GO PUBLIC!

SANTA CLARA VALLEY MEDICAL CENTER
Hospital & Clinics

Valley Specialty Center
751 South Bascom Avenue
San Jose, CA 95128
Tel: 408-885-5000
scvmc.org

General Infectious Diseases Referral Guidelines

Infectious Disease Clinic Location:	Suite 316 2400 Moorpark Avenue San Jose, CA 95128
Infectious Disease Clinic Appointments Phone:	(408) 885-4690 (408) 793-2555
Infectious Disease Clinic Fax:	(408) 282-0512

This information is designed to aid practitioners in making decisions about appropriate medical care. These guidelines should not be construed as dictating an exclusive course of treatment. Variations in practice may be warranted based on the needs of the individual patient, resources, and limitations unique to the institutional type of practice.

E-CONSULT DISCLAIMER:

E-consults are based on the clinical data available to the reviewing provider, and are furnished without benefit of a comprehensive evaluation or physical examination. All advice and recommendations must be interpreted in light of any clinical issues, or changes in patient status, not available to the reviewing provider. The ongoing management of clinical problems addressed by the e-consult is the responsibility of the referring provider. If you have further questions or would like clarifications regarding e-consult advice, please contact the reviewing provider. If needed, the patient will be scheduled for an in-office consultation.

All URGENT consultations require provider-to-provider communication. If your patient has a medical emergency, please direct them to the closest emergency room for expedited care.

**** Most current physician contact information will be available on AMION, there is always an ID physician on-call 24/7.**

The Infectious Diseases clinic provides consultative care. The ID referral guidelines are developed to assist referring physicians with initial work-up and diagnostics for common ID problems and to aid practitioners in making decisions about appropriate medical care. They are also intended to help obtain the initial work-up before referral to expedite patient care. They should not be construed as dictating the exclusive course of treatment. Variations may be warranted based on needs of individual patient, resources and other limitations.

Referral etiquette: The ID clinic actively triages every referral within 3 working days of the referral being placed and reaches out to patients for scheduling. We request the following to be able to best assist your patient

a. A direct contact number/pager for the provider entering the referral in case of questions. This is especially requested of our community partners and referrals entered through VE.
b. Enough information in the body of the referral to make a decision on how urgently the patient needs to be seen.
c. Any outside hospital records, labs, test and imaging results that may be relevant should be uploaded into HL Media or faxed to (408) 282-0512.
d. Please inform the patient that you are referring them and why the referral is needed.
e. Urgent consultations require provider-to-provider communication to expedite patient care. We recommend that urgent consultations be discussed with the VMC attending on call and not with rotating residents/fellows. Updated physician contact information can be found on AMION.

The following constitute the most common entities referred for ID evaluation:

Table of Contents

APPROPRIATE GENERAL ID REFERRALS

C. DIFFICILE INFECTION

1. **Background**
    a. **Determination of disease severity**
        i. Based on a landmark study by Zar FA, Bakkanagari SR, Moorthi KM, Davis MB in Clin Infect Dis 2007;45(3):302, we recommend the following scoring system be used.
        ii. **Score of >2 points indicates severe disease.** Close follow up is warranted, inpatient admission may be needed.

Clinical feature	Score
Fever > 38.3 C	1 point
Age >60 years	1 point
Albumin < 2.5 g/dL	1 point
WBC count > 15,000 cells/cmm	1 point
Pseudomembranous colitis on endoscopy	2 points
Treatment in ICU	2 points

2. **Pre-referral evaluation and treatment**
    a. Diagnostic Testing: Effective Aug 27, 2019, VMC has implemented a two tiered testing for C difficile.
        i. The first step, C. diff Quik Chek Complete®, is a rapid membrane enzyme immunoassay for the simultaneous detection of Clostridium difficile glutamate dehydrogenase antigen and toxin A and/or B. Glutamate dehydrogenase is a good antigen marker for C. difficile in feces because it is produced in high amounts by all strains, toxigenic or non-toxigenic.A positive result in the test for the glutamate dehydrogenase confirms the presence of thisorganism in a fecal specimen, while a negative result indicates the absence of the organism. A positive result for toxin A and/or B confirms the presence of toxigenic C. difficile.
        ii. The second step, The Cepheid Xpert C. difficile/Epi assay is a rapid, automated in vitro diagnostic

PCR test for qualitative detection of toxin producing Clostridium difficile directly from unformed (liquid or soft) stool specimens of patients suspected of having CDI. This test will be reflexively performed if the GDH assay is positive, but toxin A/B test is negative. The interpretation is as follows:

GDH	Toxin A/B	PCR	interpretation
+	+	n/a	+ for toxin
-	-	n/a	- for C diff
+	-/?	+	Positive result may represent colonization, interpret with caution
+	-/?	-	- for C diff

iii. Endoscopic findings of pseudomembranous colitis in the right clinical setting.

iv. We do not recommend C diff testing on formed stools, or to check for clearance of C difficile.

b. Management

i. Initial diagnosis and treatment of *C. difficile* and treatment of the first relapse can be managed by Primary Care.

ii. **Initial Treatment**

1. **For the initial episode of *C. difficile***, the following is recommended
    a. Mild disease:
        i. P referred : Vancomycin 125 mg po q 6 for 10 days.
        ii. A lternatives : Flagyl 500 mg po q 8 x 10 days or Fidaxomicin 200 mg po BID x 6 days
    b. Severe disease: Vancomycin 125 mg po q 6 for 10-14 days

iii. **First relapse**

1. Repeat treatment as in initial episode.
2. In high risk outpatients, consider Fidaxomicin 200 mg po BID x 10 days
3. If severe first relapse, can consider Vancomycin taper (see below)

iv. **Second relapse - can consider referral to ID**

1. Tapering and pulsed oral vancomycin (below), with or without probiotics. The probiotics may be overlapped with the final week of the taper and continued for two additional weeks in the absence of antibiotics.
    a. Vancomycin taper is as follows: 125 mg orally four times daily for 7 to 14 days 125 mg orally twice daily for 7 days 125 mg orally once daily for 7 days 125 mg orally every other day for 7 days 125 mg orally every 3 days for 14 days.
    b. Alternative: fidaxomicin 200 mg orally twice daily for 10 days.
    c. Referral to ID and GI for evaluation. Pt will be evaluated for Bezlotoxumab and FMT.

v. Ancillary measures - **strongly recommend to ensure treatment success.**
    1. Stop PPIs if not required. Acid in stomach is cidal to cysts.
    2. Stop other systemic antibiotics. Overtreatment of asymptomatic bacteriuria/UTI is the most common predisposing factor. Fluoroquinolones and clindamycin are notorious for causing *C. difficile* infection.
    3. Wipe down all surfaces at home/bathroom with bleach wipes to prevent fomite transmission/re-infection.
    4. Stop any pro-motility agents. Do not give Lomotil or antimotility agents either because they prevent toxin excretion.
    5. Consider natural or OTC probiotics.

