Photoopportunity 2020 Handout

1. Slide shows 3:1 AV conduction block. The most common infectious cause of this in a Maryland patient would be Lyme disease, which is carried by an Ixodid tick. In patients from South America, conduction block is one of the cardiac manifestations of Chagas disease, transmitted by a kissing (triatomine) bug. A few Chagas cases are acquired in the USA, such as in California and the Southwest, but not Maryland.
2. Slide shows a thin walled cavity and an adjoining pneumothorax. In a previously healthy young man, this cavity is unlikely to bacterial lung abscess, septic embolus, nonsmall cell carcinoma or mycobacterial infection. Phoenix, Arizona is an area that has a high incidence of coccidioidomycosis. Healing of a prior undiagnosed coccidioidal pneumonia can leave a residual thin walled cavity. Roughly half of these close spontaneously in the first year but others can persist for years and be discovered incidentally or present as hemoptysis or pneumothorax. Patients may be come aware of the sudden onset of the pneumothorax by chest pain, as in this patient.
3. The photomicrograph shows curved rods. One might think of vibrio, campylobacter, or spirochetes like Treponema, leptospira and Borrelia. The organisms are in the kidney of a patient hospitalized for ten days. This would be an odd place to have vibrio or campylobacter. You would rarely see his many organisms in tissue with syphilis or Lyme and the clinical picture is not supportive of those diagnoses. The rat bite fever we have in the USA is not a spirillum but a streptobacillus. There is no exposure to relapsing fever so how about leptospirosis? If there was animal urine contaminating the canal water when he fell in 10 days ago, the leptospires could invade intact skin. Ten days is still in the 5-14 day incubation period for leptospirosis and that infection could explain his elevated creatinine and bilirubin, an entity called Weil's disease.
4. This young man has the clinical features of Lemierres' disease, with pharyngitis, anterior cervical swelling, fever, a clot partially obstructing in internal jugular vein and a septic embolus in his lung. Blood cultures are usually diagnostic, with a Fusobacterium species, usually Fusobacterium necrophorum, an anaerobic Gram negative bacillus that is a normal commensal in the nasopharynx.
5. You are asked to recognize a spherule of Coccidioides, which has caused disseminated coccidioidomycosis in the African American male, an ethnicity that increased the probability of dissemination. Tucson is in a highly endemic area of coccidioidomycosis, infection acquired from inhaling the spores in desert dirt.
6. These skin lesions in a homeless man are highly suspicious for crusted scabies, also called Norwegian scabies. Without other information, you could also suspect ringworm or perhaps psoriasis. However, the highly infectious nature of crusted scabies puts all the health care workers touching him at high risk of getting scabies unless precautions are taken. There is a risk that many of those health care workers in contact with this patient will be scratching themselves in a few days as the mites start to burrow into their skin. Diagnosis is made by finding the mites, eggs or fecal pellets in a skin scraping on low power microscopy. For those of you who chose HIV test, you are correct that may be positive. However, that would not diagnose scabies.

7. The photo shows that a budding yeast is causing these facial lesions. Only one budding organism is in the list and that is Paracoccidioides brasiliensis, the cause of paracoccidiodomycosis. About 80% of cases are reported from Brasil, usually in adult males who work on farms. Lesions often resemble mucocutaneous leishmaniasis, as in this patient. Leishmania are round but they don't bud.
8. Start by looking for organisms that cause pneumonia and ask which might be associated with the exposure history. Neither Borrelia hermsii nor Bartonella quintana cause pneumonia, though the exposure would be consistent with Borrelia hermsii, causing relapsing fever. Legionella needs a water exposure. Primary tularemia pneumonia needs an exposure, such as landscaping. Septicemic tularemia from an inoculation site needs a local lesion inflamed lymph nodes. Sin nombre is the leading cause of hantavirus pulmonary syndrome in the USA. Illness follows an inhalation exposure to mouse urine or feces, which this patient had. That virus is not included in respiratory panels. The man's hemoconcentation is also typical of hantavirus pulmonary syndrome.
9. The CT shows a mass within an upper lobe cavity, diagnostic of a fungus ball of the lung. The only complication among those listed is hemoptysis, which can be fatal.
10. Looking at the diseases listed to see which might be associated with a chronic leg ulcer, the best match is pyoderma gangrenosum in patients with ulcerative colitis.
11. The little tracks in the blood agar between bacterial colonies are due to migration of strongyloides larva, carrying bacteria along the agar. This test is nonstandard but more useful than the stool Ova and Parasite exam. The best treatment for strongyloidiasis is ivermectin.
12. This is a typical clinical picture of Ludwig's angina, which is the acute onset of bilateral, firm submandibular swelling that doesn't cause hoarseness but can lead to fatal asphyxia by swelling in and under the tongue, pushing the tongue posteriorly, superiorly and anteriorly. In two thirds of cases, the cause is a dental abscess, typically the second or third molar tooth.
13. Acute mesenteric adenitis is previously healthy young person should be suspected in patients with symptoms otherwise consistent with acute appendicitis, that is, RLQ pain, leukocytosis and fever. The huge mesenteric nodes in this MRI are not consistent with a simple appendicitis. Mesenteric adenitis and the painful terminal ileitis is usually caused by Yersinia pseudotuberculosis or Yersinia enterocolitica. Campylobacter or nontyphoidal salmonella are occasional causes. Yersiniosis is a zoonosis, acquired from animals or contaminated milk or food, particularly pork.
14. The sudden appearance of high fever and several tender red to purple plaques on the skin of a patient with an underlying hematologic malignancy should suggest the possibility of Sweet syndrome. Diagnosis can be confirmed by skin biopsy showing a neutrophilic dermatosis. A rapid response to corticosteroids is usual, though relapse is common as steroids are tapered. Lesions like this can be seen in fusariosis or, less commonly other molds and go on to resemble ecthyma gangrenosum. However, this patient has an ANC of 598 and is not on immunosuppressive drugs. So he is not a good candidate for a disseminated bacterial of mold infection.

