

Policy/Procedure: DUHS Mandatory Infectious Diseases Consultation for Patients with *Staphylococcus aureus* or *Staphylococcus lugdunensis* Bacteremia or Fungemia

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Applicability:

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| <input type="checkbox"/> Ambulatory Surgery Center Arrington | <input checked="" type="checkbox"/> Duke University Hospital (DUH) (both campuses) |
| <input type="checkbox"/> Davis Ambulatory Surgery Center (DASC) | <input type="checkbox"/> Durham Campus Only |
| <input type="checkbox"/> Duke Health Integrated Practice (DHIP) | <input type="checkbox"/> Duke Raleigh Campus Only |
| <input type="checkbox"/> Duke Health Technology Services (DHTS) | <input type="checkbox"/> Patient Revenue Management Organization (PRMO) |
| <input type="checkbox"/> Duke HomeCare & Hospice (DHCH) | <input type="checkbox"/> Population Health Management Office (PHMO) |
| <input type="checkbox"/> Duke Primary Care (DPC) | |
| <input checked="" type="checkbox"/> Duke Regional Hospital (DRH) | |

Introduction

Staphylococcus aureus bacteremia, *Staphylococcus lugdunensis* bacteremia, and fungemia are serious illnesses that can cause death and high morbidity if not properly managed. In addition to prompt, appropriate antimicrobial therapy, it is paramount for improving outcomes to have timely establishment of a diagnosis, indwelling device and catheter removal, additional medical and surgical specialty interventions, and consideration for both species- and patient population-specific factors. A mounting body of scientific literature has demonstrated improved patient outcomes when Infectious Diseases (ID) consultation is utilized in the management of fungemia, *S. aureus* bacteremia, and *S. lugdunensis* bacteremia.

Purpose

To improve the management of patients with *S. aureus* bacteremia, *S. lugdunensis* bacteremia, and fungemia who are admitted to a Duke University Health System (DUHS) hospital.

Policy Statement

All admitted patients to a DUHS hospital with *S. aureus* bacteremia, *S. lugdunensis* bacteremia, or fungemia will have an ID consult to improve patient care and outcomes.

A. Indications:

1. All admitted patients to a DUHS hospital with at least one blood culture growing *S. aureus*, *S. lugdunensis*, or a fungal species

B. Exceptions:

1. Any patient who is already being followed by an ID consult team
2. Patients with documented hospice or palliative goals of care that do not include antimicrobials

Level:

- ☒ Interdependent - asterisk [*] items require an order from a health care practitioner licensed to prescribe medical therapy.

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☐ Independent – no provider order required.

Personnel: Pharmacists, Providers, Microbiology Laboratory Staff

Competencies/Skills: None

Required Resources: None

Definitions: None

Procedure:

- A. The Clinical Microbiology Laboratory will use rapid diagnostics, standard culture, or other organism identification methods to identify the presence of *S. aureus*, *S. lugdunensis*, and fungal species in a blood culture. They will notify applicable individuals as outlined in the Critical Results (Critical Values) policies at respective institutions.
- B. It is the responsibility of the primary team to ensure the mandatory *ID consult is ordered in accordance with this policy. If an ID consult has not already been ordered, a member of the primary team will contact the ID consult service directly including ordering the consult request in MaestroCare.
- C. Weekdays (ex. Monday through Friday 0800-1600)
 - a. DUH Durham Campus
 - i. ASET (inpatient DUH Antimicrobial Stewardship and Evaluation Team) personnel will review all patients with fungemia, *S. aureus* or *S. lugdunensis* in the blood.
 - ii. DUH ASET personnel will contact the responsible primary physician and inform them that an automatic consult for the ID consult service is required for newly identified patients.
 - b. DUH Raleigh Campus
 - i. Inpatient pharmacists will be notified of blood cultures positive for *S. aureus*, *S. lugdunensis*, or fungal species for currently admitted patients via Best Practice Advisory (BPA) alerts in MaestroCare.
 - ii. The pharmacist will execute the [DUH Raleigh Campus Only: Mandatory Infectious Diseases Consult for Patients with Staphylococcus Aureus or Lugdunensis Bacteremia or Fungemia Pharmacist Protocol](#)
 - c. DRH
 - i. The Antibiotic Stewardship Pharmacist (ASP) will identify currently admitted patients with blood cultures positive for *S. aureus*, *S. lugdunensis* or fungal species.
 - ii. The ASP will contact the responsible primary physician and inform them that an automatic ID Consult is required for newly identified patients.
- D. Weekends (Saturday and Sunday):
 - a. DUH Durham Campus

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- i. Adult and Pediatric ID Fellows will refer to the fungemia and *S. aureus* and *S. lugdunensis* bacteremia patient lists in Epic for new patients and contact primary teams as appropriate.
 - b. DUH Raleigh Campus will follow same procedure as in above (C.2.)
 - c. DRH
 - i. Admitted patients with blood cultures that result positive for *S. aureus*, *S. lugdunensis* or fungal species when the ASP is not routinely providing services will be reviewed retrospectively during usual coverage hours by the ASP to ensure ID consult was requested in accordance with this policy.
- E. DUHS: For discharged patients, the entity-specific Antimicrobial Stewardship Team (AST) pharmacist will review the chart to ensure the fungemia, *S. aureus* or *S. lugdunensis* bacteremia has been addressed. If it has not been addressed, the AST pharmacist will do the following:
 - a. For patients discharged from admitted encounters, the AST pharmacist will contact the provider of record for the encounter and recommend they contact the patient to return to the hospital for admission, ID consult, and further workup if applicable.
 - i. Should the AST pharmacist not be able to contact the provider of record for hospital medicine patients, the cross cover provider will be notified via pager or secure chat.
 - b. For patients who were discharged from the ED without documented follow-up including recommendations for admission and further workup for the fungemia, *S. aureus* or *S. lugdunensis* bacteremia, the AST pharmacist will contact the ED charge nurse or resource nurses to facilitate these recommendations.
- F. The AST pharmacist will document interventions in methods designated by the specific entity.
- G. The ID consult team will perform the initial consultation, continue to follow the patient's course, provide additional recommendations if required, and arrange for post-hospitalization follow-up if deemed necessary.
- H. Review of Interventions: The AST will perform a regular review of patient outcomes following implementation of the policy and will report outcomes to hospital leadership annually through AS FET and/or Entity P&Ts.

