SAVING OUR FUTURE

Why Early HIV Testing is Essential in Children

V4

JUNE

2017

CDC

CENTERS FOR DISEASE CONTROL AND PREVENTION

THE AURUM INSTITUTE

CONTENTS (TRAINER)

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CONTENTS (TRAINEE)

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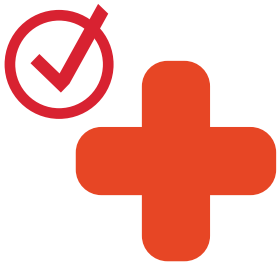
HOW TO USE THE TOOL?

To provide trainers /mentors with a comprehensive and accessible tool to use when training health care workers

To ensure the accurate transfer of knowledge

To create awareness of the need for and importance of infant testing



To increase the number of children tested and linked to appropriate care

To ensure the accurate implementation of SA guidelines for HIV testing in children

STRUCTURE:

It is divided into 2 colour coded parts:

Trainee

Trainer

THE TRAINER'S PAGE CONTAINS:

- Colour-coded, mirrored messages which allow for ease of training
- Additional information for explanatory purposes

PURPOSE OF THE TOOL

To provide trainers /mentors with a comprehensive and accessible tool to use when training Health Care Workers (HCW)

To ensure the accurate transfer of knowledge

To create awareness of the need for and importance of infant testing

To increase the number of children tested and linked to appropriate care

To ensure the accurate implementation of SA guidelines for HIV testing in children

WHICH CHILD WOULD YOU TEST?

The purpose of this slide is to interrogate our opinions. At times we base our decision on who to test, **purely** on physical appearance, **which can be misleading and ill-advised. Both of these babies could be HIV-infected or uninfected; we will never know for sure until we investigate!**

ALL HIV-exposed children as well as children whose **mother's status is unknown should be tested for HIV** [1]

- In the first few months of life, infants may not manifest symptoms of HIV
- Some older children may be slow progressors and may be asymptomatic

WHICH CHILD WOULD YOU TEST?

WHO SHOULD BE TESTED? [1]

ALL HIV EXPOSED CHILDREN

Could have been infected during pregnancy, delivery or breastfeeding

MOTHER'S STATUS UNKNOWN

Abandoned child

Mother refuses to test

Mother demised

HIV-EXPOSED CHILDREN 6 WEEKS POST-WEANING

To exclude window period

SYMPTOMATIC CHILDREN

As the underlying cause could be HIV

FATHER OR SIBLING WITH HIV

Child may be infected as well

POSSIBLE OR KNOWN SEXUALLY ABUSED CHILDREN

Abuser may have been HIV-infected

Child abuse is rampant in South Africa

WET-NURSED CHILDREN

HIV can be transmitted through breast milk

CHILDREN UP FOR ADOPTION

To equip adoptive parents to care for the child appropriately

DEATH OF A SIBLING OR PARENT

May have died due to HIV related causes

PARENTAL REQUEST

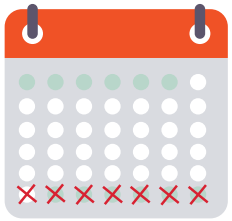
Child may not be denied testing

1. NDoH. National Consolidated Guidelines for the prevention of mother-to-child transmission of HIV (PMTCT) and the management of HIV in children, adolescents and adults, 2015

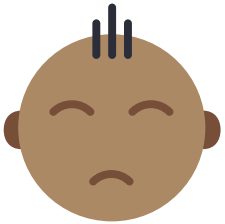
WHO SHOULD BE TESTED?

All HIV Exposed Children

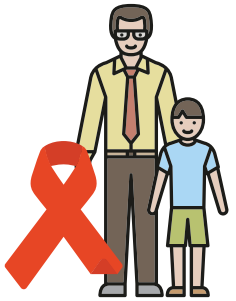
Mother's Status Unknown



HIV-exposed children 6 weeks post-weaning



Symptomatic Children



Father or sibling with HIV

Possible or known Sexually Abused Children

Wet-nursed children

Children up for adoption

Death of a sibling or parent

Parental request

DID SOUTH AFRICA MEET THE MDG 4 TARGET?

Millennium Development Goal 4 aimed to reduce the under 5 mortality rate by two thirds between 1990 – 2015[2]

We did not achieve the target 20.0/1000 (see red line on graph)

2. Statistics SA. MDG Country Report, 2015

DID SOUTH AFRICA MEET THE MDG 4 TARGET?

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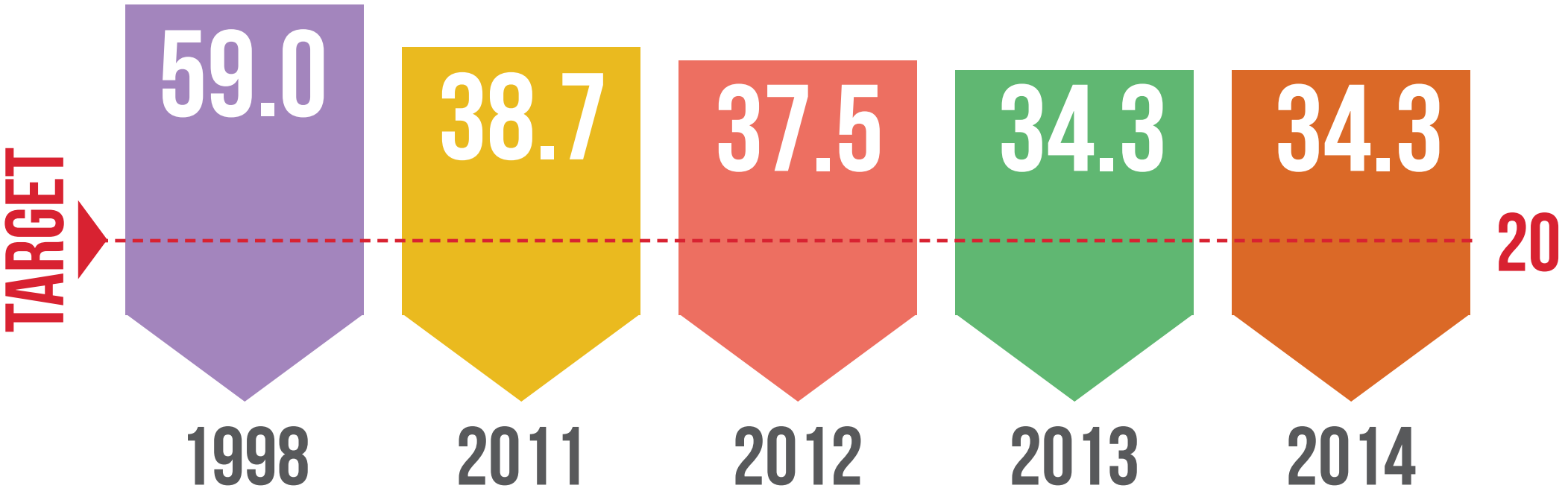
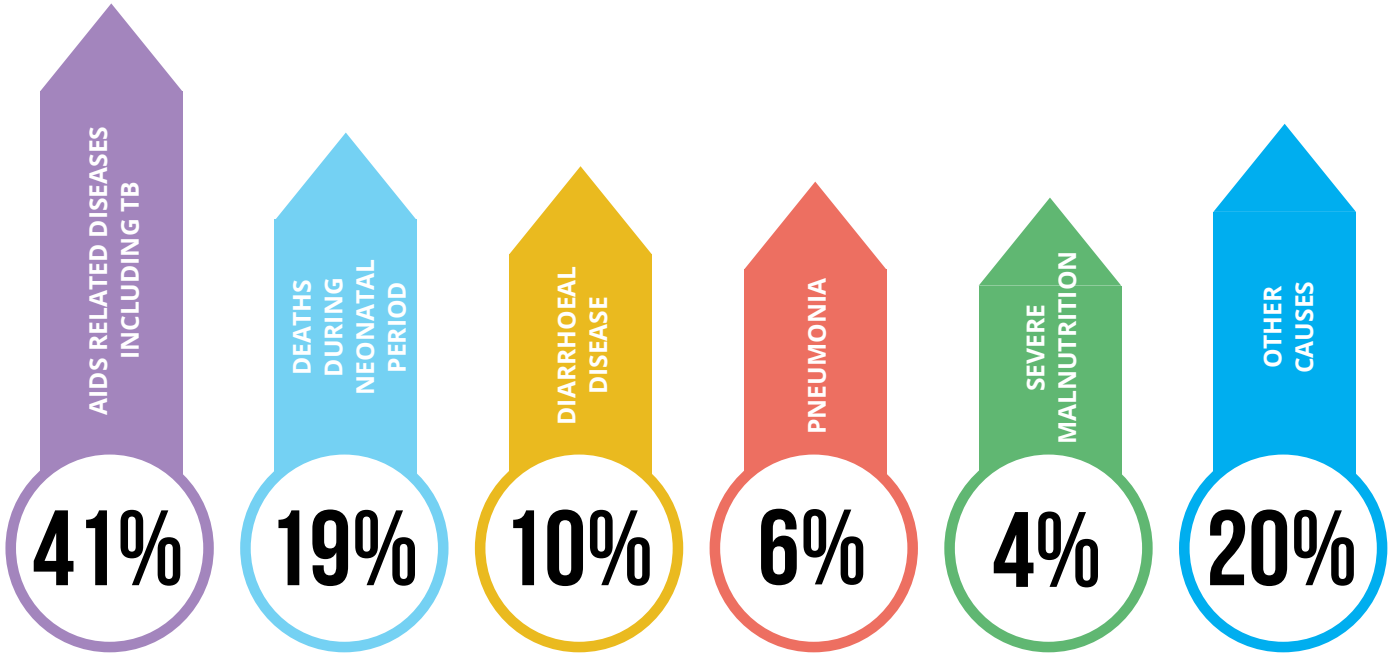
UNDER 5 MORTALITY RATE (PER 1,000 LIVE BIRTHS)

The Millennium Development Goal 4 to reduce under 5 Mortality to **20 per 1,000** live births by 2015 **was not achieved.**



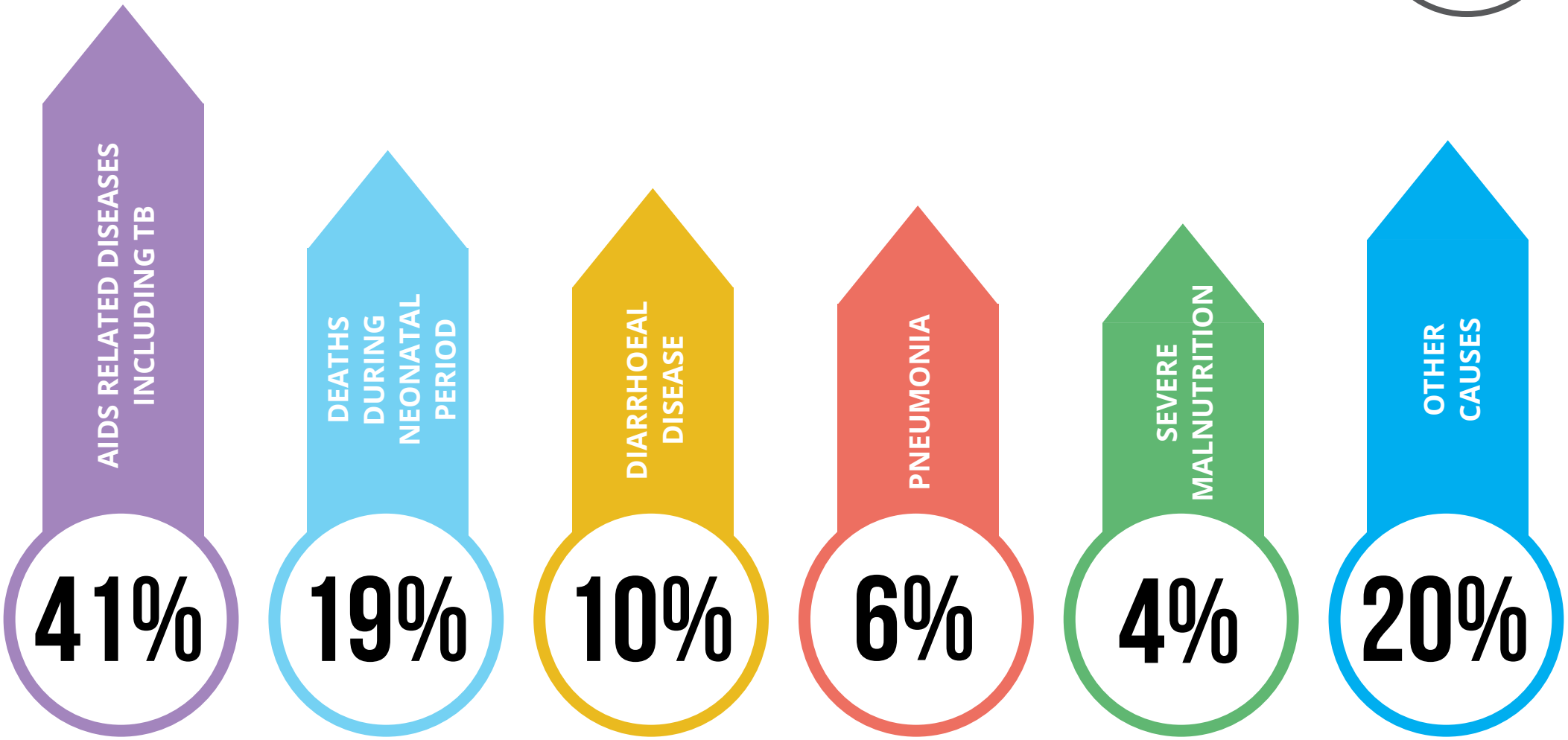
WHAT ARE THE MOST COMMON CAUSES OF UNDER 5 MORTALITY?

- According the Medical Research Council Burden of Disease Research Unit (2003): [3]
  - **AIDS-related diseases including TB - 41%**
  - **Deaths during neonatal period - 19%**
  - **Diarrhoeal disease - 10%**
  - **Pneumonia - 6%**
  - **Severe malnutrition - 4%**
  - **Other causes - 20%**
- The under 5 mortality rate in South Africa is still **unacceptably high**
- **AIDS-related** diseases are the **most common** causes of under 5 mortality
- We are still **missing** too many **babies** who **are not being tested** for HIV infection or who are tested but **not linked to care**
- Too many children are only **being tested** in hospital when they are **already sick** with advanced disease



3. MRC. What are the leading causes of death among South African children? 2003

WHAT ARE THE MOST COMMON CAUSES OF UNDER 5 MORTALITY?



WHY TEST CHILDREN EARLY?

CHER STUDY, 2008

THE CHER STUDY (2008): [4]

- Conducted at Chris Hani Baragwanath and Tygerberg Hospitals
- Infants under 3 months were tested for HIV infection from four weeks of age
- Those who tested positive were randomised to **one of 2 groups**:

1. Early ART group immediately initiated on ART regardless of health status
   - **their response to treatment was better than children whose treatment was delayed**
   - **it also resulted in better neurological outcomes**
2. Deferred ART group initiated according to SA guidelines at the time (CD4 <30% or stage 2, 3 or 4):
   - **morbidity and mortality was higher in this group**

- This study was so significant that it resulted in both the SA DoH and WHO recommending that all infants (under 1 year) who test HIV-infected be initiated on ART to prevent increased morbidity and mortality that occurs when treatment is delayed

4. Violari et al. Early Antiretroviral Therapy and Mortality among HIV-Infected Infants. NEJM, 2008

WHY TEST CHILDREN EARLY?

CHER STUDY, 2008

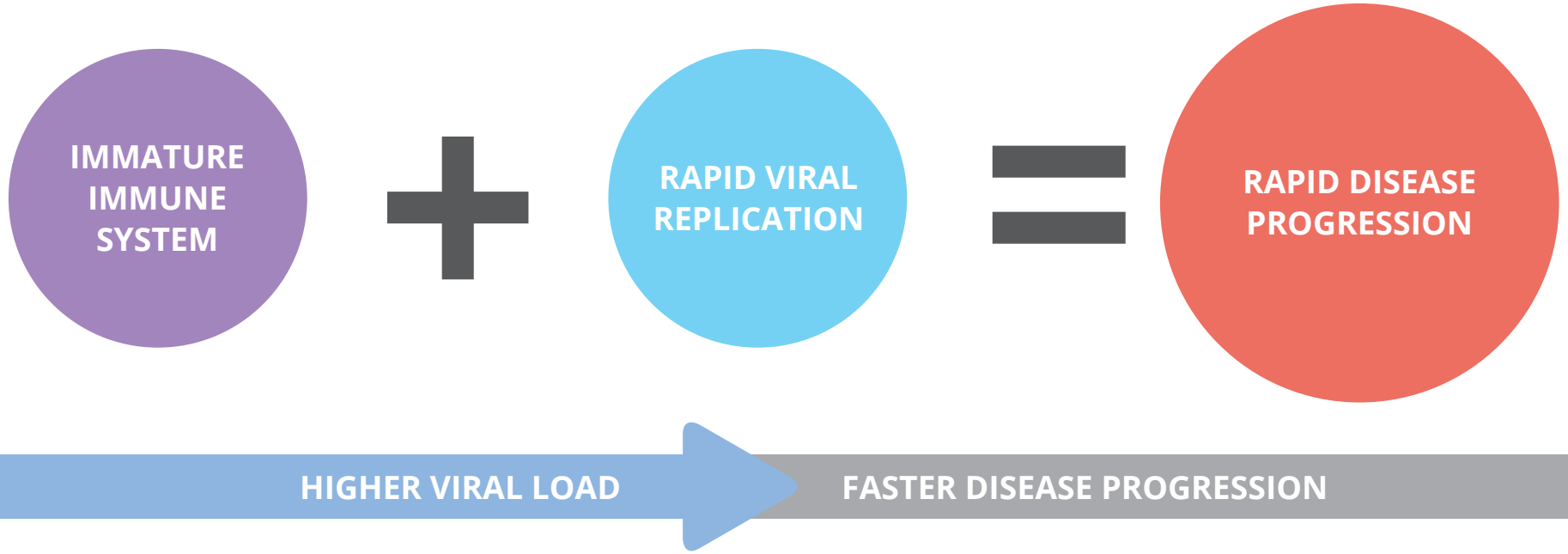
EARLY DIAGNOSIS

EARLY TREATMENT

BETTER OUTCOMES

WHY TEST CHILDREN EARLY?

