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INTRODUCTION

In response to the urgent need to expand care and treatment for children with HIV and their families, South to South in collaboration with PATA (Paediatric AIDS Treatment for Africa) and Zoe-Life, have brought together this comprehensive toolkit for public sector health facilities in Africa.

PATA is a network of frontline healthcare workers dedicated to expanding access to care for children affected and infected with HIV and their families throughout the African continent. PATA values and promotes models of care that address both the medical and psychosocial needs of the child and that offer high quality, integrated, patient-centred, and affordable services. The foundation of PATA lies with the PATA teams - multidisciplinary Treatment Teams of nurses, pharmacists, counsellors and doctors, who work together at clinics across Sub-Saharan Africa to form a community of compassionate and committed individuals who provide treatment and care to children infected with HIV and their families. The fundamental purpose of PATA is to assist Treatment Teams to improve the quality of health care they deliver to their patients. The principle of PATA lies in the belief that Treatment Teams can best improve themselves, (collectively and individually) and the quality of their work through self-initiated projects in which they have a sense of ownership, responsibility and pride.

The South to South Program for Comprehensive Family HIV Care and Treatment (South to South), an organisation based at the University of Stellenbosch, is a USAID specialist partner in the Prevention of Mother-to-Child Transmission (PMTCT) of HIV, Paediatric HIV, and Psychosocial programming, and responds to specific clinical and health systems strengthening needs within South Africa. As a capacity building organisation, South to South provides technical assistance through training, mentoring, resource development, and quality improvement support of healthcare workers and district teams.

Zoé-Life is a purpose-driven organisation based in South Africa that aims to equip children, communities, and countries to experience authentic abundance. This is achieved through partnering to multiply resources and through strengthening systems within a context of learning from strengths and best practices. Zoé-Life developed KidzAlive, a caregiver-facilitated, child-focused psychosocial care model designed for HIV-infected and affected children and their families. The programme offers psychosocial care and support to children and their caregivers from the point of preparing caregivers and healthcare workers for testing of children, through child-centered testing, age appropriate disclosure, care and support, treatment literacy, and adherence support as well as wellness for HIV affected children. The model and tools enable caregivers and healthcare workers to give informed and age-appropriate support to children in ways that celebrate their individual personalities using counselling and educational play.

It is our hope that the availability of this resource will help us get one step closer to the goal of eliminating the devastating effect of paediatric HIV and AIDS, and will contribute to the good health and well-being of children and families affected by HIV and AIDS throughout Africa.
ACKNOWLEDGEMENTS

In response to the urgent need to expand care and treatment for children with HIV and their families, the South to South Partnership for Comprehensive Family HIV Care & Treatment Program, has developed a comprehensive toolkit for public sector health facilities in Africa.

The Paediatric HIV Care and Treatment: A Toolkit for Multidisciplinary Health Care Teams is a collection of job aides, reference guides, and decision-making tools which reflects the collaborative effort, collective experience, and knowledge of many institutions and individuals who are tirelessly committed to strengthening health care systems in Africa. The authors have drawn upon various curricula and program materials, incorporated theories of best practice, and enhanced these materials based on their own field experiences as well as the invaluable feedback from facilitators, participants, and health care providers.

South to South, PATA, and Zoe Life would like to express their sincere appreciation to the many individuals, institutions, and organisations who contributed a significant amount of their time and tireless effort to the development and design of this Toolkit. Special thanks to Joan Marston, Chief Executive Officer of the International Children’s Palliative Care Network, for making the material available for the palliative care section. The International Union Against Tuberculosis and Lung Disease (The Union) www.theunion.org for permission to draw from the Desk-guide for diagnosis and management of TB in children. S.M Graham et al 2010, specifically Wall Chart 1 (Pg 141); Guidance for the screening of children in close contact with an adolescent of adult with newly diagnosed pulmonary TB, Wall Chart 2 (Pg 142); Guidance for the diagnosis of children who present with symptoms suggestive of TB, Strict Symptom Criteria (Pg 139) and Indications for requiring hospitalization/referral (Pg 138). We also thank Purple Mosaic, for laying out and designing the Toolkit.

This document was made possible through funding provided by the United States Agency for International Development (USAID), under the President’s Emergency Plan for AIDS Relief (PEPFAR), and PATA funders, which include One to One Children’s Fund, Sidaction, and the Diana Princess of Wales Memorial Fund. The KidzAlive Programme is funded by PEPFAR CDC. We also acknowledge the following organizations for their support: Department of Health, Republic of South Africa; University of Witwatersrand; Stellenbosch University; Tygerberg Children’s Hospital; International Centre for AIDS Care and Treatment Programs at Columbia University (ICAP); University of Cape Town; Red Cross Children’s Hospital, and the Baylor International Paediatric AIDS Initiative.

The following references serve as key documents which informed the main components of the toolkit:


DISCLAIMER

The content expressed herein does not necessarily reflect the views of the funders. Although every effort was made to ensure that all information in this document is accurate and up-to-date, the authors accept no liability for the consequences of inaccurate or misleading data due to errors in writing or printing/duplication. Every effort has been made to ensure that drug doses are presented accurately, but readers are advised that these should only be followed in conjunction with the drug manufacturer’s published literature.

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HOW TO USE YOUR TOOLKIT

The Paediatric HIV Care and Treatment: A Toolkit for Multidisciplinary Health Care Teams is designed to assist and empower multidisciplinary HIV care teams based in hospitals, clinics, and health facilities across Africa, who provide services to infants, children, and their families, living with HIV.

The Toolkit contains innovative job aides, tools, and reference material on aspects of care in children infected with HIV. Each section begins with relevant background information, followed by a summary of each topic. The Toolkit is not a training package and we encourage users to adapt the content in line with local guidance. For this purpose, the Toolkit is contained in a binder so that the individual job aides can be copied, faxed, individually laminated, and used separately for specific purposes. It is strongly recommended that if documents are removed from the Toolkit, they should be copied first and the original replaced immediately. The Toolkit is intended to be a dynamic document, allowing individual tools to be up-dated and replaced over time. We also encourage you to add additional material to this folder, which you may deem useful.

KEY MESSAGE:
Highlights important information, and provides concise statements about a topic area and overall message and/or purpose of the section and associated tools

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• attribute the material to ECHO, South to South, PATA, and Zoe Life; as well as maintain citations to other sources cited in the Toolkit;
• do not use any of the material for commercial purposes – our work is not intended for generating profit;
• do not change or alter the contents in any way without consulting.

Please refer to Terms of Use for additional information.

No matter how you use this Toolkit, we hope it contributes to better services for children and their families affected by HIV!
1 IMCI & ART
11 Introduction
12 Starting ART
14 Providing Follow up
17 Mouth and Skin Lesions Pictionary

2 HIV CARE PACKAGES
24 HIV Exposed Infant Care Package
25 HIV Infected not on ART Care Package
26 HIV Infected on ART Care Package
27 Physical Head to Toe Examination of a Child

3 DIAGNOSIS
30 Antibody versus Virologic Tests
31 Under 18 Months Testing
34 18 Months or Older Testing
35 Rapid HIV Testing Procedure
36 Dried Blood Spots (DBS) for Infant Diagnosis
37 Standard Operating Procedure: Taking Blood from Infants for the HIV DNA PCR Test

4 ART ELIGIBILITY, INITIATION & FOLLOW UP
49 Children Eligible for ART
51 Initiation and Follow up
52 ARV Drugs Mechanism of Action
53 Infant/Child with Confirmed HIV Infection
54 First Line ART Regimens
56 ARV Dosing Charts
58 Routine Follow up Visit
61 Side Effects of ARV Drugs
63 Drug Interactions
66 ARV and Food
69 Monitoring for Adverse Events
73 Managing ARV Toxicity
77 Treatment Failure
81 Immune Reconstitution Syndrome

5 PICTONARY OF PAEDIATRIC WHO STAGING
91 WHO Staging Conditions
WHO STAGE 1
94 - Persistent Generalised Lymphadenopathy
WHO STAGE 2
95 - Papular Pruritic Eruptions
96 - Recurrent or Chronic Upper Respiratory Tract Infections
97 - Extensive Wart Virus Infection
98 - Fungal Nail Infection
98 - Unexplained Persistent Hepatosplenomegaly
99 - Recurrent Oral Ulcerations
100 - Herpes Zoster
101 - Linear Gingival Erythema
102 - Extensive Molluscum Contagiosum
103 - Bilateral Painless Parotid Swelling
WHO STAGE 3
104 - Oral Thrush - Persistent or Recurrent
105 - Anaemia, Neutropaenia & Thrombocytopenia
106 - Persistent or Recurrent Diarrhoea
107 - Unexplained Moderate Malnutrition
108 - Lymphoid Interstitial Pneumonitis
**CONTENTS**

<table>
<thead>
<tr>
<th>Page</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>PROPHYLAXIS</td>
</tr>
<tr>
<td>119</td>
<td>PMTCT Nevirapine</td>
</tr>
<tr>
<td>134</td>
<td>Cotrimoxazole for Prophylaxis</td>
</tr>
<tr>
<td>7</td>
<td>TB/MALARIA</td>
</tr>
<tr>
<td>138</td>
<td>TB Screening</td>
</tr>
<tr>
<td>143</td>
<td>The Tuberculin Skin Test</td>
</tr>
<tr>
<td>147</td>
<td>TB Treatment</td>
</tr>
<tr>
<td>148</td>
<td>TB Prophylaxis</td>
</tr>
<tr>
<td>149</td>
<td>Antiretroviral Therapy in TB/HIV Co-Infection</td>
</tr>
<tr>
<td>150</td>
<td>BCG Disease</td>
</tr>
<tr>
<td>153</td>
<td>Malaria Diagnosis and Treatment Tool for Primary Care</td>
</tr>
<tr>
<td>8</td>
<td>NUTRITION</td>
</tr>
<tr>
<td>167</td>
<td>Infant Feeding Recommendations for HIV Positive Mothers</td>
</tr>
<tr>
<td>173</td>
<td>The AFASS Criteria for Infant Formula Feeding</td>
</tr>
<tr>
<td>174</td>
<td>Girl’s Weight-for-Age Birth to 5 years (WHO)</td>
</tr>
<tr>
<td>175</td>
<td>Boy’s Weight-for-Age Birth to 5 years (WHO)</td>
</tr>
<tr>
<td>176</td>
<td>Girl’s Length/Height-for-Age Birth to 5 years (WHO)</td>
</tr>
<tr>
<td>177</td>
<td>Boy’s Length/Height-for-Age Birth to 5 years (WHO)</td>
</tr>
<tr>
<td>178</td>
<td>Girl’s Head Circumference-for-Age (WHO)</td>
</tr>
<tr>
<td>179</td>
<td>Boy’s Head Circumference-for-Age (WHO)</td>
</tr>
<tr>
<td>180</td>
<td>Girl’s Weight-for-Age 5 - 10 years (WHO)</td>
</tr>
<tr>
<td>181</td>
<td>Boy’s Weight-for-Age 5 - 10 years (WHO)</td>
</tr>
<tr>
<td>182</td>
<td>Girl’s Height-for-Age 5 - 19 years (WHO)</td>
</tr>
<tr>
<td>183</td>
<td>Boy’s Height-for-Age 5 - 19 years (WHO)</td>
</tr>
<tr>
<td>184</td>
<td>Girl’s Weight-for-Age (SA)</td>
</tr>
<tr>
<td>185</td>
<td>Boy’s Weight-for-Age (SA)</td>
</tr>
<tr>
<td>186</td>
<td>Weight for Length/Height Charts (SA)</td>
</tr>
<tr>
<td>187</td>
<td>Nutrition Risk Score in Children: Birth - 14 years</td>
</tr>
<tr>
<td>188</td>
<td>Nutritional Management of HIV-related Symptoms</td>
</tr>
</tbody>
</table>
9 DEVELOPMENT
211 Head Circumference-for-Age Girls
212 Head Circumference-for-Age Boys
213 Developmental Milestones Red Flag
224 Developmental Milestones Monitoring for ART Clinics
230 Basic Infant Neuromotor Assessment: The Six Test Positions

10 PALLIATIVE CARE AND HIV
231 Foreword
232 Pain in HIV Infected Children
233 Pain Assessment Tools
235 Basic Principals of Pain Management
236 Spiritual Pain
239 Determining the Level of Palliative Care Intervention Required

11 PSYCHOSOCIAL SUPPORT AND DISCLOSURE FOR CHILDREN & ADOLESCENTS
242 Psychosocial Framework
243 Communicating with Children
244 Disclosure
246 Step by Step Guide for Conversations with Children Towards Disclosure
247 Assessing Adherence When Working with Children and Infants
249 Adherence Counselling Forms for Infants/Children
255 Creating an Adolescent-Friendly Environment
256 How to Talk to Adolescents
257 Stages of Adolescence
259 HIV Testing - The 'KidzwhoTest' Model
## IMPORTANT TELEPHONE NUMBERS

<table>
<thead>
<tr>
<th>CONTACT</th>
<th>ORGANISATION</th>
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Children are the most vulnerable citizens in any society and the greatest of our treasures.

IMCI & ART

INTRODUCTION

The Integrated Management of Childhood Illness (IMCI) approach is a primary WHO strategy for reducing deaths in young children. The IMCI case management process assists health care workers to accurately identify and manage those conditions responsible for most deaths in young children, namely acute respiratory infections, diarrhoea, malnutrition and other infections. At the same time, the IMCI case management process ensures that each child receives preventative care, such as immunization and vitamin A supplementation.

South Africa was the first country to include identification and management of HIV infection in children in the IMCI Chart Booklet. Earlier editions focused on identification and provision of palliative care to children with AIDS, but as more treatments became available, the IMCI approach was adapted to include these. With a shift in the South African HIV programme in 2010, where ART was to be provided at all public health sectors, nurses were placed at the forefront of initiating and following up children on ART. This required that IMCI be expanded to include ART provision as a component of the package of health services provided at Primary Health Care (PHC) level. As a result, a simple six step approach to initiating ART in children as well as a seven step approach to providing follow-up has been added to the IMCI Chart Booklet. These steps can be used to initiate and provide follow-up to the majority of children who require ART at PHC level, especially when the diagnosis is made early, before the child develops severe signs and complications.

As this South African specific ART supplement to the IMCI Chart Booklet has been found to be extremely useful for healthcare workers, it has been included in this Toolkit as an adjunct tool to assist frontline healthcare workers when managing HIV infected children. The content has been adapted in alignment with the WHO recommendations whilst retaining the stepwise approach. These pages however do not replace the existing IMCI chart booklets or the need for formal IMCI and ART training.

This section also includes patient management recording forms based on the stepwise guidelines as well as a ‘Skin and Mouth Condition’ pictionary from the Integrated Management of Childhood Illness for High HIV Settings Chart Booklet (World Health organisation 2008).
STARTING ART
FOLLOW THE SIX STEPS

STEP 1: DECIDE IF THE CHILD HAS CONFIRMED HIV INFECTION
• Child less than 18 months: POSITIVE HIV Virological (PCR) test
• Child 18 months and above: POSITIVE HIV Antibody test

STEP 2: DECIDE IF THE CHILD IS ELIGIBLE TO RECEIVE ART
• Stage the child (WHO Clinical staging)
• Record the child’s CD4 count and percentage
• Decide whether the child is eligible based on the eligibility criteria (See recommended WHO eligibility criteria on page 49)
• If criteria met, move to STEP 3
• If the child does not meet the eligibility criteria, classify as CONFIRMED HIV INFECTION not on ART, and follow up (at least 3 monthly). Continue Cotrimoxazole prophylaxis and do clinical staging and a CD4 count at least six monthly to assess if the child meets the criteria for initiation of ART.

STEP 3: DECIDE IF THE CAREGIVER IS ABLE TO GIVE ART
• Check that the caregiver is willing and able to administer ART
• The caregiver should ideally have disclosed the child’s HIV status to another adult who can assist with providing ART (or to be part of a support group)
• If caregiver is able to give ART, move to STEP 4
• If not, classify as CONFIRMED HIV INFECTION not on ART, and follow up regularly with intensive psychosocial support and counseling

STEP 4: DECIDE IF A NURSE SHOULD INITIATE ART BASED ON LOCAL GUIDELINES
• If the child has associated opportunistic infections or is severely ill, the initiation of ART may be best done at the next level of care.

STEP 5: ASSESS AND RECORD BASELINE INFORMATION
• Record the following information:
  - Weight, height, and head circumference
  - WHO Clinical stage
  - Assess and Classify for Malnutrition and Anaemia
  - Laboratory results as per local protocol: VL (if available), CD4 count and percentage
  - Feeding assessment and problems
  - TB classification
• If the child has SEVERE MALNUTRITION, SEVERE ANAEMIA, TB or POSSIBLE TB, refer to the next level of care for initiation of ART.
• If Hb is less than 10g/dL, classify as ANAEMIA and treat. Do not delay starting ART.
• Send any outstanding laboratory tests.

STEP 6: START ART
• Decide on treatment regimen as per local guidelines (See recommended WHO first line ARV regimens for children on page 54 - 55)
• Determine ARV drug dosages based on the weight of the child (See recommended WHO ARV drug dosages on page 56)
• Remember to give Cotrimoxazole (page 134)
• Give other routine treatments (immunization, Vitamin A and deworming)
• Follow up after one week
### STARTING ART: FOLLOW THE SIX STEPS RECORDING FORM

Name of child: ___________________________ Age: _______ Weight: _______ Temp: _______ °C Date: __________

<table>
<thead>
<tr>
<th>ASSESS</th>
<th>RECORD ACTIONS AND TREATMENTS HERE: ALWAYS REMEMBER TO COUNSEL THE MOTHER AND PROVIDE ROUTINE CARE</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>STEP 1: CONFIRM HIV INFECTION</strong></td>
<td></td>
</tr>
<tr>
<td>Child &lt; 18 months:</td>
<td>Child &gt; 18 months:</td>
</tr>
<tr>
<td>□ POSITIVE HIV Virological Test</td>
<td>□ POSITIVE HIV Antibody Test</td>
</tr>
<tr>
<td>□ Negative</td>
<td></td>
</tr>
<tr>
<td>□ POSITIVE</td>
<td></td>
</tr>
</tbody>
</table>

- □ Send any outstanding tests
- □ If HIV infection confirmed, proceed to Step 2

<table>
<thead>
<tr>
<th><strong>STEP 2: IS THE CHILD ELIGIBLE TO RECEIVE ART?</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>□ Yes</td>
</tr>
<tr>
<td>□ HIV confirmed (Step 1)</td>
</tr>
<tr>
<td>□ Stage 1</td>
</tr>
<tr>
<td>CD4: Count _______</td>
</tr>
<tr>
<td>CD4 Criteria met: □ Yes</td>
</tr>
</tbody>
</table>

- □ If criteria met, proceed to Step 3
- □ If child 2 - 5 years does not meet staging and CD4 criteria, classify as HIV INFECTION not on ART, and provide follow-up

<table>
<thead>
<tr>
<th><strong>STEP 3: IS THE CAREGIVER ABLE TO GIVE ART?</strong></th>
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<tbody>
<tr>
<td>□ Caregiver available and willing to give medication?</td>
</tr>
<tr>
<td>□ Caregiver has disclosed to another adult (or is part of a support group)</td>
</tr>
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</table>

<table>
<thead>
<tr>
<th><strong>STEP 4: SHOULD ART BE NURSE-INITIATED?</strong></th>
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<tbody>
<tr>
<td>□ Yes</td>
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</table>

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<thead>
<tr>
<th><strong>STEP 5: ASSESS AND RECORD BASELINE INFORMATION</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Weight: _______ kg</td>
</tr>
<tr>
<td>Head circumference:</td>
</tr>
<tr>
<td>Assess and classify for malnutrition:</td>
</tr>
<tr>
<td>□ GROWING WELL</td>
</tr>
<tr>
<td>Development: □ Normal</td>
</tr>
<tr>
<td>Classify for TB: □ TB confirmed</td>
</tr>
<tr>
<td>Who Clinical Stage: □ 1</td>
</tr>
<tr>
<td>Hb (if available): _______ g/dl</td>
</tr>
<tr>
<td>CD4: Count _______ cells/mm³</td>
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- □ If POSSIBLE TB, follow-up as outlined in the IMCI Chart booklet. Refer as described.
- □ If Hb < 10g/dl, classify and treat for ANAEMIA - do not delay starting ART.
- □ Send any outstanding tests - If the child already meets the criteria for starting ART, do not wait for the results before starting ART.
- □ Proceed to Step 6

<table>
<thead>
<tr>
<th><strong>STEP 6: START ART</strong></th>
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<tbody>
<tr>
<td>• Decide on a treatment regimen as per local guidelines</td>
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<tr>
<td>• Determine ARV drug dosage based on the weight of the child</td>
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<tr>
<td>• Remember to give Cotrimoxazole</td>
</tr>
<tr>
<td>• Give other routine treatments</td>
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- □ Follow up after one week
- □ If child is stable, follow up monthly

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<thead>
<tr>
<th>PROVIDE FOLLOW UP CARE</th>
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<tr>
<td>Record ARVs and dosages here</td>
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<tr>
<td>Record other treatments here</td>
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PROVIDING FOLLOW UP
FOR CHILDREN ON ART (CHILD 2 MONTHS TO 5 YEARS): FOLLOW THE SEVEN STEPS

STEP 1: ASSESS AND CLASSIFY

• **ASK**
  - Does the child have any problems?
  - Has the child received care at another health facility since the last visit?

• **CHECK FOR GENERAL DANGER SIGNS**
  - Ask: is the child able to drink or breastfeed?
  - Does the child vomit everything?
  - Has the child had convulsions?
  - Look: see if the child is lethargic or unconscious.
  - Is the child convulsing now?

• **CHECK FOR ART DANGER SIGNS (if present, REFER URGENTLY)**
  - Severe skin rash
  - Difficulty breathing and severe abdominal pain
  - Yellow eyes
  - Fever, vomiting, rash (only if on Abacavir)
  - Severe pallor

• **CHECK FOR MAIN SYMPTOMS (Treat and follow up accordingly)**
  - Cough or difficulty breathing
  - Diarrhoea
  - Fever
  - Ear problem
  - Mouth and Skin lesions

STEP 2: MONITOR PROGRESS ON ART

• Assess and classify for **Malnutrition and Anaemia**
  - Record the child’s weight, height and head circumference

• Assess **Development**
  - Decide if the child is developing well/ has some delay/ is losing milestones

• Assess **Adherence**
  - Ask how often, if ever, the child misses a dose. Record your assessment

• Assess for **Drug Side Effects**
  - Ask specifically about the side effects of the drugs the child is taking
  - Manage mild side effects

• Assess **Clinical Progress**
  - Assess the child’s clinical WHO stage and document if any new stage 3 or 4 staging events
  - Compare with the stage at previous visits

• Monitor **Blood Results**
  - Record results of tests that have been sent
  - Send tests that are due
STEP 3: PROVIDE ART
• If the child is stable, continue with the current regimen
• Remember to check drug doses - these will need to increase as the child grows

STEP 4: PROVIDE OTHER HIV TREATMENTS
• Provide cotrimoxazole prophylaxis (pg 134)

NOTE: Remember cotrimoxazole can be stopped once the child has been stable on ART for at least six months, and has had two CD4 counts higher than 500 cells/mL (or higher than 15%) taken at least three months apart.

STEP 5: PROVIDE ROUTINE CARE
• Check that the child’s immunizations are up to date
• Provide Vitamin A and deworming if due

STEP 6: COUNSEL THE MOTHER OR CAREGIVER
• Use every visit to provide support to the mother or caregiver
• Key issues to discuss include:
  - How the child is progressing, feeding, adherence, side-effects and correct management, disclosure (to others and the child), and support for the caregiver
  - Remember to check that the mother and other family members are receiving the care that they need

STEP 7: ARRANGE A FOLLOW UP
**ART FOLLOW UP: RECORDING FORM**

Name of child: ___________________ Age: ________ Weight: ________ Temp: ________ °C Date: ________

<table>
<thead>
<tr>
<th>STEP 1: ASSESS AND Classify</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ASK:</strong> Does the child have any problems? If yes, record here:</td>
<td></td>
</tr>
<tr>
<td><strong>ASK:</strong> Has the child received care at another health facility since the last visit? If yes, record here:</td>
<td></td>
</tr>
</tbody>
</table>

**Check for General Danger Signs:**
- [ ] NOT ABLE TO DRINK OR BREASTFEED
- [ ] CONVULSIONS DURING THIS ILLNESS
- [ ] VOMITS EVERYTHING
- [ ] LETHARGIC OR UNCONSCIOUS

**Check for ART Danger Signs:**
- Severe skin rash
- Difficulty breathing and severe abdominal pain
- Yellow eyes
- Fever, vomiting, rash (only if on Abacavir)
- Severe pallor

**Check for Main Symptoms**
- Cough or difficult breathing
- Diarrhoea
- Fever
- Ear problem
- Other problems

**Consider (screen for) TB**
- No classification required
- TB
- TB EXPOSURE
- TB EXPOSURE WITH POTENTIAL TB

Provide pre-referral treatment and REFER URGENTLY

**STEP 2: MONITOR ARV TREATMENT**

Assess and classify for Malnutrition
- Weight ________ kg
- Height ________ cm
- Head circumference ________ cm

- GROWING WELL
- NOT GROWING WELL
- SEVERE MALNUTRITION

Assess development:
- Developing well
- Some delay
- Losing milestones

Assess adherence:
- Takes all doses
- Occasionally misses a dose
- Frequently misses doses
- Not taking medication

Assess side-effects:
- Nausea
- Diarrhoea
- Rash
- Sleep disturbances
- Dizziness
- Tingling, numb or painful hands, feet or legs
- Abnormal distribution of fat
- Other

Assess clinical progress:
- Stage when ART initiated
  - Stage 1
  - Stage 2
  - Stage 3
  - Stage 4
  - Unknown
- Any new Stage 3 or 4 conditions?: Yes No

Monitor blood results:
- Record latest results here: Date taken: ________
- CD4 (if available): Count ________ cells/mm³
- Percentage %
- Viral Load (if available)
- If on Lopinavir/Ritonavir (yearly):
  - LDL Chol ________
  - Triglycerides ________

**IF ANY OF THE FOLLOWING ARE PRESENT, REFER THE CHILD TO THE NEXT LEVEL OF CARE**
- Not gaining weight for 3 months
- Loss of developmental milestones
- Suspected Treatment Failure
  - New clinical Stage 3 or 4 illnesses (clinical treatment failure)
  - CD4 count decreasing (immunological failure)
  - Viral load increasing despite adherence counseling and support (virological failure)
  - Significant side effects
    - LDL cholesterol higher than 3.5 mmol/L
  - TGs higher than 5.6 mmol/L

Manage side effects:
- Send tests that are due
  - CD4 count
  - Viral load
  - LDL cholesterol and Triglycerides

**STEP 3: PROVIDE ART**

**STEP 4: PROVIDE OTHER HIV TR**

**STEP 5: PROVIDE ROUTINE CARE**

<table>
<thead>
<tr>
<th>ARVs</th>
<th>DOSAGE</th>
<th>OTHER</th>
<th>DOSAGE</th>
<th>MEDICATION</th>
<th>RECORD</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Vitamin A</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Deworming</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Immunizations</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Other medication</td>
<td></td>
</tr>
</tbody>
</table>

REMEMBER TO CHECK DOSES - THESE NEED TO BE INCREASED AS THE CHILD GAINS WEIGHT

**STEP 6: COUNSEL**

Use every visit to educate and provide support to the caregiver.

Key issues to discuss include:
- How the child is progressing, adherence, side-effects and correct management, disclosure (to others and to the child) and support for the caregiver.

**STEP 7: PROVIDE FOLLOW UP**

If the child is well, make a follow-up date in one month’s time. Follow-up any problems more frequently.
# MOUTH AND SKIN LESIONS PICTORIAL

## IMCI CHARTBOOK FOR HIGH INCIDENCE HIV SETTING

## IDENTIFY SKIN PROBLEM IF SKIN IS ITCHING

<table>
<thead>
<tr>
<th>SIGNs</th>
<th>CLASSIFY AS:</th>
<th>TREATMENT</th>
<th>UNIQUE FEATURES IN HIV</th>
</tr>
</thead>
</table>
| Itching rash with small papules and scratch marks. Dark spots with pale centres. | **PAPULAR ITCHING RASH (PRURIGO)** | Treat itching:  
- Calamine lotion  
- Antihistamine by mouth  
If not improved, 1% hydrocortisone.  
Can be an early sign of HIV and needs assessment for HIV. | Is a Clinical Stage 2 defining disease. |
| An itchy circular lesion with a raised edge and fine scaly area in centre with loss of hair. May also be found on body or web of feet. | **RINGWORM (TINEA)** | Whitfield’s ointment or other anti-fungal cream if few patches.  
If extensive Refer, if not give: ketoconazole for 2 up to 12 months (6-10kg) 40 mg per day.  
For 12 months up to 5 years give 60mg per day. Or give griseofulvin 10mg/kg/day.  
If in hairline shave hair.  
Treat itching as above. | Extensive: There is a high incidence of coexisting nail infection which has to be treated adequately, to prevent recurrences of tinea infection of skin.  
Fungal nail infection is a Clinical Stage 2 defining disease. |
| Rash and excoriations on torso, burrows in web space and wrist. Face spared. | **SCABBIES** | Treat itching as above.  
Manage with anti-scabies medications: 25% topical benzyl benzoate at night, repeat for 3 days after washing.  
1% topical lindane cream or lotion once - wash off after 12 hours. | In HIV positive individuals scabies may manifest as crusted scabies.  
Crusted scabies presents as extensive areas of crusting mainly on the scalp, face, back and feet. Patients may not complain of itch but the scales will be teeming with mites. |
<table>
<thead>
<tr>
<th>IDENTIFY SKIN PROBLEM IF SKIN HAS BLISTERS/SORES/PUSTULES</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>SIGNs</strong></td>
</tr>
<tr>
<td>Vesicles over body. Vesicles appear progressively over days and form scabs after they rupture.</td>
</tr>
<tr>
<td>Vesicles in one area on one side of the body with intense pain or scars plus shooting pain. Herpes zoster is uncommon in children except where they are immuno-compromised, for example if infected with HIV</td>
</tr>
<tr>
<td>Vesicular lesion or sores, also involving lips and/or mouth.</td>
</tr>
<tr>
<td>Red, tender warm crusts or small lesions.</td>
</tr>
</tbody>
</table>
## Identify Papular Lesions: Non-Itchy

<table>
<thead>
<tr>
<th>Presenting Signs and Symptoms</th>
<th>Classify</th>
<th>Management &amp; Treatment</th>
<th>Unique Features in HIV</th>
</tr>
</thead>
<tbody>
<tr>
<td>Skin coloured pearly white papules with a central umbilication. It is most commonly seen on the face and trunk in children.</td>
<td>Molluscum Contagiosum</td>
<td>Can be treated by various modalities: Leave them alone unless superinfected. Pricking each lesion with a needle or sharpened orange stick and dabbing with phenol. Electrodesiccation. Liquid nitrogen application (using orange stick). Curettage.</td>
<td>Incidence is higher. Giant molluscum (&gt;1 cm in size), or coalescent double or triple lesions may be seen. More than 100 lesions may be seen. Lesions often chronic and difficult to eradicate. Extensive molluscum contagiosum is a clinical Stage 2 defining disease.</td>
</tr>
<tr>
<td>The common wart appears as papules or nodules with a rough (verrucous) surface.</td>
<td>Warts</td>
<td>Topical salicylic acid preparations (e.g., Duofilm). Liquid nitrogen cryotherapy. Electrocautery.</td>
<td>Lesions more numerous and recalcitrant to therapy. Extensive viral warts is a Clinical Stage 2 defining disease.</td>
</tr>
<tr>
<td>Greasy scales and redness on central face, body folds.</td>
<td>Seborrhoea</td>
<td>Ketoconazole shampoo. If severe, refer or provide topical steroids. For seborrheic dermatitis: 1% hydrocortisone cream x 2 daily. If severe, refer.</td>
<td>Seborrheic dermatitis may be severe in HIV infection. Secondary infection may be common.</td>
</tr>
<tr>
<td>MOUTH PROBLEMS: THRUSH</td>
<td>CLASSIFY</td>
<td>SIGNS</td>
<td>TREATMENT</td>
</tr>
<tr>
<td>------------------------</td>
<td>----------</td>
<td>-------</td>
<td>-----------</td>
</tr>
<tr>
<td></td>
<td>SEVERE OESOPHAGEAL THRUSH</td>
<td>Not able to swallow.</td>
<td>Refer urgently to hospital. If not able to refer, give fluconazole. (Stage 4 disease)</td>
</tr>
<tr>
<td></td>
<td>OESOPHAGEAL THRUSH</td>
<td>Pain or difficulty swallowing.</td>
<td>Give oral care, give oral fluconazole. If mother is breastfeeding, check the mother for breast thrush. (Stage 4 disease)</td>
</tr>
<tr>
<td></td>
<td>ORAL THRUSH</td>
<td>White patches in mouth which can be scraped off.</td>
<td>Give fluconazole. Give oral care, to young infant or child. If mother is breast feeding, check and treat mother for breast thrush. Follow up in 2 days. Tell the mother when to come back immediately. Once stabilized, refer for ART initiation. (Stage 4 disease)</td>
</tr>
<tr>
<td></td>
<td>ORAL HAIRY LEUCOPLAKIA</td>
<td>Most frequently seen on the sides of the tongue, a white plaque with a corrugated appearance.</td>
<td>Counsel the mother on home care for oral thrush. The mother should: - Wash her hands. - Wash the young infant/child's mouth with a soft clean cloth wrapped around her finger and wet with salt water. - Rule out nystatin four times per day or paint the mouth with half strength gentian violet for 7 days. - Wash hands after providing treatment for the young infant or child. - Avoid feeding for 20 minutes after medication. - If breastfed, check mother's breasts for thrush. If present (dry shiny scales on nipples and areola), treat with nystatin or GV. - Advise the mother to wash breast after feeding. - boil feeding bottle and change feeding cup and spoon. - If severe, recurrent or pharyngeal thrush, consider symptomatic IV. - Advise the mother to refer for ART initiation (Stage 4 disease). - Give Paracetamol if needed for pain.</td>
</tr>
</tbody>
</table>

Does not independently require treatment but resolves with ART and Acyclovir (Stage 2 disease).
Nursing is a work of Heart!
Investment in AIDS will be repaid a thousand-fold in lives saved and communities held together.

Dr. Peter Piot, Executive Director, UNAIDS
HIV CARE PACKAGES
HIV CARE PACKAGES

Depending upon a child’s HIV test results, whether there is any ongoing HIV exposure, and ARV treatment eligibility, every child may be categorized as either:

- HIV Negative
- HIV Exposed
- HIV Infected not on ART
- HIV Infected on ART

This is a helpful approach since each patient category can be provided with a certain “care package” or set of healthcare services outlined by national HIV care and treatment guidelines. The exception is patients found to be HIV Negative whom require only routine child health services.

KEY MESSAGE:

*Care Packages are a reminder to offer comprehensive prevention, treatment, and support services.*

The following pages outline the various HIV care and treatment packages for children. They may be used as checklists during patient visits, copied for insert into clinic files, or implemented as a quick reference to ensure comprehensive service provision. Busy clinics might not allow for every aspect of the care package to be provided at every visit, however, at some point the entire care package should be offered to ensure quality service provision and successful patient outcomes.
**HIV EXPOSED INFANT CARE PACKAGE**

✓ Measure weight, height, and head circumference. Plot on growth chart, interpret, and classify nutritional status.

✓ Screen for the following concerning clinical features:
  - Hospitalization
  - Cough
  - TB
  - Fever
  - Oral thrush
  - Diarrhoea
  - Malnutrition
  - Developmental Delay
If any are present, conduct a thorough clinical review and determination of possible repeat HIV testing.

✓ Ongoing HIV testing and diagnosis. Does the infant have any new HIV testing results to evaluate?
  - If yes, determine the HIV status based upon test results
  - If no, does the infant need repeat testing today based on age and time since weaning?

✓ Assess and educate the mother on her infant feeding options and important steps she can take to minimize HIV transmission while promoting overall feeding safety and healthy infant outcomes.

✓ Provide vertical transmission prevention prophylaxis therapy to all HIV exposed infants in the first 6 weeks of life and continue thereafter, if:
  - Infant is breastfeeding AND
  - Mother is not on lifelong ART

✓ Assess the child’s development

✓ Provide Cotrimoxazole prophylaxis therapy (CPT)

✓ Ensure the infant receives routine child health services such as immunisation, Vitamin A supplementation, and deworming.

✓ Take a family history for HIV, TB, and any other concerns that may impact the infant’s health or ability to receive ongoing chronic care. Encourage HIV testing for all family members, even if clinically well.

✓ Ensure the mother is accessing her own HIV care, treatment, and maternal support services.

✓ Discuss family planning with the infant’s parents and offer further information or family planning services as requested.

✓ Document health information in the Child Health Record / Passport and clinic file. Key information includes:
  - HIV test information: Type of test, test date, test results
  - Breastfeeding status (exclusive, mixed feeding, weaned, etc.)
  - Nutritional and developmental assessment
  - Any medical problems and treatments, including drug dosages
  - Counseling notes
  - Due date for repeat HIV testing if indicated
  - Review date
HIV INFECTED NOT ON ART CARE PACKAGE

✓ Measure weight, height, and head circumference (HC if less than 3 years). Plot on growth chart, interpret, and classify nutritional status.

✓ Screen for the following concerning clinical features:
  - Hospitalization
  - Cough
  - TB
  - Fever
  - Oral thrush
  - Diarrhoea
  - Malnutrition
  - Developmental Delay.

If any are present, conduct a thorough clinical review and investigations as indicated.

✓ Ongoing reassessment of ART eligibility.
  - Clinical review for any new WHO staging conditions at least every 3 months. More frequent review for children with active illness, pending investigations or complications.
  - CD4 percentage (Under 5y of age) and/or total CD4 count (all ages) every 6 months.

✓ Provide Cotrimoxazole prophylaxis as indicated.

✓ Psychosocial support to the child and family, including the reassessment and empowerment of the child disclosure process. Involve the child in his/her own healthcare.

✓ Ensure the child receives routine child health services such as immunisation, Vitamin A supplementation, and deworming.

✓ Take a family history for HIV, TB, and any other concerns that may impact the infant’s health or ability to receive ongoing chronic care. Encourage HIV testing for all family members, even if clinically well.

✓ Discuss family planning with the infant’s parents and offer further information or family planning services as requested.

✓ Document health information in the Child Health Record / Passport and clinic file.

Key information includes:
- Child age and WHO stage
- HIV test information: Type of test, test date, test results
- Nutritional and developmental assessment
- Any medical problems and treatments, including drug dosages
- Laboratory results (CD4%, FBC, etc.)
- Counselling notes
- Review date
**HIV INFECTED ON ART CARE PACKAGE**

- Measure weight, height, and head circumference (HC if less than 3 years). Plot on growth chart, interpret, and classify nutritional status.

- Assess and treat any new illness while considering:
  - Are there any new WHO staging conditions? Especially Stage 3 or 4 which may represent a poor response to ART.
  - Are there any treatment side effects or toxicities?

- Provide ongoing care for any chronic conditions.

- Provide routine ART monitoring as per your local guideline schedule.
  - Clinical response
  - Immunologic (CD4) and virologic (viral load) response if available
  - ART toxicity surveillance

- Assess and promote patient adherence to the treatment regimen.
  - Discuss successes and challenges
  - Medication bottle inspection and pill counts
  - Caregiver support – provide individualized adherence counselling support when indicated.

- Provide Cotrimoxazole prophylaxis as indicated.

- Psychosocial support to the child and family, including the reassessment and empowerment of child disclosure process. Involve the child in his/her own healthcare.

- Ensure the infant receives routine child health services such as immunisation, Vitamin A supplementation, and deworming.

- Take a family history for HIV, TB, and any other concerns that may impact the infant’s health or ability to receive ongoing chronic care. Encourage HIV testing for all family members, even if clinically well.

- Discuss family planning with the infant’s parents and offer further information or family planning services as requested.

- Document health information in the Child Health Record / Passport and clinic file. Key information includes:
  - Child age and WHO stage
  - Nutritional and developmental assessment
  - Any medical problems and treatments
  - ARV regimen, dosages and quantity dispensed
  - Cotrimoxazole dosing and quantity dispensed (if indicated)
  - Laboratory results (CD4%, FBC, etc.)
  - Counselling notes
  - Review date
PHYSICAL HEAD TO TOE EXAMINATION OF A CHILD

1. **Skeletal abnormalities**: motor activity, gait, shape
   - Skin abnormalities: colour, hydration
   - State of health: severity of illness, level of consciousness, growth and nutrition, level of hygiene

2. **Temperature**
   - Pulse
   - Respiration
   - Colour
   - Temperature

3. **Weight** (check against previous records)
   - Head circumference
   - Height/Length

4. **Anterior fontanelle**
   - Posterior fontanelle (neonates)
   - Hair
   - Scalp
   - Face

5. **Position & alignment**
   - Vision including fields
   - Eyebrows
   - Eyelids
   - Conjunctiva
   - Sciera
   - Cornea
   - Iris
   - Pupils

6. **Size**
   - Position
   - Ear canal
   - Ear drum
   - Hearing

7. **Nasal Mucosa**
   - Septum
   - Turbinates
   - Frontal and Maxillary Sinuses

8. **Lips**
   - Buccal mucosa
   - Teeth
   - Gums
   - Tongue
   - Pharynx
   - Hard & soft palates
   - Lymph nodes

9. **Size of trachea**
   - Position of trachea

10. **Length of fingers**
    - Fingers and nails

11. **Observe shape, symmetry of chest movements, breathing**
    - Palpate: position of apex beat
    - Percussion: dullness
    - Auscultation: breath & heart sounds

12. **Genitalia**
The best doctors use both their heart and their mind and blend gentleness with skill.
DIAGNOSIS
Approximately half of perinatally HIV-infected children who do not receive any treatment will die by two years of age. Therefore, early identification of children exposed to and infected with HIV is key to reducing the risk of death. This begins with the identification of HIV-infected women during pregnancy and close mother-infant follow-up. However, some infants and children are “late comers” or become ill with concerning symptoms. Therefore, just as all children are assessed for malnutrition and anaemia, HIV infection needs to be considered in all children.

**KEY MESSAGE:**

*Early identification of HIV status among children is essential to prevent rapid HIV progression and death.*

This health service delivery approach is called Provider Initiated Counselling & Testing (PICT) and is the recommended approach to HIV testing. Historically, HIV testing was often delegated to Voluntary Counselling and Testing (VCT) rooms and delivered as a separate service from routine child healthcare. In PICT, healthcare workers must take an active role in routinely integrating the offering of HIV testing to all children who come to the health facility. Of course, children with concerning signs and symptoms or family members with HIV will remain a priority focus. However, with the PICT approach we also recognize that HIV-infected patients can appear healthy and unaware of their status. The only way to know for sure is to test. The PICT approach to HIV testing remains voluntary and continues with pre- and post-test counselling information.
**KEY MESSAGE:**
*Routine offering of HIV testing should be integrated into routine child health visits. An example of a PICT approach is expanding where HIV testing takes place to include exam or immunisation rooms for a one-stop consultation service.*

## ANTIBODY VERSUS VIROLOGIC TESTS

HIV testing can be done using either antibody or virologic tests. The table below explains some of the important differences between these tests.

<table>
<thead>
<tr>
<th>ANTIBODY TESTS</th>
<th>VIROLOGIC TESTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>These tests detect antibodies made by immune cells in response to the virus. They do not detect the virus itself. Antibodies from the mother pass on to the child and most have gone by 12 months of age, but in some instances they do not disappear until the child is 18 months of age. This means that a positive antibody test in children under the age of 18 months is not a reliable way to check for infection in the child. However, a positive test would indicate the infant is HIV exposed which may be of use in situations of unknown maternal HIV status.</td>
<td>These tests directly detect the presence of the HIV virus or products of the virus in the blood. Positive virological tests can therefore reliably detect HIV infection at any age, even before the child is 18 months old. If the tests are negative and the child has been breastfeeding, this does not rule out infection as the infant may have just become infected. Virological tests done six weeks or more after completely stopping breastfeeding rule out infection.</td>
</tr>
</tbody>
</table>

**Examples of antibody tests:**
- Rapid HIV tests
- ELISA

**Examples of virologic tests:**
- HIV DNA PCR (collected by DBS)
- HIV RNA PCR (viral load)

**KEY MESSAGE:**
*Below 18 months of age a virologic test is needed to determine if a child is infected with HIV.*

*Using two different rapid tests for confirming HIV infection in children 18 months or older is preferred to ELISA due to rapid results, especially at primary healthcare facilities where specimen transport to a laboratory is required. ELISA is indicated as a tie-breaker when rapid tests differ. (See algorithm, page 35)*
Establishing the presence of HIV infection in HIV exposed infants and children less than 18 months of age in resource-limited settings

**HIV EXPOSED INFANT OR CHILD < 18 MONTHS**

**Conduct diagnostic viral test**

**VIRAL TEST AVAILABLE**

**POSITIVE**

- Infant/child is likely infected
  - <24 months: immediately start ART\(^b\) and repeat viral test to confirm infection

**NEGATIVE**

- NEVER BREASTFED
  - Infant/child is uninfected

- EVER BREASTFED OR CURRENTLY BREASTFEEDING
  - Infant/child remains at risk for acquiring HIV infection until complete cessation of breastfeeding\(^c\)

**VIRAL TEST NOT AVAILABLE**

- Regular and periodic clinical monitoring

**INFANT/CHILD DEVELOPS SIGNS OR SYMPTOMS SUGGESTIVE OF HIV**

**VIRAL TEST NOT AVAILABLE**

- Infant remains well and reaches 9 months of age
  - Conduct HIV antibody test at approximately 9 months of age

- INFANT/CHILD DEVELOPS SIGNS OR SYMPTOMS SUGGESTIVE OF HIV

**VIRAL TEST AVAILABLE**

**NEGATIVE**

- Infant/child is infected
  - <24 months: Start ART\(^b\)
  - And repeat viral test to confirm infection

**POSITIVE**

- Viral test not available assume infected if sick assume uninfected if well

**SICK**

- HIV unlikely unless still breastfeeding\(^c\)

**WELL**

- Repeat antibody test 6 weeks after cessation of breastfeeding and/or
  - Repeat antibody test at 18 months of age to confirm viral test diagnosis

- '<24 months:

\[\text{start ART}^b\]

\[\text{and repeat viral test to confirm infection}\]

**INFANT REMAINS WELL AND REACHES 9 MONTHS OF AGE**

\[\text{Conduct HIV antibody test at approximately 9 months of age}\]

---

\(^a\) For newborn, test first at or around birth or at the first postnatal visit (usually 4 - 6 weeks)

\(^b\) Start ART, if indicated, without delay. At the same time, retest to confirm infection.

