Western Cape Government

DEPARTMENT OF HEALTH & WELLNESS
Chief Directorate: Emergency & Clinical Services Support
Directorate: Service Priorities Coordination
H. Goeiman/ V. Mudaly
Enquiries: Vanessa.mudaly@westerncape.gov.za
Tel: 021 815 8744

CHIEF DIRECTORS:	**METRO HEALTH SERVICES, RURAL HEALTH SERVICES, STRATEGY**
EXCECUTIVE DIRECTOR:	**CITY HEALTH**
DIRECTORS:	**DISTRICTS AND SUB-STRUCTURES, MEDICINE MANAGEMENT**
HEADS:	**INSTITUTIONS**
FOR ATTENTION:	**FACILITY MANAGERS, PHARMACISTS, PHARMACIST ASSISTANTS, MEDICAL OFFICERS, CLINICAL NURSE PRACTITIONERS, NIMART NURSES**

CIRCULAR H..34 / 2024

PACK CHILD: UPDATE TO REFLECT CHANGES TO THE EXPANDED PROGRAMME ON IMMUNISATION (EPI) SCHEDULE FOR CIRCULATION

This circular should be read in conjunction with the following:

1. Circular H102 of 2023 – Introduction of PACK Child – The 'Practical approach to care kit' for primary care of the child up to 13 years old
2. Circular H05 of 2024 – Changes to the National Expanded Programme on Immunisation (EPI) childhood immunisation schedules as of January 2024
3. Circular H10 of 2024 – Human papillomavirus vaccination (HPV) vaccination campaign round 1: 2024
4. Circular H20 of 2024 – Changes in expanded programme of vaccination and the maternal vaccination schedule

The Western Cape Government Department of Health and Wellness (WCGDoHW) released PACK Child on the 2nd of August 2023 as part of our commitment to providing quality care for children and supporting our primary care clinicians.

Further to this, PACK Child was launched on the 6th of November 2023 and the 8th of November 2023 to orientate colleagues working in Metro and Rural provincial facilities respectively.

Updated PACK Child guide: access pathways

The attached PACK Child guide replaces the version currently in circulation (both the electronic and hard copy formats). Although updated hard copy guides will be printed, these may not be sufficient to replace all guides in circulation. It is suggested that clinicians use the ***Summary of Changes*** document (Annexure A) to action changes in PACK Child guides currently in use if updated hard copy guides are unavailable.

The 2023 Introduction to PACK Child course was published on the WCGDoHW People Development Centre (PDC) online school, which can be accessed by using the URL or scanning the QR code:
https://wcgh-pdc-online-school.thinkific.com/
The updated guide can be accessed here. It is also available on the EPI course.

The updated electronic PACK Child guide is available for download from the Knowledge Translation Unit (KTU) resource site:
https://knowledgetranslation.co.za/resources/

Communication around the guide update has been sent out via email to clinicians who have previously accessed the guide on the various platforms mentioned above.

Birth-to-Two (B22) wheel

In 2019, the KTU in collaboration with the City of Cape Town, InnovationEdge and OpenCPT developed a wheel (like the TB wheel) to assist clinicians to plan a child's routine care from birth and for the first two years of the child's life. The wheel was adopted by the WCDoHW in 2023.

The B22 wheel is a supplementary tool designed to be used alongside the PACK Child guide to assist clinicians to streamline visits with the carer-child pair. It includes information on routine immunisations, development visits, growth monitoring, other routine screenings (including vitamin A, deworming, oral health, TB and HIV testing) and First 1000 days messaging. It aims to align with the Road to Health Booklet clinic visit schedule.

The B22 wheel (Annexure B) with instructions for assembly is attached. The PDC will distribute the B22 wheel to districts and sub-districts.

Feedback, queries, and suggestions on PACK Child or B22 wheel content can be addressed to KTU@uct.ac.za.

We sincerely hope that these tools provide clear and succinct clinical guidance and supports our clinicians to provide our children in need with the best possible care.

Yours sincerely,

JO ARENDSE
CHIEF DIRECTOR: ECSS
DATE: 26 March 2024

PACK Child 2023 with updated EPI schedule: summary of changes

Background

The National Department of Health (NDoH) has revised the Expanded Programme on Immunisation (EPI) schedule, which was implemented in January 2024.

Please refer to Western Cape Government Department of Health and Wellness (WCGDHW) circular H05/2024 and WCGDHW circular H20/2024 for further details.

The updated recommendations, as it pertains to PACK Child, include the following:

1. The pneumococcal conjugate vaccine (PCV10) replaces the pneumococcal conjugate vaccine (PCV13). However, these vaccines can be used interchangeably until the PCV13 stock is depleted. This change does NOT affect the EPI schedule in terms of timing of routine vaccine administration. i.e. at 6 and 14 weeks and 9 months.

2. The measle and rubella containing vaccine (MR), replaces the measles only vaccine (Measbio®). However, these vaccines can be used interchangeably until the measles vaccine (Measbio®) stock is depleted. This change does NOT affect the EPI schedule in terms of timing of routine vaccine administration, i.e. at 6 months and 12 months.

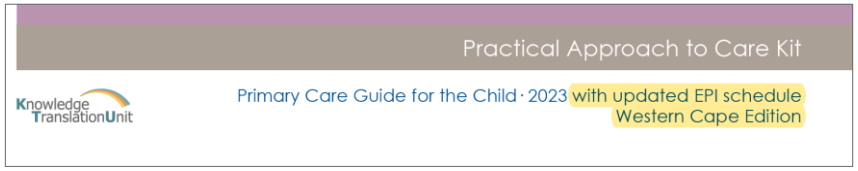
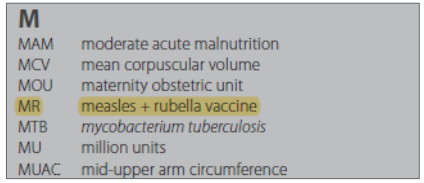
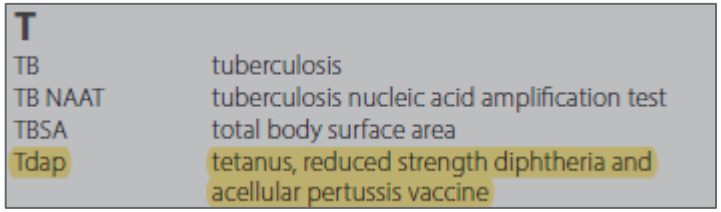
3. The tetanus, reduced-strength diphtheria, and acellular pertussis vaccine (Tdap) replaces the tetanus and diphtheria vaccine (Td). This change does NOT affect the EPI schedule in terms of timing of routine vaccine administration, i.e. at 6 years and 12 years. Although not included in PACK Child, please note that pregnant women should receive a Tdap booster during every pregnancy (preferably between 26 and 34 weeks) to protect newborns against tetanus, diphtheria and pertussis. This replaces the tetanus toxoid (TT) vaccine.

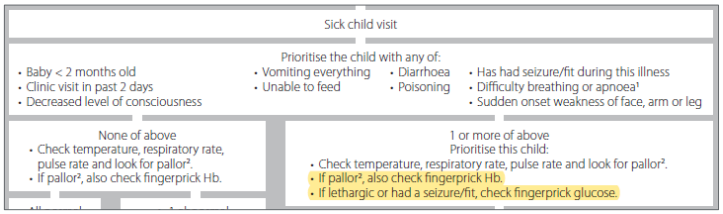
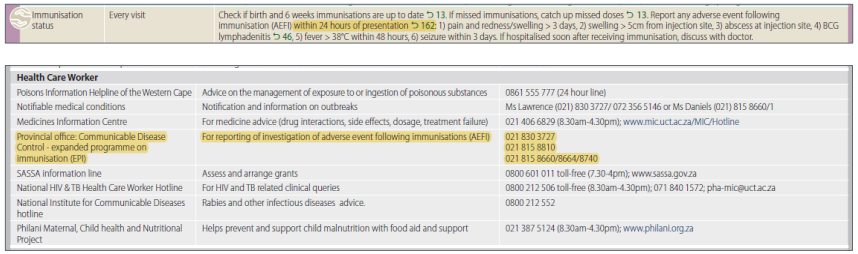
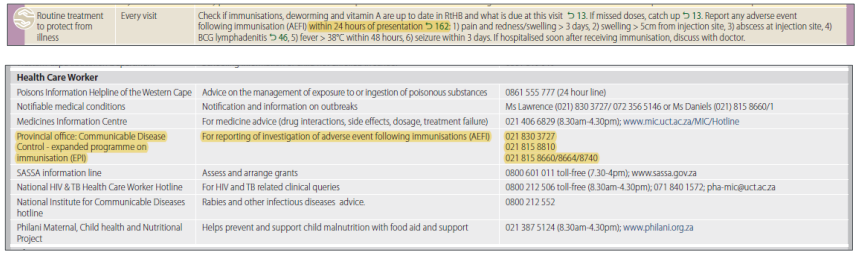
Further to the above, please refer to WCGDHW circular H10/2024 for updated recommendations for the human pappilomavirus vaccine (HPV) and Tdap administration as part of the integrated school health programme campaign.

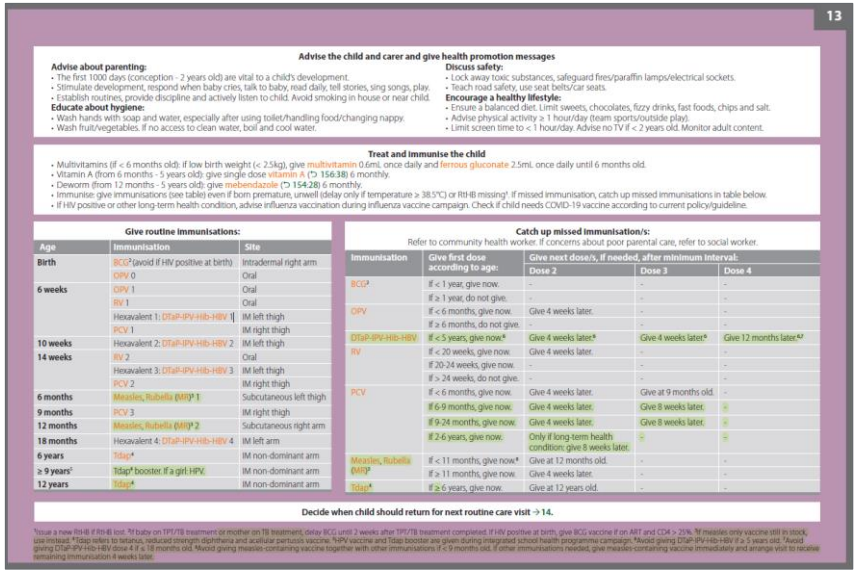
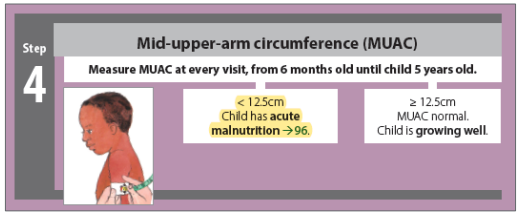
Other changes implemented in PACK Child are the result of feedback received from clinicians who have interacted with the PACK Child guide.

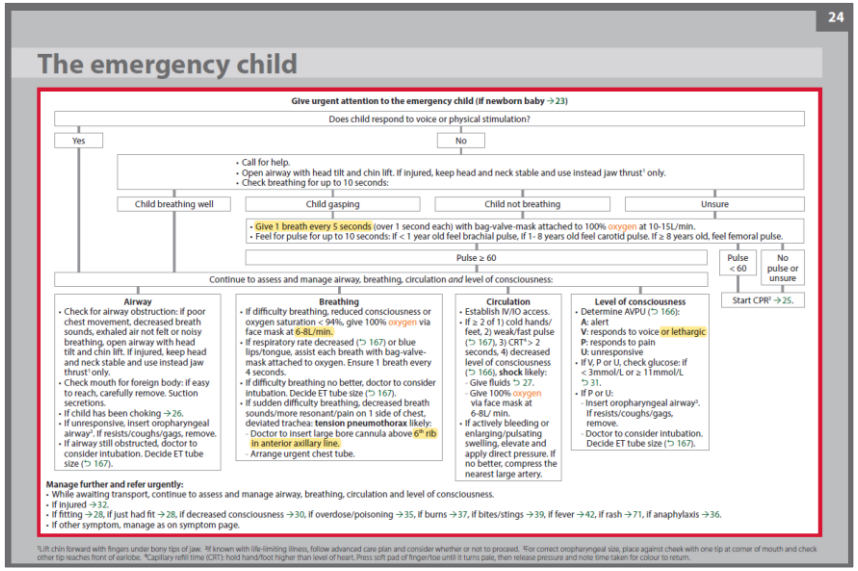
Please note that these changes do not constitute a full update of the PACK Child guide. Once a full update is completed, this will be communicated to all stakeholders. For any queries, please contact ***ktu@uct.ac.za***.

