



South to South



Cases

[illustrating the diagnosis of HIV infection]



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FROM THE AMERICAN PEOPLE



ICAP
International Center for AIDS
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Case 1

- A HIV infected mom is referred to the pMTCT program
- She is 34 weeks gestation
- During intake you learn that she has a 13 month old male child at home
- You arrange for her to bring the child to her next visit for evaluation.

Case Continuation

- Mom brings the child to see you in clinic.
- What are the questions you might want to ask?

Case Continuation

- Mom reports that the child is still breast feeding, but only 2-3 times per day. She remembers beginning to add water and food to his diet when he was 2 months old. Now he eats everything.
- He has been a well child, but was hospitalized once for an infection in his chest and sometimes he gets white discharge from his ears.
- He has received all of his immunizations but mom didn't bring his record.
- Mom was only just diagnosed with HIV during the current pregnancy
- She did not receive pMTCT treatment when she was pregnant with her 13 month old
- Mom is waiting to receive her CD4+ cell count test results

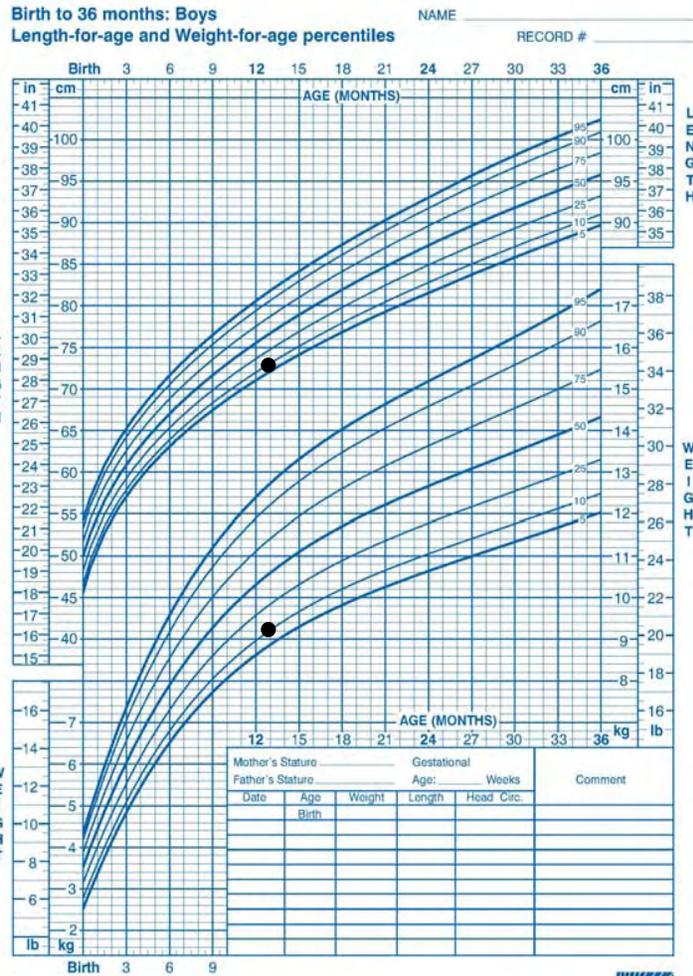
Clinical Question

- What would you look for on physical examination to help determine the 13 month old child's HIV status?

Case Continuation

- The child appears well
- Weight, height, and head circumference are on the 25%, 10%, and 10% percentiles, respectively (no old growth data are available)
- There are scars on his tympanic membranes but his examination is otherwise normal
- He says a few words and takes steps alone

The Growth Chart



- What laboratory test(s) would you do, if any?

Different Diagnostic Tests Advantages and Disadvantages

- HIV Rapid Test/Antibody
 - If positive,
 - not definitive at 13 months
 - may still be maternal antibody
 - If negative,
 - Rules out early perinatal infection (in utero, intrapartum)
 - Still at risk because of ongoing breast feeding exposure. Need to repeat >6 weeks after discontinuation of breast feeding

Different Diagnostic Tests Advantages and Disadvantages

- HIV DNA/RNA PCR
 - If positive, highly likely to be infected if lab is reliable (still need to confirm)
 - If negative, still at risk because of BF
 - More expensive, takes longer, more difficult to do compared with rapid test HIV antibody at this age

Case Continuation

- You decide to send a rapid HIV antibody test. The results are available within an hour and you learn that the child tests positive

Clinical Question

- How do you explain the test results to mom?

Clinical Questions

- Given that the antibody test is positive, which of the following options would you now choose?
 - DNA PCR
 - Repeat HIV antibody at >18 months
 - Repeat HIV antibody >6 weeks after discontinuation of breast feeding

Case 2

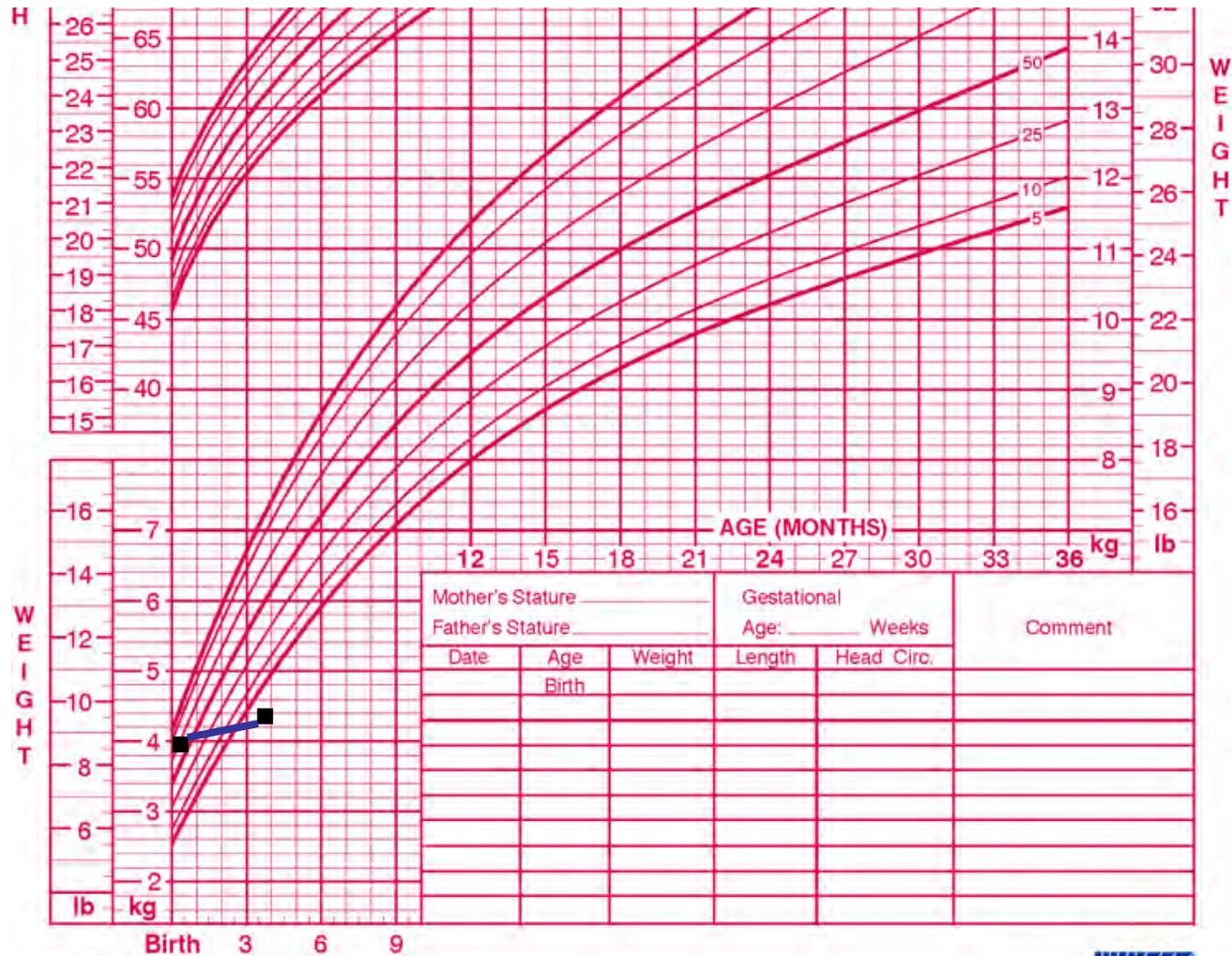
- 3 Month old infant
- Present with 5 day history of feeding difficulty and dry cough
- Previously well
- Birth and neonatal:
 - Mom unbooked 19 years old
 - Normal vertex delivery 3.6 kg baby
 - Breast feed
 - Vaccinations up to date
- Social
 - Living with parents
 - Fridge
 - No TB contact