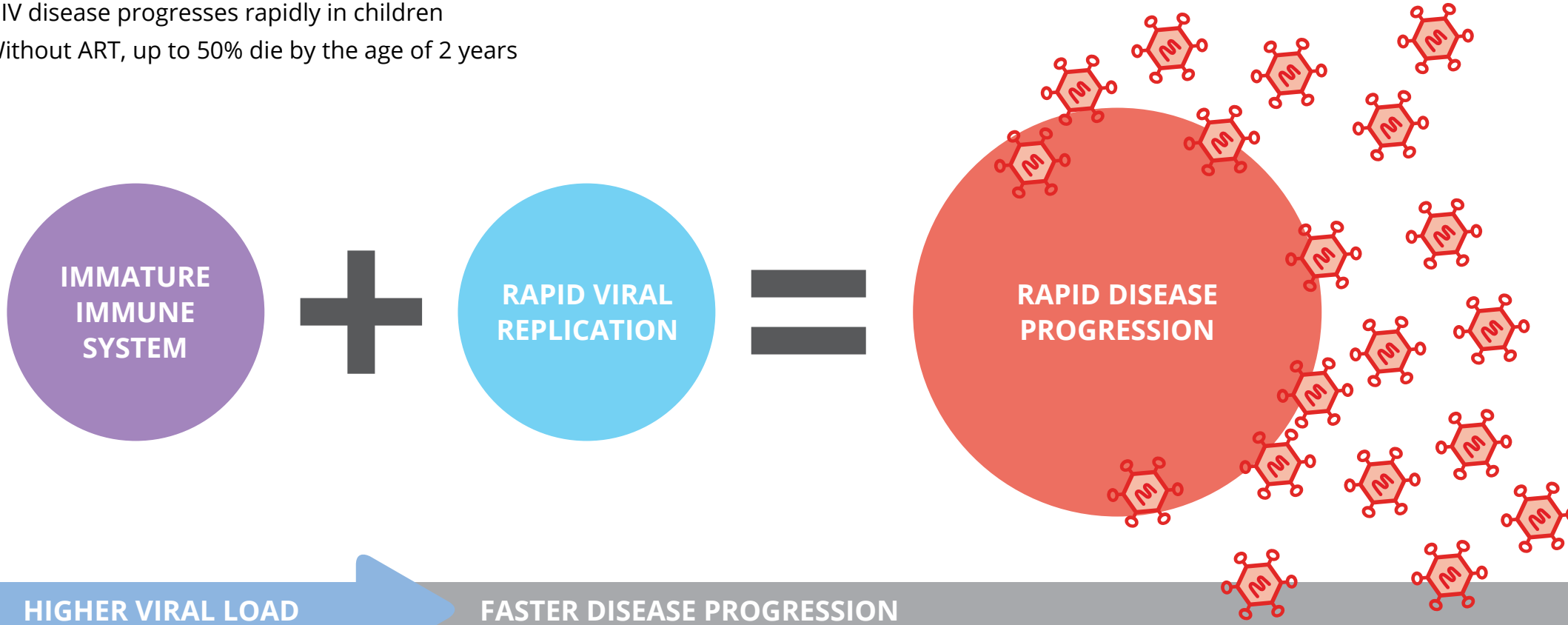
- In general, HIV disease progresses much more rapidly in children than in adults
- Children have higher viral loads due to immature immune systems
- Without ART, up to 35% of infants with HIV die by 1 year of age and up to 50% of children die by the age of 2 years [5]
- **EARLY identification of HIV-infected children is imperative**



5. Newell M. Mortality of Infected and Uninfected Infants Born to HIV-infected Mothers in Africa: A Pooled Analysis. Lancet, 2004

WHY TEST CHILDREN EARLY?

- HIV disease progresses rapidly in children
- Without ART, up to 50% die by the age of 2 years



BEFORE ART

- This girl is HIV-infected
- Picture taken before she started on ART

BEFORE ART

AFTER ART

- This is the same girl depicted in the 'Before ART' picture after she started treatment
- This visually shows that ART is really effective and can improve a child's health and quality of life substantially
- If we treat children early they need not become as sick as this little girl was
- **All adults and children are eligible for ART irrespective of CD4 or WHO staging**[6]

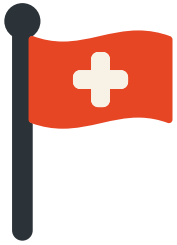
WE NEED TO INITIATE ALL HIV POSITIVE CHILDREN ONTO ART – THE FIRST STEP IS TO TEST!

6. NDoH. Implementation of the Universal Test and Treat Strategy for HIV positive patients and differentiated care for stable patients, August 2016

AFTER ART

WHAT CLUES FROM THE CHILD'S HISTORY SUGGEST HIV? [7]

Mother is known to be HIV-infected - could have transmitted the infection to the child during pregnancy, delivery or breastfeeding



The child has had numerous hospital admissions or frequent clinic visits

One or both parents have died at a young age from TB or other common diseases associated with HIV (find out what they died from)

A teenager who may have been involved in high risk behaviour such as:

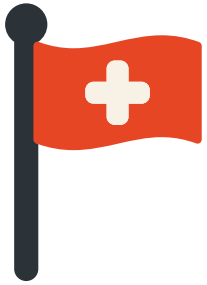
- Having multiple partners
- Engaging in unprotected sex
- Abusing drugs

A history of sexual abuse - child could have been infected at the time of abuse

7. NDoH. Integrated management of Childhood Illness, 2014

WHAT CLUES FROM THE CHILD'S HISTORY SUGGEST HIV?

Mother known to be HIV-infected



Repeated hospital / clinic visits

One or both parents died from TB or other illnesses

Teenager involved in high risk behaviour

Sexually abused child

WHAT ARE CLINICAL SIGNS & SYMPTOMS SUGGESTIVE OF HIV?[7]

HIV infected children often develop common childhood conditions. These conditions may be more frequent, atypical and/or more severe

- Examples include otitis media, gastroenteritis

They may also develop opportunistic conditions which are rare in immunocompetent children

- Examples include pneumocystis pneumonia (PJP), lymphoid interstitial pneumonia (LIP)

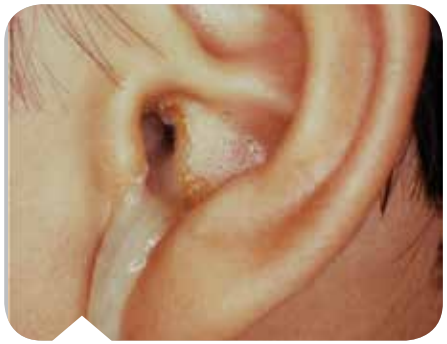
ACCORDING TO THE IMCI GUIDELINES, THE PRESENCE OF *ONE OR MORE* OF THE FOLLOWING FEATURES SHOULD PROMPT HIV TESTING IN CHILDREN:

- Pneumonia now
- Persistent diarrhoea now or in the past 3 months
- Ear discharge ever
- Low weight for age or unsatisfactory weight gain
- Enlarged lymph nodes in 2 or more of the following sites: neck, axilla, groin
- Oral thrush
- Parotid enlargement
- **TB IS MORE COMMON IN HIV-INFECTED CHILDREN**

7. NDoH. Integrated management of Childhood Illness, 2014

WHAT ARE CLINICAL SIGNS & SYMPTOMS SUGGESTIVE OF HIV?

PNEUMONIA NOW?

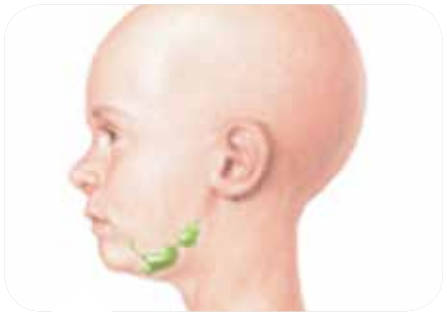


EAR DISCHARGE EVER?

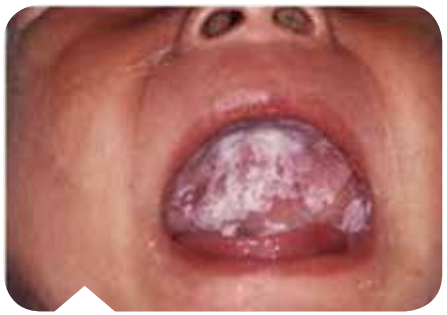
LOW WEIGHT FOR AGE OR UNSATISFACTORY WEIGHT GAIN?

PERSISTENT DIARRHOEA NOW OR IN THE PAST 3 MONTHS?

TUBERCULOSIS?



SWOLLEN LYMPH GLANDS IN 2 OR MORE SITES?

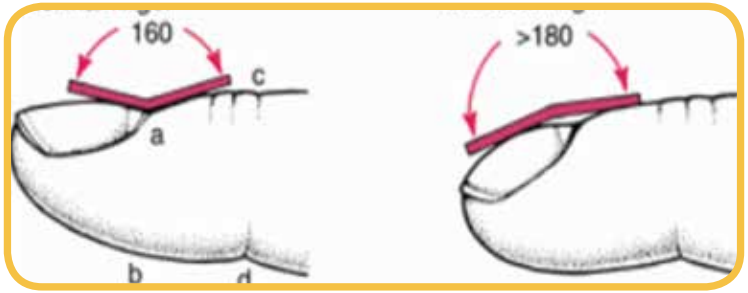


ORAL THRUSH?

ENLARGED PAROTIDS?

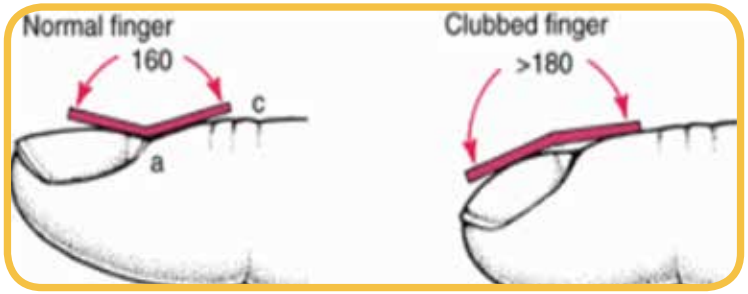
IMCI GUIDELINES: X 3 = SUSPECT HIV

CLUBBING (HANDS & FEET)

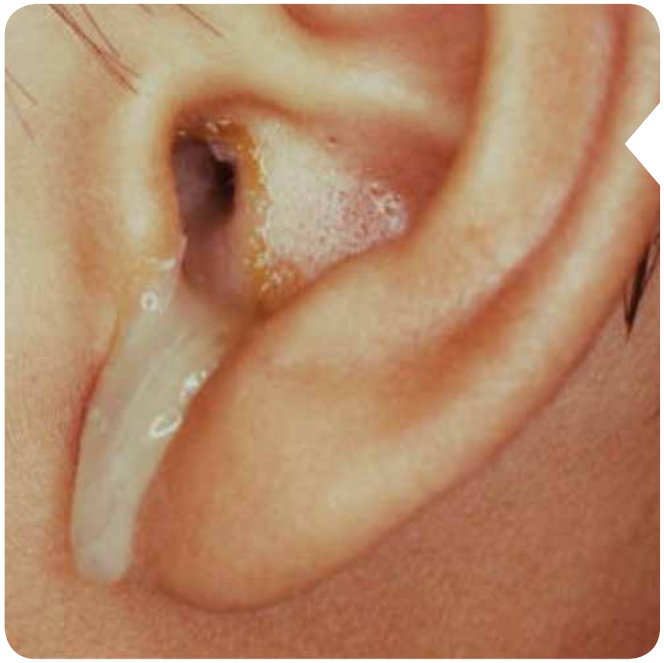


- It is the swelling of the tips of the fingers
- It may also affect the toes
- In the context of HIV, it can be associated with lymphocytic interstitial pneumonia (together with parotidomegaly)
- Other causes include bronchiectasis

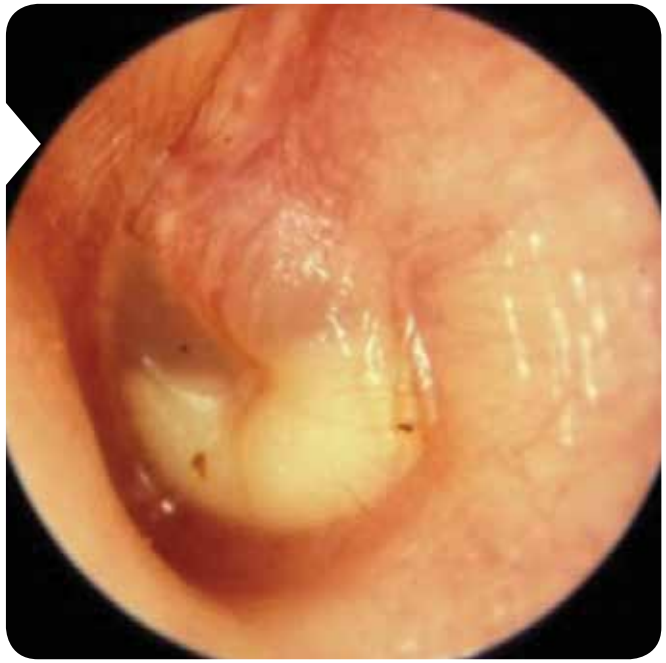
CLUBBING (HANDS & FEET)



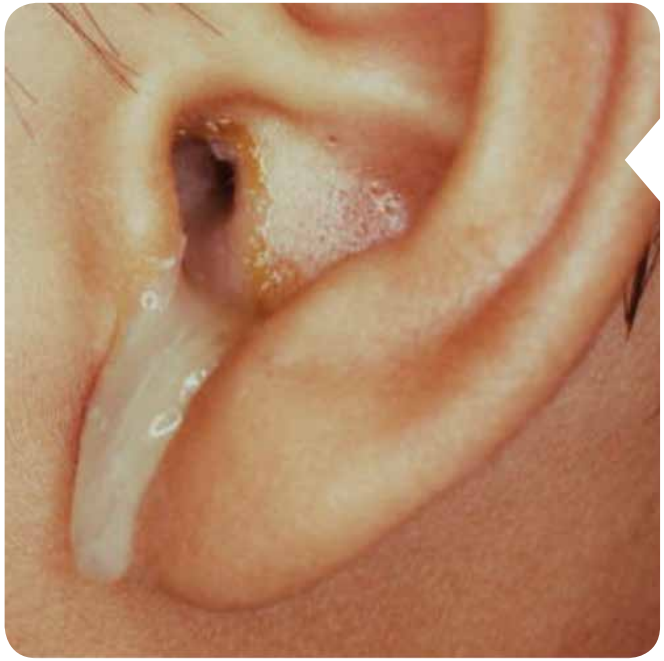
EAR DISCHARGE



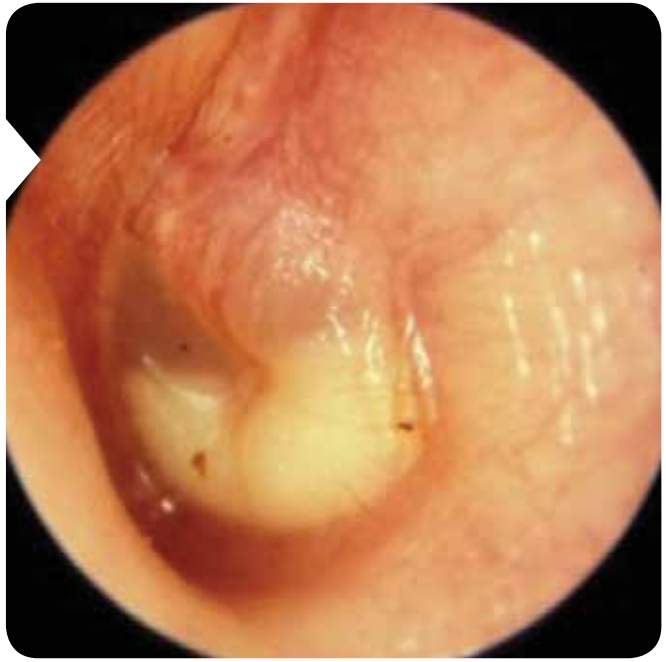
- Acute, chronic and recurrent otitis media are very common in HIV infection
- May respond poorly to treatment
- Investigate for TB if chronic



