ENDOCARDITIS DIAGNOSTIC AND MANAGEMENT ALGORITHM

Clinical Features Increasing Suspicion for Infectious Endocarditis (IE)

- Fever (90% pf patients)
- Heart Murmur (85% of patients)
- Systemic symptoms (anorexia, weight loss, night sweats)
- New stroke/neurologic deficits
- New bundle branch block
- New AV block of any degree
- New glomerulonephritis
- Cutaneous features of emboli/immunologic phenomenon
    1. Splinter hemorrhages
    2. Janeway lesions
    3. Osler's nodes)

Consider Early Surgery in Patients with IE

Class I Indications
- Valve dysfunction resulting in symptoms or signs of heart failure.
- IE caused by fungal or highly resistant organisms (eg, vancomycin-resistant Enterococcus, multidrug-resistant Gram-negative bacilli)
- IE complicated by heart block, annular or aortic abscess, or destructive penetrating lesions
- Evidence of persistent infection (manifested by persistent bacteremia or fever lasting >5-7 days and provided that other sites of infection and fever have been excluded) after the start of appropriate antimicrobial therapy

Class IIa indications
- Recurrent emboli and persistent or enlarging vegetations despite appropriate antibiotic therapy
- Severe valve regurgitation and mobile vegetations >10 mm

Class IIb indications
- Mobile vegetations >10 mm, particularly when involving the anterior leaflet of the mitral valve and associated with other relative indications for surgery

Risk factors for Infectious Endocarditis

- Prior IE
- Intravenous drug use (IVDU)
- Prosthetic valve
- Implantable cardiac device
- Indwelling central venous access
- Hemodialysis patients
- Poor dentition
- Bicuspid aortic valve
- Transplanted heart with valvulopathy
- Unrepaired cyanotic congenital heart disease or recently repaired with prosthetic material in the last 6 months or repaired cyanotic heart disease with prosthetic material and residual shunt

Typical Organisms in Native Valve IE

- Staph Aureus (both MSSA and MRSA)
- Enterococci
- Viridans Streptococci
- Streptococcus Gallolyticus
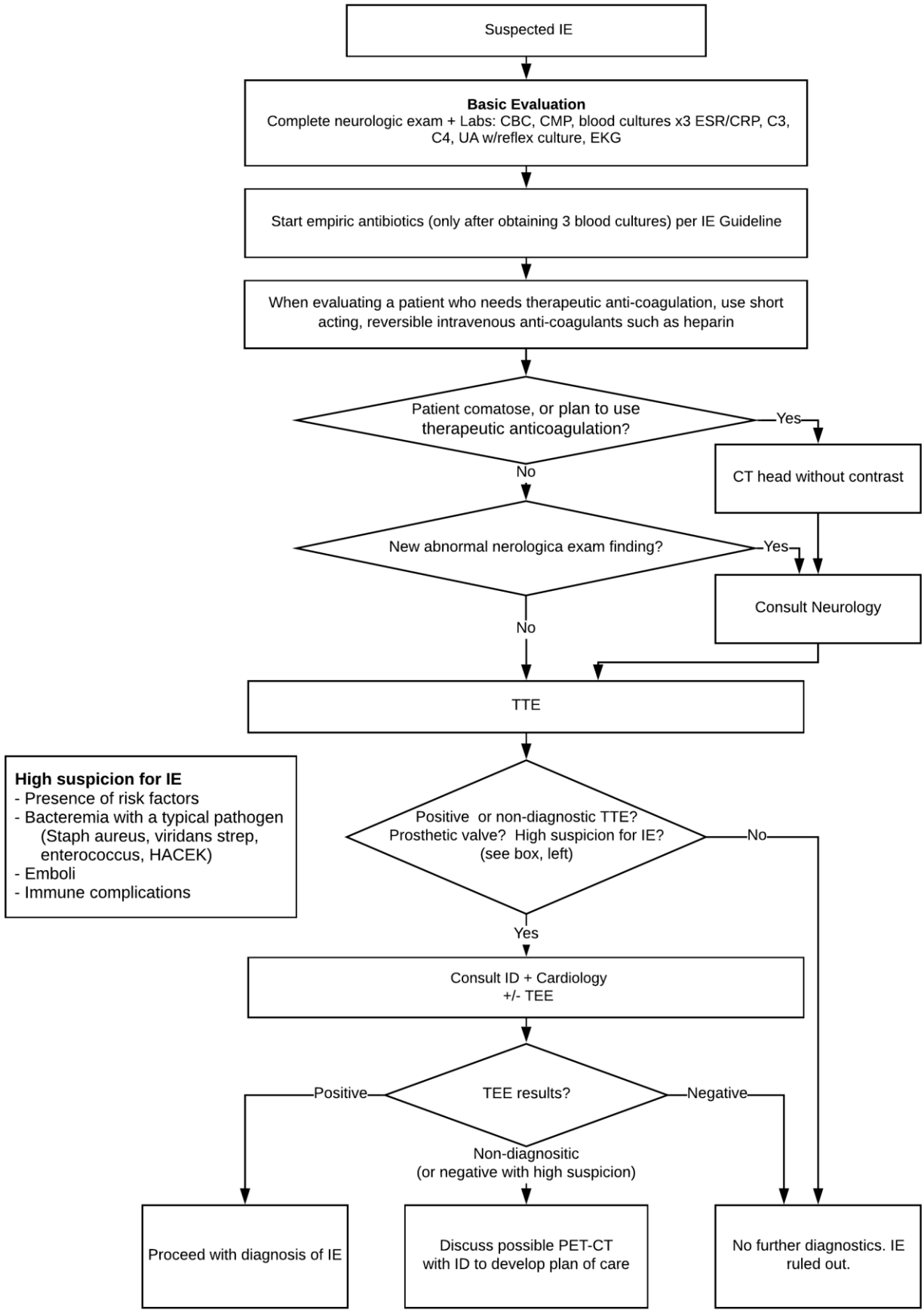- HACEK Species