Examination

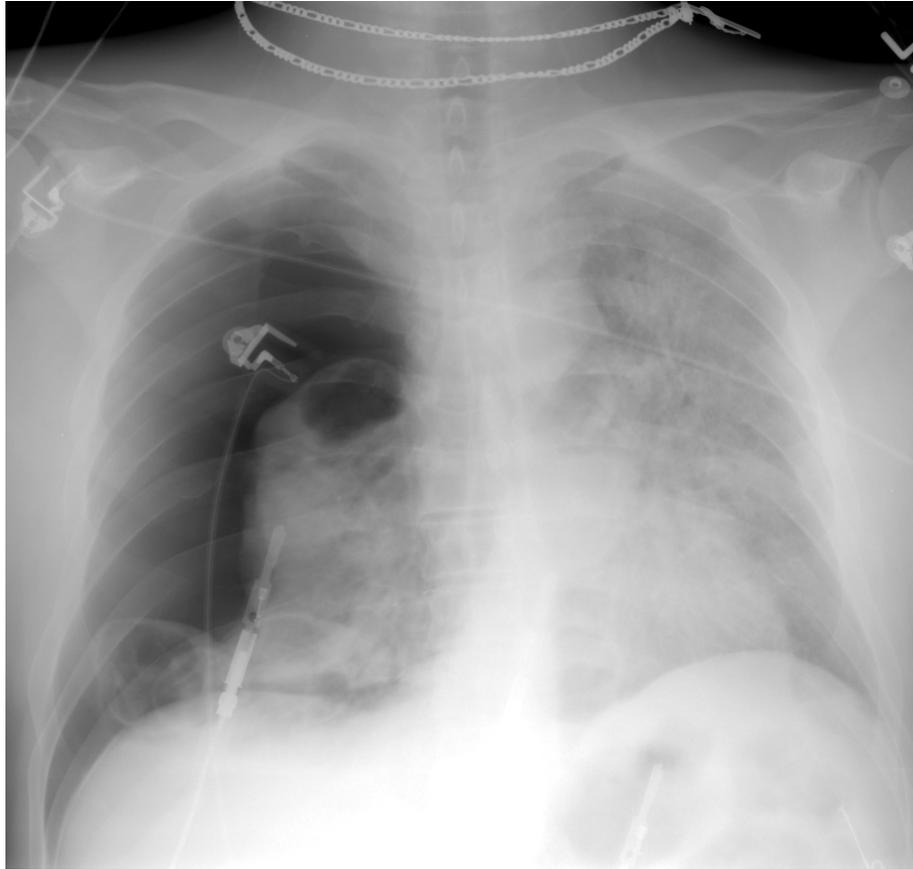
- Distressed RR 90/min clinical cyanosis
- Recessing
- Auscultation reduced air entry on the right
- Rest of the examination
 - Wt 4kg
 - Liver 4 cm firm
 - Spleen 4 cm



Weight for Age



You ask for a CXR



What do you suspect

What do you suspect

- HIV complicated by PJP pneumonia, Candida and FTT

How would you manage this infant?

How would you manage this infant?

- Oxygen
- Intercostal drain
- High dose co-trimoxazole (steroids)
- Supportive care
- HIV testing
- Which screening test would you use?

The HIV EIA of the baby is positive

- What does this mean?
- What would you do now?

The baby has a positive DNA PCR

- What does this mean?
- What would you do next?

The CD4% is 20%

- What does this mean?

Which steps should be taken?

- Test Mother – HIV and CD4
- Counsel Mother re HIV and HAART
- Supportive care

You initiate treatment:

- Stavudine
 - Lamivudine
 - Nevirapine
-
- 2 weeks later the child comes for follow-up

- Apyrexial
- No mucosal lesions
- No right upper quadrant tenderness
- What is the likely cause
- What is your plan?



NVP Rash

- Usually occurs during first 2 – 6 weeks of therapy
- For mild to moderate rash without systemic symptoms, continue treatment with close observation
- For severe rash (2-5%), Stevens Johnson Syndrome (fever, oral lesions, conjunctivitis, blistering), discontinue drug
- Rash temporally associated with Grade 4 liver enzyme elevation in 25 percent of cases

Nevirapine: Grading Rash Severity

Grade 1: Mild

- Erythema without pruritis

Grade 2: Moderate

- Diffuse maculopapular rash or
- Dry desquamation or
- Urticaria or
- Target lesions without blistering/ulceration/vesicles
- Absence of systemic symptoms

Nevirapine: Grading Rash Severity

- **Grade 3: Severe**

- Vesiculation or
- Moist desquamation or
- Ulceration or
- Diffuse rash and serum sickness (fever, lymphadenopathy, muscle/joint pain or
- Diffuse rash and systemic symptoms (fever, blistering, elevated transaminases)