\(^c\) The risk of HIV transmission remains as long as breastfeeding continues.
Establishing the presence of HIV infection in sick infants and children less than 18 months of age, in resource-limited settings where viral testing is available.

SICK INFANT/CHILD ≤ 18 MONTHS OF AGE WITH UNKNOWN HIV EXPOSURE & SIGNS & SYMPTOMS SUGGESTIVE OF HIV INFECTION

Treat medical conditions

EXPOSED TO HIV

POS

Determine infant exposure:
Verify mother’s HIV status*

NEG

NOT EXPOSED TO HIV

Treat medical conditions

AGE < 9 MONTHS

AGE ≥ 9 MONTHS

Refer for HIV viral testing

POSITIVE

NEGATIVE

INFANT/CHILD IS INFECTED

Repeat viral test and start ART immediately

ASSUME INFANT/CHILD IS UNINFECTED

Treat medical conditions

INFANT/CHILD IS BREASTFEEDING OR HAS BREASTFED WITHIN THE PAST 6 WEEKS

YES

Infant/child remains at risk of acquiring HIV infection until complete cessation of breastfeeding

Repeat HIV testing, if indicated by clinical findings, and/or at least 6 weeks after stopping breastfeeding

Confirm HIV status at 18 months of age

NO

Assume infant/child is uninfected

Confirm HIV status at 18 months of age

* If mother cannot be tested, then test child to determine exposure, but remember that an older infant may test negative, but if the mother is infected and breastfeeding, the infant may remain at risk of acquiring HIV.
Establishing the presence of HIV infection in sick infants and children less than 18 months of age, in resource-limited settings where viral testing is NOT AVAILABLE.

**SICK INFANT/CHILD ≤ 18 MONTHS OF AGE WITH UNKNOWN HIV EXPOSURE & SIGNS & SYMPTOMS SUGGESTIVE OF HIV INFECTION**

Confirm exposure: Verify mother’s HIV status

- **Neg**
  - NOT EXPOSED TO HIV
  - Treat medical conditions

- **Pos**
  - Maternal testing not possible

**CONDUCT HIV ANTIBODY TESTING IN INFANT/CHILD**

- **Positive**
  - INFANT/CHILD IS EXPOSED AND MAY BE INFECTED
    - **And**
      - INFANT/CHILD HAS SYMPTOMS THAT MEET CLINICAL CRITERIA FOR PRESUMPTIVE SEVERE HIV INFECTION
        - **No**
          - Monitor infant/child’s clinical condition frequently
        - **Yes**
          - Provide presumptive clinical diagnosis

- **Negative**
  - ASSUME INFANT/CHILD IS UNINFECTED AND/OR UNEXPOSED
    - Treat medical conditions
    - Regular and periodic clinical monitoring
    - Repeat HIV testing for infant/child known to be exposed or continuing to breastfeed

**Confirm exposure:**
- Verify mother’s HIV status
- Maternal testing not possible

**Key Message:**
Don’t rely on verbal report of HIV status. Confirm status of mother if no documented result in the last 3 months.
HIV TESTING IN CHILDREN >18 MONTHS

HIV EXPOSED?

YES

Do rapid HIV test* on all babies at 18 months

NO

Check for signs/symptoms of HIV (see IMCI guidelines) at every health clinic visit. Are there signs/symptoms of HIV?

POSITIVE*

CHILD IS HIV INFECTED**

CHILD IS STILL AT RISK
• Continue cotrimoxazole (and NVP if applicable - stop NVP 1 week after complete cessation of Breastfeeding)
• Repeat rapid test 6 weeks after cessation of Breastfeeding (and follow algorithm above)

CHILD IS HIV UNINFECTED

NEGATIVE

Has child breastfed in last 6 weeks?

YES

NO

CHILD IS HIV INFECTED**

CHILD IS HIV UNINFECTED

CHILD IS STILL AT RISK
• Continue routine follow-up

YES

NEGATIVE

Check for signs/symptoms of HIV (see IMCI guidelines) at every health clinic visit. Are there signs/symptoms of HIV?

YES

Do rapid HIV test*

NO

CHILD IS HIV UNINFECTED

• Explore other causes of symptoms (esp TB)
• Test child again if new symptoms/signs develop

** ALL HIV INFECTED children need to be urgently referred to an ART clinic for clinical staging and CD4 testing (if available). They should be started on cotrimoxazole while awaiting referral and further management

* See page 35 for rapid HIV testing procedures
RAPID HIV TESTING PROCEDURE

Do second rapid HIV test (different brand)

Child is HIV uninfected (retest after window period)

Check procedures and repeat test

CHILD IS HIV INFECTED
Refer for clinical staging and CD4 testing (if available)

Send HIV Elisa for diagnosis

POSITIVE
NEGATIVE (results are inconclusive)

KEY MESSAGE:
Always take into consideration your clinical assessment of the patient. If test results do not conform to your clinical assessment, consider repeating the test or referring for a second opinion.
DRIED BLOOD SPOTS (DBS) FOR INFANT DIAGNOSIS

CHOOSE WHERE YOU WILL PRICK THE INFANT ACCORDING TO SIZE AND AGE:

a. SMALL INFANTS UP TO ABOUT THE AGE OF 4 MONTHS AND UP TO 5 KG – PRICK THE HEEL.
   The best area is the lateral section of the heel.
   Do not prick the back of the heel where the bone is.

b. LARGER INFANTS BETWEEN 4 AND 10 MONTHS OLD, OR MORE THAN 5 KG – PRICK THE BIG TOE.
   The lateral side or outside part of the big toe works best. Do not prick the very end of the toe where the bone is close to the skin.

c. OLDER INFANTS OVER 10 MONTHS OR MORE THAN 10 KG – PRICK THE FINGER.
   The best finger is the ring finger on the left hand as this finger will be the least used by the baby.
   Select the lateral side of the fingertip.
   Do not stick the very end of the finger where the bone is close to the skin.
   The thumb is not recommended because it will be the most painful.
STANDARD OPERATING PROCEDURES
FOR TAKING BLOOD FROM INFANTS
FOR THE HIV DNA PCR TEST

• Two types of blood samples can be used for an HIV DNA PCR test:
  1. Dried blood spots (DBS)
  2. Whole blood in an EDTA / purple top tube

• Dried blood spots are technically easier to obtain, and are suitable for blood sampling in the primary health care setting.
• Handle all specimens as if they are capable of transmitting infectious agents.

1. DRIED BLOOD SPOT COLLECTION AND STORAGE
Dried blood spots (DBS) can be collected from a heel-stick (or toe-stick or finger-stick) or venous blood onto filter paper (DBS card). The filter paper is framed, preprinted with 3 circles and has space for labeling.

Materials Required:
• Powder-free gloves
• Disinfectant for skin
• Cotton wool or gauze
• Single use, spring-loaded lancing device (e.g. Hemocue or similar device)
• DBS Cards (Figure 1: correctly labeled)
• Zip-lock plastic bags (biohazard bags)
• Desiccant sachets
• Drying rack
• Laboratory forms per country protocol

DBS Collection Kits containing consumables for blood sampling and collection are available and instructions for performing the procedure are printed on the back of each kit.
The **Safety Lancet** makes a sufficiently deep incision (2.25mm) to ensure an adequate flow of blood. The lancet is safe, puncturing the skin and retracting automatically within one or two milliseconds. The needle is concealed inside the plastic casing before and after use and the lancet cannot be reused.

---

**Hemocue safety lancet**

**BD Genie lancet**

Read the instructions on the protective tab. **Twist** (Hemocue) or **Pull** (BD Genie) off the protective tab, hold against skin, and press the white plunger.
Method for collection (see Figures 7 - 10)

- Label the DBS card with the patient’s name, patient’s hospital or clinic number and the date that the sample was obtained. Use a ballpoint pen or other water-indelible marker directly on the paper (Figure 1).
- Complete the laboratory form and if required, carefully stick the bar-code from that form onto the back of the DBS card as shown in Figure 1.
- Clean the selected area of skin (heel, toe or finger) with a skin disinfectant and allow to dry. Take care to keep away from bony prominences (Figure 3).
- Position the foot or hand with the puncture-site downwards.
- Use the loaded lancing device to puncture the skin to allow the blood to flow.
- While holding the foot correctly (Figures 7 – 10), apply & release pressure to allow a drop to form. Do not squeeze or “milk” the puncture site as this may dilute the blood with tissue fluid. Wipe away/discard first drop of blood. Once a drop of blood has formed, lightly touch the drop to the preprinted circle on the filter paper (DBS card) allowing it to soak onto the circle. Allow the next drop of blood to form, and allow it to soak onto the adjacent marked circle on the filter paper.
- Repeat until all marked circles are adequately filled with blood. The preprinted circles hold 50-75 uL blood each when fully filled (Figure 1). Samples with insufficient blood cannot be processed (Figure 6). Fill all three of the marked circles. If insufficient blood flow occurs, a second puncture may need to be made. Do not excessively saturate the card with blood. Do not touch or attempt to smear the blood spots.
- Apply gauze or cotton wool to the puncture site after obtaining sufficient blood.
- Dispose of the lancet into a sharps container.

Method for drying:

- Place the DBS cards in a drying rack to dry (Figure 4). Place only one card per drying slot in the drying rack and do not allow the cards to touch each other.
- Allow to dry for at least three hours. The blood spots should be a dark brown colour once properly dried.
- Do not dry artificially with heat and do not expose to direct sunlight.

Method for storing/submission to laboratory:

- After the blood spots have dried, place each card in a separate zip-lock plastic bag. Insert one desiccant sachet per bag (Figure 5).
- Fold the corresponding, completed laboratory form in half and insert into the pocket of the plastic bag with the patient details facing outwards.
- Ensure all information is provided on the laboratory form including:
  - Baby’s date of birth
  - Contact details for the sister or doctor concerned
  - Clear description that this is the baby’s sample if the mother’s hospital number is used
- DBS samples are very stable and, if necessary, can be kept overnight or over the weekend before being submitted to the laboratory.
**Figure 1.** The size of the blood spot and the penetration of the spot through to the reverse side of the card allow for some assessment of the blood volume. All 3 preprinted circles should be completely filled with blood.

**PROCEDURE FOR HEEL PRICK**

1. Warm the area
2. Wash hands, put on gloves
3. Position baby with foot down
4. Clean area, dry 30 sec
5. Press lancet into foot, prick skin
6. Wipe away first drop
7. Allow large drop to collect
8. Touch blood drop to card
9. Fill entire circle with drop
10. Fill at least 3 circles
11. Clean foot, no bandage

**Figure 3.** Heelprick and toe stick positions

**Figure 4.** Dry completely before packing (blood turns dark red)
Figure 5. One DBS card and one dessicant sachet per biohazard bag

Figure 6. Insufficient sample for processing – samples rejected

Blood spots should fill the circle and should not be ‘smeared’ or crusted. Blood spotted outside the circle cannot be used.
**Note:** 7-10 reflect the previously used ‘Guthrie DBS cards’, however the principles of blood sampling are the same as for the framed DBS cards.

**Figure 7.** Correct holding position by mother and handling of heel

**Figure 8.** Allow large drop of blood to collect
Figure 9. Lateral view of correct grip for heelprick

Figure 10. Collection from toe-prick
2. WHOLE BLOOD COLLECTION

Clotted whole blood samples interfere with HIV DNA PCR test results and will not be processed by the laboratory. Take care to mix whole blood samples well.

Materials Required:

- Powder-free gloves
- Disinfectant for skin
- Cotton wool or gauze
- Single use, spring-loaded lancing device (e.g. Hemocue) or 23 Gauge needle (blue)
- EDTA tube (BD microtainer with BD Microgard closure; 8mm diameter; BD catalogue no. 365975)
- Zip-lock plastic bags
- Complete the local laboratory requisition form with all the patient’s details (Figure 2).
- Label the microtainer.

Collect blood in an approved purple top (EDTA) microtainer by using one of the following methods:

1. Heel/Finger Prick Method
   - Clean the proposed puncture site and position as mentioned above.
   - Puncture heel or finger using the disposable lancing device.
   - Allow drops of blood to collect and fall into the purple top microtainer gently shaking the tube after each drop to prevent clotting. Squeezing at the puncture site will dilute the blood with tissue fluid.
   - Ideally there should be 500μl (microlitres) of blood (minimum volume of 250μl)
   - Place the lid on the microtainer and invert several times to prevent the formation of clots.

2. ‘Vein Drain’ Method
   - Using a 23 Gauge (blue) needle, prick the baby on the dorsal vein of the hand. (usually overlying the 4th metacarpal)
   - Allow blood to drop out slowly out of the back of the needle into the purple top microtainer gently shaking the tube after each drop to prevent clotting.
   - Ideally there should be 500μl (microlitres) of blood (minimum volume of 250μl)
   - Place the lid on the microtainer and invert several times to prevent the formation of clots.
   - Remember to maintain universal precautions as there is a greater risk of sustaining a needle- stick injury when using this method.

3. Formal venesection
   - Blood can also be sampled into larger EDTA Vacutainer / purple top tubes. Minimum volume of whole blood is 1ml to allow for dilution with EDTA in the tube.
3. RECORD KEEPING

For PCR testing the following record keeping is required:

1. Correctly completed laboratory form to ensure that the laboratory can inform the clinic should there be a problem with the PCR test and infant testing rates can be measured to assess the PMTCT program.

2. Clinic infant testing register to document infants that have been tested and ensure PCR test results are obtained and communicated to parents or caregivers. Document the treatment site to which HIV-infected infants have been referred for care.

3. Specimen transport check list as a record of the PCR sample being transported to the laboratory for analysis.

4. Infant’s Child Health Record/Passport to maintain complete medical records indicating that a PCR test has been done, the date it was done & the test result.

ACKNOWLEDGEMENTS:

CONTRIBUTORS

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Janet Patton        Gayle Sherman

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CLINICAL PICTURES

courtesy of Dr.Tracy Creek and the BOTUSA-Francistown PMTCT Project, Francistown, Botswana

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STANDARD OPERATING PROCEDURE: TAKING BLOOD FOR HIV ANTIBODY TESTING

WHOLE BLOOD - SPECIMEN COLLECTION AND TESTING PROCEDURES

• Check kit before use. Use only items that have not expired or been damaged.
• Allow kit and stored specimens to reach room temperature before use.
• Always use universal safety precautions when handling specimens.
• Keep work area clean and organized.
• Please note that this is intended for use as a guideline only. Refer to product insert or standard operating procedure (S.O.P.) for further information.

Abott Determine Test - used as an example

Image courtesy of Gary Pieterse

• Determine HIV Rapid Test kit components.

• Completely remove the foil cover from the test strip and label it with the patient’s details

• Clean the patient’s finger using an alcohol swab.
• Allow the finger to air-dry. Prick the patient’s finger.
• Wipe away the first drop of blood. Allow another drop of blood to collect at the puncture site.
• Collect the blood into the Determine heparinised capillary tube.

• Allow the blood to run into the capillary tube, until between the two black lines
• Gently touch the capillary tube to the test pad, allowing the blood to flow onto the pad.
• Avoid damaging the test pad by tapping it too hard.
• Allow the contents of the capillary tube to empty onto the pad.
• A small drop will be left behind in the tube.

• Add one drop of Determine Chase buffer to the test pad, holding the bottle at 90 degrees to the test strip.
• This will allow the accurately measured drop to be dispensed.

• Using a digital timer, time the test for 15 minutes.
• Do not read after 60 minutes.
• In this case, discard the strip and retest.
• Record the results on the results log.

**positive** (patient and control lines present)

**invalid** (no control line)

**negative** (only control line present)

**invalid** (patient line visible but no control line)
A mother understands what a child does not say.

Jewish proverb
ART ELIGIBILITY, INITIATION & FOLLOW-UP
ART ELIGIBILITY, INITIATION & FOLLOW UP

In 2010 paediatric HIV care guidelines expanded eligibility criteria for the initiation of antiretroviral therapy (ART). This was in response to a greater understanding about the rapid and often unpredictable progression of HIV infection to serious illness and death, especially in young infants.

**KEY MESSAGE:**
Assessment for ART should be made on an ongoing basis for children not yet initiated.

The determination of ART eligibility is made using several factors, including patient age, WHO stage based on clinical condition and immunologic stage based on CD4.

The CD4 count in children normally starts higher than adults, reaching adult-level values at around 5 years of age. Therefore, for children under 5 years of age, the CD4 percentage in addition to the standard total CD4 count is considered useful.

**WHEN TO START ANTIRETROVIRAL THERAPY IN INFANTS AND CHILDREN**

**ART Eligibility for children with CONFIRMED HIV INFECTION**

<table>
<thead>
<tr>
<th>AGE CATEGORY</th>
<th>CRITERIA</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>Immunological</strong></td>
</tr>
<tr>
<td>INFANTS</td>
<td>ALL, irrespective of CD4 count or WHO staging</td>
</tr>
<tr>
<td>Less than 12 months of age</td>
<td></td>
</tr>
<tr>
<td>12 - 24 months of age</td>
<td>ALL, irrespective of CD4 count or WHO staging (Conditional WHO recommendation. Use local guidance)</td>
</tr>
<tr>
<td>CHILDREN</td>
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</tr>
<tr>
<td>24 - 59 months of age</td>
<td>CD4% ≤ 25%            OR</td>
</tr>
<tr>
<td></td>
<td>CD4 count 750 cells/mm² (whichever is lower)</td>
</tr>
<tr>
<td>Age 5 years and older</td>
<td>CD4 count 350 cells/mm² (As in adults)</td>
</tr>
</tbody>
</table>
### Special considerations

<table>
<thead>
<tr>
<th>CONSIDERATION</th>
<th>RECOMMENDATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Viral testing not available</td>
<td>• Use the WHO Presumptive diagnostic criteria for children &lt;18 months</td>
</tr>
<tr>
<td></td>
<td>• Initiate ART</td>
</tr>
<tr>
<td></td>
<td>• Confirm HIV infection as soon as possible</td>
</tr>
</tbody>
</table>

| CD4 count not available                        | • The predictive value of the total lymphocyte count (TLC) for mortality is not reliable, especially for younger infants, and it is therefore not recommended to use TLC to guide decisions on starting ART |

### Criteria for presumptive diagnosis of severe HIV disease in infants and children <18 months of age where viral testing is not available

**A PRESUMPTIVE DIAGNOSIS OF SEVERE HIV DISEASE SHOULD BE MADE IF:**

1. The child is confirmed as being HIV antibody-positive  
   **AND**

2a. The infant is symptomatic with two or more of the following:  
   • oral thrush  
   • severe pneumonia  
   • severe sepsis  
   **OR**

2b. A diagnosis of any AIDS-indicator condition(s) can be made

**Other findings that support the diagnosis of severe HIV disease in an HIV-seropositive infant include:**

- Recent HIV-related maternal death or advanced HIV disease
- Child’s %CD4+ <20%

**Confirm the diagnosis of HIV infection as soon as possible.**

AIDS-indicator conditions include some, but not all, HIV paediatric clinical stage 4 conditions such as Pneumocystis pneumonia, cryptococcal meningitis, severe wasting or severe malnutrition, Kaposi sarcoma and extrapulmonary TB.

### As per the IMCI definition:

**Oral thrush:** Creamy white-to-yellow soft small plaques on red or normally coloured mucosa which can often be scraped off (pseudomembranous), or red patches on the tongue, palate or lining of mouth, usually painful or tender.

**Severe pneumonia:** Cough or difficulty breathing in a child with chest indrawing, stridor or any of the IMCI general danger signs; i.e. lethargic or unconscious, not able to drink or breastfeed, vomiting, and presence or history of convulsions during current illness; responding to antibiotics.

**Severe sepsis:** Fever or low body temperature in a young infant with any severe sign, e.g. fast breathing, chest indrawing, bulging fontanelle, lethargy, reduced movement, not feeding or sucking breast milk, convulsions.

It is unclear how often CD4 is lowered in the above conditions in HIV-uninfected children.

---

**KEY MESSAGE:**  
Remember that an important requirement of ART initiation is also psychosocial readiness, including a supportive caregiver.
ANTIRETROVIRAL THERAPY
INITIATION & FOLLOW UP

• Treatment for HIV infection involves the use of antiretroviral drugs to suppress (reduce the frequency of) replication of HIV in the body and its destruction of the immune system.

• The primary goal of ART is to:
  - Suppress the viral load as much as (and as long as) possible. It’s best if the viral load is suppressed to an undetectable level
  - Restore and/or preserve immunological function (stabilise or improve CD4 count)
  - Stabilise and/or improve clinical status (no new HIV-related infections, improved growth, stable or improved neurological status)
  - Improve quality of life (e.g. improved appetite, increased energy, fewer symptoms)

• Antiretroviral drugs are divided into classes based on how and where they attack the virus during the HIV lifecycle. Drugs of different classes work to disrupt viral replication at different times during the cycle. In order to treat HIV effectively, a combination of ARV drugs is required.

Once an HIV infected child is eligible for ART (see ART eligibility page 49), the caregiver needs to:
1. Prepare the family for ARV initiation (see page 247)
2. Record baseline clinical and laboratory information
   - Child’s weight and height (see page 174)
   - WHO Clinical Staging (see Pictionary of WHO Stages section, page 90)
   - Presence of symptoms suggestive of TB (see page 139)
   - Developmental level (see page 209)
   - CD4 count and percentage, Viral load, FBC if on AZT, ALT if on NVP
3. Choose an effective ARV regimen
   - ARV Treatment Guidelines for Children (see pages 54 & 55)
   - Correct dosage and formulation - (see pages 56 & 57)
   - Possible drug-drug and drug-food interactions to take into consideration (see pages 63 - 67)
4. Develop an appropriate follow-up schedule for monitoring of ART
   - Ongoing monitoring includes assessment of clinical status, laboratory parameters and adherence.
   - Monitoring includes the assessment of response to ART for:
     - Efficacy: Monitor success or failure of the treatment (see page 77).
     - Safety: Monitor for toxicity or adverse events related to ART. (Side effects for specific antiretroviral drugs are listed on page 69 - 71 and evaluation and management on page 73)
ARV DRUGS
MECHANISM OF ACTION

SUMMARY OF DRUG CLASSES

<table>
<thead>
<tr>
<th>NRTIs</th>
<th>Stavudine</th>
<th>d4t</th>
<th>Zerit ®</th>
<th>PIs</th>
<th>Lopinavir/ritonavir</th>
<th>LPV/r</th>
<th>Kaletra ®</th>
<th>Aluvia ®</th>
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<tbody>
<tr>
<td>Lamivudine</td>
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<td>3TC</td>
<td>3TC ®</td>
<td>Ritonavir</td>
<td>RTV</td>
<td>Norvir®</td>
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<tr>
<td>Abacavir</td>
<td>ABC</td>
<td></td>
<td>Zigen ®</td>
<td>Atazanavir</td>
<td>ATV</td>
<td>Reyataz®</td>
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<td>Invi-Rase®</td>
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<td>Didanosine</td>
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<td></td>
<td>Indinavir</td>
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<td>Crixivan®</td>
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<th>NNRTIs</th>
<th>Nevirapine</th>
<th>NVP</th>
<th>Viramune ®</th>
<th>EFV</th>
<th>Stocrin ®</th>
<th>Darunavir</th>
<th>DRV</th>
<th>Prezista ®</th>
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<tr>
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<td>Stocrin ®</td>
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<td>DRV</td>
<td>Prezista®</td>
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<tr>
<td>Etavirine</td>
<td>ETV</td>
<td></td>
<td>Intelece®</td>
<td>Raltegravir</td>
<td>RAL</td>
<td>Isentress®</td>
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</tr>
</tbody>
</table>

| NRTIs      | Tenofovir | TDF | Viread ® | Entry Inhibitors | Maravirof Enfuvirtide | - | ENF | Celsentri ® | Fuzeon® |

INITIATING ART FOR INFANTS AND CHILDREN

INFANT/CHILD WITH CONFIRMED HIV INFECTION

Clinical staging is essential in all children, but even more so when CD4 assessment is unavailable to evaluate for ART eligibility.

%CD4 is preferred (if available) in children under 5 years

Treat and stabilize acute conditions and opportunistic infections

≥24 MONTHS OF AGE

Assess clinical stage
WHO paediatric clinical staging

≥ 5 years:
CD4 <350 cells/mm³

< 24 MONTHS OF AGE
IRRESPECTIVE OF CLINICAL OR IMMUNOLOGICAL STAGING

Confirmation = >18mth rapid antibody + <18mth PCR positive

INITIATE FIRST-LINE ART

≥24 months to <59 months:
% CD4 ≤25% or <750 cells/mm³

≥5 years:
CD4 <350 cells/mm³

STAGE 1 OR STAGE 2

CD4 ASSESSMENT AVAILABLE

STAGE 1

Do not start ART

STAGE 2

Continue to monitor every 3 months for changes in clinical stages

NO

YES

STAGE 3 OR STAGE 4

CHECK CD4 AS BASELINE, IF AVAILABLE BUT DON'T DELAY INITIATING ART

If not eligible based on CD4 or clinical staging, continue to monitor frequently
Infect or Child > 24 Months
First-Line ART for Infants and Children > 24 Months

**HISTORY OF ANY EXPOSURE**

- A AZT or ABC or d4T
- ONE OF THESE NRTIs:
  - 3TC
  - LPV/r (NNRTI)
  - NVP (NRTI)

- **MATERNAL OR INFANT ARVS**
  - **NO EXPOSURE TO NNRTIs**
  - **UNKNOW EXPOSURE TO NNRTIs**

- **TB**
  - Stabilize on TB therapy 2-8 weeks prior to starting ART. Refer to TB-HIV Section (pg x-y) for further guidance on dosing and regimen modification.

- **SEVERE NEUTROPENIA**
  - Avoid AZT

- **SEVERE ANAEMIA**
  - Avoid AZT

- **ACUTE HEPATITIS**
  - Do not start ARVs until symptoms resolve. Then avoid NRTIs.

- **SEVERE RENAL DISEASE**
  - Refer

- **ACUTE NEPHRITIS**
  - Follow these cases with monitoring visits.

- **SEVERE ANAEMIA**
  - Avoid AZT

- **SEVERE NEUTROPENIA**
  - Avoid AZT

- **INFECTION**
  - Follow these cases with monitoring visits.

- **NEOPLASIA**
  - Follow these cases with intensive monitoring.

- **EXPOSURE TO NNRTIs**
  - *NO EXPOSURE TO NNRTIs OR UNKNOWN EXPOSURE TO MATERNAL OR INFANT ARVS*

- **ONE OF THESE NRTIs**
  - AzT or ABC or d4T

- **PROTEASE INHIBITORS NOT AVAILABLE OR FEASIBLE**

- **PROTEASE INHIBITORS AVAILABLE AND FEASIBLE**

- **ACUTE HEPATITIS**
  - Do not start ARVs until symptoms resolve, then avoid NVP

- **RENAL DISEASE**
  - Refer

- **SEVERE ANAEMIA**
  - Avoid AZT

- **SEVERE NEUTROPENIA**
  - Avoid AZT

- **TB**
  - Stabilize on TB therapy 2-8 weeks prior to starting ART. Refer to TB-HIV Section (pg x-y) for further guidance on dosing and regimen modification.
FIRST-LINE ART REGIMENS FOR CHILDREN >24 MONTHS

CHILD (>24 MONTHS) ELIGIBLE FOR ART *

Develop treatment plan for child and caregiver

TWO NRTIs plus ONE NNRTI

<3 YEARS OF AGE OR <10kg

ONE OF THESE NRTIs: AZT or ABC or d4T

PLUS

(NRTI) 3TC

PLUS

(NNRTI) NVP

≥3 YEARS OF AGE AND ≥10kg

(AV NVP or EFV)

PLUS

(NRTI) 3TC

PLUS

ONE OF THESE NRTIs: AZT or ABC or d4T

Does the child have any conditions requiring regimen or dosing modification?

NO

Provide ongoing guidance and support to ensure ART adherence

Follow up with routine monitoring visits

YES

Modify dose/regimen

Follow these cases with intensive monitoring

PLUS PLUS PLUS PLUS

IF

Avoid NVP in adolescent females with absolute CD4 count <250/mm³

*If child was exposed to post exposure NVP see local guidance before prescribing NVP based regimen

TB: Stabilize on TB therapy 2-8 weeks prior to starting ART. Refer to TB Section (see page 137) for further guidance on dosing and regimen modification.

ACUTE HEPATITIS: Do not start ARVs until symptoms resolve, then avoid NVP

RENA DISEASE: Refer

SEVERE ANAEMIA: Avoid AZT

SEVERE NEUTROPENIA: Avoid AZT

PREGNANCY: Avoid EFV in adolescent females who might become pregnant or are in the first trimester of pregnancy

HISTORY OF SEVERE HYPERSENSITIVITY ON OTHER MEDICATIONS: Avoid NVP and ABC

FIRST-LINE ART REGIMENS FOR CHILDREN >24 MONTHS

<3 YEARS OF AGE OR <10kg

ONE OF THESE NRTIs: AZT or ABC or d4T

PLUS

(NRTI) 3TC

PLUS

(NNRTI) NVP

≥3 YEARS OF AGE AND ≥10kg

(AV NVP or EFV)

PLUS

(NRTI) 3TC

PLUS

ONE OF THESE NRTIs: AZT or ABC or d4T

Does the child have any conditions requiring regimen or dosing modification?

NO

Provide ongoing guidance and support to ensure ART adherence

Follow up with routine monitoring visits

YES

Modify dose/regimen

Follow these cases with intensive monitoring

PLUS PLUS PLUS PLUS

IF

Avoid NVP in adolescent females with absolute CD4 count <250/mm³

*If child was exposed to post exposure NVP see local guidance before prescribing NVP based regimen

TB: Stabilize on TB therapy 2-8 weeks prior to starting ART. Refer to TB Section (see page 137) for further guidance on dosing and regimen modification.

ACUTE HEPATITIS: Do not start ARVs until symptoms resolve, then avoid NVP

RENA DISEASE: Refer

SEVERE ANAEMIA: Avoid AZT

SEVERE NEUTROPENIA: Avoid AZT

PREGNANCY: Avoid EFV in adolescent females who might become pregnant or are in the first trimester of pregnancy

HISTORY OF SEVERE HYPERSENSITIVITY ON OTHER MEDICATIONS: Avoid NVP and ABC

FIRST-LINE ART REGIMENS FOR CHILDREN >24 MONTHS

<3 YEARS OF AGE OR <10kg

ONE OF THESE NRTIs: AZT or ABC or d4T

PLUS

(NRTI) 3TC

PLUS

(NNRTI) NVP

≥3 YEARS OF AGE AND ≥10kg

(AV NVP or EFV)

PLUS

(NRTI) 3TC

PLUS

ONE OF THESE NRTIs: AZT or ABC or d4T

Does the child have any conditions requiring regimen or dosing modification?

NO

Provide ongoing guidance and support to ensure ART adherence

Follow up with routine monitoring visits

YES

Modify dose/regimen

Follow these cases with intensive monitoring

PLUS PLUS PLUS PLUS

IF

Avoid NVP in adolescent females with absolute CD4 count <250/mm³

*If child was exposed to post exposure NVP see local guidance before prescribing NVP based regimen

TB: Stabilize on TB therapy 2-8 weeks prior to starting ART. Refer to TB Section (see page 137) for further guidance on dosing and regimen modification.

ACUTE HEPATITIS: Do not start ARVs until symptoms resolve, then avoid NVP

RENA DISEASE: Refer

SEVERE ANAEMIA: Avoid AZT

SEVERE NEUTROPENIA: Avoid AZT

PREGNANCY: Avoid EFV in adolescent females who might become pregnant or are in the first trimester of pregnancy

HISTORY OF SEVERE HYPERSENSITIVITY ON OTHER MEDICATIONS: Avoid NVP and ABC

FIRST-LINE ART REGIMENS FOR CHILDREN >24 MONTHS

<3 YEARS OF AGE OR <10kg

ONE OF THESE NRTIs: AZT or ABC or d4T

PLUS

(NRTI) 3TC

PLUS

(NNRTI) NVP

≥3 YEARS OF AGE AND ≥10kg

(AV NVP or EFV)

PLUS

(NRTI) 3TC

PLUS

ONE OF THESE NRTIs: AZT or ABC or d4T

Does the child have any conditions requiring regimen or dosing modification?

NO

Provide ongoing guidance and support to ensure ART adherence

Follow up with routine monitoring visits

YES

Modify dose/regimen

Follow these cases with intensive monitoring

PLUS PLUS PLUS PLUS

IF

Avoid NVP in adolescent females with absolute CD4 count <250/mm³

*If child was exposed to post exposure NVP see local guidance before prescribing NVP based regimen

TB: Stabilize on TB therapy 2-8 weeks prior to starting ART. Refer to TB Section (see page 137) for further guidance on dosing and regimen modification.

ACUTE HEPATITIS: Do not start ARVs until symptoms resolve, then avoid NVP

RENA DISEASE: Refer

SEVERE ANAEMIA: Avoid AZT

SEVERE NEUTROPENIA: Avoid AZT

PREGNANCY: Avoid EFV in adolescent females who might become pregnant or are in the first trimester of pregnancy

HISTORY OF SEVERE HYPERSENSITIVITY ON OTHER MEDICATIONS: Avoid NVP and ABC

FIRST-LINE ART REGIMENS FOR CHILDREN >24 MONTHS

<3 YEARS OF AGE OR <10kg

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PLUS

(NRTI) 3TC

PLUS

(NNRTI) NVP

≥3 YEARS OF AGE AND ≥10kg

(AV NVP or EFV)

PLUS

(NRTI) 3TC

PLUS

ONE OF THESE NRTIs: AZT or ABC or d4T

Does the child have any conditions requiring regimen or dosing modification?

NO

Provide ongoing guidance and support to ensure ART adherence

Follow up with routine monitoring visits

YES

Modify dose/regimen

Follow these cases with intensive monitoring

PLUS PLUS PLUS PLUS

IF

Avoid NVP in adolescent females with absolute CD4 count <250/mm³

*If child was exposed to post exposure NVP see local guidance before prescribing NVP based regimen

TB: Stabilize on TB therapy 2-8 weeks prior to starting ART. Refer to TB Section (see page 137) for further guidance on dosing and regimen modification.

ACUTE HEPATITIS: Do not start ARVs until symptoms resolve, then avoid NVP

RENA DISEASE: Refer

SEVERE ANAEMIA: Avoid AZT

SEVERE NEUTROPENIA: Avoid AZT

PREGNANCY: Avoid EFV in adolescent females who might become pregnant or are in the first trimester of pregnancy

HIST
### Harmonized dosing schedules

#### Simplified table giving number of tablets of child-friendly solid formulations for morning and evening dosing

<table>
<thead>
<tr>
<th>Drug</th>
<th>Strength of paediatric tab (mg)</th>
<th>Number of paediatric tablets by weight-band morning and evening</th>
<th>Strength of adult tab (mg)</th>
<th>Number of adult tablets by weight-band</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>SINGLE DRUGS</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AZT</td>
<td>60</td>
<td>1 1 1.5 1.5 2 2 2.5 2.5 3 3</td>
<td>300</td>
<td>1 1</td>
</tr>
<tr>
<td>ABC</td>
<td>60</td>
<td>1 1 1.5 1.5 2 2 2.5 2.5 3 3</td>
<td>300</td>
<td>1 1</td>
</tr>
<tr>
<td>NVP</td>
<td>50</td>
<td>1 1 1.5 1.5 2 2 2.5 2.5 3 3</td>
<td>200</td>
<td>1 1</td>
</tr>
<tr>
<td>ddi</td>
<td>25</td>
<td>2 1 2 1 3 2 2 3 4 4</td>
<td>25</td>
<td>5 5</td>
</tr>
</tbody>
</table>

**COMBINATIONS**

<table>
<thead>
<tr>
<th>Drug</th>
<th>Strength of paediatric tab (mg)</th>
<th>Number of paediatric tablets by weight-band morning and evening</th>
<th>Strength of adult tab (mg)</th>
<th>Number of adult tablets by weight-band</th>
</tr>
</thead>
<tbody>
<tr>
<td>AZT/3TC</td>
<td>60/30</td>
<td>1 1 1.5 1.5 2 2 2.5 2.5 3 3</td>
<td>300/150</td>
<td>1 1</td>
</tr>
<tr>
<td>AZT/3TC/NVP</td>
<td>60/30/50</td>
<td>1 1 1.5 1.5 2 2 2.5 2.5 3 3</td>
<td>300/300/150</td>
<td>1 1</td>
</tr>
<tr>
<td>ABC/AZT/3TC</td>
<td>60/60/30</td>
<td>1 1 1.5 1.5 2 2 2.5 2.5 3 3</td>
<td>300/300/150</td>
<td>1 1</td>
</tr>
<tr>
<td>ABC/3TC</td>
<td>60/30</td>
<td>1 1 1.5 1.5 2 2 2.5 2.5 3 3</td>
<td>300/150/200</td>
<td>1 1</td>
</tr>
<tr>
<td>d4T/3TC</td>
<td>6/30</td>
<td>1 1 1.5 1.5 2 2 2.5 2.5 3 3</td>
<td>300/150/200</td>
<td>1 1</td>
</tr>
<tr>
<td>d4T/3TC/NVP</td>
<td>6/30/50</td>
<td>1 1 1.5 1.5 2 2 2.5 2.5 3 3</td>
<td>300/150/200</td>
<td>1 1</td>
</tr>
</tbody>
</table>

**LPV/r**

<table>
<thead>
<tr>
<th>Drug</th>
<th>Strength of paediatric tab (mg)</th>
<th>Number of paediatric tablets by weight-band morning and evening</th>
<th>Strength of adult tab (mg)</th>
<th>Number of adult tablets by weight-band</th>
</tr>
</thead>
<tbody>
<tr>
<td>LPV/r</td>
<td>100/25</td>
<td>NR NR 2 1 2 2 2 2</td>
<td>100/25</td>
<td>3 3</td>
</tr>
</tbody>
</table>

---

* This dose of ddi is only appropriate for children 3 months of age or older and weighing between 5 kg and 5.9 kg.

* See ABC/3TC FDC dosing table in 2010 WHO Guidelines (Antiretroviral Therapy for HIV Infection in Infants and Children: Towards Universal Access.)

* Higher doses of LPV/r may be required when co-administered with enzyme-inducing drugs such as NVP, EFV, fos-amprenavir (FPV), rifampicin.

#### Simplified table giving ml of liquid formulation and number of tablets or capsules of adult solid formulation for morning and evening dosing

<table>
<thead>
<tr>
<th>Drug</th>
<th>Strength of paediatric liquid (mg/ml) and adult tab/cap (mg)</th>
<th>Number of tablets/capsules or ml by weight-band morning and evening</th>
</tr>
</thead>
<tbody>
<tr>
<td>AZT</td>
<td>10 mg/ml; 300 mg</td>
<td>6 ml 6 ml 9 ml 9 ml 12 ml 12 ml</td>
</tr>
<tr>
<td>ABC</td>
<td>20 mg/ml; 300 mg</td>
<td>3 ml 3 ml 4 ml 4 ml 6 ml 6 ml</td>
</tr>
<tr>
<td>3TC</td>
<td>10 mg/ml; 150 mg</td>
<td>3 ml 3 ml 4 ml 4 ml 6 ml 6 ml</td>
</tr>
<tr>
<td>d4T</td>
<td>1 mg/ml; 15 mg or 20 mg</td>
<td>6 ml 6 ml 9 ml 9 ml 1 (15 mg) 1 (15 mg)</td>
</tr>
<tr>
<td>NVP</td>
<td>10 mg/ml; 200 mg</td>
<td>5 ml 5 ml 8 ml 8 ml 10 ml 10 ml</td>
</tr>
<tr>
<td>ddi</td>
<td>10 mg/ml; 25 mg</td>
<td>3 ml 3 ml</td>
</tr>
<tr>
<td>LPV/r</td>
<td>80/20 mg/ml; 25 mg</td>
<td>1 or 1.5 ml 1 or 1.5 ml</td>
</tr>
</tbody>
</table>

---

* This dose of ddi is only appropriate for children 3 months of age or older and weighing between 5 kg and 5.9 kg.

* LPV/r liquid: for 3 – 3.9 kg, use 1 ml a.m. and 1 ml p.m.; for 4 – 5.9 kg use 1.5 ml a.m. and 1.5 ml p.m. In addition, higher doses of LPV/r may be required when co-administered with enzyme-inducing drugs such as NVP, EFV, FPV or rifampicin.
EFV is not recommended for children below 3 years and weighing less than 10 kg.

ddi EC is not recommended for children weighing less than 10 kg; this dose is recommended only for those 10 kg and above.

**NR** = not recommended  **EC** = enteric coated

<table>
<thead>
<tr>
<th>Drug</th>
<th>Strength of tablet/cap (mg)</th>
<th>Number of tablets or capsules by weight-band once daily</th>
<th>Strength of tablet/cap (mg)</th>
<th>Number of tablets or capsules by weight-band once daily</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>3 – 5.9kg</td>
<td>6 – 9.9kg</td>
<td>10 – 13.9kg</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Once daily</td>
<td>Once daily</td>
<td>Once daily</td>
</tr>
<tr>
<td><strong>SINGLE DRUGS</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EFV (^a)</td>
<td>200 mg</td>
<td>NR</td>
<td>NR</td>
<td>1</td>
</tr>
<tr>
<td>ddi (^b)</td>
<td>125 mg or 200 mg EC</td>
<td>NR</td>
<td>NR</td>
<td>1 (125 mg)</td>
</tr>
</tbody>
</table>
**INFANT OR CHILD ON ART PRESENTS FOR ROUTINE FOLLOW-UP VISIT**

<table>
<thead>
<tr>
<th>Task</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>REVIEW INTERIM MEDICAL HISTORY</td>
<td>Assess for TB exposure.</td>
</tr>
<tr>
<td>ASSESS GROWTH AND NUTRITION</td>
<td>Weight; height; head circumference. Quality and quantity of infant feeding, child food intake.</td>
</tr>
<tr>
<td>PERFORM PHYSICAL EXAMINATION</td>
<td>Symptom directed.</td>
</tr>
<tr>
<td>ASSESS DEVELOPMENTAL PROGRESS</td>
<td>Ensure access to age-appropriate stimuli. Evaluate neurological symptoms/signs and watch for encephalopathy.</td>
</tr>
<tr>
<td>IDENTIFY CONCOMITANT CONDITIONS</td>
<td>Opportunistic infections; TB; pregnancy; and monitor increase or decrease in frequency of infections.</td>
</tr>
<tr>
<td>CONFIRM STAGE OF HIV DISEASE</td>
<td>New or recurrent stage 3 or stage 4 events?</td>
</tr>
<tr>
<td>CHECK ADHERENCE OF ART</td>
<td>Evaluate the child’s and caregiver’s understanding of the therapy.</td>
</tr>
<tr>
<td>CALCULATE ART DOSE</td>
<td>Recalculate dose at each visit.</td>
</tr>
<tr>
<td>REVIEW CONCOMITANT MEDICATIONS</td>
<td>Consider drug interactions; check cotrimoxazole preventive therapy and INH. Make dosage adjustments.</td>
</tr>
<tr>
<td>DISCUSS FINDINGS</td>
<td>Explain what is indicated by findings of the visit.</td>
</tr>
<tr>
<td>PROVIDE REFERRALS AS NEEDED</td>
<td>Support services; other clinical services; etc.</td>
</tr>
<tr>
<td>ADVISE AND GUIDE</td>
<td>Reinforce and support adherence to ART; nutrition; when to seek medical care; medication side-effects; etc.</td>
</tr>
<tr>
<td>SCHEDULE LAB TESTS IF INDICATED</td>
<td>Infants and children who were started on ART on the basis of a presumptive diagnosis of severe HIV disease should have HIV infection status confirmed as soon as possible.</td>
</tr>
</tbody>
</table>
| SCHEDULE NEXT VISIT                      | Frequency of follow-up visits depends on the response to ART. At a minimum, after starting ART, follow-up visits should occur:  
  • for infants: weeks 2, 4, 6, 8, then every 4 weeks for the first year  
  • for children: weeks 2, 4, 8, 12, then every 2-3 months once the child has stabilized on therapy. |
Laboratory parameters for monitoring infants and children at baseline, before and during ART

- Haemoglobin monitoring at week 8 after initiation of ART is recommended if AZT is used.
- HIV-infected children not yet eligible for ART should be monitored with CD4 count every six months. For infants and children who develop new or recurrent WHO stage 2 or 3 events, or whose CD4 count approaches threshold values, the frequency of CD4 measurement can be increased. %CD4+ is preferred in children <5 years of age.
- Pregnancy testing may be needed for adolescent girls prior to initiating a regimen containing EFV.
- For pregnant adolescent girls, provide prophylaxis or combination ART to those who are in need of it for their own health and/or to prevent vertical transmission. See Prophylaxis Section (page 131)
- Routine monitoring (every six months) of full chemistry, particularly lipid levels, liver enzymes and renal function, should be considered for infants and children on second-line drugs.
- At present, VL measurement is not a prerequisite for initiation or regular monitoring of ART in resource-limited settings. VL can be used to diagnose HIV infection, and to confirm clinical or immunological failure prior to switching treatment regimen.
- VL should be assessed in infants on NNRTI-based regimens who are known to have been exposed to NNRTIs intrapartum or through breastfeeding.
It is not until you become a mother that your judgment slowly turns to compassion and understanding.

