

Infant Diagnosis: Case Studies

**International Center for AIDS Care
and Treatment Programs**

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Case 1: Kebede

Amsale is a 21 year-old woman who enrolled in the pMTCT program during her most recent pregnancy after she was diagnosed with HIV.

She had an uncomplicated pregnancy and took nevirapine at the onset of labor as directed. Her baby, Kebede, was given nevirapine at birth, and Amsale has enrolled at the ART clinic.

Case 1: Kebede

When Amsale and Kebede return for their first post-partum check, both are doing well. Kebede is breast-feeding without difficulty and has gained weight as expected. **Amsale wants to know if Kebede has HIV.**

- What do you tell her?
- When should Kebede be tested for HIV?
- What test should be used?
- What other interventions should be performed?
- When should Amsale bring Kebede back to clinic for his next appointment?

Case 1: Kebede

When Kebede is 8 weeks old, his blood is drawn and sent for virologic testing. He appears clinically well.

- What will you tell Amsale about this test?
- Where will the test be performed?
- How long will it take to get the results?
- When should Amsale and Kebede return for their next appointment?

Case 1: Kebede

Amsale and Kebede return 4 weeks later to review the results of Kebede's first DNA PCR test, which is negative.

- Does Kebede have HIV?
- How will you explain the results to Amsale?
- Does Kebede need further testing? If so, when should he be tested and which test should be used?
- When should Amsale bring Kebede back to the clinic for his next appointment?

Case 1: Kebede

- The team explains to Amsale that Kebede's HIV status is indeterminate
- If he continues to feel well the next test will take place when he is 12-15 months old (or three months after breast feeding is discontinued if he is still breast-feeding beyond 12 months).

Case 1: Kebede

- Kebede returns to the clinic for monthly visits, which are often on the same day as Amsale's appointments. He is a healthy baby who gains weight and attains developmental milestones as expected. He tolerates cotrimoxazole without difficulty.
- When Kebede is six months old, the team meets to review his case. As his initial virologic test was negative and he is asymptomatic, the team decides that he can now be followed every three months.

Case 1: Kebede

When Kebede is 9 months old, Amsale brings him back to the clinic as scheduled. She tells the team that she has discontinued breast feeding, and that Kebede has been doing very well.

- Does Kebede need further HIV testing?
- If so, when should it take place?
- What type of HIV test should be sent?

Case 1: Kebede

Amsale brings Kebede back to clinic when he is 12 months old. At this visit, an HIV rapid test is done. The results are negative.

- Does Kebede have HIV?
- Does Kebede need further HIV testing?
- Should Kebede continue to follow-up at the ART clinic?

Case 2: Elias

- Alem is an 18 year-old woman who was diagnosed with HIV during her first pregnancy. She enrolled in the pMTCT program and took nevirapine at the onset of labor. Her baby, Elias, received nevirapine at birth.
- When Alem and Elias return for their first post-partum check, both are doing well. Elias is breast-feeding without difficulty and has gained weight as expected.

Case 2: Elias

Alem wants to know if Elias has HIV

- What do you tell her?
- When should Elias be tested for HIV?
- What test should be used?
- What other interventions should be performed?
- When should Alem bring Elias back to clinic for his next appointment?

Case 2: Elias

When Elias is 10 weeks old, his blood is drawn and sent for virologic testing.

- What will you tell Alem about this test?
- Where will the test be performed?
- How long will it take to get the results?
- When should Alem and Elias return for their next appointment?

Case 2: Elias

Alem and Elias return two weeks later to review the results of Elias's first virologic HIV test, which is negative.

- Does Elias have HIV?
- How will you explain the results to Alem?
- Does Elias need further testing? If so, when should he be tested and which test should be used?
- When should Alem bring Elias back to the clinic for his next appointment?

Case 2: Elias

The team explains to Alem that Elias's HIV status is indeterminate, and that if he continues to feel well the next test will take place when he is 12-15 months old (or three months after breast feeding is discontinued if he is still breast-feeding beyond 12 months).