- **Grade 4: Potentially Life Threatening**

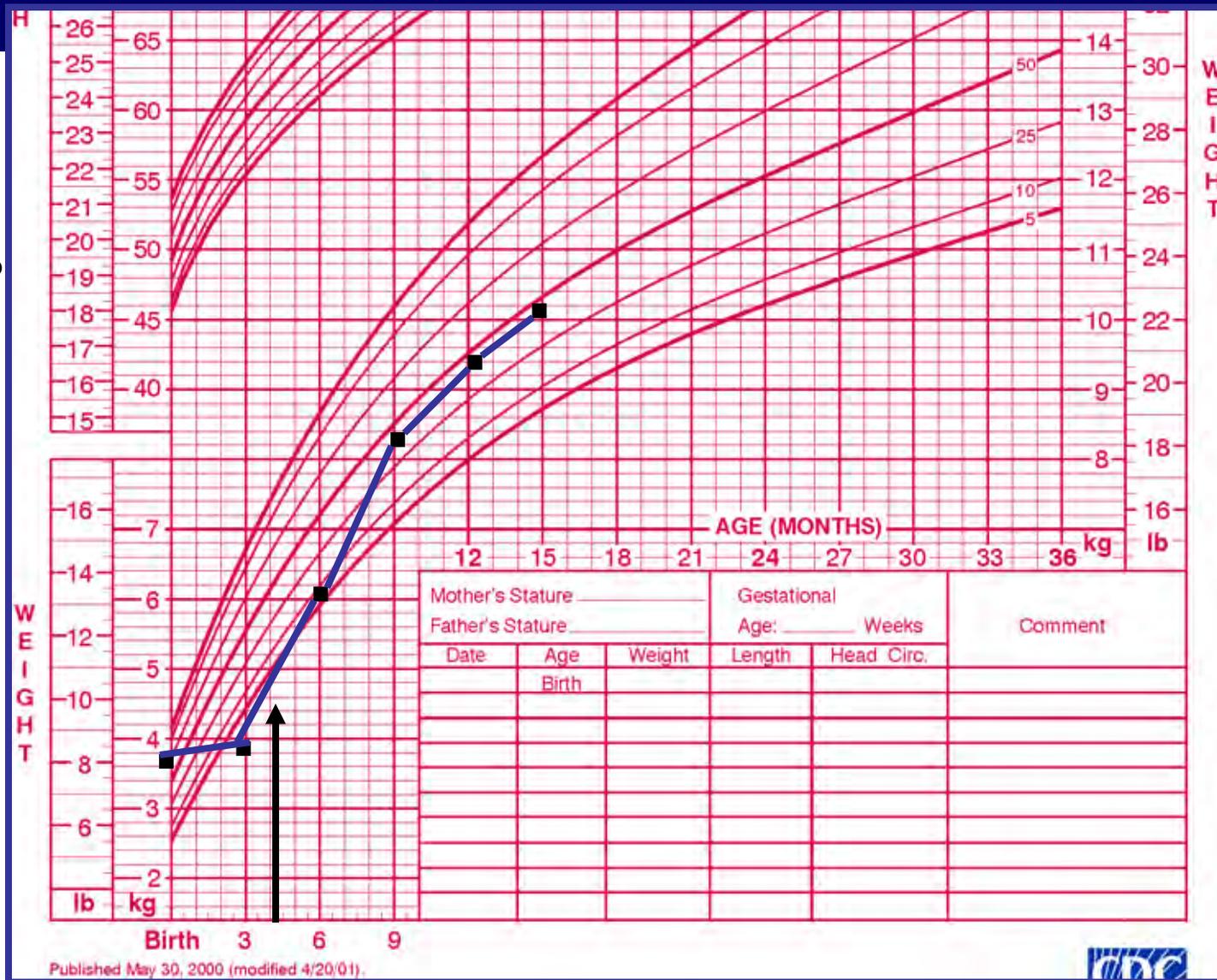
- Mucous membrane involvement or
- Suspected Stevens Johnson syndrome or
- Erythema multiforme or
- Exfoliative dermatitis

Actions

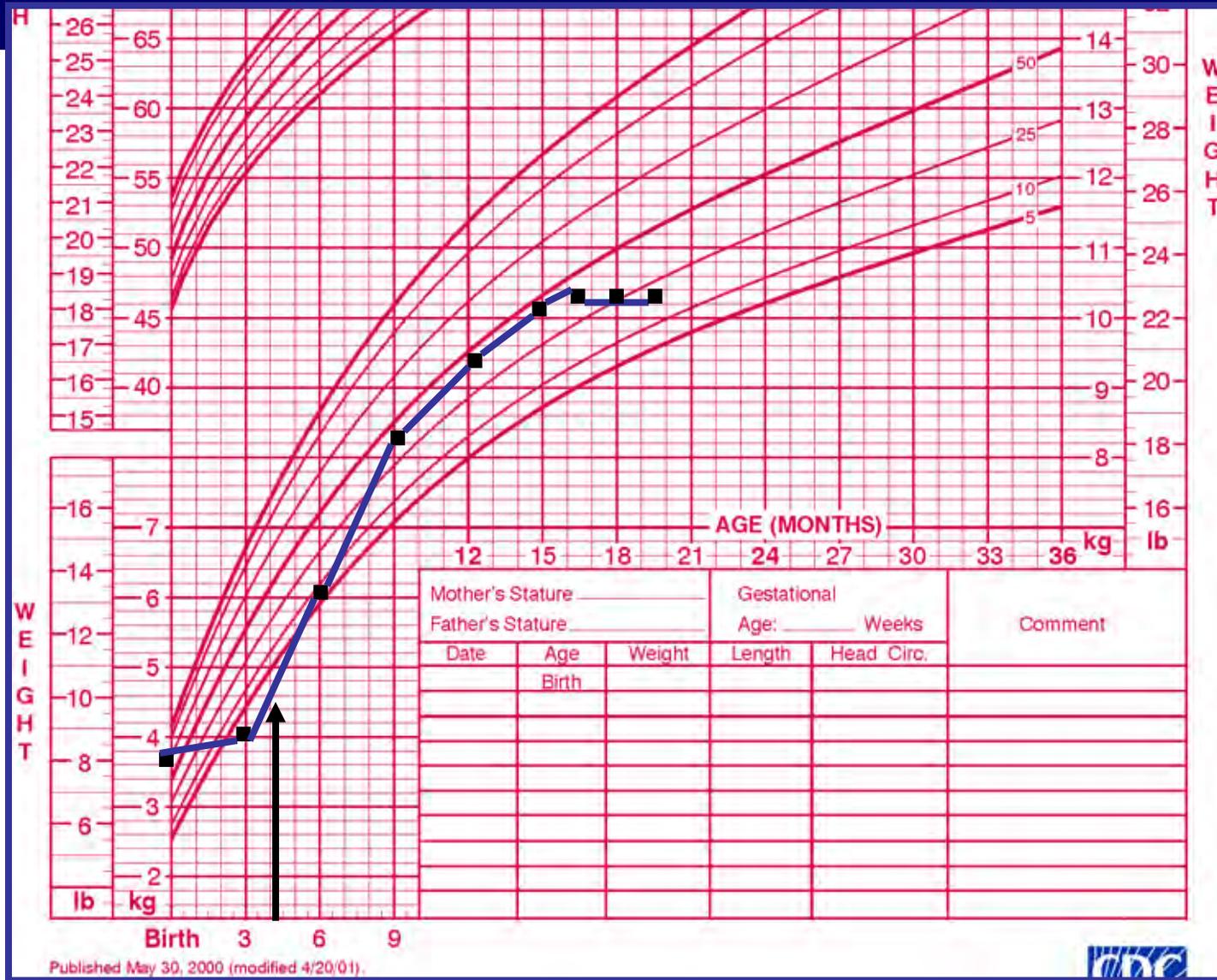
- Grade according to the grading scale
- Do ALT
- Consider continuation cautiously

You monitor her response

CD4 45%



At 20 months you notice.....



Question

- What are the possibilities?
- What would you do?

Whist delving deeper you discover

- No new TB contact
- Mom often not home in the evening before very late she asked her 12 year old sister to give the drugs
- The sister was to ashamed to tell mom that she forgets to give the medicine a lot of the time when she is chatting with school friends or busy with her home work