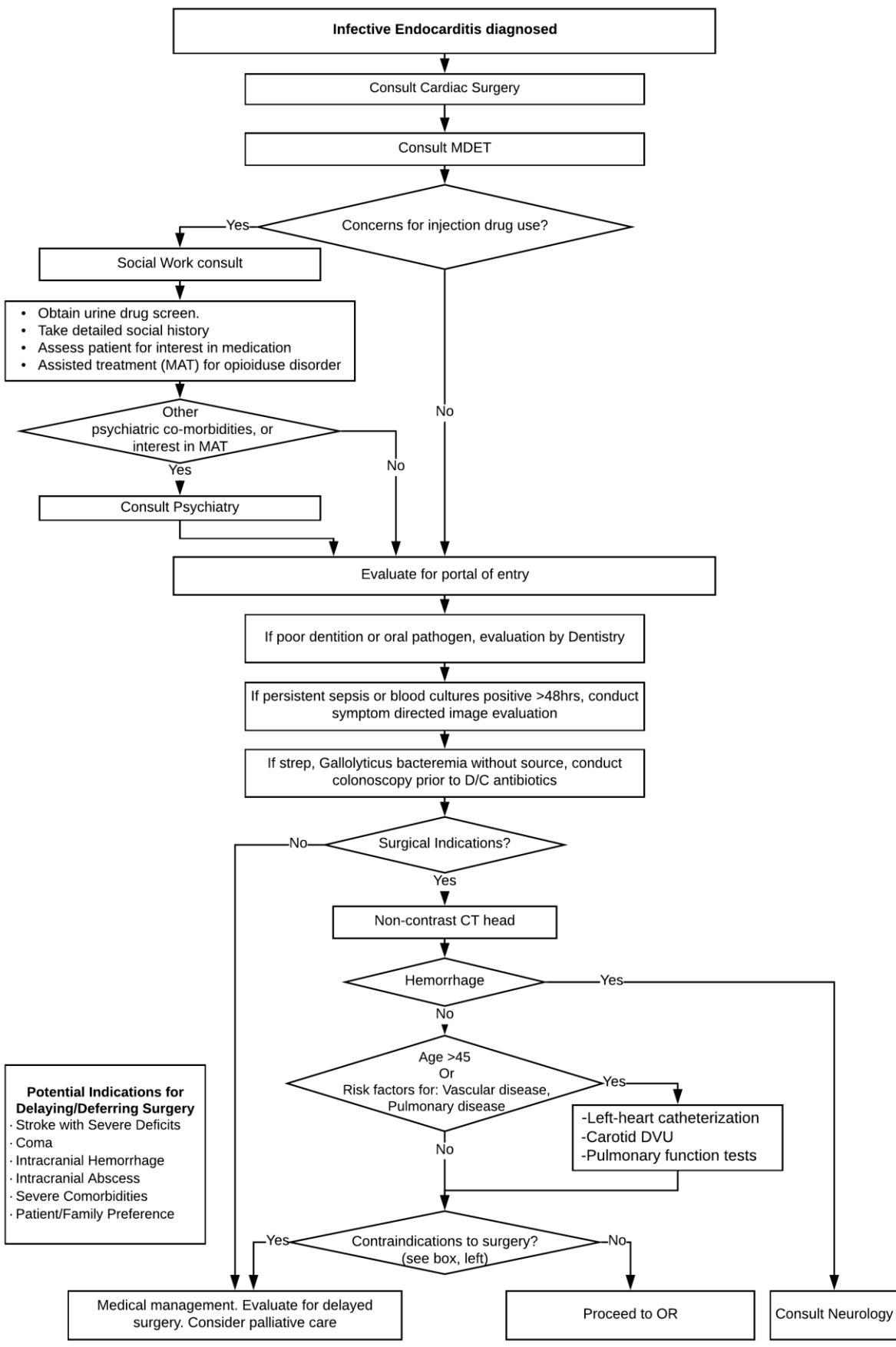## When to Evaluate a Patient for Infectious Endocarditis