3. Indications for referral

a. For second or subsequent relapses, an ID referral is reasonable.
    i. Please get a recent *C. difficile* testand refer only symptomatic patients.
        1. ***C. difficile* typically persists for months in stool after a clinical infection and so 'proof-of-cure' testing is strongly discouraged.**
        2. Resolution of symptoms is proof of cure.
        3. The ID clinic may request that PCP start therapy after E-consultation while waiting for an appointment.
    ii. **Fecal Microbiota Transplantation (FMT)**: is a proven and efficacious treatment for recurrent *C. difficile* infection. The rationale is to re-populate the gut with a stable, complex and diverse microbiome to increase fecal diversity and alter the micro-environment for *C. difficile*. Success rates are higher with colonoscopic instillation compared to nasogastric instillation.

1. **FMT is available through Stanford Gastroenterology, Dr. Berkeley Limketkai for eligible patients.**
2. Please see the GI referral guidelines for FMT services at VMC (soon to come)

4. **Please include the following with your referral**
    a. Results of pre-referral testing. If patient was hospitalized at a different institution, please attach details of admission including test results and treatments offered.

DIABETIC FOOT INFECTIONS INCLUDING OSTEOMYELITIS

1. **Background**
    a. When to suspect diabetic foot infection (DFI):
        i. At least 2 of the following:
            1. Erythema, warmth, tenderness, pain, or induration OR
        ii. Purulent secretions
    b. When to suspect osteomyelitis:
        i. Long standing ulcer (>1 month)
        ii. Ulcer overlying bone

2. **Pre-referral evaluation and treatment**
    a. Testing
        i. Probe to bone test—If the ulcer probes to bone, this is a clinical diagnosis of osteomyelitis
        ii. Assess vascularity. If pulses decreased, obtain ABI studies.
            1. If studies are positive, refer to Vascular Surgery.
    b. Need for imaging
        i. All new DFIs should receive **plain radiographs** to assess for osteomyelitis and/or soft tissue gas.
        ii. MRI is the best imaging test available to confirm osteomyelitis if diagnosis of osteomyelitis remains uncertain after clinical exam and X-rays. MRI may also be requested for surgical planning. **MRI may be falsely positive in cases of neuropathic osteoarthropathy (Charcot's foot).**
    c. Need for cultures
        i. Mild infections (see table) with no prior antibiotic use: no need to obtain specimens. However, if there is evidence of osteomyelitis, hold antibiotics and place urgent referral to Podiatry for deep tissue/bone biopsy.
        ii. Moderate-Severe infections: Try to obtain cultures before starting any antibiotics
            1. Useful samples

a. Deep tissue biopsy—Performed by Podiatry
b. Purulent discharge aspirate using sterile needle and syringe
c. Bone biopsy
*Avoid superficial swab specimens, as they provide far less accurate results. Wounds need to be thoroughly cleansed and debrided before culture.

d. Management
    i. Additional referrals
        1. Refer to Podiatry for deep tissue/bone biopsy, if indicated
        2. Refer patients to Wound clinic
        3. Refer to Vascular Surgery, if indicated
    ii. Treatment
        1. Mild to moderate diabetic foot infections can be managed by PCPs.
        2. When to start treatment
            a. Clinically **uninfected wounds should NOT be treated** with antibiotics.
            b. **Mild infections (see table below) no need to obtain tissue.**

Severity	**Characteristics**	**Empiric Antibiotic Coverage**
Mild	-Limited to skin and subcutaneous tissue -No systemic signs -Erythema >0.5 cm to < 2 cm around ulcer	-Cephalexin -Clindamycin -Augmentin -Trimethoprim/sulfamethoxazole (variable strep coverage, covers MRSA) -Doxycycline (variable strep coverage) *Antibiotic course is 1-2 weeks.
Moderate	-Erythema > 2 cm, or involving structures deeper than skin and subcutaneous tissues	-Do not start empiric antibiotics. Send urgent referral to Podiatry for deep tissue/bone biopsy cultures -If patient with complicating features OR meets any SIRS criteria, consider inpatient admission

Severe	-With SIRS (> 2 of following): T >38 or <36 degrees HR >90 RR >29 WBC >12K or <4K or >10 % bands	-Arrange inpatient admission for urgent deep tissue/bone biopsy and initiation of antibiotics

c. For **moderate infections** with or without evidence of osteomyelitis, do NOT start empiric antibiotics as this may mask cultures. Place urgent referral to Podiatry for deep tissue/bone biopsy cultures. Once culture results are available, consult Infectious Diseases to determine if oral or intravenous antibiotics are recommended. If IV antibiotics are recommended, referring provider will arrange for inpatient admission or send patient to ER.
d. For **severe infections** with or without evidence of osteomyelitis, arrange immediate inpatient admission or send patient to ER.

3. When to suspect/cover for MRSA
    a. Recent broad spectrum antibiotic use (prior 3 months)
    b. History of MRSA infection or colonization in past 1 year
4. When to admit patients
    a. All patients with a severe infection
    b. All patients with wet gangrene
    c. Selected patients with a moderate infection with complicating features (eg. severe peripheral arterial disease, or lack of home support)
    d. Patients who are failing to improve with outpatient therapy
    e. Patients diagnosed with osteomyelitis with resistant organisms and/or needing IV antibiotic therapy.