EAR DISCHARGE



MAY BE: Acute / Chronic / Recurrent



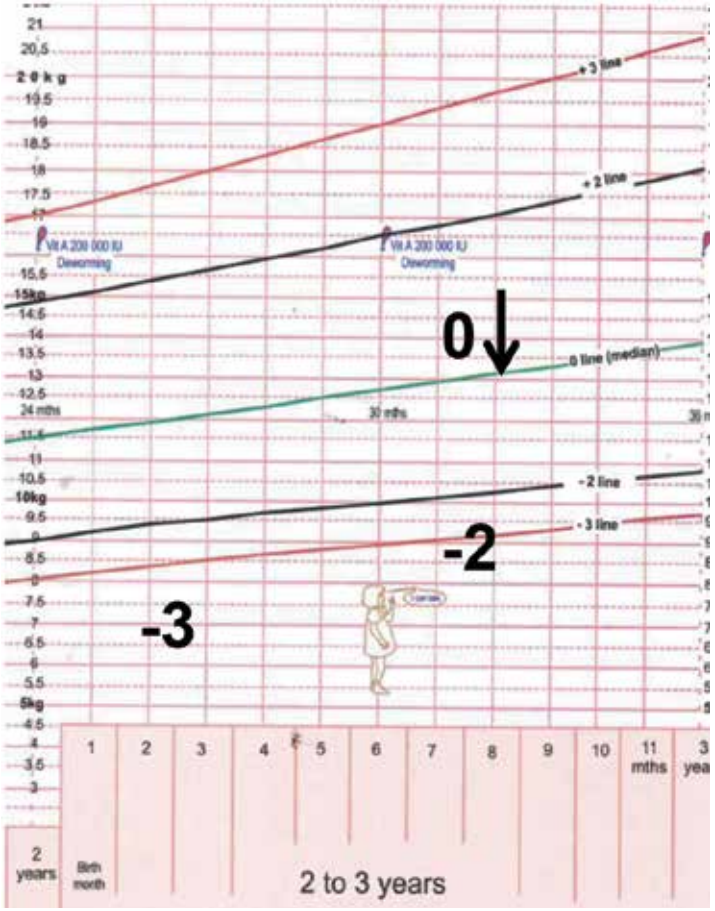
FAILURE TO THRIVE

- Unexplained inadequate weight gain and physical growth which **does not respond to nutritional intervention** may be indicative of HIV infection

- Weight-for-height, height-for-age and weight-for-age must be **plotted on the appropriate growth charts**

WEIGHT-FOR-AGE CHART:

- 0 indicates median line
- Weight below the -2 line: underweight
- Weight below -3 line: severely underweight

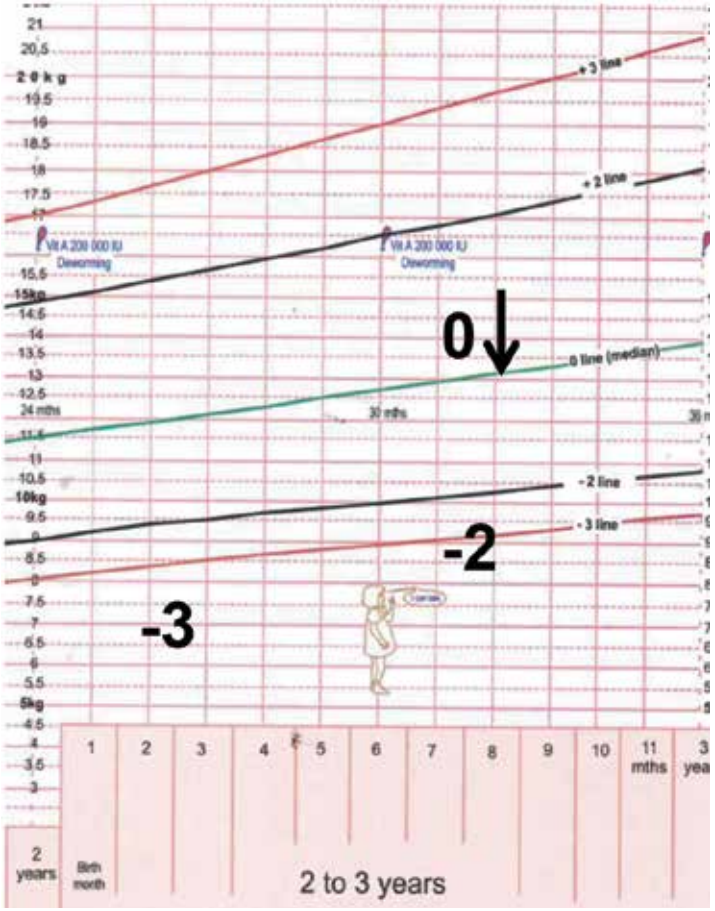


FAILURE TO THRIVE

WEIGHT-FOR-AGE CHART:

- 0 indicates median line
- Weight below the -2 line: underweight for age
- Weight below -3 line: severely underweight for age

FAILURE TO THRIVE DESPITE NUTRITIONAL INTERVENTION MAY BE ONE OF THE FIRST SIGNS OF HIV INFECTION



FAILURE TO THRIVE

1

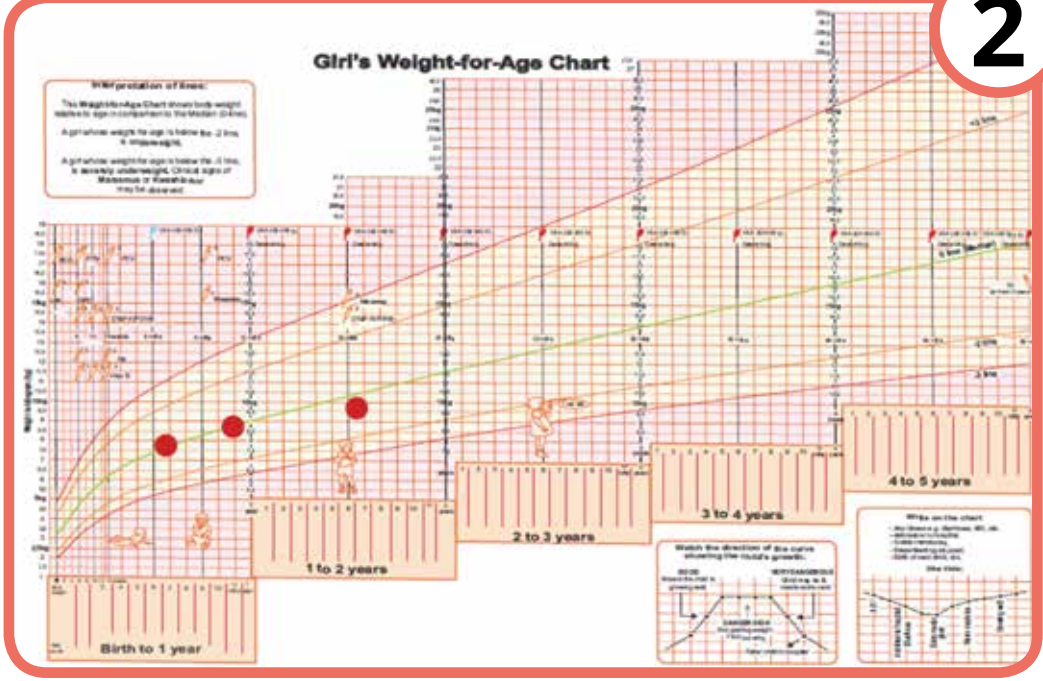
ANSWER 1:

NAPPY SHOULD BE REMOVED WHEN WEIGHING A CHILD

ANSWER 2:

ALTHOUGH THE CHILD HAS NOT LOST WEIGHT AND IS NOT BELOW THE -2 OR -3 LINE, SHE IS NOT GAINING WEIGHT APPROPRIATELY FOR HER AGE. THE CAUSE MUST BE INVESTIGATED AND THE CHILD MUST BE MONITORED CLOSELY.

2



FAILURE TO THRIVE

1

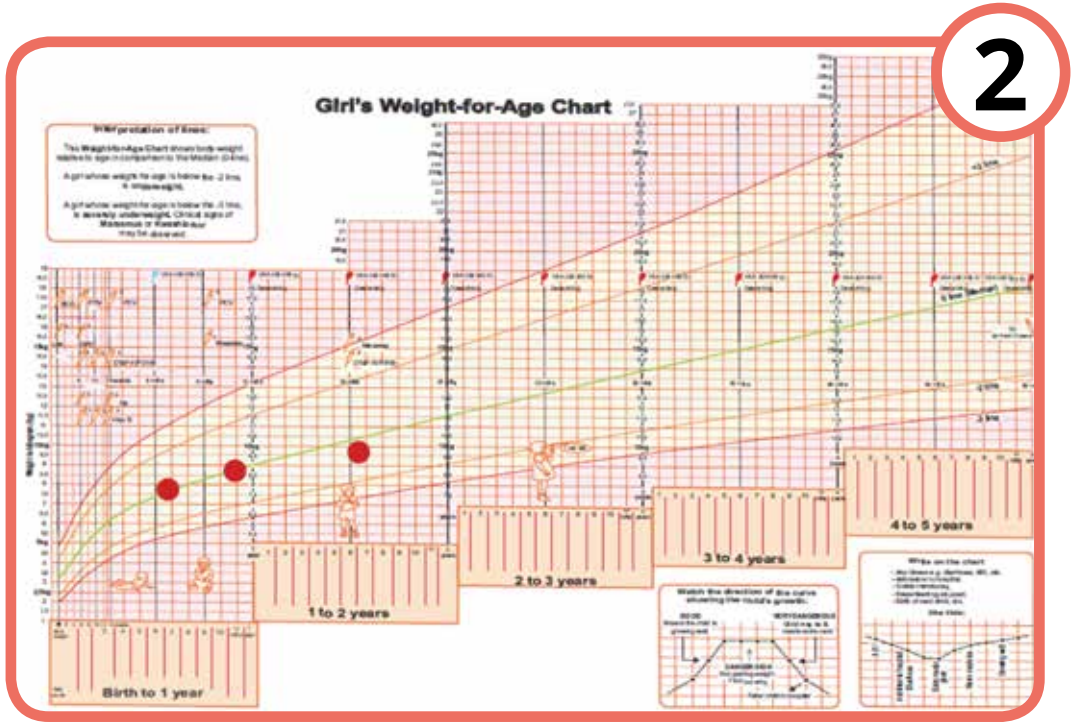
QUESTION 1:

WHAT IS THE MISTAKE MADE IN THIS PICTURE?

QUESTION 2:

INTERPRET THE GROWTH CHART

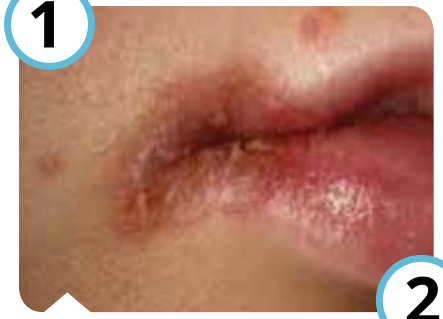
2



ORAL THRUSH

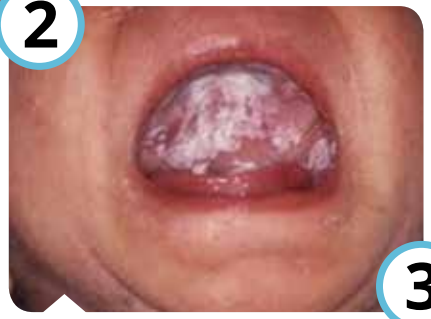
- Uncommon beyond the neonatal period (0 – 28 days) unless predisposing factors are present e.g. HIV infection
- Creamy white plaques seen on oral mucosa, palate, tonsils
- Does not come off when scraped; instead bleeding may occur
- Can also present as erythematous candidiasis or angular cheilitis
- If severe, the child may not be able to eat
- May be recurrent, persistent for long periods and resistant to standard treatment

1



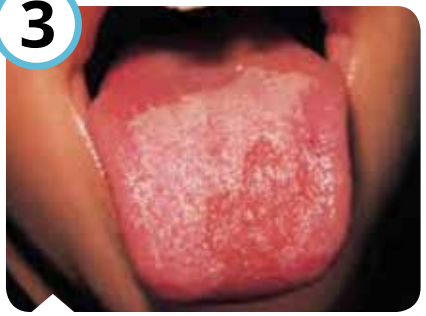
ANGULAR CHEILITIS

2



PSEUDOMEMBRANOUS CANDIDIASIS

3



ERYTHEMATOUS CANDIDIASIS

ORAL THRUSH

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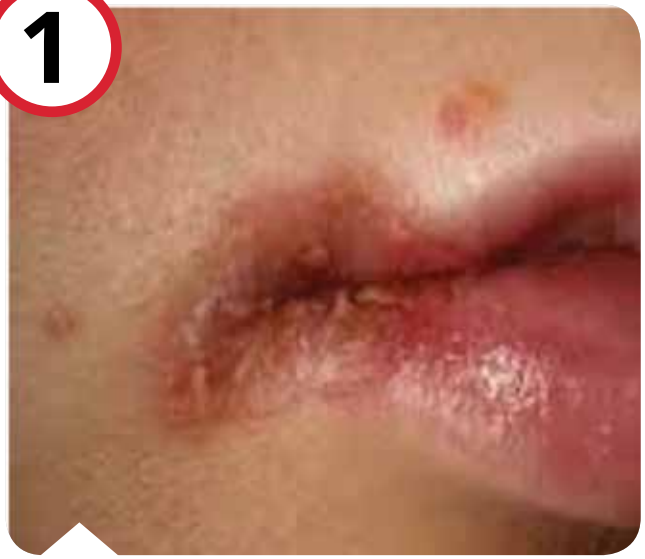
1



ANGULAR CHEILITIS

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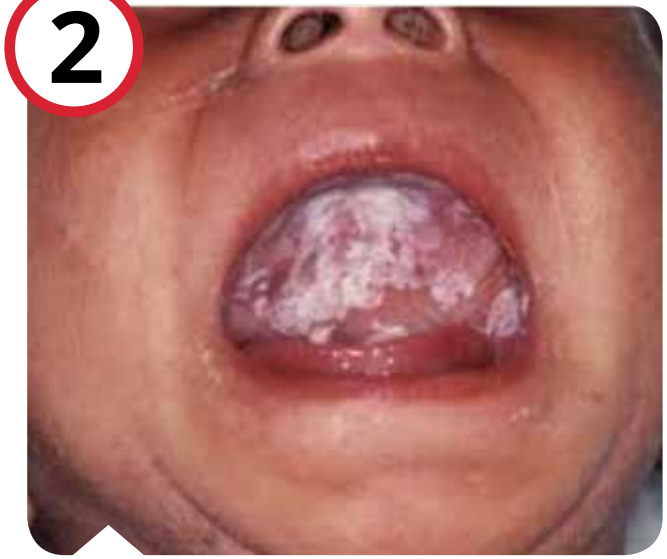


PSEUDOMEMBRANOUS CANDIDIASIS

3

ERYTHEMATOUS CANDIDIASIS

THIS IS A CONCERN IF: SEEN BEYOND NEONATAL PERIOD / RECURRENT OR PERSISTENT DESPITE TREATMENT

PNEUMONIA

- HIV-infected and exposed children are at significantly increased risk of pneumonia
- The child may have the following:
  - Fever
  - Cough
  - Shortness of breath
  - Rapid breathing (tachypnoea)
  - Indrawing of chest between the ribs (intercostal recession) and below the sternum (subcostal recession) when breathing
  - Differential diagnosis includes: PJP (pneumocystis pneumonia), tuberculosis (TB) and LIP (lymphocytic interstitial pneumonia)

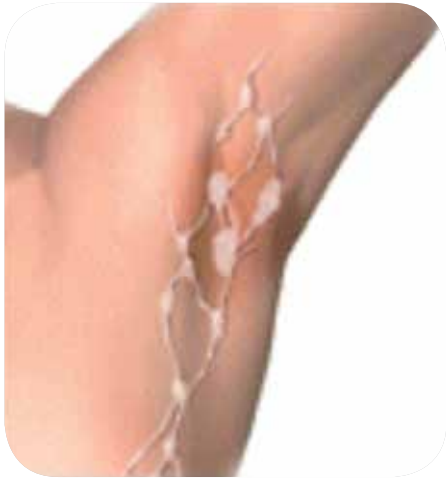
PNEUMONIA

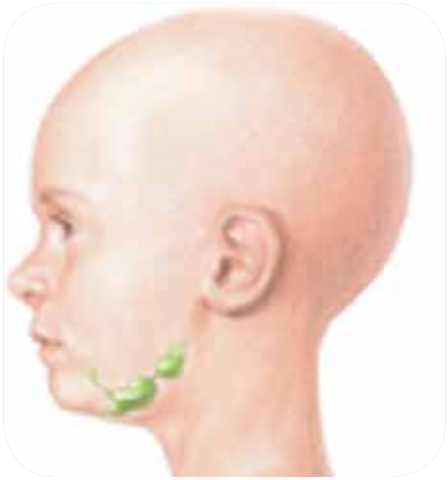
CHARACTERISED BY:

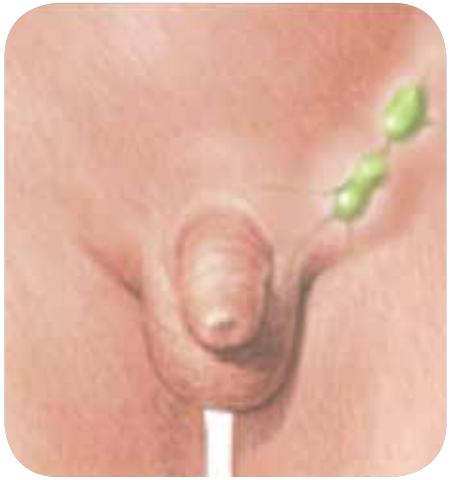
- Fever
- Breathlessness
- Rapid Breathing
- Intercostal & Subcostal Recession

SWOLLEN LYMPH NODES

- Assess for enlarged lymph nodes (>1cm) in 2 or more of the following sites:
  - Neck
  - Axilla
  - Groin
- Look and feel for the nodes
- Swollen lymph nodes on the left and right side of the same site are classified as one site
- Lymphadenopathy due to HIV is painless







SWOLLEN LYMPH NODES

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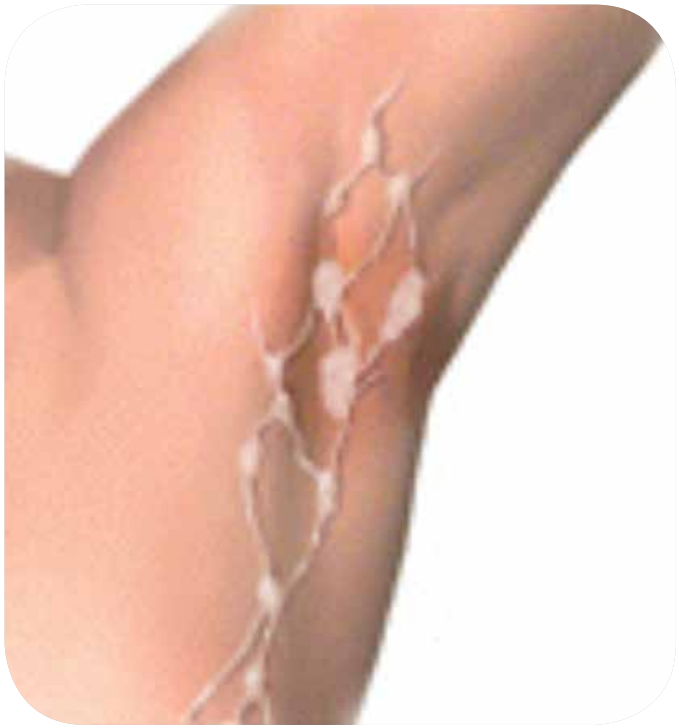
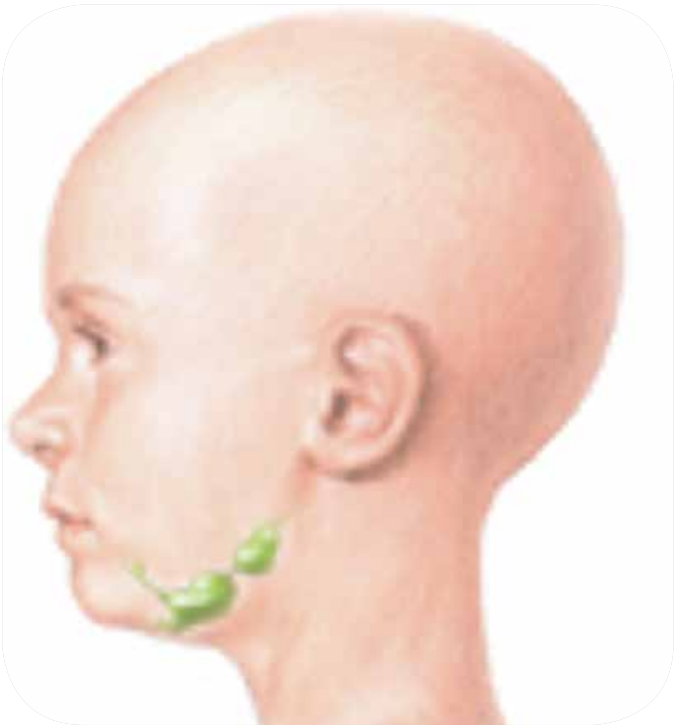
AXILLA



NECK



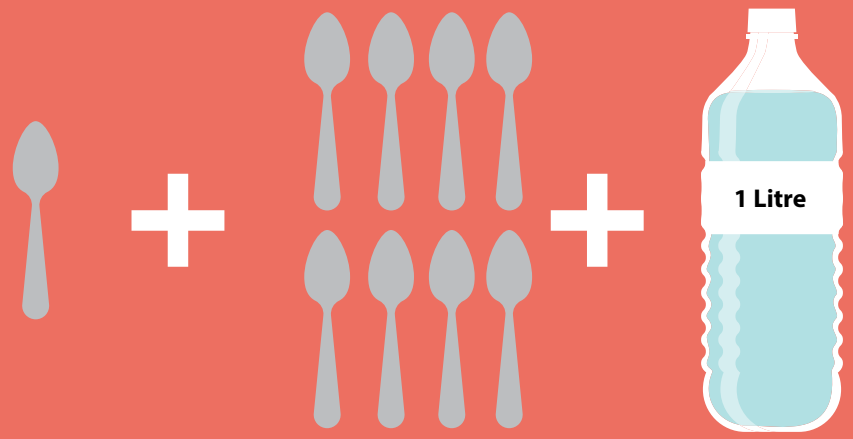
GROIN

ALWAYS EXAMINE THE NECK, AXILLA AND GROIN FOR LYMPHADENOPATHY

PERSISTENT/RECURRING DIARRHOEA

- Diarrhoea (loose or watery stool, > 3 times daily) is one of the most common features of HIV in children
- Recurrent and persistent diarrhoea (> 14 days) more common
- The child may become dehydrated and needs rehydration with oral rehydration solution (ORS)

ORAL REHYDRATION SOLUTION:



1/2 LEVEL TEASPOON OF SALT

8 LEVEL TEASPOON OF SUGAR

1 LITRE OF WATER

IT IS IMPORTANT TO EDUCATE MOTHERS ON HOW TO MAKE ORS, ESPECIALLY IF CHILDREN ARE FORMULA FED:

1. Use 8 teaspoons of sugar and 1/2 teaspoon salt
2. Mix well into 1 litre of water
3. Store in a clean and covered container in a cool place
4. Make fresh solution everyday
5. Advise mothers to feed ORS slowly

PERSISTENT/RECURRING DIARRHOEA

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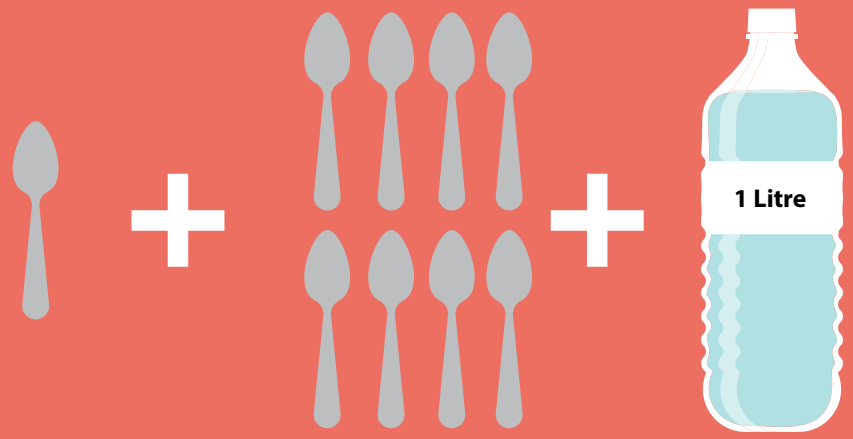
DIARRHOEA COMMON IN HIV-INFECTED CHILDREN MAY BE:

- Acute
- Persistent (>14 days) or
- Recurrent

ORAL REHYDRATION SOLUTION:



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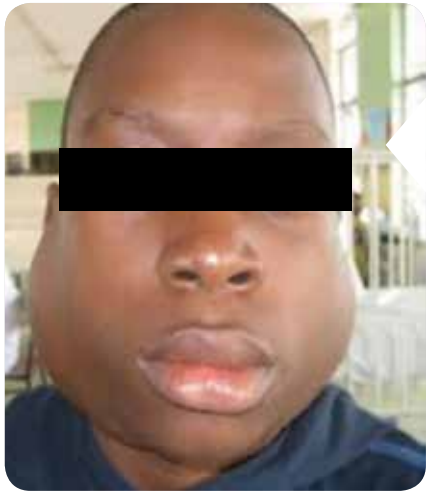
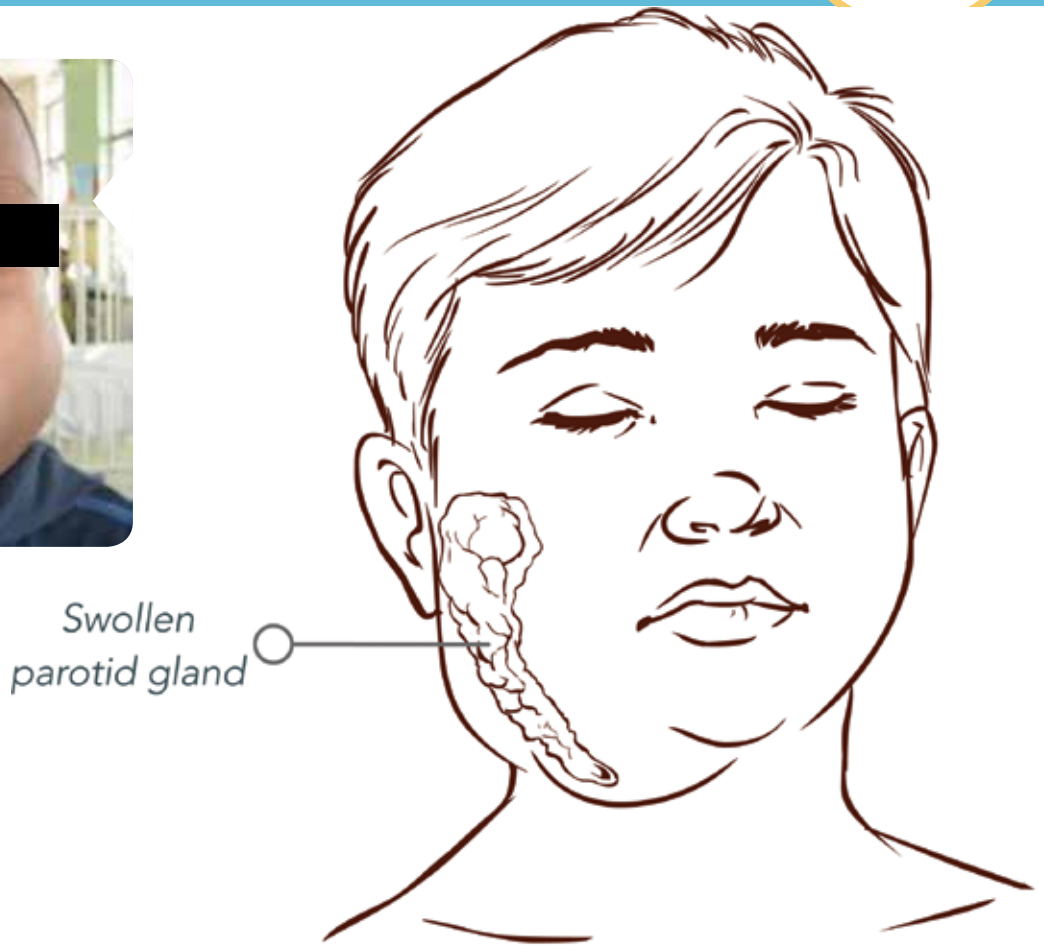
3. Store in a clean and covered container in a cool place
4. Make fresh solution everyday
5. Advise mothers to feed ORS slowly

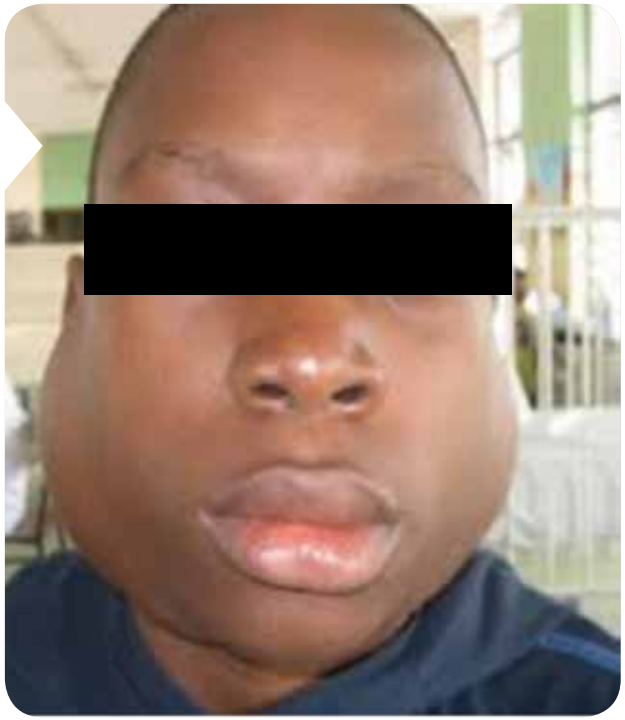
PAROTID ENLARGEMENT

- HIV infection can cause asymptomatic bilateral parotid enlargement
- This is the swelling of the glands on both sides of the face just below the ears extending behind the jaw bone
- May spontaneously resolve and recur
- Uncommon in HIV-uninfected children
- Enlarged parotids due to HIV are usually painless
- Together with clubbing, may occur with lymphocytic interstitial pneumonia





PAROTID ENLARGEMENT

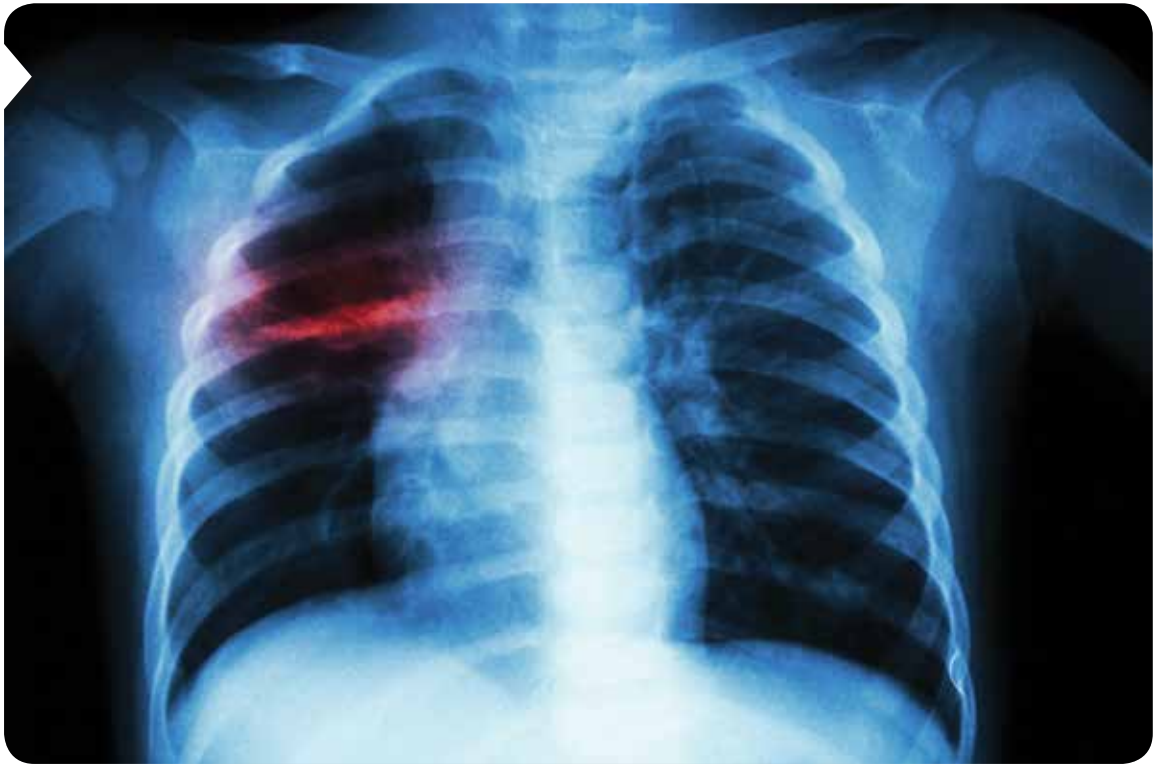


TUBERCULOSIS

- HIV-infected children are at **increased risk of TB**
- TB in HIV-infected children tends to **progress more rapidly** and is often more severe
- **Features include:**
  - Failure to thrive/weight loss in the previous 3 months
  - Persistent cough or wheeze of > 2 weeks (note, however, that many children diagnosed with TB have a cough of < 10 days duration)
  - Persistent fever (> 2 weeks)
  - Decreased activity/weakness
  - Presence of a TB contact