Erma Bombeck
**SIDE-EFFECTS OF ANTIRETROVIRAL DRUGS**

<table>
<thead>
<tr>
<th>HYPERSENSITIVITY</th>
<th>ARVs RESPONSIBLE</th>
<th>SIGNS AND SYMPTOMS</th>
<th>INCIDENCE AND TIME OF ONSET AFTER INITIATING THERAPY</th>
<th>DIAGNOSIS</th>
<th>TREATMENT AND MANAGEMENT TIPS</th>
</tr>
</thead>
<tbody>
<tr>
<td>PROTEASE INHIBITORS</td>
<td>NRTIs</td>
<td>Nausea, fatigue, abnormal involuntary movements, rash, and often moderate pain.</td>
<td>A rash develops, without NRTIs symptoms, is not unusual and is caused by the drug interaction of two or more antiretrovirals.</td>
<td>A rash develops, without NRTIs symptoms, is not unusual and is caused by the drug interaction of two or more antiretrovirals.</td>
<td>No further treatment is required as the rash will resolve if the drug interaction is stopped.</td>
</tr>
<tr>
<td>LAMIVUDINE</td>
<td>NRTIs</td>
<td>Nausea, fatigue, abnormal involuntary movements, rash, and often moderate pain.</td>
<td>A rash develops, without NRTIs symptoms, is not unusual and is caused by the drug interaction of two or more antiretrovirals.</td>
<td>A rash develops, without NRTIs symptoms, is not unusual and is caused by the drug interaction of two or more antiretrovirals.</td>
<td>No further treatment is required as the rash will resolve if the drug interaction is stopped.</td>
</tr>
</tbody>
</table>

**RASH**

- **Order of risk:**
  - ddI > d4t > AZT > ABC > 3TC > FTC
  - Increased risk with stavudine and didanosine

- **Onset:**
  - ddI > d4t > AZT > ABC > 3TC > FTC
  - Increased risk if initiating therapy with a CD4 count >250 in females

- **Duration of rash:**
  - ddI > d4t > AZT > ABC > 3TC > FTC
  - Increased risk if initiating therapy with a CD4 count >250 in females

- **Symptoms:**
  - ddI > d4t > AZT > ABC > 3TC > FTC
  - Increased risk if initiating therapy with a CD4 count >250 in females

- **Treat:**
  - ddI > d4t > AZT > ABC > 3TC > FTC
  - Increased risk if initiating therapy with a CD4 count >250 in females

**PANCREATITIS**

- **Order of risk:**
  - NRTIs

- **Onset:**
  - ddI > d4t > AZT > ABC > 3TC > FTC
  - Increased risk if initiating therapy with a CD4 count >250 in females

- **Symptoms:**
  - ddI > d4t > AZT > ABC > 3TC > FTC
  - Increased risk if initiating therapy with a CD4 count >250 in females

- **Treat:**
  - ddI > d4t > AZT > ABC > 3TC > FTC
  - Increased risk if initiating therapy with a CD4 count >250 in females

**HYPERTENSION**

- **Order of risk:**
  - NRTIs

- **Onset:**
  - ddI > d4t > AZT > ABC > 3TC > FTC
  - Increased risk if initiating therapy with a CD4 count >250 in females

- **Symptoms:**
  - ddI > d4t > AZT > ABC > 3TC > FTC
  - Increased risk if initiating therapy with a CD4 count >250 in females

- **Treat:**
  - ddI > d4t > AZT > ABC > 3TC > FTC
  - Increased risk if initiating therapy with a CD4 count >250 in females

**LIPID ABNORMALITIES**

- **Order of risk:**
  - NRTIs

- **Onset:**
  - ddI > d4t > AZT > ABC > 3TC > FTC
  - Increased risk if initiating therapy with a CD4 count >250 in females

- **Symptoms:**
  - ddI > d4t > AZT > ABC > 3TC > FTC
  - Increased risk if initiating therapy with a CD4 count >250 in females

- **Treat:**
  - ddI > d4t > AZT > ABC > 3TC > FTC
  - Increased risk if initiating therapy with a CD4 count >250 in females

**GLUCOSE ABNORMALITIES**

- **Order of risk:**
  - NRTIs

- **Onset:**
  - ddI > d4t > AZT > ABC > 3TC > FTC
  - Increased risk if initiating therapy with a CD4 count >250 in females

- **Symptoms:**
  - ddI > d4t > AZT > ABC > 3TC > FTC
  - Increased risk if initiating therapy with a CD4 count >250 in females

- **Treat:**
  - ddI > d4t > AZT > ABC > 3TC > FTC
  - Increased risk if initiating therapy with a CD4 count >250 in females

**ANAEMIA**

- **Order of risk:**
  - NRTIs

- **Onset:**
  - ddI > d4t > AZT > ABC > 3TC > FTC
  - Increased risk if initiating therapy with a CD4 count >250 in females

- **Symptoms:**
  - ddI > d4t > AZT > ABC > 3TC > FTC
  - Increased risk if initiating therapy with a CD4 count >250 in females

- **Treat:**
  - ddI > d4t > AZT > ABC > 3TC > FTC
  - Increased risk if initiating therapy with a CD4 count >250 in females

**CNS RELATED SIDE-EFFECTS**

- **Order of risk:**
  - NRTIs

- **Onset:**
  - ddI > d4t > AZT > ABC > 3TC > FTC
  - Increased risk if initiating therapy with a CD4 count >250 in females

- **Symptoms:**
  - ddI > d4t > AZT > ABC > 3TC > FTC
  - Increased risk if initiating therapy with a CD4 count >250 in females

- **Treat:**
  - ddI > d4t > AZT > ABC > 3TC > FTC
  - Increased risk if initiating therapy with a CD4 count >250 in females

**GI**

- **Order of risk:**
  - NRTIs

- **Onset:**
  - ddI > d4t > AZT > ABC > 3TC > FTC
  - Increased risk if initiating therapy with a CD4 count >250 in females

- **Symptoms:**
  - ddI > d4t > AZT > ABC > 3TC > FTC
  - Increased risk if initiating therapy with a CD4 count >250 in females

- **Treat:**
  - ddI > d4t > AZT > ABC > 3TC > FTC
  - Increased risk if initiating therapy with a CD4 count >250 in females

**SIDE-EFFECTS OF ANTIRETROVIRAL DRUGS**

- **Protease Inhibitors**
  - Nausea, vomiting, abdominal discomfort and diarrhea

- **Glucose Abnormalities**
  - Diabetes and glucose intolerance

- **CNS Side-Effects**
  - Nystagmus, visual disorders, hallucinations, confusion, dizziness, impaired concentration, insomnia, euphoria, psychosis

- **Conspiracies:**
  - Nystagmus, visual disorders, hallucinations, confusion, dizziness, impaired concentration, insomnia, euphoria, psychosis

- **Anaemia**
  - Nausea, vomiting, abdominal discomfort and diarrhea
# Drug Interactions with Nucleoside Reverse Transcriptase Inhibitors

<table>
<thead>
<tr>
<th>Drug</th>
<th>Interacting Drug</th>
<th>Effect of theInteraction</th>
<th>Management of theInteraction</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Nucleoside Reverse Transcriptase Inhibitors</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Abacavir (ABC)</td>
<td></td>
<td>Low potential for interaction</td>
<td></td>
</tr>
<tr>
<td>Lamivudine (3TC)</td>
<td></td>
<td>Low potential for interaction</td>
<td></td>
</tr>
<tr>
<td>Stavudine (d4t)</td>
<td>Didanosine, Ethambutol, Ethionamide, Isoniazid and Dapsone</td>
<td>Concomitant use increase the risk of neuropathy and other mitochondrial toxicities</td>
<td>Avoid concomitant use if possible</td>
</tr>
<tr>
<td></td>
<td>Tenofovir (not indicated for paediatric patients)</td>
<td>Didanosine plasma level increases</td>
<td>Didanosine dose adjustment required: &gt;60kg 250mg once daily &lt;60kg 200mg once daily</td>
</tr>
<tr>
<td></td>
<td>Allopurinol</td>
<td></td>
<td>Monitor didanosine side-effects</td>
</tr>
<tr>
<td></td>
<td>Tetracyclines</td>
<td>Decreased absorption due to buffer agent</td>
<td>Administer Didanosine 2 hours after or 6 hours before Tetracycline</td>
</tr>
<tr>
<td></td>
<td>Ciprofloxacin</td>
<td></td>
<td>Administer 2 hours after Didanosine</td>
</tr>
<tr>
<td></td>
<td>Lopinavir/ritonavir, Itraconazole, Ketoconazole, Dapsone</td>
<td>Decreased absorption due to buffer mediated increase in pH</td>
<td>Administer 2 hours after Didanosine</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Stavudine</td>
<td>Antagonistic</td>
<td>Avoid concomitant use</td>
</tr>
<tr>
<td>Zidovudine (AZT)</td>
<td>Valproic Acid</td>
<td>Increased Zidovudine level</td>
<td>Decrease Zidovudine dose in case of severe anaemia</td>
</tr>
<tr>
<td></td>
<td>Myelosuppressive agents</td>
<td>Increase in haematological adverse events</td>
<td>Avoid combination if possible or adjust dosage accordingly</td>
</tr>
<tr>
<td></td>
<td>Clarithromycin</td>
<td>Decreased Zidovudine level</td>
<td>Administer at least 2 hours apart</td>
</tr>
<tr>
<td><strong>Nucleotide Reverse Transcriptase Inhibitor</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tenofovir (TDF)</td>
<td>Didanosine</td>
<td>Didanosine plasma levels increases</td>
<td>See didanosine above</td>
</tr>
<tr>
<td></td>
<td>Streptomycin</td>
<td>Increased toxicity</td>
<td>Use only if necessary and monitor renal function weekly</td>
</tr>
</tbody>
</table>
# Drug Interactions with Non-Nucleoside Reverse Transcriptase Inhibitors

<table>
<thead>
<tr>
<th>Drug</th>
<th>Interacting Drug</th>
<th>Effect of the Interaction</th>
<th>Management of the Interaction</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Efavirenz (EFV)</strong></td>
<td>Phenobarbital</td>
<td>Reduced drug level of EFV</td>
<td>Periodic monitoring of plasma levels should be conducted</td>
</tr>
<tr>
<td></td>
<td>St. John’s Wort</td>
<td></td>
<td>Do not co-administer</td>
</tr>
<tr>
<td></td>
<td>Ergotamine, Pimozide</td>
<td>Increased drug level of interacting drug</td>
<td>Avoid concomitant use</td>
</tr>
<tr>
<td></td>
<td>Warfarin</td>
<td></td>
<td>Monitor INR or PT</td>
</tr>
<tr>
<td></td>
<td>Halofantrine, Lumefantrine</td>
<td>Monitor QT prolongation</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Midasolam &amp; Trisamol</td>
<td>Avoid concomitant use</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Lopinavir/ritonavir</td>
<td>Increase Lopinavir/ritonavir dose</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Itraconazole &amp; Ketaconazole</td>
<td>Consider alternative antifungal or a dose adjustment</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Voriconazole</td>
<td>Reduced drug level of interacting drug</td>
<td>Dose adjustments of both drugs</td>
</tr>
<tr>
<td></td>
<td>Methadone, Ethosuximide, Felodipine, Nifedipine, Verapamil</td>
<td>Monitor and adjust dose</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Atorvastatin, Pravastatin, Simvastatin</td>
<td>Monitor cholesterol levels closely</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Oral contraceptives</td>
<td>Also use barrier contraceptives</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Phenytoin, Carbamazepine</td>
<td>Both drug levels are reduced</td>
<td>An alternative anticonvulsant treatment should be considered</td>
</tr>
<tr>
<td><strong>Nevirapine (NVP)</strong></td>
<td>Rifampicin</td>
<td>Reduced drug level of Nevirapine</td>
<td>Avoid concomitant use</td>
</tr>
<tr>
<td></td>
<td>Phenytoin &amp; Phenobarbital</td>
<td>Monitor drug level</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Itraconazole, Voriconazole</td>
<td>Consider alternative antifungal or a dose adjustment</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Carbamazepine, Clonazepam</td>
<td>NVP and interacting drug levels are reduced</td>
<td>Monitor drug level and consider dose adjustment</td>
</tr>
<tr>
<td></td>
<td>Methadone, Amiodarone, Lignocaine, Ethosuximide, Nifedipine, Verapamil</td>
<td>Monitor and adjust dose</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Oral contraceptives</td>
<td>Reduced drug level of interacting drug</td>
<td>Also use barrier contraceptives</td>
</tr>
<tr>
<td></td>
<td>St. John’s Wort</td>
<td></td>
<td>Avoid concomitant use</td>
</tr>
<tr>
<td></td>
<td>Warfarin</td>
<td>Monitor INR or PT</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Ketaconazole</td>
<td>Avoid concomitant use</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Fluconazole</td>
<td>Increased level of NVP</td>
<td>Monitor NVP side-effects</td>
</tr>
<tr>
<td></td>
<td>Halofantrine, Lumefantrine</td>
<td>Increased drug level of interacting drug</td>
<td></td>
</tr>
</tbody>
</table>

*Numerous clinically significant drug interactions may occur with the use of PI’s and NNRTI’s in combination with other medications therefore the tables are only a guide to managing some of the more significant interactions.*
# Drug Interactions with Protease Inhibitors

**Numerous clinically significant drug interactions may occur with the use of PI’s and NNRTI’s in combination with other medications therefore the tables are only a guide to managing some of the more significant interactions.**

<table>
<thead>
<tr>
<th>Drug Interacting Drug</th>
<th>Effect of Interaction</th>
<th>Management of the Interaction</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Protease Inhibitors</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lopinavir/ritonavir (LPV/r) AND Ritonavir (RTV)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rifampicin</td>
<td>Reduce drug level of LPV/r and RTV</td>
<td>Boost with Ritonavir</td>
</tr>
<tr>
<td>Phenobarbital, Carbamazepine</td>
<td></td>
<td>Monitor closely or consider an alternative</td>
</tr>
<tr>
<td>St. John’s Wort</td>
<td></td>
<td>Avoid concurrent use</td>
</tr>
<tr>
<td>Alprazolam, Triasolam, Midasolam, Diazepam and Zolpidem</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Simvastatin and Lovastatin</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Digoxin</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fluticasone, Budesonide</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ergotamine</td>
<td>Increased drug level of the interacting drug</td>
<td></td>
</tr>
<tr>
<td>Nifedipine, Felodipine, Verapamil</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Amitriptyline</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ketaconazole and Itraconazole</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Voriconazole</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Clarithromycin Erythromycin, Moxifloxacin</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Warfarin</td>
<td>Reduced drug level of interacting drug</td>
<td>Monitor INR or PTI</td>
</tr>
<tr>
<td>Theophylline, Lamotrigine, Phenytoin, Methadone</td>
<td></td>
<td>Monitor and adjust doses accordingly</td>
</tr>
<tr>
<td>Metronidazole</td>
<td>Disulfiram reaction with alcohol in oral solution</td>
<td>Avoid concomitant use with LPV/r or RTV oral solution</td>
</tr>
<tr>
<td>Amiodarone, Clozapine, Dextropropoxyphene, Pethidine, Primozone, Quinidine, Halofantrine</td>
<td>Potential for life threatening adverse event</td>
<td>Avoid concomitant use</td>
</tr>
</tbody>
</table>
**ARV & FOOD**

**INTERACTIONS AND REQUIREMENTS**

<table>
<thead>
<tr>
<th>DRUG</th>
<th>FOOD REQUIREMENTS &amp; INTERACTIONS</th>
<th>OTHER INFORMATION</th>
<th>TO AVOID</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>NRTI's</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lamivudine (3TC)</td>
<td>No interactions: Take with or without food</td>
<td>Fewer gastrointestinal (GI) side effects when taken with some food</td>
<td></td>
</tr>
<tr>
<td>Abacavir (ABC)</td>
<td>No interactions: Take with or without food</td>
<td>Fewer GI side effects when taken with some food</td>
<td>Alcohol</td>
</tr>
<tr>
<td>Zidovudine (AZT)</td>
<td>No interactions: Take with or without food</td>
<td>Very high fat meals may reduce drug concentration in blood</td>
<td>Limit Alcohol</td>
</tr>
<tr>
<td>Didanosine (ddI)</td>
<td>Food impairs absorption: Take on empty stomach, 1 hour before or 2 hrs after food. Poor solubility at low pH results in significant degradation, which is slightly overcome by buffered formulations.</td>
<td>Food alters absolute bioavailability by 50%, most likely due to increased medication breakdown and delayed gastric emptying</td>
<td>Alcohol</td>
</tr>
<tr>
<td>Emtricitabine (FTC)</td>
<td>No interactions: Take with or without food</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>NNRTI's</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Efavirenz (EFV)</td>
<td>Take with or without food. Fat increases absorption. Avoid very high fat meals if experiencing side effects (82g fat bioavailability with 50%) Best taken on an empty stomach at bedtime</td>
<td>Associated with increased levels of side effects when taken with a high fat meal</td>
<td>Alcohol / psychotropic agents</td>
</tr>
<tr>
<td>Nevirapine (NVP)</td>
<td>No interactions: take with or without food</td>
<td></td>
<td>St John’s Wort</td>
</tr>
<tr>
<td>Etravirine</td>
<td>Take with food</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>PI's</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lopinavir / ritonavir (LPV/r)</td>
<td>Take with a large meal - food significantly increases absorption (Kaletra Solution + Capsules) With or without food (Aluvia Tablets)</td>
<td>Best drug concentrations achieved with meal containing at least 500Kcal with 25% fat content</td>
<td>St John’s Wort</td>
</tr>
<tr>
<td>Ritonavir (RTV)</td>
<td>Food increases absorption of the capsule. Food decreases the absorption of the liquid BOTH NOT SIGNIFICANT</td>
<td>Provide tips on how to improve taste of oral solution</td>
<td>St John’s Wort</td>
</tr>
<tr>
<td>DRUG</td>
<td>FOOD REQUIREMENTS &amp; INTERACTIONS</td>
<td>OTHER INFORMATION</td>
<td>TO AVOID</td>
</tr>
<tr>
<td>----------------------</td>
<td>-----------------------------------------------------------------------</td>
<td>--------------------------------------------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>PI’s</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nelfinavir (NFV)</td>
<td>Food increases absorption: must be taken with a meal or light snack</td>
<td>Must be taken with 300 Kcal or more</td>
<td>St John’s Wort</td>
</tr>
<tr>
<td>Atazanavir (ATZ)</td>
<td>Food significantly increases absorption: take with a large meal</td>
<td>Best concentrations achieved with at least 500Kcal or 25% fat</td>
<td></td>
</tr>
<tr>
<td>Indinavir (IDV)</td>
<td>Take on an empty stomach - 1 hr before or 2 hrs after meal or light low fat snack (max 2g fat, 300Kcal)</td>
<td>Plenty of fluids (4 large glasses for adults) to reduce risk of developing kidney stones</td>
<td>St John’s Wort, grape fruit juice</td>
</tr>
<tr>
<td>Darunavir</td>
<td>Food increases absorption: take with a meal or snack</td>
<td>Drug concentration increases as meal size increases</td>
<td></td>
</tr>
<tr>
<td>Fosamprenavir</td>
<td>Food significantly increases absorption: take with meal or snack</td>
<td>Must be taken with 300 Kcal or more</td>
<td></td>
</tr>
<tr>
<td>Saquinavir (SQV)</td>
<td>Food significantly increases absorption: take with meal or snack</td>
<td>Fasted state reduces concentration by 70% and grapefruit juice drug concentration 2 fold</td>
<td>St John’s Wort, garlic</td>
</tr>
<tr>
<td>Saquinavir SQV (soft gel capsule)</td>
<td>Food increases absorption: take with meal or snack</td>
<td></td>
<td>St John’s Wort, garlic</td>
</tr>
<tr>
<td>NRTI</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tenofovir</td>
<td>No interactions: take with or without food</td>
<td>Bioavailability increase when taken with a high fat meal</td>
<td>Nephrotoxic agents</td>
</tr>
<tr>
<td>Fusion Inhibitor</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Enfurvitide</td>
<td>No interactions: take with or without food</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CCR5 Antagonist</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maraviroc</td>
<td>No interactions: take with or without food</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Integrase Inhibitor</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Raltegravir</td>
<td>No interactions: take with or without food</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Health is a state of complete physical, mental and social well-being, and not merely the absence of disease or infirmity.

World Health Organization, 1948
EVALUATION

Key Notes:
- Most drugs have side effects, especially at the beginning of the therapy, although in the majority of cases these are mild and self limiting.
- If children and their caregivers know about possible side effects it is easier to deal with them.
- All side effects of ARVs must be graded on a scale of 1 (mild toxicity) through to 4 (life-threatening toxicity). Clinical management of the ARV regimen depends upon this grading system.
- Some signs and symptoms, such as laboratory values, are easily quantified and graded
- Grading other signs and symptoms (e.g. lipodystrophy and skin rashes) depends on clinical judgement following a careful history and physical assessment.

Grading the Severity of Paediatric Adverse Reactions
(Based on DAIDS grading of Adverse Events)

<table>
<thead>
<tr>
<th>FEATURE</th>
<th>GRADE 1</th>
<th>GRADE 2</th>
<th>GRADE 3</th>
<th>GRADE 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Haematology</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Haemoglobin Infant 1-21 days</td>
<td>12.0 - 13.0 g/dL</td>
<td>10.0 - 11.1 g/dL</td>
<td>9.0 - 9.9 g/dL</td>
<td>&lt;9.0 g/dL</td>
</tr>
<tr>
<td>Haemoglobin Infant 22-35 days</td>
<td>9.5 - 10.5 g/dL</td>
<td>8.0 - 9.4 g/dL</td>
<td>7.0 - 7.9 g/dL</td>
<td>&lt;7.0 g/dL</td>
</tr>
<tr>
<td>Haemoglobin Infant 36-56 days</td>
<td>8.5 - 9.4 g/dL</td>
<td>7.0 - 8.4 g/dL</td>
<td>6.0 - 6.9 g/dL</td>
<td>&lt;6.0 g/dL</td>
</tr>
<tr>
<td>Hb greater than 57 days (HIV-positive only)</td>
<td>8.5 - 10.0 g/dL</td>
<td>7.5 - 8.4 g/dL</td>
<td>6.5 - 7.4 g/dL</td>
<td>&lt;6.5 g/dL</td>
</tr>
<tr>
<td>Absolute neutrophil count Infant 1 day</td>
<td>4.0 - 5.0 x 10^9/l</td>
<td>3.0 - 3.9 x 10^9/l</td>
<td>1.5 - 2.9 x 10^9/l</td>
<td>&lt;1.5 x 10^9/l</td>
</tr>
<tr>
<td>Absolute neutrophil count Infant 2-7 days</td>
<td>1.25 - 1.5 x 10^9/l</td>
<td>1.0 - 1.24 x 10^9/l</td>
<td>0.75 - 0.99 x 10^9/l</td>
<td>&lt;0.75 x 10^9/l</td>
</tr>
<tr>
<td>Absolute neutrophil count Children older than 7 days</td>
<td>1.0 - 1.3 x 10^9/l</td>
<td>0.75 - 0.9 x 10^9/l</td>
<td>0.5 - 0.7 x 10^9/l</td>
<td>&lt;0.5 x 10^9/l</td>
</tr>
<tr>
<td>Platelets (cells/mm³)</td>
<td>100 000 - 124 999</td>
<td>50 000 - 99 999</td>
<td>25 000 - 49 999</td>
<td>&lt;25 000 or bleeding</td>
</tr>
<tr>
<td>FEATURE</td>
<td>GRADE 1</td>
<td>GRADE 2</td>
<td>GRADE 3</td>
<td>GRADE 4</td>
</tr>
<tr>
<td>---------</td>
<td>---------</td>
<td>---------</td>
<td>---------</td>
<td>---------</td>
</tr>
<tr>
<td><strong>Gastro-intestinal (N=Normal)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bilirubin</td>
<td>1.1 - 1.5 x N</td>
<td>2.0 - 2.9 x N</td>
<td>3.0 - 7.5 x N</td>
<td>&gt; 7.5 x N</td>
</tr>
<tr>
<td>AST</td>
<td>1.25 - 2.5 x N</td>
<td>2.6 - 5.0 x N</td>
<td>5.1 - 10.0 x N</td>
<td>&gt; 10.0 x N</td>
</tr>
<tr>
<td>ALT</td>
<td>1.25 - 2.5 x N</td>
<td>2.6 - 5.0 x N</td>
<td>5.1 - 10.0 x N</td>
<td>&gt; 10.0 x N</td>
</tr>
<tr>
<td>γGT</td>
<td>1.1 - 4.9 x N</td>
<td>5.0 - 9.9 x N</td>
<td>10.0 - 15.0 x N</td>
<td>&gt; 15.0 x N</td>
</tr>
<tr>
<td>Pancreatic Amylase</td>
<td>1.1 - 1.5 x N</td>
<td>1.6 - 2.0 x N</td>
<td>2.1 - 5.0 x N</td>
<td>&gt; 5.0 x N</td>
</tr>
<tr>
<td><strong>Diarrhoea adult and paediatric age 1 year or older</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Transient or intermittent episodes of unformed stools OR increase of 3 stools or less over baseline per 24 hour period</td>
<td>Persistent episodes of unformed to watery stools OR increase of 4 - 6 stools over baseline per 24 hour period</td>
<td>Bloody diarrhoea OR increase of 7 stools or more per 24 hour period OR IV fluid replacement indicated</td>
<td>Life-threatening consequences (e.g. Hypotensive shock)</td>
<td></td>
</tr>
<tr>
<td><strong>Diarrhoea paediatric less than 1 year of age</strong></td>
<td>Liquid stools (more unformed than usual) but usual number of stools</td>
<td>Liquid stools with increased number of stools OR mild dehydration</td>
<td>Liquid stools with moderate dehydration</td>
<td>Liquid stools resulting in severe dehydration with aggressive rehydration indicated OR hypotensive shock</td>
</tr>
<tr>
<td>Constipation</td>
<td>NA</td>
<td>Persistent constipation requiring regular use of dietary modifications, laxatives or enemas</td>
<td>Obstruction with manual evacuation indicated</td>
<td>Life-threatening consequences (e.g. obstruction)</td>
</tr>
<tr>
<td>Nausea</td>
<td>Transient (less than 24 hours) or intermittent nausea with no or minimal interference with oral intake</td>
<td>Persistent nausea resulting in decreased oral intake for 24 - 48 hours</td>
<td>Persistent nausea resulting in minimal oral intake for more than 48 hours OR aggressive rehydration indicated (e.g. IV fluids)</td>
<td>Life-threatening consequences (e.g. hypotensive shock)</td>
</tr>
<tr>
<td>Vomiting</td>
<td>Transient or intermittent vomiting with no or minimal interference with oral intake</td>
<td>Frequent episodes of vomiting with no or mild dehydration</td>
<td>Persistent vomiting resulting in orthostatic hypotension OR aggressive rehydration indicated (e.g. IV fluids)</td>
<td>Life-threatening consequences (e.g. hypotensive shock)</td>
</tr>
<tr>
<td><strong>Allergic/Dermatological</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Acute systemic allergic reaction</td>
<td>Localized urticaria (wheals) with no medical intervention indicated</td>
<td>Localized urticaria with medical intervention indicated OR mild angioedema with no medical intervention indicated</td>
<td>Generalized urticaria OR angioedema with medical intervention indicated OR symptomatic mild bronchospasm</td>
<td>Acute anaphylaxis OR life-threatening bronchospasm OR laryngeal oedema</td>
</tr>
<tr>
<td>Cutaneous reaction skin rash</td>
<td>Localized macular rash</td>
<td>Diffuse maculopapular rash OR morbilliform rash OR target lesions</td>
<td>Diffuse macular, maculopapular or morbilliform rash with vesicles or limited number of bullae OR superficial ulcerations of mucous membrane limited to one site</td>
<td>Extensive or generalized bullous lesions OR Stevens-Johnson syndrome OR ulceration of mucous membrane involving two or more distinct mucosal sites OR toxic epidermal necrolysis (TEN)</td>
</tr>
</tbody>
</table>
### Nervous system

<table>
<thead>
<tr>
<th>Developmental delay - Paediatric younger than 16 years</th>
<th>Grade 1</th>
<th>Grade 2</th>
<th>Grade 3</th>
<th>Grade 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mild developmental delay, either motor or cognitive, as determined by comparison with a developmental screening tool appropriate for the setting</td>
<td>Mild developmental delay, either motor or cognitive, as determined by comparison with a developmental screening tool appropriate for the setting</td>
<td>Severe developmental delay, either motor or cognitive, as determined by comparison with a developmental screening tool appropriate for the setting</td>
<td>Developmental regression, either motor or cognitive, as determined by comparison with a developmental screening tool appropriate for the setting</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Neuromuscular weakness (including myopathy &amp; neuropathy)</th>
<th>Grade 1</th>
<th>Grade 2</th>
<th>Grade 3</th>
<th>Grade 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asymptomatic with decreases strength on exam OR minimal muscle weakness causing no or minimal interference with usual social &amp; functional activities</td>
<td>Muscle weakness causing greater than minimal interference with usual social and functional activities</td>
<td>Muscle weakness causing inability to perform usual social and functional activities</td>
<td>Disabling muscle weakness causing inability to perform basic self-care functions OR respiratory muscle weakness impairing ventilation</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Neurosensory alteration (including paresthesia and painful neuropathy)</th>
<th>Grade 1</th>
<th>Grade 2</th>
<th>Grade 3</th>
<th>Grade 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asymptomatic with sensory alteration or paresthesia causing no or minimal interference with usual social &amp; functional activities</td>
<td>Sensory alteration or paresthesia causing greater than minimal interference with usual social and functional activities</td>
<td>Sensory alteration or paresthesia causing inability to perform usual social and functional activities</td>
<td>Disabling sensory alteration or paresthesia causing inability to perform basic self-care functions</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Other</th>
<th>Grade 1</th>
<th>Grade 2</th>
<th>Grade 3</th>
<th>Grade 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clinical symptoms not otherwise specified above</td>
<td>No therapy, monitor condition</td>
<td>May require minimal intervention and monitoring</td>
<td>Requires medical care or possible hospitalisation</td>
<td>Requires active medical intervention, hospitalisation or hospice care</td>
</tr>
</tbody>
</table>

### MANAGEMENT

**Mild toxicity (Grade 1)**
- Continue ARV therapy. Stress maintenance of adherence despite mild toxicity
- Symptomatic treatment e.g. antihistamines for mild rash
- Assess how adherence may be affected and provide support and reassurance to family

**Moderate toxicity (Grade 2)**
- Continue ARV therapy as long as feasible.
- Repeat lab tests and reassess clinically in 2 weeks.
- If the patient does not improve on symptomatic therapy within 2 weeks, consider single-drug substitutions.
- For a few moderate toxicities (e.g. peripheral neuropathy or lipodystrophy) single drug substitution needs to be considered as soon as they appear.
Severe toxicity (Grade 3)
• Lab tests should be repeated in 1 week and if still grade 3, stop ALL ARV drugs and seek expert medical advice
• May require single ARV drug switch and not discontinuation of all ARV drugs
• ABC must be stopped immediately and permanently if a hypersensitivity reaction occurs.

Severe life-threatening toxicity (Grade 4)
• Discontinuation of all ARV drugs immediately
• Appropriate supportive therapy
• Substitution of likely implicated drug once patient is stabilised and toxicity resolved
• Decisions should be made on an individual basis and discussed with experts as required.

General:
• Complete Adverse Drug Reaction (ADR) form
• Submit form to local pharmacy service
MANAGING ARV TOXICITY

Consider other medications and diseases, including opportunistic infections, immune reconstitution inflammatory syndrome (IRIS), or other illnesses.

CHILD ON ART (OR THEIR CAREGIVER) REPORT POSSIBLE ADVERSE REACTION

HISTORY OR CLINICAL FINDING SUGGEST ADVERSE REACTION

Evaluate concurrent medications and any concurrent new or pre-existing condition. Establish whether adverse reaction is due to:
- other drugs or drug-drug interaction
- other medical conditions

DETERMINE SERIOUSNESS OF ADVERSE REACTION

IS IT A LIFE-THREATENING EVENT?

NO

GRADE 1: MILD
Is it ARV-related? Bothersome? Reassure. No Change in ART required

GRADE 2: MODERATE
Is it ARV-related? Continue ART as long as feasible. If patient does not improve, consider single drug substitution

GRADE 3: SEVERE
Is it ARV-related? Substitute the offending drug without discontinuing ART

Stress importance of adherence to ART despite toxicity in the case of mild and moderate reactions

YES

GRADE 4: SEVERE LIFE-THREATENING (e.g. Stevens-Johnson syndrome; lactic acidosis, etc.)
Immediately discontinue ALL drugs, including ARVs and manage the medical event. When the patient is stabilized, reintroduce ARVs using a modified regimen (substitute the offending drug).

LAB TESTS INDICATE POSSIBLE PROBLEM RELATED TO ART

Manage other conditions

* For grading of severity, see (pg 69-71)
LIPODYSTROPHY

SIGNS AND SYMPTOMS
Body changes:
• Peripheral fat wasting (lipoatrophy)
• Wasting of subcutaneous fat in face (cheeks have sunken appearance and soft tissue loss in temples), limbs (legs often noticed first), upper trunk and buttocks
• Fat accumulation
• Base of neck (‘buffalo hump’), central fat disposition (truncal lipohypertrophy), breast hypertrophy
• Prominent peripheral veins
• Metabolic abnormalities (e.g. dyslipidemia and insulin resistance)

TREATMENT
• Switching ARV therapy if able, stavudine and lopinavir/ritonavir typically causative
• Hormonal therapy
• Address emotional symptoms
• Encourage exercise

DIAGNOSIS
Observation of body shape changes
ABACAVIR HYPERSENSITIVITY REACTION

SIGNS AND SYMPTOMS
At least two of the following:

- Fever
- Rash – mild, often unnoticed by patients
- GiT – nausea, vomiting, diarrhoea, abdominal pain
- Constitutional – fatigue, myalgia, general malaise
- Respiratory – dyspnoea, cough, pharyngitis

TREATMENT

- Counsel caregivers of risk at initiation of therapy and what to do if suspected. Should not stop treatment without consulting an experienced health care professional.
- If fits criteria for Abacavir Hypersensitivity Reaction, stop Abacavir immediately.
- Never re-start Abacavir if stopped for suspected hypersensitivity reaction – can precipitate fatal cardio-respiratory collapse

DIAGNOSIS

- Clinical signs and symptoms; exclusion of other causes of symptoms
- History of accentuation and worsening of symptoms with each dose
- Multi-organ process – not only rash
- HLA genotyping (not widely available)
NNRTI DRUG RASH

SIGNS AND SYMPTOMS

Mild-to-moderate rash
• Erythematous, maculopapular, confluent, most often on the body and arms, with no systemic symptoms

Severe rash
• Extensive rash with moist desquamation, angioedema, or serum sickness-like reaction; or a rash with constitutional findings such as fever, oral lesions, blistering, facial oedema, conjunctivitis

Life-threatening Stevens–Johnson syndrome
• Toxic epidermal necrolysis (TEN), extensive skin peeling

TREATMENT

Mild-to-moderate rash
• ART can be continued without interruption but under close observation

Severe or life-threatening rash
• Discontinue all ARVs and non-ARV drugs until symptoms resolve
• Once symptoms resolve, restart ART by substituting an alternative ARV for suspected offender

DIAGNOSIS
• Observation of clinical signs and symptoms
• Do ALT to exclude hepatic involvement
MONITOR EFFICIENCY
OF ART TREATMENT

TREATMENT SUCCESS
Defined as such if the following are achieved within 6 months of treatment initiation:
• Improved clinical status, including
  - Improved or normal growth
  - Improved or normal neurological development
  - No new opportunistic infections
  - Fewer intercurrent illnesses
• Improved or stabilised immune status (CD4)
• An undetectable viral load

TREATMENT FAILURE
Defined as deterioration in the clinical, immunological or virologic status of the child after at least 24 weeks of continuous triple drug ART with good adherence.

KEY NOTES:
• CD4 and viral load measurements should not be performed during intercurrent infections but preferably 4 - 6 weeks after they have resolved
• At least 2 measurements of CD4 count should be performed and adequate adherence should be ensured before considering a change in therapy
• If treatment failure is due to non-adherence, do not switch to second line until adherence to first line therapy is well-established and treatment failure is still evident.
• Check that dosing is adequate. Growth should be monitored at every visit and medication doses adjusted as needed.
• Ask caregiver about use of other medications, including treatments from traditional healers and/or “natural” therapies.
• Consider immune reconstitution inflammatory syndrome (IRIS) as a cause of paradoxical clinical deterioration during first 3 - 6 months after starting ART.
Infant or child on ART presents for follow-up visit with signs or symptoms suggesting clinical or immunological decline.

**Does child fulfill any of the clinical failure criteria?**

- Yes: Treat and manage clinical event and monitor response.
- No: Signs and symptoms of clinical decline are resolved.

**Is child’s nutritional intake adequate?**

- Yes: Continue original regimen
- No: Continue original regimen

**Has ARV adherence been good?**

- Yes: Continue original regimen
- No: Continue original regimen

**Has child been on the regimen for at least 24 weeks?**

- Yes: Continue original regimen
- No: Continue original regimen

**Assess for immunological failure**

**Does child fulfill any of the immunological failure criteria?**

- Yes: Check viral load (if available) to confirm. Switch ART regimen.
- No: Exclude other potential causes of clinical and immunological discordance, e.g. IRIS, TB, other OIs and concurrent medications.

**Test for viral load**

- Viral load <1000: Failure not likely
- Viral load >1000 & <5000: Continue on original regimen and monitor closely. ALERT: Improve adherence and recheck.
- Viral load >5000: Switch ART regimen

**Is viral load testing available?**

- Yes: Continue on original regimen
- No: Defer switch; continue on original regimen

Virological failure criteria: Virologic failure is recognized as a persistent viral load above 5000 RNA copies/ml, after at least 24 weeks on ART, in a fully treatment-adherent child.

Immunological failure criteria:

- Developing or returning to age-related immunological thresholds after at least 24 weeks on ART, in an adherent child:
  - CD4 <200 cells/mm³ for children 2 to 5 years
  - CD4 <100 cells/mm³ for children >5 years

Clinical failure: The appearance or reappearance of stage 3 or stage 4 events after at least 24 weeks on ART in a treatment-adherent child.

The most common reason for treatment failure is inadequate adherence.

Clinical disease progression should be differentiated from IRIS.

**Alert:** Improve adherence and recheck.

*Timing of repeat CD4 depends on severity*
MANAGING TREATMENT FAILURE WHEN CD4 TESTING IS NOT AVAILABLE

INFANT OR CHILD ON ART PRESENTS FOR FOLLOW-UP VISIT WITH SIGNS OR SYMPTOMS SUGGESTING CLINICAL OR IMMUNOLOGICAL DECLINE

Clinical failure: the appearance or reappearance of stage 3 or stage 4 events after at least 24 weeks on ART in a treatment-adherent child.

Clinical disease progression should be differentiated from IRIS.

The most common reason for treatment failure is inadequate adherence.

Immunological failure criteria:
• Developing or returning to age-related immunological thresholds after at least 24 weeks on ART, in an adherent child
• CD4 <200 cells/mm$^3$ for children 2 to 5 years
• CD4 <100 cells/mm$^3$ for children >5 years

Clinical disease progression should be differentiated from IRIS. The most common reason for treatment failure is inadequate adherence.

Immunological failure criteria:
• Developing or returning to age-related immunological thresholds after at least 24 weeks on ART, in an adherent child
• CD4 <200 cells/mm$^3$ for children 2 to 5 years
• CD4 <100 cells/mm$^3$ for children >5 years

Clinical failure: the appearance or reappearance of stage 3 or stage 4 events after at least 24 weeks on ART in a treatment-adherent child.

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• CD4 <100 cells/mm$^3$ for children >5 years
Recommended second-line regimens in infants and children in the event of treatment failure of first-line regimens

<table>
<thead>
<tr>
<th>RECOMMENDED SECOND-LINE REGIMEN: BOOSTED PI COMPONENT + TWO NRTI COMPONENTS</th>
<th>PREFERRED SECOND-LINE REGIMEN</th>
</tr>
</thead>
<tbody>
<tr>
<td>FIRST-LINE REGIMEN AT FAILURE</td>
<td>RTI COMPONENTS (NRTI/NNRti) a</td>
</tr>
<tr>
<td>2 NRTIs + 1 NNRTI: AZT- or d4T-containing or ABC-containing</td>
<td>ABC + 3TC or ABC + ddI AZT + 3TC or AZT + ddI</td>
</tr>
<tr>
<td>Triple NRTI</td>
<td>ddl1 + EFV b or NVP</td>
</tr>
</tbody>
</table>

- Continuation of 3TC in second-line regimens may be considered.
- EFV is currently not recommended for children <3 years of age, and should be avoided in postpubertal adolescent girls who are either in the first trimester of pregnancy or are sexually active and not using adequate contraception.
- LPV/r is available as solid and liquid co-formulations.
IMMUNE RECONSTITUTION INFLAMMATORY SYNDROME (IRIS)

This appears as a paradoxical clinical deterioration after starting ARV therapy. It is caused by the improving immune system interacting with organisms that have colonized the body.

PRESENTATION

- Usually presents during the first 6 weeks to 3 months after starting ARV therapy
- More common with severe immune suppression at initiation of treatment and subsequent rapid drop in viral load and increase in CD4 after initiation of treatment
- Clinical presentations vary depending on the causative organism and the organ-system that is involved
- Causative organisms may be:
  - Mycobacteria – Tuberculosis, MAC, BCG (M. Bovis)
  - Fungi – Pneumocystis pneumonia, Cryptococcus neoformans
  - Viruses – CMV, Varicella Zoster, HSV, Molluscum contagiosum, PML (rare in children), Hepatitis B/C

DIAGNOSIS

- Identify specific organism

Major criteria

- Atypical presentation of opportunistic infections or tumours in patients on ART
  - Exaggerated inflammatory response (fever, painful lesions)
  - Atypical inflammatory response in affected tissues (granulomas, suppuration, necrosis)
  - Progression of organ dysfunction or enlargement of pre-existing lesions after definite clinical improvement with specific opportunistic infection therapy and exclusion of toxicity prior to starting ART (Tuberculomas, Kaposi’s, new onset CMV retinitis or CMV uveitis)
- Reduction in Plasma HIV RNA by > 1 log 10 copies/ml

Minor criteria

- Increase in CD4 T-lymphocyte count
- Increase in specific immune responses to the pathogen
- Spontaneous resolution of the disease without specific therapy with continued antiretroviral therapy
MANAGEMENT

• Most resolves within a few weeks
• Manage with anti-microbial treatment specific to the causative organism
• Continue ART unless symptoms are life-threatening
• In severe cases, steroids and/or temporary discontinuation of ART may help.
  If in doubt, refer the child to the next level of care for evaluation
Frequently Asked Questions:

What side-effects can we expect?

- The side effects differ from one ARV drug to another
- Most children will not get side-effects
- The most common side-effects when starting treatment, includes: diarrhea, nausea and vomiting (it will clear up with time)
- Sometimes children can get more serious side effects such as:
  - Stomach pain
  - Fast or difficulty breathing
  - Pain in feet
  - Thinning of face and arms
  - Rash in the mouth and if widespread on the body
  - Severe vomiting and diarrhea

NB! All other serious side-effects will be monitored by the doctor or the nurse.

If a child is experiencing any of the above, take them to the clinic as soon as possible!

Short term side-effects:

- Dizziness, nightmares, drowsiness and confusion caused by Efavirenz, Stocrin®
- Vomiting and Diarrhoea—if it lasts more than 2 days bring the child to the clinic

Always bring your child to the clinic if he/she has a FEVER!

For more information:

**ECHO**
(Enhancing Children’s HIV Outcomes)

4th Floor, TMI Building
Joubert Extension Street
Braamfontein

www.witsecho.org.za
Tel: 011 547 5000

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Medication

In most cases, a child will take at least 5 types of medications:

- Multivitamin in the morning
- Co-trimoxazole (Bactrim®) daily
- A combination of 3 ARV medicines

It is important to know:
1. The name of each medicine
2. When and how often to give each
3. How much of each to give (this may change at almost every visit)

Administering Medicines

- The amount of medicine to give appears on the label
- If the label states for example to give 4ml, you will do as follows:
  1. Place the tip of the syringe in the liquid medicine
  2. Draw liquid until the plunger is in line with the correct number on the syringe e.g. 4
  3. Flick the syringe to move any bubbles in the liquid towards the tip—then push the plunger to remove the bubbles
  4. Repeat steps 1 and 2 if necessary
  5. Give this amount to the child in his mouth e.g. 4ml

Never mix medicines in a syringe

Frequently Asked Questions:

What do I do if the child vomits after taking the medicine?
- If the child vomits within 30 minutes of giving the medication - give it again
- If it happens after 30 minutes - do not give it again until the next dose

What must I do if I forgot to give the medicine?

