Test Your Knowledge: HIV Infection—Epidemiology and Diagnosis

This quiz is related to the Perspective in the July issue of *PLoS Medicine* (DOI: 10.1371/journal.pmed.0020214).

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**Question 1.** By December 2004, roughly how many people were living with HIV?
- 20 million
- 40 million
- 60 million

**Question 2.** Roughly how many new cases of HIV infection were there in 2004?
- 1 million
- 3 million
- 5 million

**Question 3.** What is the prognosis of untreated adult HIV infection?
- About 50% of people will become ill and die from AIDS over about ten years
- About 75% of people will become ill and die from AIDS over about five years
- About 90% of people will become ill and die from AIDS over about three years

**Question 4.** What proportion of people who undergo voluntary counseling and testing or perinatal screening fail to return to collect the results?
- Up to 10%
- Up to 50%
- Up to 70%

**Question 5.** Which of the following is true about rapid HIV-antibody tests that use oral fluid?
- These tests have high sensitivity but low specificity
- These tests have low sensitivity but high specificity
- These tests have high sensitivity and specificity

**Question 6.** Which one of the following is a good prognostic factor for an adult infected with HIV who is about to start highly active antiretroviral therapy?
- Infection through injection-drug use rather than sexual intercourse
- A CD4 count less than 350 cells/ml
- A viral load greater than or equal to 100,000 copies/ml
- Under 50 years of age

**Question 7.** What is the most common AIDS-defining illness in developed nations?
- Kaposi sarcoma
- *Pneumocystis* pneumonia
- Tuberculosis
- Lymphoma

**Question 8.** In people infected with HIV in Africa, what is the most frequent cause of death?
- Tuberculosis
- *Pneumocystis* pneumonia
- Herpes simplex virus
- *Toxoplasma gondii* encephalitis
- Invasive fungal diseases

**Question 9.** Without antiretroviral treatment, what is the risk that an HIV-positive mother will transmit the virus to her child during gestation, labor, or breastfeeding?
- About 5%–10% in Europe and the US, and 10%–15% in Africa
- About 15%–20% in Europe, 15%–30% in the US, and 25%–35% in Africa
- About 20%–30% in Europe, 30%–40% in the US, and 40%–50% in Africa

**Question 10.** Which of the following is not a risk factor for mother-to-child transmission of HIV?
- A high maternal viral load
- Advanced maternal age
- A low maternal CD4 count
- A history of stillbirth
- Prolonged rupture of membranes

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**Answer 1. 40 million**
The Joint United Nations Programme on HIV/AIDS estimated that by December 2004 (the latest for which figures are available), about 39.4 million people globally were living with HIV [1].

**References**

**Answer 2. 5 million**
In 2004, the Joint United Nations Programme on HIV/AIDS estimated that there were 4.9 million new cases of HIV infection [1].

**References**

**Answer 3. About 50% of people will become ill and die from AIDS over about ten years**
Without treatment, about 50% of people infected with HIV will become ill and die from AIDS over about ten years [1].

**References**

**Answer 4. Up to 50%**
Up to 50% of persons getting tested for HIV in voluntary counseling and testing and antenatal clinics, including many who are HIV-positive, do not return to collect their results [1–7].

**References**

**Answer 5. These tests have high sensitivity and specificity**
The United States Centers for Disease Control and Prevention states that, in research settings, a rapid HIV-1/2 antibody test using oral fluid called OraQuick has a sensitivity and specificity of over 99%, and that the US Food and Drug Administration expects clinical laboratories to obtain similar results [1]. In a study of patients with various levels of exposure to highly active antiretroviral therapy, a rapid HIV-1 test using oral fluid showed 100% specificity and 96% sensitivity [2]. In a study done in the setting of multiple-transmitted HIV subtypes in Kinshasa, Republic of the Congo, sensitivity and specificity of a rapid HIV-1/2 antibody test using oral fluid were both 100% [3].

**References**

**Answer 6. Under 50 years of age**
Egger and colleagues did a meta-analysis of 13 cohort studies that looked at 12,574 treatment-naïve people starting highly active antiretroviral therapy with a combination of at least three drugs [1]. Predictors of poorer outcomes were infection through injection-drug use, lower baseline CD4 cell count, higher baseline HIV-1 viral load, and advanced age.

**References**

**Answer 7. Pneumocystis pneumonia**
Pneumocystis pneumonia is the most common AIDS-defining illness in developed nations [1].

**References**

**Answer 8. Tuberculosis**
The most frequent cause of death is tuberculosis [1,2].

**References**

**Answer 9. About 15%–20% in Europe, 15%–30% in the US, and 25%–35% in Africa**
A review of 13 cohort studies found that the risk of mother-to-child transmission of HIV without antiretroviral treatment is on average about 15%–20% in Europe, 15%–30% in the US, and 25%–35% in Africa [1].

**References**

**Answer 10. Advanced maternal age**
Young maternal age is a risk factor, as are a high maternal viral load, a low maternal CD4 count, a history of stillbirth, prolonged rupture of the membranes, breastfeeding, sexually transmitted diseases, chorioamnionitis, vaginal delivery, advanced maternal HIV disease, and obstetric events that increase bleeding [1].

**References**
References