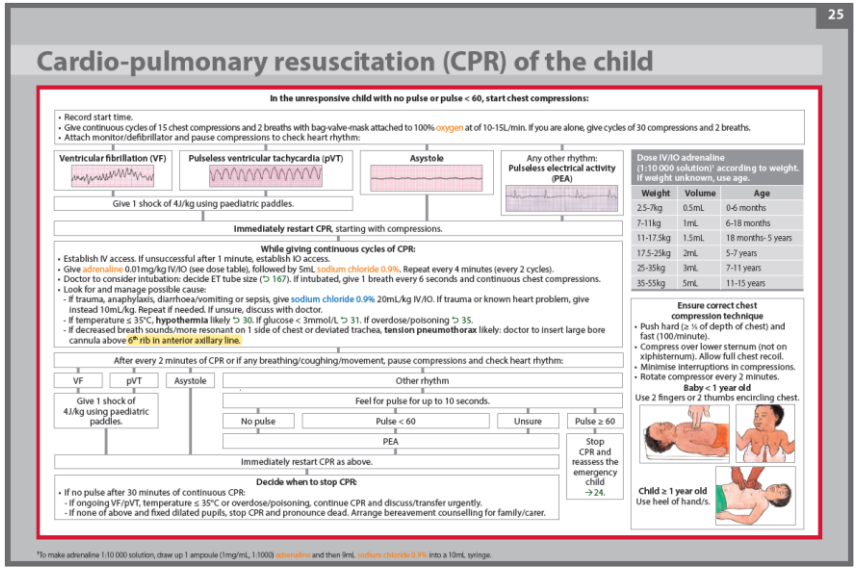
The following table details the content changes made to the PACK Child guide 2023 with updated EPI schedule, Western Cape Edition:

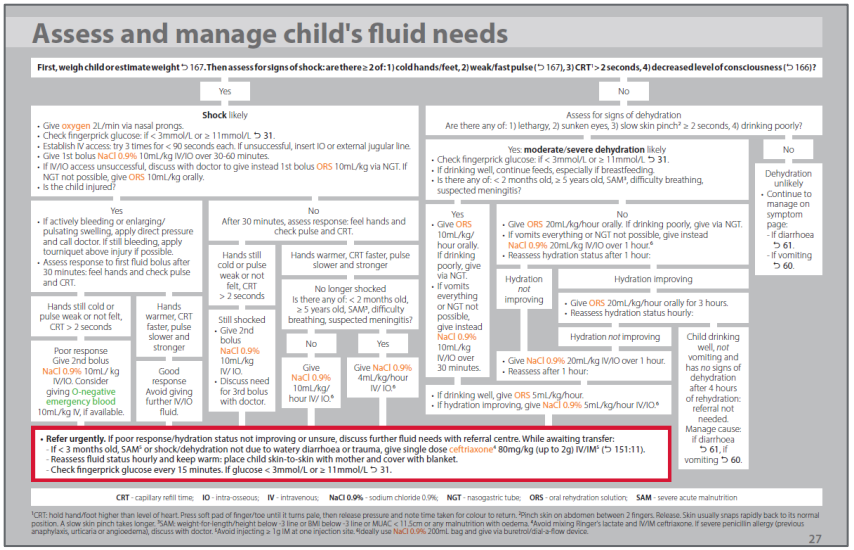
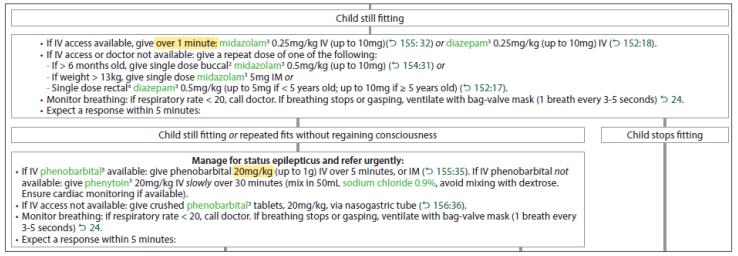
Changes to individual pages			
Page name	**Page**	**Details of text changes**	**Highlighted change in updated guide**
Cover	1	***Guide name changed to:*** Primary Care Guide for the Child 2023 with updated EPI schedule	
What is PACK Child?	2	***Latest version stamp removed***	
Glossary	5	***LPA removed*** ***MR (measles + rubella) vaccine added*** ***Tdap (tetanus, reduced strength diphtheria and acellular pertussis vaccine added***	 

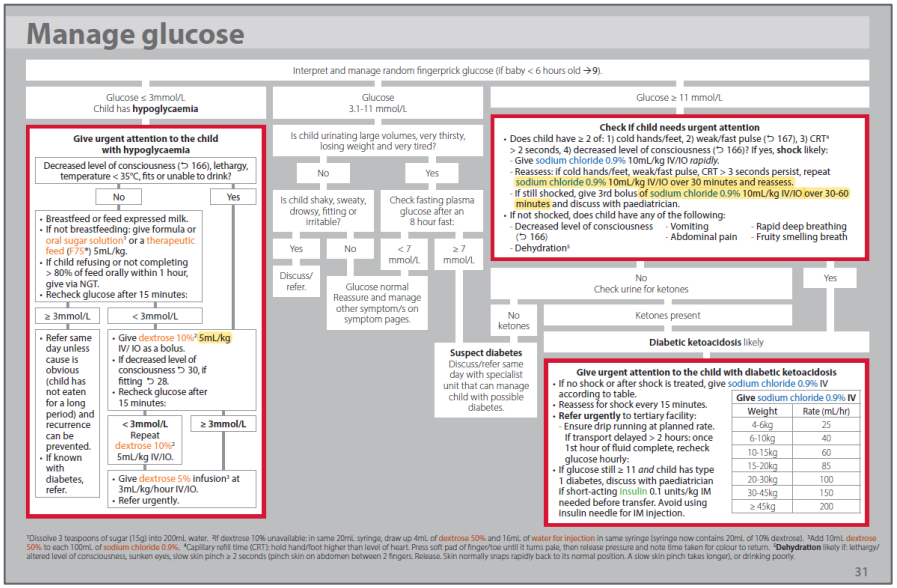
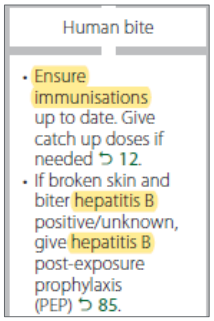
Changes to individual pages			
Page name	**Page**	**Details of text changes**	**Highlighted change in updated guide**
Screen the child in the prep room	8	***Bullet order switched In the box:*** 1 or more of above Prioritise this child: • Check temperature, respiratory rate, pulse rate and look for pallor[2]. • <u>If pallor[2], also check fingerprick Hb.</u> • <u>If lethargic or had a seizure/fit, check fingerprick glucose.</u>	
Baby < 2 months old: routine care	11	***Routine treatment to protect from illness row note amended to include reporting adverse event following immunisation <u>within 24 hours</u> with a link to the Provincial office: Communicable Disease Control - expanded programme on immunisation (EPI) contact details on Helpline numbers (page 162).***	
Baby ≥ 2 months: routine care	12	***Immunisation status row note amended to include reporting adverse event following immunisation <u>within 24 hours</u> with a link to the Provincial office: Communicable Disease Control - expanded programme on immunisation (EPI) contact details on Helpline numbers (page 162).***	

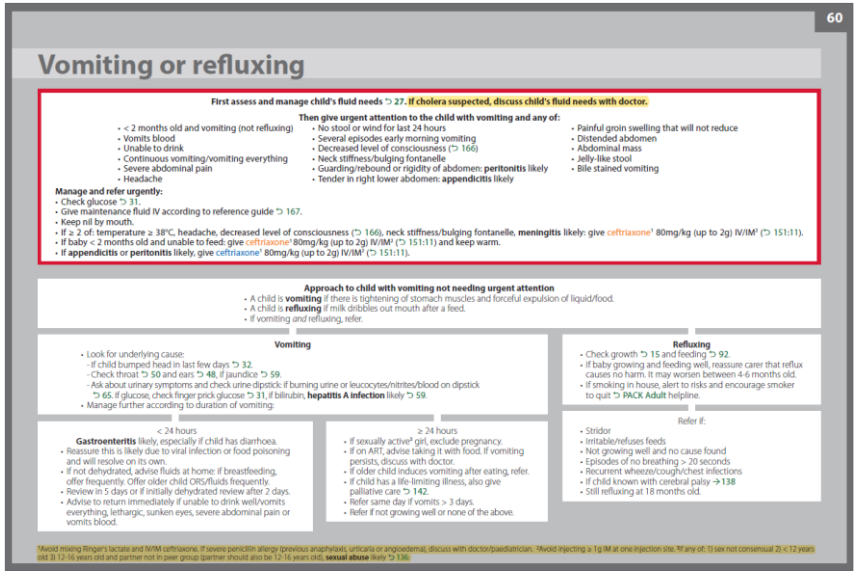
Changes to individual pages			
Page name	**Page**	**Details of text changes**	**Highlighted change in updated guide**
Section: Give routine immunisations and catch up missed immunisastion/s tables	13	***Routine immunisation table updated to align with NDoH recommendations.*** ***Catch up immunisation table updated to align with NDoH recommendations.***	 13 **Advise the child and carer and give health promotion messages** **Advise about parenting:** • The first 1000 days (conception - 2 years old) are vital to a child's development. • Stimulate development, respond when baby cries, talk to baby, read daily, tell stories, sing songs, play. • Establish routines, provide discipline and actively listen to child. Avoid smoking in house or near child. **Educate about hygiene:** • Wash hands with soap and water, especially after using toilet/handling food/changing nappy. • Wash fruit/vegetables. If no access to clean water, boil and cool water. **Discuss safety:** • Lock away toxic substances, safeguard fires/paraffin lamps/electrical sockets. • Teach road safety, use seat belts/car seats. **Encourage a healthy lifestyle:** • Ensure a balanced diet. Limit sweets, chocolates, fizzy drinks, fast foods, chips and salt. • Advise physical activity ≥ 1 hour/day (team sports/outside play). • Limit screen time to < 1 hour/day. Advise no TV if < 2 years old. Monitor adult content. **Treat and immunise the child** • Multivitamins (if < 6 months old): if low birth weight (< 2.5kg), give multivitamin 0.6mL once daily and ferrous gluconate 2.5mL once daily until 6 months old. • Vitamin A (from 6 months - 5 years old): give single dose vitamin A (↻ 156.38) 6 monthly. • Deworm (from 12 months - 5 years old): give mebendazole (↻ 154.28) 6 monthly. • Immunise: give immunisations (see table) even if born premature, unwell (delay only if temperature ≥ 38.5°C) or RtHB missing[1]. If missed immunisation, catch up missed immunisations in table below. • If HIV positive or other long-term health condition, advise influenza vaccination during influenza vaccine campaign. Check if child needs COVID-19 vaccine according to current policy/guideline. **Give routine immunisations:** **Catch up missed immunisation/s:** Refer to community health worker. If concerns about poor parental care, refer to social worker. **Decide when child should return for next routine care visit →14.**
Assess and interpret growth	15	***Step 4 text changed:*** <u>< 12.5 cm</u> <u>Child has **acute malnutrition**</u> → 96.	 Step 4 **Mid-upper-arm circumference (MUAC)** **Measure MUAC at every visit, from 6 months old until child 5 years old.** < 12.5cm Child has **acute malnutrition** →96. ≥ 12.5cm MUAC normal. Child is **growing well**.

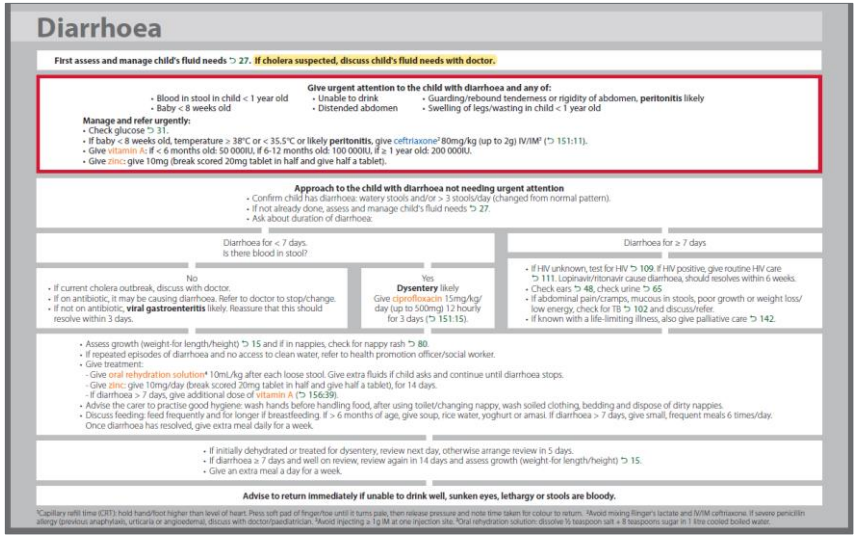
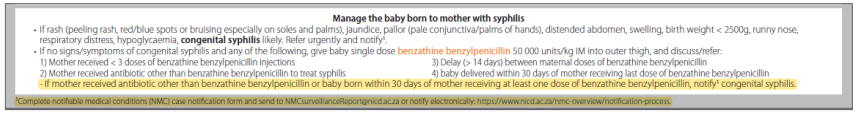
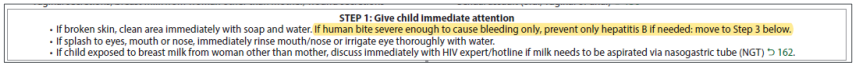
Changes to individual pages			
Page name	**Page**	**Details of text changes**	**Highlighted change in updated guide**
The emergency child	24	***Text changes:*** • If child gasping, not breathing or unsure, first bullet text changed to: Give 1 breath every 5 seconds (over 1 second each) with bag-valve-mask attached to 100% **oxygen** at 10-15L/min. • Breathing block first bullet and circulation second bullet text changed to: Give 100% **oxygen** via face mask at 6-8L/ min. • Doctor to insert large bore cannula above 6th rib in anterior axillary line. • Lethargic added under "V" for AVPU	

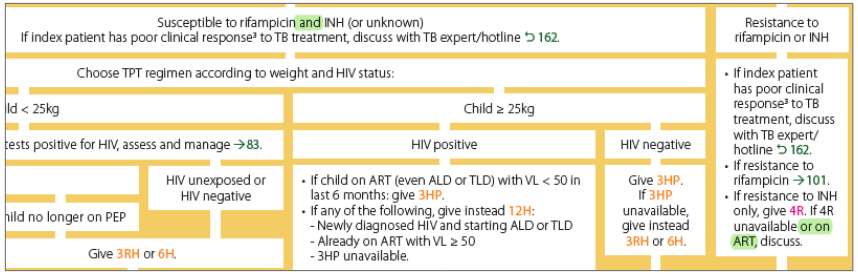
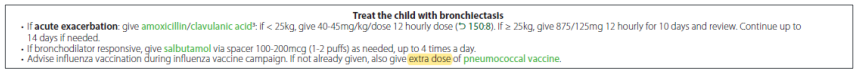
Changes to individual pages			
Page name	**Page**	**Details of text changes**	**Highlighted change in updated guide**
Cardio-pulmonary resuscitation (CPR) of the child	25	***For tension pneumothorax, text changed to:*** doctor to insert large bore cannula above 6th rib in anterior axillary line.	