3. **Indications for referral**
    a. **In cases of suspected/proven OM, ID referral is appropriate.**
        i. If there is concern for osteomyelitis, please refer to Podiatry first for cultures and debridement.
        ii. ID clinic will see the patient and start oral antibiotics in the outpatient setting based on cultures.
        iii. If cultures/clinical picture suggest a need for IV antibiotics, inpatient admission will be recommended and the ID clinic will see patient in follow up after discharge until end of therapy.

4. **Please include the following with your referral**
    a. Results of pre-referral testing, imaging, and cultures, CRP

ENDEMIC MYCOSES

1. **Background**
    a. Endemic mycoses that are commonly seen include **cryptococcosis, histoplasmosis, blastomycosis, sporotrichosis and coccidioidomycosis**.
        i. Cryptococcus neoformans/gattii
            1. Common sites: Lungs, skin, CNS
            2. Epidemiology: worldwide
            3. Initial labs: Sputum fungal culture and stain, S.CrAG. LP with OP, cell count, Protein, glucose, cultures and CSF CrAG if meningeal disease is suspected
            4. Initial imaging: CXR, may need CT chest, CT head or MRI brain.
            5. Treatment: Fluconazole. If severe, IV Ampho B + flucytosine. Solitary pulm nodules due to Crypto may not need treatment.
        ii. Histoplasma capsulatum
            1. Common sites: Lungs, skin, fibrosing mediastinitis, adrenals, CNS
            2. Epidemiology: Bird or bat droppings. Excavation, demolition, exploring caves, wood cutting etc.
            3. Initial labs: Sputum fungal culture and stain, Urine Histo Ag. Can send buffy coat for organisms in disseminated disease. May need tissue diagnosis
            4. Initial imaging: Depends on the site of involvement. Most pts will need a CT TAP to look for adenopathy etc.
            5. Treatment: Itraconazole, voriconazole and posaconazole. Severe cases need IV Amphotericin
        iii. Blastomyces dermatitidis

1. Common sites: Lungs, skin, bone, genitourinary tract and prostate, CNS
2. Epidemiology: Mississippi and Ohio river basins. Moist soil of wooded areas rich in organic debris
3. Initial labs: Diagnosis need growth in clinical specimen or histopathology. Blasto serology has high cross reactivity and is not useful.
4. Initial imaging: Depends on the site of involvement. Most pts will need a CT TAP.
5. Treatment: Itraconazole, posaconazole. Severe cases need IV Amphotericin

iv. Sporothrix schenkii

1. Common sites: Skin and lymphocutaneous disease, lungs, joints and CNS
2. Epidemiology: Worldwide. Found in decaying wood, vegetation, sphagnum moss. Gardening activities constitute risk
3. Initial labs: Diagnosis need growth in clinical specimen or histopathology. Serology is not useful. Skin biopsies of lesions are very helpful.
4. Initial imaging: Depends on the site of involvement. CT chest or brain imaging may be needed in c/o spread to lungs or brain.
5. Treatment: Itraconazole, terbinafine, posaconazole. Severe cases need IV Amphotericin.

v. Coccidioides immitis

1. Common sites: Lungs, meninges, lymph nodes, skin, peritoneum, genitourinary and osteoarticular disease.
2. Epidemiology: Found in dry sandy soil. Endemic to Southern Arizona, south and central Valley in CA, southwestern New Mexico, West Texas, Nevada.
3. Initial labs: Coccidioides immunodiffusion with reflex to Complement fixation recommended. Titers correlate with treatment. Diagnosis can also be made from sputum fungal culture and stain for pulm disease or tissue cultures from affected areas or histopathology demonstrating *C. immitis* spherules. Please alert the lab if Cocci is suspected – *C immitis* cultures are highly infectious.
4. Initial imaging: Depends on the site of involvement. CT Chest will usually be needed. In addition , may need appropriate imaging of any suspected areas of involvement
5. Treatment: Fluconazole or Itraconazole are first line. Fluconazole has reliable CNS penetration, reliable levels in blood and better tolerated. Itraconazole is

better in disseminated and osteoarticular disease. Voriconazole and Posaconazole are also effective. Severe cases need IV Amphotericin or sometime, intrathecal amphotericin.

b. Risk factors for endemic mycoses include: AIDS, prolonged systemic steroid use, organ transplant, malignancy, anti-TNF therapy, pre-existing cardiopulmonary disease such as sarcoidosis etc. For *C. immitis*, people of color are at substantially higher risk for disease acquisition. Pregnancy is a known risk factor for dissemination.

2. Pre-referral evaluation and treatment

a. Testing
   i. All patients with endemic mycoses should be worked up for immunosuppressed states including hepatitis B, hepatitis C and HIV. They should have baseline Panel 7, LFTs and CBC with Differential.
   ii. LP for mental status changes or neurologic dysfunction
   iii. See specific testing/imaging recommendations in background.

b. Management
   i. If an LP is needed, patient may need referral to Neurology LP clinic or Interventional Radiology/Fluoroscopy.
   ii. Additional referrals may be needed based on Rx options (e.g. Dermatology referral or Ophthalmology referral for patients on voriconazole).
   iii. Inpatient admission may be needed in unstable patients, patients with mental status changes, evidence of CNS disease or disseminated disease for IV antifungals or for expedited work-up.

3. Indications for referral

a. **All patients with suspected or proven endemic mycoses should be referred PROMPTLY to Infectious Disease.** We strongly recommend that the ID service be called about patients that are new to the ID service (not discharged from inpatient) for prompt scheduling and recommendations. We can help to guide further work-up prior to ID appointment especially for patients with neurological symptoms needing LP.

4. **Please include the following with your referral**

a. Results of any pre-referral testing and imaging.