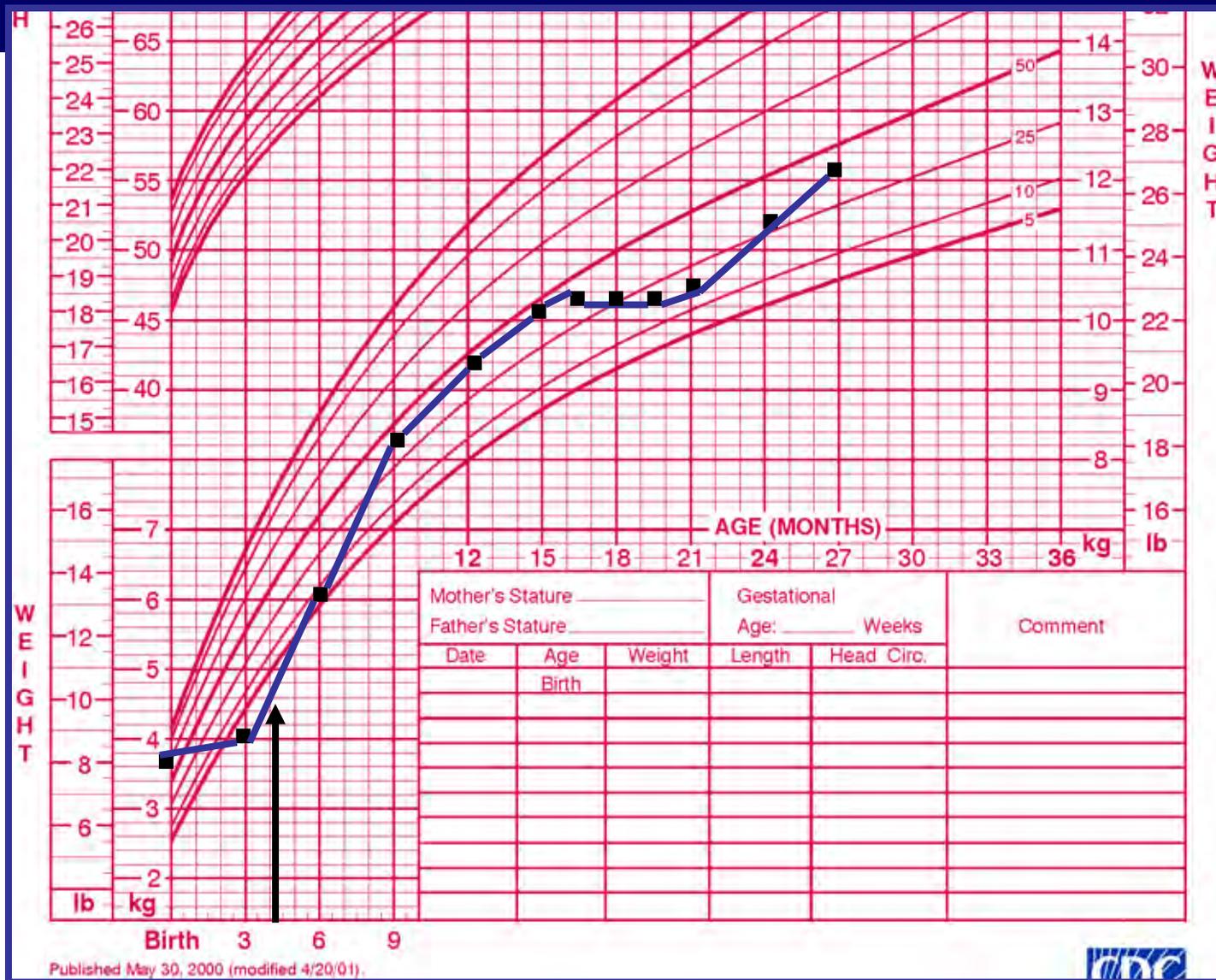
Labs

- CD4 20%

What do you suggest

You decide to switch

- What is the second line



Case 4

- Mom brings her 10 week old back for care to the clinic
- She has been receiving cotrimoxazole since 4 weeks of age
- She is breast feeding and receiving additional foods and water from an aunt
- Mom works several days each week

- She had a blood test on the last visit and mom is anxious to know the results

- Baby appears well. She smiles, makes good eye contact, and reaches out
- Growth following the 25th centiles for height and weight
- DNA-PCR results were reported as negative

Clinical Question

- Given the laboratory result and the clinical findings, do you think this child is HIV-infected?

Clinical Question

- How will you manage the child?

Case Continuation

Since the baby is thriving you decide not to change clinical management, but you do:

- Continue CTX
- Close, regular follow-up
- Explain to mother that a repeat HIV test will be required

Case Conclusion

- Mom weaned the baby at 6 months
- Baby continued to be followed
- How would you go about confirming the diagnosis?

Case 5

- A 10 week old baby girl is brought to the clinic by her paternal grandmother.
- Her mother enrolled in PMTCT during pregnancy at 35 weeks gestation.
- Mom usually brings the baby to clinic but she is back at work now so grandma is caring for the child.
- DNA PCR testing was done when the baby was last at the clinic at 6 weeks of age. The result was positive.
- The team had planned to tell mom the results at this visit

Case Continuation

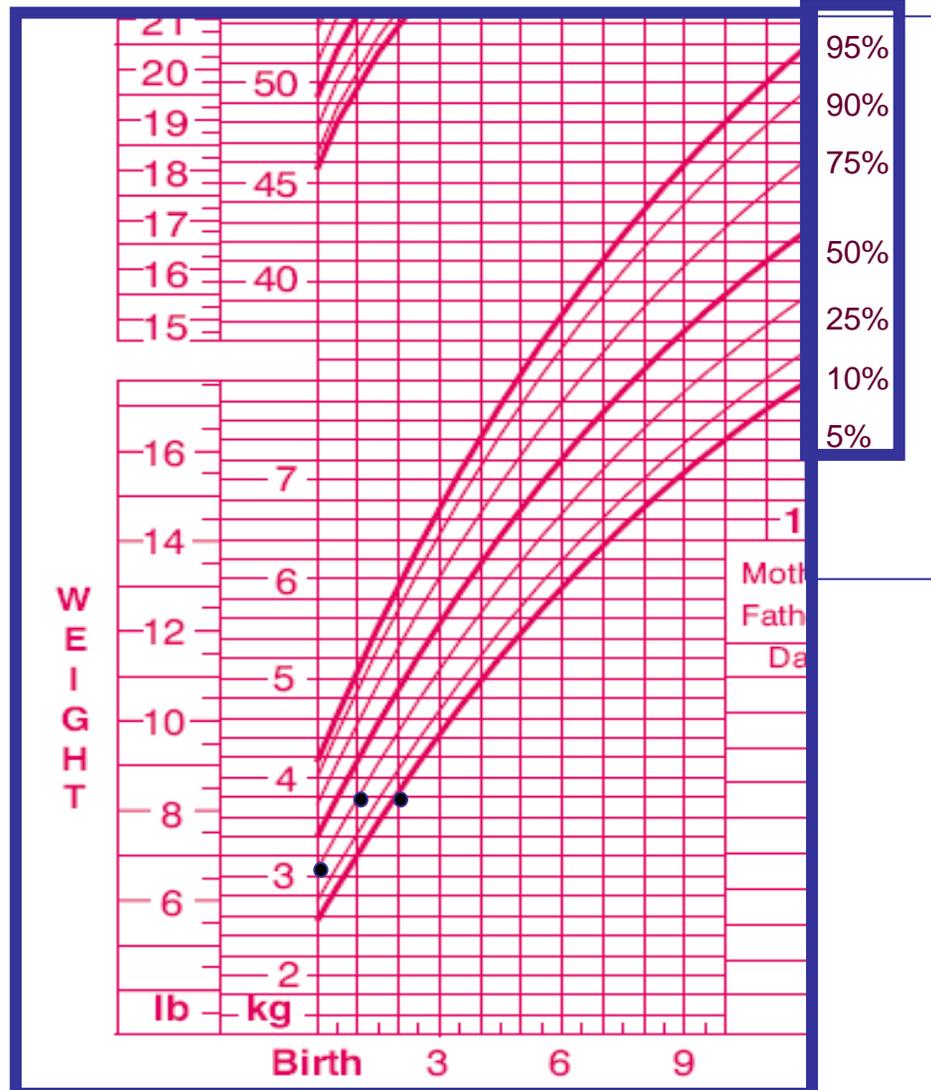
- Grandma reports that the baby is doing fine.
- She feeds her some porridge and mashed banana with a little milk and water during the day.
- Mom is breast feeding when she is home.
 - The baby is a good eater.
- She had some loose stools last week
 - This got better after grandma gave her some herb tea.
- Grandma doesn't give her any medicine. She is sure that she doesn't receive anything from her mother or she would have told her. She asks if something is wrong with the baby?

Case Continuation

- The baby is well appearing, but has not gained any weight since the last visit.
- The exam is notable for
 - dermatitis
 - oral thrush
 - small palpable lymphadenopathy.
- The baby has one large, loose stool during the evaluation.

Case Continuation - Growth Chart

- Birth Weight 3.0 kg
- Wt at 1 month 3.8 kg
- Wt at 2 months 3.8 kg



Clinical Question

- What do you want to do next?