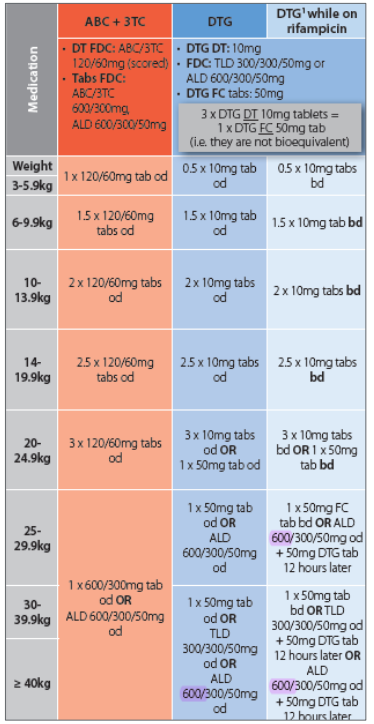
Changes to individual pages			
Page name	**Page**	**Details of text changes**	**Highlighted change in updated guide**
Assess and manage child's fluid needs	27	***Page reconfigured to clarify how to treat shock and dehydration and when to refer the shocked or dehydrated child (red box).***	
Seizures/fits	28	***First bullet under Child still fitting box changed to:*** If IV access available, give <u>over 1 minute</u>: mid-azolam3 0.25mg/kg IV (up to 10mg) (↔ 155: 32) or diazepam3 0.25mg/kg (up to 10mg) IV (↔ 152:18). ***First bullet under Manage for status epilepticus and refer urgently changed to:*** If IV phenobarbital[3] available: give phenobarbital <u>20mg/kg</u> (up to 1g) IV over 5 minutes, or IM (↔ 155:35).	

Changes to individual pages			
Page name	**Page**	**Details of text changes**	**Highlighted change in updated guide**
Manage glucose	31	***Text changes:*** • Give urgent attention to the child with hypoglycaemia: Give dextrose 10%[2] 5mL/kg IV/IO as a bolus. • Glucose ≥ 11 mmol/L: – Reassess: if cold hands/feet, weak/fast pulse, CRT > 3 seconds persist, repeat sodium chloride 0.9% 10mL/kg IV over 30 minutes and reassess. – If still shocked, give 3rd bolus of sodium chloride 0.9% 10mL/kg IV over 30-60 minutes and discuss with paediatrician.	
Bites and stings	39	Human bites: • Ensure immunisations up to date. Give catch up doses if needed ↔ 12. • If broken skin and biter hepatitis B positive/unknown, give hepatitis B post-exposure prophylaxis (PEP) ↔ 85.	

Changes to individual pages			
Page name	**Page**	**Details of text changes**	**Highlighted change in updated guide**
Vomiting and/or refluxing	60	If cholera suspected, discuss child's fluid needs with doctor. ***Footnotes corrected.***	

Changes to individual pages			
Page name	**Page**	**Details of text changes**	**Highlighted change in updated guide**
Diarrhoea	61	If cholera suspected, discuss child's fluid needs with doctor.	
Prevent communicable infections in the newborn	83	***Last sub-bullet added under box:*** Manage the baby born to the mother with syphilis: – If mother received antibiotic other than benzathine benzylpenicillin or baby delivered within 30 days of mother receiving at least 1 dose of benzathine benzylpenicillin, notify1 congenital syphilis.	
Exposed to infectious fluid: post-exposure prophylaxis	85	***Sentence added in Step 1:*** If human bite severe enough to cause bleeding only, prevent only hepatitis B if needed: move to Step 3 below.	

Changes to individual pages			
Page name	**Page**	**Details of text changes**	**Highlighted change in updated guide**
Assess and manage TB infection	100	• Susceptible to rifampicin and INH (or unknown) • If 4R unavailable or on ART, discuss.	
Bronchiectasis	124	***Text changed: last bullet, last sentence for treat the child with bronchiectasis to read:*** • If not already given, also give extra dose of pneumococcal vaccine.	
Paracetamol dosing table	155	***Text added:*** • If < 1 month: maximum daily dose is 60mg/kg/day. If ≥ 1 month: maximum daily dose is 90mg/kg/day (up to 4g daily).	**Paracetamol** 34 Oral, 10-15mg/kg/dose (up to 1g) 6 hourly, as needed for up to 5 days. • If < 1month: maximum daily dose is 60mg/kg/day. • If ≥ 1 month: maximum daily dose is 90mg/kg/day (up to 4g daily). **Weight (kg)** | **Dose (mg)** | **Use one of the following: Syrup 120mg/5mL** | **Tablet 500mg** | **Age** **3.5-5kg** | 48mg | 2mL | - | 1-3 months **5-7kg** | 72mg | 3mL | - | 3-6 months **7-9kg** | 96mg | 4mL | - | 6-12 months **9-11kg** | 120mg | 5mL | - | 12-18 months **11-14kg** | 144mg | 6mL | - | 18 months - 3 years **14-17.5kg** | 180mg | 7.5mL | - | 3-5 years **17.5-25kg** | 240mg | 10mL | ½ tablet | 5-7 years **25-35kg** | 360mg | 15mL | - | 7-11 years **35-55kg** | 500mg | - | 1 tablet | 11-15 years **≥ 55kg** | 1 000mg | - | 2 tablets | ≥ 15 years

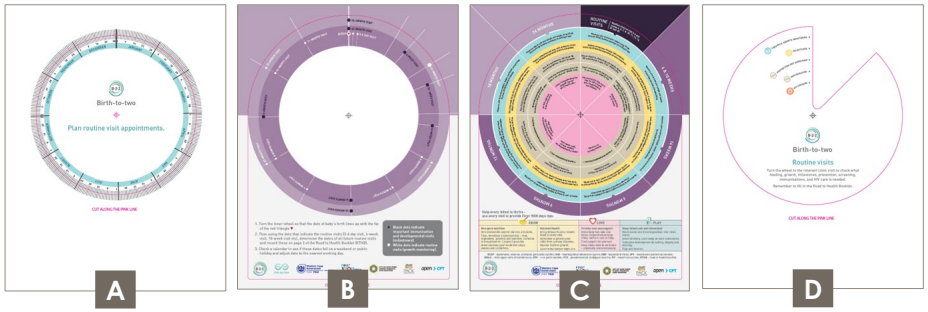
Changes to individual pages			
Page name	**Page**	**Details of text changes**	**Highlighted change in updated guide**
Antiretroviral and co-trimoxazole/multivitamin dosing table	160	• ALD dose corrected for ≥ 25kg category	

Medication	ABC + 3TC	DTG	DTG[1] while on rifampicin
	• **DT FDC:** ABC/3TC 120/60mg (scored) • **Tabs FDC:** ABC/3TC 600/300mg, ALD 600/300/50mg	• **DTG DT:** 10mg • **FDC:** TLD 300/300/50mg or ALD 600/300/50mg • **DTG FC** tabs: 50mg 3 x DTG DT 10mg tablets = 1 x DTG FC 50mg tab (i.e. they are not bioequivalent)	
Weight			
3-5.9kg	1 x 120/60mg tab od	0.5 x 10mg tab od	0.5 x 10mg tabs bd
6-9.9kg	1.5 x 120/60mg tabs od	1.5 x 10mg tab od	1.5 x 10mg tab **bd**
10-13.9kg	2 x 120/60mg tabs od	2 x 10mg tabs od	2 x 10mg tabs **bd**
14-19.9kg	2.5 x 120/60mg tabs od	2.5 x 10mg tabs od	2.5 x 10mg tabs **bd**
20-24.9kg	3 x 120/60mg tabs od	3 x 10mg tabs od **OR** 1 x 50mg tab od	3 x 10mg tabs bd **OR** 1 x 50mg tab **bd**
25-29.9kg	1 x 600/300mg tab od **OR** ALD 600/300/50mg od	1 x 50mg tab od **OR** ALD 600/300/50mg od	1 x 50mg FC tab bd **OR** ALD 600/300/50mg od + 50mg DTG tab 12 hours later
30-39.9kg		1 x 50mg tab od **OR** TLD 300/300/50mg od **OR** ALD 600/300/50mg od	1 x 50mg tab bd **OR** TLD 300/300/50mg od + 50mg DTG tab 12 hours later **OR** ALD 600/300/50mg od + 50mg DTG tab 12 hours later
≥ 40kg			

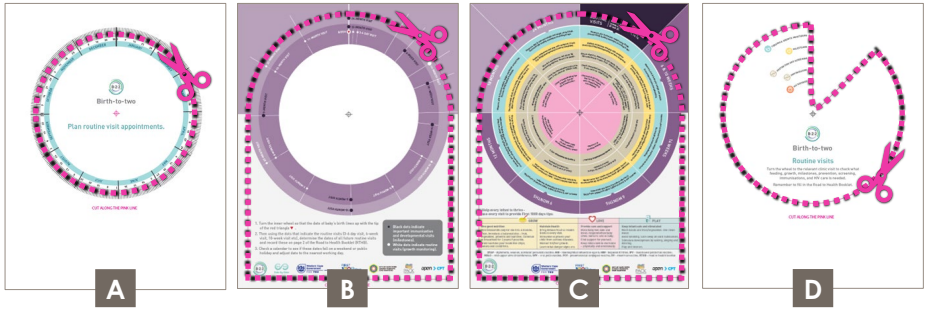
Changes throughout the guide	
Pages	**Details of text changes**
TB section: 102, 103, 105, 107, 108	***DST replaces LPA***

B-2-2 wheel assembly instructions

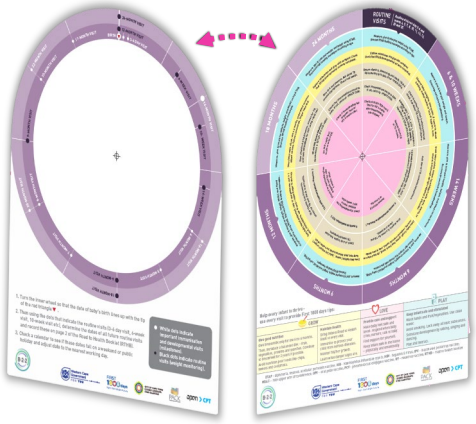
1 Print pages out in colour – single sided