REMEMBER:

- All children with **HIV** must be tested for **TB**
- All children with **TB** must be **tested for HIV**



TUBERCULOSIS

- HIV-infected children are at increased risk of contracting TB
- All children with HIV must be tested for TB
- All children with TB must be tested for HIV

EXPOSED INFANTS: WHAT NOW? [1]

DO PCR

- **At birth**, 10 weeks, 18 weeks (only if NVP is given for 12 weeks), 6 weeks post- cessation of breastfeeding, any point when symptomatic and at 18 months (Rapid for 18 months and above)

ALL EXPOSED INFANTS: START COTRIMOXAZOLE PROPHYLAXIS AT 4-6 WEEKS

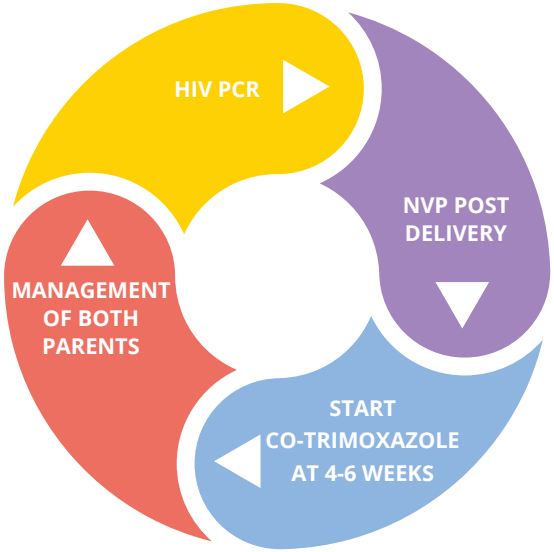
- Co-trimoxazole discontinued once PCR taken 6 weeks post cessation of breastfeeding is confirmed negative

START NVP POST DELIVERY

- All HIV-exposed infants should receive at least 6 weeks of NVP prophylaxis if mother is on lifelong ART
- **Should be initiated as soon as possible after delivery**
- Infant NVP continued for 12 weeks if mother:
  - Booked late and was on lifelong ART for ≤ 4 weeks prior to delivery
  - Tested HIV positive during labour or within 72 hours post-delivery
- Give NVP and AZT if:
  - Mother is diagnosed HIV positive 72 hours post-delivery and is breastfeeding- stop AZT if PCR is negative
  - Mother's latest viral load test is >1000 copies/ml- give both for 6 weeks

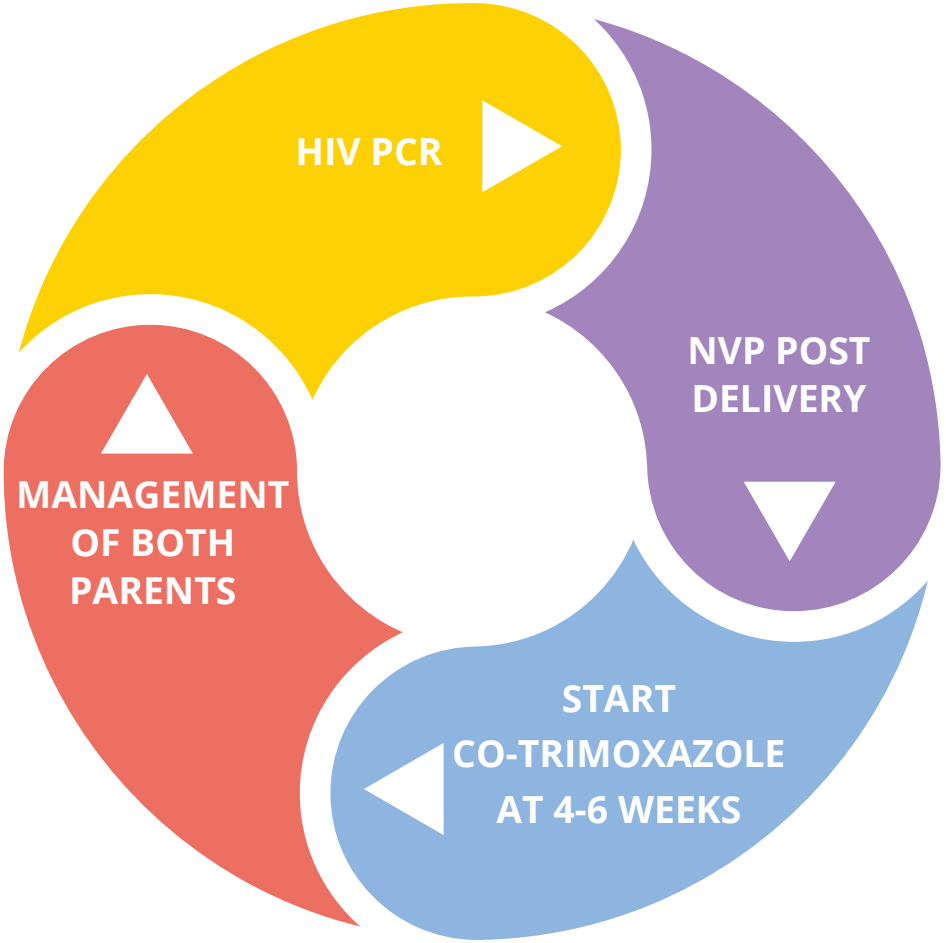
CARE OF THE PARENTS

- All infected mothers, breastfeeding or not, should receive lifelong ART
- Ensure that the partner is tested
- Ensure both parents are treated as necessary



1. NDoH. National Consolidated Guidelines for the prevention of mother-to-child transmission of HIV (PMTCT) and the management of HIV in children, adolescents and adults, 2015

EXPOSED INFANTS: WHAT NOW?



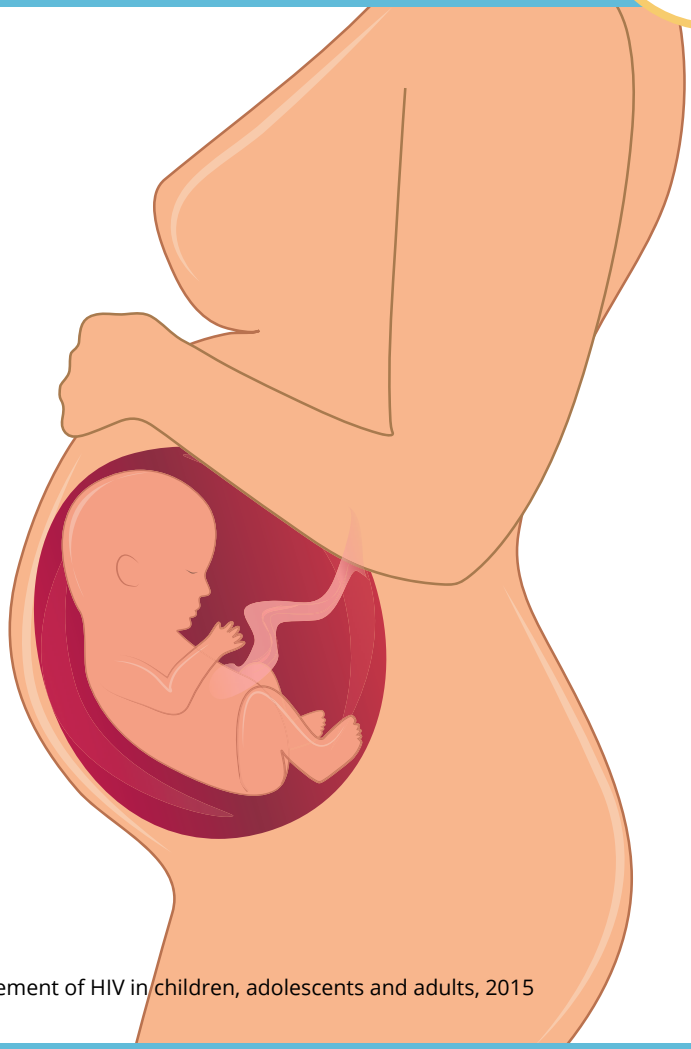
TEST MOM! TEST BABY! [1]

TEST ALL PREGNANT WOMEN EXCEPT THOSE THAT ARE KNOWN HIV POSITIVE ON ART

- At confirmation of pregnancy
- 3 monthly during pregnancy
- During labour and delivery
  - regardless of when last test was done
  - even if they have recently tested negative
  - particularly if their HIV status is unknown
- At 6 week EPI visit
- 3 monthly while breastfeeding

**** It is critical to identify all HIV exposed neonates**

TEST ALL HIV-EXPOSED NEONATES



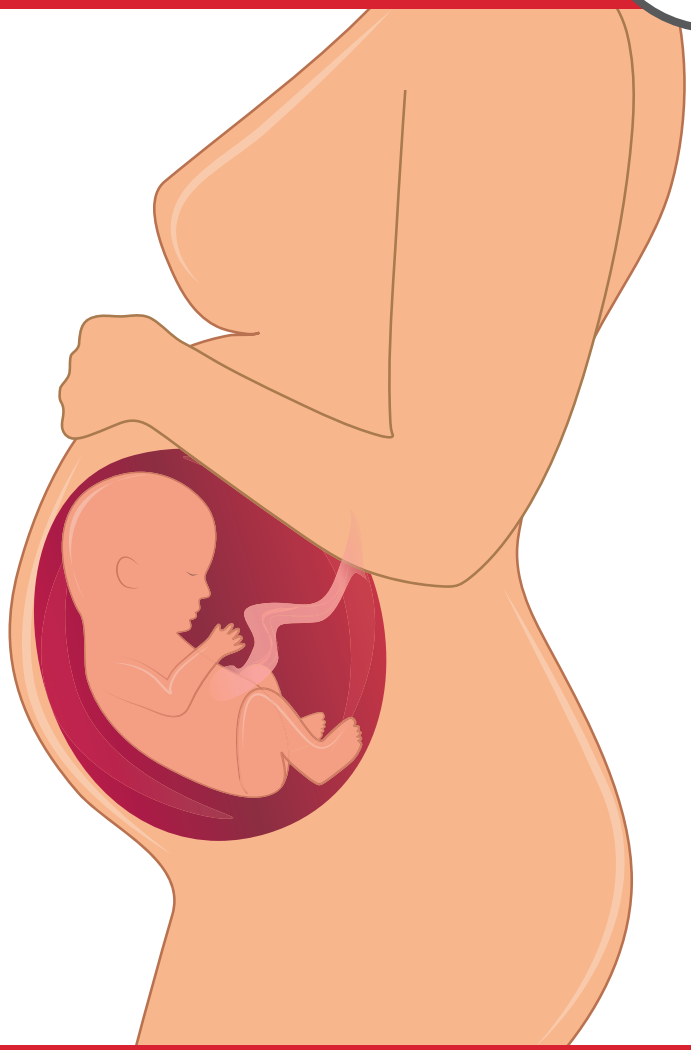
1. NDoH. National Consolidated Guidelines for the prevention of mother-to-child transmission of HIV (PMTCT) and the management of HIV in children, adolescents and adults, 2015

TEST MOM! TEST BABY!

TEST ALL HIV NEGATIVE PREGNANT WOMEN

- 3 monthly during pregnancy
- During labour and delivery
- At 6 week EPI visit
- 3 monthly while breastfeeding

TEST ALL HIV-EXPOSED NEONATES



WHAT ARE THE TYPES OF HIV TESTS? [8]

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POLYMERASE CHAIN REACTION (PCR) TEST

- PCR tests for the presence of the HIV genes, or HIV DNA and RNA
- Blood is drawn from a toe, finger (for children 9 months and older) or heel prick and sent to the laboratory
- Results should be available in one week
- A positive result needs to be confirmed ASAP with a 2nd HIV PCR test
- Window period 14-16 days

ANTIBODY TESTS

- HIV ELISA and Rapid tests both test for the presence of HIV antibodies
- During pregnancy, maternal antibodies are transferred to the baby. These remain in the baby's blood for up to 18 months. These babies will test positive with antibody tests but this only means that the baby was exposed and does not necessarily mean that the baby is infected. A PCR is needed to determine whether the baby is infected prior to 18 months of age.
- From 18 months, antibody tests can be used to diagnose HIV
- Can be used in babies <18 months when the mother's status is unknown (e.g. abandoned babies) – a positive result indicates HIV exposure not infection

A. HIV RAPID TEST

- A finger-prick is done at the clinic/hospital and results are available within 20-30 minutes
- A positive result must be confirmed with a second Rapid test (of a different make) to confirm infection
- If the results are discrepant, repeat the HIV rapid test algorithm
- If results are still discrepant, do an ELISA test
- Window period 21-49 days

B. HIV ELISA TEST

- Blood is drawn from the child and sent to the laboratory for analysis
- Results are available in a few days
- Normally done to confirm status if Rapid test results are discrepant
- Window period 18-21 days

8. NDoH. National HIV Testing Services: Policy and Guidelines, 2015

WHAT ARE THE TYPES OF HIV TESTS?

PCR

- **P**olymerase **C**hain **R**eaction
- Tests for HIV DNA + RNA
- Must be used in children <18 months

RAPID

- Tests for HIV antibodies
- If 1st test positive, confirmatory Rapid must be done
- If the results are discrepant, repeat the HIV rapid test algorithm.
- If results are still discrepant, do an ELISA test
- Used in children ≥18 months
- Also used to screen children <18 months for HIV exposure (if mother's status unknown)

ELISA

- **E**nzyme **L**inked **I**mmuno **S**orbent **A**ssay
- Tests For HIV Antibodies
- Used in children ≥18 months
- Also used to screen children <18 months for HIV exposure (if mother's status unknown)
- Often used to confirm status when Rapid results are discrepant

FOLLOW UP THE HIV RESULT!

Women are often discharged within 6 hours of delivery. Birth PCR results will not be ready, therefore HCW at ANC/MOU/delivery facility must:

- Ensure contact details of mother are correct (telephone number/s, address)
- Register mother on MomConnect
- Include PCR barcode in health record e.g. RTHB
- Educate the mother about the importance of the test and in getting the result at the post-natal facility

Ensure a referral mechanism exists between MOU/delivery facility and PHC clinic

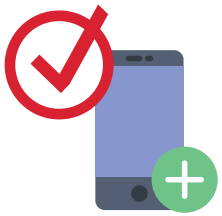
HCW AT PHC FACILITY MUST FOLLOW UP PCR RESULTS:

- Utilise trackers to follow up all rejected specimens, HIV PCR positive and inderteminate results
- CHWs/WBOTs should trace infants through home visits
- Any infant with positive birth PCR result must be urgently referred/discussed telephonically for ART initiation

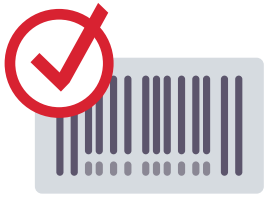
ANY INFANT WITH A POSITIVE BIRTH PCR RESULT MUST BE URGENTLY REFERRED/DISCUSSED TELEPHONICALLY FOR ART INITIATION

FOLLOW UP THE HIV RESULT!

