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The Utility of Fungal Blood Cultures: A Quality Improvement Study

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The Utility of Fungal Blood Cultures: A Quality Improvement Study

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#COLLAB

IRB Review

- This represents the IRB determination for the above referenced project. The IRB has determined that this project, as submitted, does not meet the definition of human subjects' research and does not require IRB review as defined in the federal regulations. The determination is based upon the information submitted only, revisions must be submitted to the IRB prior to implementation.





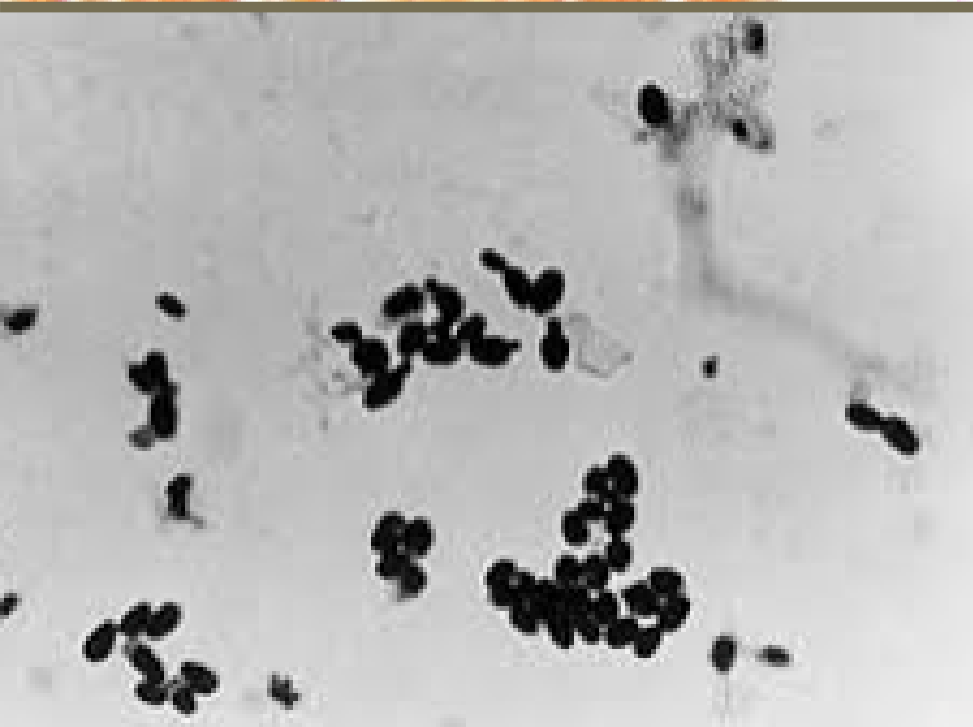
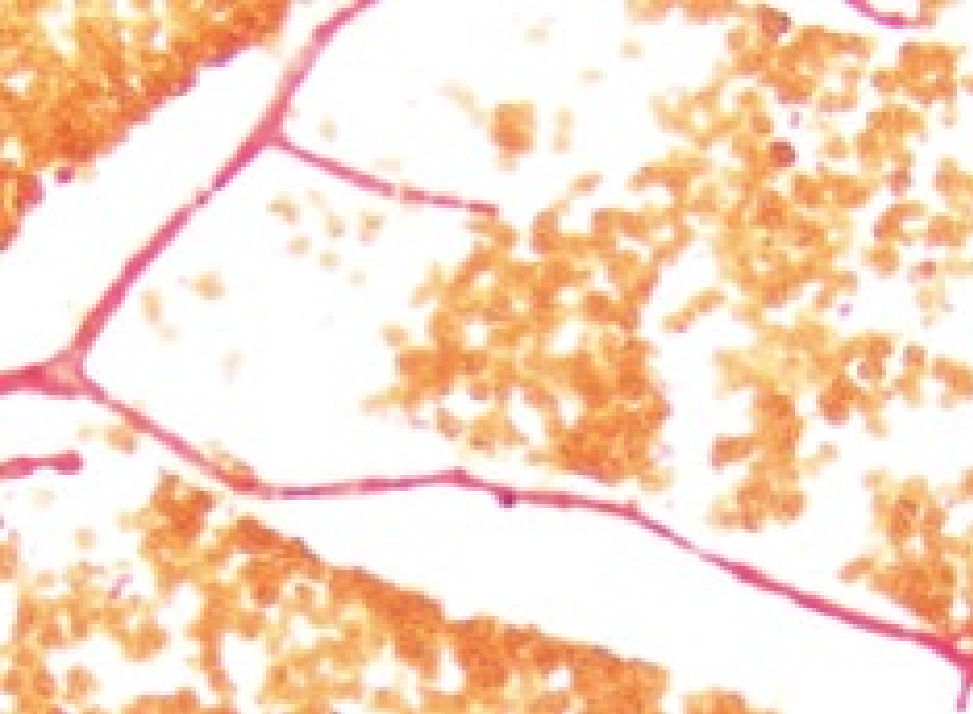
Fungal Blood Cultures