Case Continuation

- The clinicians decide that further evaluation and treatment is required.
- Since grandma didn't know about the CTX, the nurse is worried that grandma doesn't know about the mother's or the baby's HIV status.

Clinical Questions

- How would you assess what grandma knows?
- Do you want to discuss the child's HIV status with grandma?
- Do you want to tell her the results of the DNA-PCR test?

Case Continuation

- The team quickly decides that the child's condition is not an emergency and does not warrant disclosure to the grandmother.
- The decision is made to schedule another appointment for the mother and child.
- You tell grandmother that the child needs medicine and a blood test

Case Continuation

- 10 days later mom comes to clinic with the baby.
- The baby has not been feeding well and has been having diarrhea.
- Her weight is now below the 5th percentile and the thrush has worsened.
- Liver enlargement and splenomegaly are also noted on exam.

Clinical Question

- What do you want to say to mom?

Clinical Question

- The team tells the mom in a supportive manner about her child's diagnosis.
- Now, how do you want to proceed with the baby?

Case Continuation

- The baby is admitted to the hospital for nutritional rehabilitation.
- The CD4 is available the next day:
 - CD4 750, 6%.

Clinical Questions

- Is the child eligible for ART? Would you begin treatment?
- How will you explain your decision to her mother?

Clinical Question

- Grandma arrives at the hospital the next day and wants to know what is wrong with the child.
- The staff initially avoid her, but realize that they must address her questions.
- What should be said to grandma?

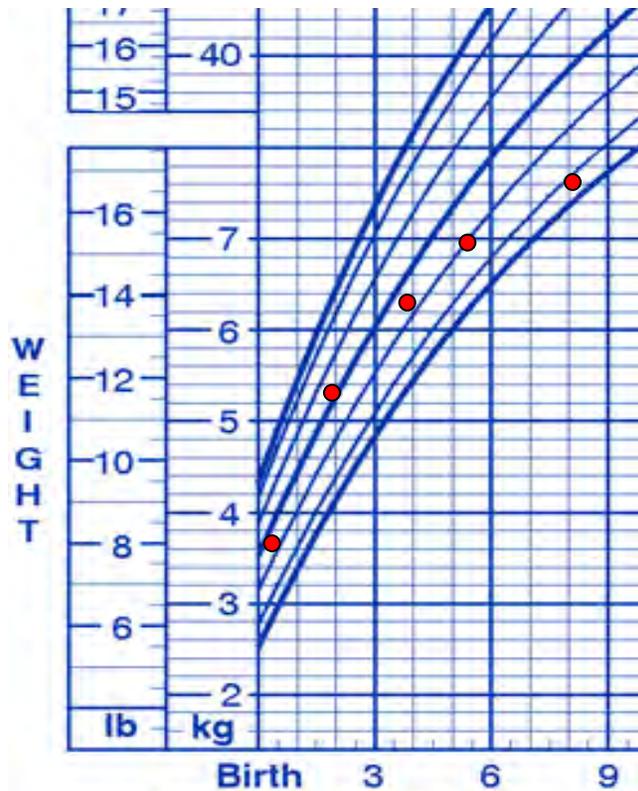
Case 6

- A 6 month old boy is well know at your clinic
- Mom was antenatally diagnosis with HIV
- Baby and mother took Nevirapine as required.
- Baby started on Cotrimazole prophylaxis at 6 week.
- Exclusively breastfed for 6 months
- 1st DNA PCR positive
- Vaccination up to date

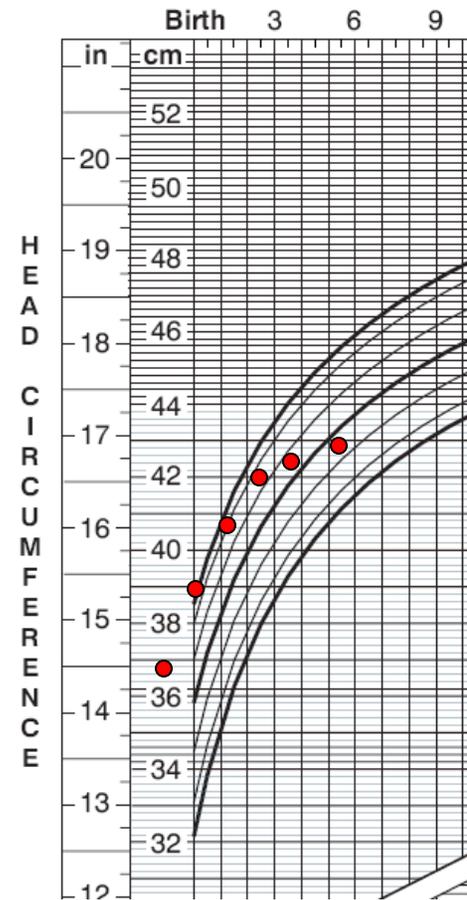
Now

- Mom has no new complaints

Centile chart



Published May 30, 2000 (modified 4/20/01).
 SOURCE: Developed by the National Center for Health Statistics,
 the National Center for Chronic Disease Prevention and Control
<http://www.cdc.gov/growthcharts>



- What is worrying you
- Which system may be affected

On examination

- No acute illness
- Severe developmental delay
- No head control
- Unable to sit

- CD4 38%

How would you proceed

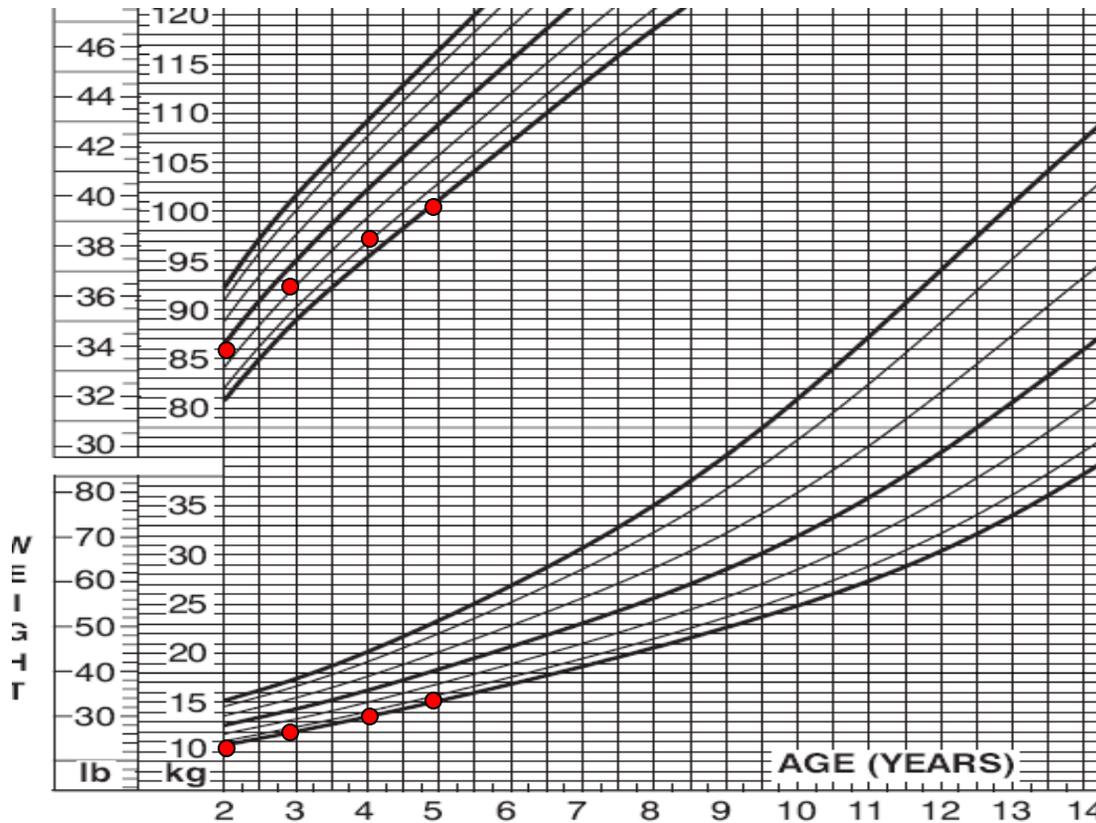
Management

- Stage 4 CNS disease
 - Needs HAART
- You initiate the child with the first line available to you
- What is your first line
- What dosages would you use?

