Case 1:
CC: I'm here for a physical for work"

A 23 year old man presents for a physical before starting a new job as a city bus driver. He is healthy and takes no medications. He has no concerns except wanting to start his job as soon as he can.
He has no known drug allergies.
He smokes 1 pack of cigarettes a day for the past 6 years. He drinks 2 beers a night. He denies illicit drug use.
His parents and brother have no medical problems that he is aware of.
He acknowledges that he eats too much “fast food”.
He is not married, has multiple female sex partners and does not use condoms regularly.

On physical exam he appears healthy. Head, neck, heart, lung, abdominal, and neurologic exams are unremarkable. His testes are normal. There is no penile discharge. On the shaft of his penis is a painless two centimeter ulcer with raised, indurated borders. The base of the ulcer is clean. There are bilateral small palpable, mobile, nontender inguinal lymph nodes. There are no rashes on skin examination.

Upon further questioning, the patient had not noticed the ulcer.

The physician is highly suspicious that the etiology of the ulcer is infection with a bacteria which on darkfield microscopy has 6 to 14 regularly wound coils, has corkscrew motility, and flexes centrally at 90-degree angles.

Educational Objectives

1. What is the physician's clinical diagnosis?

2. What non-serologic methods can the physician use to confirm his/her clinical diagnosis?

3. The patient states he has no idea how and when he “got this” infection. How would you respond?
4. Summarize the pathogenesis of the primary stage of infection with this organism.

5. Assuming that in this patient the disease is in its primary stage, what treatment should be prescribed?

6. The patient asks “can I get this again?” How will you respond?

7. Summarize means to prevent the spread of this infection.

Case 2:
A 22 year-old woman is admitted in active labor. She had not received any prenatal care. Several months prior she developed low grade fever, headache and a generalized maculopapular rash which resolved after 2 weeks. She reported that her boyfriend had a similar rash, which also involved his palms and soles.
She delivers a male infant, who weighs 2100 grams. Physical examination of the baby reveals marked hepatosplenomegaly. The examination of the skin is significant for a hemorrhagic bullous rash distributed mostly on the palms and the soles of the feet.

**Maternal Laboratory Data**

- **RPR Qual**: Reactive  
  Reference Range: Non-Reactive  
  **RPR Quant**: 1:256

- **FTA Abs (IgG)**: Reactive  
  Reference Range: Non-Reactive

- **HIV 1 and 2 AB**: Negative  
  Reference Range: Negative

- **Rubella IgG Ab**: 34.6 IU/ml  
  19 IU/ml or greater indicates presumed immunity to infection.

  Rubella status – Presumed Immune

**EDUCATIONAL OBJECTIVES**

1. Based on the information provided, what infection does the mother (and father) have? Discuss your rationale.

2. Discuss the serologic testing methods used to diagnose this infection.

3. The physician of the patient in case 1 ordered an RPR which was “nonreactive”. Explain why this may have occurred with the physician having made the correct clinical diagnosis.

4. Summarize the pathogenesis of the secondary stage of this infection.
5. The newborn’s cord blood RPR titer is 1:1025. The results of HIV testing on the infant are pending. Based on the given information, what disease process is the newborn manifesting? What treatment would you prescribe?

6. How was prevention of infection in this newborn and other newborns possible?

Case 3

A) The same patient described in case 1 never sees a physician while he has his penile ulcer, and in fact, does not see a physician until in his 50s. At this time he diagnosed with aortic valve regurgitation secondary to a proximal aortic aneurysm. What sequela of his sexually transmitted disease has he developed? Summarize the pathogenesis.
B) The same patient described in case 1 never sees a physician while he has his penile ulcer, and in fact, does not see a physician until he in his 50s. He presents at the prompting of his family for evaluation of “walking funny”. On exam he is found to have ataxia, wide-based gait, foot slap, and loss of the sensations of position, pain, and temperature.
What sequela of his sexually transmitted disease has he developed? Summarize the pathogenesis.

C) The same patient described in case 1 never sees a physician while he has his penile ulcer, and in fact, does not see a physician until he is 41 when he is admitted with an acute stroke. His family reports that he has had several months of intermittent headaches and behavioral changes. Because he does not have classic risk factors, such as hypertension and diabetes mellitus, for a stroke, the physicians begin thinking of other causes of stroke in a younger person. A serum RPR is obtained and is reactive with a titer of 1:16; a followup serum FTA Abs (IgG) is Reactive. A lumbar puncture is subsequently performed and shows elevated CSF protein and lymphocytosis.
What sequela of his sexually transmitted disease are his physicians concerned with? What serologic marker should be performed on the CSF fluid to confirm their diagnosis? Summarize the pathogenesis of this disease process.

D) The same patient described in case 1 never sees a physician while he has his penile ulcer, and in fact, does not see a physician until he is in his early 50s. He has come for evaluation at the prompting of his family because of progressive memory loss and hallucinations. What sequela of his sexually transmitted disease has he developed? Summarize the pathogenesis.

E) The same patient described in case 1 never sees a physician while he has his penile ulcer, and in fact, does not see a physician until he is in his early 50s. At this time he has a through screening history and physical exam. His physician notes that his right pupil is irregular, accommodates to near vision but does not react to light or painful stimuli.
What sequela of his sexually transmitted disease has he developed? Summarize the pathogenesis.
**Cases 4, and 5 are Unknowns.** Case Data will be provided during the small group session.