FEVER OF UNKNOWN ORIGIN

1. **Background**
    a. Fever > 38.3 on several occasions
    b. Duration of fever for at least 3 weeks

2. **Pre-referral evaluation and treatment**
    a. Testing
        i. We request the following be obtained at the time ID referral is made:
            1. CBC with differential, Panel 7, and LFTs
            2. If liver tests are abnormal, hepatitis A, B, and C serologies
            3. Urinalysis and urine culture
            4. ESR or CRP
            5. Serum lactate dehydrogenase
            6. PPD or IGRA
            7. HIV serology
            8. Blood cultures x 3 sets
            9. Rheumatoid factor
            10. Heterophile antibody in young adults
            11. Antinuclear antibodies
            12. CT scan of abdomen
            13. CXR followed by CT scan of chest
            14. Transthoracic ECHO
    b. Management
        i. We request the following at the time ID referral is made:
            1. Fever log by patient (date and time of fevers) for at least 2 weeks
            2. If pathologic lymphadenopathy > 1 cm is identified on physical exam or imaging, refer to appropriate service (eg. General Surgery, FNA clinic, CT surgery or Interventional Radiology) for lymph node biopsy. If the first lymph node biopsy is non-diagnostic, a second attempt at biopsy should be arranged with appropriate service.
            3. Subtle CNS symptoms including headaches and altered mental status should prompt a lumbar puncture and head imaging. If unable to perform LP in Primary Care clinic, please obtain through Neurology LP clinic or with fluoroscopy guidance.

3. **Indications for referral**
4. **Please include the following with your referral**
    a. Results of pre-referral testing and any indicated lymph node biopsy or LP results.

HELICOBACTER PYLORI

1. **Background**
2. **Pre-referral evaluation and treatment**
    a. Testing
        i. Serology (high sensitivity, variable specificity). If serology positive, confirm with stool antigen assay
        ii. Stool antigen assay
    b. Management: please follow Up-To-Date
        c. Confirmation of eradication
        1. Obtain repeat stool antigen test or urea breath test at least 4 weeks AFTER discontinuation of antibiotics and PPIs

3. **Indications for referral**
    a. *H. pylori* cases are managed by the GI clinic at VMC. **ID will review referral requests on a case-by-case basis.**
    b. *Upper endoscopy for cultures and sensitivity testing may be required for patients who have failed ≥ 2 regimens.*
    c. When to refer to Gastroenterology for consideration of endoscopy:
        i. If patient endorses any of the following alarm symptoms
            1. Less than 55 years of age and any of the following symptoms: unexplained weight loss, vomiting, hematemesis, melena, dysphagia, odynophagia, early satiety, first degree relative with history of gastrointestinal malignancy
        ii. Age > 55
        iii. Patients with refractory disease despite 1st and 2nd line treatment for *H. pylori* infection

4. **Please include the following with your referral**
    a. Results of pre-referral testing and prior treatment regimens

ID EMERGENCIES NEEDING ANTIBIOTICS

1. **Background**
    a. **Initiating parenteral antibiotics cannot be done as an outpatient** for the following reasons:
        i. Ready access to PICC nurses for placement is not available
        ii. The first dose of antibiotics needs to be given in a monitored setting and we currently do not have access or staffing to the infusion center.
        iii. Insurance authorization to set up delivery of supplies for home antibiotic therapy takes > 24 hours

2. **Pre-referral evaluation and treatment**
3. **Indications for referral**
    a. **Inpatient admission ID Conditions**. The inpatient ID team will perform evaluation and make treatment recommendations. **The ID clinic will perform post-discharge follow up.**
        i. Infective endocarditis
        ii. Pyogenic, syphilitic and fungal meningitis
        iii. Abscesses in deep body cavities e.g.; empyema, liver abscess, brain abscess
        iv. Febrile neutropenia
        v. Necrotizing fasciitis and wet gangrene
        vi. Septic arthritis
        vii. Any condition that may need initiation of IV antibiotics – this includes spinal OM and some cases of diabetic foot OM
    b. Even for stable patients, initiation of parenteral antibiotics needs a brief inpatient admission. The inpatient team will make the recommendations/arrangements for IV antibiotics after which the patient will be monitored through our OPAT (outpatient parenteral antibiotic therapy) program.

INVASIVE ASPERGILLOSIS AND ABPA

INVASIVE ASPERGILLOSIS

1. **Background**
    a. Includes lung invasion, cutaneous infection or extrapulmonary dissemination of Aspergillus species.
    b. Risk factors include chronic steroid use, prolonged neutropenia and conditions/drugs that lead to chronically impaired cellular immunity.
    c. Clinical presentation: typically fever, CP, SOB, cough and hemoptysis.
    d. **Diagnosis criteria:** Generally identified by clinical signs and symptoms **PLUS one or more of the below:**
        i. Direct examination of respiratory specimen or respiratory culture positive for Aspergillus
            1. It is important to note that isolation of Aspergillus spp. alone in sputum of an immunocompetent patient with minimal/no symptoms does not need work-up or ID referral – this fungus is abundantly present in the environment and is a frequent colonizer/contaminant.

ii. Histopathologic examination indicating hyphal invasion in tissue
iii. Positive galactomannan antigen in serum or BAL
iv. Positive 1-3-beta-D-glucan assay (Fungitell)

2. **Pre-referral evaluation and treatment**
    a. **Aspergillosis evaluation and treatment**
        i. **Aspergillosis pre-referral lab testing** - We request the following be obtained at the time the referral to ID is made:
            1. CBC with Differential, LFTs and Panel 7
            2. Serum galactomannan
            3. Serum 1-3-beta-D-glucan assay (Fungitell)
            4. If Aspergillus spp. is isolated from sputum, please request lab to hold the specimen and send for sensitivity testing to voriconazole, itraconazole, posaconazole, micafungin, isavuconazole, micafungin, caspofungin and amphotericin B.
        ii. **Aspergillosis pre-referral diagnostic imaging**
            1. Imaging - CT chest and additional relevant imaging in the last 6 weeks
                a. CT thorax is the preferred modality for pulmonary IA.
                    i. Pulmonary Aspergillosis may present as single or multiple nodules w/w/o cavitation, patchy or segmental consolidation or peribronchial infiltrates.
                b. CNS IA is best imaged by CT contrast or MRI.
                    i. Presents with ring enhancing lesions, infarction w/w/o hematomas or mucosal thickening of paranasal sinus with invasion and direct extension from sinuses.
        iii. **Aspergillosis management**
            1. Additional referrals to Dermatology and Ophthalmology indicated if treatment with voriconazole is initiated.