Case 7

- Vusi is 5 years old
- He was newly diagnosed with HIV.
- He was tested because his brother Thabo presented with PJP pneumonia
- His only complaints were of recurrent otitis media and scattered molluscum contagiosum on the face
- He has just received his final vaccination

Your assessment

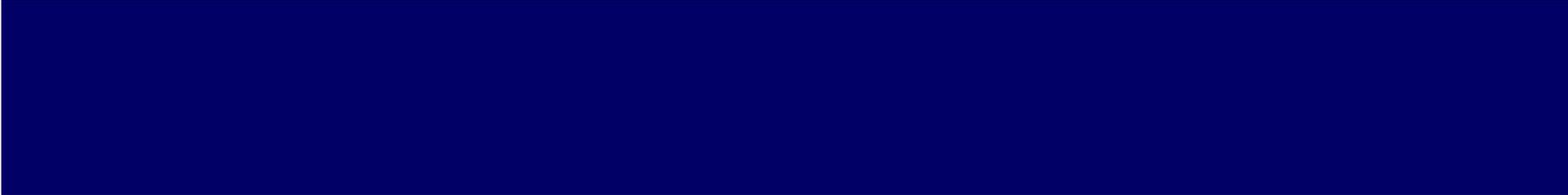


- Bilateral perforations of the tympanic membrane
- Molluscum lesions on the face

CD4 10% 195 cells

What should we consider

- Clinical stage
- Immunological stage
- Does the child need HAART?



After preparation you initiate with D4T, 3TC and NVP

- How would you proceed?
- How would you monitor?
- What would you watch for?

Case 8

- A 6 month old boy is well know at your clinic
- Mom diagnosed antenatally with HIV
 - Clinical stage III (oral thrush)
 - CD4 200 cells
 - Vaginal delivery ROM 8 hours
- Baby and mother took Nevirapine as required.
- Baby started on Cotrimazole prophylaxis at 6 week
- 1st DNA PCR negative
- Exclusively breastfed for till now
- Social
- Mom preparing for HAART

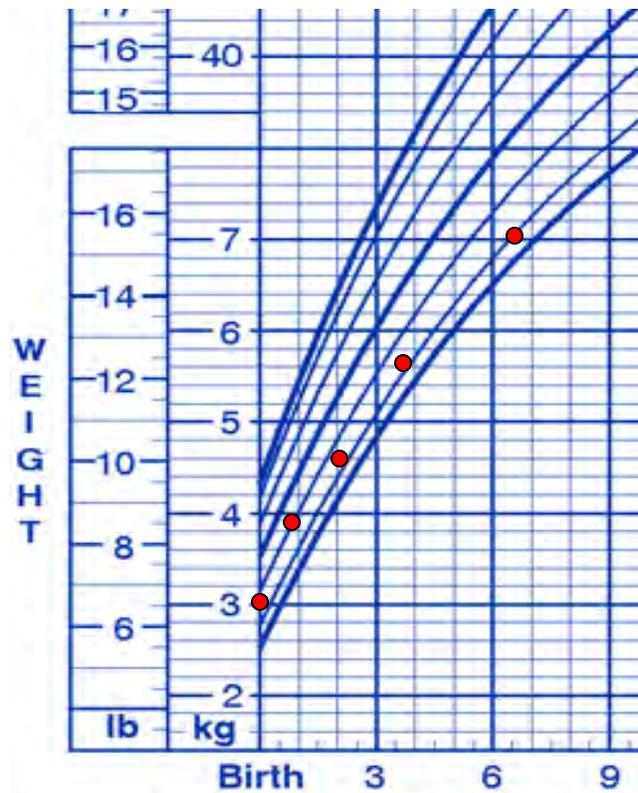
Questions

- Identify the risk factors for transmission in the history
- What are the complicating factors in the infant diagnosis

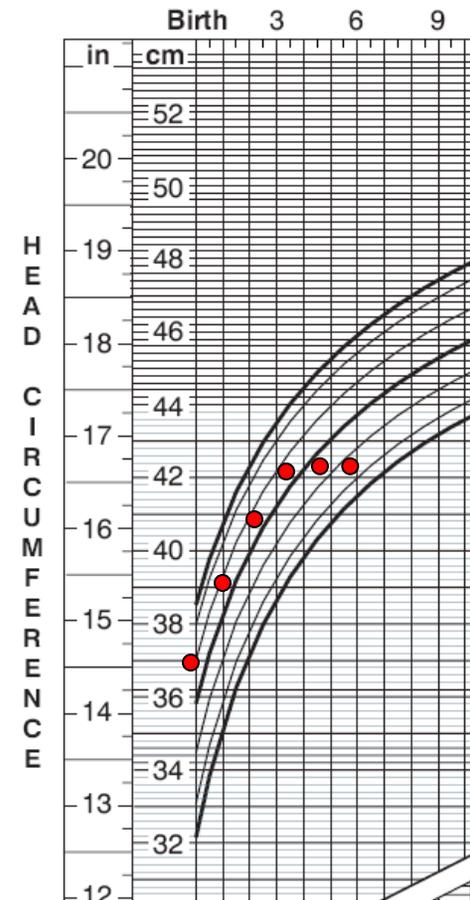
Now

- Mom has no new complaints

Centile chart



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Questions

- What is worrying you
- Which system may be affected

On examination

- Clinical
 - No acute illness
 - Neurodevelopment
 - No head control
 - Unable to sit
 - Increased tone in the legs with brisk reflexes at the ankles and knees

Question

- What is your diagnosis
- Do you need special investigations to confirm you suspicions

How would you proceed

How would you proceed

- Presumptive diagnosis of HIV
 - Stage 4 CNS disease
 - Needs HAART
- Confirm infection
 - PCR
- Baseline
 - CD4 38%
- Prepare for ART

Actions

- The PCR is positive
- You initiate the child with the first line available to you
 - What is your first line?
- This child has a weight of 7kg
 - What dosages would you use?

You initiate the patient

- Stavudine 15mg 2x/day
- Lamivudine 30mg 2x/day
- Kaletra 1.5ml 2x/day

- You ask the mom to return 1 week later

Mom reports that

- She did not miss any doses
- Baby taking the drugs and did not vomit
- Baby has liquid stools
 - Usual number
 - Clinically not dehydrated