For 12 hourly doses:
- If you remember within 6 hours - give it
- If it is more than 6 hours - skip the dose

For once daily doses:
- If you remember within 12 hours - give it
- If it is more than 12 hours - skip the dose

NEVER GIVE A DOUBLE DOSE!

When is the best time to give the medication?

- The time that suits you and the child’s routine
- For twice daily doses—give the doses 12 hours apart or as close to 12 hours as possible

Helpful Reminders

- Give meds at the same time as:
  - Daily activities
  - Favorite TV programs

- Set alarm clock / cell phone alarm
- Use a diary card / pillbox

Can I give the medication with food?

Not all medication is the same; therefore the following should be followed:

Medicine with no food restrictions (meaning you can give it with or without food):
- Lamivudine (3TC) – Zidovudine (AZT)
- Stavudine (d4t) – Nevirapine (NVP)
- Abacavir (ABC) – Aluvia®
- Tenofovir (TDF)

Taken with food:
- Kaletra® solution

Avoid fatty foods
- Efavirenz (Sustiva®) – best given at bedtime
Taken on an empty stomach (1 hour before food or two hours after food)
- Didanosine (did)

Can I give the medication with other medication?

Always ask a pharmacist before taking any other medication!

Even natural or traditional medication might not go well with the medicine!

Where must I keep the medicine?

Always keep medicine in a cool, dry and dark place.

- Avoid keeping medicine in the kitchen or in the bathroom

Some medicines need to be kept in the fridge:
- Stavudine liquid
- Kaletra® Solution (can be outside for 42 days)
HOW TO MANAGE IT?

1. Make sure your adherence is excellent

2. The doctor/nurse will look for other diseases that can cause the viral load to go up and the CD4 % (count) to drop

3. The doctor may have bloods taken to check if the treatment is working

4. The treatment may be changed

REMEMBER
There are not a lot of options available and you should try and prevent treatment failure to ensure a long and healthy future!

FOR MORE INFORMATION
ECHO (enhancing childrens HIV Outcomes)

4th Floor, CMI building
Joubert extension street
Braamfontein

www.witsecho.org.za
Tel: 011 547 5000

TREATMENT FAILURE
What the caregiver should know
Treatment failure means that the treatment is not working anymore. It may be detected by:

1. Falling CD4% (or count) to what it was before the child started ARVs
2. Return of symptoms or illness as it was before starting ARVs
3. A rising viral load
4. Return of symptoms or illness as it was before starting ARVs
5. Worsening health, e.g., Loss of weight despite eating enough food, tiredness, oral thrush, diarrhea that does not get better.

What causes it? How to prevent it?
The most common cause is: poor adherence. This means not giving the child medicine correctly or every day at the right time, as agreed.

Other causes may include:
- Incorrect doses
- Interaction with other medicines
- Infection with a resistant virus

How does this happen?
- Poor adherence
- Virus changes
- Virus starts to multiply
- Less drug action
- Development of resistant strains

Give the medicines:
- Twice a day (if necessary)
- On time
- Every day (if necessary)
- Give the medicines twice a day (if necessary)
<table>
<thead>
<tr>
<th>MONTH</th>
<th>YEAR</th>
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<tr>
<th>3TC</th>
<th>NVP</th>
<th>ABC</th>
<th>RTV</th>
<th>EFV</th>
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<td>31</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
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</tbody>
</table>

- **Taken**: Date marked with a check mark.
- **Late but still taken**: Date marked with a thumbs-up emoji.
- **Missed Dose**: Date marked with an X and no emoji.
# Counselling Checklist for Dispensing ARVs

<table>
<thead>
<tr>
<th>Medication</th>
<th>Side-effects</th>
</tr>
</thead>
<tbody>
<tr>
<td>Names</td>
<td>Probability</td>
</tr>
<tr>
<td>Colour coding</td>
<td>Possible side-effects</td>
</tr>
<tr>
<td>Frequency of doses</td>
<td>Dangerous side-effect</td>
</tr>
<tr>
<td>Dose (ml/mg)</td>
<td>Vomiting</td>
</tr>
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</table>

<table>
<thead>
<tr>
<th>Tools</th>
<th>Drug Interaction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Syringe</td>
<td>Traditional medication</td>
</tr>
<tr>
<td>Marked</td>
<td>OTC medication</td>
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<tr>
<td>Demonstrate</td>
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<tr>
<td>How to read</td>
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<tr>
<td>How to clean</td>
<td></td>
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<tr>
<td>Practical</td>
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<tr>
<td>Diary</td>
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<tr>
<td>Explain the use</td>
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<tr>
<td>How it works</td>
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<table>
<thead>
<tr>
<th>Adherence</th>
<th>Problems</th>
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</thead>
<tbody>
<tr>
<td>Routine / Time</td>
<td>Late / missed doses</td>
</tr>
<tr>
<td>Importance</td>
<td>Number in case of emergency</td>
</tr>
<tr>
<td>Pill/bottle count</td>
<td>Questions</td>
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<tr>
<td>Bring all meds back</td>
<td></td>
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<tr>
<td>To come back date</td>
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Children are one third of our population and all of our future.

Select Panel for the Promotion of Child Health, 1981
PICTIONARY OF WHO STAGING CONDITIONS
PICTIONARY OF PAEDIATRIC WHO STAGING

Physical diagnosis is an essential skill for the evaluation and ongoing monitoring of HIV-infected children. This pictionary serves as a job aide to assist the visual recognition of paediatric WHO staging conditions. It also includes additional information on the clinical findings, diagnostic investigations and possible referral steps needed. Even though diagnosis of some conditions may be complex and outside one’s scope of practice, all healthcare workers providing care to HIV-infected children should be aware of the clinical warning signs with which these conditions may present and consult when necessary.

WHO Staging is an important aspect of determining ART eligibility and of monitoring a patient’s clinical status over time. Stages range in severity from Stage 1 representing none or mild symptoms, to Stage 4 representing AIDS-defining conditions.

**KEY MESSAGE:**
All children should be assigned a baseline WHO Stage at the time of HIV diagnosis.

**KEY MESSAGE:**
Monitoring for any new WHO staging conditions is an important aspect of chronic care for both children on ART and those not yet eligible.
WHO STAGING CONDITIONS

WHO STAGE 1

- Asymptomatic
- Persistent generalized lymphadenopathy

WHO STAGE 2

- Unexplained persistent hepatosplenomegaly
- Papular pruritic eruptions
- Extensive wart virus infection
- Extensive molluscum contagiosum
- Fungal nail infections
- Recurrent oral ulcerations
- Unexplained persistent parotid enlargement
- Linear gingival erythema
- Herpes zoster
- Recurrent or chronic upper respiratory tract infections (otitis, sinusitis or tonsillitis)

WHO STAGE 3

- Unexplained moderate malnutrition not responding to standard therapy
- Unexplained persistent diarrhoea
- Unexplained persistent fever
- Persistent oral thrush (outside neonatal period)
- Oral hairy leukoplakia
- Acute necrotizing ulcerative gingivitis or periodontitis
- Lymph node tuberculosis
- Pulmonary tuberculosis
- Severe recurrent bacterial pneumonia
- Symptomatic lymphoid interstitial pneumonitis
- Chronic HIV-associated lung disease including bronchiectasis
- Unexplained anaemia, neutropaenia and/or thrombocytopenia
WHO STAGE 4

- Unexplained severe malnutrition not responding to standard therapy
- Pneumocystis pneumonia
- Recurrent severe bacterial infections
- Chronic herpes simplex infection
- Extrapulmonary tuberculosis
- Kaposi’s Sarcoma
- Oesophageal candidiasis
- Central nervous system toxoplasmosis
- HIV encephalopathy
- Cytomegalovirus infection with onset at age older than one month
- Cryptococcal meningitis
- Chronic cryptosporidiosis
- Chronic isosporiasis
- Cerebral or B-cell non-Hodgkin’s lymphoma
- Progressive multifocal leukoencephalopathy
- Symptomatic HIV-associated nephropathy or HIV-associated cardiomyopathy
- HIV-associated rectovaginal fistula

*NOTE: Disseminated endemic mycosis and disseminated non-tuberculous mycobacterial infections are additional Stage 4 conditions that are not included in this Pictionary.
PERSISTENT GENERALISED LYMPHADENOPATHY
WHO STAGE 1

SIGNS AND SYMPTOMS
• Multiple, enlarged lymph nodes (glands)
• Present for more than a month
• At 2 or more node sites (neck, axilla, groin, etc.)
• Usually painless and firm

TREATMENT
• No treatment if related to HIV Stage 1
• Exclude other causes and treat accordingly

DIAGNOSIS
Persistent enlarged lymph nodes >1 cm at two or more sites without known cause
PAPULAR PRURITIC ERUPTIONS

WHO STAGE 2

SIGNS AND SYMPTOMS
• Papular (bumpy) lesions
• May be at different stages of hyperpigmentation
• Very itchy
• Usually appear on arms, chest, face, scalp, axillae and thighs

TREATMENT
• Chlorpheniramine orally 0.1 mg/kg/dose 6 - 8 hrly (not for children < 12 mo of age), or
• Cetirizine at night:
  - ≥14-25kg-5mg/dose
  - ≥25-55kg-10mg/dose
• Hydrocortisone acetate 1% cream apply twice daily
• Emollients

DIAGNOSIS
Papular pruritic vesicular lesions as described above
**RECURRENT OR CHRONIC UPPER RESPIRATORY TRACT INFECTIONS - OTITIS MEDIA DESCRIBED HERE**

**WHO STAGE 2**

**SIGNS AND SYMPTOMS**
- Pain in the ear
- Loss of hearing
- Fever
- Inflamed or perforated ear drum
- Pus discharge from the ear

**TREATMENT**
- Analgesics for pain
- Antibiotics: If acute, treat with Amoxyl 25-30 mg/kg/dose three times daily for 7 days
- If the discharge is offensive, add metronidazole 7.5mg/kg/dose 8 hrly for 7 days
- For chronic draining otitis, ear wicking is essential
- If persistent, refer for hearing evaluation
- Refer urgently if swelling and redness behind ear

**DIAGNOSIS**
Symptoms as above with either persistent ear discharge or two or more acute episodes in the past 6 months qualifies as WHO Stage 2
EXTENSIVE WART VIRUS INFECTION
WHO STAGE 2

SIGNS AND SYMPTOMS
• Cutaneous benign skin growths caused by the human papillomavirus.
• Raised warts appear as excessively thickened skin with black dots. Vary in size from solitary lesions to grouped, cauliflower-like lesions
• Flat warts may be lighter or darker than the surrounding skin, often found forming lines.
• It is widespread and persistent in patients who are immunocompromised

TREATMENT
• It is based on the age, the size, number and location of warts.
• Most warts in children resolve spontaneously within two years
• Some persist and become large and painful
• The extremely cold and painful liquid nitrogen is not well tolerated by children and it causes scarring
• Imiquimod cream, podophyllin to apply on the lesions
• They can be scraped, burned by laser or excised
• If severe, ART may improve the condition

DIAGNOSIS
Lesions as described above that cover 5% or more of the body surface area, or are disfiguring
FUNGAL NAIL INFECTION
WHO STAGE 2

SIGNS AND SYMPTOMS
• Begins at distal end spreading towards the nail bed
• Nails become hardened and crumble
• Colour may change to opaque, white, black or of normal shine

TREATMENT
• Often improves once on ART
• Antifungal treatment requires systemic administration, often with side effects that outweigh cosmetic concerns
• If severe, consider referral.

DIAGNOSIS
Clinical signs and symptoms

UNEXPLAINED PERSISTENT HEPATOSPLENOMEGALY
WHO STAGE 2

SIGNS AND SYMPTOMS
• Enlarged liver and spleen
• May have distended abdomen
• May have jaundice

TREATMENT
• Depends on the cause

DIAGNOSIS
Enlarged liver and spleen without obvious cause
RECURRENT ORAL ULCERATIONS
WHO STAGE 2

SIGNS AND SYMPTOMS
• Recurrent episodes usually begin with itching, tingling, or burning at the site of infection
• A red bump or cluster of bumps form on the skin
• They rapidly progress to fluid- or pus-filled blisters.
• A few days later scabs form and the lesions heal usually within 8 days
• The blisters may spread extensively
• Lesions are painful and may be associated with fever

TREATMENT
• Oral antiviral medications like acyclovir may be given to treat recurrent episodes within 72 hrs of appearance:
  - 2yrs & older: 400mg every 8 hours x 5 days
  - Under 2yrs: 200mg every 8 hours x 5 days
    (refer young infants)
• Paracetamol syrup for pain as directed
• Keep the area around a sore clean either with soap and water or antiseptic solution
• Refer if disseminated infection suspected or dehydration

DIAGNOSIS
Lesions as described above with two or more episodes in the past 6 months

If persists for longer than 1 month or disseminated herpes, classify as a stage 4 condition.
HERPES ZOSTER
WHO STAGE 2

SIGNS AND SYMPTOMS
• Low grade fever
• General malaise
• Mild to severe pain, burning, redness and discomfort in the area of the affected nerve distribution (dermatome) on one side of the body
• Followed by appearance of groups of small papules which rapidly change to vesicles filled with a cloudy fluid on the affected site a few days later
• The lesions form a scab and heal in about a week
• In those severely immunocompromised more than one dermatome can be affected

TREATMENT
For new vesicles:
• Oral acyclovir 20mg/kg (maximum 800mg/dose)
  4 x daily x 5 days within 24 hrs of appearance of the rash
• Analgesics for pain and post-herpetic neuralgia
• Calamine lotion to apply on the lesions to soothe the area
• Give antibiotic if becomes super-infected
• Refer if any facial involvement or signs of dissemination

DIAGNOSIS
From history and examination
LINEAR GINGIVAL ERYTHEMA
WHO STAGE 2

SIGNS AND SYMPTOMS
• Intense inflammation and swelling of gum margin occurring in a band-like distribution
• There may be pus formation
• Often there is gum recession

TREATMENT
• Encourage good oral hygiene (brushing, flossing, mouth rinses)
• Chlorhexidine gluconate mouth wash
• Antifungals, such as nystatin, may be helpful
• For painful and severe acute lesions, refer to a dental provider for thorough examination and possible antibiotic therapy.

DIAGNOSIS
Clinical signs and symptoms
EXTENSIVE MOLLUSCUM CONTAGIOSUM
WHO STAGE 2

SIGNS AND SYMPTOMS
• Small lumps which are pearly-white or slightly pink.
• Looks like a small wart and is round, firm and umbilicated on the top of each lesion.
• Sometimes they develop over various parts of the skin and occur in clusters.
• Any part of the body can be affected but it is rare on the palms and soles.
• Giant or widespread lesions especially involving the face could be a marker of an underlying immune deficiency.
• Most occur in children aged 1 - 4 years.

TREATMENT
• Many of the treatments can be painful or cause scarring.
• Allow to heal spontaneously if few in number or consider tincture of iodine BP applied to the core of individual lesions, otherwise consider referral for liquid nitrogen or curettage.

DIAGNOSIS
Lesions as described above that cover 5% or more of the body surface area, or are disfiguring.
BILATERAL PAINLESS PAROTID SWELLING
WHO STAGE 2

SIGNS AND SYMPTOMS
• Swelling on both sides of face
• Palpable lumps in front of ears
• There is loss of the angle of the jaw
• Present for more than a month
• Firm on palpation
• Painless
• Mostly appear when there is HIV infection
• May be associated with lymphoid interstitial pneumonitis (LIP), see LIP – Stage 3

TREATMENT
• ART may improve the condition
• Reassure

DIAGNOSIS
Physical findings in association with confirmed HIV infection.
ORAL THRUSH - PERSISTANT OR RECURRENT
WHO STAGE 3

SIGNS AND SYMPTOMS

• Creamy white patch on the tongue and/or mucous membrane of the mouth that can be scratched off, often with red base
• Can be painful

TREATMENT

• Nystatin suspension orally 1ml after each feed x 7 days minimum, continue for 2 days after resolves.
• Older children 2ml swish and swallow 4 times a day x 7 days minimum.
• Or, gentian violet 0.5% aqueous solution applied in the mouth 3 x a day, extend for 2 days after cure
• Treat refractory oral candidiasis and suspected oesophageal candidiasis with fluconzole 3mg/kg/day for up to 21 days
• ART eligible
• Analgesia – Paracetamol 15mg/kg/dose 4-6 hourly

DIAGNOSIS

Characteristic oral lesion described above that is persisting or has recurred in a child 2 months of age or older qualifies as WHO Stage 3

Consider Oesophageal Candidiasis in infant or child with oral thrush and food refusal, drooling, difficulty swallowing – this is a stage 4 condition.
ANAEMIA, NEUTROPAENIA & THROMBOCYTOPAENIA
WHO STAGE 3

SIGNS AND SYMPTOMS
• Anaemia:
  - Lethargy
  - Pallor
  - Exertional dyspnoea
  - Tachycardia
  - Palpitations
• Neutropaenia: Increased risk for sepsis and serious infection.
• Thrombocytopaenia: Active bleeding and/or petechiae

TREATMENT
• Depends on the cause
• Anaemia: If Hb < 6 g/dL, refer urgently for possible transfusion. If Hb 6 g/dL or higher, give iron, counsel iron-rich foods, treat for worms and repeat Hb in 14 days.
• Neutropaenia and Thrombocytopaenia: Physician review recommended
• ART eligible

DIAGNOSIS
Blood tests show the following:
• Low haemoglobin
  (< 8 g/dL)
• Low neutrophil count
  (< 0.5 x 10⁹ per litre)
• Low platelet count
  (< 50 x10⁹ per litre)
• Only assign WHO Stage 3 if of unexplained cause
SIGNS AND SYMPTOMS
• Passing loose /watery stools >3 times a day
• There may be abdominal pain
• Nausea
• Loss of appetite
• Low grade fever
• Signs of dehydration, the primary cause of morbidity and mortality in children e.g.
  - lethargy
  - sunken fontanelle
  - sunken eyes
  - loss of skin turgor
  - dry mouth and lips, no tears when crying, anuria, tachycardia and unconsciousness

TREATMENT
• Prevention: Vitamin A supplementation every 6 months in all HIV-infected infants and children aged 6 months to 5 years (6-12 months of age - 100 000 IU; > 12 months of age 200 000 IU)
• Re-hydrate: orally or intravenously if necessary
• Refer to hospital if the child is severely dehydrated
• Elemental zinc supplementation:
  - up to 10kg – 10mg daily for 14 days
  - > 10 kg – 20 mg daily for 14 days
• Multivitamin supplementation for 14 days
• If bloody diarrhoea – Ciprofloxacin 15mg/kg daily for 3 days
• ART indicated if confirmed HIV-infected

DIAGNOSIS
3 or more loose, watery, non-bloody stools daily for 14 days or longer.
Consider the following investigations:
• Stool for MC&S
• FBC
UNEXPLAINED MODERATE MALNUTRITION

WHO STAGE 3

SIGNs AND SYMPTOMS

• Weight loss with flattening or decline of weight curve
• There may be visible wasting
• Palmer pallor
• Hair colour and texture abnormalities

TREATMENT

• Nutritional supplementation & counselling
• Multivitamin syrup daily
• Vitamin A and deworming
• Treat any active infections
• ART if no response to standard therapy
• Refer if poor appetite or clinical danger signs

DIAGNOSIS

Plot weight & height on growth chart

• Concerning if flattening of the growth curve, weight for age < 3%ile
• Other causes such as food insecurity and TB have been ruled out.
LYMPHOID INTERSTITIAL PNEUMONITIS (LIP) - SYMPTOMATIC WHO STAGE 3

SIGNS AND SYMPTOMS

• Chronic cough
• Slow progressive shortness of breath
• Lethargy
• Enlarged parotids
• Clubbing
• Hepatosplenomegaly
• Generalised lymphadenopathy
• May progress to bronchiectasis and right heart failure

TREATMENT

• ART
• Exclude TB
• Trial of salbutamol for symptom relief
• If very symptomatic, Prednisone 1mg/kg/day x 2 weeks, tapering the dose for a further 4 - 6 weeks
• Refer if signs of right heart failure

DIAGNOSIS

Persistent cough and clinical findings, tends to occur in school-age HIV-infected child.

**Chest X-ray :**

• Reticular, reticular-nodular or nodular infiltrates
• Lymphadenopathy
CHRONIC HIV-ASSOCIATED LUNG DISEASE
WHO STAGE 3

SIGNS AND SYMPTOMS
Chronic lung disease is an endpoint of several different causes in HIV-infected children, perhaps prior TB, recurrent pneumonias or LIP.

- Chronic cough not improving with standard treatments
- Susceptible to recurrent pneumonia, i.e. acute worsening against background chronic cough

TREATMENT
- Assess symptom severity and look for hypoxia
- Hospital referral for severe symptoms, oxygen
- Consider specialist consultation for chronic care plan
- Start ART
- Treat acute pneumonia early and aggressively
- Consider trial of salbutamol for symptom relief
- Steroids may be used in severe cases and when no TB

DIAGNOSIS
- Clinical: History of chronic cough, perhaps productive, with or without clubbing, crepitations and/or wheezing on auscultation.
- X-ray: Honeycomb appearance as seen in bronchiectasis and/or persistent areas of opacification, fibrosis and decreased lung volumes.
UNEXPLAINED PERSISTENT FEVER
WHO STAGE 3

SIGNS AND SYMPTOMS

• Temperature of >37.5° taken axillary, >38°C orally
• Skin hot to touch

TREATMENT

• Undress to bare minimum of clothing
• Give paracetamol syrup as directed
• Investigate cause and treat accordingly
• ART eligible

DIAGNOSIS

• Thermometer registering from >37.5°C
• Intermittent or daily for 1 month or longer
• Other infectious causes have been ruled out
Necrotizing ulcerative gingivitis or periodontitis - acute WHO stage 3

**Signs and symptoms**
- May partly or totally affect gums and single teeth
- Swollen gums
- Later become inflamed and ulcerate
- Grey-white membrane on affected area
- Halitosis
- May have cervical lymphadenopathy

**Treatment**
- Encourage good oral hygiene
- Metronidazole 7.5mg/kg/dose, 8 hrly x 5 days
- Chlorhexidine gluconate mouth wash
- Refer to dentist
- ART eligible

**Diagnosis**
Clinical signs and symptoms
ORAL HAIRY LEUKOPLAKIA
WHO STAGE 3

SIGNS AND SYMPTOMS
- Benign white vertical ridges on the sides of the tongue
- Unilaterally or bilaterally
- Hard and painless
- Cannot be scrapped off

TREATMENT
- Acyclovir 250mg/m²/dose 3 - 5 x per day x 10 days if there is discomfort
- ART may clear the lesions

DIAGNOSIS
Presence of Epstein-Barr virus in tissues
RECURRENT SEVERE BACTERIAL PNEUMONIA
WHO STAGE 3

SIGNS AND SYMPTOMS
• Ill child with a high fever
• Tachypnoea (Rapid breathing)
• Tachycardia
• Grunting
• Productive cough on history or during examination
• Intercostal and subcostal recession
• Flaring nostrils
• There may be scattered crepitations and wheezes in one or more lobes
• Difficulty with feeding
• Vomits when coughing

TREATMENT
• Oxygen and hydration as indicated
• Paracetamol syrup orally 15mg/kg/dose 4 - 6 hourly
• First- line antibiotics: Ampicillin (or penicillin ) plus gentamicin ivi
  OR Ceftriaxone 50-80mg/kg imi
  PLUS Cotrimoxazole 10mg/kg ivi before transfer to hospital (in HIV-infected or exposed infants 2-12 months old)
• Consider TB & PCP
• ART eligible

DIAGNOSIS
• Two or more episodes over the past 6 months
• Clinical findings with chest x-ray to confirm when available.
PULMONARY TUBERCULOSIS AND TB LYMPHADENITIS
WHO STAGE 3

SIGN AND SYMPTOMS

NB - SCREEN AT EACH VISIT

- Persistent cough > 2 weeks
- Loss of weight or failure to thrive in last 3 months
- Fatigue or reduced playfulness
- Persistent fever >2 weeks
- Lymphadenopathy – painless mass > 2 x 2cm without local cause; usually in neck

TREATMENT

- Infection control in clinic
- NOTIFY
- Start TB treatment immediately - doses and duration of treatment as for HIV-uninfected children. See TB/Malaria chapter for guidance
- Start ART 2 weeks after starting TB treatment. See TB/Malaria chapter for guidance on drug regimens and dose adjustments

DIAGNOSIS

- History of TB contact and symptoms
- Physical examination
- Mantoux ≥5 mm in HIV+ patients
- CXR
- Microscopy and culture – sputum or gastric aspirates
OESOPHAGEAL CANDIDIASIS
WHO STAGE 4

SIGN AND SYMPTOMS
• Suspect in a child with severe oral thrush and oesophageal symptoms:
  - Refuses feeds
  - Has difficulty in swallowing
  - Drools
  - Hoarse voice or stridor

TREATMENT
• Intravenous fluconazole 3mg/kg/day x 21 days
• Give orally when child is able to tolerate feeds
• ART

DIAGNOSIS
• Often clinical diagnosis based on findings of oral thrush in combination with oesophageal symptoms.
• Definitive diagnosis requires endoscopy.
KAPOSI’S SARCOMA
WHO STAGE 4

SIGNS AND SYMPTOMS
• Can occur at any CD4 count, more aggressive at low counts
• Multifocal, firm and purple-to-brown vascular plaques or nodules in the skin or internal organs.
• Can occur in any location but frequently on the face, oral mucous membranes and lower extremities.
• Usually painless
• Can invade lymph nodes and cause limb swelling

TREATMENT
• ART
• Systemic chemotherapy, refer to cancer treatment centre

DIAGNOSIS
From clinical signs and symptoms with confirmation by biopsy pathology and staining for human herpesvirus – 8 (HHV-8).
CRYPTOCOCCAL MENINGITIS
WHO STAGE 4

SIGNS AND SYMPTOMS
- Onset over days to weeks, can be very subtle early in the disease
- Headache, nausea, fever, vomiting
- Confusion, seizures
- Focal neurological signs, especially cranial nerve palsy (note facial droop in photo)
- Usually older child with severe immunocompromise
- May occur as a result of IRIS

TREATMENT
- All patients should be admitted
- Amphotericin B IV for 14 days followed by Fluconazole 12-15mg/kg/day for 8 weeks, then Fluconazole 6-10mg/kg/day secondary prophylaxis
- Therapeutic lumbar punctures may be needed to relieve symptoms of increased intracranial pressure
- ART

DIAGNOSIS
- Culture – of CSF a definite diagnosis
- Cryptococcal antigen test in serum - >95% sensitivity in AIDS. Good marker for HIV associated cryptococcal meningitis
UNEXPLAINED SEVERE MALNUTRITION
WHO STAGE 4

SIGNS AND SYMPTOMS
• Hair discoloration, visible bones, rashes and ulcerations
• Distended abdomen in kwashiorkor.
• Danger signs include:
  - Dehydration
  - Lethargy
  - Hypothermia
  - Jaundice
  - Shock
  - Hypoglycaemia

TREATMENT
• Stabilise before URGENT referral for admission, follow IMCI stabilization.
  - Keep warm
  - Check glucose
  - Treat infection
  - Rehydrate but be cautious not to over hydrate
  - Start ART once stabilised

DIAGNOSIS
• Marasmus: Severe wasting with wt/ht Z score -3 or lower or MUAC < 11.5. Weight for age is often <60% expected.
• Kwashiorkor: Malnutrition with bilateral oedema
RECTO-VAGINAL FISTULA
WHO STAGE 4

SIGNS AND SYMPTOMS
• Flatulence and faeces through the vagina
• There is faecal incontinence

TREATMENT
• Drainage of any abscesses
• Topical antibiotic therapy to treat acute rectovaginal fistulas
• Dietary modification and supplemental fibre can greatly reduce symptoms
• ART if confirmed infected
• Surgical repair once on ART with immunologic improvement

DIAGNOSIS
Clinical signs and symptoms
CYTOMEGALOVIRUS (CMV) INFECTION
WHO STAGE 4

SIGNS AND SYMPTOMS
Depends upon the affected organ. Occurs in setting of severe immunocompromise. May present as:

Retinitis: Blurry vision, perceived flashing lights and progressive vision loss leading to blindness.

Pneumonitis: Severe pneumonia, may co-infect with PCP.

GI Disease: Hepatitis or colonic ulcers with bloody diarrhoea.

TREATMENT

- Only antiviral effective against CMV is gancyclovir.
- Consultation by specialist team at a tertiary hospital
- Referral for dilated eye exam in patients with suspected retinitis.
- ART

DIAGNOSIS
Can be challenging, often clinical findings with supportive laboratory CMV viral tests. CMV testing can confirm infection, but not necessarily that the illness is due to that infection. Consult when needed. CMV disease is Stage 4 if onset occurs in a child older than one month.
HIV ENCEPHALOPATHY
WHO STAGE 4

SIGNS AND SYMPTOMS
Symptoms vary from mild to severe, often begin during infancy if perinatally infected. Developmental monitoring and head circumference measurements for children <2yrs are important to help make the diagnosis.

Motor deficits on exam will be symmetrical, often with increased tone in the legs and progressing to involve the arms in severe cases. Pathological reflexes, ataxia and gait disturbances may be present.

TREATMENT
• Start ART
• Occupational and physical therapist consultation
• Ongoing developmental monitoring
• Social service support for caregivers
• Educational support services for the school-age child

DIAGNOSIS
At least one of the following, progressing over at least two months in the absence of other illness:
• Failure to attain, or loss of, developmental milestones
• Acquired microcephaly, flattening of head circumference curve
• Acquired symmetrical motor deficit

Photo courtesy of the Baylor International Pediatric AIDS Initiative
PNEUMOCYSTIS (PCP) PNEUMONIA
WHO STAGE 4

SIGNS AND SYMPTOMS
Severe pneumonia symptoms:
• Respiratory distress with indrawings
• Rapid breathing
• Fever, may or may not be present
• Poor feeding
• Cyanosis (blue oral mucosa)
Chest may sound clear despite severe respiratory symptoms.

TREATMENT
• Oxygen while awaiting transfer to hospital
• Cotrimoxazole – load immediately with 10mg/kg ivi; continue with 5mg/kg/dose 6 hourly ivi for 5 days. Can change to oral preparation once improved to complete 21 days
• Remember to treat for acute bacterial pneumonia also (Ampicillin and Gentamicin OR Ceftriaxone (Corticosteroids – NO LONGER RECOMMENDED due to possible exacerbation of CMV Pneumonitis co-infection)
• ART

DIAGNOSIS
Requires bronchoalveolar lavage or lung biopsy, often not practical. Suspect in any HIV-infected or exposed child, especially infants, with severe pneumonia symptoms.

CXR: May appear normal, but often shows bilateral perihilar infiltrates. Pneumothorax or pneumo-mediastinum may develop.
CEREBRAL OR B-CELL NON-HODGKIN’S LYMPHOMA
WHO STAGE 4

SIGNS AND SYMPTOMS
Depends upon the cancer location.
Cerebral: Mass lesion causing headache, confusion, focal neurologic deficits. May be similar to toxoplasmosis.
Burkitt’s: Rapidly enlarging lymph node mass, often occurring around the jaw (see picture)
Other lymphoma: Variable. More gradual lymph node enlargement, often with non-specific symptoms of fever, weight loss, fatigue

TREATMENT
• Oncology specialist consultation
• Specialist ART management

DIAGNOSIS
• Central nervous system imaging or biopsy of a relevant specimen.
• Other causes of symptoms (eg. TB) should be considered and ruled out.
PROGRESSIVE MULTIFOCAL LEUKOENCEPHALOPATHY (PML) **WHO STAGE 4**

**SIGNS AND SYMPTOMS**
- Slow in onset
- Speech and vision impairment
- Mental retardation
- Advanced stages – limb paralysis, cortical blindness

**TREATMENT**
- ART is the only effective therapy

**DIAGNOSIS**
- Clinical features
- CSF – to exclude infective causes of presentation e.g. TBM or Cryptococcal Meningitis
- MRI – to make definitive diagnosis

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CENTRAL NERVOUS SYSTEM TOXOPLASMOSIS **WHO STAGE 4**

**SIGNS AND SYMPTOMS**
- Headache
- Confusion and behaviour change
- Focal motor deficits
- Rare in children

**TREATMENT**
- Specific treatments limited, neurology and infectious diseases specialist consultation recommended
- ART
- Refer to rehabilitation therapists

**DIAGNOSIS**
- Neuroimaging shows ring enhancing lesion(s)
- CSF PCR for toxoplasmosis
- Blood and CSF serologies
HIV-ASSOCIATED CARDIOMYOPATHY

WHO STAGE 4

**SIGNS AND SYMPTOMS**
- Failure to thrive
- Tiring on feeds, lethargy
- Signs of cardiac failure:
  - Infants – tachypnoea, tachycardia, low peripheral pulse volume, displaced apex beat, hepatomegaly
  - Older children – as for infants plus pedal oedema, raised JVP

**TREATMENT**
- ART
- Anti-failure therapy including diuretics and low-dose ACE inhibitors; rarely digoxin (only on cardiologists advice)

**DIAGNOSIS**
- Clinical signs and symptoms
- CXR – cardiomegaly
- Echocardiography
- Exclusion of all other causes of cardiomyopathy
HIV-ASSOCIATED NEPHROPATHY
WHO STAGE 4

SIGNS AND SYMPTOMS
• Often asymptomatic
• Once reach nephrotic range (proteinuria >3g/L/day)
  pedal and periorbital oedema, ascites

TREATMENT
• ART
• ACE Inhibitors if >1g/L/day of proteinuria
• Corticosteroids and cyclosporine used only with
  Nephrologists advice

DIAGNOSIS
Presence of nephropathy is supported by:
• Screening urine dipstix: If > 1+ protein or blood –
  exclude UTI (sterile urine-microscopy and culture)
• If UTI excluded – send random urine sample for protein/
  creatinine ratio (pr/cr)
• If abnormal pr/cr (<2yrs - >0.5; >2yrs - >0.2) refer to
  tertiary centre
• If normal – repeat pr/cr in 3 - 6 months
• HIV as a potential cause is often a diagnosis of exclusion
RECURRENT SEVERE BACTERIAL INFECTIONS
WHO STAGE 4

INCLUDES:
• Empyema (pus around lungs)
• Bone and joint infections
• Pyomyositis (muscle infection)
• Meningitis

Does NOT include pneumonia

SIGNS AND SYMPTOMS
• Fever
• Signs and symptoms specific to site of infection
  - Empyema: respiratory distress
  - Bone, joint, muscle: swelling, tenderness, pseudoparalysis, abnormal posture
  - Meningitis: vomiting, neck stiffness, altered level of consciousness

TREATMENT
• Choice of antibiotic and duration will depend on site of infection
• Analgesia and antipyretics
• ART

DIAGNOSIS:
• 2 episodes in 6 months
• Culture specimen from specific site
CHRONIC ISOSPORIASIS
WHO STAGE 4

SIGNS AND SYMPTOMS
- Chronic diarrhoea
- Associated fever, abdominal pain
- Wasting

TREATMENT
- Prevention: hygiene
- Support hydration and nutrition
- Cotrimoxazole – 5mg/kg (TMP) 4 x per day for 10 days followed by lifelong prophylaxis
- Ciprofloxacin – an alternative if allergic to cotrimoxazole
- ART

DIAGNOSIS:
- Clinical course
- Stool microscopy
  - organism seen
  - specifically request
  - send 3 stool samples
CHRONIC CRYPTOSPORIDIOSIS
WHO STAGE 4

SIGNS AND SYMPTOMS
• Severe in those with low CD4 counts
• Diarrhoea > 28 days; secretory; often fulminant
• Accompanying fever, malaise, nausea
• Associated malabsorption common
• Complications:
  - Cholecystitis (jaundiced)
  - Pneumonia

TREATMENT
• Prevention: hygiene
• Maintain hydration and nutrition
• Azithromycin 12mg/kg/day for at least 2 weeks (will need tertiary referral for treatment)
• ART

DIAGNOSIS
• Clinical course
• Stool microscopy
  - organism seen
  - specifically request
  - send 3 stool samples
EXTRA-PULMONARY TUBERCULOSIS
WHO STAGE 4

SIGNS AND SYMPTOMS
REQUIRES HOSPITAL REFERRAL
• Headache, change in activity level, irritability, drowsiness, neck stiffness, convulsions (TB Meningitis)
• Hepatosplenomegaly (Disseminated TB)
• Breathlessness and peripheral oedema (Pericardial effusion or severe respiratory disease and malnutrition)
• Distended abdomen + Ascites (TB Abdomen)
• Angulation of spine (Gibbus/TB Spine) - see picture

TREATMENT
ALWAYS 7 DAYS A WEEK AS DOTS
• All forms of EPTB except TB meningitis and osteoarticular TB – HRZE x 2 months; HR x 4 months
• TB Meningitis and Osteoarticular TB – HRZE x 2 months; HR x 10 months
• Steroids – TB meningitis, TB pericarditis, severe airway obstruction
• ART – to start 2 weeks after initiating TB treatment (see TB/Malaria chapter for guidance)

DIAGNOSIS
• TB Pleural Effusion
• Miliary TB
• TB Meningitis
• Osteo-articular TB
• TB Pericarditis/Pericardial Effusion
• Abdominal TB
• Disseminated TB
• Paediatric HIV is a preventable disease.

• More than 95% of all children are infected with HIV through mother to child transmission (MTCT).

• Significant progress is being made in the global scale-up of prevention of mother-to-child transmission of HIV (PMTCT). For the first time, the elimination of mother-to-child transmission of HIV (MTCT) is now considered a realistic public health goal and an important part of the campaign to achieve the millennium development goals.

• To maximize prevention of HIV transmission and maternal and infant survival, it is critical that care of both the mother and the infant is optimized. The mother’s health is the determining factor in the child’s health and survival. Children born to HIV infected mothers have a 3-5 times higher risk of death regardless of their status.

• A key issue in deciding what ARV regimen to choose for an HIV-infected pregnant woman is whether the ARVs are being provided for treatment of the woman’s HIV disease or solely for prophylaxis of MTCT.

• In the former case, treatment means that ARVs are started during pregnancy and continued throughout life, whereas ARVs given solely for prophylaxis are stopped when the risk of MTCT is no longer present.

• In both cases, effective linkages between PMTCT services and HIV care and treatment programmes are needed.

**KEY MESSAGE:**

*It’s never too late to start PMTCT interventions; late in the pregnancy for mother or after birth for the baby.*
2010 PMTCT WHO RECOMMENDATIONS

ESTABLISH HIV STATUS OF PREGNANT WOMEN

KNOWN HIV INFECTION AND ALREADY RECEIVING ART

Continue on ART

HIV TEST POSITIVE

Determine ART eligibility*

HIV TEST NEGATIVE

NOT ELIGIBLE FOR ART; REQUIRES ARV PROPHYLAXIS

OPTION A: Maternal AZT prophylaxis starting from 14 weeks of gestation

OPTION B: Triple ARV prophylaxis starting from 14 weeks of gestation

CONTINUE ART

sd-NVP AT THE START OF LABOUR AND AZT + 3TC TWICE DAILY ¥

CONTINUE TRIPLE ARV PROPHYLAXIS

BREASTFEEDING OR REPLACEMENT FEEDING

Mothers: Continue ART

Infants: Daily NVP or twice-daily AZT from birth until 4 to 6 weeks of age (irrespective of mode of infant feeding)

BREASTFEEDING

Mothers: Continue AZT + 3TC until 1 week after delivery

Infants: Daily NVP from birth until 1 week after all exposure to breast milk has ended, or, if breastfeeding stops before 6 weeks, for a minimum of 4 to 6 weeks following birth

REPLACEMENT FEEDING ONLY

Mothers: Continue AZT + 3TC until 1 week after delivery

Infants: Daily NVP or sd-NVP plus twice-daily AZT from birth until 4 to 6 weeks of age

BREASTFEEDING

Mothers: Continue triple ARV prophylaxis until 1 week after complete cessation of breastfeeding***

Infants: Daily NVP or twice-daily AZT from birth until 4 to 6 weeks of age

REPLACEMENT FEEDING ONLY

Mothers: None

Infants: Daily NVP or twice-daily AZT from birth or as soon as feasible until 4 to 6 weeks of age

* Start ARV prophylaxis while waiting to determine ART eligibility.
** Avoid use of EFV in first trimester; use NVP instead.
*** When stopping any NNRTI-based regimen, stop the NNRTI first and continue the two NRTIs for 7 days and then stop them to reduce the chance of NNRTI resistance
¥ If AZT was taken for at least the last 4 weeks before delivery, omission of the maternal sd-NVP and accompanying tail (AZT + 3TC) can be considered. In this case, continue maternal AZT twice daily during labour and stop at delivery.

MATERNAL AND INFANT ARV PROPHYLAXIS TO PREVENT MTCT FOR HIV-INFECTED PREGNANT WOMEN WHO DO NOT NEED TREATMENT FOR THEIR OWN HEALTH*

* Mothers need treatment for their own health if clinical stage 3 or 4 or CD4 <350

Eligibility for ARV prophylaxis
HIV-infected pregnant women who are not in need of ART for their own health require effective ARV prophylaxis to prevent HIV infection in their infants. ARV prophylaxis should be started from as early as 14 weeks of gestation (second trimester) or as soon as feasible during pregnancy, labour and delivery or thereafter.

What ARV prophylaxis regimen to give women and their infants
Two options are recommended for HIV-infected pregnant women who are not eligible for ART: option A is maternal AZT + infant ARV prophylaxis; option B is maternal triple ARV prophylaxis.

Option A: maternal AZT + infant ARV prophylaxis
For HIV-infected pregnant women who are not in need of ART for their own health, ARV prophylaxis option A consists of antepartum twice-daily AZT, plus sd-NVP at the onset of labour 1, plus twice-daily AZT + 3TC during labour and delivery and continued for 7 days postpartum.

In breastfeeding infants, daily administration of NVP to the infant from birth until 1 week after all exposure to breast milk has ended, or for 4 to 6 weeks if breastfeeding stops before 6 weeks (but at least 1 week after the early cessation of breastfeeding), is recommended.

In infants receiving only replacement feeding, daily administration of NVP from birth or sd-NVP at birth plus twice-daily AZT from birth until 4 to 6 weeks of age is recommended.

Option B: maternal triple ARV prophylaxis + infant ARV prophylaxis
For HIV-infected pregnant women who are not eligible for ART for their own health, ARV prophylaxis option B consists of antepartum daily triple ARV prophylaxis until delivery, or, if breastfeeding, until 1 week after all exposure to breast milk has ended. Recommended regimens include AZT + 3TC + LPV/r, AZT + 3TC + ABC, AZT + 3TC + EFV, or TDF + 3TC (or FTC) + EFV.

In infants, regardless of infant feeding practices (breastfeeding or replacement feeding), the maternal triple ARV prophylaxis should be combined with the daily administration of NVP or twice-daily AZT to the infant from birth until 4 to 6 weeks of age.

---

1 sd-NVP and the AZT + 3TC intrapartum and postpartum tail can be omitted if the mother received more than 4 weeks of AZT during pregnancy; in this case continue maternal AZT twice daily during labour and stop at delivery.
COTRIMOXAZOLE PROPHYLAXIS

• To reduce the risk of pneumocystis pneumonia (PCP), all HIV-infected and HIV-exposed infants must receive cotrimoxazole prophylaxis from six weeks of age.
• Cotrimoxazole must be continued, unless the child is proven to be HIV negative.
• Cotrimoxazole may be stopped in children on ART who are over one year of age and where there is evidence that the immune system is functioning well.
• In order to stop cotrimoxazole, the child must have two CD4 counts greater than 15% or 500 cells/mm³, taken at least three months apart.
• HIV infected child with previous PCP pneumonia should only stop cotrimoxazole prophylaxis if age 5 years or older and if two CD4 counts greater than 15% or 500 cells/mm³, taken at least three months apart.
• See dosing table page 136
HIV EXPOSED INFANT*

- Start CTX at age 4-6 weeks. Continue until HIV infection is ruled out.

VIROLOGICAL TEST TO CONFIRM HIV AVAILABLE?

- Yes: Continue CTX until confirmatory HIV antibody test at 18 months of age.
- No: Stop CTX if infant is no longer breastfed and has not been breastfed in the past 6 weeks.

IN INFANT OR CHILD WITH CONFIRMED HIV INFECTION

- <24 MONTHS OF AGE
  - Start CTX prophylaxis
- 2-5 YEARS
  - CD4 TEST AVAILABLE?
    - Yes: Follow management guidelines for child with confirmed HIV infection.
    - No: Discontinue CTX prophylaxis if:
      - Stevens-Johnson syndrome
      - Severe liver disease
      - Severe anaemia
      - Severe pancytopenia
      - Negative HIV status
- ≥5 YEARS
  - CD4 TEST AVAILABLE?
    - Yes: Start CTX prophylaxis
    - No: Discontinue CTX prophylaxis if:
      - Stevens-Johnson syndrome
      - Severe liver disease
      - Severe anaemia
      - Severe pancytopenia
      - Negative HIV status

Indications for Cotrimoxazole (CTX) Prophylaxis

- Yes: Start CTX prophylaxis
- No: Discontinue CTX prophylaxis

Universal option for CTX prophylaxis may be considered in settings such as in TB programmes with high prevalence of HIV and limited health infrastructure.

