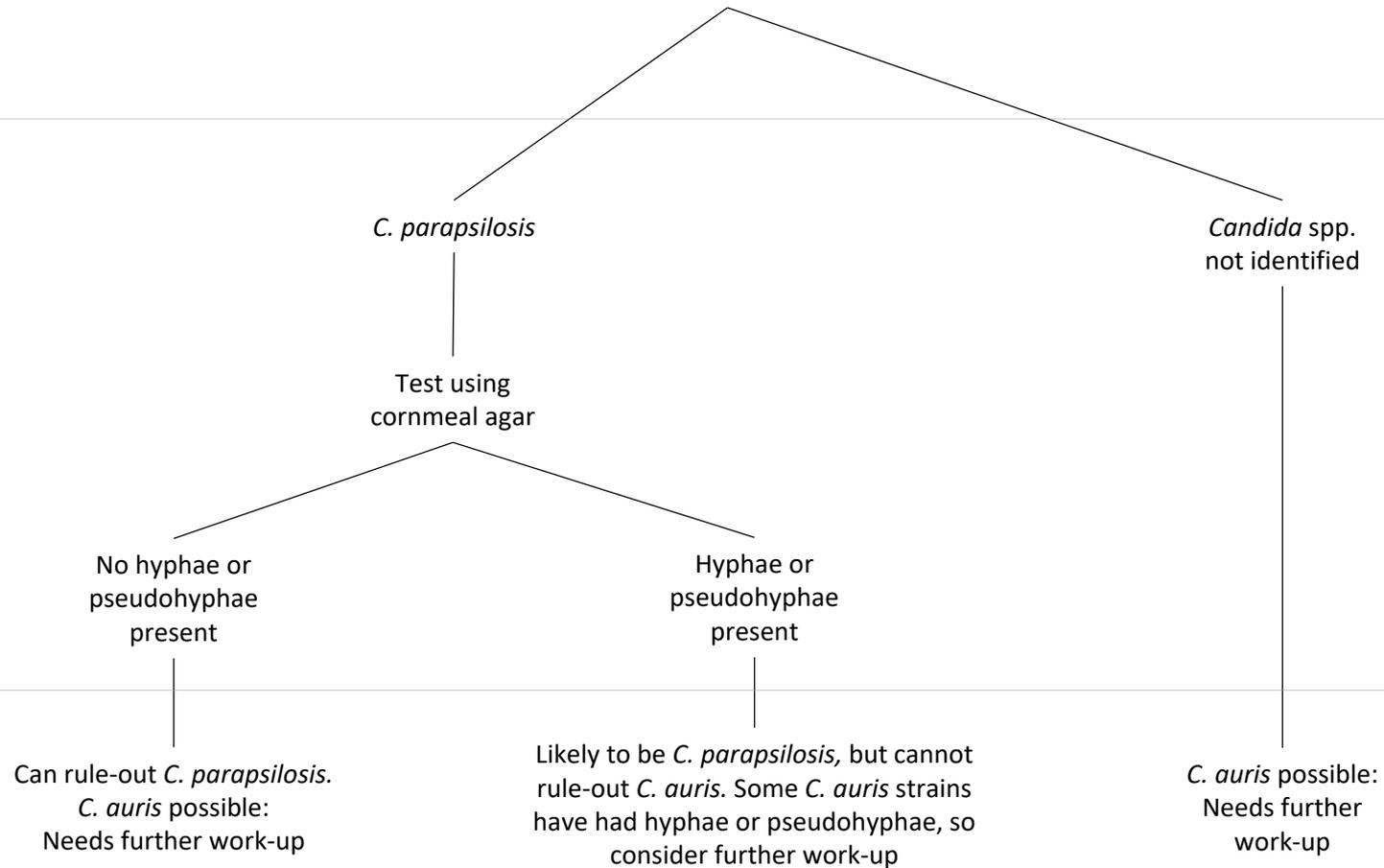
C. auris possible:
Needs further work-up

***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).

***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).

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

GenMark ePlex BCID-FP Panel

Initial finding

C. auris

Determination

C. auris confirmed

Next steps

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

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> .
Bruker Biotyper MALDI-TOF	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
bioMérieux VITEK MS MALDI-TOF	RUO library (with Saramis Version 4.14 database and Saccharomycetaceae update)	<i>C. auris</i>	n/a
	IVD library (v3.2)	<i>C. auris</i>	n/a
	Older IVD libraries	n/a	<i>C. haemulonii</i> <i>C. lusitaniae</i> No identification
VITEK 2 YST	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
API 20C		n/a	<i>Rhodotorula glutinis</i> (without characteristic red color) <i>C. sake</i> <i>Candida</i> spp. not identified
API ID 32C		n/a	<i>C. intermedia</i> <i>C. sake</i> <i>Saccharomyces kluyveri</i>
BD Phoenix		n/a	<i>C. catenulata</i> <i>C. haemulonii</i> <i>Candida</i> spp. not identified
MicroScan		n/a	<i>C. lusitaniae</i> ** <i>C. guilliermondii</i> ** <i>C. parapsilosis</i> ** <i>C. famata</i> <i>Candida</i> spp. not identified
RapID Yeast Plus		n/a	<i>C. parapsilosis</i> ** <i>Candida</i> spp. not identified
GenMark ePlex BCID-FP Panel		<i>C. auris</i>	n/a

* There have been reports of *C. auris* being misidentified as *C. lusitaniae* and *C. famata* on VITEK 2. A confirmatory test such as cornmeal agar may be warranted for these species.

** *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).