- No current guidelines stipulating the proper use of fungal blood cultures
- Routine blood culture easily recover aerobic & anaerobic bacterial organisms & *Candida spp.*, *Aspergillus spp.* and sometimes *Fusarium spp.*
- Several institutional studies suggest low yield with fungal cultures

Bottom Line \$\$\$

- Routine Blood culture
~\$90
- Fungal Blood Culture
~\$120





Clinical Question

- In a 24-month period at PSHMC and PHFH, what was the positive fungal blood culture (FBC) rate in adult inpatients and what percentage of positive cultures yielded clinically significant information?

Primary Objective

- Evaluate the utility of obtaining fungal blood cultures in addition to routine blood cultures in adult inpatient admissions at PSHMC and PHFH
- By comparing the alignment of routine blood culture (RBC) results and fungal blood culture results
- Hypothesis: fungal cultures will be relatively low yield when compared to routine blood cultures, thus identifying an area of quality improvement, cost efficacy, and resource management



Project Design

- ▶ Multi center retrospective evaluation of the utility of fungal blood cultures
- ▶ Quality improvement in evidence based practice



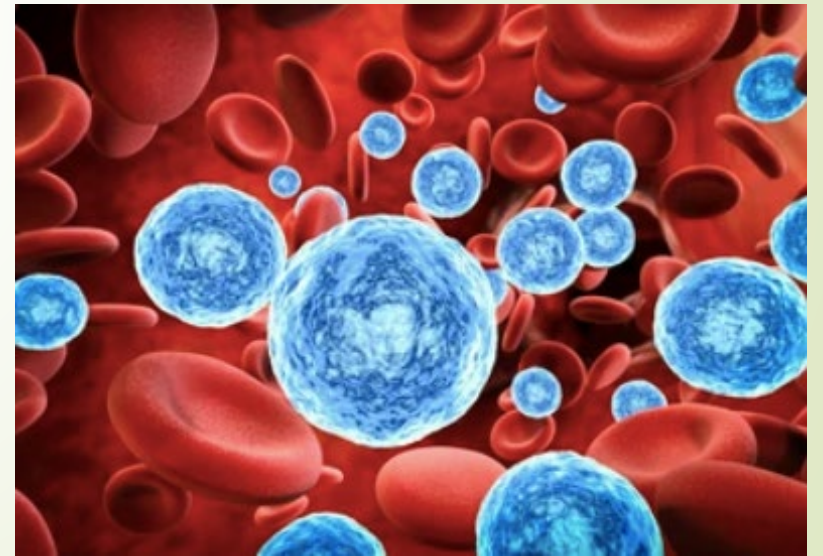
Inclusion Criteria

- ▶ Adult (≥ 18 yo) inpatients who had routine blood culture and fungal blood cultures drawn within the same hospital admission.