2 Cut along the pink lines of all 4 pages



3 Stick pages B and C back-to-back

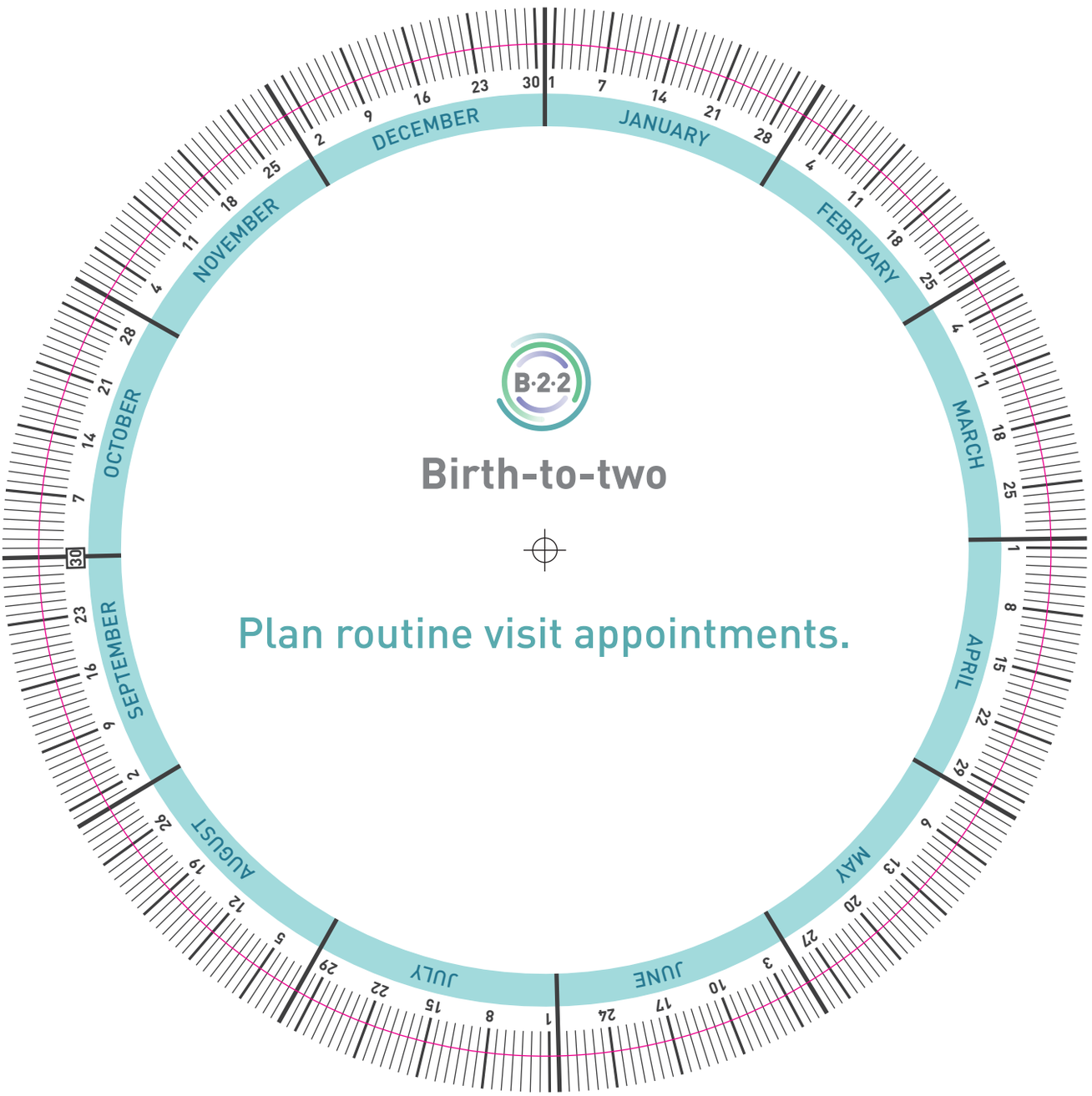


4 Pierce the middle of each piece on the little cross with a drawing pin

5 Insert a paper fastener through the hole in piece A, then piece B coming out of piece C and then through piece D

6 Sides of wheel assembled correctly

Western Cape Government
FOR YOU
Health and Wellness



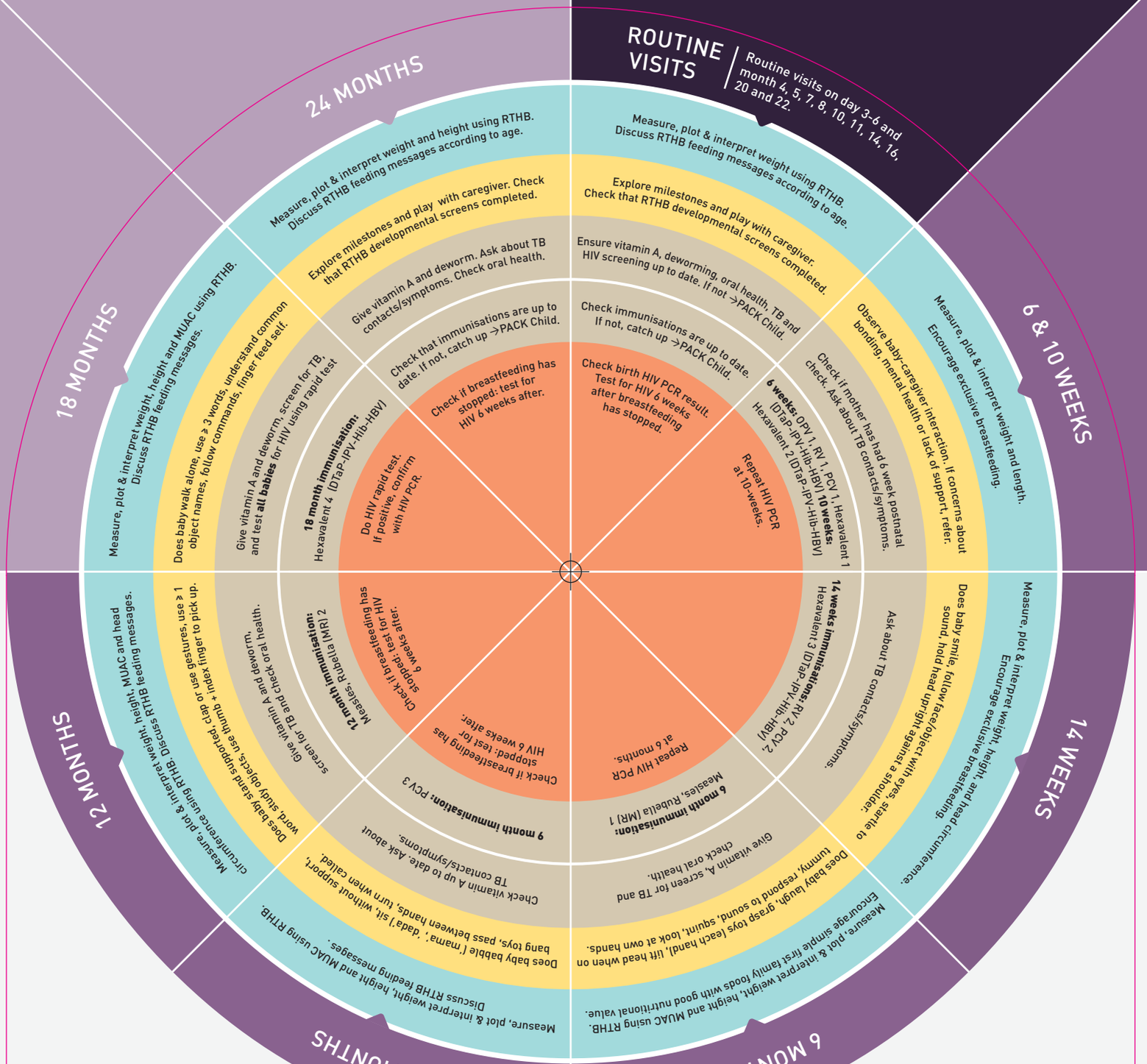
CUT ALONG THE PINK LINE

1. Turn the inner wheel so that the date of baby's birth lines up with the tip of the red triangle ▼ .
2. Then using the dots that indicate the routine visits (3-6 day visit, 6-week visit, 10-week visit etc), determine the dates of all future routine visits and record these on page 2 of the Road to Health Booklet (RTHB).
3. Check a calendar to see if these dates fall on a weekend or public holiday and adjust date to the nearest working day.

- Black dots indicate important immunisation and developmental visits (milestones).
- White dots indicate routine visits (growth monitoring).

B·2·2 Side-by-Side Western Cape Government FOR YOU Health and Wellness FIRST 1000 days Right Start Bright Future CITY OF CAPE TOWN ISIXEKO SASEKAPA STAD KAAPSTAD PACK Practical Approach to Care Kit open > CPT

CUT ALONG THE PINK LINE



Help every baby to thrive - Give First 1000 days tips:

GROW

Give good nutrition

- Give breastmilk only for the first 6 months.
- Then, introduce a balanced diet – fruit, vegetables, proteins and starches. Continue to breastfeed for at least 2 years.
- Avoid nutrition-poor foods like chips, sweets, tea and cooldrinks.

Maintain Health

- Bring RTHB to every visit.
- Immunise to protect your child from serious diseases.
- Monitor his/her growth.
- Learn what danger signs are.

LOVE

- **Provide care and support**
- Make baby feel safe and loved: respond when baby cries; nurture, talk to baby.
- Find support for yourself.
- Ensure safe environment: safe drinking water, wash hands and food. Avoid smoking. Lock away toxic substances. Avoid violent places.

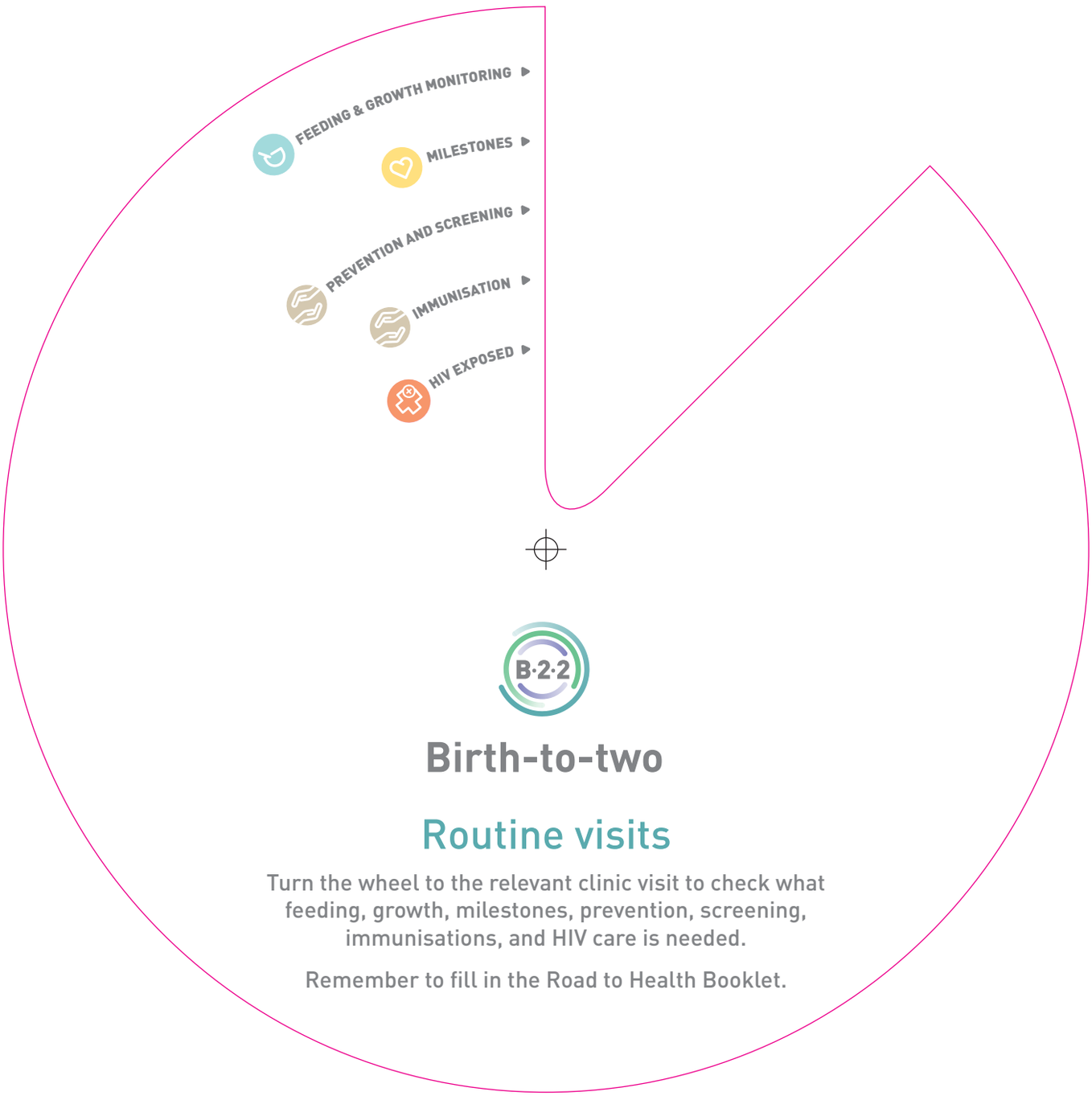
PLAY

- **Create a sense of safety and belonging**
- Your baby learns from birth. Hold, hug, sing and talk to your baby. Bond: keep your baby close.
- Be responsive: pay attention to your baby's emotions, interests, likes/dislikes and respond appropriately.
- Encourage baby to explore and play with clean household items and toys.

DTaP - diphtheria, tetanus, acellular pertussis vaccine; **HiB** - Haemophilus influenzae type b; **HBV**- hepatitis B Virus; **IPV** - inactivated poliovirus vaccine; **MUAC** – mid-upper arm circumference; **OPV** - oral polio vaccine; **PCV** - pneumococcal conjugate vaccine; **RV** - rotavirus vaccine; **RTHB** – road to health booklet

B·2·2 · Side-by-Side · Western Cape Government FOR YOU Health and Wellness · FIRST 1000 days Right Start Bright Future · CITY OF CAPE TOWN ISIXEKO SASEKAPA STAD KAAPSTAD · PACK Practical Approach to Care Kit · open > CPT

CUT ALONG THE PINK LINE



B·2·2

Birth-to-two

Routine visits

Turn the wheel to the relevant clinic visit to check what feeding, growth, milestones, prevention, screening, immunisations, and HIV care is needed.

Remember to fill in the Road to Health Booklet.

CUT ALONG THE PINK LINE

Western Cape Government
Health and Wellness
FOR YOU

PACK
Practical Approach to Care Kit

Practical Approach to Care Kit

Knowledge Translation Unit

Primary Care Guide for the Child· 2023 with updated EPI schedule
Western Cape Edition

What is PACK Child?

The Practical Approach to Care Kit (PACK) Child guide is a comprehensive guide for the primary care of the child up to 13 years old. It uses simple algorithms to evaluate and treat the child with common symptoms and a standardised checklist format to care for the child with a long-term health condition. It supports the clinician to integrate the routine care of the child into every visit.

