VASCULAR ACCESS

Diagnosis & Management of AV Access Infections
Checklists for Prevention of AV Access (AVF/AVG) Infections

Prevention - Preoperative

☐ Conduct History and Physical Examination to exclude any possible infections

☐ Infections should be managed prior to AV access creation

Prevention and Monitoring – Post Creation

☐ Wash arm before cannulation

☐ Check access before each cannulation*

☐ Use proper cannulation technique (See How to Cannulate and Manage Complications)

* Physical exam prior to cannulation to identify complications if possible
Checklist for AV Access Infection Diagnosis and Management

Diagnosis

☐ When AV access check or Physical Examination is equivocal, consider radiologic imaging to confirm diagnosis of infection  
CPG 16.3

☐ Obtain blood cultures or culture of easily available AV access materials prior to starting empiric antibiotics  
CPG 16.5

Management and Follow-up

☐ Start broad spectrum empiric antibiotic coverage  
CPG 16.6

☐ Refer to surgeon for surgical management  
CPG 16.8

☐ Adjust antibiotics based on culture sensitivities  
CPG 16.7

☐ Surgical treatment based on patient, extent of infection, organism, and future vascular access options  
CPG 16.8

☐ Investigate and closely monitor for metastatic infections, especially in patients with buttonhole infections  
CPG 16.4
Flow Diagram 16.a. Diagnosis and Management of AV graft Infection

Flow Chart:

1. Clinical Signs of AVG Infection?*
   - Yes
     - Yes
       - Localized infection Without involvement of the Arterial Anastomosis?
         - Yes
           - Attempt AVG Salvage
         - No
           - Graft Excision and Repair Artery
       - No/Unsure
         - Ultrasound
           - Confirms Infection
           - Uncertain
         - Tagged WBC or other nuclear scan
           - Confirms Infection
           - Uncertain
         - Repeat Blood Cultures Positive?
           - Yes+
             - Look for other source
           - No
             - Look for other source

*Appropriate cultures should be taken +/- initiate empiric antibiotics depending on clinical situation

+ Other sources of infection have been ruled out
Flow Diagram 16.b. Diagnosis and Management of AV fistula Infection

- **Clinical Signs of AVF infection?**
  - Yes
  - Adjacent to AV Anastomosis?
    - Yes
    - Ulceration or Bleeding
      - Yes
      - Drain and Culture + IV Antibiotics
      - Complete Antibiotic Therapy & Utilize Fistula
      - No Improvement
      - Plan for new vascular access
    - No
    - Salvage/Revise Fistula
  - No

- No
  - Ultrasound
    - No Improvement
    - Look for other source

- *Consult Infectious Disease Specialists for guidance.*
AV Access Infections – Other Key Notes

• Spectrum of infection (cellulitis → sepsis/death)
• Surgical principles - antibiotics and source control
• Early recognition and definitive treatment – physical exam and ultrasound
• Determinants of surgical treatment – extent/bleeding/systemic signs/organism/access type/anastomotic involvement/future access options
  o “Extra-anatomic” bypass with resection
  o Subtotal excision
  o Total excision with arterial reconstruction vs. ligation