3. **Indications for referral**
    a. **Suspected or proven IA** - patients should be referred to ID promptly.
        i. We recommend that urgent ID referral be placed for IA patients that are new to the ID service (not discharged from inpatient) for prompt scheduling and recommendations.
        ii. In addition, they may need to be seen by other specialists as needed for reversal of immunosuppression or for therapy-related SE monitoring (e.g. Dermatology referral or Ophthalmology referral for patients on voriconazole).

iii. **Inpatient admission** may be needed in unstable patients, patients with mental status changes, evidence of CNS disease, hemoptysis or severe immunosuppression/neutropenia.
    1. Parenteral therapy and/or combination therapy is often required in such patients.

4. **Please include the following with your referral**
    a. Results of pre-referral lab testing and imaging

ALLERGIC BRONCHO PULMONARY ASPERGILLOSIS (ABPA)

1. **Background**
    a. ABPA is a complex hypersensitivity reaction that occurs when bronchi are colonized with Aspergillus species.
        i. Clinical presentation: Asthma with recurrent bronchial obstruction, fever, malaise, expectoration of brownish mucus plugs, eosinophilia and occasionally hemoptysis.
        ii. **Major diagnostic criteria of classic ABPA are:**
            1. A history of asthma
            2. Immediate skin test reactivity to Aspergillus antigens
            3. Precipitating serum antibodies to A. fumigatus
            4. Serum total IgE concentration >417 IU/mL (>1000 ng/mL)
            5. Peripheral blood eosinophilia >500/mm3
            6. Lung infiltrates on chest radiograph or chest high-resolution computed tomography (HRCT)
            7. Central bronchiectasis on chest computed tomography (CT)
            8. Elevated specific serum IgE and IgG to A. fumigatus

2. **Pre-referral evaluation and treatment**
    a. **ABPA evaluation and treatment**
        i. **ABPA pre-referral lab testing** - We request the following be obtained at the time the referral to ID is made:
            1. CBC with Differential, LFTs and Panel 7
            2. ABPA panel
            3. Total IgE level
            4. PFTs
        ii. **ABPA pre-referral diagnostic imaging**
            1. CT chest, or at least CXR in the last 6 months
        iii. **ABPA management**
            1. All patients with suspected or proven ABPA should first be referred to Pulmonary Medicine.

2. They may need Referral to the Allergy clinic for skin testing.
3. Additional referrals to Dermatology and Ophthalmology indicated if treatment with voriconazole is initiated.

3. Indications for referral

a. They should be referred to Infectious diseases if azole therapy is being considered.
   i. Aim is to control acute inflammation and limit lung and bronchial damage. 2008 IDSA guidelines recommend that therapy of ABPA should consist of a combination of steroids and azole antifungals. Azoles are thought to work by decreasing antigenic stimulation for bronchial inflammation. Azoles are recommended for a 16-week course.
   ii. Additional referrals may be needed based on Rx options (e.g. Dermatology referral or Ophthalmology referral for patients on voriconazole).

4. Please include the following with your referral

a. Results of pre-referral lab testing and imaging

MRSA DECOLONIZATION

1. Background

a. Criteria required for Staphylococcus aureus decolonization
   i. 2 or more episodes of abscesses secondary to Staphylococcus aureus in past year
   ii. Not pregnant
   iii. Decolonization can also be considered in patients with MRSA nares colonization who may be undergoing certain elective procedures such as THA, TKA, open cardiac surgery.

2. Pre-referral evaluation and treatment

a. Testing at baseline
   i. Obtain HIV test if not done in the past year
   ii. Screen for Diabetes mellitus. Patients with DM should have PCP or Endocrine manage glucose control
   iii. If skin or soft tissue abscess is present, perform I & D of abscess and send pus for bacterial gram stain and culture.
   iv. Obtain swabs from anterior nares and any open wounds, send for culture and susceptibility testing.

b. Management

i. PCPs should be able to offer recommendations to the patient and counsel them on the behavioral changes.
ii. Personal and household hygiene counseling
    1. Discard lotions in jars and replace with pump or pour bottles. Avoid bar soaps.
    2. Refrain from sharing personal hygiene items (e.g. Hairbrushes, razors, or towels).
    3. Wash (in hot water) bed linens at least once weekly and towels/washcloths after each use.
    4. Use Clorox disinfecting wipes to wipe down all surfaces that are frequently accessed in the home. This includes but is not limited to countertops, desktops, doorknobs, and sink handles.
    5. If patient has 1 or more dogs in home, ask patient if dog can be placed outside the home. Dogs are often carriers of Staphylococcus aureus even if they are asymptomatic. If patient is unable to place dog outside the home, intimate/close contact with dog should be avoided. Perform hand hygiene after any animal contact.
iii. Decolonization protocol options based on Staphylococcus aureus susceptibility results
    1. All patients and household contacts (>6 months of age and not pregnant)
        a. Diluted bleach baths
            i. Pour ¼ cup of 6% sodium hypochlorite (eg. Clorox) into a bathtub of lukewarm water. Soak for 10 minutes. Perform bleach baths daily for 7 days during week 1, then weekly for weeks 2-4. .
            ii. If desired, patient may take shower with anti-bacterial soap after bleach bath.
            iii. After steps 1 and 2, apply moisturizing cream or ointment to entire body to prevent dry skin and irritation.

    OR

        b. CHG bathing:
            i. Daily body washes with 4% chlorhexidine solution (eg. Hibiclens) for 7 days during week 1, and then weekly for weeks 2-4. Chlorhexidine solution should be applied to all body parts, excluding the face, followed by a thorough rinse with water.
            ii. If CHG impregnated wipes with 2% CHG are used, rinsing is not

recommended and the solution should be allowed to dry for atleast 30 seconds.

AND

c. Mupirocin application to nares
    i. Apply 2% mupirocin ointment to bilateral anterior nares twice daily for 7 days.