Case 2: Elias

Alem continues to bring Elias to clinic on a monthly schedule. He tolerates cotrimoxazole without difficulty. When he is five months old, the clinicians notice that he has lost weight. Alem reports that he has had diarrhea for 3 weeks.

- What should the team do now?
- What tests should be sent?
- When should Elias return to clinic?

Case 2: Elias

- Elias is treated for diarrhea, which resolves. However, he is noted to have oral thrush and diffuse lymphadenopathy on physical examination.
- Because Elias has symptoms that might be related to HIV infection, the team explains to Alem that Elias requires a repeat virologic HIV test.
- The test is sent, and is positive.
 - Does Elias have HIV?
 - Does he require further HIV testing?

Case 2: Elias

- Elias's case is discussed at the next team meeting. The team suspects that Elias is HIV-infected, since he has had diarrhea, thrush, lymphadenopathy and one positive virologic test.
- Since Elias's first virologic test was negative and since diarrhea is not an AIDS-defining diagnosis, the team recommends a third virologic test.
 - They also decide to do a CD4 cell count since the results will be back quickly

Case 2: Elias

Elias's CD4 cell count is 1300 cells/mm³; 21%
Elias's third virologic test is positive.

- Does Elias have HIV?
- Does he require further tests to determine whether he is HIV-infected?
- What are the next steps in Elias's care?
- What should the team tell Alem?

Case 2: Elias

The team explains to Alem that Elias has HIV. Although she is extremely upset, Alem finds hope in the fact that Elias will continue to receive care and treatment at the clinic.

Case 3: Lakech

Selam just had her first daughter, Lakech. Selam was diagnosed with HIV during the recent pregnancy and participated in the pMTCT program. She brings Lakech to clinic for the baby's first visit.

Case 3: Lakech

- When Lakech is 8 weeks old, she has a virologic HIV test which is positive. Her clinical status is unremarkable.
 - Does Lakech have HIV?
 - Does she require additional testing?
 - If so, which type of test should be performed and when should it be done?
 - What should the team tell Selam?

Case 3: Lakech

- The team explains to Selam that Lakech's first test was positive and that this means that she may be infected with HIV. A second virologic test is sent.

Case 3: Lakech

- When Lakech returns at 12 weeks old, the second virologic test, is again positive.
- At this point, the doctor notes that Lakech has some thrush and an ear infection on examination
 - Does Lakech have HIV?
 - Does she require additional testing?
 - If so, which type of test should be performed and when should it be done?
 - What should the team tell Selam?

Case 3: Lakech

- The team explains to Selam that Lakech is definitely infected with HIV. Although Selam is extremely upset by the bad news, she takes hope from the fact that treatment is available for Lakech.
- After the team provides counseling, patient education, and psychosocial support to Selam and her husband, the next step is to assess whether Lakech requires antiretroviral therapy right now.

Case 4: Asmeret

- Mekdes is a 22 year-old diagnosed with HIV during her most recent pregnancy. Her pregnancy was uncomplicated, and she took nevirapine at the onset of labor as instructed. Her baby, Asmeret, did not receive nevirapine at birth.
- Mekdes can afford infant formula, has access to clean water, and her family knows of her HIV status. She has decided not to breast-feed Asmeret.

Case 4: Asmeret

- When should Asmeret have her first HIV test?
- What test should be used?
- When should Mekdes return for the results?
- What other interventions should be performed?

Case 4: Asmeret

- Asmeret has a virologic test at 8 weeks. When she returns at the 12 week visit, Mekdes learns that the result is negative.
 - Does Asmeret have HIV?
 - Does she require further testing?
 - If so, when should she have her next test and what type of test should it be?

Case 4: Asmeret

The team explains to Mekdes that Asmeret's HIV status is indeterminate. However, since she is not breast feeding, the test generally means that the baby does not have HIV infection.