The PACK programme has been developed, tested and refined over a period of 20 years by the Knowledge Translation Unit (KTU), in consultation with clinicians and Provincial Department of Health managers and policy makers in the Western Cape. The PACK Child guide is designed to articulate with the PACK Adult programme, helping the clinician to manage the child along with the carer and family.

The initial PACK Child development process[1] was a consultative one during 2015/2016, and involved numerous multidisciplinary clinical working groups of paediatricians, family physicians, clinical nurse practitioners, nurses, auxiliary health care workers, Department of Health managers and other role players in public sector paediatric care, including patient advocacy groups.

PACK Child was implemented as a pilot study in 2017/2018 in selected rural and urban clinics in the catchment area of Red Cross Children's Hospital, Cape Town, employing the usual PACK training approach of short, regular on-site sessions using case-based teaching methods. This pilot was accompanied by a process evaluation[2,3,4], the results of which informed further refinement of the programme ahead of wider implementation.

The Western Cape Department of Health have commissioned the update of the PACK Child pilot guide, for wider implementation throughout the province in 2023. The KTU updated the guide's clinical content and again drew on the kind input from reviewer experts in their various fields. The guide incorporated user feedback from the pilot and findings from the process evaluation.

The PACK Child guide is not intended to replace the Integrated Management of Childhood Illnesses (IMCI). It aligns with the IMCI content but is arranged in a format that allows for expansion, including the management of the child over the age of 5, a greater number of symptom-based approaches as well as a new focus on long-term health conditions and the well child. This guide is also designed to comply with the Standard Treatment Guidelines (STG) and the Essential Medicines Lists (EML) as determined by the South African Essential Drugs Programme. This PACK Child 2023 edition has been tailored to local Western Cape policy and protocols including the Provincial Code List and Supplementary lists.

1. Picken S, Hannington J, Fairall L, *et al.* **PACK Child: the development of a practical guide to extend the scope of integrated primary care for children and young adolescents.** *2018. BMJ Global Health. https://gh.bmj.com/content/3/Suppl_5/e000957*
2. Murdoch J, Curran R, Bachmann M, *et al.* **Strengthening the quality of paediatric primary care in South Africa: Protocol for process evaluation of a pilot and feasibility study of a health systems intervention.** *2018. BMJ Global Health. https://gh.bmj.com/content/3/Suppl_5/ e000945*
3. Murdoch, J., Curran, R., Cornick, R. *et al.* **Addressing the quality and scope of paediatric primary care in South Africa: evaluating contextual impacts of the introduction of the Practical Approach to Care Kit for children (PACK Child)**. *BMC Health Serv Res 20, 479 (2020). https://doi.org/10.1186/s12913-020-05201-w.*
4. Curran, R., Murdoch, J., Bachmann, M. *et al.* **Addressing the quality of paediatric primary care: health worker and caregiver perspectives from a process evaluation of PACK child, a health systems intervention in South Africa.** 2021. *BMC Pediatr 21, 58. https://doi. org/10.1186/s12887-021-02512-7*

How to use PACK Child

The PACK Child guide is designed to structure a clinical consultation with a child in primary care, providing preventive, curative and long-term care at the same visit. It is divided into three main sections:

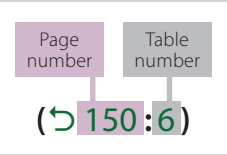
- **Routine care section:** in the stable child, start the consultation on the routine care page relevant to the age of the child (< 2 months old or ≥ 2 months old). Use the standard 'Assess, Advise and Treat' framework to address the child's general health (feeding, development, immunisations, growth) and provide preventive treatment.
- **Symptom section:** Use the Symptoms contents page to find the relevant symptom page in the guide. Decide if the child needs urgent attention (in the red box) and if not, follow the algorithm to either a management plan or to consider a long-term health condition.
- **Long-term health condition section:** Use the Long-term Health Condition contents page to find that condition in the guide. Go to the colour-coded routine care pages to manage the child's long-term health condition using the 'Assess, Advise and Treat' framework.

Use these features to navigate PACK Child

- **Arrows** refer you to another page in the guide:
  - The **direct arrow** (→) guides you to leave the page and continue on another page.
  - The **return arrow** (⮌) guides you to consult another page but suggests you return and continue on the original page. Ideally, complete the original page and keep track of the other page/s you still need to consult, unless the other page is needed to continue the assessment.

- (⮌ 167) directs you to the **Quick reference chart** on the back page for:
  - Normal ranges of respiratory rate, pulse rate and blood pressure
  - How to estimate weight according to age
  - How to calculate maintenance fluids
  - How to calculate endotracheal tube size
  - Level of consciousness assessments using the AVPU scale.

- (⮌ 150:6) directs you to the **medication dosing tables** on page 150 (get there using the Medications Dosing Tables tab). The first number indicates the relevant page number to turn to and the second number indicates the number of the table to consult.



- The "**Assess**" tables are arranged in 3 tones to reflect those aspects of the history, examination and investigations to consider.

- **Medications are highlighted in orange, blue, green or pink:**
  - Orange-highlighted medications may be prescribed by a doctor or an authorised prescriber (clinical nurse practitioner or professional nurse) in accordance with his/her scope of practice within a specified field (like IMCI-trained nurse).
  - Blue-highlighted medications may be prescribed by a doctor or clinical nurse practitioner who is an authorised prescriber.
  - Green-highlighted medications may be prescribed by a doctor only.
  - Pink-highlighted medications should be initiated by a doctor only, but may be continued by a clinical nurse practitioner who is an authorised prescriber.

- **How to interpret age and weight ranges:**
  - '**10-12kg**' means 'from and including 10kg, up to but not including 12kg'. The next range starts with 12kg.
  - '**< 2 months old**' refers to a baby less than 2 months old and not including 2 months.
  - '**≥ 2 months old**' indicates that the baby is 2 months old and older (this includes the whole month that the baby is 2 months old).
  - '**< 5 years old**' refers to a child who is younger than 5 years, not including being 5 years old.
  - '**≥ 5 years old**' refers to a child who is 5 years old and older, and starts on the day the child turns 5.

- Refer to the **Glossary** for abbreviations and units used in PACK Child.

Acknowledgements

Practical Approach to Care Kit (PACK) - Primary Care Guide for the Child (Western Cape version) was developed by Sandy Picken, Juliet Haninngton, Ruth Cornick, Mareike Rabe and Tasneem Fredericks with layout by Pearl Spiller and Nabeelah Kleinsmith of the Knowledge Translation Unit.

We thank the following clinicians for their input into this edition and previous editions of this guide:

Shariefa Patel-Abrahams
Shabirah Adriaanse
Florence Africa
Joseph Alt
Lauren Anderson
Louisa Arendse
Andrew Argent
Mariam Arnold
Ajibola Awotiwon
Grant Baaitjies
Roenell Balie
Kate Balme
Nonthuthzelo Bashe
Eric Bateman
Wiaan Bedeker
Denise Bester
Astrid Berg
Jonathan Bernheimer
Arvin Bhana
Vasanthy Bhana
Christina Booysen
Carol Bosch
Sonia Botha
Willem Breytenbach
Heloise Buys
Shihaam Cader
Judy Caldwell
Anne Campbell
Emma Carkeek
Rabia Cariem
Michelle Carrihill
Farieda Carter
Baljit Cheema
Janine Chester
Louise Cooke
Jacqui Cooper
Ewald Crause
Virginia Damons
Berenice Daniels
Gaynore Daniels
Miriam Daniels
Neal David
Alta Davids
Megan Davis-Ferguson
Willem De Jager
Tersia De Kock
Angela De Sa
Elma De Vries
Marli Delport
Stewart Dix-Peek
Kirsty Donald
Gary Dos Passos
Sarah Driver-Jowitt
Karen Du Preez
Marjorie Dukhan
Rowan Dunkley
Oskar Edkins
Nicola Eley
Cordelia Ely
Aricia Erasmus
Abraar Esack
Faye Eshraghi
Lara Fairall
Hendriette Felix
Hetta Felix
Yolandi Ferreira
Michelle Flowers
Chantal Fourie
Nicola Freeman
Lisa Frigati
Sikhumbuzo Gangala
Octavia Ganyaza
Antony Garcia-Prats
Nicole Geland
Daniella Georgeu-Pepper
Janet Giddy
Hilary Goeiman
Srini Govender
Diane Gray
Florence Groener
Aletta Haasbroek
Jean-Pierre Hartmann
Jacqueline Harvey
Di Hawarden
Helen Hayes
Marc Hendricks
Michael Hendricks
Nicolette Henney
Carol Hlela
Cindy Homewood
Cornelia Horn
Justin Howlett
Val Hoy
Jenny Hughes
Abdul Isaacs
Charlotte Jacobs
Lizel Jacobs
Shahida Jacobs
Shanaaz Jaffer
Mary-Anne Jonkerman
Sumaya Joseph
Ezna Josephus
Elrien Joubert
Roshchana Kemp
Nina Klein
Yulene Kock
Tracy Kritzinger
Max Kroon
Susan Kruger
Anusha Lachman
Estelle Lawrence
John Lawrenson
Dave le Roux
Lilian le Tape
Rannakoe Lehloenya
Martha Lekay
Michael Levin
Vanessa Lomas
Hermien Louw
Crick Lund
Jennifer Maarman
Tendani Mabuda
Phumeza Mabunzi
Elmarie Malek
Mzuphela Malgas
Sherilee Maregele
Nomonde Mbatani
Stewart Mears
Robyn Meissner
Michelle Meiring
Lyndall Metherell
Francois Meyer
Maye M Mhaka
Laetitia Minnaar
Nomapha Mlungu
Bulelwa Mpinda
Nadia Mohamed
Stella Mokitimi
Ann Moore
Jennie Morgan
Katy Moses
Vanessa Mudaly
Katie Murie
Jaco Murray
Lenny Naidoo
Zaida Naidoo
Tracy Naledi
Nomikazi Nkolisa
Mosedi Namane
Rene Nassen
Celeste Naude
Kitty Niewoudt
Nomikazi Nkolisa
Nobulele Nomnga
Sam-sam Nonqaba
Peter Nourse
Sabelo Ntlabathi
Tracy Nupen
James Nuttall
Megan Palmer
Michelle Pascoe
Shazia Peer
Eva Perez
Adriane Petersen
Inge Petersen
Penny Petersen
Thanya Petersen
Leilanie Philips-Losch
Pamela Picken
Travis Pollock
Paul Potter
Helena Rabie
Veruschka Ramanjam
Christy-Joy Ras
Tasleem Ras
Adil Razack
Andrew Redfern
Hermann Reuter
Rosina Reynierse
Natasha Rhoda
Mark Richards
Petro Robertson
Liezel Rossouw
Simon Schaaf
Arina Schlemmer
Fiona Schulte
Beverley Schweitzer
Chris Scott
Stephanus Serfontein
Eugenia Sidumo
Khosi Simelane
Simphiwe Simelane
Liezl Smit
Sandra Smit
Dusica Stapar
Kenny Stevens
Bennie Steyn
Edith Swanevelder
Alvera Swartz
Juli Switala
Anne-Mare Syfers
Caroline Taylor
Marianne Tiemensma
Vonita Thompson
Mike Urban
Riatha van As
Sebastian van As
Albertine van der Does
Samantha van Deventer
Ben van Stormbroek
Lourentia van Wyk
Ann van Eyssen
Margaret van Niekerk
Pearl van Niekerk
Christina van Rensburg
Hildegard van Rhyn
Wendy Vogel
Jackie Voget
Cathy Ward
Estelle Wasserfall
Leigh Waterhouse
Camilla Wattrus
Volene Werely
Thandi Wessels
Anthony Westwood
Agnes Wewers
Madeleine Wildschutt
Lyn Wilkinson
Jo Wilmshurst
Nicola Wilson
Verona Witbooi
Dave Woods
Nadia Wynne
Somikazi Xaso
Xoliswa Yonya
Liesl Zühlke
Zimasa Zwide

We would like to acknowledge:

- Mark Richards, Elmarie Malek, Janet Giddy and James Nuttall for their time and support in the development of this guide.
- The sources of photographs and x-rays: the Atlas of Paediatric HIV Infection[1], University of Cape Town; the Division of ENT Department, New Somerset Hospital; the Divisions of Dermatology and Orthopaedics, Red Cross War Memorial Hospital; the Faculty of Dentistry, University of the Western Cape; The Union, Diagnostic CXR Atlas for Tuberculosis in Children - image library[2]; VisualDx[3].
- Izak Volgraaf and Heidel Dedekind for the illustrations.