2. Oral antibiotic recommendations based on Staphylococcus susceptibility results only if topical therapy above is unsuccessful. If the topical regimen is unsuccessful, the treatment may be augmented by repeating with a tapering course for 6 months and with the addition of oral antibiotics.
    a. Please note that the patient can be given the regimens below without addition of Rifampin if they are unable to take Rifampin for any reason (resistance/intolerance/drug interaction).
    b. It is the prescribing providers' responsibility to check on drug interactions and counsel patients on side-effects.
    c. Regimen:
        i. If susceptible to trimethoprim-sulfamethoxazole and rifampin, start:
            1. Trimethoprim-sulfamethoxazole 1 DS bid plus rifampin 300 mg po bid x 7-14 days.
        ii. If susceptible to doxycycline and rifampin, start:
            1. Doxycycline 100 mg po bid plus rifampin 300 mg po bid x 7-14 days.
        iii. If susceptible to clindamycin and rifampin, start:
            1. Clindamycin 450 mg po every 8 hours plus rifampin 300 mg po bid x 7-14 days.

3. Indications for referral

a. ID referral can be considered if the patient has an active infection not responsive to standard treatment or if there is failure of decolonization with topical agents.

4. Please include the following with your referral

a. Results of pre-referral testing and treatment

NATIVE VERTEBRAL OSTEOMYELITIS

1. **Background**
    a. Typically diagnosed in setting of recalcitrant back pain unresponsive to conservative measures, elevated inflammatory markers, with or without fever

2. **Pre-referral evaluation and treatment**
    a. Lab testing
        i. Obtain blood cultures x 2
            1. If patient at risk for Brucellosis, obtain blood cultures and serologic tests for Brucella species
        ii. Baseline CRP
    b. Imaging
        i. Obtain spine MRI with gadolinium
    c. Management
        i. If at risk for Mycobacterium tuberculosis:
            1. Obtain PPD or IGRA and CXR (even if no pulm symptoms). Consider referral to TB clinic as appropriate.
        ii. If there is evidence of osteomyelitis on imaging and blood cultures/serologic tests are negative:
            1. Hold antibiotics unless patient has hemodynamic instability or other urgent indications for admission to maximize culture yield
            2. Order urgent outpatient referral to Interventional Radiology for image-guided aspiration biopsy (order GS/culture, KOH/fungal culture, AFB smear/AFB culture, MTB-PCR (if host has risk factors), and **pathology**) OR arrange inpatient admission for expedited evaluation
                a. If cultures from first biopsy is negative, there is a strong suspicion for osteomyelitis, and/or patient has progressive back pain:
                    i. Obtain second aspiration biopsy by IR or consult with Neurosurgery regarding open excisional biopsy.
        iii. Admission criteria:
            1. Patients with neurologic compromise with or without impending sepsis
            2. Hemodynamic instability
            3. Epidural abscess
            4. For initiation of IV antibiotics: Do not start antibiotic therapy in the outpatient setting. After patient receives outpatient image-guided biopsy, if either cultures or pathology are positive, admit for treatment.

3. **Indications for referral**
    a. Most patients with vertebral OM will need inpatient admission to start IV antibiotics, which cannot be done in ID clinic. **ID advice is available by phone for making admission decisions.** ID clinic will follow the patient after hospital discharge until end of therapy.

4. **Please include the following with your referral**
    a. Results of pre-referral testing and imaging, biopsy if indicated

NEUROCYSTICERCOSIS

1. **Background**
    a. Cysticercosis is a parasitic infection that results from ingestion of eggs from the adult tapeworm, Taenia solium.
    b. When cysticercosis involves the CNS, it is called neurocysticercosis (NCC).
        i. NCC typically is first seen either with seizures or headache. Headache may indicate the presence of hydrocephalus, meningitis, or increased intracranial pressure.

2. **Pre-referral evaluation and treatment:**
    a. Testing: Patients can present with an array of different clinical and radiographic findings. Therefore depending on clinical presentation and radiographic findings, the provider should determine the need for hospitalization vs. outpatient work-up.
        i. **If symptomatic then should be admitted** for evaluation.
        ii. But if asymptomatic then obtain the following
            1. CT but if inconclusive in the setting of high suspicion then proceed with MRI
            2. Serum Cysticercosis antibody
        iii. It is Important to treat seizure esp if treatment is entertained therefore advise NEUROLOGY evaluation
        iv. Ophthalmologic exam is recommended for patients with visual symptoms
    b. Management:
        i. Treatment options:
            1. Calcified lesions do not need treatment and if there are seizures, they should be managed with anti-seizure medications.
            2. Albendazole and praziquantel are the principal antiparasitic drugs used to treat active NCC.

3. Usually, steroids are also given pre-treatment to minimize the inflammatory response.

ii. Often, PPD or Quantiferon and strongyloides serology is also needed in certain patient populations. Therefore treatment should be carefully planned in consultation with infectious diseases provider on case by case basis

3. Indications for referral

a. Racemose, subarachnoid, or intraventricular disease
b. Ocular involvement or spinal involvement
c. Multiple cysts in the brain parenchyma
d. Active (non-calcified) single lesion

4. Please include the following with your referral

a. Results of pre-referral testing and treatment

RECURRENT URINARY TRACT INFECTIONS

a. Background

a. Recurrent UTI refers to >2 infections in 6 months or >3 infections in 1 year. Most recurrences are thought to represent reinfection rather than relapse, although occasionally a persistent focus can produce relapsing infection. Relapsing infection warrants more extensive urologic evaluation, longer therapy, and, in some cases, surgery.
   i. **Differentiate from Asymptomatic Bacteriuria (ABU):** ABU is defined as isolation of specified colony count of bacteria without signs or symptoms of UTI. The prevalence of ABU increases with Age (>20% over age 80), urinary retention and presence of catheters. ABU is only treated in specific situations – pregnancy and before planned urologic procedure. To differentiate ABU from UTI:
      1. Always get Clean catch for fresh catheter sample for UA with culture
      2. Only check urine studies on symptomatic patients. Change in Mental status is not a common presenting symptom of UTI in elderly unless they are septic/systemically ill. Patients with indwelling catheters will have malodorous urine at baseline due to ABU, they should have local/systemic symptoms for UTI diagnosis.
b. Risk factors:
   i. Biologic factors: ABO non-secretor status
   ii. Pelvic anatomy: incontinence, cystocele, post void residual urine

iii. Behavioral risk factors: spermicide use, frequency of sexual encounters, multiple sexual partners

b. Pre-referral evaluation and treatment

a. Testing/workup for urologic abnormalities
   i. Imaging of the genitourinary system to exclude stones, perinephric collections, hydronephrosis etc. Recommend CT AP w/w/o contrast or Renal US.
      1. Will accept studies 6 months old
   ii. Post void residual (PVR) to assess to incomplete voiding and retention
b. Management
   i. Prevention strategies - **We request the non-pharmacologic behavioral strategies and probiotics be discussed with the patient before ID referral.**
      1. Avoid spermicide use
      2. Post coital voiding and liberal fluid intake
      3. Cranberry juice/extract has equivocal results
      4. Genital hygiene and wiping front to back
      5. Probiotics work by changing genital microflora to decrease uropathogen colonization at the introitus
      6. Either continuous, or post-coital prophylaxis. Self-treatment can also be offered. Commonly used drugs are nitrofurantoin, Bactrim, keflex and fluoroquinolones.