* An infant born to a mother infected with HIV and exposed to HIV during pregnancy, children or breastfeeding.

Contraindications to cotrimoxazole include:
- Sulpha allergy
- Severe liver disease
- Severe renal insufficiency

Discontinue CTX prophylaxis if:
- Stevens-Johnson syndrome
- Severe liver disease
- Severe anaemia
- Severe pancytopenia
- Negative HIV status
# COTRIMOXAZOLE DOSE FOR PROPHYLAXIS

<table>
<thead>
<tr>
<th>AGE OR WEIGHT OF CHILD</th>
<th>DOSE</th>
<th>SUSPENSION 5ML 200MG SMX 40MG TMP</th>
<th>SINGLE STRENGTH TABLET 400MG SMX 80MG TMP</th>
<th>DOUBLE STRENGTH TABLET 800MG SMX 160MG TMP</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; 6 months or &lt; 5 kg</td>
<td>100mg SMX/20mg TMP</td>
<td>2.5ml</td>
<td>¼ tablet</td>
<td>—</td>
</tr>
<tr>
<td>6 months - 5 years or 5 – 15 kg</td>
<td>200mg SMX/40mg TMP</td>
<td>5ml</td>
<td>½ tablet</td>
<td>—</td>
</tr>
<tr>
<td>6 – 14 years or 15 - 30kg</td>
<td>400mg SMX/80mg TMP</td>
<td>10ml</td>
<td>1 tablet</td>
<td>½ tablet</td>
</tr>
<tr>
<td>&gt;14 years or &gt; 30kg</td>
<td>800mg SMX/160mg TMP</td>
<td>—</td>
<td>2 tablets</td>
<td>1 tablet</td>
</tr>
</tbody>
</table>
TB/MALARIA
Children living with HIV are at high risk for developing tuberculosis (TB). In many parts of Africa, the TB and HIV epidemics go hand-in-hand. Therefore, it is essential that a child’s HIV status be investigated at the time of TB diagnosis and conversely, TB screening be performed routinely as a part of chronic HIV care.

TB is also the most common cause of the Immune Reconstitution Inflammatory Syndrome (IRIS) among children recently started on ART in TB-endemic areas. This can be avoided by starting TB treatment prior to ART initiation among those screened and diagnosed with TB.

**KEY MESSAGE:**

*Children become infected with TB from adults, therefore a paediatric case must prompt investigation and treatment of adult contacts.*

In screening for TB, healthcare workers must keep in mind that TB can infect many different organs or produce a sepsis-like illness as in miliary TB. Therefore, the prominent symptoms may vary depending upon TB disease location, such as pulmonary, lymph node or meningitis. Children may not present with the classic symptoms associated with adult TB, such as night sweats and bloody sputum. It is for this reason that TB symptom score cards have not been well validated in children as compared to adults.

**KEY MESSAGE:**

*At every contact with an HIV-infected child enquire about new TB contacts and new TB symptoms.*

TB Definitions:
• **TB exposure:** A child comes into close contact with an infectious TB patient. The child may have a positive tuberculin skin test (TST), but a positive TST is not necessary to prove exposure.
• **TB infection:** The child inhales the aerosol droplet containing the TB organism. TB infection is usually indicated by a positive TST; however, there are limitations to the test. Children with M. tuberculosis infection, but without active disease, are not ill and do not have symptoms suspicious of TB.
• **TB disease:** A small percentage of children who inhale the TB organism develop TB disease and become ill; certain groups are at far greater risk than others, including very young children and those with immune system abnormalities (e.g. from HIV or severe malnutrition).

**TB SCREENING**

**History and physical examination**
• Has the child had close contact with someone diagnosed with tuberculosis?
• Has the child had any household contact with TB symptoms (e.g. cough for more than 2 weeks, weight loss, fever, night sweats)?
• Does the child have any symptoms?
• Indications requiring hospitalization/referral:
  - Severe forms of PTB and EPTB for further investigation and initial management
  - Severe malnutrition for nutritional rehabilitation
  - Signs of severe pneumonia (i.e. chest in-drawing) or respiratory distress
  - Other co-morbidities eg. severe anaemia
• Referral should also be considered if:
  - Diagnostic uncertainty requiring further investigation at referral level
  - Necessary for HIV-related care e.g. to commence ART
• There are no specific features on clinical examination that can confirm TB.
  - Weight faltering, especially after implementing nutritional interventions, is a good indicator of chronic disease in children, of which TB may be the cause.
  - A painless, enlarged mass of matted lymph nodes in the neck, without a visible local cause on the scalp, and which does not respond to a course of antibiotics, is highly suggestive of TB cervical adenitis.
• Some signs, although uncommon, are highly suggestive of extrapulmonary TB (TB outside the lungs). Many other abnormalities can indicate extrapulmonary TB, including those consistent with meningitis, pleural effusion, ascites and a non-painful enlarged joint.

**Tuberculin Skin Test (TST)**
• The TST may be used as a screening test in order to evaluate whether a patient has had prior infection with M. tuberculosis.
• A negative result never rules out M. tuberculosis infection completely, especially in HIV infected patients.
• The Mantoux test is the preferred TST. It measures the delayed hypersensitivity response to purified protein derivative (PPD), also known as tuberculin.
TB DIAGNOSIS

When TB screening suggests possible infection, further diagnostic investigations are often indicated in children. These may include:

- Gastric aspirates for younger children
- Expectorated or induced sputum for microscopy and culture. Typically at around age 8 years a child may be able to produce a quality expectorated sputum sample
- Microscopy and culture of other body fluids or biopsy specimen as indicated
- X-ray or ultrasound
- Drug sensitivities on cultures when an MDR or XDR contact is suspected

**STRICT SYMPTOM CRITERIA FOR TB SCREENING IN CHILDREN**

- Persistent, non-remitting cough or wheeze for more than 2 weeks not responding to standard therapy
- Documented loss of weight or failure to thrive during the past 3 months especially if not responding to food and/or micronutrient supplementation, OR severe malnutrition
- Fatigue/reduced playfulness
- Persistent fever > 10 days

*Two or more of these symptoms are highly suggestive of TB disease*
Our children are watching us live and what we are shouts louder than anything we can say.

Wilfred Peterson
DOCUMENTED TB EXPOSURE, AGE AND HIV STATUS OF CHILD

ANY CURRENT SYMPTOMS SUSPICIOUS OF TB?
cough, wheeze, fever, lethargy, fatigue, weight loss, neck swelling

NO

<5YRS OR HIV-INFECTED IPT FOR 6 MONTHS

5YRS AND HIV-UNINFECTED NO IPT

IF TYPICAL SYMPTOMS DEVELOP

REMAINS WELL

Complete 6 months of IPT

YES

DOES IT MEET STRICT SYMPTOM CRITERIA? (SEE PAGE 139)
Note: If indicated - then hospitalize/refer

Follow-up after 2-3 weeks. Persistent non-remitting symptoms?

TREAT FOR TB

• Regular follow-up
• Refer if poor response to therapy after 2 months of taking TB treatment

** Close contact** is defined as living in the same household as, or in frequent contact with (e.g. child minder, school staff), a source case with PTB.
GUIDANCE FOR THE DIAGNOSIS OF CHILDREN WHO PRESENT WITH SYMPTOMS SUGGESTIVE OF TB

**PRESENT WITH SYMPTOMS SUGGESTIVE OF TB?**

**SPUTUM SMEAR-NEGATIVE OR NOT DONE**

- **DO THE SYMPTOMS MEET STRICT SYMPTOM CRITERIA (PG 139)**
  - HAS HIV TEST BEEN DONE?
    - **NO**
      - Follow up after 1-2 weeks Persistent non-remitting symptoms?
    - **YES**
      - Follow clinically

**SPUTUM SMEAR-POSITIVE**

- **DOCUMENTED TB CONTACT IN THE PRECEDING YEAR?**
  - **NO**
    - Follow up after 1-2 weeks Persistent non-remitting symptoms?
  - **YES**
    - Treat for TB

**TREAT FOR TB**

- **YES**
  - Regular follow-up
  - Refer if poor response to therapy after 2 months

**NO**

- Consider other diagnosis
- Follow up after 1-2 weeks until symptom resolution
- Refer if symptoms persist
STEPS TO PLACING AND READING
THE TUBERCULIN SKIN TEST

1. ADMINISTRATION
For each patient, conduct a risk assessment that takes into consideration recent exposure, clinical conditions that increase risk for TB disease if infected, and the program’s capacity to deliver treatment for latent TB infection to determine if the skin test should be administered.

1. LOCATE AND CLEAN INJECTION SITE
- Place forearm palm side up on a firm, well-lit surface
- Select an area free of barriers (e.g. scars, sores) to placing and reading
- Clean the area with an alcohol swab

2. PREPARE SYRINGE
- Check expiration date on vial and ensure vial contains tuberculin (5 TU per 0.1 ml)
- Use a single-dose tuberculin syringe with a ¼- to ½-inch, 27-gauge needle with a short bevel
- Fill the syringe with 0.1 ml of tuberculin
3. **INJECT TUBERCULIN**
- Insert slowly, bevel up, at a 5 - 15 degree angle
- Needle bevel can be seen just below skin surface
- After injection, a tense, pale wheal should appear over the needle

4. **CHECK SKIN TEST**
- Wheal should be 6 to 10 mm in diameter.
  If not, repeat test at a site at least 2 inches away from original site

5. **RECORD INFORMATION**
- Record all the information required for documentation by your institution (e.g., date and time of test administration, injection site location, lot number of tuberculin)
2. READING
The skin test should be read between 48 and 72 hours after administration. A patient who does not return within 72 hours will probably need to be rescheduled for another skin test.

1. INSPECT SITE
- Visually inspect site under good light

2. PALPATE INDURATION
- Use fingertips to find margins of induration

3. MARK INDURATION
- Use fingertip as a guide for marking widest edges of induration across forearm

4. MEASURE INDURATION (NOT ERYTHEMA)
- Place “0” ruler line inside left dot edge
- Read ruler line inside right dot edge (use lower measurement if between two gradations on mm scale)

5. RECORD MEASUREMENT OF INDURATION IN mm
- If no induration, record as 0 mm
- Do not record as “positive” or “negative”
- Only record measurement in mm
## INTERPRETATION OF
### PPD/ MANTOUX / TST

<table>
<thead>
<tr>
<th>Mantoux</th>
<th>PREVIOUS BCG</th>
<th>NO BCG</th>
<th>HIV POSITIVE</th>
</tr>
</thead>
<tbody>
<tr>
<td>≥ 10 mm</td>
<td>≥ 10 mm</td>
<td></td>
<td>≥ 5mm</td>
</tr>
</tbody>
</table>

**Note:**
- A positive TST denotes TB infection not necessarily TB disease but in HIV positive patients it is more likely TB disease.
- Any measurement equal to or above 5 mm in a HIV positive child denotes TB infection.
- A negative TST does not exclude TB – false negative causes could include:
  - Acute viral infection eg. Measles
  - Recent immunisation with live attenuated vaccines
  - Overwhelming TB infection
  - Incorrect PPD technique
  - Immunosuppressive therapies
  - HIV infection
  - Malnutrition
**TB TREATMENT**

Once the decision is made to treat a patient for TB, the entire regimen duration must be completed in order to achieve a cure. Direct observed therapy is the standard approach. Caregivers should receive accurate and detailed information about the course of treatment and possibility of other family members requiring investigations. Healthcare workers should never use a “trial” of TB medication as a means to assist a difficult diagnosis.

### Recommended treatment regimens for the new patient in HIV endemic setting (WHO, 2010)

<table>
<thead>
<tr>
<th>TB DISEASE CATAGORY</th>
<th>RECOMMENDED REGIMEN</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>INTENSIVE PHASE</td>
</tr>
<tr>
<td>All forms of PTB and EPTB except TBM and osteoarticular TB</td>
<td>2 HRZE</td>
</tr>
<tr>
<td>TB meningitis</td>
<td>2 HRZE</td>
</tr>
<tr>
<td>Osteoarticular TB</td>
<td></td>
</tr>
</tbody>
</table>

**H**=isoniazid  **R**=rifampicin  **Z**=pyrazinamide  **E**=ethambutol

Numeral refers to number of months of the regimen e.g. 2 HRZE refers to two months of daily isoniazid, rifampicin, pyrazinamide and ethambutol.

**NOTE:**
- Streptomycin no longer recommended for new patients
- Intermittent regimens not recommended in HIV endemic setting

### Recommended dosages according to weight (WHO, 2010)

<table>
<thead>
<tr>
<th>DRUG</th>
<th>DAILY DOSAGE IN mg/kg RANGE (MAXIMUM)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Isoniazid (H)</td>
<td>10 - 15 (300 mg)</td>
</tr>
<tr>
<td>Rifampicin (R)</td>
<td>10 - 20 (600 mg)</td>
</tr>
<tr>
<td>Pyrazinamide (Z)</td>
<td>30 - 40 (2000 mg)</td>
</tr>
<tr>
<td>Ethambutol (E)</td>
<td>15 - 25 (1200 mg)</td>
</tr>
</tbody>
</table>
**ADDITIONAL TREATMENT CONSIDERATIONS**

- Give paracetamol or tilidine to all children with meningitis for relief of headache
  (See pain management below)
- All HIV-infected children should receive pyridoxine if they are on TB treatment:
  - < 5 years 12.5 mg daily
  - > 5 years 25 mg daily
- HIV infected children may need to be treated for TB for longer than 6 months if they do not respond well to treatment.
  - In these children MDR and XDR TB must also be considered
- All HIV-infected children (on or off ART) on treatment for tuberculosis should receive prophylactic co-trimoxazole (at least until CD4-count is >25%)

**TB PROPHYLAXIS**

**WHO Recommendations for Isoniazid preventive therapy (IPT):**

- All HIV-infected infants and children exposed to TB through household contacts, but with no evidence of active disease, should begin IPT.
- Children living with HIV (> 12 months of age and including those previously treated for TB), who do not have signs or symptoms of active TB and are not known to be exposed to TB, should receive 6 months of IPT as part of a comprehensive package of HIV care.
- Infants living with HIV, who are unlikely to have active TB and are not known to be exposed, should not receive IPT as part of a comprehensive package of HIV care

**KEY MESSAGE:**

*All children with HIV infection, irrespective of age, are at high-risk of developing TB disease following exposure to a contact. They require a 6 month course of IPT after EVERY documented exposure to TB, regardless of how recently they completed a previous course of IPT or TB treatment.*

**Simplified, weight-based dosing for isoniazid 10mg/kg/day**

<table>
<thead>
<tr>
<th>WEIGHT RANGE (kg)</th>
<th>NUMBER OF 100 mg TABLETS OF INH TO BE ADMINISTERED PER DOSE</th>
<th>DOSE GIVEN (mg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;5</td>
<td>½ tablet</td>
<td>50</td>
</tr>
<tr>
<td>5.1 – 9.9</td>
<td>1 tablet</td>
<td>100</td>
</tr>
<tr>
<td>10 – 13.9</td>
<td>1 ½ tablet</td>
<td>150</td>
</tr>
<tr>
<td>14 – 19.9</td>
<td>2 tablets</td>
<td>200</td>
</tr>
<tr>
<td>20 – 24.9</td>
<td>2 ½ tablets</td>
<td>250</td>
</tr>
<tr>
<td>&gt;25</td>
<td>3 tablets or one adult tablet</td>
<td>300</td>
</tr>
</tbody>
</table>
**ANTIRETROVIRAL THERAPY IN TB-HIV CO-INFECTED CHILDREN**

All HIV-infected children with any form of TB are eligible for ART if they are not already receiving it.

Successful TB treatment relies on rifampicin being included in a multi-drug regimen. Rifampicin however interferes with the metabolism of many ARVs, and speeds up the breakdown of especially lopinavir, efavirenz and nevirapine.

Adjustments therefore need to be made to ARV regimens and doses while TB treatment is being given.

**Principles of TB-HIV co-infection treatment:**

- TB Treatment takes preference and must be started immediately at diagnosis.
- ART, if not already received, should be commenced 2 weeks after starting TB treatment. Delaying ART in the presence of TB worsens the outcome.
- When using an EFV or NVP containing regimen, the doses do not need to be increased but it is important that the appropriate weight-based dose adjustments are made to maintain therapeutic levels.
- LPV/r is formulated in a 4:1 ratio. When using LPV/r in the presence of TB treatment, additional RTV must be added to the LPV/r to achieve a 1:1 ratio of LPV:RTV. This is achieved by adding 0.75mls of RTV syrup for every 1 ml of LPV/r syrup given.
- Be aware of overlapping side-effects of drugs and the potential of IRIS.
- Review TB-HIV co-infected children at 2 weeks and 4 weeks following commencement of anti-TB treatment and then monthly thereafter.

**Choice of ART Regimen:**

The choice of ART regimen to use will be determined by the age of the child, previous NNRTI exposure through vertical transmission prevention efforts and locally available drugs.

<table>
<thead>
<tr>
<th></th>
<th>ART REGIMEN</th>
<th>CONDITIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Under 3 years of age</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No NNRTI Exposure</td>
<td>2 NRTI’s + NVP</td>
<td>NVP should be commenced at full dose, foregoing dose-escalation. NVP to be kept at upper end of dosing range. Must include ABC.</td>
</tr>
<tr>
<td></td>
<td>3 NRTI’s</td>
<td></td>
</tr>
<tr>
<td><strong>Under 3 years of age</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Previous NNRTI Exposure</td>
<td>2 NRTI’s + Super-boosted PI</td>
<td>Equivalent amounts of LPV and RTV (1:1) until 2 weeks after completion of RMP.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3 years and older AND 10 kg’s and above</td>
<td>2 NRTI’s + EFV</td>
<td>No dose adjustment of EFV required</td>
</tr>
</tbody>
</table>
**BCG DISEASE**

In TB-endemic areas the BCG immunization is given at birth to all infants regardless of HIV exposure. However, there should be close follow-up of infants known to be born to HIV-infected mothers who receive BCG at birth in order to provide early identification and treatment of any BCG complication.

**BCG disease** occurs mostly in severely immunocompromised infants. Early ART can prevent this disease process from occurring. BCG disease requires multi-drug treatment in addition to ART. See figures 1 and 2 for diagnosis and management guidance.

**BCG IRIS** is different from BCG disease and occurs during immune reconstitution in an HIV-infected child within 3 months of initiation of ART and usually does not require additional treatment as for BCG disease.

**Diagnostic Evaluation & Management**

The diagnostic work-up and management of BCG disease is not extensively covered in recent international guidelines, therefore consultation with specialists is recommended. Paediatric infectious disease specialists have developed the following to assist providers:

---

**Figure 1:**

**Diagnostic guidance for BCG disease in children**

**Suspected BCG disease**

- All children < 2 years with right-sided local or regional lesions that may indicate BCG disease
- In immunocompromised children, a high index of suspicion for primary distant or disseminated BCG disease should be maintained, even in the absence of local or regional BCG disease. Systemic symptoms may include fever of unknown origin

**Suggested diagnostic work-up**

**A. All children**

- Full history and clinical assessment, including detailed assessment of local and regional BCG lesions
- Fine needle aspirate for mycobacteria culture
- HIV testing

**B. All HIV-infected children or other suspected/proven immuno-deficiency**

- Chest radiography (antero-posterior and lateral)
- Minimum 2 gastric washings for mycobacterial culture
- Mycobacterial blood culture if febrile
- CD4 + T lymphocyte count and viral load, if applicable and not done in prior 2 months
- Full blood and differential count
- Baseline liver function tests for monitoring of toxicity
- Refer to infectious diseases service

**C. Additional investigations for HIV-related and other immuno-deficiencies with suspected distant or disseminated BCG disease**

As in A and B and:

- Bone marrow aspirate/biopsy for mycobacterial culture
- Mycobacterial blood culture (even if afebrile)
- Abdominal ultrasound for intra-abdominal lymphadenopathy
- Radiography if osteitis is suspected
- Other systemic investigations as clinically indicated

**BCG confirmation:** *M. bovis* BCG confirmed by molecular or culture and biochemical methods.
**Suspected or confirmed BCG disease**

**Suspected BCG disease:** All children < 2 years with right-sided local or regional lesions that may indicate BCG disease.

In immunocompromised children, a high index of suspicion for primary distant or disseminated BCG disease should be maintained, even in the absence of local or regional BCG disease. Systemic symptoms may include fever of unknown origin.

**Confirmed BCG disease:** BCG confirmation: M. bovis BCG confirmed by molecular or culture and biochemical methods.

---

**HIV-uninfected children**

**A. Local or regional disease**
- Observe
- Consider therapeutic aspiration or excision biopsy in the following: fluctuant node or abscess, persistent, rapidly enlarging node or fistula formation, or in the presence of a large injection site abscess
- Report as vaccine-related adverse event to EPI

**B. Suspected or confirmed distant or disseminated disease**
Treat medically:
- Isoniazid 15 - 20 mg/kg/day
- Rifampicin 20 mg/kg/day
- Pyrazinamide 20 - 25 mg/kg/day (2 months, or until tuberculosis excluded)
- Ethambutol 20 - 25 mg/kg/day
- Ofloxacin 15 mg/kg/day or Ciprofloxacin 30 mg/kg/day
- Refer to infectious diseases and immunology service: screen immune function
- Monitor for drug toxicity
- Report as vaccine-related adverse event to EPI

---

**HIV-infected children or immunocompromised children**

**A. Local or regional disease**
Treat medically:
- Isoniazid 15 - 20 mg/kg/day
- Rifampicin 20 mg/kg/day
- Pyrazinamide 20 - 25 mg/kg/day (2 months, or until tuberculosis excluded)
- Ethambutol 20 - 25 mg/kg/day
- Ofloxacin 15 mg/kg/day or Ciprofloxacin 30 mg/kg/day
- Consider therapeutic aspiration if node fluctuant
- 2 - 4 weekly follow-up: if no improvement, or deterioration of adenitis after 6 weeks antituberculosis therapy, consider excision biopsy
- If on HAART, ensure HAART is antituberculosis-drug compatible
- Refer to infectious disease service
- Monitor for drug toxicity
- Report as vaccine-related adverse event to EPI

**B. Suspected or confirmed distant or disseminated disease**
- Treat medically as above
- Consider expedited initiation of HAART
- Monitor for drug toxicity
- Report as vaccine-related adverse event to EPI

**C. Local or regional disease not conforming to EPI criteria regional CG IRIS with no suspected dissemination**
- Observe, follow regularly for progression
- Report as vaccine-related adverse event if progression to EPI case definition

---

**Source:** Hesseling, AC; et al. Bacille Calmette-Guerin Vaccine-Induced Disease in HIV-Infected and HIV-Uninfected Children. Clinical Infectious Diseases, 42, 548-58, 2006.
Hugs can do great amounts of good, especially for children.
Princess Diana
Malaria Diagnosis & Treatment Tool for Primary Care

August 2011
In areas with high transmission, malaria is a major cause of death in children. Malaria is a vector-borne disease transmitted by the bite of an infected female Anopheles mosquito. The disease is caused by Plasmodium species, which are protozoa that infect human red blood cells. Malaria is a complex disease with multiple stages in the parasite's life cycle, including asexual and sexual reproduction in the mosquito and human hosts. The disease can cause a range of symptoms, from mild to severe, including fever, chills, headache, muscle pain, and gastrointestinal symptoms. Early diagnosis and treatment are crucial in managing malaria, as delayed treatment can lead to severe complications and death. In this section, we will discuss the different stages of the disease, diagnostic tests, and treatment options for both uncomplicated and severe malaria.

### Introduction

Malaria is a major global health problem, particularly in sub-Saharan Africa, where it is the leading cause of death in children under five years old. The disease is transmitted by Anopheles mosquitoes, and the parasites that cause malaria belong to the Plasmodium genus. There are four species of Plasmodium that infect humans: P. falciparum, P. vivax, P. ovale, and P. malariae. Each species has different transmission cycles and clinical manifestations.

#### Newborns

- Test malaria before treatment.
- Test malaria before treatment.
- Test malaria before treatment.
- Test malaria before treatment.

#### Healthcare Workers

- Check malaria diagnosis.
- Check malaria diagnosis.
- Check malaria diagnosis.
- Check malaria diagnosis.

#### Those Residing in Malarious Regions

- Check malaria diagnosis.
- Check malaria diagnosis.
- Check malaria diagnosis.
- Check malaria diagnosis.

### Treatment of Uncomplicated Malaria

- **Rapid Diagnostic Test (RDT):** Use RDT to detect the presence of Plasmodium in the blood.
- **Blood Smear:** Examine blood to confirm the presence of malaria parasites.
- **Patient Counseling & Malaria Health Talk:** Educate patients about malaria prevention and treatment.

#### Malaria Parasite Lifecycle

1. **Infecting the Mosquito:** Anopheles mosquito bites an infected human and ingests the Plasmodium parasites in the blood.
2. **Development in the Mosquito:** The parasites multiply in the mosquito's body and become infective to humans.
3. **Infecting the Human:** Anopheles mosquito bites a human and transmits the parasites to a new host.
4. **Development in the Human:** The parasites develop in the human body and cause fever, chills, and other symptoms.
5. **Transmission to the Mosquito:** The infected mosquito bites another human, completing the life cycle.

### Differential Diagnosis of Fever

- **Malaria:** Characterized by episodes of fever, chills, and sweating.
- **Other Parasitic Infections:** Such as typhoid fever, leptospirosis, and brucellosis.
- **Infectious Diseases:**如 tuberculosis, typhoid fever, and leishmaniasis.
- **Inflammatory Conditions:**如 rheumatoid arthritis, lupus, and gout.

### Malaria Parasite Lifecycle

1. **Infecting the Mosquito:** Anopheles mosquito bites an infected human and ingests the Plasmodium parasites in the blood.
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### Malaria Case Management

- **Patient Counseling & Malaria Health Talk:** Educate patients about malaria prevention and treatment.
- **Rapid Diagnostic Test (RDT):** Use RDT to detect the presence of Plasmodium in the blood.
- **Blood Smear:** Examine blood to confirm the presence of malaria parasites.
- **Patient Counseling & Malaria Health Talk:** Educate patients about malaria prevention and treatment.

### Conclusion

Malaria is a preventable and treatable disease. Integrated approaches that include vector control, prompt diagnosis, and effective treatment can significantly reduce malaria incidence and mortality. Surveillance and early detection are crucial in managing malaria, as timely intervention can prevent severe complications and death. In areas with high transmission, malaria is a major cause of death in children. Continued efforts are needed to eliminate malaria as a public health problem globally.
The Lifecycle of the Parasite Inside the Human Body

1. Plasmodium-infected mosquito (A) bites a person, injecting sporozoites into the bloodstream, which migrate to the liver.
2. In the liver, the sporozoites mature into merozoites and multiply. Thousands of merozoites are released into the bloodstream.
3. Once in the bloodstream, the merozoites penetrate the red blood cells and undergo maturation (first into trophozoits and then into schizoids) and multiplication. This causes the red blood cells to burst, releasing merozoites into the bloodstream, which can then infect other red blood cells. Fever is associated with the bursting of the red blood cell.
4. Some merozoites, however, develop into sexual forms called gametocytes. At this stage, mosquito (B) can become infected if it bites this person and sucks up blood containing gametocytes.
5. Inside the gut of the mosquito, the gametocytes go through a sexual cycle resulting in a zygote.
6. The zygote penetrates the gut wall and develops into an oocyst.
7. Within the oocyst, repeated division takes place giving rise to sporozoites. This causes the oocyst to rupture, allowing the sporozoites to migrate to the salivary glands of mosquito (B).
8. Here, sporozoites mature and are transmitted to another person the next time the mosquito bites.

The Lifecycle of the Parasite Inside the Mosquito

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6. The zygote penetrates the gut wall and develops into an oocyst.
7. Within the oocyst, repeated division takes place giving rise to sporozoites. This causes the oocyst to rupture, allowing the sporozoites to migrate to the salivary glands of mosquito (B).
8. Here, sporozoites mature and are transmitted to another person the next time the mosquito bites.

Symptoms of Malaria

Note that patients are asymptomatic during the liver stage (steps 1 and 2). Symptoms of malaria appear during the blood stage (step 3) which generally occurs 1-3 weeks after being bitten by an infected mosquito.
Test Before You Treat!

Clinical diagnosis is highly inaccurate because the signs and symptoms of malaria are non-specific. Therefore, when malaria is suspected, confirm with RDT or microscopy. Treatment solely on the basis of clinical suspicion should be considered only when a parasitological diagnosis is not accessible.

When assessing the patient, also consider:

• Travel History
• Travel to At-Risk areas
• Timing of Travel
• Seasonality of Transmission
• Exposure to Vectors

Also consider:

- Exams:
  - Fever
  - Chills
  - Nausea
  - Vomiting
  - Rash
  - Rash History

- Lab Tests:
  - Blood Smears
  - Parasitological Diagnosis

Signs & Symptoms of Uncomplicated Malaria

- Chills
- Headache
- Muscular pain
- Joint pain
- Malaise
- Myalgia
- Nausea
- Vomiting
- Diarrhoea
- Abdominal pain
- Weight loss
- Anaemia (Conjunctiva and Nail Beds Demonstrate Pallor)
- Gastrointestinal symptoms
- CNS symptoms
- Psychiatric symptoms

Introduction to Malaria

Elimination Campaign

Treatment of Uncomplicated Malaria

Treatment of Severe & Complicated Malaria

Rapid Diagnostic Test (RDT)

Blood Smear & Dry Blood Spot (DBS)

Administration & Management

Patient Counselling

Malaria Health Talks

Inventory Management

Sample Transport

Reporting

Malaria Parasite Lifecycle

Parasitological Diagnosis of Malaria

Differential Diagnosis of Fever

Signs & Symptoms of Severe & Complicated Malaria
Be Mindful of Viral and HIV Induced Opportunistic Infections

Many fevers are a symptom of viral illnesses, or in the case of HIV, opportunistic infections. Opportunistic infections due to HIV should be considered at all times.

Use all opportunities to offer testing for HIV.
If the patient has fever or history of fever in the past 48 hours and the answer to any of these questions is yes, the patient has severe febrile illness, possibly severe and complicated malaria.

Patient with signs of severe disease should be referred to a hospital or health center urgently.

Whenever malaria is suspected, health care workers must assess patient for signs of severe and complicated malaria.

**Ask, Listen, Look, Feel**

- Has the patient got a fever or had a history of fever in the last 48 hours?
- Is the patient able to drink?
- Has the patient had convulsions (fits)?
- Does the patient vomit repeatedly?
- How much urine does the patient pass?
  - Very little?
  - None at all?
  - Is it dark?

**Look, Listen, Feel**

- Is the patient abnormally sleepy, finds it difficult to wake up, or is confused?
- Is the patient unresponsive to pain (coma)?
- Does the patient have shortness of breath or difficulty breathing (respiratory distress or signs of pulmonary oedema)?
- Does the patient have a weak rapid pulse?
- Does the patient have severe anaemia (paleness of lower eyelids, palms, and tongue)?
- Does the patient have yellow eyes (jaundice)?
- Does the patient have severe dehydration (loss of skin elasticity, dry mouth, sunken eyes)?
- Has the patient lost a lot of weight?
- Is the patient bleeding with no known cause?
- Is the patient unable to stand or sit?

**Signs & Symptoms of Severe & Complicated Malaria Indicating Need for Immediate Referral**

- Fever or history of fever in the past 48 hours
- Any fever, coma, bulging fontanelle, or stiff neck in areas of high malaria transmission

- Severe illness
  - Fever
  - Convulsions or coma
  - Difficulty breathing
  - Weak rapid pulse
  - Severe anaemia
  - Jaundice
  - Severe dehydration
  - Shock

- Urgent pre-referral treatment and referral is required.

- The patient’s life is in danger. Urgent treatment is needed to save the patient’s life.
Signs & Symptoms of Severe & Complicated Malaria

In addition to the signs and symptoms of uncomplicated malaria...

- Impaired Consciousness
- Multiple Convulsions
- Stiff neck
- Circulatory Collapse (Weak Rapid Pulse)
- Extreme Weakness (Unable to Sit or Stand)
- Haemoglobinuria
- Decreased Urine Output
- Bulging fontanelle if under 18 months
- Jaundice
- Hypoglycaemia
- Abnormal Bleeding
- Severe Pallor
- Severe Dehydration (Sudden Weight Loss, Loose Skin, Sunken Eyes, Dry Mouth)
- Respiratory Collapse
- Difficulty Breathing
- Pulmonary Oedema
- Shock

Note:
A prior diagnosis of HIV means that the patient is more susceptible to malaria.
Diagnosis of Malaria: Rapid Diagnostic Test (RDT)

Immunology (i.e., HIV or malnutrition),

RDTs does not detect antibodies due to the immunological reaction, the result is not affected by impaired

RDTs for malaria can be used to confirm diagnosis of malaria at a health facility where microscopy is not

RDTs are easy to perform and interpret and they do not require electricity or special equipment.

Malaria parasites are commercially available in different formats: 6-9 dipsticks, cassette or cards.

Diagnosis of malaria is based on clinical suspicion and on the detection of parasites in the blood. The

The diagnosis of malaria is based on clinical suspicion and on the detection of parasites in the blood. The

When the weather is cold, warm the patient’s hand (e.g., submerge patient’s hand in warm water, or instruct the patient to rub their hands together) to obtain good blood flow for finger prick. Apply the same methodology when collecting blood from a heel or big toe.

Blood Smears

Parasitological Diagnosis of Malaria

Diagnosis of Malaria: Rapid Diagnostic Test (RDT)

Prepare the above materials (lancet, alcohol swab, pipette, RDT, and buffer) as well as gloves, the correct waste disposal containers, and labelling and reporting materials. Do not use test kit if it has expired or if the packaging is damaged.

The finger pricking device needs to be loaded. Hold the body of it firmly in one hand and push the protective tab in. Listen for a click.

Aim for the side of the finger or toe. Avoid pricking the top of the digit or back of the heel.

The finger pricking device needs

Lancets are not re-usable and should be disposed in a sharps

container. Do not re-use and

Blood Smears

Parasitological Diagnosis of Malaria

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Lancets are not re-usable and should be disposed in a sharps

container. Do not re-use and
Performing the RDT

Wipe away first drop of blood with a dry piece of cotton wool. Apply gentle pressure to the finger until a new blood drop appears.

Squeeze the top of the pipette, immerse the open end in the blood drop. Gently release the pressure drawing blood into the tube, up to the raised plastic ring near the bottom of the pipette.

Transfer two (2) drops of blood from the pipette to the sample well (the small well) on the RDT by squeezing the top of the tube.

Holding the buffer bottle vertically, add two (2) drops of buffer into the buffer well. Take care with this process and add no more than 2 drops. Squeezing the bottle may result in dispensing too much.

Interpreting RDT Results

Read the RDT result in 20 minutes. Do not read the results before or after the set time.

Negative

The presence of just the control band, at the C mark indicates a negative result for *P. falciparum* malaria.

Invalid

If the test does not show the control band at the C mark, even if there is a reaction on the T band, the test is INVALID. Perform another RDT.

Positive

The presence of both the control band at the C mark and the test band at the T mark indicates a positive result for *P. falciparum* malaria.

Important Note

Any faint line at the T mark, together with a line at the C mark, must be taken to mean that the malaria test is positive and the patient should be given the relevant care and treatment.

Recording

Record the RDT result and the prescribed treatment in the clinic, OPD, or ward register.

Disposal of the RDT

The used RDT should be discarded in the bio-hazardous waste.
Blood Smear Collection

1. Tip for Effective Blood Collection
   - Blood can coagulate quickly on the slide. To prevent this, set up your work station with all required materials for slide collection before you prick the patient. Work quickly to collect blood. In the rare case that an adequate quantity of blood cannot be collected from the first prick, prick the patient again quickly to collect blood. If you prick the patient again after the collection time, set your slide away with the label facing out to ensure the slide is clean.

2. Blood Smear Preparation
   - Ensure the slide with the blood drops is on a flat, firm surface. Using another clean slide as a spreader, touch the small drop with the spreader, and allow the blood to run along its edge. Pull the spreader firmly along the slide away from the largest drop, keeping the spreader at a 45° angle. Make sure the spreader is in even contact with the surface of the slide while the blood is being spread. Leaving the camera of the spreader in the small drop with the spreader and move the blood to the left, but be careful not to spill any drops of blood on the slide. For the slide to be clean, wipe the slide clean with a lint-free cloth prior to use. Using the same pipette from the RDT kit, carefully position two drops of blood on the slide, closest to where the label will be. Once the blood has been positioned on the slide, work quickly to avoid blood coagulation.

Diagnosis of Malaria: Blood Smear & Light Microscopy

- In the diagnosis of severe malaria cases, microscopy is considered the gold standard against which the sensitivity and specificity of other methods are assessed. It is essential to identify malaria parasites and distinguish them from other important pathogens. The nature of the infection is the preferred option as it is also useful in assessing malaria parasite diversity. Microscopy is the preferred method of diagnosis in severe malaria cases.
Treatment of Uncomplicated Malaria

- Prompt parasitological confirmation by microscopy or alternatively by RDTs is recommended in all patients suspected of malaria before treatment is started.
- Artemisinin-based combination therapies (ACTs) are the recommended treatments for uncomplicated *P.falciparum* malaria in infants and young children.
- The choice of ACT in a country or region will be based on the level of resistance of the partner medicine in the combination. The following ACTs are recommended: artemether plus lumefantrine, artesunate plus amodiaquine, artesunate plus mefloquine, and artesunate plus sulfadoxine-pyrimethamine.
- Artemisinin and its derivatives should not be used as monotherapy.
- Pay attention to accurate dosing and ensure that the administrated dose is retained.

- Give the first dose of co-artemether in the clinic and observe for one hour. If the child vomits within an hour repeat the dose.
- 2nd dose at home after 8 hours.
- Then twice daily for further two days as shown below.
- Co-artemether should be taken with food.

<table>
<thead>
<tr>
<th>Weight (age)</th>
<th>Co-artemether tablets (20 mg artemether and 120 mg lumefantrine)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0hr</td>
</tr>
<tr>
<td>5 - &lt;14 kg (5 months up to 3 years)</td>
<td>1</td>
</tr>
<tr>
<td>14 - &lt;19 kg (3 years up to 5 years)</td>
<td>2</td>
</tr>
</tbody>
</table>

Supportive Treatment for Uncomplicated Malaria

- **High fever (>39°C) and body aches**
  - Give paracetamol and advise patient to receive tepid sponging and fanning to bring fever down

- **Dehydration or diarrhoea**
  - Give oral rehydration solution (ORS)
  - Advise to take increased amounts of water or other fluids
  - In the case of infants, encourage mothers to provide extra breastfeeding
  - Give zinc for 14 days

- **Anaemia**
  - Take elemental iron for 3 months
  - Refer severe anaemia to a higher level health facility
Severe malaria is a medical emergency. After rapid assessment and diagnosis, the child should be given parenteral antimalarials and referred immediately to an appropriate facility for further treatment. If complete treatment of severe malaria is not possible, patients should be given parenteral antimalarials and referred immediately to an appropriate facility for further treatment.

For children, use artesunate IV or IM. If complete treatment of severe malaria is not possible, patients should be given parenteral antimalarials and referred immediately to an appropriate facility for further treatment.

Artemether or Quinine is an acceptable alternative if parenteral Artesunate is not available.

Give parenteral antimalarials in the treatment of severe malaria for a minimum of 24 hrs and then either complete treatment by giving a full dose of ACT, or refer the patient to a higher level of care. If an RDT can be performed without delay, it should be performed and the results recorded in the referral letter.

For children, use artesunate IV or IM. If complete treatment of severe malaria is not possible, patients should be given parenteral antimalarials and referred immediately to an appropriate facility for further treatment.

Referral Documentation
Record all findings and drugs given in the referral letter.

If any antimalarial treatment has been given, the child should be followed up by a qualified medical practitioner to ensure full recovery.

Guidelines for Treatment of Severe and Complicated Malaria

Pre-referral Antimalarial Treatment
Immediately administer intramuscular (IM) Quinine (10 mg/kg, IM Quinine should be diluted to at least 60 mg/ml) while organising transport to higher-level healthcare facility.

Antibiotics
Administer at the clinician’s discretion.

Hydration and Glucose
The patient may have low blood sugar from the infection. In addition IM Quinine can lower blood sugar levels. If the patient can swallow, give sugar water or oral rehydration salt (ORS) and for babies, expressed milk. Where there is a qualified staff member, administer 5% glucose IV.

Fever Management
Encourage the caretaker to undertake sponging along the journey to keep the temperature down. Paracetamol can be used if the patient is able to take oral medication.

Parasitological Diagnosis
If an RDT can be performed without delay, it should be performed and the results noted in the referral letter.

Guidelines for Treatment of Severe and Complicated Malaria

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Fever Management
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Patient Counselling & Malaria Health Talk

To ensure adherence to treatment, the first treatment dose for all patients should be directly observed and the following counselling messages should be provided...

◊ Explain the dosing schedule and use probing questions to confirm the patient’s understanding
◊ Emphasize that all doses must be taken even if the patient feels better after a few doses
◊ Recommend paracetamol for symptoms of fever and body aches
◊ If vomiting occurs within 30 minutes after receiving the drug orally, the dose should be repeated; if vomiting occurs after this time, continue with planned dosing schedule
◊ Coartem® is best absorbed when taken with fatty foods or dairy (e.g., milk)
◊ Advise patients to go immediately to the nearest health facility if the condition deteriorates at any time or if symptoms have not resolved after three days

Educate your family and friends on how to implement prevention of malaria

- Seek care within 24 hours if sick and insist on a malaria test
- Accept indoor residual spraying in homes and other buildings
- Sleep under an insecticide-treated net every night
- Take prophylaxis when travelling in malaria areas
- Treat or clear away stagnant water
- Place screens on all windows and doors that lead outside
- Wear long-sleeve tops and bottoms in the evening time
- Use mosquito coils and insect repellent as prevention
We would like to thank the Malaria Research Programme of the Medical Research Council of South Africa for their assistance in the production of the photographs used in this training tool.

Adapted by Zoë Life and South to South Program for Comprehensive Family HIV Care & Treatment (2011)
Nutrition assessment and support is an essential aspect of care for HIV exposed infants and HIV infected children. HIV and opportunistic infections increase the body’s energy needs above average daily requirements. Every healthcare provider caring for families living with HIV should familiarize themselves with nutrition issues and know when to refer for additional support. The materials in this chapter cover a broad range of topics from infant feeding support for the HIV exposed infant to nutritional management of HIV-related complications.

Considerations for the nutrition for HIV-infected infants and children

1. HIV-infected children should be assessed routinely for nutritional status, including weight and height at scheduled visits, particularly after the initiation of ART.
2. HIV-infected children on or off ART who are symptomatic, have conditions requiring increased energy (e.g. TB, chronic lung disease, chronic OIs or malignancies) or have weight loss or have evidence of poor growth, should be provided with 25 – 30% additional energy.
3. HIV-infected children who are severely malnourished should be managed as per the guidelines for uninfected children and provided with 50 – 100% additional energy.
4. HIV-infected children should receive one recommended daily allowance (RDA) of micronutrients daily. If this cannot be assured through the diet, or there is evidence of deficiency, then supplementation should be given.
5. HIV-infected infants and children should receive high-dose vitamin A supplementation every 6 months between 6 and 59 months of age, as per the guidelines for uninfected children.
6. HIV-infected children who have diarrhoea should receive zinc supplementation as a part of management, as per the guidelines for uninfected children.

**KEY MESSAGE:**

*Growth and nutrition is a good marker of HIV disease progression and response to ART.*
Core Measurements
Every HIV exposed infant and HIV infected child should have the following measurements obtained during every clinical review visit:

- Weight (kg) measured without shoes and minimum clothing
- Length or height (cm)
- Head circumference (cm) if less than 3 years of age

Growth Charts
Included in this chapter are sample growth charts from the South African Road to Health Booklet (based on the WHO guidelines) as well as the actual WHO growth charts. Growth charts are an essential tool for the provision of quality paediatric HIV services. Growth measurements should be plotted and interpreted using the appropriate growth chart.

These growth charts use the Z-score measurement which may be new to some. The Z-score is a simple way of establishing thresholds for the departure from median, expected growth which is defined as zero. The growth charts also now include weight-for-height charts which are an ideal way of assessing acute malnutrition. You will note text next to the South African growth curve providing guidance on the interpretation of the Z-score.

In caring for HIV infected children you will note that stunting or shorter height than average is very common. Observing improvements in growth and nutrition following ART initiation is rewarding and a visible way of celebrating successful adherence with caregivers.

INFANT FEEDING RECOMMENDATIONS FOR HIV-POSITIVE MOTHERS
All women should be provided with infant feeding information counselling during antenatal care to ensure that they are properly informed and supported to make the best decision for their situation. Assess and educate the mother on her infant feeding options and important steps she can take to minimise HIV transmission while promoting overall feeding safety and healthy infant outcomes.

KEY MESSAGE:
It is important to interpret the growth curve by looking at the shape, pattern and location on the chart.
All HIV-positive pregnant women should receive infant feeding counselling at least 4 times antenatally.