Glossary

A

AIDS	acquired immunodefiency syndrome
ALP	alkaline phosphatase
ALT	alanine aminotransferase
ART	antiretroviral therapy

B

BCG	Bacillus Calmette-Guérin vaccine
BMI	body mass index
BP	blood pressure measured in millimeters of mercury [mmHg]

C

CD4	count of the lymphocytes with a CD4 surface marker
CPR	cardiopulmonary resuscitation
Cr/Cl	creatinine clearance

D

DR-TB	drug-resistant tuberculosis
DS-TB	drug-sensitive tuberculosis
DST	drug susceptibility testing
DTap	diphtheria, tetanus, acellular pertussis vaccine

E

ECG	electrocardiogram
eGFR	estimated glomerular filtration rate
ELISA	enzyme-linked immunosorbent assay
ENT	ear, nose and throat specialist

F

FBC	full blood count
FCS	Provincial Family Violence, Child Protection and Sexual Offences

G

GMFCS	Gross motor function classification system

H

Hb	haemoglobin
HBsAb	hepatitis B surface antibody
HBsAg	hepatitis B surface antigen
HB	hepatitis B vaccine
HFA	height-for-age
HiB	haemophilus influenza type b
HIV	human immunodeficiency virus
HPV	human papilloma virus vaccine

I

IM	intramuscular
IMCI	integrated management of childhood illness
IO	intraosseous
IU	international units
IV	intravenous

K

KMC	kangaroo mother care

L

L/HFA	length/height-for-age

M

MAM	moderate acute malnutrition
MCV	mean corpuscular volume
MOU	maternity obstetric unit
MR	measles + rubella vaccine
MTB	*mycobacterium tuberculosis*
MU	million units
MUAC	mid-upper arm circumference

N

NGO	non-governmental organisation
NGT	nasogastric tube
NTP	nutritional therapeutic programme

O

ORS	oral rehydration solution
OPD	outpatients department
OPV	oral polio vaccine

P

PCAC	provincial clinical advisory committee
PCR	polymerase chain reaction
PCV	pneumococcal conjugate vaccine
PEP	post-exposure prophylaxis
PJP	*Pneumocystis jiroveccii* pneumonia
PPE	papular pruritic eruption *or* personal protective equipment
Pulse rate	measured in beats per minute

R

Respiratory rate	measured in breaths per minute
RtHB	Road to Health Booklet
RUSF	Ready-to-use Supplementary food
RUTF	Ready-to-use Therapeutic Food
RV	rotavirus vaccine

S

SAM	severe acute malnutrition
SAPS	South African Police Service
Sats	oxygen saturation
SBP	systolic blood pressure

T

TB	tuberculosis
TB NAAT	tuberculosis nucleic acid amplification test
TBSA	total body surface area
Tdap	tetanus, reduced strength diphtheria and acellular pertussis vaccine
TPT	TB preventive treatment
TSB	total serum bilirubin
TSH	thyroid stimulating hormone
TST	tuberculin skin test

V

VL	viral load

W

WFA	weight-for-age
WFL	weight-for-length
WFL/H	weight-for-length/height

Contents

Integrate routine care at every visit

Symptoms

Long-term health conditions

Nutrition

Tuberculosis (TB)

HIV

Allergy

Other long term health conditions

Mental health

Special needs

Palliative care

Other pages

Screen the child in the prep room

- Manage urgently if child not breathing or responding →24. If fitting →28. If baby newly born →23.
- Manage according to reason for clinic visit:

Well child visit

→ Measure and record growth: check weight (remove nappy) and if < 5 years old: mid-upper-arm circumference (MUAC) at every visit. Measure length/height every 6 months. Measure head circumference at 14 weeks old and 12 months old.

Sick child visit

Prioritise the child with any of:

- Baby < 2 months old
- Clinic visit in past 2 days
- Decreased level of consciousness
- Vomiting everything
- Unable to feed
- Diarrhoea
- Poisoning
- Has had seizure/fit during this illness
- Difficulty breathing or apnoea[1]
- Sudden onset weakness of face, arm or leg

None of above

- Check temperature, respiratory rate, pulse rate and look for pallor[2].
- If pallor[2], also check fingerprick Hb.

→ All normal

→ ≥ 1 abnormal

1 or more of above
Prioritise this child:

- Check temperature, respiratory rate, pulse rate and look for pallor[2].
- If pallor[2], also check fingerprick Hb.
- If lethargic or had a seizure/fit, check fingerprick glucose.

→ Check sats (if available). If < 92%, give oxygen 2L/minute via nasal prongs.

→ Notify clinician and fast track child to front of the queue.

Trauma (Injury or burn)

Does child have any of:

- Burns
- Suspected fracture/dislocation
- Head injury
- Bleeding wound
- Extensive bruising
- Eye injury
- Severe mechanism of injury[3]

→ Yes
Check temperature, respiratory rate, pulse rate.

→ No

How to measure length/height, head circumference and mid-upper arm circumference

Length/height

Remove shoes/hair ornaments that will interfere with measurements.

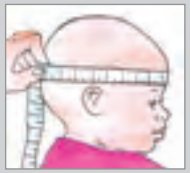
If < 2 years old, measure length:

- Lie baby on length board.
- Carer to hold head against headboard.
- Hold down legs and move foot board so that feet lie flat against it.

If ≥ 2 years old, measure height:

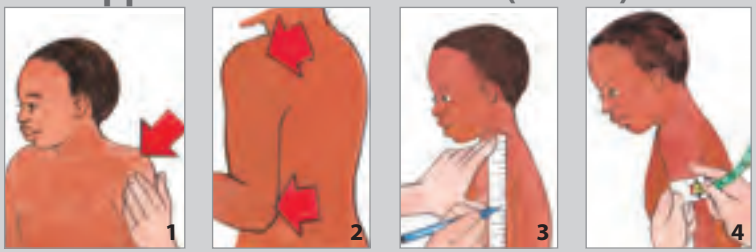
- Stand child against wall with head, shoulder blades, buttocks, calves and heels touching wall.
- Keep feet flat on ground.
- Get carer to hold knees and ankles.
- Hold child's chin to keep head straight.
- Pull down headboard[4] to rest on head and measure in cm.

Head circumference



- Remove hair ornaments.
- Wrap tape measure around widest part of head:
  - Start from a point 2 fingers above eyebrow, past top of ears to around the widest part of back of head.
  - Measure in cm.

Mid-upper arm circumference (MUAC)



- Remove clothes to expose arm fully. Find tip of shoulder (acromion) and tip of elbow (olecranon) when elbow bent at right angle with palm up.
- Mark midpoint between these; then allow arm to hang straight down.
- Wrap tape around arm at midpoint and measure in cm.

[1]Apnoea is episodes of no breathing > 10 seconds. [2]Look for pale palms of the hands and conjunctival pallor: paleness of the lower inner eyelid. [3]For example, a car or pedestrian accident, fall from height, stab wound, gunshot wound. [4]If using headboard to measure height, ensure it is installed correctly (try measuring your own height). If using a tape measure, measure from the ground to top of head.

First assessment of the newborn

Assess the baby within 6 hours following birth.

Give urgent attention to the newborn with any of:

- < 2kg
- Baby < 34 weeks gestation
- Difficulty breathing: blue lips/tongue, respiratory rate > 60, grunting, nasal flaring or chest indrawing
- Rapid swelling of head
- Jaundice →59
- Irregular jerky movements
- Reduced movements/lethargy
- Open area over spine
- Abdominal distension

Manage and refer urgently:

- If difficulty breathing, give oxygen 1L/min via nasal prongs. If baby just born, help baby breathe →23.
- Keep baby warm: place baby skin-to-skin with mother and cover with blanket or transport in incubator.
- Feed baby:
  - If alert, encourage breastfeeding. If breastmilk not available or not chosen method of feeding, give instead formula/sugar water[1] 3mL/kg/hour orally.
  - If baby too sick to feed, give via NGT.
  - Feed at least 2 hourly until transfer.
- Check heelprick glucose. If < 2.6mmol/L, manage **hypoglycaemia**:

Glucose < 1.4mmol/L

- Give a bolus of dextrose 10%[2] 2mL/kg IV.
- Continue with dextrose 10%[2] infusion at 3mL/kg/hour[3] IV.
- Recheck glucose after 15 minutes:
  - **< 2.6mmol/L:** repeat bolus of dextrose 10%[2] 2mL/kg IV and with dextrose 10%[2] infusion 3mL/kg/hour[3] IV and refer urgently.
  - **≥ 2.6mmol/L:** continue with dextrose 10%[2] infusion 3mL/kg/hour[3] IV and refer urgently.

Glucose 1.4-2.6mmol/L

- Breastfeed or give expressed breast milk. If breastmilk not available or not chosen method of feeding, give instead formula 10mL/kg orally. If refusing, give via NGT.
- If helping baby breathe at birth (not breathing well/gasping/respiratory rate < 30/pulse rate < 100), avoid feeding baby. Manage as for glucose < 1.4mmol/L instead (see adjacent).
- Recheck heel prick glucose after 15 minutes:

< 2.6mmol/L → Give a bolus of dextrose 10%[2] 2mL/kg IV. Continue with dextrose 10%[2] infusion at 3mL/kg/hour[3] IV. Recheck glucose after 15 minutes:
- **< 2.6mmol/L:** repeat bolus of dextrose 10%[2] 2mL/kg IV and with dextrose 10%[2] infusion 3mL/kg/hour[3] IV and refer urgently.
- **≥ 2.6mmol/L:** continue with dextrose 10%[2] infusion 3mL/kg/hour[3] IV and refer urgently.

≥ 2.6mmol/L

Continue milk feeds 2 hourly and repeat glucose just before next feed:

< 2.6mmol/L → Give a bolus of dextrose 10%[2] 2mL/kg IV. Continue with dextrose 10%[2] infusion at 3mL/kg/hour[3] IV. Recheck glucose after 15 minutes:
- **< 2.6mmol/L:** repeat bolus of dextrose 10%[2] 2mL/kg IV and with dextrose 10%[2] infusion 3mL/kg/hour[3] IV and refer urgently.
- **≥ 2.6mmol/L:** continue with dextrose 10%[2] infusion 3mL/kg/hour[3] IV and refer urgently.

≥ 2.6mmol/L

- No further hypoglycaemia treatment needed.
- Refer urgently.

Assess the newborn not needing urgent attention →10.

[1]Dissolve 4 teaspoons of sugar (20g) into 200mL water. [2]Neonatalyte. If dextrose 10% unavailable: in same 20mL syringe, draw up 4mL of dextrose 50% and 16mL of water for injection (syringe now contains 20mL of 10% dextrose). [3]This is 3 drops/kg/minute.

Assess the newborn not needing urgent attention

Assess	Note (undress baby fully when examining but keep baby warm)
Mother/carer	• Give mother routine postnatal care ⮌ PACK Adult. If mother/carer or you are worried about how mother/carer and family will cope with baby, refer to social worker/community health worker. • Look for increased psychosocial risk: carer/parent < 20 years old, family/relationship problems, violence at home, lack of partner/family support, financial difficulty, difficult life event in last year, foreigner. If any of these, give additional support, review more often if needed and link with support services/helpline ⮌ 162.
Feeding	Assess suck/latch and give feeding advice ⮌ 90. If mother breastfeeding and has a BMI[1] < 18.5 and/or mid-upper arm circumference (MUAC) < 23cm, refer to nutritional therapeutic programme (NTP).
TB risk	If mother/close contact on TB treatment ⮌ 83. Assess for TB in mother/carer ⮌ PACK Adult.
Measurements	• Plot weight-for-age, weight-for-length, head circumference and record in RtHB. If head circumference > 39cm, refer urgently. If head circumference < 32cm, discuss/refer. • If weight > 4.5kg or mother known with diabetes, check heelprick glucose hourly for 6 hours. If < 2.6mmol/L, manage as **hypoglycaemia** ⮌ 9.
Head	• Check for swelling: if doughy swelling on head, that crosses suture lines, **caput** likely. Should resolve in < 5 days. If round, fluctuant swelling on one side of head, **cephalohaematoma** likely, discuss/refer. • Check anterior fontanelle. If bulging, refer urgently. Check sutures: if sutures overlapping, review in 2-3 days. If still overlapping, refer.
Face and neck	If cleft/palate lip, refer same day. If unusual appearance, abnormal shape of face or neck swelling/webbing, discuss with doctor.
Eyes	If thick yellow discharge in eyes ⮌ 47.
Nose	If nose blocked, give sodium chloride 0.9% 1 drop in each nostril.
Abdomen	If mass in abdomen, doctor to review. If soft collapsible mass around umbilicus or groin, **hernia** likely. If groin (inguinal) hernia, discuss with doctor/surgeon same day. If umbilical hernia, reassure and observe and refer to surgeon if still present when child ≥ 4 years old.
Genitals and anus	Check urethral opening at tip of penis. If displaced, refer. If ambiguous genitalia, discuss/refer. In male: if testes not felt in scrotum, review in 1 month. If still not felt, refer to surgical OPD. If imperforate anus, delay feeding and give dextrose 10%[2] solution at 3mL/kg/hour[3] IV. Refer same day.
Limbs	• If one arm rotated towards body or moving less than before, **Erb's palsy** likely, doctor to review. Follow up after 2 days: if problem persists, refer to orthopaedic OPD. • If extra digit with bone present, book surgical OPD appointment. If no bone present and on thin stalk of skin, doctor to tie off. • If foot/feet bent with sole/s facing inward, try to manipulate foot into normal position. If able to, refer to physiotherapist. If unable to, **clubfoot** likely, refer to orthopaedic specialist.
Hips for dislocation	• Hold thighs with thumb over inner thigh and first two fingers over outer thigh. Bend knees at right angles. • Gently push downwards into the bed. If looseness or clunk felt, refer to orthopaedic specialist. • Next, move legs into frog-leg position and push hip upwards towards you from behind. If "click" heard/felt, refer to orthopaedic specialist.
Bilirubin (TSB)	Check total serum bilirubin 6 hours after birth if mother blood group O, rhesus negative or mother's blood group/rhesus unknown. Interpret TSB result ⮌ 59.
HIV risk	If HIV-exposed, do a birth HIV PCR and assess for vertical transmission of HIV prevention (VTP) ⮌ 84.
Syphilis	If mother syphilis positive, assess baby ⮌ 83. Treat mother ⮌ PACK Adult.
Hepatitis B	If mother hepatitis B positive, assess and manage baby ⮌ 83.