c. Indications for referral

a. ID referral for recurrent UTI may be requested in patients to discuss benefits and risks of the different prophylaxis options. After ID evaluation for prophylaxis, the patient will be discharged back to the PCP for follow up. For patients with MDR pathogens, prophylaxis may not be available/effective.
   i. Urodynamic studies may be recommended after ID/Urology consult
b. For patients with Acute UTIs with MDR pathogens, E-consults are available to guide treatment. The ID service is also available to be contacted by phone. Inpatient admission for parenteral therapy may be needed in the absence of oral options.

d. Please include the following with your referral

a. Results of pre-referral testing, imaging and treatment.

SYPHILIS

1. **Background**
    a. Divided into 2 subgroups:
        i. Early syphilis: stages of syphilis that occur within the first year of disease acquisition. Include primary, secondary and early latent syphilis
        ii. Late syphilis: stages that occur after one year of disease acquisition. Includes syphilis of unknown latency, late latent syphilis and tertiary syphilis.

2. **Pre-referral evaluation and treatment**
    a. Testing and serology interpretation:
        i. Serologic testing for syphilis always requires detection of 2 types of antibodies; non treponemal and treponemal antibodies. Per the new CDC guidelines, VMC has adopted reverse testing sequence for syphilis diagnosis which detects early primary and treated infection as well.
            1. Initial test is the Syphilis Antibody screen, EIA with reflex to RPR. Very sensitive but nonspecific. EIA negative = no syphilis
            2. EIA positive reflexes to quantitative RPR. RPR positive indicates syphilis (past or present, depending on titer)
            3. Positive RPR can be confirmed with MHA-TP (TP-PA) if the RPR titer is extremely low or equivocal. The lab does not perform this reflexively, this needs an order and a call to the lab.

EIA	**RPR**	**TP-PA**	**Interpretation**
+	**Non-reactive or low titer < 1:2**	**-**	**False positive EIA**
+	**Non-reactive or low titer < 1:2**	**+**	**True positive case of syphilis**

        ii. If dementia of concern, Neurology LP clinic referral is indicated:
            1. Please send CSF cell count, protein, glucose, CSF VDRL and ask lab to hold any extra CSF for MHA-TP(TP-PA)
        iii. **Syphilis is a reportable disease and should be reported to PHD with a CMR by the referring provider.**
    b. Stages of syphilis and treatment
        i. **Primary syphilis**

1. Clinical Presentation - Chancre, which will heal spontaneously even in the absence of treatment.
2. Treatment - Benzathine PCN 2.4 MU IM x 1 **OR** Doxycycline 100 mg po BID x 14 days

ii. **Secondary syphilis without CNS spread**
1. Clinical Presentation - Reddish-brown MP rash, systemic symptoms, alopecia, hepatitis, nephritis, nephrotic syndrome
2. Treatment - Benzathine PCN 2.4 MU IM x 1 **OR** Doxycycline 100 mg po BID x 14 days

iii. **Secondary syphilis with CNS spread**
1. Clinical Presentation - Meningitis, uveitis, acute retinal necrosis, hearing loss with or without tinnitus
2. Treatment - PCN G 24 MU IV x 10-14 days
    a. Desensitize if PCN-allergic.
    b. Ceftriaxone is an alternative

iv. **Early latent syphilis**
1. Clinical Presentation - Asymptomatic
2. Treatment - Benzathine PCN 2.4 MU IM x 1 **OR** Doxycycline 100 mg po BID x 14 days

v. **Late latent syphilis/syphilis of unknown latency**
1. Clinical Presentation - Asymptomatic
2. Treatment - Benzathine PCN 2.4 MU IM weekly x 3 **OR** Doxycycline 100 mg po BID x 28 days

vi. **Tertiary syphilis not involving CNS**
1. Clinical Presentation - Syphilitic gummas, aneurysms
2. Treatment - Benzathine PCN 2.4 MU IM weekly x 3 **OR** Doxycycline 100 mg po BID x 28 days **OR** CTX 2 g IV daily x 10-14 days

vii. **Tertiary syphilis involving CNS**
1. Clinical Presentation - General paresis (syphilitic dementia), tabes dorsalis
2. Treatment - PCN G 24 MU IV x 10-14 days
    a. Desensitize if PCN-allergic.
    b. Ceftriaxone is an alternative

viii. **If dementia of concern – Referral to Neurology LP clinic**
1. CSF testing - see Pre-referral Testing and serology interpretation

c. Monitoring response to treatment
i. Four-fold decline in quantitative titer of RPR (non treponemal test) at 6-12 months when compared to pre-treatment baseline.
1. In patients with very low titers at diagnosis, a serofast stage wherein the nontreponemal titer stabilizes at a low level (e.g., a titer of <1:8) may occur for years.
    a. No intervention is required.

b. Detection of a fourfold increase above the serofast baseline would suggest reinfection.

3. **Indications for referral**
    a. The most common reason for ID referral in Syphilis is for evaluation of neurosyphilis in a patient with dementia and a low titer of RPR and no records of former testing. Most patients with neurosyphilis will have RPR titers > 1:8, but this is not the rule. Presence of Arygll-Robertson pupil can help with the diagnosis. **Syphilitic dementia cannot be diagnosed or ruled out by a physical examination. If syphilitic dementia is of concern, an LP is needed.**
        i. The ID clinic can evaluate pts and interpret results after LP done.
            1. If the patient has neurosyphilis or otic/ocular syphilis, they will need inpatient admission for IV therapy
    b. **Other Treatment Locations:** SCC PHD STD clinic (Crane Center) at 976 Lenzen Avenue, open Mondays from 12.30 PM- 6.30 PM, Wednesdays from 5.30 pm – 8.30 pm and Thursdays from 5.30 pm to 8.30 pm. Walk-ins and appointments accepted.