Ensure contact details of mother are correct (telephone number/s, address)



Register mother on MomConnect



Include PCR barcode in health record e.g. RTHB

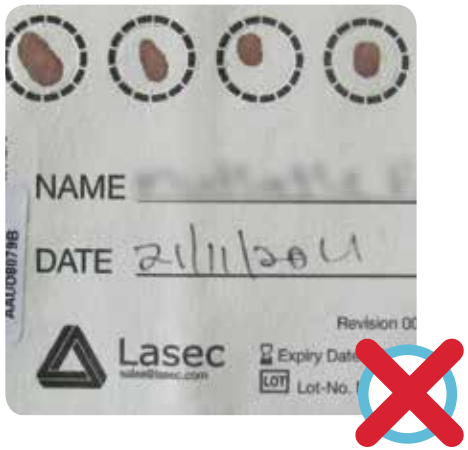
ENSURE A REFERRAL MECHANISM EXISTS

Utilise **trackers** to follow-up infants with positive, indeterminate or rejected birth PCR result and **call back these patients**

ANY INFANT WITH A POSITIVE BIRTH PCR RESULT MUST BE URGENTLY REFERRED/DISCUSSED TELEPHONICALLY FOR ART INITIATION

WHY ARE THESE DBS SPECIMENS UNACCEPTABLE? [9]

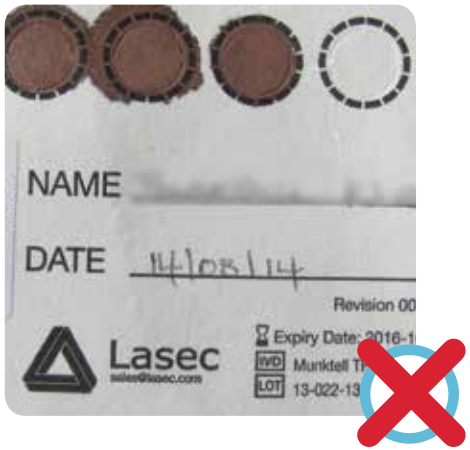
1



INSUFFICIENT SAMPLE FOR PROCESSING

- At least 3 circles should be completely filled

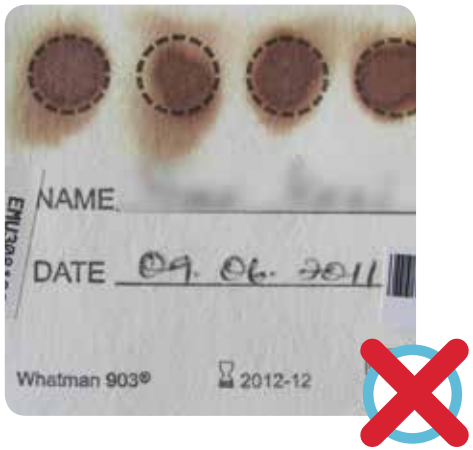
2



BLOOD SPOTTED OUTSIDE OF THE CIRCLE

- DBS cards should not contain clotted or crusted blood

3



HALO EFFECT

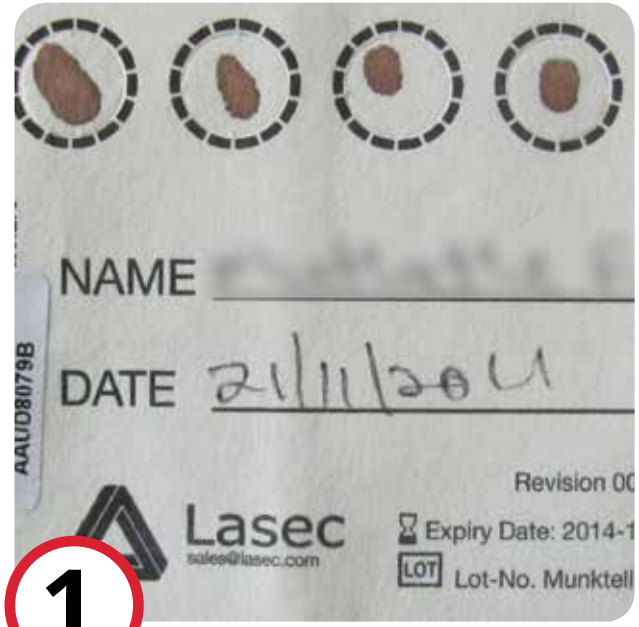
- Blood is mixed with alcohol from the swab used to clean puncture site
- Did not wait for site to dry. Site to dry at room temperature. Do not blow dry.

ALSO ENSURE THAT PATIENT DETAILS AND BARCODE STICKER ON DBS CARD AND NHLS REQUEST FORM MATCH!

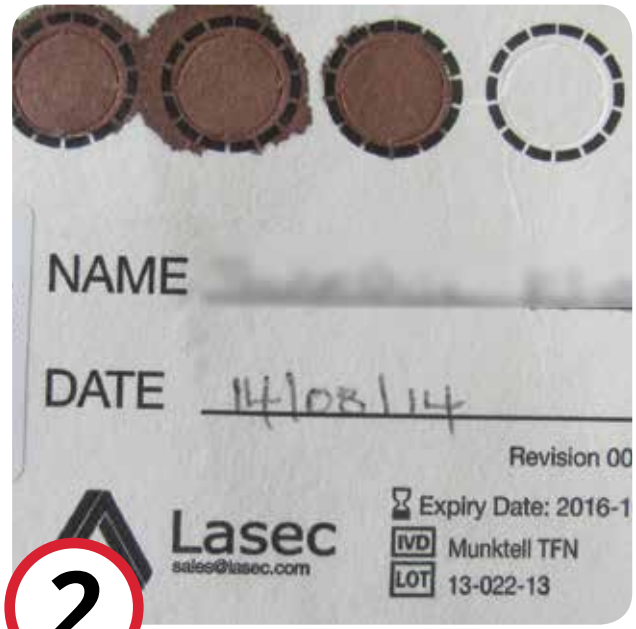
IF THE PROCEDURE IS NOT FOLLOWED THE SPECIMEN WILL BE REJECTED (SEE NHLS SOP BOOKLET)

9. NHLS. Taking blood from infants for the HIV PCR test: Standard Operating Procedure, 2011

WHY ARE THESE DBS SPECIMENS UNACCEPTABLE?



1



2

3

FOR RESULTS CALL 08600 RESULT (737858)

WHY IS THIS DBS SPECIMEN ACCEPTABLE? [9]

- All circles are properly filled with blood (only three circles needed)
- The CCMT NHLS bar coded sticker is attached

- The DBS card has the correct details required and is legible
- Patient details on DBS card and CCMT (ARV) NHLS laboratory request form match

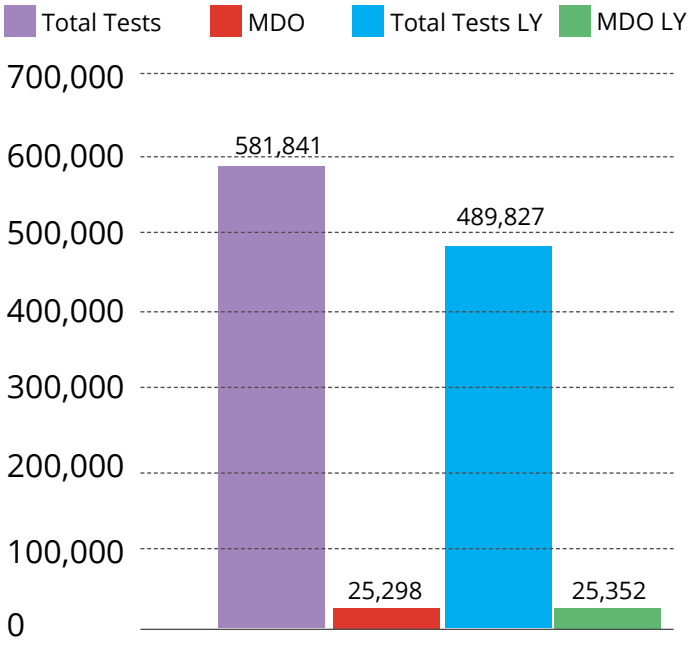
- Proper packaging of specimens:
  - Specimen and desiccant sachet in the same packet, then placed in a biohazard Ziplock plastic bag into the pocket that seals
  - Laboratory form placed in same biohazard packet into a pocket with no seal

9. NHLS. Taking blood from infants for the HIV PCR test: Standard Operating Procedure, 2011

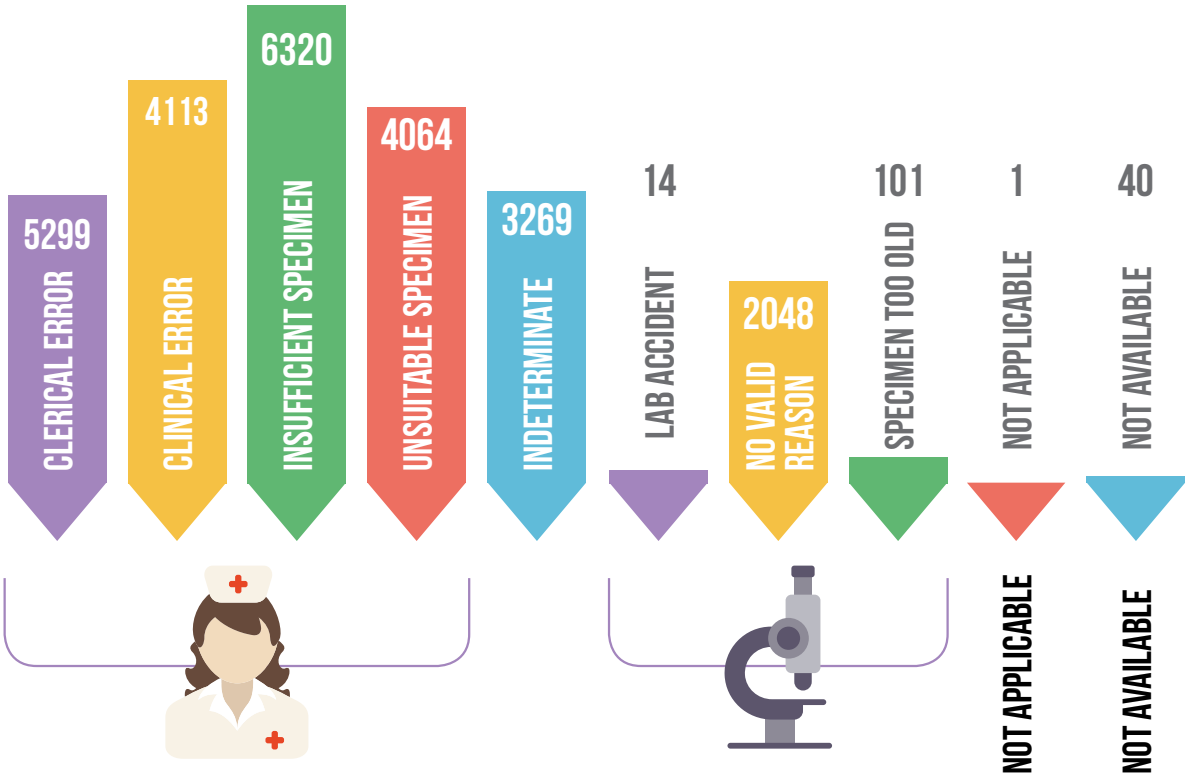
WHY IS THIS DBS SPECIMEN ACCEPTABLE?

REASONS FOR PCR REJECTION

PCR SAMPLE IS REJECTED BY THE LAB FOR REASONS RELATED TO ERRORS AT THE CLINIC OR THE LABORATORY

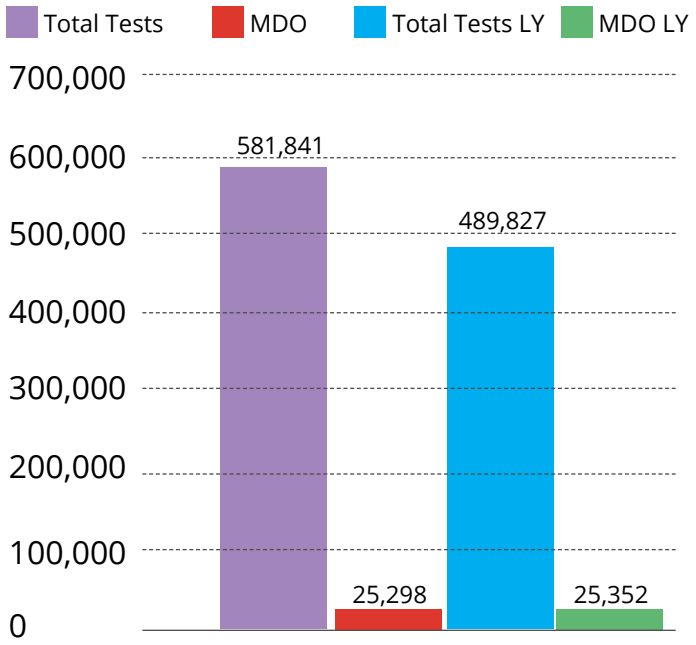


REMEMBER, EACH ERROR REPRESENTS A CHILD



- HCW still the cause for most of the errors
- Clinic Errors are the biggest reasons why specimens are rejected at the lab

REASONS FOR PCR REJECTION



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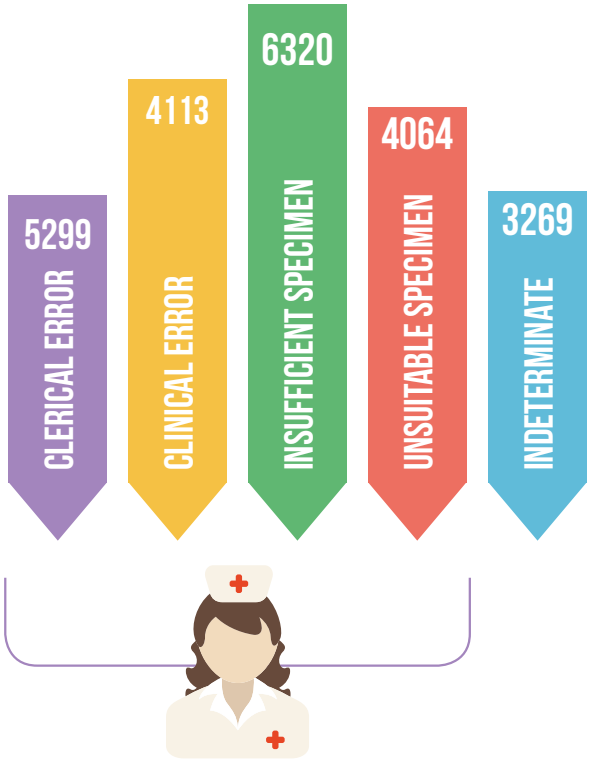
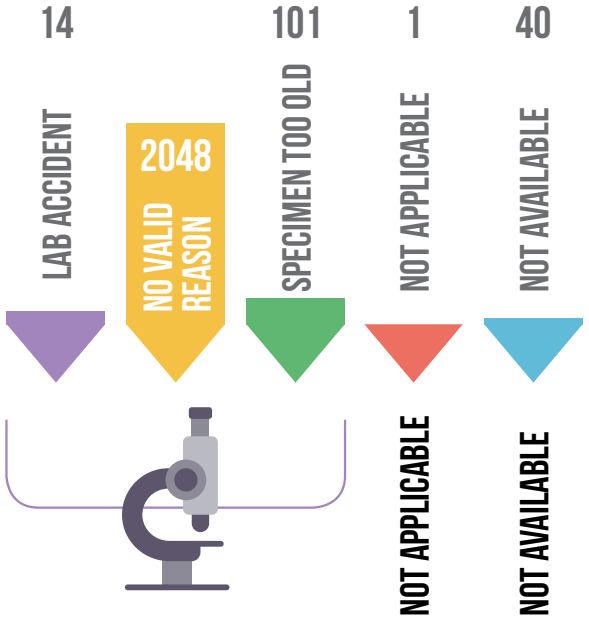


CLINICAL ERROR

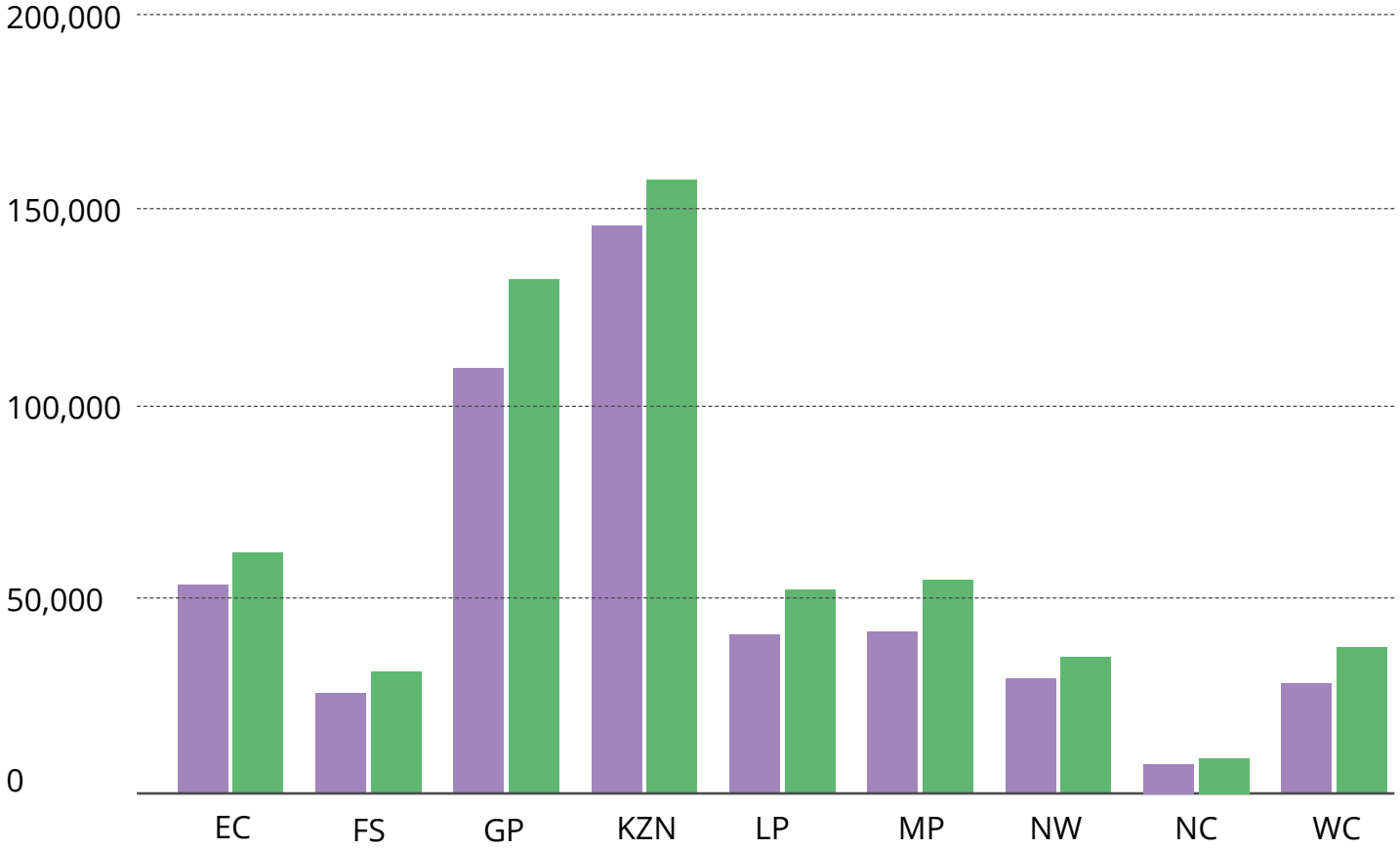


LAB ERROR

- HCW still the cause for most of the errors
- Clinic Errors are the biggest reasons why specimens are rejected at the lab