References

1. Tong SY, Davis JS, Eichenberger E, et al. Staphylococcus aureus infections: epidemiology, pathophysiology, clinical manifestations, and management. Clin Microbiol Rev. 2015;28:603–61.
2. Van Hal SJ, Jensen SO, Vaska VL, et al. Predictors of mortality in Staphylococcus aureus bacteremia. Clin Microbiol Rev. 2012; 25:362–86.
3. Buehrle K., Pisano J., Han Z., et al. Guideline compliance and clinical outcomes among patients with Staphylococcus aureus bacteremia with infectious diseases consultation in addition to antimicrobial stewardship-directed review. Amer J of Infection Control. 2017;45(7):713-716.
2. Djelic L., Andany N., Craig J., et al. Automatic notification and infectious diseases consultation for patients with Staphylococcus aureus bacteremia. Diagnostic Micro & Infect Disease. 2018;91:282-283.
3. Wenzler E., Wang F., Goff DA., et al. An automated, pharmacist-driven initiative improves quality of care for Staphylococcus aureus bacteremia. CID. 2017;65(2):194-200.

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4. Vogel M, Schmitz RP, Hagel S, et al. Infectious disease consultation for *Staphylococcus aureus* bacteremia—a systematic review and meta-analysis. *J Infect.* 2016; 72:19–28.
5. Bai AD, Showler A., Burry L., et al. Impact of infectious disease consultation on quality of care, mortality, and length of stay in *Staphylococcus aureus* bacteremia: results from a large multicenter cohort study. *CID.* 2015;60:1451–61.
6. Choi SH, Cho SY, Park JH, et al. Impact of infectious-disease specialist consultations on outcomes of *Staphylococcus aureus* bacteremia in a hospital with a low volume of patients with *S. aureus* bacteremia. *J Infect.* 2011;62:181–5.
7. Forsblom E, Ruotsalainen E, Ollgren J, Järvinen A. Telephone consultation cannot replace bedside infectious disease consultation in the management of *Staphylococcus aureus* bacteremia. *Clin Infect Dis.* 2013;56:527–35.
8. Robinson JO, Pozzi-Langhi S, Phillips M, et al. Formal infectious diseases consultation is associated with decreased mortality in *Staphylococcus aureus* bacteraemia. *Eur J Clin Microbiol Infect Dis.* 2012;31:2421–8.
9. Lahey T, Shah R, Gittzus J, Schwartzman J, Kirkland K. Infectious diseases consultation lowers mortality from *Staphylococcus aureus* bacteremia. *Medicine.* 2009;88:263–7.
10. Alangaden GJ. Nosocomial fungal infections: epidemiology, infection control, and prevention. *Infect Dis Clin North Am.* 2011;25(1):201-25.
11. Fridkin SK. The changing face of fungal infections in health care settings. *CID.* 2005;41(10):1455-60.
12. Wisplinghoff H, Bischoff T, Tallent SM, et al. Nosocomial bloodstream infections in US hospitals: analysis of 24,179 cases from a prospective nationwide surveillance study. *CID.* 2004;39(3):309-17.
13. Kullberg BJ, Arendrup MC. Invasive Candidiasis. *NEJM.* 2015;373:1445-1456.
14. McCarthy M, Rosengart A, Schuetz AN, et al. Mold infections of the central nervous system. *NEJM.* 2014;371:150-160.
15. Andes DR, Safdar N, Baddley JW, et al. Impact of treatment strategy on outcomes in patients with candidemia and other forms of invasive candidiasis: a patient-level quantitative review of randomized trials. *CID.* 2012;54(8):1110-22.
16. Antworth A, Collins CD, Kunapuli A, et al. Impact of an antimicrobial stewardship program comprehensive care bundle on management of candidemia. *Pharmacotherapy.* 2013;33(2):137-43.
17. Reed EE, West JE, Keating EA, et al. Improving the management of candidemia through antimicrobial stewardship interventions. *Diagn Micro & ID.* 2014;78:157-161.
18. Farmakiotis D., Kyvernitakis A., Tarrand JJ, et al. Early initiation of appropriate treatment is associated with increased survival in cancer patients with *Candida glabrata* fungaemia: a potential benefit from infectious disease consultation. *Mycology.* 2015;21:79-86.
19. Jones TM, Drew RH, Wilson DT, et al. Impact of automatic infectious diseases consultation on the management of fungemia at a large academic medical center. *AJHP.* 2017;74(23):1997-2003.
20. Rac H, Wagner JL, King T, et al. Impact of an antifungal stewardship intervention on optimization of candidemia management. *Therapeutic Advances in ID.* 2018;5(1):3-10.
21. Patel M, Kunz DF, Trivedi VM, et al. Initial management of candidemia at an academic medical center: evaluation of the IDSA guidelines. *Diagn Microbiol Infect Dis.* 2005;52(1):29-34.

Authoritative Source: DUHS PMMC/DUHS AS-FET

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Additional References: None

Associated Policies:

[DUH Raleigh Campus Only: Mandatory Infectious Diseases Consult for Patients with Staphylococcus Aureus or Lugdunensis Bacteremia or Fungemia Pharmacist Protocol](#)