**UP TO 6 MONTHS OF AGE:**

- The main feeding recommendation for HIV-positive women not on lifelong ART is:
  - Exclusive breastfeeding (EBF) for the first 6 months of life PLUS
  - Infant Nevirapine throughout the breastfeeding period until 1 week after breastfeeding stops
- The main feeding recommendation for HIV-positive women on lifelong ART is:
  - Exclusive breastfeeding (EBF) for the first 6 months of life PLUS
  - Infant Nevirapine for 6 weeks post delivery
- Breastfeed exclusively as often as the child wants, day and night – feed at least 8 times in 24 hrs
- Do not give other foods or fluids

Exceptions to the above recommendations are mothers in whom formula feeding can be given safely (*Group 1 on left where AFASS criteria apply*) or breastfeeding is completely non-feasible (*Group 2 on right*).

It is recommended that these women:
- Exclusively formula feed for the first 6 months of life PLUS
- Infant Nevirapine for 6 weeks post delivery

### GROUP 1: Mother is clinically well and AFASS* Criteria applies

- Safe water and sanitation are assured at the household level and in the community, AND
- The mother or caregiver can reliably provide (buy) sufficient infant formula milk to support normal growth and development of the infant, AND
- The mother/caregiver can frequently prepare it hygienically so that it carries no risk of diarrhoea and malnutrition, AND
- The mother/caregiver can, in the first 6 months exclusively formula feed, AND
- The family is supportive of this practice

### GROUP 2: EBF is not feasible

- Mother is terminally ill with full blown AIDS and a high viral load that is not responding to lifelong ART, OR
- Mother has demised, OR
- Mother has/will be unable to care for the infant herself or will give the infant up for adoption – thus no breastmilk will be available

* See page 173
Formula feeding:
- Ensure exclusivity for 6 months – other foods or fluids are not necessary
- Prepare formula as directed on tin – start with sterilization of bottle and make up feeds to correct strength
- Use milk within an hour and discard leftovers
- Cup feeding is safer than bottle feeding
- Use a cup which can be kept clean i.e. not one with a spout

KEY MESSAGE:
Mixed feeding in the first 6 months of life carries the highest risk of HIV transmission

6 MONTHS UP TO 12 MONTHS

- HIV infected women (on or not on lifelong ART) who have been exclusively breastfeeding, should continue breastfeeding until the infant is one year old, whilst continuing on prophylaxis, and start introducing solids.
- Infants that have thus far been exclusively formula fed (Group 1 and 2) should continue being given formula or 3 cups of full cream cow’s milk (from 9 months of age) together with solids.
- Start giving 2-3 teaspoons of soft porridge, and begin to introduce fruit and vegetables.
- Gradually increase the amount and frequency of feeds. Children between 6 - 8 months should have two meals a day, by 12 months this should have increased to 5 small meals per day.
- Give locally available protein daily. Examples include egg (yolk), beans, dhal, meat, fish, chicken / chicken livers, mopani worms.
- For malnourished children, mix margarine, fat, or oil with porridge.

Gradual weaning at 1 year:
- It is recommended that HIV-infected mothers opting to breastfeed do so for a period of one year with prophylaxis, and gradually wean their infants over a period of one month.
- Nevirapine should be given to a baby for one week after breastfeeding has stopped in cases where the mother is not on ART
- Abrupt weaning is not recommended

Help mother prepare for transition:
- Mother should discuss weaning with her family if possible.
- Express milk to practice cup feeding.
- Ensure a regular supply of formula or full cream cow’s milk (if child older than 9 months).
- Learn how to prepare and store milk safely at home.
Help mother make the transition:
• Teach mother to cup feed her baby.
• Clean all utensils with soap and water.
• Start giving only formula or cow’s milk (if child older than 9 months).

Stop breastfeeding completely:
• Express and discard some breastmilk, to keep comfortable until lactation stops

12 MONTHS UP TO 2 YEARS
• Give at least 5 adequate nutritious family meals per day.
• Provide at least 2 cups of a nutritionally adequate and safe feed (e.g. cow’s milk or formula) daily.
• Give locally available protein at least once a day. Examples include: egg, beans, dhal, meat, fish, chicken/chicken livers, mopani worms.
• Give fresh fruit or vegetables at least twice every day.
• Give foods rich in iron, and vitamins A and C.
• Feed actively from the child’s own bowl.
One of the very nicest things about life is the way we must regularly stop whatever it is we are doing and devote our attention to eating.

Luciano Pavarotti and William Wright, Pavarotti, My Own Story
THE AFASS CRITERIA
FOR INFANT FORMULA FEEDING

ALWAYS PERFORM AN AFASS ASSESSMENT BEFORE ADVISING WOMEN NOT TO BREASTFEED

Ensure that infant formula feeding is:

**ACCEPTABLE**
No cultural or social barriers, or fear of stigma or discrimination, must be present

**FEASIBLE**
The carer must have adequate time, knowledge, skills and resources to feed the child and cope with outside pressures

**AFFORDABLE**
The family must be able to afford infant formula without compromising their spending on food and health

**SUSTAINABLE**
The carer must have access to a continuous, uninterrupted supply of formula, especially when the clinic runs out of stock

**SAFE**
The infant formula must be hygienically prepared and stored under sanitary conditions

---

**The WHO Guidelines on Infant Feeding for HIV-infected Women**
All mothers who are known to be HIV-infected, either on lifelong ART or not, who exclusively breastfeed their infants should do so for the first 6 months, introducing appropriate complementary foods thereafter, and continue breastfeeding for the first 12 months of life. (WHO 2009)
Weight-for-age BOYS
Birth to 5 years (z-scores)
Length/height-for-age GIRLS

Birth to 5 years (z-scores)
Length/height-for-age BOYS

Birth to 5 years (z-scores)
Height-for-age BOYS
5 to 19 years (z-scores)

2007 WHO Reference
Interpretation of lines:
This Weight-for-Age Chart shows body weight relative to age in comparison to the Median (0-line).
A girl whose weight for age is below the -2 line is underweight.
A girl whose weight for age is below the -3 line is severely underweight. Clinical signs of Marasmus or Kwashiorkor may be observed.
Interpretation of lines:

This Weight-for-Age Chart shows body-weight relative to age in comparison to the Median (0-line).

A boy whose weight-for-age is below the -2 line, is underweight.

A boy whose weight-for-age is below the -3 line, is severely underweight. Clinical signs of Marasmus or Kwashiorkor may be observed.
# NUTRITION RISK SCORE - USED IN SOUTH AFRICA

## CHILDREN: BIRTH – 14 YEARS

<table>
<thead>
<tr>
<th>COLUMN 1</th>
<th>COLUMN 2</th>
<th>COLUMN 3</th>
<th>COLUMN 4</th>
<th>COLUMN 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>NUTRITION RISK SCORE</td>
<td>ASSESSMENT</td>
<td>SUPPLEMENTATION</td>
<td>FOLLOW-UP OR EXIT CRITERIA</td>
<td>REFERRAL</td>
</tr>
<tr>
<td>Is this child malnourished?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Present Weight</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0-3 years (RTHC)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Following a curve on the RTHC</td>
<td>0</td>
<td>Nutritional supplement (1/3 of daily RDA)</td>
<td>If score &gt; 4 arrange follow-ups regularly, according to patients ARV schedule</td>
<td>Checklist</td>
</tr>
<tr>
<td>Inadequate weight gain, growth faltering</td>
<td>2</td>
<td>Children: Macronutrient supplement</td>
<td>Monitor and evaluate closely</td>
<td>• Nutrition care chart completed</td>
</tr>
<tr>
<td>2nd percentile or Z score -2 to -3</td>
<td>4</td>
<td>0 — 6 months</td>
<td>At each follow-up, repeat Column 1 for the Nutrition Risk Score</td>
<td>• Nutrition Risk score recorded</td>
</tr>
<tr>
<td>&lt;50% of expected weight or Z score -3 or less</td>
<td>6</td>
<td>Exclusive breastfeeding or Exclusive Formula</td>
<td>Stop nutritional supplements if the</td>
<td>• Follow-up date</td>
</tr>
<tr>
<td>2-14 years (BMI)</td>
<td></td>
<td><em>6 months — 1 year</em></td>
<td>score is:</td>
<td></td>
</tr>
<tr>
<td>&lt;50th percentile</td>
<td>0</td>
<td>30g enriched maize meal/day (530kJ) = 1kg/month</td>
<td>0-3 score</td>
<td>Check appropriate grants</td>
</tr>
<tr>
<td>&lt;25th percentile</td>
<td>2</td>
<td><em>1 — 6 years</em></td>
<td>Or</td>
<td>• Pension</td>
</tr>
<tr>
<td>&lt;3rd percentile</td>
<td>4</td>
<td>100g enriched maize meal/day (1765kJ) = 3kg/month</td>
<td>4-5 score plus good weight gain for 3 months</td>
<td>• Child support grants</td>
</tr>
<tr>
<td>&gt;60th percentile</td>
<td>6</td>
<td><em>7 — 12 years</em></td>
<td></td>
<td>• Care-dependency grant</td>
</tr>
<tr>
<td></td>
<td></td>
<td>150g enriched maize meal/day (2648kJ) = 4kg/month</td>
<td></td>
<td>• Foster care grant</td>
</tr>
<tr>
<td>&gt;12th percentile</td>
<td></td>
<td><em>12 — 14 years</em></td>
<td></td>
<td>Available food support</td>
</tr>
<tr>
<td></td>
<td></td>
<td>200g enriched maize meal/day (3530kJ) = 6kg/month</td>
<td></td>
<td>• Food vouchers</td>
</tr>
<tr>
<td>2. Appetite</td>
<td></td>
<td>Multivitamin Supplementation</td>
<td></td>
<td>• National food energy program</td>
</tr>
<tr>
<td>Good (6 complete meals daily)</td>
<td>0</td>
<td>As needed, do not exceed 100% RDA</td>
<td></td>
<td>• DACEL starter packs</td>
</tr>
<tr>
<td>Poor (less than 3 full meals daily)</td>
<td>2</td>
<td></td>
<td></td>
<td>• Food gardens</td>
</tr>
<tr>
<td>Unable to eat (No food eaten in 2 days)</td>
<td>4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Ability to Eat</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No problems</td>
<td>0</td>
<td></td>
<td></td>
<td>Checklist</td>
</tr>
<tr>
<td>Mild vomiting/diarrhoea</td>
<td>1</td>
<td></td>
<td></td>
<td>• Nutrition care chart completed</td>
</tr>
<tr>
<td>Difficulty swallowing/chewing</td>
<td>2</td>
<td></td>
<td></td>
<td>• Nutrition Risk score recorded</td>
</tr>
<tr>
<td>Severe vomiting/diarrhoea</td>
<td>4</td>
<td></td>
<td></td>
<td>• Follow-up date</td>
</tr>
<tr>
<td>4. WHO Stage of Infection</td>
<td></td>
<td></td>
<td></td>
<td>Check appropriate grants</td>
</tr>
<tr>
<td>Stage 1</td>
<td>0</td>
<td></td>
<td></td>
<td>• Pension</td>
</tr>
<tr>
<td>Stage 2</td>
<td>1</td>
<td></td>
<td></td>
<td>• Child support grants</td>
</tr>
<tr>
<td>Stage 3</td>
<td>2</td>
<td></td>
<td></td>
<td>• Care-dependency grant</td>
</tr>
<tr>
<td>Stage 4</td>
<td>3</td>
<td></td>
<td></td>
<td>• Foster care grant</td>
</tr>
<tr>
<td>5. Other Problems</td>
<td></td>
<td></td>
<td></td>
<td>Available food support</td>
</tr>
<tr>
<td>None</td>
<td>0</td>
<td></td>
<td></td>
<td>• Food vouchers</td>
</tr>
<tr>
<td>TB &amp; other infections</td>
<td>2</td>
<td></td>
<td></td>
<td>• National food energy program</td>
</tr>
<tr>
<td>Social problems</td>
<td>2</td>
<td></td>
<td></td>
<td>• DACEL starter packs</td>
</tr>
<tr>
<td>Go to Column 2</td>
<td>Go to Column 3</td>
<td>Go to Column 4</td>
<td>Go to Column 5</td>
<td>• Food gardens</td>
</tr>
</tbody>
</table>

**Checklist**
- Nutrition care chart completed
- Nutrition Risk score recorded
- Follow-up date

**Check appropriate grants**
- Pension
- Child support grants
- Care-dependency grant
- Foster care grant

**Available food support**
- Food vouchers
- National food energy program
- DACEL starter packs
- Food gardens

---

*Following a curve on the RTHC*
- 0
- <50th percentile
- <25th percentile
- <3rd percentile

*Inadequate weight gain, growth faltering*
- 2
- <25th percentile
- <3rd percentile

*2nd percentile or Z score -2 to -3*
- 4

*<50% of expected weight or Z score -3 or less*
- 6

*Good (6 complete meals daily)*
- 0

*Poor (less than 3 full meals daily)*
- 2

*Unable to eat (No food eaten in 2 days)*
- 4

*No problems*
- 0

*Mild vomiting/diarrhoea*
- 1

*Difficulty swallowing/chewing*
- 2

*Severe vomiting/diarrhoea*
- 4

*Start with primary intervention as above*
- 0

*Monitor weight monthly*
- 1

*Poor weight gain for >1 consecutive visit go to column 3*
- 2

*Good weight gain for 3 months go to column 4*
- 3

*Start with primary intervention as above*
- 0

*Reassess monthly*
- 2

*30g enriched maize meal/day (530kJ) = 1kg/month*
- 1

*100g enriched maize meal/day (1765kJ) = 3kg/month*
- 2

*150g enriched maize meal/day (2648kJ) = 4kg/month*
- 3

*200g enriched maize meal/day (3530kJ) = 6kg/month*
- 4

*30g enriched maize meal/day (530kJ) = 1kg/month*
- 5

*100g enriched maize meal/day (1765kJ) = 3kg/month*
- 6

*150g enriched maize meal/day (2648kJ) = 4kg/month*
- 7

*200g enriched maize meal/day (3530kJ) = 6kg/month*
- 8

*Nutritional supplement (1/3 of daily RDA)*
- 9

*Exclusive breastfeeding or Exclusive Formula*
## NUTRITIONAL MANAGEMENT
### OF HIV-RELATED SYMPTOMS

<table>
<thead>
<tr>
<th>SYMPTOM/SIDE-EFFECT</th>
<th>POSSIBLE CAUSES</th>
<th>MANAGEMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Nausea and Vomiting</strong></td>
<td>Opportunistic Infections</td>
<td>• Provide small, frequent meals</td>
</tr>
<tr>
<td></td>
<td>Acute Retroviral Syndrome (ARS)</td>
<td>• Feed foods such as soups, unsweetened porridge, and fruits such as bananas</td>
</tr>
<tr>
<td></td>
<td>Illness due to poor hygiene</td>
<td>• Provide lightly salty and dry foods such as crackers and toast</td>
</tr>
<tr>
<td></td>
<td>Food Intolerance/s</td>
<td>• Avoid spicy and fatty foods</td>
</tr>
<tr>
<td></td>
<td>Medications</td>
<td>• Avoid carbonated drinks – opt for herbal teas with mint or fresh ginger</td>
</tr>
<tr>
<td></td>
<td>ARVs: Zidovudine, Combidir, Didanosine</td>
<td>• Provide liquids such as clean boiled water, diluted fruit juices and lemon water between meals and not with meals</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Avoid taking medication on an empty stomach</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Avoid child lying down immediately after eating</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Encourage rest between meals</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Cold foods may be better tolerated than warm ones</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Sour/salty food may be better tolerated than sweet foods</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Avoid cooking smells and foods with strong aroma such as garlic &amp; onions</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• For the breastfed child, continue breastfeeding</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Teach the caregiver how to maintain good hydration by using oral rehydration solution</td>
</tr>
<tr>
<td><strong>Loss of Appetite/Weight Loss</strong></td>
<td>Chronic infection (HIV, TB)</td>
<td>• Try to stimulate appetite by offering favourite foods often</td>
</tr>
<tr>
<td></td>
<td>Medications</td>
<td>• Avoid strong-smelling foods</td>
</tr>
<tr>
<td></td>
<td>Malnutrition</td>
<td>• If appetite loss is a result of illness, seek medical attention for treatment</td>
</tr>
<tr>
<td></td>
<td>Anxiety and depression</td>
<td>• Provide high energy, high protein liquids and fruit juices during the day and not with their meals</td>
</tr>
<tr>
<td></td>
<td>Oral sores</td>
<td>• Children with a poor appetite should be encouraged to drink frequently; for example, sour milk, milk, custard, yoghurt, drinking yoghurt, soup or fruit juice</td>
</tr>
<tr>
<td></td>
<td>Changing or starting treatment</td>
<td>• Make the food look and taste good, using colour and different texture to make the food more interesting</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• A child can be encouraged to eat by offering different foods and by making eating fun and a family occasion. Children that are left alone to eat do not eat as well as children that have company</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Offer small, frequent meals to the child as often as needed throughout the day. Meal times do not need to be adhered to</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• High energy snack can be offered to the child e.g. fruit, dried fruit, peanuts, yoghurt or Mageu</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Increase nutrient density of foods without visibly increasing volume of meal by adding peanut butter, skimmed milk powder, or eggs in soups or porridge</td>
</tr>
<tr>
<td>SYMPTOM/SIDE-EFFECT</td>
<td>POSSIBLE CAUSES</td>
<td>MANAGEMENT</td>
</tr>
<tr>
<td>---------------------</td>
<td>----------------</td>
<td>------------</td>
</tr>
</tbody>
</table>
| **Diarrhoea**       | Opportunistic Infections  
Common at initiation of treatment  
Non-HIV conditions (IBD, ulcerative colitis)  
Poor absorption of and intolerance to nutrient | • Ensure correct hygiene  
• Provide adequate fluids (soups, diluted fruit juices, boiled water, rice water and light herbal teas) to avoid dehydration  
• Avoid strong citrus fruits (orange, lemon) because they may irritate the stomach  
• Promote consumption of foods rich in soluble fibre (millet, potatoes, banana, peas, and lentils) to help retain fluids  
• Consume fermented foods such as porridges, maas and yogurt instead of milk  
• Consume easily digestible foods such as rice, bread, millet, maize porridge, potato, sweet potato, and crackers  
• Eat small amounts of food frequently and continue to eat after illness to recover weight and nutrient loss  
• Omit gas-forming food such as cabbage, onions, carbonated soft drinks (sodas)  
• Avoid insoluble fibre such as that in whole grain foods and beans |

| **Oral Candidiasis(Thrush)/Oral Sores** | Immunosuppression  
Antibiotic therapy | • Try soft, non-irritating foods such as scrambled eggs, custard, pureed pumpkin, paw-paw or porridge  
• Fermented food like maas & yoghurt may provide relief  
• Suck lump of ice or have ice cold drink or ice lollies before a meal  
• Practice good oral hygiene  
• Appropriately add custard to reduce acidity  
• Avoid sticky or dry foods such as peanut butter, popcorn, roasted nuts or dry toast  
• Avoid sweet or sugary drinks  
• Avoid acidic foods such as citrus fruit, vinegar, salty and spicy food  
• Eat cold or room-temperature foods  
• Provide plenty of liquids using a straw to avoid contact with affected part of mouth  
• Seek medical attention for treatment  
• Rinse mouth with boiled warm salt water after eating to reduce irritation and keep infected areas clean so yeast cannot grow  
• Continue breastfeeding where applicable  
• Continue exclusive cup feeding where applicable  
• Give paracetamol half an hour before solid feeds or try topical anaesthetic  
• Give cold puree enriched soups that are bland in taste |
<table>
<thead>
<tr>
<th>SYMPTOM/SIDE-EFFECT</th>
<th>POSSIBLE CAUSES</th>
<th>MANAGEMENT</th>
</tr>
</thead>
</table>
| Constipation        | Inadequate fibre or fluid intake | • Increase dietary fibre by increasing consumption of wholegrain products, fruit and vegetables  
|                     | Antibiotics     | • Increase water intake to at least 4 glasses per day  
|                     | Iron supplementation | • Provide frequent small meals  
|                     |                 | • Encourage physical activity |
| Anaemia             | Acute illnesses i.e. malaria | • Eat more iron-rich foods such as animal products (eggs, fish, meat, and liver) green leafy vegetables (collard greens, spinach), legumes (beans, lentils, groundnuts), nuts, oil seeds and fortified cereals  
|                     | Nutritional deficiency | • Take iron supplements  
|                     | Opportunistic infections | • If available, take one iron tablet once a day with some food. Take with a source of vitamin C such as tomatoes or orange juice to help with absorption  
|                     | Drugs (cotrimoxazole, Zidovudine and other ARVs) | • Drink fluids to avoid constipation  
|                     | Auto-immune haemolysis, parvovirus infections and direct effect of HIV infection on the bone marrow | • Treat malaria and hookworm  
|                     |                 | • Avoid giving dairy products, tea and bran with meals rich in iron, as these reduce iron absorption |
Enjoy A Balanced Lifestyle

- Be as active as you can
- Enjoy a variety of food
- Make starchy foods the basis of most meals
- Eat vegetables and fruits daily
- Drink lots of clean, safe water
- Eat fat in moderation
- Use salt sparingly
- Eat beans, lentils and soya regularly
- You can eat meat, chicken, fish and eggs everyday
- **DO NOT** drink alcohol
- **DO NOT** smoke

For more information:
ECHO (Enhancing Children’s HIV Outcomes)
4th Floor, CMI Building
Joubert Extention
Braamfontein

Tel: 011 547 5000

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ISBN 978-0-9814369-3-7
It is important to eat correctly when you are pregnant because your baby gets essential nutrients from you.

Some Important Tips For Your Diet:
- Eating breakfast is important
- Avoid skipping meals
- Drink 8 glasses of water daily. It will help prevent constipation and bladder infections
- Eat well, but remember you are NOT eating for two - being overweight when you are pregnant may cause problems
- Eat foods rich in iron, calcium and vitamin C such as green leafy vegetables, liver, low-fat dairy products, vegetables and fruit

It is recommended that all pregnant and breastfeeding woman include the following in their diet:
- An additional 60g of protein per day such as half a cup of dried beans, a small piece of chicken or fish, a tablespoon of peanut butter or grated cheese or yogurt
- An additional 1200 KJ (300 calories) which is equal to one slice of bread with margarine
- Increase calcium intake by drinking an extra glass of low-fat milk per day

DEALING WITH COMMON PROBLEMS
The following are some common complaints during pregnancy. Adjusting your diet may help.

Nausea And Vomiting
- Eat dry ginger, ginger biscuits or a piece of bread when you wake up
- Have water and other drinks between meals
- Avoid being around during the preparation of food if this makes you nauseous
- Reduce fatty, rich meals and rather eat cold snacks instead of warm food

Heartburn
- Eat small meals more often during the day and avoid large meals
- Avoid fried, fatty and spicy food
- Be a clever cook! Prepare meals using little or no fat by steaming, baking or grilling food instead of frying
- Do not lie down soon after eating

Constipation
- Drink lots of clean, safe water every day
- Eat plenty of fresh vegetables and fruit
- Eat lots of fibre-rich foods such as whole-wheat bread, dried beans, and high-fibre cereals
- Do moderate exercise for 30 minutes 3 times per week
- Avoid using laxatives

Cravings
- Strange cravings for certain foods or other substances like sand, ash or pencils are usually due to a lack of a nutrient in your body. You must eat a varied, healthy diet
- Do not eat harmful non-food products

WHEN BREASTFEEDING
Eating healthily while breastfeeding will give you energy. make sure your breast milk has all the nutrients for your baby and help with your recovery after the pregnancy.

- Eat in response to hunger and include healthy snacks
- Drink water and fruit juices in response to thirst
Types of Breast Milk

- **Colostrum**: A yellow, sticky fluid that comes out in the first few days after birth. This is very good for your baby’s immunity and it is very important that the baby should drink it!
- **Fore milk** (first milk during feed) quenches your baby’s thirst
- **Hind milk** (produced after the fore milk with each feed) helps your baby gain weight and grow

Always first empty one breast before feeding from the other!

When Breastfeeding

- You may express your breast milk and leave it in a closed container for someone else to feed your baby with a cup or a spoon
- **Expressed breast milk** will stay fresh for 8 hours at a cool temperature outside the fridge
- Babies are likely to develop nipple confusion when given the breast and a bottle with a teat. This may cause you to struggle with breastfeeding later on

IMPORTANT

Breastfeeding needs patience and practice

For more information:
ECHO (Enhancing Children’s HIV Outcomes)
4th Floor, CMI Building
Joubert Extention
Braamfontein

Tel: 011 547 5000
Breast Milk Is A Complete Feed And Offers Many Benefits For You And Your Baby

What Milk Does My Baby Need?
- From birth to 6 months all your baby needs is breast milk
- If your baby is exclusively breastfed this means ONLY breast milk and
  NO:
  - water
  - infant formula
  - food
  - baby porridge
  - rooibos tea
  - gripe water

A baby who is exclusively breastfed will feed at least 8-12 times in 24 hours, including night feeds. Feed your baby often and do not time the feeds.

IMPORTANT
If you are HIV infected and you are breastfeeding, it is very important that you do so EXCLUSIVELY! Remember to discuss ARVs for you and/or your baby with your health worker!

How Do I Hold My Baby When I Breastfeed?

The Cradle Hold
- Cradle the baby’s head in the bend of your arm
- Use a chair or pillows for support
- Tuck the baby’s arm under yours

The Underarm Hold
- The baby faces you with nose level to your nipple and feet pointing to the back
- Use a pillow and support the baby’s shoulders, neck and head with your hand

The Lying Down Hold
- For support, use pillows for your back
- Try to keep body straight and do not bend forward
- Bring your baby as close to the breast as possible so that he/she does not stretch to reach your nipple
- This is a less painful position if you have had a caesarean delivery

Where Should My Baby’s Mouth Be On My Breast?

Good attachment
- Make sure that the baby takes the nipple AND areola (brown area around the nipple) into the mouth
- Less of the areola should be showing below the baby’s mouth than above it
- The baby’s mouth must be wide open
- The baby’s chin must be touching the breast
- The baby’s nose must be against the breast
- The baby’s lips should be curled outward
- Baby taking slow deep sucks and feeding comfortably
- Suckling should be comfortable and without pain

Poor attachment
Introduce Solid Foods At 6 Months
This becomes necessary when a baby starts to need milk plus food to support its growth and should start at 6 months and NOT before then. See the pamphlet called "Introducing Solid Foods to My Baby At 6 Months".

If You Have Been Exclusively Formula Feeding:
Continue to give the formula by cup and slowly start to add solid foods.

If You Have Been Exclusively Breastfeeding:
Continue to breastfeed with Nevirapine prophylaxis for your baby, and slowly add solid foods. Continue to breastfeed until your baby is 1 yr and you can provide a nutritionally safe milk substitute such as cow’s milk or formula. Once these are available stop breastfeeding over 1 month. Continue giving Nevirapine prophylaxis to your baby for 1 week after you have stopped breastfeeding.

Important:
- Take ARV’s for your health if prescribed by your health worker
- Test your baby for HIV at 6 weeks and 18 months unless he/she is sick—in which case test earlier
- Once you stop breastfeeding do not give any breast milk again

For more information:
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4th Floor, CMI Building
Joubert Street Extension
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Tel: 011 547 5000

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http://creativecommons.org/licenses/by-nc-nd/2.5/za/

Uninfected mothers and mothers who do not know their HIV status are encouraged to exclusively breastfeed their babies for the first 6 months and to continue until the child is 2 years or older.

**EXCLUSIVE BREASTFEEDING means**

ONLY breast milk is given

NO water, food or traditional medicine is allowed!

**How Should I Feed My Baby If I Am HIV Positive (HIV+)?**

This is a very important decision which only you, as the mother, can make after consultation with your health worker. Your decision must be based on your home circumstances, family and community support. There is no absolutely safe way to feed your baby as:

- Formula feeding can make a baby very sick if not made or given safely and correctly.
- HIV is found in breast milk and can be transmitted to your baby. This may cause your baby to become HIV+. Mothers on ARVs and who breastfeed exclusively have a very small chance of passing HIV to their babies compared to those who mix feed without ARVs.

Mixed feeding means feeding your baby breast milk as well as infant formula or any other foods or liquids at the same time!

Your decision about how you are going to feed your baby should be based on your ability to give infant formula safely within your individual circumstances.

Answer Yes (Y) or No (N) to the following questions. Your answers will help you to choose either exclusive breastfeeding or exclusive formula feeding:

<table>
<thead>
<tr>
<th>QUESTION</th>
<th>Y</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Will you be able to cope with the stigma or discrimination from family or your community who might see formula feeding as proof that you are HIV+ or as an unusual way to feed your baby?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Will you be able to safely and correctly prepare formula feeds?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Do you always have enough time to safely and correctly prepare formula feeds?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Will you always be able to buy the formula even if the clinic runs out?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Is there a shop nearby where you can buy the formula in an emergency?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Do you always have the following: clean tap water close to your home, a method of boiling water, soap for washing your hands and sterilizing feeding utensils (cups/bottles)?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Do you have a working refrigerator inside your home to store prepared feeds?</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

If you answered YEs to ALL of the questions, you may opt to exclusively formula feed for the first 6 months of the child's life.

Your baby still needs Nevirapine prophylaxis for 6 weeks.

Regardless of how you are feeding your baby, discuss ART for your own health with your health worker.

**What Should I Do If My Baby Has Already Tested HIV+?**

- It is best to exclusively breastfeed for the first 6 months and to continue to breastfeed even once you start giving solid foods at 6 months. Continue breastfeeding until your baby is 2 years old.
- If you have been formula feeding, you may choose to start breastfeeding again because breast milk is healthier for your baby.
- Follow Guidelines for HIV-positive infants and start ART as soon as possible.

This pamphlet is NOT a substitute for infant feeding counselling.

Your health worker remains responsible for helping you to make an informed choice!
Should you use a bottle for mixing the formula, ensure that all your utensils are cleaned and sterilised as described:

**Step 1:** Wash bottles, teats and caps thoroughly with soap and warm water.

**Step 2:** Use salt or sugar to clean the teat by placing it in the teat and rubbing.

**Step 3:** Now boil all the utensils in water for 10 minutes. Boil the teat for 5 minutes only. Allow the utensils to stand and air dry on a clean surface. Do not use a cloth to dry!

**Step 4:** Pour in the correct amount of previously boiled water. Allow to cool.

**Always add the water before the powder**

**Step 5:** Scoop the powder with the scoop provided in the tin. Level the powder by scraping the back of a clean knife over the scoop.

**Step 6:** Close the bottle and close the lid. Shake until the powder is completely dissolved

**Tip:** You may mix the formula in a bottle and then use a cup to feed it to the baby.

---

**For more information:**

ECHO (Enhancing Children’s HIV Outcomes)

4th Floor, CMI Building

Joubert Extention

Braamfontein

Tel: 011 547 5000

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ISBN 978-0-9814366-5-1
Mothers are encouraged to give their babies only breast milk for the first 6 months and to continue giving breast milk until the baby is 2 years or older.

**CUP FEEDING**

Mothers may decide to cup feed, rather than bottle feed, for various reasons:

- **Cups are easier to clean** than bottles and the chance of the baby getting sick from germs is a lot less.
- **Someone else can cup feed** your expressed breast milk to the baby when you are not available.
- **Mothers often pay more attention** to their babies while cup feeding than while bottle feeding.
- **Using a cup causes less feeding confusion** for the baby because there is no confusion between the nipple and the bottle teat.
- **Your baby can decide** how fast or slow he/she would like to drink when using a cup.

Even very small babies can feed well from a cup.

**Step 1: Expressing your breast milk**

Wash your hands and the container. Sit comfortably and relax. Feel for little lumps on the edge of the dark part of the breast with your forefinger and thumb. Gently press back on the lumps and squeeze the milk toward the nipple. Do not let your fingers rub or slide over the skin. Rotate your fingers to empty the whole breast.

**Step 2: Feeding by cup**

- Ensure that the baby is awake enough to be fed.
- Wrap the baby so the cup will not be knocked out of your hand by the baby.
- Support the baby in an upright sitting position.
- Place the rim of the cup on the baby’s lower lip, with the edges just touching the upper lip.
- Tip the cup slowly so that the milk is just touching the baby’s upper lip.

- The baby usually automatically sips the milk.
- Allow time for the baby to swallow.
- Allow the baby to rest between sips, but don’t remove the cup from this position.
- Do not pour the milk into the baby’s mouth, let the baby take it by itself.

It is better for your baby to receive expressed breast milk or formula with a cup. Cup feeding is safer than bottle feeding!

**FORMULA FEEDING**

If you have decided not to breastfeed your baby for any reason, it is important that you prepare your baby’s formula safely and correctly.

- Babies often get diarrhoea and may even die when utensils are not properly washed and sterilised.
- If the formula is not mixed correctly it can cause a baby to not grow and develop adequately.

Ensure that the cup is washed with soap and hot water just before feeding.

A measuring cup is useful for both making formula and feeding it!
Making Baby Food Is Cheap And Easy!

IMPORTANT
Baby food bought at the shop is expensive and not always better than making your own

- Choose any vegetable or fruit
- Wash, peel if needed, remove pips, and cut into small pieces
- Place into a pot and cover with water
- Cook until soft
- Use a fork to mash or push it through a sieve to make a puree. You may use an electric blender if you have one
- If you have a freezer, you may freeze the food for use on another day by placing it in an ice tray, covering it with plastic wrap and putting it in the freezer or freezer compartment of your fridge
- You can later defrost the amount you need and heat it before feeding it to your baby
- Make eating time fun and interesting; smile and praise your baby during feeding so that you both enjoy it!

For more information:
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ISBN 978-0-9814369-6-8
After the first 6 months breast milk or formula alone is no longer enough for a baby. Your baby now needs **solid foods and other fluids** too.

**IMPORTANT**

Before 6 months, all a baby needs is breast milk, or for special reasons, infant formula. This means **no water, baby porridge, baby food or any other foods are needed, except for prescribed medicines!**

If you have been breastfeeding:

Are you HIV negative or do not know your HIV status? Continue breastfeeding even after solid foods have been introduced and continue this for up to 2 years. If you are infected with HIV, refer to the pamphlet called "How should I feed my baby if I am HIV positive?"

If you have been formula feeding:

Formula should be continued until 1 year and followed by the introduction of full cream cow’s milk and other dairy products.

**HOW TO START GIVING SOLID FOODS**

- Give the breast or some formula first, then offer some food
- Start with a teaspoonful of food
- This is new for your baby so he/she may turn his/her head away
- Do not force the baby to eat, be patient!
- Introduce only one food at a time. Once your baby knows the taste of that food, you may move on to the next food

**WHAT TO BEGIN WITH**

- All foods must be mashed or pureed for children from 6 months to one year
- Start with soft porridge like maize meal or oats porridge (baby cereals are also fine, but expensive), seasonal vegetables and fruit such as pumpkin, carrots, potato, butternut, banana and grated apple
- Start giving vegetables before fruit because fruit has natural sugars that are sweeter than vegetables. This may cause a baby to refuse vegetables after first having tasted fruit

**SOME HANDY TIPS**

- Keep foods bland. Do not flavour with sugar, salt or herbs and spices
- Prepare small portions
- Do not expect your baby to finish a bowl of food every time
- From about 8 months you can begin to give more coarse foods, i.e. bread and meat (cut into cubes or minced). This is important so that your baby gets used to different textures of food and learns to chew
- Fruit juice must be diluted - ¼ cup of juice with ¼ cup of water

**FOODS TO AVOID**

- Before 1 year:
  - Cow’s milk (full cream, low-fat, 2% or fat-free) must **not** be given
  - Rooibos tea must **not** be given
  - It is better to introduce fish, cow’s milk, peanut butter and egg white after 1 year because these foods may cause allergies if given too early
- Sweets, fizzy drinks, biscuits, crisps and chocolates should not be given as a reward
- Coffee and tea must not be given
Tips For Feeding Children

- Be patient and do not force the child to eat.
- Provide small meals with favourite foods and give these often.
- Prepare foods that are soft, moist and easy to chew especially when the child has mouth sores.
- Feed liquids and soups using a straw when the child has thrush.
- Give yogurt, buttermilk or maas instead of milk, if the child has diarrhoea.
- Make meals attractive and include foods of different colours.
- Supplements that you get from the clinic should not replace meals, but add to them.
- If the child is fed formula, make sure you know how to mix the formula safely and correctly.

REMEMBER
Breastfeeding is best for ALL children!
It is important for caregivers to make sure that children with HIV, and other infections and illnesses, eat well and often. Looking after their diet is one of the ways to help them feel healthier and better soon.

Start Early With Good Nutrition
- It is far harder to regain good health than to keep it; therefore start to feed the child healthy food as early as possible (from 6 months onwards)

Eat A Variety Of Foods
- No single food is either good or bad by itself
- It is best to eat many different types of food as each one has different nutrients that are needed by the body

Make Starchy Foods The Basis Of Every Meal
- Starchy foods are relatively cheap and supply plenty of energy
- Foods in this group include bread, porridges, rice, sweet potatoes, pap, samp and pasta
- Other food groups should be eaten with the starchy foods to provide a balance

Provide Plenty Of Vegetables and Fruit
- These foods are especially important as they help fight against infections
- Aim to eat 5 portions of vegetables or fruit per day and include a variety of them

Eat Meat And Dairy Products Daily
- Eat a variety of animal protein such as meat, chicken, fish, eggs, milk, cheese and other dairy products
- These foods provide the body with proteins to build muscle and keep the body strong

Eat Vegetable Sources of Protein Often
- Eat foods such as peanuts, peanut butter, dried beans, soya beans, peas and lentils regularly
- These vegetable sources of protein are cheaper than animal protein and may be used to replace meat and dairy products

Sugars, Fats And Oils Add Energy
- Children living with HIV need more food and energy to stay healthy
- Add oil, butter, margarine and peanut butter to foods to make them more energy rich, especially if the child is sick and has a fever
- These foods may be included to enrich the diet but should be used sparingly if the child is overweight

Use Salt Sparingly
- Use salt as little as possible when cooking
- Many foods such as chips, Aromat, and tinned foods have hidden salt so always read food labels
- Use lemon juice, vinegar, fresh herbs and spices to flavour food instead of salt

Provide Plenty Of Safe, Clean Water
- Children should drink 2-4 glasses of water per day and more when it is very hot
- Water from taps is usually safe in our country
- If water from a borehole, river or well is used, it needs to be boiled first

Use the bleach method to make water safe if it cannot be boiled:
- Add one teaspoon of bleach to 25 litres of water
- Mix well and let it stand for at least 2 hours before drinking
RULES OF FOOD SAFETY

- Always wash fruit and vegetables with clean water before eating them
- If possible, use only pasteurised milk bought from a shop
- Throw away mouldy cheese or left-over food that is no longer fresh or left out of the fridge for too long
- Do not eat raw eggs, meat, chicken or fish and ensure cooking until well done
- Keep cold foods cold and hot foods warm
- Make sure that cooked food bought on the street is from a clean and safe source

For more information:
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IT STARTS WITH YOU!

- **Always** wash hands thoroughly with soap and water before preparing food, especially after using the toilet, sneezing or touching pets.
- Bath or shower everyday to ensure personal hygiene.
- Cover wounds and sores with a bandage or plaster before touching food.

ALWAYS DRINK AND USE CLEAN, SAFE WATER

In South Africa, tap water is generally safe to drink.

Use the **bleach method** to make water safe if it cannot be boiled.

**The Bleach Method:**
- Add one teaspoon of bleach to 25 litres of water.
- Mix well and let it stand for at least 2 hours before using.

CARRYING FOOD HOME

- Always place food in clean bags, containers or trolleys.
- Do not put cleaning materials such as bleach or soap powder in the same bag as food.
- Get bought food to where you will store it as soon as possible.
- Place frozen/chilled foods together and separate them from other unfrozen food.
- Handle perishable products with greater care as they can spoil easily. Keep them cool, refrigerated or frozen where necessary.
- To keep food cold during transportation, it may help to wrap it in a newspaper or to carry a cooler bag.

FOOD FIRST

- Always check the expiry date of food before purchasing it.
- Wash all dishes and kitchen surfaces with hot, soapy water.
- Use a separate chopping board when cutting raw meat, fish and chicken. If you only have one, then make sure you wash it in-between cutting different foods.
- Store leftovers in the fridge. If you do not have a fridge only prepare small amounts of food that does not have to be stored.
- **Do not store raw and cooked food together**, e.g. raw chicken and cooked chicken should be stored separately.
- Keep food left outside covered so that flies and germs cannot get in.
Save Fuel With A Hay Box

A hay box is a clever, healthy and cheap way to prepare foods that need to be cooked for a long time. It is a great way to save on fuel as you only have to cook the food for a short while and then place the hot food inside the box for the cooking to continue.

Follow these easy steps to make your own hay box:

- Use a box made of wood or a hard material that will not melt
- Line with straw, newspaper, foam, old blankets or scrap material
- Heat your food in a pot with a lid until it starts to boil and cook for 5 minutes
- Without opening the lid, place the pot inside the box and cover until snug and well-wrapped to continue cooking
- Place a lid on the box
- Leave until food is cooked. It is important when cooking meat to heat it on the stove before serving
You can be proud of yourself for making an effort to live well by following a healthy diet! By following some easy tips, you do not have to spend a lot of money to eat healthily.

Here are some guidelines to consider:

**Plant Your Own Vegetables And Fruit**
- With seeds you can start your own vegetable garden so that your family has a supply of different vegetables.
- This may be a new income because you can sell excess produce in your community.
- If you don’t have a large garden, plant seeds in any available container such as an old bath tub or old tyres cut in half!

**Protein From Sources Other Than Meat**
- If meat is too expensive to buy, try other healthy protein sources such as dried beans, lentils, soya mince, chickpeas, eggs, milk, peanuts and peanut butter.
- You can also cook a little meat and add beans or soya to make it go further!

**Forget Junk Food**
- Take-away and junk food is expensive and many of these are not healthy.
- Rather use your money to buy cheaper, healthier foods that everyone in the family can share.

**Buy In Bulk**
- When meat is on sale, buy more than usual and store in a fridge or freeze if necessary.
- The same may be done with products that stay fresher for longer such as certain tinned foods.
- Always check the expiry date!

**Use Leftovers**
- If you do not have a fridge, cook food in small amounts for one meal at a time.
- A fridge is useful in storing leftover food to keep it fresh.
- Be creative with leftovers, e.g. use leftover fruit to make fruit juice or add milk to make a milkshake.

**Plan Ahead**
- It is useful to plan meals ahead of time as this will help you shop around for the best price and buy only what you need.

**Healthy, Balanced Eating Need Not Be Expensive**
- A healthy diet means eating lots of vegetables, fruit, low-fat proteins (see Protein From Sources Other Than Meat), and high-energy carbohydrates like rice, pasta, bread and pasta.
- Do not spoil children with sweets, chips and junk foods as these are expensive and not healthy.

**Use Cheaper, Healthier Cooking Methods**
- Cook food without oil or butter where possible and rather steam foods.
- Use methods that save fuel such as a hay box.

**Share Food With A Neighbour Or Friend**
- It is a good idea to buy food in bulk and then to cook and share with a friend.
- This way is cheaper as you can share the costs.
Eat Food And Drinks Containing Sugar Sparingly And Not Between Meals

- Most people love sugar, sweets and everything that is sweet
- Too much sugar is not good for us!

CAUTION

- Make a habit of not taking food and beverages containing sugar often - save them for special occasions!

If You Drink Alcohol, Drink It Sensibly
- Alcoholic drinks provide no nutrients for the body
- Drinking in excess is not good for your health
- If you do drink, do so in moderation and when you are not going to drive

Pregnant and breastfeeding women should not drink at all! Alcohol is very dangerous to the baby

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Food is used inside our bodies for energy and to help the body repair itself. It is therefore important for all of us to take care of what we eat.

These guidelines are best for all persons older than 7 years and who are healthy and well. Make them part of your life to feel healthier and better!

Enjoy A Variety Of Foods
- No single food provides all the nutrients we need and it is best to enjoy many different foods

Be Active
- Regular activity helps us to stay fit, to control our weight and to keep our hearts and body healthy
- You don’t have to join a gym!
- Aim to do at least 30 minutes of exercise every day by taking brisk walks, doing house or garden work, or doing a fun-filled activity like dancing

Drink Lots Of Clean, Safe Water
- Did you know that every part of our bodies contains large amounts of water?
- Water is the best and cheapest drink around
- It is important so drink 6 - 8 glasses of clean, safe water every day

Make Starchy Foods The Basis Of Most Meals
- Starchy foods provide the body with energy and other important nutrients
- Starchy foods, like maize meal (or pap), samp, bread, rice, pasta, potatoes and sweet potatoes can be enjoyed daily in moderation!

Eat Plenty Of Vegetables And Fruit Every Day
- Most people know that eating vegetables and fruit have many benefits, and yet don’t eat enough of them
- These foods are especially important as they provide vitamins that help the body fight against illness
- Where possible, enjoy them raw and unpeeled in salads and with other food
- Always wash before eating!
- Aim to eat different types and colours of vegetables and fruit every day
- Aim for at least 5 portions of either vegetables or fruit daily

Eat your way to 5 A Day

Eat Dried Beans, Peas, Lentils, Peanuts Or Soya Regularly
- Eat foods such as peanuts, peanut butter, jugo beans and soy beans, regularly
- These are good sources of plant protein and may be used instead of meat

Use Salt Sparingly
- Use salt as little as possible in cooking
- Remember that many foods, like chips, peanuts, tinned foods and instant soups and sauces, contain hidden salt
- Always read food labels
- Use lemon juice, vinegar, fresh herbs and spices to flavour food instead of salt

Chicken, Fish, Meat, Milk Or Eggs Can Be Eaten Daily
- These are all animal-based foods and are good sources of protein
- Be sure to remove the skin from chicken and visible fat from meat!