Any patient for whom the provider has clinical suspicion for IE

Any patient that has ≥2 clinical features

Any patient with a typical organism (see above)

Antimicrobial Subcommittee Approval:	N/A	Originated:	Unknown
P&T Approval:	N/A	Last Revised:	12/2019
Revision History:			

Suspected IE

Basic Evaluation
Complete neurologic exam + Labs: CBC, CMP, blood cultures x3 ESR/CRP, C3, C4, UA w/reflex culture, EKG

Start empiric antibiotics (only after obtaining 3 blood cultures) per IE Guideline

When evaluating a patient who needs therapeutic anti-coagulation, use short acting, reversible intravenous anti-coagulants such as heparin

Patient comatose, or plan to use therapeutic anticoagulation? — Yes → CT head without contrast

No ↓

New abnormal nerologica exam finding? — Yes → Consult Neurology

No ↓

TTE

High suspicion for IE
- Presence of risk factors
- Bacteremia with a typical pathogen (Staph aureus, viridans strep, enterococcus, HACEK)
- Emboli
- Immune complications

Positive or non-diagnostic TTE? Prosthetic valve? High suspicion for IE? (see box, left) — No →

Yes ↓

Consult ID + Cardiology
+/- TEE

TEE results?
Positive ← | → Negative

Non-diagnositic
(or negative with high suspicion)

Proceed with diagnosis of IE

Discuss possible PET-CT with ID to develop plan of care

No further diagnostics. IE ruled out.

Infective Endocarditis diagnosed

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Consult Cardiac Surgery

↓

Consult MDET

↓

◇ Concerns for injection drug use?

— Yes → Social Work consult

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- Obtain urine drug screen.
- Take detailed social history
- Assess patient for interest in medication
- Assisted treatment (MAT) for opioiduse disorder

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◇ Other psychiatric co-morbidities, or interest in MAT

— No →

Yes ↓

Consult Psychiatry

No ↓ (Concerns for injection drug use? → No)

Evaluate for portal of entry

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If poor dentition or oral pathogen, evaluation by Dentistry

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If persistent sepsis or blood cultures positive >48hrs, conduct symptom directed image evaluation

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If strep, Gallolyticus bacteremia without source, conduct colonoscopy prior to D/C antibiotics

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◇ Surgical Indications?

— No →

Yes ↓

Non-contrast CT head

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◇ Hemorrhage — Yes → (Consult Neurology)

No ↓

◇ Age >45 Or Risk factors for: Vascular disease, Pulmonary disease

— Yes →
-Left-heart catheterization
-Carotid DVU
-Pulmonary function tests

No ↓

Potential Indications for Delaying/Deferring Surgery
· Stroke with Severe Deficits
· Coma
· Intracranial Hemorrhage
· Intracranial Abscess
· Severe Comorbidities
· Patient/Family Preference

◇ Contraindications to surgery? (see box, left)

— Yes → Medical management. Evaluate for delayed surgery. Consider palliative care

— No → Proceed to OR

Consult Neurology