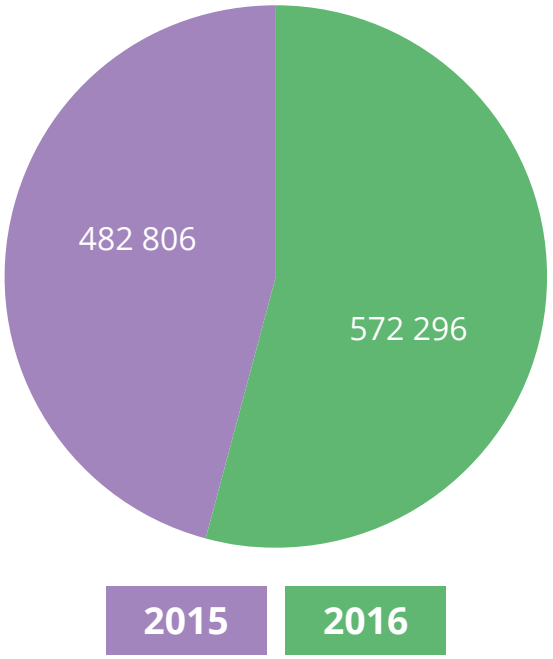
TOTAL PCR TESTS DONE [10]

TOTAL PCR TESTS PER PROVINCE (2015 VS 2016)



All provinces have done more PCR tests in 2016 than in 2015

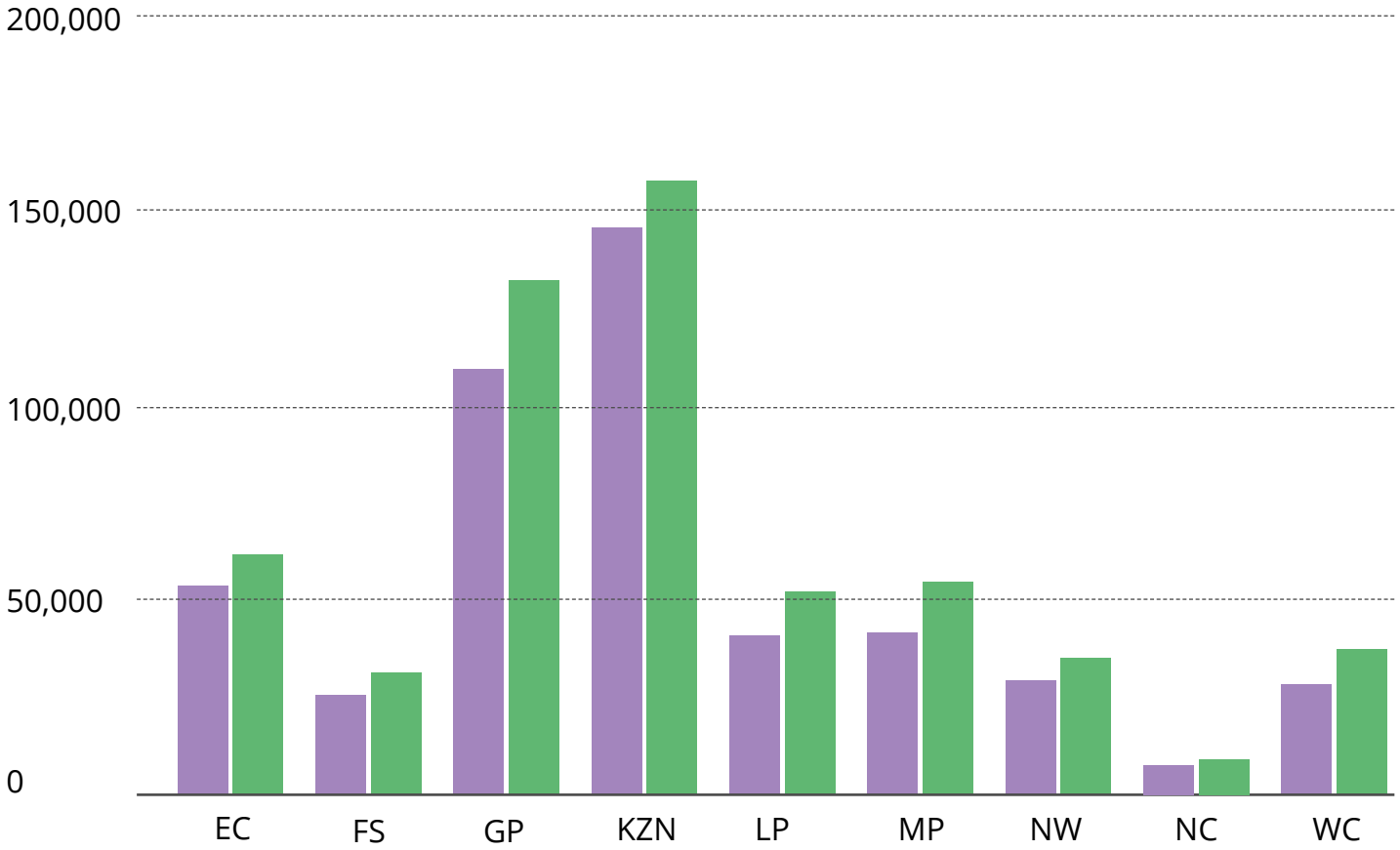
South Africa

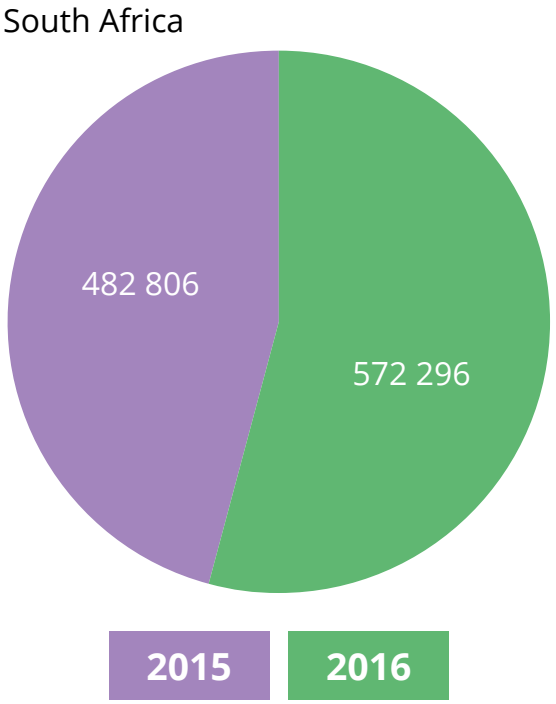


10. NHLS. National Missed Diagnostic Opportunities (MDO) Reports, 2016

TOTAL PCR TESTS DONE [10]

TOTAL PCR TESTS PER PROVINCE (2015 VS 2016)



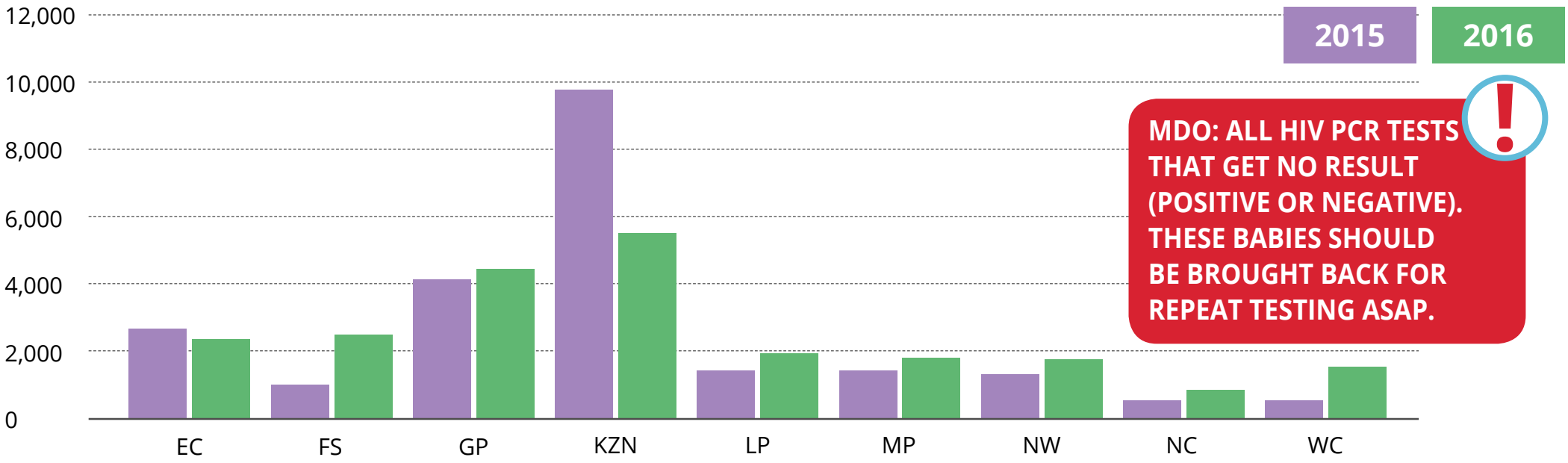


WHAT ARE MISSED DIAGNOSTIC OPPORTUNITIES (MDO) [10]

MDO PER PROVINCE (2015 VS 2016)

- Most provinces have either equal or more MDO in 2016 than 2015

- **THESE CHILDREN HAVE MISSED THE OPPORTUNITY OF BEING DIAGNOSED WITH HIV**
- **THESE CHILDREN EITHER DIE BEFORE THEY ARE DIAGNOSED OR ARE DIAGNOSED WHEN VERY SICK AND MAY NOT SURVIVE EVEN WHEN INITIATED ON ART**



MDO: ALL HIV PCR TESTS THAT GET NO RESULT (POSITIVE OR NEGATIVE). THESE BABIES SHOULD BE BROUGHT BACK FOR REPEAT TESTING ASAP.

10. NHLS. National Missed Diagnostic Opportunities (MDO) Reports, 2016

WHAT ARE MISSED DIAGNOSTIC OPPORTUNITIES (MDO)

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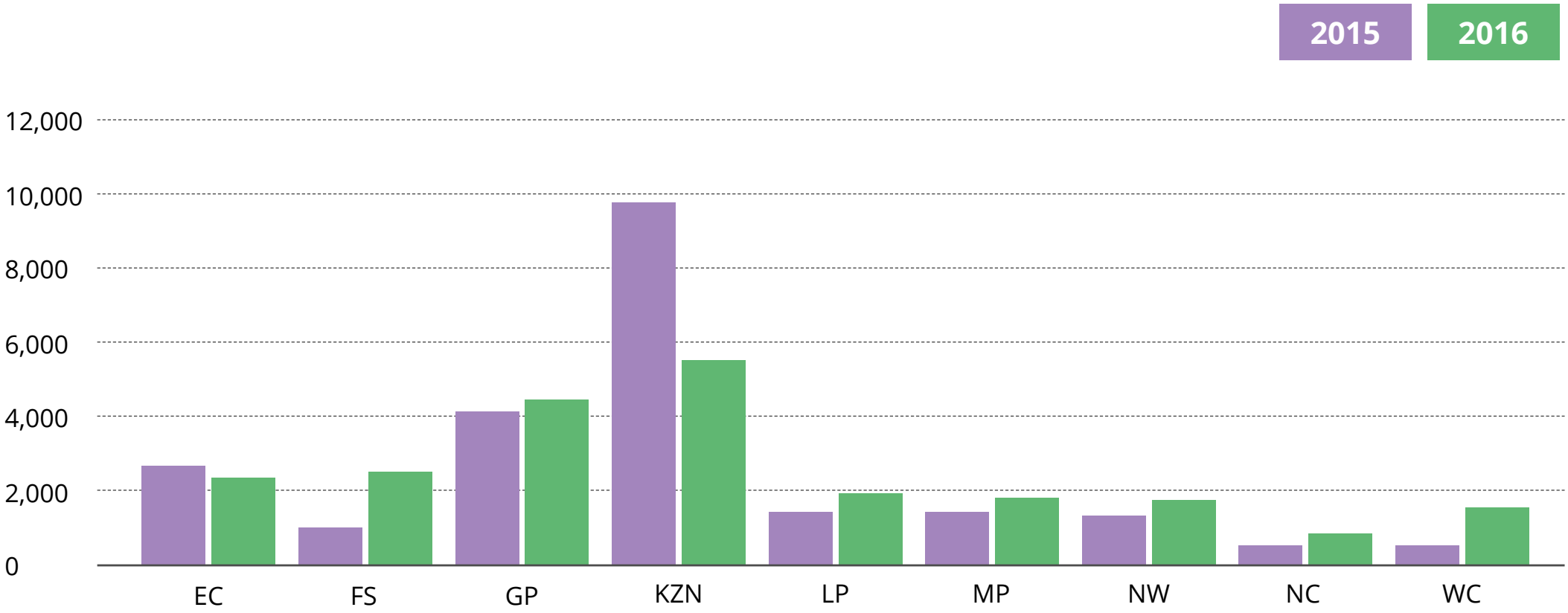
MDO PER PROVINCE (2015 VS 2016)



NHLS: MONTHLY FACILITY-BASED PCR REPORT [11]

THIS REPORT SHOWS:

- Number of HIV PCR tests per facility broken down by ages (including birth testing at <7days of age)
- Number of PCR positive per age group
- Total MDOs for that clinic

POINTS FOR DISCUSSION:

Is the facility testing enough?