Eat Fats Sparingly
- Fats are very concentrated sources of energy and may easily exceed your requirements
- Fatty food are also very tasty and it is easy to eat too much
- Steam, grill or bake food using little or no fat instead of frying in oil or butter
- Some foods contain healthier fats and may be included, eg: pilchards, tuna, nuts, avocado, olives and vegetable oil (use or eat small amounts)
- Avoid lots of animal fats, e.g.: butter and cream
- Some foods contain hidden fats, e.g. coffee creamer, sauces, processed and junk foods
The celebration of childhood involves witnessing the many developmental milestones a child achieves over time. Developmental milestones are the skills children gain as they grow and play. Children develop skills in language, fine motor function, gross motor function and in tasks they need to master in order to achieve independence. Unfortunately, HIV can have very negative impacts on this process from both direct and indirect causes. An estimated 40-60% of HIV-infected children have some degree of developmental impairment due to neurological involvement. These can range from mild cognitive disorders to severe and debilitating psycho-motor impairments. Any neurological involvement due to HIV is a WHO Stage 4 disease, therefore children with delayed milestones, brisk reflexes in the lower limbs and microcephaly are eligible for ART. Detection and early intervention are essential to ensure children reach their fullest potential.

**KEY MESSAGE:**

*Monitoring developmental achievements is an essential part of paediatric HIV care & support.*

Caregivers are experts in taking care of their children. A developmental milestone assessment should include a discussion about the child’s development with the caregiver. Always take caregiver developmental concerns seriously as they know their child best. This chapter contains age-appropriate screening job aides which provide sample questions to guide this discussion. It is also important to ask questions about all developmental areas.

Assessing the child begins with observing the child as they enter your consultation room. Being familiar with normal development will assist you in identifying delays or abnormalities. Take note of the child’s activities, behaviour, motor skills, as well as verbal and non-verbal communication with the caregiver. The age-appropriate screening job aides included in this section will assist you to assess the different developmental areas, namely:

- Gross motor
- Fine motor
- Communication
- Personal/Social
Assessment of school performance in older children can provide insight into possible cognitive learning disorders. Questions about play (how, when and with whom) can give insight into possible behavioural difficulties.

Finally, remember to obtain, document and interpret the head circumference in children less than 3 years of age. Head circumference is a proxy measurement for brain growth. Children with HIV encephalopathy often present with acquired microcephaly, or small head size for age.

**KEY MESSAGE:**

*Early referral of children with developmental delay to the rehabilitation team could improve the child’s development and prevent disabilities. Remember that occupational and physiotherapy consultants can play an important role in supporting HIV infected children with developmental concerns. If in doubt, refer for an assessment.*
# DEVELOPMENTAL MILESTONE RED FLAG SCREENING FOR PRIMARY HEALTH CARE

Name of child: ___________________________ Date of Birth: ____________ File No: ____________ Clinic: ____________

<table>
<thead>
<tr>
<th>AGE GROUP</th>
<th>DEVELOPMENTAL MILESTONE RED FLAGS</th>
<th>QUESTIONS TO ASK THE MOTHER/CARE GIVER</th>
<th>YES</th>
<th>NO</th>
</tr>
</thead>
<tbody>
<tr>
<td>6 Weeks</td>
<td>Poor hearing</td>
<td>Does your child get frightened by loud sounds?</td>
<td>refer</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Does your baby move or turn his head when you talk to him?</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Poor vision</td>
<td>Have you noticed a white spot on your child’s eyes?</td>
<td>refer</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Is your baby looking at your face during feeding?</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Floppy</td>
<td>Does your baby try to lift his head up when you hold your baby against your shoulder?</td>
<td>refer</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Are there any body parts that look different than other children’s?</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Deformities present</td>
<td>Health Care Worker should undress and examine baby for any deformities</td>
<td>refer</td>
<td></td>
</tr>
</tbody>
</table>

**Comments:**

**Referred to:**
- ART clinic, Doctor, Speech Therapist, Occupational Therapist, Physiotherapist, Eye care service

**Signature:**

JULY 2010

These developmental milestones and the lack thereof represent the RED FLAGS of child development. The age linked to the milestones leave some leeway for the slow developer. If all the grey boxes representing the same Red Flag are ticked: Do provider initiated counselling and testing for HIV. The child should immediately be referred to a doctor for a comprehensive neurological assessment and referred as indicated. If an Occupational Therapist is available on primary level, refer.
# Developmental Milestone Red Flag Screening for Primary Health Care

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Developmental Milestone Red Flags</th>
<th>Questions to Ask the Mother/Care Giver</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>3 months</td>
<td>No visual fixation or following</td>
<td>Does the baby follow you when you move? / Follow a toy with his eyes?</td>
<td>refer</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Does your baby look at you during feeding?</td>
<td>refer</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Have you noticed a white spot on your baby’s eyes?</td>
<td>refer</td>
<td>refer</td>
</tr>
<tr>
<td></td>
<td>Poor hearing</td>
<td>Does your baby respond to sounds by turning, blinking or stop sucking?</td>
<td>refer</td>
<td>refer</td>
</tr>
<tr>
<td></td>
<td>Asymmetry of tone or movement</td>
<td>Does your child prefer to use one side (left or right) more than the other?</td>
<td>refer</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Is the child moving his arms more than his legs or vice versa?</td>
<td>refer</td>
<td>refer</td>
</tr>
<tr>
<td></td>
<td>Floppy/stiff</td>
<td>Do you struggle to change your baby’s nappy, because the legs are stiff?</td>
<td>refer</td>
<td>refer</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Is the baby reminding you of a rag doll or a new born baby?</td>
<td>refer</td>
<td>refer</td>
</tr>
<tr>
<td></td>
<td>Consistent fisting</td>
<td>Does your child open his hands to take your finger or a rattle?</td>
<td>refer</td>
<td>refer</td>
</tr>
<tr>
<td></td>
<td>Unable to turn or lift head</td>
<td>Is the baby able to turn his head sideways when lying on his tummy?</td>
<td>refer</td>
<td>refer</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Is the baby able to lift his head when lying on his tummy?</td>
<td>refer</td>
<td>refer</td>
</tr>
<tr>
<td></td>
<td>Failure to smile</td>
<td>Does your baby smile when you talk or play with him?</td>
<td>refer</td>
<td>refer</td>
</tr>
<tr>
<td></td>
<td>Poor sucking and swallowing</td>
<td>Does your baby struggle with feeding e.g. struggle to suck the nipple/dummy?</td>
<td>refer</td>
<td>refer</td>
</tr>
</tbody>
</table>

**Comments:**

**Referred to:**
ART clinic, Doctor, Speech Therapist, Occupational Therapist, Physiotherapist, Eye care service

**Signature:**

**Date:**

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DEVELOPMENTAL MILESTONE RED FLAG SCREENING FOR PRIMARY HEALTH CARE

<table>
<thead>
<tr>
<th>AGE GROUP</th>
<th>DEVELOPMENTAL MILESTONE RED FLAGS</th>
<th>QUESTIONS TO ASK THE MOTHER/CARE GIVER</th>
<th>YES</th>
<th>NO</th>
</tr>
</thead>
<tbody>
<tr>
<td>6 months</td>
<td>Floppiness and poor head control</td>
<td>Can your baby sit if you hold his hands or put pillows around him?</td>
<td>refer</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Is the baby able to lift his head with his upper body when pulled to sit?</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Baby is not rolling</td>
<td>Does your baby role over from his tummy to his back and vice versa?</td>
<td>refer</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Asymmetrical movements e.g. failure to use both hands</td>
<td>Does your baby help to hold his bottle or the breast with both hands?</td>
<td>refer</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Does your baby pick up and play with a rattle or another toy? Both hands</td>
<td>refer</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Does your child lift both his feet and play with them with both hands?</td>
<td>refer</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Squint or blindness</td>
<td>Are you worried about your child’s vision? Squint?</td>
<td>refer</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Does the baby follow an object from one side to another?</td>
<td>refer</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Hearing: failure to turn to sound</td>
<td>Does your baby turn his head to sounds?</td>
<td>refer</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Poor response to people</td>
<td>Does your baby cry differently when he is hungry, tired or sick?</td>
<td>refer</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Does the baby laugh out loud?</td>
<td>refer</td>
<td></td>
</tr>
</tbody>
</table>

Comments: 

Referred to: ART clinic, Doctor, Speech Therapist, Occupational Therapist, Physiotherapist, Eye care service

Signature: 

Date: 

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## DEVELOPMENTAL MILESTONE RED FLAG SCREENING FOR PRIMARY HEALTH CARE

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<thead>
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<th>YES</th>
<th>NO</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>9 months</strong></td>
<td><strong>Unable to sit</strong></td>
<td>Is your baby able to sit without support?</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Is your baby able to lean forward and sit up again without falling over?</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Not developing the crawling position</strong></td>
<td>Can your baby roll over from his back or sides to his stomach?</td>
<td>refer</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Is your baby standing on his hands and knees, swaying forwards and backwards?</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Hand preference</strong></td>
<td>Does your child mostly use one hand?</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Is your child able to bring both hands together in the middle of the body?</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Can your baby pass a toy from one hand to the other?</td>
<td>refer</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Fisting</strong></td>
<td>Do you struggle to open your baby’s hands to clean them or to cut the nails?</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Does your child reach out and pick up a toy with any given hand?</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Squint or blindness</strong></td>
<td>Are you worried about your child’s vision? Squint?</td>
<td>refer</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Does the baby follow an object from one side to another?</td>
<td>refer</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Hearing and speech</strong></td>
<td>Does your baby stop and turn when you call his name?</td>
<td>refer</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Does your baby babble using different sounds like “dadada” or “bababa”?</td>
<td>refer</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Persistence of primitive reflexes</strong></td>
<td>Evaluate the Grasp reflex and the Routing reflex: Is it present?</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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<tr>
<th>AGE GROUP</th>
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<th>YES</th>
<th>NO</th>
</tr>
</thead>
<tbody>
<tr>
<td>12 months</td>
<td>Unable to bear weight on legs</td>
<td>If you hold your child, feet touching the ground: Is your child standing?</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Does your child carry an equal amount of weight on both legs?</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Not yet crawling and pulling to stand</td>
<td>Is your child crawling?</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Does your child crawl to a chair and then pull himself up to standing?</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Abnormal grasp</td>
<td>Can your child hold a block or a stone in each hand at the same time?</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Can your child pick up a button or a small stone from the floor?</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Failure to respond to sound</td>
<td>Do you have a very quiet child?</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Does your baby imitate sounds and babbles “ma-ma-ma”?</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Does your child start to understand the meaning of some words? “No” “Bye”</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Feeding: Unable to start with solids independently</td>
<td>Does your child struggle to swallow mashed solids?</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Is your child able to pick up firm cooked food and eat it? Cooked carrots, chips</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Comments:**

**Referred to:**
ART clinic, Doctor, Speech Therapist, Occupational Therapist, Physiotherapist, Eye care service

**Signature:**

**Date:**

**JULY 2010**
### Developmental Milestone Red Flag Screening for Primary Health Care

<table>
<thead>
<tr>
<th>AGE GROUP</th>
<th>DEVELOPMENTAL MILESTONE RED FLAGS</th>
<th>QUESTIONS TO ASK THE MOTHER/CARE GIVER</th>
<th>YES</th>
<th>NO</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>15 months</strong></td>
<td>Unable to bear weight on legs</td>
<td>If you hold your child, feet touching the ground: Is your child standing?</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Does your child carry an equal amount of weight on both legs?</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Not yet walking</td>
<td>Is your child walking forward if held by one hand?</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Is your child able to give a few steps independently (even if he is unsure)?</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Struggle to change between positions</td>
<td>If your child is sitting on the floor, does he turn to reach toys behind him?</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Can your child sit down unaided from standing?</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Abnormal grasp</td>
<td>Are you worried about how your child’s hands look?</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Is your child able to release a toy (an object) if you ask him to?</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Can your child hold a toy and play with it with the other hand?</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Abnormal posture: floppy/spastic</td>
<td>Are you worried that your child doesn’t look like other children the same age?</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Do you think your child struggles to move freely? Legs scissoring, arms stiff</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Do you think your child is floppy, reminding you of a rag doll?</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Failure to respond to sound</td>
<td>Do you have a very quiet child?</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Does your child turn to the sound when you talk to him if he did not see you?</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Not yet talking</td>
<td>Is your child saying at least 3 words with meaning?</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Comments:**

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JULY 2010
**DEVELOPMENTAL MILESTONE RED FLAG SCREENING FOR PRIMARY HEALTH CARE**

<table>
<thead>
<tr>
<th>AGE GROUP</th>
<th>DEVELOPMENTAL MILESTONE RED FLAGS</th>
<th>QUESTIONS TO ASK THE MOTHER/CARE GIVER</th>
<th>YES</th>
<th>NO</th>
</tr>
</thead>
<tbody>
<tr>
<td>18 months</td>
<td>Failure to walk</td>
<td>Is your child able to walk (even if it is with a broad base)?</td>
<td>refer</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Struggle to change between positions</td>
<td>Can your child squat and stand up again?</td>
<td>refer</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Poor vision</td>
<td>Are you worried about your child’s vision?</td>
<td>refer</td>
<td></td>
</tr>
<tr>
<td></td>
<td>No pincer grip</td>
<td>Is your child able to pick up a button between the thumb and another finger?</td>
<td>refer</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Abnormal posture: floppy/spastic</td>
<td>Are you worried that your child doesn’t look like other children the same age?</td>
<td>refer</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Poor hearing</td>
<td>Does your child have any problem with hearing?</td>
<td>refer</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Inability to understand simple commands</td>
<td>Does your child respond to a simple command like “Don’t touch it”?</td>
<td>refer</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Not yet talking</td>
<td>Is your child able to say 5 different words with meaning?</td>
<td>refer</td>
<td></td>
</tr>
</tbody>
</table>

**Comments:**

**Referred to:**
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- Doctor
- Speech Therapist
- Occupational Therapist
- Physiotherapist
- Eye care service

**Signature:**

**Date:**

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*JULY 2010*
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<th>YES</th>
<th>NO</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>24 months</strong></td>
<td><strong>Unable to understand simple commands</strong></td>
<td>Does your child respond to a simple command like “Don’t touch it”?</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Does your child understand what “up”, “down” or “under” mean?</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Cognition (learning) not developing</strong></td>
<td>Do you sometimes worry that your child is not learning new things?</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Can your child point to at least 5 body parts if you ask him to?</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Not yet talking</strong></td>
<td>Is your child using 2 word sentences e.g. “Mommy bottle”?</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Does your child ask for food, drink or his favourite toy?</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Poor gross motor coordination</strong></td>
<td>Has your child started running? (If not running ask if the child is walking)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Can your child throw and catch a big ball? (thrown directly to the child)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Poor fine motor development</strong></td>
<td>Can your child open a wrapped sweetie with little help? (Not using teeth)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Does your child scribble with crayons on paper?</td>
<td></td>
<td>*</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Tell mother to stimulate and reassess at next visit</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Comments:**

**Referred to:**
- ART clinic
- Doctor
- Speech Therapist
- Occupational Therapist
- Physiotherapist
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**Signature:**

**Date:**

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</tr>
</thead>
<tbody>
<tr>
<td>36 months</td>
<td>Using only single words (or not yet talking)</td>
<td>Was your child previously able to speak but can no longer do so?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(3 years)</td>
<td></td>
<td>Is your child using 3 word sentences e.g. “Mommy give bottle”?</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Is your child able to have a simple conversation with you?</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Cognition (learning) developing slowly</td>
<td>Do you sometimes worry that your child is not learning new things?</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Does your child know his own name, gender and age (use finger to indicate age)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Ataxia (HCW must assess)</td>
<td>Are you worried about the way your child moves?</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Failure of muscle co-ordination resulting in irregular and jerky</td>
<td>Is your child moving like someone that drank too much?</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>movements</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Poor fine motor development</td>
<td>Can your child open a wrapped sweetie with little help? (Not using teeth)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Can your child draw a man with 4 parts?</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Poor gross motor coordination</td>
<td>Can your child walk on a straight line forwards and backwards?</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Can your child throw and catch a big ball? (thrown directly to the child)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Child still completely dependent</td>
<td>Does your child start to help with his own dressing?</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Can your child eat with a spoon on his own?</td>
<td></td>
<td></td>
</tr>
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</tr>
</thead>
<tbody>
<tr>
<td>48 months (4years)</td>
<td>Speech difficult to understand because of poor articulation or omission or substitution of consonants</td>
<td>Was your child previously able to speak but can no longer do so?</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Do you and/or other people struggle to hear or understand your child?</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Can your child say his own name, gender and age?</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Poor fine motor development</td>
<td>Can your child draw the basic shapes? (See pictures on the left)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Can your child draw a man with 8 parts?</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Poor gross motor development</td>
<td>Can your child run comfortably?</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Can your child play a clapping game crossing one hand to the opposite side?</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Cognition (learning) developing slowly</td>
<td>Do you sometimes worry that your child is not learning new things?</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Does your child often just sit doing nothing, not interested in any play?</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Can your child concentrate on one activity for 5-10 minutes?</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>No interest in play</td>
<td>Is your child sitting in the house and not playing with his friends?</td>
<td></td>
<td>Refer to OT</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Does your child play with children much younger than him/her?</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Comments:**

These developmental milestones and the lack thereof represent the RED FLAGS of child development. The age linked to the milestones leave some leeway for the slow developer. If all the grey boxes representing the same Red Flag are ticked, do provider initiated counselling and testing for HIV. The child should immediatly be referred to a doctor for a comprehensive neurological assessment and referred as indicated. If an Occupational Therapist is available on primary level, refer. JULY 2010

**Referred to:**
- ART clinic
- Doctor
- Speech Therapist
- Occupational Therapist
- Physiotherapist
- Eye care service

**Signature:**

**Date:**
### DEVELOPMENTAL MILESTONE RED FLAG SCREENING FOR PRIMARY HEALTH CARE

**Name of child:** 
**Date of Birth:** 
**File No:** 
**Clinic:** 

<table>
<thead>
<tr>
<th><strong>AGE GROUP</strong></th>
<th><strong>DEVELOPMENTAL MILESTONE RED FLAGS</strong></th>
<th><strong>QUESTIONS TO ASK THE MOTHER/CARE GIVER</strong></th>
<th><strong>YES</strong></th>
<th><strong>NO</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>60 months</strong></td>
<td><strong>5 years</strong></td>
<td>Speech difficult to understand because of poor articulation or omission or substitution of consonants</td>
<td>Is your child speaking fluently?</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Can your child ask and answer relevant questions?</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Is the child able to name basic body parts?</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Poor fine motor development</td>
<td>Able to colour in fairly neatly between the lines of a picture</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Poor gross motor development</td>
<td>Able to catch and throw a ball?</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Is your child clumsy? (constantly having mishaps)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Able to march?</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Cognition (learning) developing slowly</td>
<td>Do you sometimes worry that your child is not learning new things?</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Does your child sometimes just sit doing nothing, not interested in any play?</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Emotional immaturity</td>
<td>Can your child concentrate on one activity for 5-10 minutes?</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Are you worried that your child is not ready to go to school?</td>
<td>Refer to OT</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Does your child cry easily, have emotional outbursts when there is no reason?</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Comments:**

**Referred to:**
- ART clinic
- Doctor, Speech Therapist
- Occupational Therapist
- Physiotherapist
- Eye care service

**Signature:**

**Date:**

---

These developmental milestones and the lack thereof represent the RED FLAGS of child development. The age linked to the milestones leave some leeway for the slow developer. If all the grey boxes representing the same Red Flag are ticked, provider initiated counselling and testing for HIV. The child should immediately be referred to a doctor for a comprehensive neurological assessment and referred as indicated. If an Occupational Therapist is available on primary level, refer.
## DEVELOPMENTAL MILESTONES MONITORING
### FOR ART CLINICS

**Name of child:** _______________  **Date of Birth:** _______________  **File No:** _______________

<table>
<thead>
<tr>
<th>AGE</th>
<th>GROSS MOTOR</th>
<th>FINE MOTOR</th>
<th>COMMUNICATION</th>
<th>PERSONAL / SOCIAL</th>
<th>WARNING SIGNS</th>
</tr>
</thead>
<tbody>
<tr>
<td>3 months</td>
<td><strong>Supine:</strong> Pull to sit; 45° head lag still present</td>
<td><strong>Sitting:</strong> Propped up □ Flexed/C- position □ Hold head steady</td>
<td>Eyes: □ Follows through 90° in lying □ Discover hands □ Makes noises &amp; smile when spoken to □ Coos and chuckles □ Identifies familiar voices □ Smiles selectively</td>
<td>□ Excited when fed, looks at mother's face □ Better routine □ More interest in toys &amp; sounds □ Plays with own body</td>
<td>□ No visual fixation or following □ Asymmetry of tone or movement □ Floppy/stiff □ Consistent fisting □ Unable to turn or lift head □ Failure to smile □ Poor sucking &amp; swallowing</td>
</tr>
<tr>
<td></td>
<td><strong>Prone:</strong> Bears weight on flexed arms □ Lifts head 45° &amp; turn head to side</td>
<td><strong>Eyes:</strong> □ Follows through 90° in lying □ Discover hands</td>
<td>□ Makes noises &amp; smile when spoken to □ Coos and chuckles □ Identifies familiar voices □ Smiles selectively</td>
<td>□ Plays with own body</td>
<td>□ No visual fixation or following □ Asymmetry of tone or movement □ Floppy/stiff □ Consistent fisting □ Unable to turn or lift head □ Failure to smile □ Poor sucking &amp; swallowing</td>
</tr>
<tr>
<td></td>
<td><strong>Date:</strong> ___________________________</td>
<td><strong>Comments:</strong></td>
<td><strong>Signature:</strong></td>
<td></td>
<td><strong>Comments:</strong></td>
</tr>
<tr>
<td>6 months</td>
<td><strong>Supine:</strong> Pull to sit, no more head lag □ Plays with feet □ Rolls from back to tummy</td>
<td><strong>Sitting:</strong> Unaided □ Sit, supported by arms</td>
<td>□ Follows through 180° in lying □ Focus on small objects □ Hands: □ Hands to midline □ Banging blocks against the table □ Reaches and attains object at will □ Holds and actively plays with rattle</td>
<td>□ Babbles to get attention □ Makes simple sounds □ Laughs aloud □ Turns to mother's voice □ Responds to his name</td>
<td>□ Holds out arms to be picked up □ Examines the face of the person holding him □ Independence: □ Start eating solid food off a spoon □ Starts to hold the bottle □ Play: □ Puts everything in mouth</td>
</tr>
<tr>
<td></td>
<td><strong>Standing:</strong> Bears weight on legs, equal both sides</td>
<td><strong>Prone:</strong> Props self on straight arms, legs extended, toes turned outwards</td>
<td>□ Babbles “ma-ma” □ Imitates sounds □ Understands “no” / “bye-bye”</td>
<td></td>
<td><strong>Comments:</strong></td>
</tr>
<tr>
<td>9 months</td>
<td><strong>Sitting:</strong> Sits without support □ Lean forward and sit up again without losing balance</td>
<td><strong>Standing:</strong> Remain standing for a few seconds by holding onto an object, falls down again</td>
<td>□ Extremely accurate vision □ Can pick up a button □ Holds a block in each hand □ Points</td>
<td>□ Stranger anxiety □ Independence: □ Dependent on mother □ Holds bottle independently □ Play: □ Enjoys playing “peek-a-boo”</td>
<td>□ Unable to sit □ Failure to use both hands □ Fisting □ Squint □ Persistence of primitive reflexes</td>
</tr>
<tr>
<td></td>
<td><strong>Prone:</strong> Baby start to crawl</td>
<td></td>
<td><strong>Comments:</strong></td>
<td></td>
<td><strong>Signature:</strong></td>
</tr>
</tbody>
</table>

These developmental norms are selected and adapted for the ART Clinic setting. Each section represents basic milestones for specific age groups. If the child lacks 3 or more milestones in a specific category, the child should be referred for an occupational therapist, speech therapist or physical therapist. Speech therapists and physiotherapists should be assessed for HAART eligibility. The child should also be referred to an occupational therapist, speech therapist or physiotherapist according to the area of developmental delay. May 2010

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**PAEDIATRIC HIV CARE & TREATMENT: A toolkit for multidisciplinary health care teams**  **Version 1: 2011**
<table>
<thead>
<tr>
<th>AGE</th>
<th>GROSS MOTOR</th>
<th>FINE MOTOR</th>
<th>COMMUNICATION</th>
<th>PERSONAL / SOCIAL</th>
<th>WARNING SIGNS</th>
</tr>
</thead>
<tbody>
<tr>
<td>12 months</td>
<td>Sitting: Tums around to reach toys next to him</td>
<td>Eyes: Looks for toys when out of sight</td>
<td>□ Knows own name</td>
<td>Independence:</td>
<td>□ Unable to bear weight on legs</td>
</tr>
<tr>
<td></td>
<td>Sit down unaided from standing</td>
<td>Hands: Able to pick up a button with his thumb and index finger (Pincer grasp)</td>
<td>□ 1 Word sentences</td>
<td></td>
<td>□ Not yet crawling and pulling to stand</td>
</tr>
<tr>
<td></td>
<td>Standing: (Walking)</td>
<td>□ Release on request</td>
<td>□ 2 Words with meaning</td>
<td></td>
<td>□ Abnormal grasp</td>
</tr>
<tr>
<td></td>
<td>□ Walks forward if held by one hand</td>
<td>□ Hold with 1 hand and play with the other</td>
<td>□ Understand simple commands</td>
<td></td>
<td>□ Failure to respond to sound</td>
</tr>
<tr>
<td></td>
<td>□ Walks around furniture sideways-cruising</td>
<td>□ Throw things into a container and take it out again</td>
<td>□ Copies words he hears a lot</td>
<td></td>
<td>□ Unable to start with solids independently</td>
</tr>
<tr>
<td></td>
<td>Prone: (Crawling)</td>
<td>□ Hold the crayon in a fist when scribbling</td>
<td>□ Independence:</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>□ Crawl</td>
<td>□ Turn pages of a book roughly</td>
<td>□ Picks up, drinks and puts down a cup</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>□ Pull up to standing by holding onto object</td>
<td>□ Hold 2 small toys in 1 hand</td>
<td>□ Indicates wet nappy</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>□ Bear walking</td>
<td>□ Put lid back on container</td>
<td>□ Bring spoon up to his mouth during feeding tends to lick it upside down</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Comments:</td>
<td>□ Jabbwer with expression</td>
<td>□ Play:</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Date:________________________</td>
<td>□ 2–6 words</td>
<td>□ Throw a ball, but loses balance in process</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>□ Points to known object on request</td>
<td>□ Like to fit things into one another (Nesting toys)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>□ Understand what the word “up” and “down” mean</td>
<td>□ Throw an object on the floor for pleasure</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>□ Respond to a simple command e.g. “Fetch the ball”</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Comments:**

**Signature:**

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<table>
<thead>
<tr>
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<th>WARNING SIGNS</th>
</tr>
</thead>
<tbody>
<tr>
<td>15 months</td>
<td>Sitting: Stand up from sitting</td>
<td>□ Hold the crayon in a fist when scribbling</td>
<td>□ Knows own name</td>
<td>Independence:</td>
<td>□ Unable to bear weight on legs</td>
</tr>
<tr>
<td></td>
<td>Will climb on a chair and sit down</td>
<td>□ Turn pages of a book roughly</td>
<td>□ 1 Word sentences</td>
<td></td>
<td>□ Not yet walking</td>
</tr>
<tr>
<td></td>
<td>Standing: (Walking)</td>
<td>□ Hold 2 small toys in 1 hand</td>
<td>□ 2 Words with meaning</td>
<td></td>
<td>□ Abnormal grasp</td>
</tr>
<tr>
<td></td>
<td>□ Bend over to pick up an object</td>
<td>□ Put lid back on container</td>
<td>□ Understand simple commands</td>
<td></td>
<td>□ Failure to respond to sound</td>
</tr>
<tr>
<td></td>
<td>□ Squat and stand up again</td>
<td>□ Independence:</td>
<td>□ Copies words he hears a lot</td>
<td></td>
<td>□ Unable to start with solids independently</td>
</tr>
<tr>
<td></td>
<td>□ Walks alone, broad base with arms in the air</td>
<td>□ Picks up, drinks and puts down a cup</td>
<td>□ Independence:</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Prone: (Crawling)</td>
<td>□ Indicates wet nappy</td>
<td>□ Puts down a cup</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>□ Able to crawl fast</td>
<td>□ Bring spoon up to his mouth during feeding tends to lick it upside down</td>
<td>□ Understand what the word “up” and “down” mean</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>and manage obstacles e.g. stairs</td>
<td>□ Point to known object on request</td>
<td>□ Respond to a simple command e.g. “Fetch the ball”</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Comments:</td>
<td>□ Understand 15 words</td>
<td>□ Independence:</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Date:________________________</td>
<td>□ Points to known object on request</td>
<td>□ Handles spoon well</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>□ Use gestures to indicate his needs</td>
<td>□ Takes off shoes and socks</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>□ Point out body part on himself and another person</td>
<td>□ Play:</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>□ Mood swings</td>
<td>□ Interested in own mirror image</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>□ Failure to walk</td>
<td>□ Mood swings</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>□ Unable to pick up small objects e.g. buttons</td>
<td>□ Independence:</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>□ Abnormal posture:</td>
<td>□ Puts down a cup</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>□ Failure to respond to sound</td>
<td>□ Abnormal posture:</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>□ Failure to walk</td>
<td>□ Abnormal posture:</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Comments:**

**Signature:**

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<table>
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</tr>
</thead>
<tbody>
<tr>
<td>18 months</td>
<td>□ Walk with more confidence</td>
<td>□ Build a 3 cube tower</td>
<td>□ Mood swings</td>
<td>Independence:</td>
<td>□ Failure to walk</td>
</tr>
<tr>
<td></td>
<td>□ Walk, squat and pick up something, stand up and walk again</td>
<td>□ Scribbles</td>
<td>□ Independence:</td>
<td></td>
<td>□ Unable to pick up small objects e.g. buttons</td>
</tr>
<tr>
<td></td>
<td>□ Start running, often fails.</td>
<td>□ Hold the crayon in a fist</td>
<td>□ Handles spoon well</td>
<td></td>
<td>□ Abnormal posture:</td>
</tr>
<tr>
<td></td>
<td>Comments:</td>
<td>□ Turn pages of a book</td>
<td>□ Takes off shoes and socks</td>
<td></td>
<td>□ Failure to understand simple commands</td>
</tr>
<tr>
<td></td>
<td>Date:________________________</td>
<td>□ Points to known object on request</td>
<td>□ Play:</td>
<td></td>
<td>□ Not yet talking</td>
</tr>
<tr>
<td></td>
<td></td>
<td>□ Understand what the word “up” and “down” mean</td>
<td>□ Interested in own mirror image</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>□ Respond to a simple command e.g. “Fetch the ball”</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Comments:**

**Signature:**

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</tr>
</thead>
<tbody>
<tr>
<td>24 months</td>
<td>Take few steps backwards</td>
<td>Page through a book page by page</td>
<td>&lt;50 words</td>
<td>Has a strong will of his own &quot;I'll do it myself!&quot;</td>
<td>Unable to understand simple commands</td>
</tr>
<tr>
<td></td>
<td>Runs and change direction easily</td>
<td>Obvious hand preference</td>
<td>2 word sentences</td>
<td>Temper tantrums</td>
<td>Poor co-ordination</td>
</tr>
<tr>
<td></td>
<td>Jump off step with 2 feet together</td>
<td>Uses lines: I, _, O</td>
<td>Ask for food, drink, toilet</td>
<td>Likes to give hugs</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Stand and kick a ball</td>
<td>Complete 3 piece puzzle</td>
<td>Point to at least 5 body parts</td>
<td>Shy towards strangers</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Able to throw a ball</td>
<td>Open a sweet with little help</td>
<td>Name 3 body parts</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Able to place objects with the same colour together</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Can count up to 3</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Able to orientate self in relation to another object e.g. &quot;Stand behind/on top of/in front of the chair&quot;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>36 months</td>
<td>Walk forward and backward</td>
<td>Copies the following shapes: _, I, O, T</td>
<td>Produce all consonants and vowels correct. ('R', 'S' not perfect)</td>
<td>More co-operative temperament</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Walks on tip toes</td>
<td>Start colouring in, go over the lines</td>
<td>Talks constantly and can have a simple conversation with you</td>
<td>Understand what is socially acceptable</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Walk on straight line</td>
<td>Pencil grip: Holding crayon to draw (still developing)</td>
<td>Knows own name and gender</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Jump 2 feet together</td>
<td>Builds a 9 block tower</td>
<td>Show his age by using his fingers</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Able to climb on chair</td>
<td>Thread big beads on a shoelace</td>
<td>Can identify all parts of face</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Catch a big ball (hugging against chest)</td>
<td>Draw-a-man: at least 4 parts</td>
<td>Identify circle, square and triangle if you name them</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Hold ball above head and throws</td>
<td></td>
<td>Fit basic colours together (blue, red, yellow)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Run and kick a ball</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Comments:                                                                                     Signature:                                                                                     

Comments:                                                                                     Signature:                                                                                     

Comments:                                                                                     Signature:                                                                                     

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<table>
<thead>
<tr>
<th>AGE</th>
<th>GROSS MOTOR</th>
<th>FINE MOTOR</th>
<th>COMMUNICATION</th>
<th>PERSONAL / SOCIAL</th>
<th>WARNING SIGNS</th>
</tr>
</thead>
<tbody>
<tr>
<td>48 months</td>
<td>□ Walk heel-toe with good balance</td>
<td>□ Full name and age</td>
<td>□ Sometimes silly and like to show off</td>
<td>□ Speech difficult to understand</td>
<td>□ Sometimes silly and like to show off</td>
</tr>
<tr>
<td></td>
<td>□ Walk on tip toe</td>
<td>□ Give the names of 4 colours if you point to it</td>
<td>□ Get involved in fights</td>
<td>because of poor articulation or omission</td>
<td>□ Speech difficult to understand</td>
</tr>
<tr>
<td></td>
<td>□ Stands on 1 leg for 3 seconds</td>
<td>□ Point to most of his body parts if asked to</td>
<td>□ Eats with spoon</td>
<td>or substitution of consonants</td>
<td></td>
</tr>
<tr>
<td></td>
<td>□ Hop on 1 leg</td>
<td>□ Count up to 10</td>
<td>□ Carry a cup without wasting water</td>
<td>□ Not able to draw basic shapes</td>
<td></td>
</tr>
<tr>
<td></td>
<td>□ Jump with 2 feet together forward</td>
<td>□ Know the difference between big and small</td>
<td>□ Want to go to the toilet by himself</td>
<td>□ Doesn’t show an interest to play</td>
<td></td>
</tr>
<tr>
<td></td>
<td>□ Can catch and throw a ball</td>
<td>□ Able to orientate self in relation to another</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>□ Catch a bouncing ball direct</td>
<td>object e.g. “Stand behind/on top of the chair”</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>□ Listen to a longer story</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>□ Complete a puzzle (15 piece at most)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Comments:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Signature:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tbody>
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<table>
<thead>
<tr>
<th>AGE</th>
<th>GROSS MOTOR</th>
<th>FINE MOTOR</th>
<th>COMMUNICATION</th>
<th>PERSONAL / SOCIAL</th>
<th>WARNING SIGNS</th>
</tr>
</thead>
<tbody>
<tr>
<td>60 months (5 years)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>□ Stand on 1 leg (8-10 seconds)</td>
<td>□ Able to build a 10 block tower</td>
<td>□ Fluent speech</td>
<td>□ Choose and make friends</td>
<td>□ Emotional immaturity e.g. acting out, disruptive</td>
</tr>
<tr>
<td></td>
<td>□ Walk heel-toe with good balance</td>
<td>□ Able to cross his midline during a clapping game</td>
<td>□ Able to talk about the world around him</td>
<td>□ Able to take turns</td>
<td>□ Poor concentration</td>
</tr>
<tr>
<td></td>
<td>□ Walk on tiptoe</td>
<td>□ Copies square and triangle</td>
<td>□ Ask a lot of questions</td>
<td>□ Temperament: gentle and friendly</td>
<td>Unable to play in a group</td>
</tr>
<tr>
<td></td>
<td>□ Hop on one leg (3 times)</td>
<td>□ Draw a man: all the basic parts of a man with clothes</td>
<td>□ Able to point to basic body parts if asked to</td>
<td>□ Trust and like adults</td>
<td>Poor posture during table top activities</td>
</tr>
<tr>
<td></td>
<td>□ Jump with 2 feet together</td>
<td>□ Copy the following shapes on paper</td>
<td>□ Able to name body parts if you point to them</td>
<td>□ Obedient to caregivers (open to social norms and authority)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>□ Able to march</td>
<td>□ Colour in fairly neatly within the lines of a picture</td>
<td>□ Able to give his first and last names</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>□ Able to catch and throw a ball</td>
<td>□ Hold pencil like an adult</td>
<td>□ He knows where he lives: street name/residential area and city</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>□ Catch and throw a bouncing ball with both hands</td>
<td>□ Able to thread beads</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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**AGE** | **GROSS MOTOR** | **FINE MOTOR** | **COMMUNICATION** | **PERSONAL / SOCIAL** | **WARNING SIGNS**
--- | --- | --- | --- | --- | ---
72 months (6 years) | ☐ Sits up without using hands | ☐ Follow moving object fluently with his eyes | ☐ Able to point to all body parts if asked to (choose 3) | ☐ Make and keep friends, play in groups | ☐ Clumsy  
☐ Stand on 1 leg for at least 10 counts | ☐ Rhythmic clapping across the midline (Play clap game) | ☐ Able to give the names of all body parts (choose 3) | ☐ Open to social norms prescribed by his culture | ☐ Poor posture  
☐ Long jump keeping his feet together | ☐ Able to build a 10 block tower | ☐ Able to point to circle, triangle and rectangle if asked to | ☐ Respect others | ☐ Poor pencil grip  
☐ Make a star jump | ☐ Colour in well within the lines of a picture | ☐ Able to name all the circle, triangle and rectangle | ☐ Able to express his feelings | ☐ No hand dominance  
☐ Catch a ball with his hands (not against his chest) | ☐ Draw a man: Detailed picture of a human with clothes | ☐ Hand dominance established | ☐ Self-confident to talk in front of people  
☐ Bounce a tennis ball and catch it again | ☐ Able to copy the following shapes: | | |  
| | | ☐ Able to point to all body parts if asked to (choose 3) | |  
| | | ☐ Rhythmic clapping across the midline (Play clap game) | |  
| | | ☐ Able to build a 10 block tower | |  
| | | ☐ Colour in well within the lines of a picture | |  
| | | ☐ Draw a man: Detailed picture of a human with clothes | |  
| | | ☐ Hand dominance established | |  
| | | ☐ Able to copy the following shapes: | |  
| | | ☐ Able to point to all body parts if asked to (choose 3) | |  
| | | ☐ Rhythmic clapping across the midline (Play clap game) | |  
| | | ☐ Able to build a 10 block tower | |  
| | | ☐ Colour in well within the lines of a picture | |  
| | | ☐ Draw a man: Detailed picture of a human with clothes | |  
| | | ☐ Hand dominance established | |  
| | | ☐ Able to copy the following shapes: | |  

*Comments:*  
*Signature:*  

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Compiled by Annemadelein Scherer  
Occupational Therapist

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Compiled by Annemadelein Scherer  
Occupational Therapist
BASIC INFANT NEUROMOTOR ASSESSMENT

THE SIX TEST POSITIONS

- Head asymmetrical
- Head symmetrical
- Eyes following
- Hands to mouth
- Lifts head

Supine lie
Pull to sit
Sitting
Prone lie
Landau response
Axial hanging
PALLIATIVE CARE AND HIV
No health care professional enjoys watching a child suffer from pain or other distressing symptoms, when there could be effective management of these symptoms – physical, spiritual, and emotional. Palliative care, provided by health care workers educated and skilled in holistic pain and symptom management, and provided within the context of the child’s development; effective communication with the child and family, and understanding of each child’s unique needs, relieves suffering and improves quality of life.

The children’s palliative care movement began in the UK in 1976 with the establishment of Helen House in Oxford UK by Sr Frances Dominica; and in Africa in Bloemfontein, South Africa in the early 1990’s. Despite this, very few health care workers in Africa are trained in palliative care for children, palliative care drugs, including opioids, are often not freely available (and seldom in paediatric formulations), and very few children’s palliative care programmes have been developed. Only South Africa has a network of services throughout the country. However, there are exciting developments in a number of African countries, and materials and training curricula developed for palliative care of the child in Africa.

Anti-retroviral therapy is reaching an increasing number of children with HIV, and the improvement in prevention of vertical transmission is very encouraging. Despite this, many children still suffer from pain and other distressing symptoms, and exhibit spiritual and emotional distress. Children with HIV may also have other life-limiting conditions such as cancer, genetic anomalies, severe malnutrition, disabilities or neuro-degenerative conditions. Sadly, there is still a large number of children not receiving ART. The quality of life of all of these children would benefit from palliative care provided by skilled, informed and compassionate health care workers.

I am excited by the commitment of PATA to provide palliative care to these most vulnerable children, and believe that the extensive PATA network will become a leader in taking this care to where it is most needed. We all look forward to the time when, working together in the best interest of the child, each life-limited or life-threatened child has access to palliative care across Africa, and every health care provider is equipped to provide palliative care.

With warm good wishes and congratulations to the members of PATA; and all who make use of this excellent resource.

Joan Marston
Chief Executive:
International Children’s Palliative Care Network.  
www.icpcn.org.uk

RESOURCES

1. Guidelines and Assessment Tools for Children’s Palliative Care in South Africa. Hospice Palliative Care Association of South Africa (HPCA)
2. Booklet 2: Guidelines for Managing Pain in Children. Hospice Palliative Care Association of South Africa (HPCA)
3. Sunflower Children’s Hospice, Bloemfontein, South Africa
Palliative care is the care of patients who have an incurable disease. It begins at the time of diagnosis and addresses all the patients’ physical, emotional, social and spiritual needs. It also involves giving support to the family.

**KEY MESSAGE:**

Although HIV can’t be cured, HIV infection has become a chronic, manageable condition.

**KEY MESSAGE:**

The aim of palliative care for children and their families or guardians, is to promote quality of life, maintain dignity, and ameliorate suffering.

### PAIN IN HIV INFECTED CHILDREN

*“Pain is inevitable, suffering is optional” Anonymous*

It may be more difficult to assess physical pain in children than in adults. Different pain rating scales have been developed for different ages and levels of development in both non-verbal and verbal children. These are used for establishing a baseline and for measuring response to pain treatment:

- FLACC Scale Pain Intensity Instrument
- Revised Faces Pain Scale
- Numeric/Word Pain Scale
- Eland Colour Scale
PAIN AT INITIAL ASSESSMENT

FLACC SCALE
PAIN INTENSITY INSTRUMENT

INDICATIONS FOR USE: Infants and Children (2 months - 7 years) unable to validate the presence of, or quantify the severity of pain.

<table>
<thead>
<tr>
<th>DATE /TIME:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
</tbody>
</table>

**FACE:**
0 - No particular expression or smile
1 - Occasional grimace or frown, withdrawn, disinterested
2 - Frequent to constant quivering of chin, clenched jaw

**LEGS:**
0 - Normal position or relaxed
1 - Uneasy, restless, tense
2 - Kicking, or legs drawn up

**ACTIVITY:**
0 - Lying quietly, normal position, moves easily
1 - Squirming, shifting back and forth, tense
2 - Arched, rigid or jerking

**CRY:**
0 - No cry (awake or asleep)
1 - Moans or whimpers; occasional complaint
2 - Crying steadily, screams or sobs, frequent complaints

**CONSOLABILITY:**
0 - Content, relaxed
1 - Reassured by occasional touching, hugging or being talked to, distractible
2 - Difficult to console or comfort

**SCORE:**

**INSTRUCTIONS FOR USE:**
1. Each of the five (5) categories is scored from 0-2, which results in a total score between 0 and 10
   - (F) Faces
   - (L) Legs
   - (A) Activity
   - (C) Cry
   - (C) Consolability
2. The interdisciplinary team in collaboration with the patient/family can determine appropriate interventions in response to the FLACC scale scores.

REVISED FACES PAIN SCALE

• Use in children over 4 years
• Ask them to point to the face that best depicts their level of pain

NUMERIC/WORD PAIN SCALE

<table>
<thead>
<tr>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
</tr>
</thead>
<tbody>
<tr>
<td>No pain</td>
<td>Little pain</td>
<td>Medium pain</td>
<td>Large pain</td>
<td>Worst possible pain</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

ELAND COLOUR SCALE

INSTRUCTIONS:
get child to assign colours to no pain (e.g. green), Little pain (e.g. yellow), Moderate pain (e.g. orange) and severe pain (e.g. red).