15. Acid fast organisms 4-6 um diameter in stool indicate cryptosporidiosis. Water parks have become an important source of infection, with recirculated water distributing fecally contaminated water to children. Foodborne outbreaks are a less common mode of transmission.
16. Patients with congenital hemolytic anemias, including sickle cell disease, are at risk of developing an aplastic crisis from parvovirus B19 infection. Such patients are contagious and may infect nonimmune contacts, including healthcare workers. Illness in adults can be mild, with a low grade fever and rash, though arthralgias, particularly in women, can be disabling. Infection during pregnancy can cause severe anemia in the fetus, hydrops fetalis. Infection is not associated with other developmental abnormalities.
17. The only listed infection that causes a chronic, granulomatous, ulcerative lesion on the genitalia is granuloma inguinale. The causative organism was formerly called Calymmatobacterium granulomatis and is now called Klebsiella granulomatis. Chlamydia trachomatis can cause a chronic swelling of the female genitalia, called esthiomene. However, this is a male and ulcerative.
18. You can imagine a large number of organisms might cause an acute or subacute infection on the hands of crab fisherman in the Chesapeake Bay, including Staphylococcus and Streptococcus, though those aerobic Gram positive cocci are not listed. Superficial skin lesions with no necrosis are unlikely to be caused by an obligate anaerobe. Campylobacter, the most common sea-gull shaped Gram negative bacillus, doesn't cause inoculation lesions. Mycobacterium marinum is certainly possible but would be acid fast positive. The number of aerobic gram positive bacilli that can cause an inoculum infection is relatively limited: anthrax, cutaneous diphtheria and erysipeloid. The last of these is an acute or subacute inoculation lesion caused by Erysipelothrix rhusiopathiae, acquired on the hands of those working with infected animals, including crab fishermen. Veterinarians and slaughterhouse workers can also get erysipeloid lesions on their hands from infected animals.
19. The septate hyphae are consistent with fusariosis or scedosporiosis but only fusariosis is associated with multiple skin lesions in a severely immunocompromised patient. Appearance of necrosis in the center of fusariosis skin lesions is common. Mucormycosis hyphae are aseptate. Nocardia and Pseudomonas are bacteria.

20. Bone lesions, an elevated alkaline phosphatase and bone pain are indications of periostitis, a complication of long term voriconazole use. Fortunately, symptoms slowly resolve once voriconazole is stopped. This is associated with elevated plasma fluoride, that is, fluorosis, but most of the patients receiving long term voriconazole have elevated fluoride but not periostitis, so other factors may be involved. This is not the background of patients with pulmonary hypertrophic osteoarthropathy. They not only have chronic lung disease or cancer, but they all have clubbing of the nails, which this patient did not have.

21. Inclusions in the renal tubular cells of a transplanted kidney and decreasing renal function is a sign of BK infection, a polyoma virus.
22. This 22 year old man presented with far advanced HIV infection and Kaposi's sarcoma. The pulmonary infiltrate, pleural effusions and intrabronchial lesions are typical of KS in the lung. The treatment initially is usually liposomal doxorubicin.
23. Pleural effusions in HIV positive patients may be bacterial, mycobacterial or malignant in origin. Absence of systemic illness and concomitant pericardial effusion raises the possibility of primary effusion lymphoma, a high grade lymphoma of B cell origin that is diagnosed by cytology of pleural fluid with demonstration of HHV8 in the nuclei of malignant cells.
24. Microfilaria in peripheral blood smears are uncommon is lymphatic filariasis and onchocerciasis but common during daytime in loa loa. Transient subcutaneous swellings, called calabar swellings, are a frequent clue to the diagnosis. Although microfilaria of loa loa can be seen in the conjunctiva, thay do not cause blindness, as does onchocerciasis, also called river blindness.