- In answering this question consider all categories of children who are eligible for testing

Subdistrict	*Facility*	*<7 d Total*	*<7 d Pos*	*7d - <2mo Total*	*7d - <2mo Pos*	*2 - <6mo Total*	*2 - <6mo Pos*	*6 - <18mo Total*	*6 - <18mo Pos*	*<=18mo Total*	*<=18mo Pos*	*Total PCR*	*Total Pos*	*Total MDO*
x	A	0	0	0	0	2	0	0	0	0	0	2	0	0
	B	0	0	0	0	1	0	0	0	0	0	1	0	0
	C	17	0	0	0	0	0	0	0	0	0	17	0	3
	D	0	0	2	0	3	0	6	0	0	0	11	0	0
	E	11	0	2	0	4	0	3	0	0	0	20	0	3
	F	0	0	0	0	0	0	1	0	0	0	1	0	0
	G	0	0	1	0	1	0	0	0	0	0	2	0	0
Total		28	0	5	0	11	0	10	0	0	0	54	0	6

11. NHLS. Facility HIV PCR Report, 2016

NHLS: MONTHLY FACILITY-BASED PCR REPORT

Subdistrict	Facility	<7 d Total	<7 d Pos	7d - <2mo Total	7d - <2mo Pos	2 - <6mo Total	2 - <6mo Pos	6 - <18mo Total	6 - <18mo Pos	<=18mo Total	<=18mo Pos	Total PCR	Total Pos	Total MDO
x	A	0	0	0	0	2	0	0	0	0	0	2	0	0
	B	0	0	0	0	1	0	0	0	0	0	1	0	0
	C	17	0	0	0	0	0	0	0	0	0	17	0	3
	D	0	0	2	0	3	0	6	0	0	0	11	0	0
	E	11	0	2	0	4	0	3	0	0	0	20	0	3
	F	0	0	0	0	0	0	1	0	0	0	1	0	0
	G	0	0	1	0	1	0	0	0	0	0	2	0	0
Total		28	0	5	0	11	0	10	0	0	0	54	0	6

NHLS: MDO REPORTS [10]

THE MDO REPORT SHOWS:

- Top 50 facilities in an area with the highest number of MDOs
- Breakdown of the MDOs e.g. what the actual error was that led to the sample being rejected

POINTS FOR DISCUSSION:

- What can be done about these MDOs?
  - not done: no age/dob
  - not done: no hcw name/number
  - not done: lab error
  - unsuit: patient age for hivpcr
  - unsuit: edta clotted
  - require edta specimen
  - Indeterminate

PROV	DISTRICT	SUB DISTRICT	FACILITY	RANK - BREAK BY COUNTRY	PCR REJECTED CLINIC ERROR	PCR REJECTED LAB ERROR
GP	CoJ Metro	W	Clinic A	1	53	1
EC	NM Bay Metro	X	Clinic B	2	33	4
WC	Cape Town Metro	Y	Clinic C	3	27	6
GP	Tshwane Metro	Z	Clinic D	4	26	0

PROVINCE	DISTRICT	SUB DISTRICT	FACILITY	REJECTION TYPE	REJECTION REASON	TEST RESULT TEXT	PCR MDO	PCR REJECTED CLINIC ERROR	PCR REJECTED LAB ERROR
Eastern Cape	Nelson Mandel Bay Metro	X	Clinic A	Clinic Error	Clerical Error	NOT DONE: NO AGE/DOB	3	3	
				Clinic Error	Clerical Error	NOT DONE: NO HCW NAME/NUMBER	1	1	
				Clinic Error	Clinical Error	UNSUIT: PATIENT AGE FOR HIVPCR	10	10	
				Clinic Error	Unsuitable Specimen	NOT DONE: UNSUITABLE	6	6	
				Clinic Error	Unsuitable Specimen	REQUIRE EDTA SPECIMEN	10	10	
				Clinic Error	Unsuitable Specimen	REQUIRE SEPARATE SPECIMEN	20	20	
				Clinic Error	Unsuitable Specimen	UNSUIT: EDTA CLOTTED	19	19	
				Lab Error	Indeterminate	INDETERMINATE	5		5
				Lab Error	No Valid Result	NOT DONE: LAB ERROR	1		1

TO REQUEST MDO REPORTS, CONTACT: GAYLES@NICD.AC.ZA

10. NHLS. National Missed Diagnostic Opportunities (MDO) Reports, 2015

NHLS: MDO REPORTS

PROV	DISTRICT	SUB DISTRICT	FACILITY	RANK - BREAK BY COUNTRY	PCR REJECTED CLINIC ERROR	PCR REJECTED LAB ERROR
GP	CoJ Metro	W	Clinic A	1	53	1
EC	NM Bay Metro	X	Clinic B	2	33	4
WC	Cape Town Metro	Y	Clinic C	3	27	6
GP	Tshwane Metro	Z	Clinic D	4	26	0

PROVINCE	DISTRICT	SUB DISTRICT	FACILITY	REJECTION TYPE	REJECTION REASON	TEST RESULT TEXT	PCR MDO	PCR REJECTED CLINIC ERROR	PCR REJECTED LAB ERROR
Eastern Cape	Nelson Mandel Bay Metro	X	Clinic A	Clinic Error	Clerical Error	NOT DONE: NO AGE/DOB	3	3	
				Clinic Error	Clerical Error	NOT DONE: NO HCW NAME/NUMBER	1	1	
				Clinic Error	Clinical Error	UNSUIT: PATIENT AGE FOR HIVPCR	10	10	
				Clinic Error	Unsuitable Specimen	NOT DONE: UNSUITABLE	6	6	
				Clinic Error	Unsuitable Specimen	REQUIRE EDTA SPECIMEN	10	10	
				Clinic Error	Unsuitable Specimen	REQUIRE SEPARATE SPECIMEN	20	20	
				Clinic Error	Unsuitable Specimen	UNSUIT: EDTA CLOTTED	19	19	
				Lab Error	Indeterminate	INDETERMINATE	5		5
				Lab Error	No Valid Result	NOT DONE: LAB ERROR	1		1

NHLS: PCR RESULTS FOR ACTION REPORT [12]

HIGHLY CONFIDENTIAL REPORT SHOWS:

- All HIV PCR results in the last week
- Identifiers for tracking individual patients

POINTS FOR DISCUSSION:

What action should you take for the following:

- 1 day, positive
- 2y 2m, unsuitable (pt age)
- 2m 11d, Cancel by lab (duplicate request)
- 5 day, Specimen insufficient
- Unk age, Specimen not received
- Not done: no age/dob
- 2 day, Info does not match dbs

Province	District	Sub District	Facility	Folder No	Pt Surname	Pt Name	Pt DOB	Pt Address	Pt Tel No	Pt Age	Taken Date	Unique Pt ID	HIV PCR Result
Limpopo	Greater Sekhukhune	x	A				6/4/2016		Unk	1d	7/4/2016		Positive
		x	B				2/4/2016		Unk	5d	7/4/2016		Specimen insufficient
		y	C				1/1/1800		Unk	Unk	7/4/2016		Specimen not received
		y	D				1/1/1800		Unk	Unk	7/4/2016		Not done: no age/dob
		z	E				13/1/2014		Unk	2y 2m 26d	8/4/2016		Unsuit: patient age for hivpcr
		y	F				6/4/2016		Unk	2d	8/4/2016		Info does not match dbs
		x	G				31/1/2016		Unk	2m 11d	11/4/2016		Cancel by lab (duplicate request)

TO REQUEST MDO REPORTS, CONTACT: GAYLES@NICD.AC.ZA

12. NHLS. PCR Results for Action Report, 2016

NHLS: PCR RESULTS FOR ACTION REPORT

Province	District	Sub District	Facility	Folder No	Pt Surname	Pt Name	Pt DOB	Pt Address	Pt Tel No	Pt Age	Taken Date	Unique Pt ID	HIV PCR Result
Limpopo	Greater Sekhukhune	x	A				6/4/2016		Unk	1d	7/4/2016		Positive
		x	B				2/4/2016		Unk	5d	7/4/2016		Specimen insufficient
		y	C				1/1/1800		Unk	Unk	7/4/2016		Specimen not received
		y	D				1/1/1800		Unk	Unk	7/4/2016		Not done: no age/dob
		z	E				13/1/2014		Unk	2y 2m 26d	8/4/2016		Unsuit: patient age for hivpcr
		y	F				6/4/2016		Unk	2d	8/4/2016		Info does not match dbs
		x	G				31/1/2016		Unk	2m 11d	11/4/2016		Cancel by lab (duplicate request)

WHAT IS DISCUSSED IN PRE-TEST COUNSELLING? [8]

- **Establish the relationship**
  - 'How is the caregiver related to the child'
- **Preparation of the caregiver**
  - Explain the process to be followed when doing counselling
- **Confidentiality**
  - Explain 'one on one', shared and limits of confidentiality to the caregiver
- **Education**
  - Assess how much knowledge the caregiver has about HIV and the beliefs he/she has regarding it
  - Explore the reasons why the test has been requested and discuss what factors may have put the child at risk for HIV infection
  - Educate the caregiver where gaps have been identified
- Discuss and explore the available **support structures**
- Discuss the health of the caregiver and other family members (don't forget siblings)
- Discuss **testing process**
- Discuss **possible reaction** to either a positive or negative result and how that can be managed
- Discuss **disclosure** of status
- Obtain **Consent**
- This can be verbal or written

8. Cronjé L, Potgieter NA.2011. Foundation of HCT, Disclosure and Adherence with Children – Trainer Manual. ZoëLife

WHAT IS DISCUSSED IN PRE-TEST COUNSELLING?

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- Discuss **disclosure** of status
- Obtain **Consent**
- This can be verbal or written

HIV DIAGNOSIS IN HIV-EXPOSED CHILDREN <18 MONTHS [1]

ALL HIV-EXPOSED BABIES SHOULD RECEIVE AN HIV PCR TEST

- At birth

A NEGATIVE HIV PCR TEST AT BIRTH MEANS THE CHILD IS NOT HIV INFECTED AND AN HIV TEST NEEDS TO BE REPEATED AT

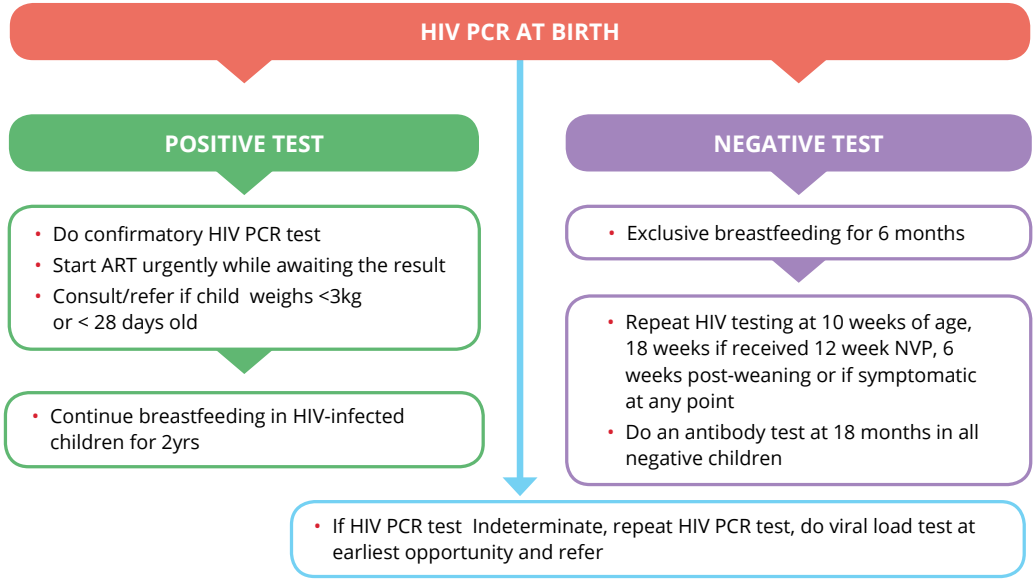
- **10 weeks**
- **18 weeks** of age if received 12 weeks Nevirapine
- **6 weeks** post weaning
- **18 months** of age and
- At any point if **symptomatic**

A POSITIVE HIV PCR RESULT MUST BE ACTED ON URGENTLY

- **Confirm with a 2nd HIV PCR** test
- Initiate on **ART, do not delay** while awaiting result

IF THE PCR RESULT IS INDETERMINATE

- Repeat the **HIV PCR** test and a **Viral load** test at the earliest opportunity
- Refer



1. NDoH. National Consolidated Guidelines for the prevention of mother-to-child transmission of HIV (PMTCT) and the management of HIV in children, adolescents and adults, 2015

HIV DIAGNOSIS IN HIV-EXPOSED CHILDREN <18 MONTHS

THE AURUM INSTITUTE

HIV PCR AT BIRTH

POSITIVE TEST

- Do confirmatory HIV PCR test
- Start ART urgently while awaiting the result
- Consult/refer if child weighs <3kg or < 28 days old

- Continue breastfeeding in HIV-infected children for 2yrs

NEGATIVE TEST

- Exclusive breastfeeding for 6 months

- Repeat HIV testing at 10 weeks of age, 18 weeks if received 12 weeks NVP, 6 weeks post-weaning or if symptomatic at any point
- Do an antibody test at 18 months in all negative children

- If HIV PCR test Indeterminate, repeat HIV PCR test, do viral load test at earliest opportunity and refer

CHECK EVERY CHILD'S HIV EXPOSURE STATUS AT EVERY VISIT

HIV DIAGNOSIS IN CHILDREN ≥ 18 MONTHS [14]

A POSITIVE HIV RAPID RESULT MUST BE CONFIRMED BY DOING A 2ND RAPID OF A DIFFERENT MAKE

- 2 positive Rapid results mean that the child is infected
- Start ART

If the 1st Rapid test is positive and the 2nd Rapid is negative, the results are discrepant and the HIV rapid test algorithm should be repeated.

If results are still discrepant, do an ELISA test.

A positive ELISA confirms HIV infection

- A negative ELISA means the child is HIV-uninfected

BREASTFED CHILDREN MUST BE RETESTED 6 WEEKS POST-CESSATION OF BREASTFEEDING

HIV TESTING IN CHILD ≥ 18 MONTHS OLD

- All HIV exposed children require a HIV rapid test at 18 months old unless on ART
- Check every child's exposure at every healthcare visit

MOTHER HIV +

Screening for Rapid HIV test

Rapid HIV test positive, confirmatory Rapid HIV test

Confirmatory Rapid HIV test positive, child HIV positive

Initiate ART

Confirmatory Rapid HIV test negative

Repeat Test algorithm

If: Rapid HIV screening test is non-reactive and confirmatory test non-reactive test non-reactive and confirmatory test non-reactive: Report as HIV NEGATIVE

IF: Rapid HIV screen test reactive and confirmatory test non-reactive: Report as HIV DISCREPANT and refer for Reflex Laboratory Testing

IF: Rapid HIV screen test reactive and confirmatory test reactive: Report as HIV POSITIVE

MOTHER HIV - IN THE LAST 3 MONTHS

No HIV test for child unless symptomatic

If screening HIV Rapid test negative. Child uninfected

If breastfeeding, repeat HIV test 6 weeks post weaning

14. National Department of Health. National HIV Testing Services: Policy 2016

HIV DIAGNOSIS IN CHILDREN ≥ 18 MONTHS

THE AURUM INSTITUTE

HIV TESTING IN CHILD ≥ 18 MONTHS OLD

- All HIV exposed children require a HIV rapid test at 18 months old unless on ART
- Check every child's exposure at every healthcare visit

MOTHER HIV +

Screening for Rapid HIV test

↓

Rapid HIV test positive, confirmatory Rapid HIV test

↓

Confirmatory Rapid HIV test positive, child HIV positive

↓

Initiate ART

MOTHER HIV - IN THE LAST 3 MONTHS

No HIV test for child unless symptomatic

If screening HIV Rapid test negative. Child uninfected

↓

If breastfeeding, repeat HIV test 6 weeks post weaning

Confirmatory Rapid HIV test negative

↓

Repeat Test algorithm

If: Rapid HIV screening test is non-reactive and confirmatory test non-reactive test Non-reactive and confirmatory test non-reactive: Report as HIV NEGATIVE

IF: Rapid HIV screen test reactive and confirmatory test non-reactive: Report as HIV DISCREPANT and refer for Reflex Laboratory Testing

IF: Rapid HIV screen test reactive and confirmatory test reactive: Report as HIV POSITIVE

WHAT IS DISCUSSED IN POST-TEST COUNSELLING? [14]

NEGATIVE RESULT

- Give the caregiver/mother the results of the test
- Find out what the results mean to the caregiver/mother, how she feels and what her intentions are now that the results show no infection
- Health education should be given on what to do to help reduce the risk of the child getting infected
- Infant feeding: see section on breastfeeding

POSITIVE RESULT

- Discuss the treatment options available and give time to come to terms with the result
- Inform about the support structures available in and around the area and emphasise the benefits of utilising such structures
- Develop a plan for support and disclosure
- This is very important as that will make taking care of the child easier if/when she is unable to. Refer for assistance if necessary. Discuss the importance of the child's medical treatment
- Infant feeding: see section on breastfeeding

MATERNAL HEALTH

Be sure to emphasise the need for the mother to access care for herself. This should include:

- contraception
- healthy lifestyle
- mental health
- pap smears
- medical treatment of HIV and opportunistic infections

14 Disclosure Guidelines for Children and Adolescents in the context of HIV,TB and non-communicable diseases. NDoH of SOUTH AFRICA: JULY 2016

WHAT IS DISCUSSED IN POST-TEST COUNSELLING?

NEGATIVE RESULT

- Provide results and discuss re-testing
- Explore understanding, emotions and intentions
- Emphasise risk reduction procedures (e.g. feeding choices)
- Discuss infant feeding
- Emphasise importance of mother accessing care for herself
- Discuss retesting

POSITIVE RESULT

- Discuss treatment options
- Develop a plan for support and disclosure
- Discuss treatment and follow-up
- Discuss infant feeding
- Emphasise importance of mother accessing care for herself
- Continue counselling at every visit

BREASTFEEDING [13]

- **The Tshwane Declaration (August 2011) encourages exclusive breastfeeding (BF) for all children including HIV-exposed children for the first 6 months of life**
- Complementary foods should be introduced after 6 months
- BF should continue until 1 year of age if HIV-exposed but uninfected
- Breastfeeding should then only stop if a nutritionally adequate and safe diet without breast milk is possible
- Children who tested HIV-uninfected should be re-tested 6 weeks after cessation of BF
- Children who are diagnosed HIV-infected should continue BF for 2 years

13. The South African Journal of Clinical Nutrition (vol 24, no 4), 2011

BREASTFEEDING

- The Tshwane Declaration (August 2011) encourages exclusive breastfeeding (BF) for ALL children for 6 months
- Introduce complementary foods at 6 months
- BF should continue until 1 year of age if HIV-exposed but uninfected
- HIV-infected children should continue BF for 2 years
- HIV-uninfected exposed children should be re-tested 6 weeks after cessation of breastfeeding

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NOTES