Advise the carer of the newborn

- Encourage carer to hold, cuddle, talk/sing and make eye contact with baby. This helps with bonding and development. If carer finds this difficult, encourage him/her to return more frequently.
- Carer to keep baby warm using skin-to-skin contact. If birthweight ≤ 2.5kg, advise mother to practise Kangaroo Mother Care (KMC) until baby > 2.5kg. Encourage father to also practise KMC.
- Advise carer to apply chlorhexidine gluconate 0.5% in 70% alcohol solution or surgical spirit to the umbilical cord every 6 hours until it falls off (1-2 weeks). If area becomes red, return to clinic.

Immunise newborn

Give BCG intradermally into right arm unless baby TB-exposed ⮌ 83. Give BCG 2 weeks after TB preventive treatment (TPT) or TB treatment completed. Give OPV orally.

Discharge newborn and plan review

- If newborn is well, urine passed and breastfeeding established, discharge after 6 hours. Issue RtHB and explain contents. Refer to community health worker for home visit and breastfeeding support.
- Review within 6 days, then at 6 weeks ⮌ 11. If preterm (< 37 weeks) or < 2.5kg, doctor also to review 2 weekly until 2.5kg, then at 4 and 9 months old.
- Advise to return immediately if breastfeeding poorly, irritable/lethargic, fitting, vomiting everything, fever, cough with fast breathing, blood in stool or no stool within 48 hours of birth.

[1]Body Mass Index: weight (kg) ÷ height (m) ÷ height (m). [2]Neonatalyte. If dextrose 10% unavailable: in same 20mL syringe, draw up 4mL of dextrose 50% and 16mL of water for injection in same syringe (syringe now contains 20mL of 10% dextrose) [3]This is 3 drops/kg/minute.

Baby < 2 months old: routine care

Record problems and plot growth in notes and RtHB. Assess baby and mother within 6 days of delivery and at 6 weeks old. If never assessed →9.

Assess	When to assess	Note
Symptoms	Every visit	Manage symptoms first on symptom page. If cough/breathing problems ↩ 53, diarrhoea ↩ 61, vomiting ↩ 60, fits ↩ 28, lethargic ↩ 44.
Urine/stool	1st visit (within 6 days)	If baby not passing urine or stool, discuss/refer.
Feeding	Every visit	If breastfeeding or mixed feeding ↩ 90, if formula feeding ↩ 92.
Growth	Weight: every visit	• Assess weight-for-age at every visit and plot in RtHB. • If baby has lost > 10% of birth weight[1] in first week of life, or if baby has not regained birth weight at ≥ 10 days old, assess and manage poor growth ↩ 95.
Immunisation status	Every visit	Check if birth and 6 weeks immunisations are up to date ↩ 13. If missed immunisations, catch up missed doses ↩ 13. Report any adverse event following immunisation (AEFI) within 24 hours of presentation ↩ 162: 1) pain and redness/swelling > 3 days, 2) swelling > 5cm from injection site, 3) abscess at injection site, 4) BCG lymphadenitis ↩ 46, 5) fever > 38°C within 48 hours, 6) seizure within 3 days. If hospitalised soon after receiving immunisation, discuss with doctor.
Mother/carer	Every visit	Check mother received post-natal care ↩ PACK Adult. Ask about HIV status, contraceptive needs and TB symptoms. If mother breastfeeding and BMI[2] < 18.5 and/or MUAC[3] < 23cm, refer to NTP[4].
Psychosocial risk	First visit	• If child support grant needed, advise to take child's birth certificate and carer's ID to SASSA[5] to apply. If no birth certificate, refer to social worker. • Look for increased psychosocial risk: carer/parent < 20 years old, family/relationship problems, violence at home, lack of partner/family support, financial difficulty, difficult life event in last year, foreigner. If any of these, give additional support, review more often if needed and link with support services/helpline ↩ 162. • Screen for depression/anxiety in carer: in the past month, has carer: 1) felt down, depressed, hopeless or 2) felt little interest or pleasure in doing things? 3) Often nervous, anxious or panicky? 4) Unable to stop worrying or thinking too much? 5) Had thoughts of harming him/herself? If yes to any ↩ PACK Adult. • If abuse or neglect suspeted ↩ 136.
HIV	If HIV-exposed[6]: every visit	If birth HIV PCR test not done, do now and follow up result ↩ 109. If on post-exposure prophylaxis (PEP) ↩ 84. If HIV positive ↩ 111.
TB	Every visit	If mother/close contact on TB treatment ↩ 83. Assess for TB in mother/carer ↩ PACK Adult.
Basic examination	Every visit	Check for obvious problems (undress baby fully): pallor[7] ↩ 45, skin problem (especially nappy area) ↩ 71, injury ↩ 32. If deformity, discuss/refer.
Skin	Every visit	If yellow skin/eyes ↩ 59, pallor[7] ↩ 45 or blue ↩ 40. If rash/pustules ↩ 71.
Eyes	Every visit	If white eye/s (pupil hazy/cloudy), discuss/refer same day. If pus and/or eyelid swelling ↩ 47.
Mouth	Every visit	If white patches in the mouth (inside of cheeks/lips and on tongue), **oral thrush**/**candida** likely ↩ 50.
Umbilical cord	Every visit	If pus or red stump, give cephalexin 12-25mg/kg (up to 500mg) 6 hourly for 5 days (↩ 151:12). Apply povidone iodine 5% cream *or* povidine iodine 10% ointment to cord 6 hourly and expose to dry. If redness extends to skin and draining pus, discuss/refer.
Hearing	Every visit	If carer has any concerns, book hearing test.

Advise the carer

- Encourage carer to keep baby warm using skin-to-skin contact. If birthweight ≤ 2.5kg, advise mother to practise Kangaroo Mother Care (KMC) until baby >2.5kg. Encourage father to also practise KMC.
- Encourage mother and father to respond when baby cries and to hold, cuddle, talk/sing and make eye contact with baby. This helps with bonding and development. If mother finds this difficult, encourage her to return more frequently. The first 1000 days of a child's life are vital to his/her development. To access further information ↩ 162.

Treat the baby

- Multivitamins (if birth weight < 2.5kg or baby < 37 weeks gestation): from 6 weeks old, give multivitamin 0.6mL and ferrous gluconate 2.5mL once daily until 6 months old. Review mother/carer and baby at 6 weeks old and 10 weeks old.
- Review more often if: premature, < 2.5kg, hospitalised for > 3 days after birth, neurological/congenital problem or suspected bonding problem (carer reluctant to hold or look at baby).

[1]Birth weight (kg) ÷ 10 = 10% of birth weight: if weight loss in first week of life more than this, baby has poor growth. [2]Body mass index: weight (kg) ÷ height (m) ÷ height (m). [3]Mid-upper arm circumference. [4]Nutritional therapeutic programme. [5]South African Social Security Agency. [6]Mother HIV positive or abandoned/orphaned baby. [7]Look for pale palms of the hands and conjunctival pallor: paleness of the lower eyelid.

Child ≥ 2 months old: routine care

Record problems and plot growth in notes and RtHB.

Assess	When to assess	Note
Symptoms	If sick visit	Manage symptoms on symptom page ↻ 6.
Feeding	Every visit	Ask carer if feeding problem. If yes, assess and manage further: if breastfeeding or mixed feeding ↻ 90, if formula feeding ↻ 92, if eating solids ↻ 93.
Growth	Check chart ↻ 14	Interpret measurements ↻ 15. If born premature, use corrected age[1] until 2 years old.
Development *Ask general screening questions at every visit. Then screen at specific ages.*	Every visit	Ask : "Is child able to say and do what children of the same age can?" If carer answers "No", manage problem: if vision problem ↻ 47, if communication problem ↻ 88, if not moving or sitting properly ↻ 89.
	14 weeks old	If unable to follow a close object with eyes ↻ 47. If does not respond (stops sucking, blinks or turns) to sound ↻ 88. If unable to lift head when held against shoulder ↻ 89.
	6 months old	If unable to recognise familiar faces ↻ 47. If does not turn to look for sound ↻ 88. If unable to hold a toy in each hand ↻ 89.
	9 months old	If unable to focus on a far object or has a squint ↻ 47. If does not turn when called ↻ 88. If unable to sit and play without support ↻ 89.
	12 months old	If unable to look closely at toys or pictures ↻ 47. If not using ≥ 1 meaningful word ("dada, mama") ↻ 88. If unable to stand with support ↻ 89.
	18 months old	If not looking at or reaching for small objects or pictures ↻ 47. If unable to point to 3 simple objects, uses < 3 words, does not obey simple commands ↻ 88. If unable to walk unsupported or unable to feed using fingers ↻ 89.
	3 years old	If unable to see small shapes clearly from 6 metres ↻ 47. If unable to talk in simple 3-word sentences ↻ 88. If unable to run or climb ↻ 89.
	5 years old	If any problem with vision ↻ 47. If unable to speak in full sentences or not interacting with children and adults ↻ 88. If unable to hop on one foot or draw a stick person ↻ 89.
Routine treatment to protect from illness	Every visit	Check if immunisations, deworming and vitamin A are up to date in RtHB and what is due at this visit ↻ 13. If missed doses, catch up ↻ 13. Report any adverse event following immunisation (AEFI) within 24 hours of presentation ↻ 162: 1) pain and redness/swelling > 3 days, 2) swelling > 5cm from injection site, 3) abscess at injection site, 4) BCG lymphadenitis ↻ 46, 5) fever > 38°C within 48 hours, 6) seizure within 3 days. If hospitalised soon after receiving immunisation, discuss with doctor.
Mother/carer	Every visit	• Ask about general health, HIV status, contraceptive needs and TB symptoms ↻ PACK Adult. If breastfeeding and BMI[2] < 18.5 and/or MUAC[3] < 23cm, refer to NTP[4]. • Screen for depression/anxiety in carer: in the past month, has carer: 1) felt down, depressed, hopeless or 2) felt little interest or pleasure in doing things? 3) Often nervous, anxious or panicky? 4) Unable to stop worrying or thinking too much? 5) Had thoughts of harming him/herself? If yes to any ↻ PACK Adult.
Psychosocial risk	Every visit	• If any child < 18 years needs a child support grant, advise to take child's birth certificate and carer's ID to SASSA[5] to apply. If no birth certificate, refer to social worker. • Look for increased psychosocial risk: carer/parent < 20 years old, family/relationship problems, violence at home, lack of partner/family support, financial difficulty, difficult life event in last year, foreigner. If any of these, give additional support, review more often if needed and link with support services/helpline ↻ 162. • If abuse or neglect suspected ↻ 136.
HIV	Every visit	• If HIV status unknown, decide if HIV test is needed ↻ 109. If mother HIV negative and breastfeeding, check that mother tests for HIV every 3 months. • If HIV-exposed[6], check when HIV test is due ↻ 109. Ensure baby is receiving post-exposure prophylaxis (PEP) ↻ 84. Ensure mother on ART ↻ PACK Adult. • If HIV positive, ensure child on ART and give HIV routine care ↻ 111.
TB	Every visit	If any of: TB contact[7], current cough/fever, sweating at night, poor weight gain/failure to thrive, weight loss, decreased playfulness, visible neck mass, test for TB ↻ 102.
Mental health	Every visit	If over past few months, has child been sad, withdrawn, irritable, worried, stressed, anxious or had emotional outbursts ↻ 131 or if problematic change in behaviour ↻ 128.
School problems	If ≥ 6 years old: every visit	• Check if child at school. If not enrolled in school, refer to Western Cape Education Department ↻ 162. • If poor attendance, problematic change in behavior, bullying, learning problems, difficulty socialising at school ↻ 132.
Basic examination	Every visit	Check for obvious problems (if < 2 years old, undress child fully): pallor[8] ↻ 45, skin problem (especially nappy area) ↻ 71, injury ↻ 32, if deformity, discuss/refer.

Continue to advise and provide routine care treatment →13.

[1]Corrected age = actual age in months (or weeks) - number of months (or weeks) premature. To calculate corrected age of 9 month old baby, born premature at 32 weeks (this is 8 weeks or 2 months premature): 9 months - 2 months = 7 months. [2]Body mass index: weight (kg) ÷ height (m) ÷ height (m). [3]Mid-upper arm circumference. [4]Nutritional therapeutic programme. [5]South African Social Security Agency. [6]Mother HIV positive or abandoned/orphaned baby. [7]A TB contact refers to a child who shared an enclosed space (at school, socially, or in a household setting), for ≥ 1 night or for frequent/extended daytime periods, with an adult/adolescent with pulmonary TB ("index patient"), during the 3-month period before the index patient started their TB treatment. [8]Look for pale palms and conjunctival pallor: paleness of the lower inner eyelid.

Advise the child and carer and give health promotion messages

Advise about parenting:
- The first 1000 days (conception - 2 years old) are vital to a child's development.
- Stimulate development, respond when baby cries, talk to baby, read daily, tell stories, sing songs, play.
- Establish routines, provide discipline and actively listen to child. Avoid smoking in house or near child.

Educate about hygiene:
- Wash hands with soap and water, especially after using toilet/handling food/changing nappy.
- Wash fruit/vegetables. If no access to clean water, boil and cool water.

Discuss safety:
- Lock away toxic substances, safeguard fires/paraffin lamps/electrical sockets.
- Teach road safety, use seat belts/car seats.