Question

- What do you suspect
- What would you suggest to the mother

Case 9

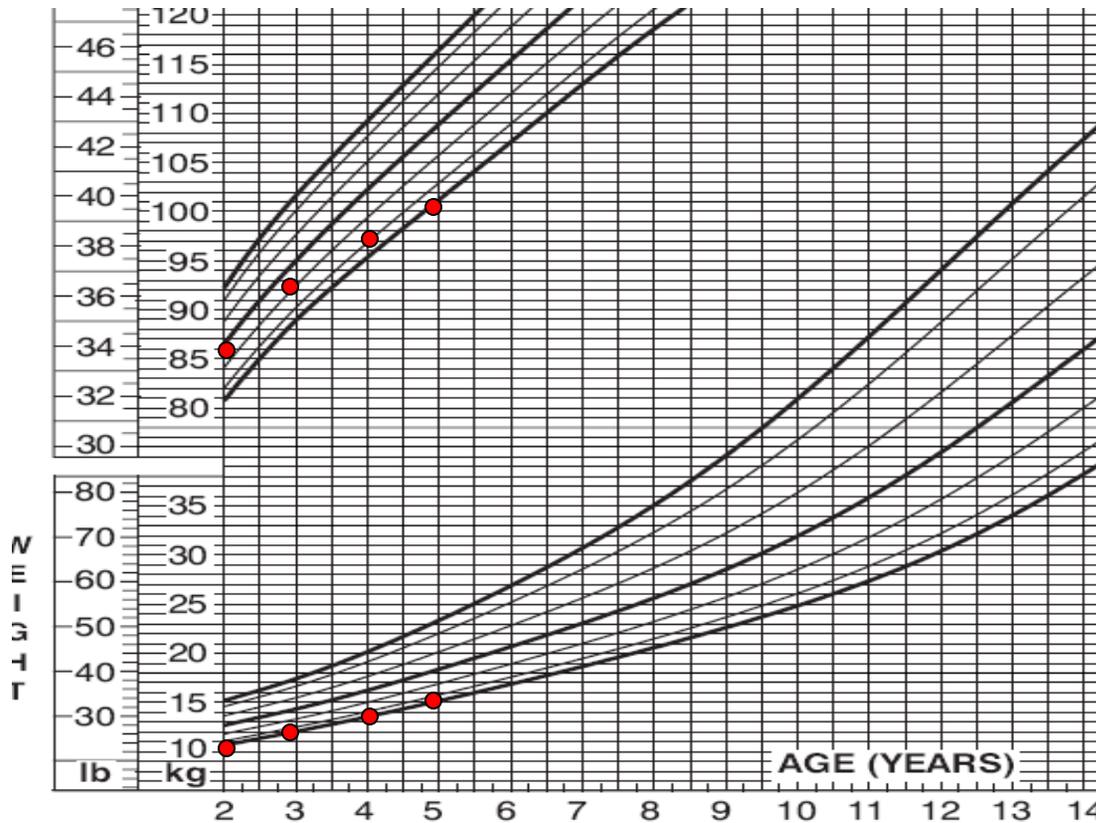
- You find Vusi sitting next to his mother in the pediatric ward
- He is 5 years old
- His brother Thabo presented with PJP pneumonia and has a positive PCR

What would you do?

History and clinical assessment

- His only complaints were of recurrent otitis media and scattered molluscum contagiosum on the face
- He has just received his final vaccination

Your assessment



- Bilateral perforations of the tympanic membrane
- Molluscum lesions on the face

Question

- Are you worried about Vusi having HIV?
- What are you going to do?

You do a rapid ELISA

- The test is positive

What would you do next?

You do a CD4

- CD4 10% 195 cells
- What should we now consider?

To consider

- Clinical stage
- Immunological stage
- Does the child need HAART?

After preparation you initiate with D4T, 3TC and NVP

- Which doses would you use, Vusi has a weight of 14kg?
- How would you proceed?
- How would you monitor?
- What would you watch for?

You start

- Stavudine 15mg bd
- Lamivudine 50mg bd
- NVP 50mg daily for 1 days to increase to 100mg 2x/day after 14 days is all is well

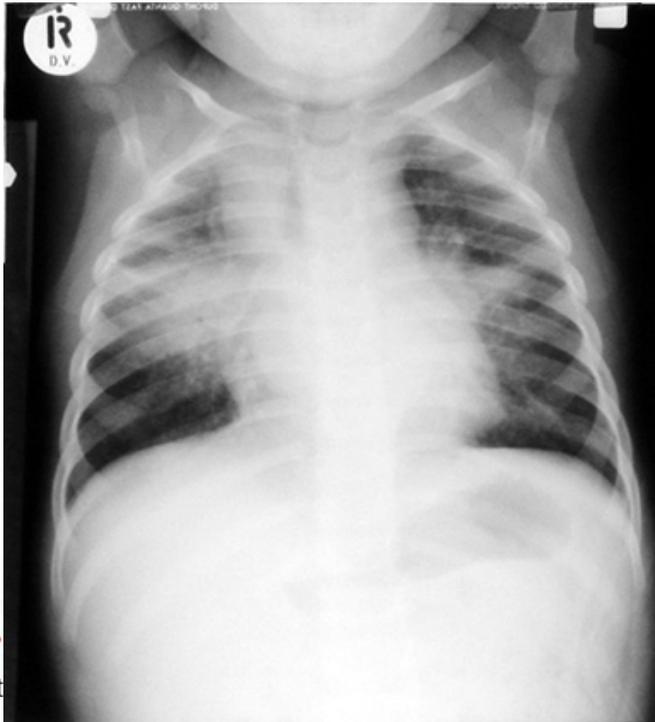
6 Months later

- Vusi has a bad cough for the past 3 weeks
- He has lost some weight
- He has fever

Question

- What do you suspect?
- How would you investigate?

The TB work up



The TB work up

- Vusi has a new adult contact, his grandfather was diagnosed 4 weeks ago with smear positive TB. He has just initiated therapy
- Vusi's mantoux is 9 mm
- His CXR is very suggestive of TB

Questions

- What are the issues here?
- What would you do now?

Your actions are

- You initiate standard TB treatment
- You switch nevirapine to efavirence
- You do a CD4 and VL and find that
 - CD4 350 cells
 - VL 10 000
- Vusi shows an excellent response to treatment

14 Months after you started HAART

- Vusi comes for routine follow-up
- He has lost weight
- Mom says that he is list less and is not playing and does not have his usual good appetite
- She has noticed that he has been walking “funny”
- He occasionally complains of abdominal pain

On examination you notice

- Vusi looks unwell
- He has rapid deep breathing
- His pulse rate is 160
- You palpate his liver 6 cm below the costal margin
- The liver is tender
- You do not hear any added cardiac sounds
- You are struggling to elicit knee jerks

Questions

- What do you suspect?
- How would you confirm your suspicion
- How would you act

Actions

- Vusi's serum lactate is 5 and his pH 7.1, PaCO₂ 3.1
- You decide he has HAART induced lactic acidosis
- Which drug is the likely cause
- What now?

Acute: Lactic Acidosis

NRTI, particularly d4T

Clinical features	Laboratory abnormalities
<ul style="list-style-type: none">• Generalised fatigue, weakness• Gastro-intestinal symptoms (nausea, vomiting, diarrhoea, abdominal pain, hepatomegaly, anorexia and/or unexplained weight loss)• Respiratory symptoms (tachypnea, dyspnea)• Neurologic symptoms (motor weakness)• may have hepatitis or pancreatitis	<ul style="list-style-type: none">• Hyper lactataemia (>2mmol/L)• Acidosis• > Anion gap• ↓ Bicarbonate• ↑ amino-transferases, CPK, LDH, lipase and amylase
Management <ol style="list-style-type: none">1. Discontinue all ARV's until symptoms resolve2. Supportive (fluid, bicarbonate administration, respiratory support)3. Riboflavin, thiamin and/ L-carnitine may have benefit4. Symptoms may continue or worsen despite discontinuation of ART5. Once symptoms resolve, substitute with alternative NTRI with lower risk	

Case 10

- The 10 year old Thandi's has been your patient for the past 6 years
- You initiated her treatment when she was 6 years old
- At that stage she was clinical stage 3 and her CD4 was 240 cells

What do you think gave rise to this staging



What happened

- Thandi was doing really well her last CD4 was 1000cells
- Recently adoptive mom reports problems in her behavior
 - She refuses to take medicine and every dose has become a struggle
 - Thandi has become sullen and the relationship with her mom is suffering

How would you approached this problem?

