Comparison of *Candida auris* Detection Methods in Surveillance Programs

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Introduction

Candida auris is an emerging fungal pathogen that poses a significant public health threat due to its variable resistance profiles and propensity for nosocomial spread. Therefore, the Centers for Disease Control and Prevention (CDC) requires that all hospitals implement *C. auris* surveillance programs. However, the CDC does not provide a standardized approach for *C. auris* surveillance programs. Hospitals must therefore determine whether they will use culture-based detection methods, currently considered the gold standard, or genetic-based detection methods in their surveillance program. Both detection methods have their own benefits and drawbacks. Unfortunately, there is an alarming lack of literature comparing the different detection methods to guide hospitals in their selection. This study aims to evaluate the effectiveness of culture-based detection methods compared to PCR-based detection methods in *C. auris* surveillance programs.

Objectives

This research addresses gaps in the current literature on *Candida auris* surveillance detection methods by evaluating surveillance samples from Loyola University Medical Center (LUMC), a 547-bed hospital, to compare culture-based and PCR-based detection methods. This research project is primarily interested in determining if one detection method has better sensitivity and turnaround time than the other detection method. Additionally, the research is interested in whether a recommendation to change the gold standard for *C. auris* detection should be issued.

Methods

Patients coming from long-term care facilities and admitted to LUCM between July 18, 2025, and February 9, 2026, were screened for *C. auris* colonization with an ESwab bilaterally in the axilla and groin region. Upon collection, swabs were transported to the microbiology laboratory at room temperature and cultured to CHROMagar Candida and incubated at 35-37°C for 72 hours. Swabs were also used on the LIAISON MDX Instrument using the Simplexa™ *C. auris* Direct real-time polymerase chain reaction (RT-PCR) assay. Results of positive screens via either culture and/or PCR were collected on an Excel Sheet without any patient identifiers.

Results

CHROMagar Candida identified *C. auris* 78.57% of the time (Table 1). However, CHROMagar Candida failed to identify *C. auris* 19.04% of the time and misidentified *C. auris* as another *Candida* species in one instance. CHROMagar Candida provided an identification in 24 hours in only 12% of cases (Table 2). In the majority of cases, CHROMagar Candida took 48 hours to provide an identification. Furthermore, in approximately a fourth of all cases, CHROMagar Candida took up to 72 hours to provide an identification. Comparatively, PCR-based methods detected *C. auris* in all 42 positive specimens (100%) with a significantly reduced turnaround time.

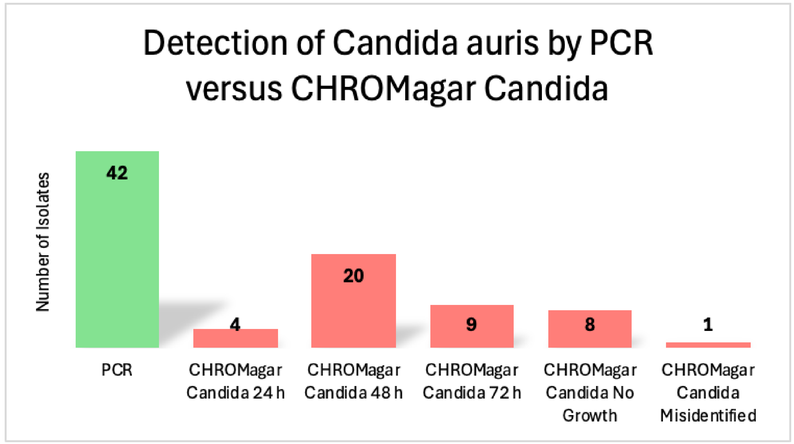

Table 1: Comparison of *Candida auris* Detection by PCR compared to CHROMagar Candida

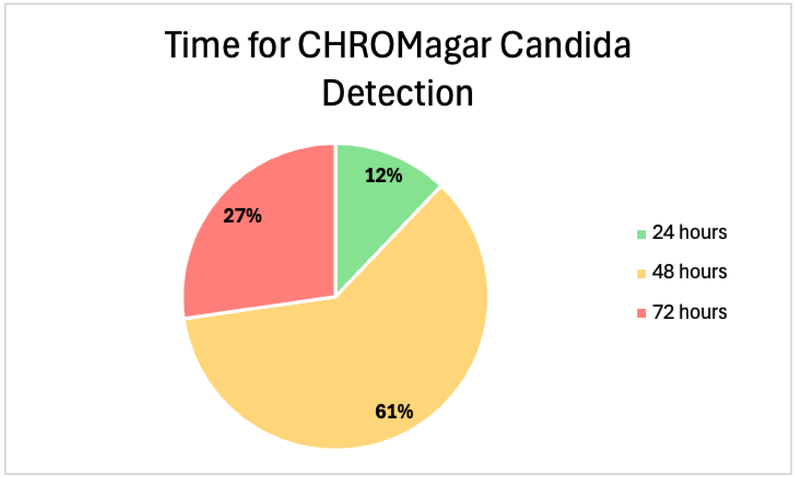

Table 2: Time Distribution for CHROMagar Candida *C. auris* Detection

Conclusion

The results of this study demonstrate PCR's superior sensitivity and speed compared to culture-based CHROMagar Candida. While culture-based detection is considered the gold standard for *C. auris* identification, this study raises questions about whether culture should remain the gold standard. In the future, with further research, the gold standard may be revised to the more sensitive and time-efficient PCR. Furthermore, the study demonstrates that approximately a fourth of all *C. auris* cases require 72 hours on CHROMagar Candida for detection. If a hospital's procedure only requires *C. auris* surveillance specimens to be cultured for 48 hours, this means that they miss approximately a fourth of all *C. auris* cases. Therefore, the incubation time would have to be extended. Because *C. auris* is highly transmissible in hospital settings and on environmental surfaces, it is vital that an identification be provided as quickly as possible. Therefore, PCR-based detection is ultimately superior to the less sensitive and more time-consuming CHROMagar Candida.

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