Ask them to colour in the bodies using the different colours to depict different levels of pain in different areas.
BASIC PRINCIPLES OF PAIN MANAGEMENT
• The correct use of the correct analgesic will relieve most pain in children
• Reverse the reversible (treat the underlying cause)
• Use both drug and non-drug measures
  - Non-drug measures can be used for both acute and chronic pain e.g. distraction (blowing bubbles, counting) during procedures (acute pain) or touch/massage
• Address associated psychosocial distress (e.g. separation anxiety)
• Continually re-evaluate pain and its response to treatment

The broad principles of analgesic use in children (WHO):
• By the clock (regular rather than pm dosing)
• By the correct route for the type of pain (preferably oral, avoid IMI)
• By the child (individualize treatment)
  - Remember to calculate the dose based on the child’s weight
• By the WHO pain ladder
  - A stepwise approach to manage pain based on severity
  - Continually re-evaluate pain and its response to treatment
  - Adjust pain management accordingly

The WHO pain ladder

<table>
<thead>
<tr>
<th>Step 1</th>
<th>Step 2</th>
<th>Step 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>NON-OPIOID</td>
<td>WEAK OPIOID</td>
<td>STRONG OPIOID + NON-OPIOID +/- ADJUVANT</td>
</tr>
<tr>
<td>+/- ADJUVANT*</td>
<td>+/-</td>
<td></td>
</tr>
</tbody>
</table>

Commonly used drugs in the ladder: (see local guidance for drug indications & dosing)

<table>
<thead>
<tr>
<th>NON-OPIOID</th>
<th>WEAK OPIOID</th>
<th>STRONG OPIOID</th>
<th>ADJUVANT*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Paracetamol</td>
<td>Codeine phosphate</td>
<td>Morphine</td>
<td>Prednisone</td>
</tr>
<tr>
<td>NSAID’s (ibuprofen, Diclofenac)</td>
<td>Tildine (Valoron)</td>
<td>Methadone</td>
<td>Carbamazepine</td>
</tr>
<tr>
<td></td>
<td>Tramadol</td>
<td>Fentanyl</td>
<td>Amitriptyline</td>
</tr>
</tbody>
</table>
SPIRITUAL PAIN

Common spiritual concerns of children include
- Unconditional love
- Forgiveness
- Hope
- Safety and security
- Legacy – knowing that their lives have made a difference
- Loneliness and separation
- Loss of wholeness and the ability to do what they want to do

A spiritual assessment centres on
- Understanding the meaning of the child’s life to the child and family
- Understanding things that are important
- Child’s hopes and dreams for the future – whether realistic or not
- Transcendent relationships
- Review of the child’s hopes, dreams, values
- Role of prayer, rituals
- Beliefs regarding death

To foster a child’s spiritual growth
- Respect the way spirituality changes with age
- Provide opportunities for participation in religious observance at age-appropriate level
- Support growth and maintenance of trusting, secure and loving relationships
- Provide support at times of crisis and despair
- Allow time for questioning as part of a child’s normal spiritual development
- Refer child to culturally appropriate spiritual care provider
- Offer to explain child’s illness to spiritual care provider with family’s permission
- Allow time for the child and family to reflect on life’s meaning and purpose
- Provide compassionate, constant and developmentally appropriate support
- Respect the child and family’s beliefs

KEY MESSAGE:
Children and adolescents are spiritual beings with concerns about the purpose and the meaning of their lives, and transcendent relationships with their mothers when young, and often later with God or a higher power. Spirituality is developmentally defined and involves an understanding of children’s approaches to understanding life.
SPIRITUAL ASSESSMENT OF
A CHILD OR ADOLESCENT

Child’s name: ____________________________________________________________
Date of birth: ___________________________________ Age: _________________
Language: ______________________________________________________________

Parent or Guardian: ______________________________________________________
Religious affiliation (if any): _____________________________________________
Name of Spiritual care provider/Chaplain: __________________________________
Contact details: _________________________________________________________

- Use age-appropriate language during the assessment and sit at the child’s level
- Allow the parent or guardian to sit with the child if appropriate.
- You may need to ask the smaller child to draw themselves and their family to show whether they feel as though they belong, and are as important as everyone else.

For small babies who cannot talk:
Is there a constant caring adult who cares for the child? Yes / No
If not, who cares for the child? ___________________________________________
Where does the child live? ______________________________________________

For small children with minimal communication skills:
Is there a constant, caring adult who cares for the child? Yes /No
If not, where is the child cared for? _______________________________________
Ask the child the following questions:
1. Who do you love? ______________________________________________________
2. Who do you go to when you are sad? ____________________________________
3. What makes you happy? _______________________________________________
4. Who makes you feel special or happy? __________________________________
5. What do you like to do? _______________________________________________

Positive answers to these questions will indicate that the child finds meaning and value in life; has a caring adult to go to, and feels secure.

FOR OLDER CHILDREN AND ADOLESCENTS
Safety and security.
1. Do you have someone special who loves you?
2. Do you have someone special you love?
3. Who do you go to when you are happy?
4. Who do you speak to when you are sad or angry?

Self-image, meaning in life
5. Tell me about yourself – what do you like about yourself? What can you do well?
6. Do you have a special friend/friends?

Future hopes and dreams
7. What would you like to do in the future?
8. If you could be or do anything, what would that be?
**Faith or Religious beliefs**

9. Do you belong to a church or other religious group?
10. Do you attend services, and / or take part in activities?
11. Do you enjoy the services and activities?
12. Do you believe in God, Allah, a Higher Being?
13. Do you ever say prayers? When do you say them?
14. What do you think happens when someone dies? (ask this question carefully and only when relevant)
15. Do you have a pastor, chaplain, priest, Rabbi, Imam, spiritual advisor, you talk to?

**Comments by Assessor**

___________________________________________________________________________________________________
___________________________________________________________________________________________________
___________________________________________________________________________________________________
___________________________________________________________________________________________________
___________________________________________________________________________________________________

Signature:_________________________________________________________Date:____________________________

**Child referred to spiritual advisor or Chaplain**

Yes / No

Name of Spiritual advisor / Chaplain:___________________________________________________________________

Date of referral:______________________________________________________________________________________

**Result of referral on follow-up assessment**

___________________________________________________________________________________________________
___________________________________________________________________________________________________
___________________________________________________________________________________________________
___________________________________________________________________________________________________
___________________________________________________________________________________________________

Signature:_________________________________________________________Date:____________________________

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**Sunflower Children’s Hospice**

PO box 31021
Fichardt Park 9317
Bloemfontein
South AfricaTel: 051 4483812/3
E-mail: childhospbfn@telkomsa.net
A CLASSIFICATION SYSTEM DETERMINING THE LEVEL OF PALLIATIVE CARE INTERVENTION REQUIRED

The Soweto “Cares Score”
Most South Africa hospices use the PEPFAR palliative care class I-III classification system. In this system Class I patients are asymptomatic but are living with a life-threatening illness. Class II patients are symptomatic but independent and Class III patients are symptomatic and dependent/bedbound and require assistance with activities of daily living. This categorization helps to determine the frequency of palliative care visits required.

The PEPFAR Palliative care classes were developed for adults and pose several problems when applied to the paediatric population. Most young children (even healthy ones) require assistance with activities of daily living by virtue of their developmental immaturity. Also all infants and young children need to be looked after by caregivers and vulnerability is dependent on the capacity of their caregiver to meet their needs.

The “CARES score for children” was proposed and tested in the Soweto Hospice Paediatric Palliative Care Pilot site, South Africa.

Soweto Cares Score Classification
Level I: All green
Level II: Any orange, some green, no red
Level III: Any red

• If red for C1, R1, E1, E2, S1 or S2 : immediate notification of the relevant authorities (child welfare, child protection services etc) is required with consideration of possible removal of the child due to extreme vulnerability.
• If red for C2 or C3 consultation with a healthcare professional is required and hospitalisation or admission to an in-patient unit may need to be considered if the symptoms cannot be controlled.
• Suggested frequency of palliative care intervention
  - Level I: monthly.
  - Level II: 2 weekly.
  - Level III: weekly to daily. Consider in-patient unit admission if possible.

KEY MESSAGE:
“Effective palliative care requires a broad multidisciplinary approach and makes use of available community resources; it can be successfully implemented even if resources are limited. It can be provided in tertiary care facilities, in community health centres and even in children’s homes.” (World Health Organisation 2002)
# THE SOWETO CARES SCORE

<table>
<thead>
<tr>
<th>ASPECT REQUIRING EVALUATION</th>
<th>GREEN: Class I</th>
<th>ORANGE: Class II</th>
<th>RED: Class III</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>C- Comfort</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>C1: Basic needs: food, shelter, warmth (clothing)</td>
<td>Completely met</td>
<td>Adequately met but at risk of not being adequate if challenged by stressor (e.g., mother hospitalized, grant not collected, winter weather etc.)</td>
<td>Not met (child often misses meals, clothing or shelter inadequate, homeless etc)</td>
</tr>
<tr>
<td>C2: Pain</td>
<td>None</td>
<td>Mild-moderate</td>
<td>Severe</td>
</tr>
<tr>
<td>C3: Symptoms other than pain</td>
<td>None</td>
<td>Mild-Moderate</td>
<td>Severe</td>
</tr>
<tr>
<td><strong>A- Access</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A1: Transport</td>
<td>Own vehicle, transport always available</td>
<td>Reliant on public transport but would be able to access transport in an emergency</td>
<td>No transport services, no money for transport</td>
</tr>
<tr>
<td>A2: Healthcare</td>
<td>Easily accessible, good level of care</td>
<td>Average access, reasonable level of care</td>
<td>Not accessible (too far or very poor healthcare facilities)</td>
</tr>
<tr>
<td><strong>R- Resources</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>R1: Primary caregiver</td>
<td>Good caregiver, responsible, loving, caring</td>
<td>Satisfactory caregiver but may need extra help in a crisis</td>
<td>Not satisfactory, caregiver not coping, elderly grandparent, child-headed household</td>
</tr>
<tr>
<td>R2: Financial resource</td>
<td>Well sourced</td>
<td>Adequate but could become a problem if challenged by an unforeseen crisis</td>
<td>Inadequate</td>
</tr>
<tr>
<td><strong>E- Emotional needs</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>E1: Child (the patient)</td>
<td>Happy, content</td>
<td>Coping but elements of stress, anxiety or depression observed</td>
<td>Uncontained, suicidal</td>
</tr>
<tr>
<td>E2: Caregiver</td>
<td>Happy, content</td>
<td>Coping but elements of stress, anxiety or depression observed</td>
<td>Uncontained, suicidal</td>
</tr>
<tr>
<td><strong>S- Safety</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>S1: Abuse/neglect</td>
<td>None</td>
<td>Suspicion of abuse/neglect/exploitation</td>
<td>Confirmed abuse/neglect/exploitation</td>
</tr>
<tr>
<td>S2: Environment</td>
<td>Safe</td>
<td>Elements of concern but not life threatening</td>
<td>Unsafe living environment posing a threat to survival</td>
</tr>
</tbody>
</table>
PSYCHOSOCIAL SUPPORT AND DISCLOSURE
FOR CHILDREN & ADOLESCENTS
Effective HIV treatment programmes provide far more to patients than medication, and take into account a broad range of issues, including: psychological, spiritual, and psychosocial support, as well as, the need for community mobilisation.

This collection of services – ranging from counselling to practical assistance – is loosely termed “psychosocial support,” and may include:

- Individual, family, and/or group counselling
- Disclosure support
- Identification, assessment, and treatment of mental health problems related to HIV
- Respite for caregivers
- Community and recreational activities for children and families
- Referral for practical assistance (food parcels, nutritional supplements, vocational counselling, employment opportunities, microfinance projects, etc.)
- Referral for spiritual / religious support
- Referral for legal advice

*HIV has moved from an acute, fatal disease to one that can be managed with medication. Today, children will grow up living with HIV as a chronic disease. Thus it is important for children to learn about their disease in a way that they can understand so that they can take an active role in their own treatment and care.*
Key Components For Understanding Psychosocial Support (PSS) Needs Of Children And Adolescents Infected And Affected By HIV And AIDS

Children and adolescents, infected and affected, by HIV, mostly share common problems and concerns. They also experience unique challenges highlighted in the illustration above.

- Children’s psychosocial well-being rests on having legislation and policies which protects the rights of the child, and offers guidance regarding the different needs of the child.
- Such support includes meeting the basic needs of children, such as safety, shelter, nutrition, health and education, the building blocks for children’s well-being.
- Communities and families are at the frontline of providing basic needs and psychosocial care and support, to children.
- Where there are gaps in psychosocial support offered by communities and families, specialized psychosocial services may be introduced to provide better care for children.
- Health care providers should ensure that children’s basic needs (safety, shelter, nutrition, health, and education) are met. Where gaps exist, appropriate referrals should be made.
Excellent communication skills are vital when working with all people, including children and adolescents. There are however some important skills and practices that assist in effective communication and building relationships with both children and adolescents.

**THE CHILD FRIENDLY CLINICIAN**

**WITH THE CAREGIVER**

- Be relaxed and open
- Think about your body language: Lean towards them, keep your face neutral & friendly, maintain eye contact. Sit close by & on the same side of the desk.
- Remember that you are trying to develop a long term supportive relationship.

**WITH THE CHILD**

**WHAT WORKS?**

- Get down to the child’s eye level: Let the child see your eyes and reveal your intentions.
- Speak softly and directly to the child: Children respond better when you address them and not just the caregiver.
- Smile and play: A smiling face makes a huge difference and will help your interaction with the child, and remember that young children play is very important. If they leave laughing, they will look forward to come back.
- Be honest: Hiding the truth from a child leads to loss of trust.
- Allow and respect normal emotions: Crying is okay and so is anger – be patient with the child.
- Start with the least invasive activity: Keep the child on the caregivers lap as much as possible and don’t start with painful or invasive activities such as ear examination or blood drawing.
- Give the child choices: Choices provide a sense of control. Let the child choose whether you examine the left or the right ear first, whether to have juice or water with medication.
- Engage the child: Talk about things of interest to him or her such as school or friends or hobbies.
- Support the parent/child relationship: Parents are the experts on their own children and even teens need their parents.
- Maintain your own self-control: If you find yourself “losing it”, take a break or get someone else to work with the child.
- Operate a “3 needle maximum” policy: If you can’t get blood the third time, and its not essential, leave it until the next visit.

**WHAT DOESN’T WORK?**

- Avoid comparing the child to others: Each child is a person with his or her own individuality.
- Be careful when you touch children: Physical affection is OK, and you must examine the child for medical reasons, but wait until the child is ready, and don’t treat the child like a pet.
- Don’t forget the child is in the room: If you have to have a private conversation, make a separate appointment with the caregiver. This is especially important when discussing disclosure. Children always understand more than you think.
- Don’t pity: Children need love, support and care but not pity.
- Don’t infantilize the older child: Treat children appropriately for their age.
- Try not to say “Be a good boy/girl”: Children do the best they can, and making them feel inadequate will not help build a good relationship.
- All children are not raised the same: Approaches to child rearing and discipline are never the same in two families. Don’t expect your experience to be the same as someone else’s.
- Stop yourself before you threaten the child: Making the child fear you will not build trust or confidence.
- Don’t be grumpy: A positive attitude and humor is especially effective with children and adolescents. If you are too serious, children will feel depressed about their illness and their visits to the doctor.
DISCLOSURE

**KEY MESSAGE**

Disclosure is an ongoing process and should be individualised to include the child’s cognitive ability, developmental stage, clinical status and social circumstances.

**KEY MESSAGE**

Parents and caregivers of HIV-exposed infants are understandably anxious about the health of their children. Most are worried that their child has or will have HIV infection. Given the complexity of the subject, it can be very difficult to explain the issues around infant diagnosis to parents and caretakers. However, a number of steps can be taken to help them understand the situation better.

- Begin talking about infant diagnosis as early as possible, preferably during the antenatal period or the first paediatric appointment.
- Inform parents that it can take many months, often as long as 18 months, to be sure that the child does not have HIV infection.
- Prepare them for early diagnostic testing by telling them that the child will have a blood test during the first months of life (6-12 weeks) that will aim to diagnose HIV infection in the baby (see section on HIV testing, page 31).
- Speaking openly with parents at each visit can be very helpful. Also, asking them for their questions, and addressing all of their questions and concerns can lessen their anxiety. Telling them about the baby’s progress and highlighting positive findings (good growth, normal examination) can also be reassuring.

**KEY MESSAGE**

It is important to assess each caregiver’s awareness of the child’s right to understand what is happening to him/her or to someone in the family, and be involved in planning for the future.

- Protecting the child from painful topics leaves him/her to cope with fears alone: fantasies may be worse than reality.
- Children become frightened when they sense fear in adults: talk naturally to the child about the infection and illness, and let her/him understand that the caregiver feels comfortable with this. Be attentive to a child’s ways of expressing anxiety (withdrawal, anger, acting out, regression, craving attention, difficulty sleeping) and encourage him/her to talk about it.
• Start disclosing HIV status as soon as possible in an age-appropriate way.
• Ideally the caregiver should be the one to disclose to the child, with a trusted relative/family friend if possible, and should provide consistent on-going support and loving empathy throughout the process.
• Disclosure to children should be done little by little, and includes encouraging questions, providing truthful answers and making the child understand that he/she can come back with more questions at any time, providing a loving context, and using child-friendly language.
• Listen to the child and encourage him/her to express fears and emotions.
• Always be truthful to gain the child’s trust.
• Involve the child in decisions concerning his/her future.
• Reassure the child that it is not his/her fault if he/she or a family member is sick.
• Tell the child whom he/she can talk to about the illness, not that it is a secret.
• Link the caregiver with a peer support group for caregivers of a child infected by HIV.
STEP BY STEP GUIDE FOR CONVERSATIONS WITH CHILDREN (TOWARDS DISCLOSURE)

- Can be a difficult process for all concerned.
- Effective conversations are dependent on the age and understanding (developmental level) of the child.
- Aim to build up a body of knowledge in the child that leads to the point of disclosure of HIV diagnosis.
- The first step is to find out what the child already knows (often more than adults think).
- Failure of full disclosure by early teenage years can lead to:
  - Poor adherence
  - Emotional difficulties
  - Poor school performance
  - HIV transmission if sexually active.

### VERY YOUNG 0 - 4 Years

**NO DISCLOSURE YET**

**DEVELOPMENTAL LEVEL**
- Depends on adult for all needs and information
- Child needs comfort, support and most of all security

**WHAT DO YOU EXPLAIN:**
- Carry on consultation with child present
- Child too young for direct information about HIV but explanations to caregiver about how HIV can affect the child remain important
- Provide ideas to help caregiver support child taking medicine
- Congratulate child on taking medicines well
- Address caregiver anxieties
- Build relationship with the child through play/singing
- Provide a safe and welcoming clinic

**AIM**
- **BUILD UP CONFIDENCE OF CHILD in HEALTH WORKERS and MEDICINE TAKING**

### YOUNG CHILD (Pre-school) 5 – 7 Years

**EARLY DISCLOSURE**

**DEVELOPMENTAL LEVEL**
- Can understand concrete based ideas e.g. real events in the present and past
- Thinking is based in the present
- Take the lead from confidence of caregiver interactions with health workers
- Beginning to link medicines and health

**WHAT DO YOU EXPLAIN:**
- Child needs to learn about illness but not HIV by name yet
- Introduce ideas of good and bad health by eating healthy food, keeping clean, exercising, looking after teeth etc.
- Medicines help to keep a body healthy and strong
- Introduce infections as ‘germs’ that can hurt or damage the body/make you sick or hurt
- Introduce (white) blood cells as the part of the body that look for and kill infections or germs
- Some germs hide and you need to take medicines to help fight the germs

**AIM**
- UNDERSTANDING that MEDICINES SUPPORT the BODY to KEEP WELL

### SCHOOL CHILD 8 – 11 Years

**PARTIAL DISCLOSURE**

**DEVELOPMENTAL LEVEL**
- Able to hold onto ideas and apply them to new situations
- Can understand past, present and future
- Has social and moral awareness about right & wrong behaviour
- Beginning to be more curious and take some control over their lives

**WHAT DO YOU EXPLAIN:**
- Explain that the germ concerned is a virus
- Viruses are ‘clever germs’ which can damage white blood cells
- If medicines are not taken correctly, the virus can get stronger and stop the medicines working (resistance)
- Naming of virus as HIV may occur but not essential
- Need to explain that information is private and should only be shared with those agreed with the caregiver(s)
- Help the child identify who they can talk with about their health or HIV with
- Disclosure to symptomatic school age children is strongly encouraged

**AIM**
- NAMING of INFECTION as HIV VIRUS

### SCHOOL CHILD 11 – 14 Years

**FULL DISCLOSURE**

**DEVELOPMENTAL LEVEL**
- More abstract thinking (understands future consequences of actions)
- Increasingly making decisions on their own regarding identity, independence, school, career
- Puberty/sexual development
- Dependence on caregivers decreases
- Importance of relationships with friends increases

**WHAT DO YOU EXPLAIN:**
- Check understanding of health, medicines, sexual development and HIV infection
- Directly address young person during clinic consultations
- Need to understand responsibility for not transmitting HIV i.e. safer sex, and their rights i.e. family planning, confidentiality
- Preparation for future, encourage direct involvement in discussions and decisions
- Promote the benefits of attendance at adolescent support group

**AIM**
- FULL UNDERSTANDING and RIGHTS and RESPONSIBILITIES
  - ABILITY to NEGOTIATE own HEALTH CARE

Compiled by Eimear Nelligan (Department of Paediatrics - University of Roskilde, Næsby). Diane Makini (Department of Psychology - Great Ormond Street Hospital for Sick Children) and Juliet Mabugu (Programme Director CHIVA South Africa)

Contact Telephone: 021 260 4111/3013 309/2329
ASSESSING ADHERENCE
WHEN WORKING WITH CHILDREN AND INFANTS

When initiating and providing paediatric ART, the Health Care Worker (HCW) and the multidisciplinary team work closely with caregivers and, depending upon the developmental level of the child, the child themselves. As with adult ART, this begins with a dialogue in which the patient and caregivers are prepared for life-long treatment and adherence through:

• providing HIV knowledge on disease progression and treatment
• assessing the patient’s circumstances
• assessing support systems and treatment readiness
• identification of factors that could possibly compromise adherence.
• assessing caregiver reliability to adhere to treatment needs
• assessing structural factors for medication storage
• demonstration of good insight

The following tool – Adherence Counselling Form for Infants/Children – has been designed for the HCW when working with the caregiver of the child or infant.

Points to remember when using this tool in adherence counselling:
• It is used over three sessions to gather information regarding the child’s circumstances, to assess support available to the child, and assess adherence and treatment readiness. Though three sessions are not a strict requirement prior to ART initiation, the tool assumes limited patient/caregiver knowledge regarding ART, whereby a more thorough preparatory process is warranted.

• It is also used to equip the caregiver with specific information that would promote adherence – in every session there are opportunities to assess the level of knowledge that the caregiver has remembered from the previous session.

• Developing rapport with the caregiver will facilitate the assessment process and can serve as an opportunity to develop a relationship with the caregiver in the long-term treatment and care of the child.

• This tool is designed to be incorporated into the larger psychosocial support process and interventions with the family.
In addition to the HCW having sufficient knowledge and information on ART, this tool would work best if the HCW has sufficient knowledge and an understanding of the key psychosocial support issues in paediatric treatment and care.

**KEY MESSAGE:**

*This tool requires the use of basic counselling skills in conversation with the family. Additional information required to better utilise this tool, would be a sound understanding in working with issues regarding child disclosure.*

This tool has been developed by the Red Cross Children’s Hospital in Cape Town and while it has been modified over a period of approximately 5 years, it is considered a work in progress.
Have the following issues been discussed with the caregiver /patient?

<table>
<thead>
<tr>
<th>Issue</th>
<th>YES</th>
<th>NO</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. General Information about how the infant/child was infected</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. What HIV does</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. The difference between HIV and AIDS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. The function of the CD4 in the body</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. What the viral load is and what it means</td>
<td></td>
<td></td>
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<tr>
<td>6. The purpose of the visit at the ART clinic and the possibility to start ARVs</td>
<td></td>
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</tr>
<tr>
<td>7. Has the primary caregiver been able to identify an alternative treatment supporter</td>
<td></td>
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<tr>
<td>8. Does the primary caregiver know the infant/child’s CD4 count?</td>
<td></td>
<td></td>
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<tr>
<td>9. Has the primary caregiver disclosed to the child?</td>
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<tr>
<td>10. Does the caregiver have any other disclosure issues?</td>
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</tbody>
</table>

If there are difficulties with disclosure, what are the issues and how will they be addressed?
..............................................................................................................................................................................................................
..............................................................................................................................................................................................................
..............................................................................................................................................................................................................
..............................................................................................................................................................................................................

Have you addressed the following issues with the caregiver /child?

<table>
<thead>
<tr>
<th>Issue</th>
<th>YES</th>
<th>NO</th>
</tr>
</thead>
<tbody>
<tr>
<td>12. Has the primary caregiver been able to identify an alternative treatment supporter? (Provide the name if possible)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>13. Information regarding the clinic and procedures as well as clinic hours</td>
<td></td>
<td></td>
</tr>
<tr>
<td>14. If no alternative treatment supporter, treatment could be delayed</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Are there factors that could influence the success of the treatment?

<table>
<thead>
<tr>
<th>Question</th>
<th>YES</th>
<th>NO</th>
</tr>
</thead>
<tbody>
<tr>
<td>15. Socio-economic factors</td>
<td></td>
<td></td>
</tr>
<tr>
<td>16. Alcohol or drug abuse issues</td>
<td></td>
<td></td>
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<tr>
<td>17. Depression or other psychiatric conditions</td>
<td></td>
<td></td>
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<tr>
<td>18. Marriage or relationship issues</td>
<td></td>
<td></td>
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<tr>
<td>19. Issues related to religion or traditional healers</td>
<td></td>
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<tr>
<td>20. Does the patient receive a grant?</td>
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<tr>
<td>21. Does the patient have other siblings?</td>
<td></td>
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<tr>
<td>22. If so, were they tested for HIV infection?</td>
<td></td>
<td></td>
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<tr>
<td>23. General Comments:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>24. Does the primary giver /child belong to a support group?</td>
<td></td>
<td></td>
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<tr>
<td>If yes, please give details:</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

If the answer to any of the above is yes, please give details.

... ...

Summarise session: ...........................................................................................................

Compiled by: .................................................. Date: ..................................................

Date of next appointment: ..................................................
SESSION 2

Recap on previous session.

To answer the questions below, please use the following scale:
1. No knowledge at all
2. Very limited knowledge
3. Some understanding
4. Good understanding
5. Understands as well as I do (better)

How well does the primary caregiver / patient understand each of the following:

<table>
<thead>
<tr>
<th>RECAP INFORMATION</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>25. General Information about HIV transmission</td>
<td></td>
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<tr>
<td>26. What HIV does to the body</td>
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<tr>
<td>27. What is the difference between HIV and AIDS</td>
<td></td>
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<tr>
<td>28. What the function of CD4 count is in the body</td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>29. What the viral load is</td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>30. What the viral load means</td>
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<tr>
<td>31. The reason for the child to possibly start ARVs</td>
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</tr>
<tr>
<td>32. Has the primary caregiver been able to identify a treatment supporter?</td>
<td>YES</td>
<td>NO</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>33. Has the primary caregiver brought a treatment supporter to this visit?</td>
<td>YES</td>
<td>NO</td>
<td></td>
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</tr>
</tbody>
</table>

Name of treatment Supporter: ...............................................................................................................
Relationship: ..............................................................................................................................................
Tel number: ..............................................................................................................................................

34. Have there been any new disclosures since last visit? YES NO

Have you tackled the following issues with the patient?

<table>
<thead>
<tr>
<th></th>
<th>YES</th>
<th>NO</th>
</tr>
</thead>
<tbody>
<tr>
<td>35. How ARVs work</td>
<td></td>
<td></td>
</tr>
<tr>
<td>36. When to take ARVs</td>
<td></td>
<td></td>
</tr>
<tr>
<td>37. The possible side effects of ARVs</td>
<td></td>
<td></td>
</tr>
<tr>
<td>38. What to do if vomiting</td>
<td></td>
<td></td>
</tr>
<tr>
<td>39. What to do if doses are late or missed</td>
<td></td>
<td></td>
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<tr>
<td>40. What food restrictions if any are related to the treatment regimen</td>
<td></td>
<td></td>
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<tr>
<td>41. Stopping ARVs</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Question</td>
<td>YES</td>
<td>NO</td>
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<tr>
<td>------------------------------------------------------------------------</td>
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</tr>
<tr>
<td>42. The need to consult with a nurse or doctor before stopping medication</td>
<td></td>
<td></td>
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<tr>
<td>(day hospitals, emergency room, clinic telephone)</td>
<td></td>
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<tr>
<td>43. How to deal with medical problems between appointments</td>
<td></td>
<td></td>
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<tr>
<td>44. Their fears around ARVs</td>
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<td></td>
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<tr>
<td>45. The need to return medication at appointments</td>
<td></td>
<td></td>
</tr>
<tr>
<td>46. The need to take Bactrim/Cotrimoxazole if prescribed</td>
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<tr>
<td>47. The difference between Bactrim/Cotrimoxazole and ARVs</td>
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<tr>
<td>48. How to devise a treatment plan</td>
<td></td>
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<tr>
<td>49. The need to see the counsellor for the first six months</td>
<td></td>
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<tr>
<td>50. What to do in case of holidays or travel</td>
<td></td>
<td></td>
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<tr>
<td>51. Discuss safer sex/sexuality if appropriate</td>
<td></td>
<td></td>
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<tr>
<td>52. Will there be difficulties in the workplace with regard to bringing the child to clinic appointments?</td>
<td></td>
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<tr>
<td>53. The need to tell the HCW of any traditional or herbal medication usage</td>
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</table>

If so, what are the anticipated difficulties?

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54. General Comments: ....................................................................................................................................................................
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Summarise session: ....................................................................................................................................................................
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Compiled by: ........................................................................................................ Date: ..............................................................
Date of next appointment: .................................................................
Recap on previous session.

To answer the questions below, please use the following scale:
1. No knowledge at all
2. Very limited knowledge
3. Some understanding
4. Good understanding
5. Understands as well as I do (better)

How well does the patient understand the following?

<table>
<thead>
<tr>
<th>Question</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>55. How ARVs work</td>
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<td>58. What to do if vomiting</td>
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<tr>
<td>60. What food restrictions if any are related to their treatment regimen</td>
<td></td>
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<td></td>
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<td></td>
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<tr>
<td>61. How to deal with medical problems between appointments</td>
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<tr>
<td>62. The fears surrounding ARVs</td>
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<td></td>
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<tr>
<td>66. The need to see the counsellor for the first six months</td>
<td></td>
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</tr>
<tr>
<td>67. How to devise a treatment plan</td>
<td></td>
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<tr>
<td>68. What to do in case of holiday or travel</td>
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<tr>
<td>69. The need to consult with a doctor before stopping medication</td>
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<tr>
<td>70. Discuss safer sex/sexuality if appropriate</td>
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<tr>
<td>71. Has the primary care giver been able to identify a treatment supporter?</td>
<td>YES</td>
<td>NO</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>72. Has the patient brought a treatment supporter at this visit?</td>
<td>YES</td>
<td>NO</td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>
Have you addressed the following issues with the patient?

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th>YES</th>
<th>NO</th>
</tr>
</thead>
<tbody>
<tr>
<td>73. The need to inform all medical personnel when taking the child to any health facility for treatment, that they are on ARVs.</td>
<td></td>
<td></td>
<td>YES</td>
<td>NO</td>
</tr>
<tr>
<td>74. The need to contact the clinic if there are difficulties with upcoming appointments.</td>
<td></td>
<td></td>
<td>YES</td>
<td>NO</td>
</tr>
<tr>
<td>75. Does the patient want to start ARVs</td>
<td></td>
<td></td>
<td>YES</td>
<td>NO</td>
</tr>
</tbody>
</table>

How well does the patient understand each of the following?

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>76. How to give /take ARVs (timing)</td>
<td></td>
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<tr>
<td>77. ARVs are a lifelong commitment</td>
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<tr>
<td>78. Possible side effects of ARVs</td>
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<tr>
<td>79. What to do in case of emergency</td>
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<tr>
<td>80. In your opinion, is the patient ready to start ARVs?</td>
<td>YES</td>
<td>NO</td>
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General Comments: ........................................................................................................................................................................
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Completed by: .......................................................... Date: ..........................................................
CREATING AN ADOLESCENT-FRIENDLY ENVIRONMENT

KEY MESSAGE

Adolescents have different developmental needs than children do. Therefore, the manner in which health care workers relate to adolescents needs to acknowledge this, in order to encourage open communication.

There is a growing need, worldwide, for adolescent-friendly healthcare services, particularly, in response to the increase in HIV infections, amongst this group. Some of the services that adolescents require are different from those of adults, and adolescent-friendly, healthcare services should place a greater emphasis on providing information, psychosocial support, and preventative healthcare.

Key features of adolescent-friendly healthcare services include:

• full participation of adolescents in healthcare decisions and interventions
• peer education, and life skills training
• integration with other services and organizations in the communities
• healthcare workers providing services to adolescents need to be trained in adolescent-friendly approaches, and communication
• an emphasis on privacy
• an emphasis on confidentiality

Adolescent-friendly healthcare services should, include information and interventions concerning, particularly:

• general health
  sexual and reproductive health (STI information & treatment; management and prevention of pregnancy; sexual identity issues; HIV information, testing, treatment, adherence & disclosure)
• mental health
• substance abuse
• information and counseling on a range of issues, for example, nutrition, hygiene, substance abuse, HIV etc.)

KEY MESSAGE

It is important for healthcare workers working with adolescents and their families, to regularly assess whether their needs are being addressed.
**HOW TO TALK TO ADOLESCENTS**

**KEY MESSAGE**

Excellent communication is integral to positive interactions with adolescent clients. This means effectively sharing information, as well as listening to the young people who come for counselling and testing.

<table>
<thead>
<tr>
<th>TIP</th>
<th>WHAT TO DO AND SAY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Use simple language and short sentences. Avoid technical terms.</td>
<td>No medical terms or language</td>
</tr>
<tr>
<td>Use non-judgmental language.</td>
<td>Avoid saying, “You should . . . “; instead say, “You can . . . “ or “You may want to think about . . . “.</td>
</tr>
<tr>
<td>Be aware of the language and slang adolescents use to discuss sexual issues.</td>
<td>For instance, when talking about “sex,” clarify that sex includes oral, vaginal, and anal sex. Some youth engage in oral or anal sex because they do not consider it “real” sex.</td>
</tr>
<tr>
<td>Be clear in your explanations and make sure your clients understand.</td>
<td>“It is great that you are taking responsibility.......and it seems like you are really trying hard to manage this situation...”</td>
</tr>
<tr>
<td>Be encouraging and affirming</td>
<td>Use “active listening” by paraphrasing your clients’ statements and repeating them back. This confirms that you understand what your clients are saying.</td>
</tr>
<tr>
<td>Use “active listening” by paraphrasing your clients’ statements and repeating them back. This confirms that you understand what your clients are saying.</td>
<td>“What do you know about protecting yourself from HIV?” rather than, “Do you know how to protect yourself from HIV?”</td>
</tr>
<tr>
<td>Ask open-ended questions that will lead to discussion rather than questions that require only a “yes” or “no” answer.</td>
<td>Nod your head or say “go on” to help assure young people that they are being heard.</td>
</tr>
<tr>
<td>Use appropriate eye contact, gestures, and verbal responses to show that you are listening.</td>
<td>If you are frowning and sitting with your arms crossed in front of you, this could convey that you are angry or upset by what your client is telling you.</td>
</tr>
<tr>
<td>Learn to read body language. Be conscious of what your own body language is communicating by the way you stand, sit, or make eye contact.</td>
<td>Do not simply ask, “Do you understand what I have said?” Clients may be too embarrassed to admit they do not. Instead, consider asking questions that will help you determine if the young person understands.</td>
</tr>
<tr>
<td>Make sure young clients understand what you are saying to them.</td>
<td>“How do you think you could take care of yourself?”</td>
</tr>
<tr>
<td>Rather than giving orders, help youth develop steps they can take to protect themselves.</td>
<td>“Do you understand what I have said?” Clients may be too embarrassed to admit they do not. Instead, consider asking questions that will help you determine if the young person understands.</td>
</tr>
<tr>
<td>Be genuine. Admit when you do not know how to answer a client’s question, and try to find the answer when you can.</td>
<td>“That is very important...I am not sure about that, could I check and come back to you with the answer to your question?”</td>
</tr>
</tbody>
</table>

**KEY MESSAGE**

Adolescence requires a very specific approach due to the complex transition from childhood to adulthood and its associated physical, emotional, cognitive and psychological changes.

**STAGES OF ADOLESCENCE:**

<table>
<thead>
<tr>
<th>Category of change</th>
<th>EARLY: 10 - 15 YEARS</th>
<th>MIDDLE: 14 - 17 YEARS</th>
<th>LATE: 16 - 19 YEARS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>GROWTH OF BODY</strong></td>
<td>• Secondary sexual characteristics appear • Rapid growth reaches a peak</td>
<td>• Secondary sexual characteristics advance • Growth slows down • Has reached approximately 95% of adult growth</td>
<td>• Physically mature</td>
</tr>
<tr>
<td><strong>GROWTH OF BRAIN</strong></td>
<td></td>
<td>• Brain growth occurs • Influence on social and problem solving skills</td>
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<tr>
<td><em>(Prefrontal cortex)</em></td>
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<tr>
<td><strong>COGNITION</strong></td>
<td>• Uses concrete thinking (&quot;here and now&quot;) • Does not understand how a present action has results in the future.</td>
<td>• Thinking can be more abstract (theoretical) but goes back to concrete thinking under stress. • Better understands results of own actions • Very self-absorbed</td>
<td>• Most thinking is now abstract • Plans for the future • Understands how choices and decisions now have an effect on the future</td>
</tr>
<tr>
<td><em>(Ability to get knowledge through different ways of thinking)</em></td>
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<tr>
<td><strong>PSYCHOLOGICAL AND SOCIAL</strong></td>
<td>• Spends time thinking about rapid physical growth and body image (how others see them) • Frequent changes in mood</td>
<td>• Creates their body image • Thinks a lot about impractical or impossible dreams • Feels very powerful • Experiments with sex, drugs, friends, risks</td>
<td>• Plans and follows long-term goals • Usually comfortable with own body image • Understands right from wrong (morally and ethically)</td>
</tr>
<tr>
<td><strong>FAMILY</strong></td>
<td>• Struggles with rules about independence/dependence • Argues and is disobedient</td>
<td>• Argues with people in authority</td>
<td>• Moving from a child-parent/guardian relationship to a more equal adult-adult relationship</td>
</tr>
<tr>
<td><strong>PEER GROUP</strong></td>
<td>• Important for their development • Intense friendships with same sex • Contact with opposite sex in groups</td>
<td>• Strong peer friendships • Peer group most important and determines behaviour</td>
<td>• Decisions/values less influenced by peers in favour of individual friendships. • Selection of partner based on individual choice rather than what others think</td>
</tr>
<tr>
<td><strong>SEXUALITY</strong></td>
<td>• Self-exploration and evaluation • Preoccupation with romantic fantasy</td>
<td>• Forms stable relationships • Test how he/she can attract opposite sex • Sexual drives emerging</td>
<td>• Mutual and balanced sexual relations • Plans for the future • More able to manage close and long-term sexual relationships</td>
</tr>
</tbody>
</table>

Adapted from the Orientation Programme on Adolescent Health for Health-Care Providers, WHO, 2003 (Handout for Module B, the Meaning of Adolescence).
ADOLESCENCE CHECKLIST

The following list highlights key topics to consider in promoting mental health in adolescence. These topics may be discussed selectively during office visits, depending on the needs of the adolescent and family.

**SELF**

- **Self-esteem, including:**
  - Parental support
  - Peer influence
  - Resilience and handling failure

- **Mood, including**
  - Stability of moods
  - Depression
  - Suicidal ideation (suicidal thoughts) and behaviours

- **Body image, including:**
  - Physical appearance
  - Weight

- **Sexuality, including:**
  - Sexual development/puberty
  - Sexual behaviour
  - Sexual identity
  - Parental expectations and communication
  - Prevention of sexually transmitted diseases including HIV/AIDS
  - Pregnancy
  - Sexual abuse and rape

**FAMILY**

- **Independence and responsibility, including:**
  - Importance of family support in adolescence
  - Increased independence
  - Increased influence of peers
  - Parental expectations and limit setting
  - Family conflict

**FRIENDS**

- **Peer relationships, including**
  - Peer support
  - Peer influence

**COMMUNITY**

- **School, including:**
  - Transition from middleschool/junior high to high school
  - Academic success
  - Homework
  - Extracurricular activities
  - Absenteeism, dropping out
  - Transition from high school to college or work

- **High-risk behaviours and risk factors, including**
  - Substance use
  - Violent behaviour
  - Firearm use
  - Exposure to violence

**BRIDGES**

- **Opportunities for early identification and intervention, including:**
  - Anxiety problems and disorders
  - Attention deficit hyperactivity disorder
  - Child maltreatment
  - Eating disorders
  - Learning problems and disorders
  - Mental retardation
  - Mood disorders: depressive and bipolar disorders
  - Obesity
  - Oppositional and aggressive behaviour
  - Pervasive developmental disorders
  - Substance use

**NOTES**

HIV TESTING
THE "KIDZWHOTEST" MODEL

KEY MESSAGE
To date, HIV testing of children has been an adult-focused event between the caregiver and healthcare worker, with the child as an uninformed spectator who becomes afraid and confused. For children to experience this process calmly and without fear, they need to be included in the counselling and testing conversation.

Healthcare workers lack the confidence or tools to know how to engage with children. The KidzWhoTest Model/Talk Tool uses storytelling to address HIV Pre- and Post-Test Counselling. It was designed to provide healthcare workers with a structured strategy to include the child aged between 4 and 11 years, in the counselling session and to disclose sensitive information in an age-appropriate, non-threatening, informative, and fun-filled manner.

A child’s language is play
Storytelling is a form of play

KEY MESSAGE
Stories provide children with a non-threatening form of communication that can address their issues and concerns. It builds on a natural way in which children learn about themselves and their relationship with the world around them. Stories are an effective tool when used in more structured counselling sessions. They can enhance self-awareness, aid the process of self-discovery, develop empathic understanding and improve self-efficacy, communication skills, and emotional growth.

SIMPLE STORYTELLING SUGGESTIONS:
• Always introduce the child to the storytelling tool first (see Talk Tool page 1).
• Allow the child to create the storytelling if needed, by asking them “What do you see happening here?” You can then fill in any gaps.
• Show an interest in the storytelling process. Mirror back to the child what he/she is expressing through words and body language.
• Let the child teach you, as well. Always be willing to learn something new.
The Talk Tool story is about a frog called Sibusiso Selesele (meaning “Blessing”), who is cared for by his caregiver, Mkhulu Noah. We follow Sibusiso’s step-by-step journey through the HIV testing health system. From a child’s perspective we learn if he is HIV-infected or not, and what he needs to do to either remain HIV-uninfected or care for himself should he be HIV-infected.

The Talk Tool can be used in a variety of ways such as:
• Preparing the caregiver for the testing and disclosure process of their child.
• During the initial one-on-one counselling, testing, and disclosure process with the child.
• Group pre-test information or general group education sessions.
• To reinforce with the caregiver basic HIV information learned during patient literacy and treatment readiness classes.
• To strengthen the key principles in HIV during routine follow-up care, Patient literacy/ Treatment Readiness and adherence counselling.

What content does the Talk Tool cover?
• Identifying and alleviating tension or anxiety from the child and their caregiver.
• Revising HIV basic information with the caregiver.
• Explaining age-appropriate disclosure.
• Establishing a disclosure plan with the caregiver.
• The role of the clinic or hospital in keeping children well & exploring their past experiences with these systems.
• What is a germ/virus?
• TB screening and infection prevention strategies.
• What do germs/viruses do in our bodies?
• The role of the CD4 cell.
• The role of medicines (incl. the difference between general medicines & ARVs).
• Sharing the positive or negative test result.
• Positive Living Strategies.
• HIV Prevention Strategies.
• The CD4 Count Test.
• Closing the session appropriately.

Using the Talk Tool may be difficult at first, but don’t give up. Learn something new. At times, this may seem silly to you, but it means a lot to the child.
THE "KIDZWHOTEST" MODEL CONSISTS OF 7 STAGES:

1. Establishing the Relationship (3 minutes)* (TT page 1)
   - Meeting, greeting and welcoming the child and the caregiver whilst creating a relaxed environment.
   - To identify any underlying tension and anxiety in either the child or caregiver and bring comfort.

2. Preparation (10 minutes)* (TT page 3)
   - To provide the caregiver with a space to share their own HIV history and personal journey.
   - Create a safe environment for the confidential sharing of information.
   - Recap with or provide the caregiver with basic HIV information.

3. Education (15 minutes)* (TT page 8)
   - Providing age-appropriate pre-test education to the child.

4. The Testing Process (3 minutes)* (TT page 22)
   - Getting the child ready and conducting the HIV test by introducing the HIV blood test in a non-threatening and fear-inducing manner.

5. Disclosure Safety (7 minutes)* (TT page 23)
   - Engaging in an activity where the child creates their own Hand-of-Safety Tool, thus providing a safe platform for the protecting of confidential health information.

6. Sharing the Result (Positive or Negative) (15 minutes)* (TT page 25)
   - Providing age-appropriate post-test education around sharing either an HIV negative or positive result.

7. The CD4 Count Test (7 minutes)* (TT page 33)
   - Introducing and conducting the CD4 Count Test if the HIV test result was positive.

Talk Tool Addendums:
- Video Recording of a Counselling Session
- Sibusiso Selesele Colouring in and Hand-of-Safety templates

Footnote:
*1.Layout consists of a picture board followed by a key message, process, story and questions.
*2.TimeFrame is a guide and is flexible according to age, context and setting.
my hand of safety

something that makes you

if you see or hear

confused

scared

or sad

tell someone

on your hand of safety