Results

- Sample 182 patients with blood cultures obtained, of these 40 also had fungal blood cultures
- Routine blood cx +40/Fungal cx +5
- Sensitivity 13%
- Specificity 95%
- PPV 33%
- NPV 17%





Conclusions

- ▶ The *Candida* spp. is the most common invasive fungal disease and the 4th most common cause of blood stream infections
- ▶ The incidence of invasive Candidiasis also exceeds that of invasive *Aspergillus* and *Mucormycosis*
- ▶ Most fungemia can be detected using routine blood cultures
- ▶ Our study agreed with other institutional analysis demonstrating low sensitivity of fungal blood cultures compared with routine cultures

Future Directions

- ▶ Evaluate data set in fungemia (+) patients to screen for immune compromise, history of fungemia, TPN, Covid?
- ▶ Determine characteristics that qualify use of fungal cultures





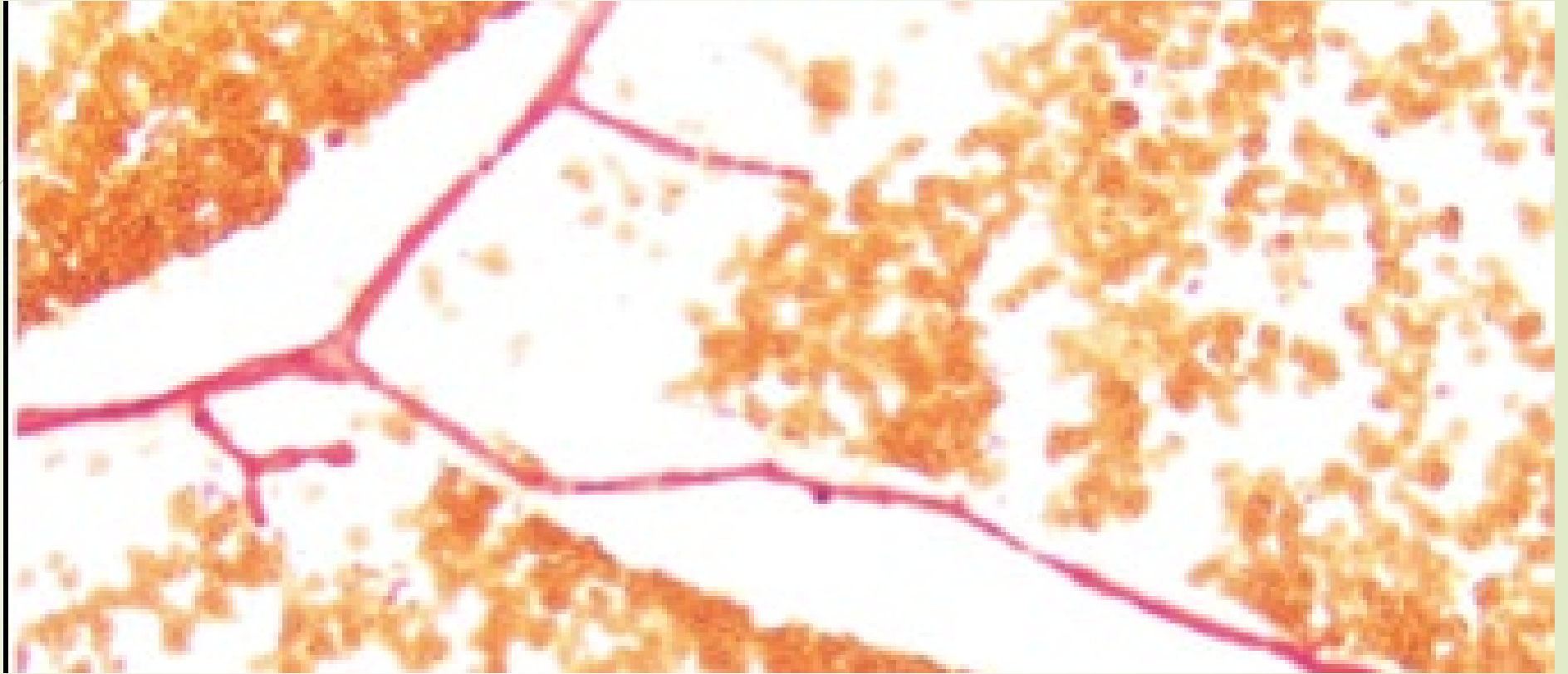
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Thank you

- ▶ Dr. David Kelley (Clinical Advisor)
 - ▶ Dr. Kenn Daratha (Providence Research Sponsor)
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Questions?