Case 4: Asmeret

- The team meets to discuss Asmeret's care. Since Mekdes is feeding her formula, she is generally doing well, and she has had a negative virologic test, the team decides that:
 - Asmeret can get her immunizations closer to home
 - She should come back to the clinic for an HIV antibody test when she is 12 months old.

Case 4: Asmeret

- Mekdes brings Asmeret for her 12-month visit, she continues to do well. She is gaining weight as expected and has had no symptoms of illness since her last appointment.
 - What test should be done?
 - When should she return for the next visit?

Case 4: Asmeret

- An antibody test is done. The result is negative.
 - Does Asmeret have HIV?
 - Does she need further HIV testing?
 - Should she continue follow-up at the clinic?

Case 5: Yared

- Nigist tested positive for HIV last year at a local VCT site.
- As soon as she knew she was pregnant, Nigist presented for ANC and explained that she was HIV-positive.
- When repeat testing confirmed that Nigist had HIV, she was enrolled at the clinic in her 28th week of pregnancy.

Case 5: Yared

- At Nigist's baseline assessment, her CD4 count was found to be 142. Other laboratory tests were normal.
- After counseling and patient education, Nigist was started on cotrimoxazole and antiretroviral therapy in week 32 of her pregnancy.

Case 5: Yared

- Nigist's pregnancy was uncomplicated, and her first child, Yared, was born eight weeks later.
- At her first post-partum check, Nigist asks if Yared has HIV
 - What do you tell her?
 - When should Yared be tested for HIV?
 - What test should be used?
 - What other interventions should be performed?
 - When should Nigist bring Yared back to clinic for his next appointment?

Case 5: Yared

- When Yared is eight weeks old, he has a virologic test for HIV, which is negative.
 - Does Yared have HIV?
 - How will you explain the results to Nigist?
 - Does Yared need further testing? If so, when should he be tested and which test should be used?
 - When should Nigist bring Yared back to the clinic for his next appointment?

Case 5: Yared

The team explains to Nigist that Yared's HIV status is indeterminate, and that if he continues to feel well the next test will take place when he is 12 months old (or 6 weeks after breast feeding is discontinued if he is still breast-feeding at 12 months).

Case 5: Yared

- Yared returns to the clinic for monthly visits, which are often on the same day as Nigist's appointments.
- On Yared's 3- and 4-month visits, the team notices that he has not gained weight as expected.

Case 5: Yared

- According to Nigist, Yared has not had any diarrhea or difficulty eating; his appetite is good.
- Apart from his weight, Yared's physical examination is normal.
- The team is concerned that failure-to-thrive may be a sign of HIV infection, and repeat Yared's virologic HIV test.

Case 5: Yared

- At 18 weeks, Yared's virologic test is negative.
- He continues to be underweight, but two tests were negative.
 - Does Yared have HIV?
 - What else might be causing failure to thrive?
 - What should the team do now?

Case 5: Yared

- The team discusses Yared's case at an interdisciplinary meeting.
 - The counselor mentions that Nigist has recently missed an appointment.
 - Nigist's clinician mentions that Nigist has lost 7 kgs over the past two months, although her CD4 count is now 400.
 - The outreach worker reports that Nigist was not at home at the time of the last scheduled home visit.
 - What are some possible explanations for Nigist's weight loss and Yared's failure to thrive?

Case 5: Yared

- With Nigist's permission, another home visit is scheduled. Nigist's favorite nurse goes along with the outreach worker.
- During the visit, the outreach worker notices that there is no food in the cupboards. When she asks Nigist about this change, Nigist starts to cry.

Case 5: Yared

- With the support of the nurse and outreach worker, Nigist tells her story. Her husband is away from home, working on a farm. Although he had previously sent home money, he has not done so for many months.
- Nigist is worried that her husband has abandoned her and Yared, and ashamed that she has no money with which to buy food.

Case 5: Yared

- The team arranges an emergency conference about Nigist and Yared. Nigist is referred to a nearby food pantry, and to a local support organization. She is able to earn some money by sewing dresses, and receives food for herself and the baby.