4. **Please include the following with your referral**
    a. Results of pre-referral testing, including recent RPR titer in the last 1-2 weeks
    b. Records of old RPRs or treatment available from the PHD
    c. Results of LP/CSF studies.

INAPPROPRIATE REFERRALS TO GENERAL ID

The conditions mentioned below may be considered inappropriate for ID clinic and re-directed to another clinic or back to the referring provider. We want to alert referring providers of the reasoning behind this decision as well as alternate venues available for care.

CHRONIC FATIGUE SYNDROME

1. Also called Systemic Exertion Intolerance Syndrome. Per current guidelines, there is no proven link between viral infections including EBV and CFS. Infectious work up for CFS is not recommended per ID guidelines and is not offered through VMC Infectious Diseases.

CHRONIC LYME DISEASE

1. Post-treatment Lyme disease syndrome (PTLDS) or Chronic Lyme disease refers to patients who have well-documented Lyme disease and remain symptomatic for months to years after completion of appropriate therapy. There is no well-accepted definition for this entity. There is no convincing biologic evidence for existence of symptomatic chronic Borrelia burgdorferi infection after receipt of recommended treatment regimens for Lyme disease. Antibiotic therapy is not proven to be useful and is not recommended by the Consensus Guidelines by the Infectious Diseases Society of America and the CDC. The ID clinic will not offer evaluation or treatment for Chronic Lyme Disease. However, the ID clinic will continue to offer evaluation and treatment of Acute Lyme Disease. We will also assist in interpretation of Lyme serologies and consider counseling regarding results on a case-by-case basis

DELUSIONAL PARASITOSIS

1. This refers to individuals with fixed, false beliefs (delusions) of infestation with various parasites, bacteria, mites or other living organisms. They should be referred to behavioral health.

MORGELLON'S DISEASE

1. Also labelled as Unexplained Apparent Dermatopathy. Per CDC, comprehensive studies have shown no infectious cause and no evidence of environmental links. There is no evidence to suggest that testing for infectious diseases as a cause would be helpful.

VENTILATED PATIENTS

1. VMC Ambulatory Administration has determined that the ID clinic is not equipped to provide outpatient consults for patients on mechanical ventilators from SNFs/LTACs. The clinic is located off campus, the nurses are not trained to care for ventilated patients. The clinic also does not have quick access to respiratory therapy in case of an emergency. Our clinic layout and rooms also cannot accommodate patients on gurneys while maintaining privacy. We will assist in answering simple questions pertaining to their care via E-consults.

REFERRALS TO BE DIRECTED TO CLINICS OTHER THAN GENERAL ID

HEPATITIS B AND HEPATITIS C VIRUS, MONO-INFECTION – GI Clinic

1. Evaluation and treatment for Hepatitis B (HBV) and Hepatitis C (HCV) in non-HIV patients is overseen by Gastroenterology. Patients with HBV/HIV co-infection or HCV/HIV co-infection are managed by the PACE clinic.

HIV PATIENTS – PACE Clinic

The PACE clinic (staffed by Division of HIV/AIDS medicine) provides comprehensive care for patients diagnosed with HIV/AIDS. Referrals for HIV should be directed to the PACE clinic. Please make sure that confirmatory testing for HIV is available in “labs” or media as attachment Please confirm that the diagnosis has been disclosed to the patient.

IMMUNODEFICIENCIES – Allergy and Immunology Clinic

1. Requests for work-up for congenital immunodeficiencies should be directed to the Allergy & Immunology clinic.

LATENT TUBERCULOSIS – TB Clinic

1. Referrals for patients needing evaluation for Latent TB should be directed to the TB clinic. The TB clinic works in close partnership with the SCC PHD and has the infrastructure for monthly follow-up and monitoring of patients on latent TB therapy as well as capacity for DOPT (directly observed preventative therapy). They also update requisite national databases upon treatment completion.

NON-TUBERCULOSIS MYCOBACTERIAL (NTM) DISEASES – TB Clinic

1. Patients needing evaluation for NTM diseases should be referred to the TB clinic. There are several commonalities in treatment of NTM infections and TB treatment and by mutual agreement, we request such referrals be directed to the TB clinic.

PATIENTS NEEDING PEP/PrEP for HIV PREVENTION – Primary Care

1. Post-exposure prophylaxis (PEP) for HIV is given if occupational or non-occupational exposure to HIV occurs or is suspected. Phone or E-consultation with AIDS Medicine (PACE) is available for questions. Pre-exposure prophylaxis (PrEP) for HIV is offered to individuals with high-risk behavior to prevent HIV acquisition. PrEP is offered and managed by Primary care. Please refer to the PACE referral guidelines for details and algorithm. The SCC PHD STD clinic at the Crane Center (Ste 1800, 976 Lenzen Ave also also offers PrEP and PEP services and can be reached at HIVprevention@phd.sccgov.org for advice. Their hours and locations are available on https://www.sccgov.org/sites/phd/services/hiv-resources/Pages/std-hiv-test-home.aspx.

PEDIATRIC PATIENTS – Pediatric ID

1. Referrals on Pediatric patients should be directed to Pediatric ID clinic.

TUBERCULOSIS – TB Clinic

1. Patients who have active tuberculosis or suspected of having tuberculosis including Pediatric TB patients should be referred to the TB clinic located at 976 Lenzen Avenue. The TB clinic works in close partnership with the Santa Clara County Public Health Department (SCC PHD) in diagnosing and providing comprehensive care to TB patients, including arranging DOT and assisting with medication costs in uninsured patients etc. Most importantly, the TB clinic has negative air flow and the required air-exchanges to minimize TB transmission – the ID clinic does not have this capability and shares a patient waiting area with the PACE clinic that cares for HIV patients. Referrals for TB patients will be re-directed to the TB clinic.

Revisions:

- January 2017, formatting
- Oct 2017, formatting