You discover

- Thandi has not been disclosed to
- She has asked her mother several times why she has to take pills
- She has heard some family members talking, they mentioned that her mother died of a horrible incurable illness

How would you approach this problem

Case 11

- Jacob is 10 years of age
- He is newly diagnosed with HIV
- Clinically
 - Wasted
 - Persistent loose stools for past 3 weeks
 - Has fever for the past 3 weeks
 - Distended abdomen
 - Slightly tender
 - Vague mass in the left iliac fossa 5x5 cm

Labs

- CD4 20 cells
- HB 7g/dl
- PL60 000

Question

- What are you worried about

Which additional investigations would you consider

Results

- You culture MAC from the bone marrow
- What now?

Mycobacterium Avium Complex (MAC): Background and Presentation

- A bacterial infection found in water, dust, soil and bird droppings
- Symptoms: non-specific
 - Persistent fever
 - Night sweats
 - Fatigue
 - Weight loss or failure to thrive
 - Anemia
 - Abdominal pain
 - Lymphadenopathy
 - Dizziness
 - Diarrhoea
 - Weakness

MAC: Diagnosis

- Diagnosis:
 - Culture from a sterile site such as blood, bone marrow or cerebral spinal fluid (grows slowly)
 - Acid fast staining
- May be difficult to proof when you have no access to special investigations.
- High index of suspicion of MAC in older children with very low CD4 (<50) presenting with non-specific symptoms as above with abdominal involvement

MAC: Treatment

- Children (<12 yrs)
 - Clarythromycin 7.5 mg/kg po BID or Azithromycin 5-20 mg/kg po OD
 - Ethambutol 15 mg/kg po OD
- Adolescents and Adults
 - Clarythromycin 500 mg BID or Azithromycin 600 mg OD
 - Ethambutol 15 mg/kg OD x 12 mos

MAC: Other

- Prophylaxis can be used
 - In children under 12 with CD4% < 15%
 - In children older than 12 with CD4 < 100
- For children under 12
 - Clarithromycin 7.5mg/kg bd
 - Alternatives: Azithromycin po 20mg/kg weekly or Rifabutin po (>6yrs) 300mg daily
- For children older than 12
 - Clarythromycin po (500mg bd)
 - Alternatives: Azithromycin 1.2g po weekly or Rifabutin 300mg po daily

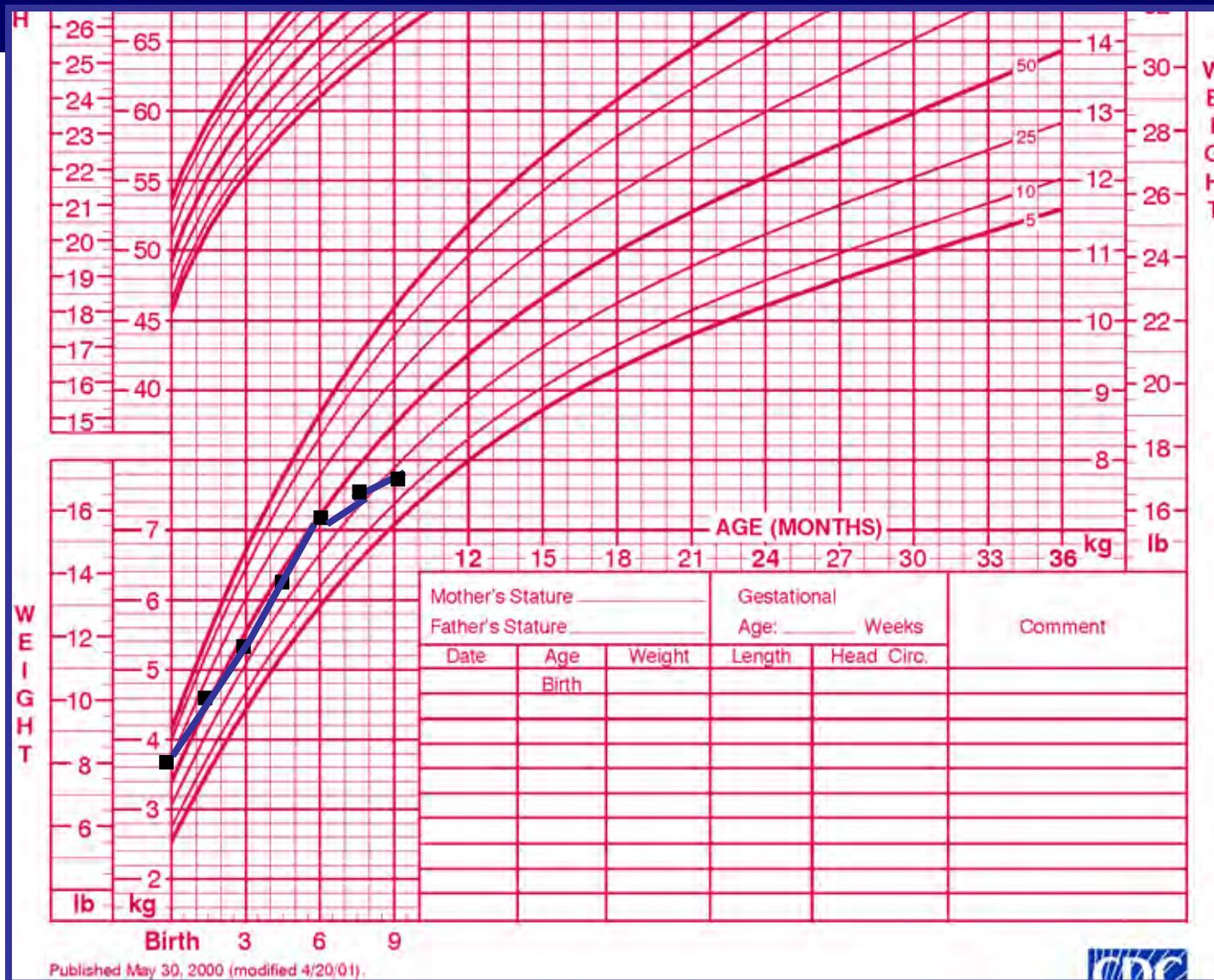
Case 14

- A 10 month old boy is well know at your clinic
- Mom diagnosed antenatally with HIV
 - Clinical stage 2 (oral thrush)
 - CD4 400 cells
 - Vaginal delivery ROM <4 hours
- Baby and mother took Nevirapine as required.
- Baby started on Cotrimoxazole prophylaxis at 6 week
- 1st DNA PCR negative
- Exclusively breastfed for 6 months then rapidly weaned

When you see him

- Mom reports that he has been to the clinic 5 times in the past 4 months with loose stools
- She feels her baby is not doing well and she thinks that he has HIV
- She knows HAART is available at local hospital and she asks you to refer her there for treatment

No other
clinical
Stigmata
of HIV



How would you approach this problem

Case 15

- Busisiwe is a 21 year old first time mother of Zanelle
- She tested positive in pregnancy and had a CD4 of 79 cells
- Her doctor started HAART when she was 38 weeks pregnant and gave her stavudine, lamivudine and nevirapine
- She is now 8 weeks post partum and came back to the clinic today to hear results of the test performed at 6 weeks.
- These results are unfortunately positive
- Even before you provide her with Zanelles result you notice that Busisiwe seems to be in pain
- When you ask her about the problem she shows you the following



Questions

- What is happening?
- What are your concerns?
- What would you do?

Management

- Treatment:
 - Acyclovir
 - Treat secondary infection aggressively
 - Can cause pancytopenia when given in conjunction with Zidovudine (ZDV)
- Prevention:
 - 2 doses of Varicella vaccine at least 3 months apart if CD4% > 25%
- Exposure to chickenpox:
 - Varicella immunoglobulin within 72 - 96 hours
 - Oral Acyclovir 80mg/kg/day 6 hourly for 7-14 days



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