Case 5: Yared

- Nigist and Yared both begin to gain weight. Several months later, Nigist's husband returns with additional funds.
- When Yared is 15 months old, an antibody test is negative. Nigist has now been on antiretroviral medications for 20 months, and her CD4 count is 430.

Case 6: Teferi

- Desta enrolled in the clinic immediately post partum. Her son Teferi is 12 weeks old and mom has brought her back for her routine visit. DNA-PCR was done at 8 weeks and the baby tested positive.
 - What do you tell Desta?
 - Is there any additional testing to do today?
 - When should the baby be brought back for a visit?

Case 6: Teferi

- The counselor contacts mom one week after the appointment. She weeps, crying that the baby will die because of HIV.
 - What should the team do now?

Case 6: Teferi

- Mom as well as dad meet with the counselor and talk about the baby's status. In the meantime, the baby does well at home and is brought back at 12 weeks of age. She has gained weight now and has not had any illnesses since the last visit. The second DNA PCR test is negative.
 - What should you say to mom?
 - Should further testing be done?

Case 6: Teferi

- Since the baby is doing well and mom is breast feeding, the team decides to wait until they have access to a new lab for DNA PCRs.
- They've had a number of recent test results that didn't make sense
- Question: What other decision could the team have made?

Case 6: Teferi

- The baby continues to do well. The team decides to wait until the next visit to repeat the test. DNA PCR is negative on repeat testing.
 - What do you say to the mother?
 - Are any additional tests needed?
 - When should they be done?

Case 7: Alem

- Alem is an 8 month old who is brought by her mother for nutritional evaluation
- She was recently discharged from the hospital with severe diarrhea and malnutrition
- She has been followed at this health post since birth and has been noted to be small for age since she was 3 months old

Case 7: Alem

Alem has been weaned because her mother is too ill to breast feed. She is taking porridge.

- What else would you like to know?
 - Does her mother have HIV?
 - Does Alem have symptoms and signs of HIV?
- What other interventions should be performed?

