Laboratory Bulletin

Date: **March 8, 2016**

To: **Infectious Diseases Physicians, Transplant Programs and Transplant Physicians, Critical Care Physicians and Laboratory Directors and Managers**

From: **Provincial Laboratory for Public Health (ProvLab)**

Re: **Interpreting Antifungal Susceptibility of *Candida* Species that Lack Clinical Breakpoints**

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Key Message:
Antifungal susceptibility testing is routinely performed for clinically relevant isolates of *Candida* to aid targeted treatment decisions. However, clinical breakpoints used by laboratories to interpret the antifungal minimum inhibitory concentration (MIC, mg/L) as susceptible or resistant are not available for some species of *Candida*. These interpretive gaps are intentional given that clinical correlation between an MIC and patient outcome cannot be established by international standards organizations and review of peer-reviewed evidence.

A secondary epidemiology-based interpretation standard uses an antifungal MIC to predict the likelihood that a *Candida* isolate has acquired resistance (ie. genetic mutation). This interpretation generates a report that indicates susceptibility (or resistance) is likely but that the result does not reliably predict clinical response to therapy.

As of March 7th, 2016, susceptibility reports for *Candida* will include a new comment to improve the interpretation of antifungal utility in scenarios where clinical breakpoints have not been established.

Why this is important:
Our understanding of clinical outcomes associated with antifungal resistance mechanisms and invasive candidiasis has improved the predictive value of susceptibility results for isolates of *Candida*. Although the available literature and local experience indicate that antifungal resistance rates are low and unchanging, cases of clinical resistance to azole and echinocandin agents have been reported.

Key Facts:

- **Fluconazole and amphotericin B will be the primary agents reported routinely, followed by micafungin and voriconazole based on resistance to the primary agents.**
- ***Candida* species with breakpoints (ie. 'susceptible' or 'resistant') comprise most of the isolates tested against antifungals (ie. azoles and echinocandins), including *C. albicans*, *C. glabrata*, and *C. parapsilosis*.**
- **For *C. glabrata*, the new comment will be reported for voriconazole (2nd line) because the MIC does not sufficiently correlate with clinical efficacy and patient outcome.**
- **For uncommon isolates like *C. krusei*, *C. dubliniensis*, and *C. lusitaniae*, the new comment will be reported for amphotericin B, fluconazole, voriconazole, and micafungin.**

Despite these and related quality enhancements to antifungal susceptibility reporting, a specialist consultation is recommended when advanced interpretations are required for patient care.

Inquiries and requests for testing may be directed to:
Dr. Jeff Fuller, Program Leader, Medical Mycology, AHS/Provlab at jeff.fuller@ahs.ca or by phone at 780-407-2767.

This bulletin has been reviewed and approved by Dr. Graham Tipples, Medical/Scientific Director, ProvLab