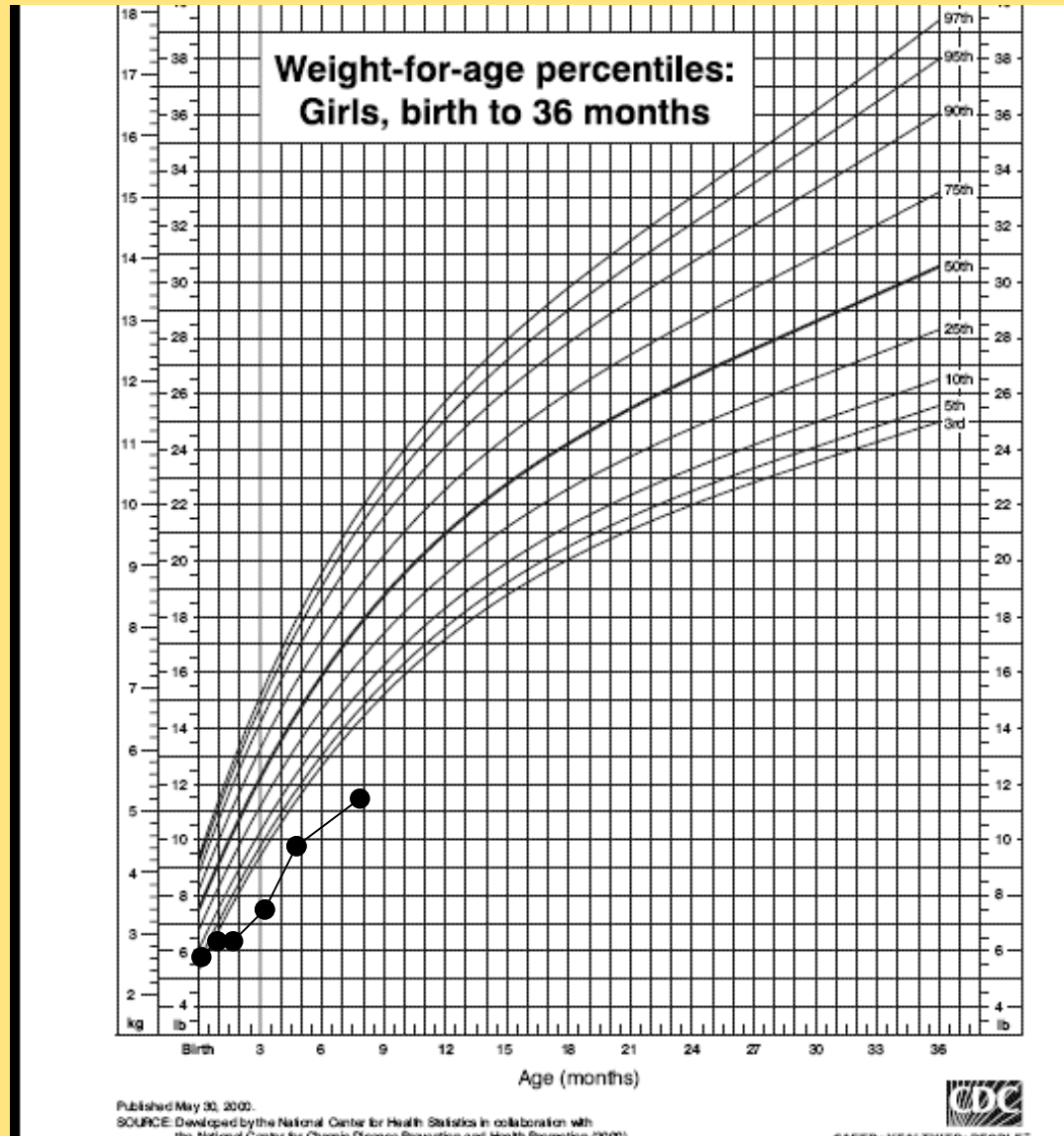
Case 7: Alem

- Her mother bursts out crying. She was diagnosed with HIV 6 months before she became pregnant. She is too ashamed to tell any one and she is afraid that her baby has HIV and will die.
- Mother says that initially Alem could hold her head without support but now she is no longer able to do this.

Case 7: Alem

- Alem appears small for age her weight is < 3rd percentile for the 5th month in a row
- Her head circumference < 3rd percentile and her height is on the 5th percentile
- She can barely hold her head up and is unable to without support
- She has extensive oral thrush, generalized lymphadenopathy and an enlarged liver

Case 7: Alem



Case 7: Alem

- What is your clinical impression?
- What do you say to the mother?
- What tests can be performed to support a clinical diagnosis of HIV?

Case 7: Alem

- You suspect Alem may have HIV based on
 - Thrush
 - Severe wasting/malnutrition
 - Hepatomegaly
 - Delayed and loss of developmental milestones
 - Severe HIV in her mother

Case 7: Alem

- You diagnose HIV based on clinical criteria and decide to send
 - HIV antibody
 - Total lymphocyte count
- Treat her thrush with Nystatin
- Place her on cotrimoxazole for PCP prophylaxis
- Continue nutrition rehabilitation

A presumptive diagnosis of severe HIV disease should be made if :

- ***Infant is confirmed antibody positive;***
- ***Aged under 18 months;*** and
- Symptomatic with two or more of the following;
 - ***Oral thrush***
 - Severe pneumonia
 - ***Severe wasting/malnutrition***
 - Severe sepsis
- Other factors that support the diagnosis include:
 - Recent HIV related maternal death
 - ***Advanced HIV in the mother***
 - CD4<25%

Case 7: Alem

- Alem returns the following week for a weight check and results
- HIV antibody is positive
- Her TLC is 1100cell/mm³
- You refer Alem for HIV staging and ARV at the local hospital