Encourage a healthy lifestyle:
- Ensure a balanced diet. Limit sweets, chocolates, fizzy drinks, fast foods, chips and salt.
- Advise physical activity ≥ 1 hour/day (team sports/outside play).
- Limit screen time to < 1 hour/day. Advise no TV if < 2 years old. Monitor adult content.

Treat and immunise the child

- Multivitamins (if < 6 months old): if low birth weight (< 2.5kg), give multivitamin 0.6mL once daily and ferrous gluconate 2.5mL once daily until 6 months old.
- Vitamin A (from 6 months - 5 years old): give single dose vitamin A (↩ 156:38) 6 monthly.
- Deworm (from 12 months - 5 years old): give mebendazole (↩ 154:28) 6 monthly.
- Immunise: give immunisations (see table) even if born premature, unwell (delay only if temperature ≥ 38.5°C) or RtHB missing[1]. If missed immunisation, catch up missed immunisations in table below.
- If HIV positive or other long-term health condition, advise influenza vaccination during influenza vaccine campaign. Check if child needs COVID-19 vaccine according to current policy/guideline.

Give routine immunisations:

Age	Immunisation	Site
Birth	BCG[2] (avoid if HIV positive at birth)	Intradermal right arm
	OPV 0	Oral
6 weeks	OPV 1	Oral
	RV 1	Oral
	Hexavalent 1: DTaP-IPV-Hib-HBV 1	IM left thigh
	PCV 1	IM right thigh
10 weeks	Hexavalent 2: DTaP-IPV-Hib-HBV 2	IM left thigh
14 weeks	RV 2	Oral
	Hexavalent 3: DTaP-IPV-Hib-HBV 3	IM left thigh
	PCV 2	IM right thigh
6 months	Measles, Rubella (MR)[3] 1	Subcutaneous left thigh
9 months	PCV 3	IM right thigh
12 months	Measles, Rubella (MR)[3] 2	Subcutaneous right arm
18 months	Hexavalent 4: DTaP-IPV-Hib-HBV 4	IM left arm
6 years	Tdap[4]	IM non-dominant arm
≥ 9 years[5]	Tdap[4] booster. If a girl: HPV.	IM non-dominant arm
12 years	Tdap[4]	IM non-dominant arm

Catch up missed immunisation/s:

Refer to community health worker. If concerns about poor parental care, refer to social worker.

Immunisation	Give first dose according to age:	Give next dose/s, if needed, after minimum interval:		
		Dose 2	Dose 3	Dose 4
BCG[2]	If < 1 year, give now.	-	-	-
	If ≥ 1 year, do not give.	-	-	-
OPV	If < 6 months, give now.	Give 4 weeks later.	-	-
	If ≥ 6 months, do not give.	-	-	-
DTaP-IPV-Hib-HBV	If < 5 years, give now.[6]	Give 4 weeks later.[6]	Give 4 weeks later.[6]	Give 12 months later.[6,7]
RV	If < 20 weeks, give now.	Give 4 weeks later.	-	-
	If 20-24 weeks, give now.	-	-	-
	If > 24 weeks, do not give.	-	-	-
PCV	If < 6 months, give now.	Give 4 weeks later.	Give at 9 months old.	-
	If 6-9 months, give now.	Give 4 weeks later.	Give 8 weeks later.	-
	If 9-24 months, give now.	Give 4 weeks later.	Give 8 weeks later.	-
	If 2-6 years, give now.	Only if long-term health condition: give 8 weeks later.	-	-
Measles, Rubella (MR)[3]	If < 11 months, give now.[8]	Give at 12 months old.	-	-
	If ≥ 11 months, give now.	Give 4 weeks later.	-	-
Tdap[4]	If ≥ 6 years, give now.	Give at 12 years old.	-	-

Decide when child should return for next routine care visit →14.

[1]Issue a new RtHB if RtHB lost. [2]If baby on TPT/TB treatment or mother on TB treatment, delay BCG until 2 weeks after TPT/TB treatment completed. If HIV positive at birth, give BCG vaccine if on ART and CD4 > 25%. [3]If measles only vaccine still in stock, use instead. [4]Tdap refers to tetanus, reduced strength diphtheria and acellular pertussis vaccine. [5]HPV vaccine and Tdap booster are given during integrated school health programme campaign. [6]Avoid giving DTaP-IPV-Hib-HBV if ≥ 5 years old. [7]Avoid giving DTaP-IPV-Hib-HBV dose 4 if ≤ 18 months old. [8]Avoid giving measles-containing vaccine together with other immunisations if < 9 months old. If other immunisations needed, give measles-containing vaccine immediately and arrange visit to receive remaining immunisation 4 weeks later.

Routine care chart

Check what routine care is needed at this visit and when to review next:

Age	Check growth and plot on growth charts						Test for HIV	Check TB risk	Check feeding	Immunise	Give vitamin A	Deworm	Check development	Arrange oral health visit, refer to dentist[1]
	Weight	Length or height	Weight-for-length/height	BMI	MUAC	Head circumference								
3-6 days	x						x (only if HIV exposed and not yet done)	x	x					
1 week	x							x	x					
2 weeks	x							x	x					
6 weeks	x							x	x	x				
10 weeks	x						x (only if HIV exposed)	x	x	x				
14 weeks	x					x		x	x	x			x	
4 months	x							x	x					
5 months	x							x	x					
6 months	x	x	x		x		x (only if HIV exposed)	x	x	x	x		x	
7 months	x				x			x						
8 months	x				x			x						
9 months	x				x			x	x	x			x	
10 months	x				x			x						
11 months	x				x			x						
12 months	x	x	x		x	x		x	x	x	x	x	x	x
14 months	x				x			x						
15 months	x				x			x						
16 months	x				x			x						
18 months	x	x	x		x		x (even if not HIV exposed)	x	x	x	x	x	x	
20 months	x				x			x						
22 months	x				x			x						
24 months	x	x	x		x			x			x	x		x
30 months (2 ½ years)	x	x	x		x			x			x	x		
36 months (3 years)	x	x	x		x			x			x	x	x	x
42 months (3 ½ years)	x	x	x		x			x			x	x		
48 months (4 years)	x	x	x		x			x			x	x		x
54 months (4 ½ years)	x	x	x		x			x			x	x		
60 months (5 years)	x	x		x	x			x			x	x	x	x
72 months (6 years)	x	x		x				x		x				x
9 years	x	x		x				x		x (girls only)				
12 years	x	x		x				x		x				x

[1]Or dental therapist or oral hygienist.

Assess and interpret growth

Use steps 1-5 to decide when to measure weight, height, MUAC[1] and head circumference, then how to interpret and act on the results. If ≥ 5 years, start at step 3.

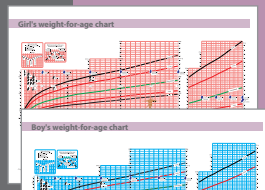
Step 1 — Weight-for-age

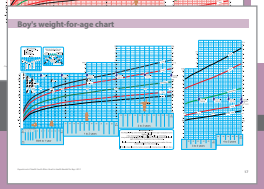
Plot weight-for-age at every visit:

Below -2 line
Child is likely **not growing well** →96.

Between -2 line and +2 line
Look at growth curve pattern: if growth curve flattening, falling or crossing z-score lines on 2 consecutive visits →96.
If upwards growth curve, child's growth is **normal**.

On or above +2 line
Measure length/height (step 2) and then look at weight-for-length/height (step 3).





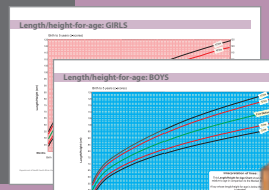
Step 2 — Length/height-for-age

If child < 2 years old, use length.
If child ≥ 2 years old, use height.

Plot length/height-for-age every 6 months:

Below -2 line
Child likely has **chronic malnutrition** (**stunting**) →96.

On or above -2 line
Child has a **normal** length/height.
Continue to monitor length/height-for-age 6 monthly.



Step 3 — Weight-for-length/height

Plot weight-for-length/height, according to age, every 6 months:

Child < 5 years old
Plot weight-for-length/height:

Below -2 line
Child is **wasted** →96.

Between -2 line and +2 line
Weight-for-length/height **normal**

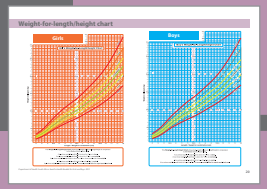
On or above +2 line
Child is **overweight** →99.

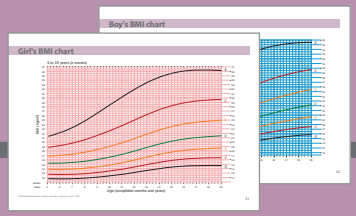
Child ≥ 5 years old
Calculate BMI[2] and plot on BMI-for-age chart ↩ 21:

Below -2 line
Child is **wasted** →96.

Between -2 line and +1 line
BMI **normal**

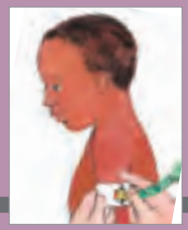
On or above +1 line
Child is **overweight** →99.





Step 4 — Mid-upper-arm circumference (MUAC)

Measure MUAC at every visit, from 6 months old until child 5 years old.



< 12.5cm
Child has **acute malnutrition** →96.

≥ 12.5cm
MUAC normal.
Child is **growing well**.

Step 5 — Head circumference

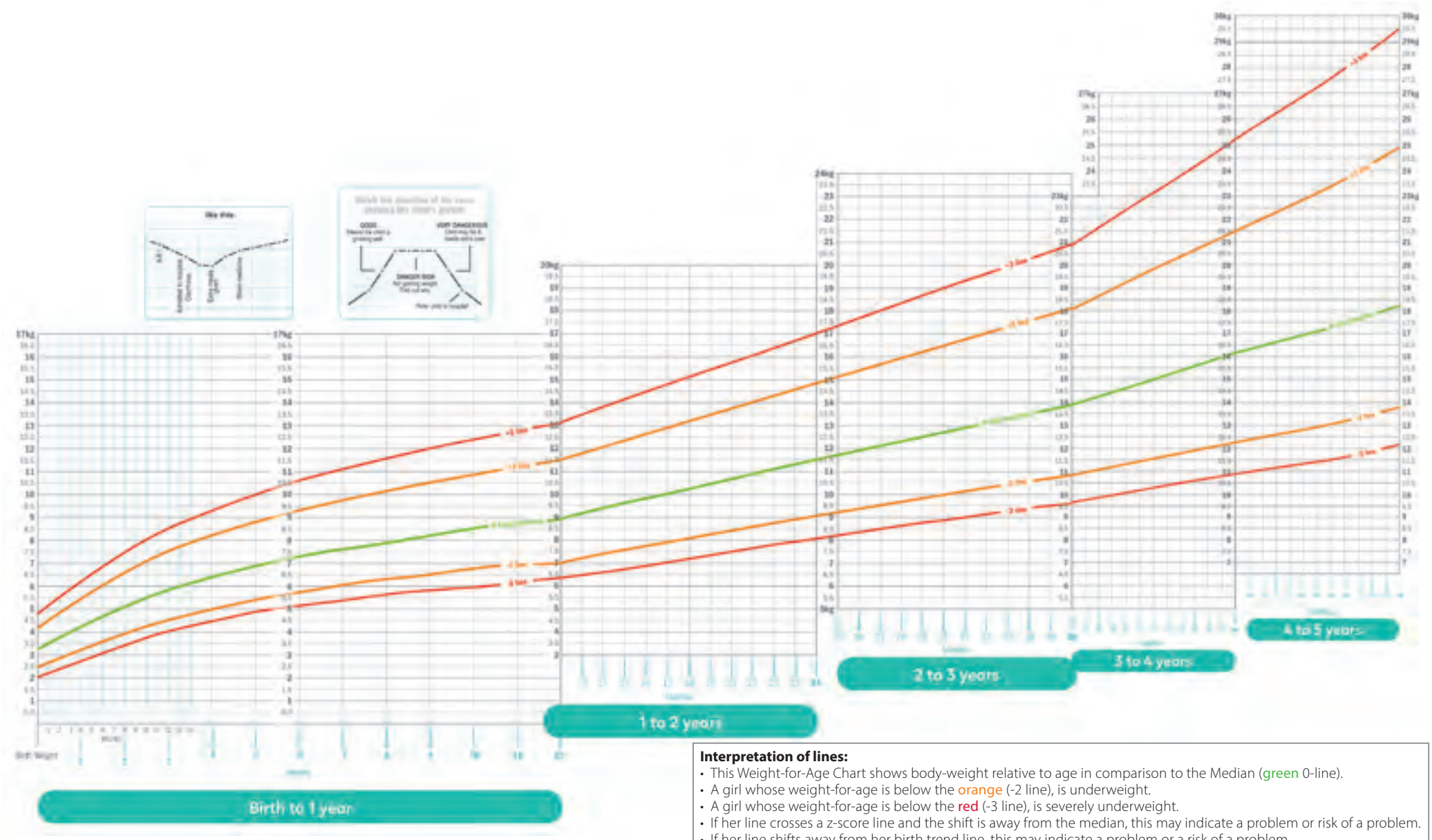
Measure head circumference at 14 weeks old and 12 months old

14 weeks old
Refer if < 38cm or > 43cm.

12 months old
Refer if < 43.5cm or > 48.5cm.

[1]Mid-upper arm circumference. [2]Body Mass Index: weight (kg) ÷ height (m) ÷ height (m).

Girl's weight-for-age chart

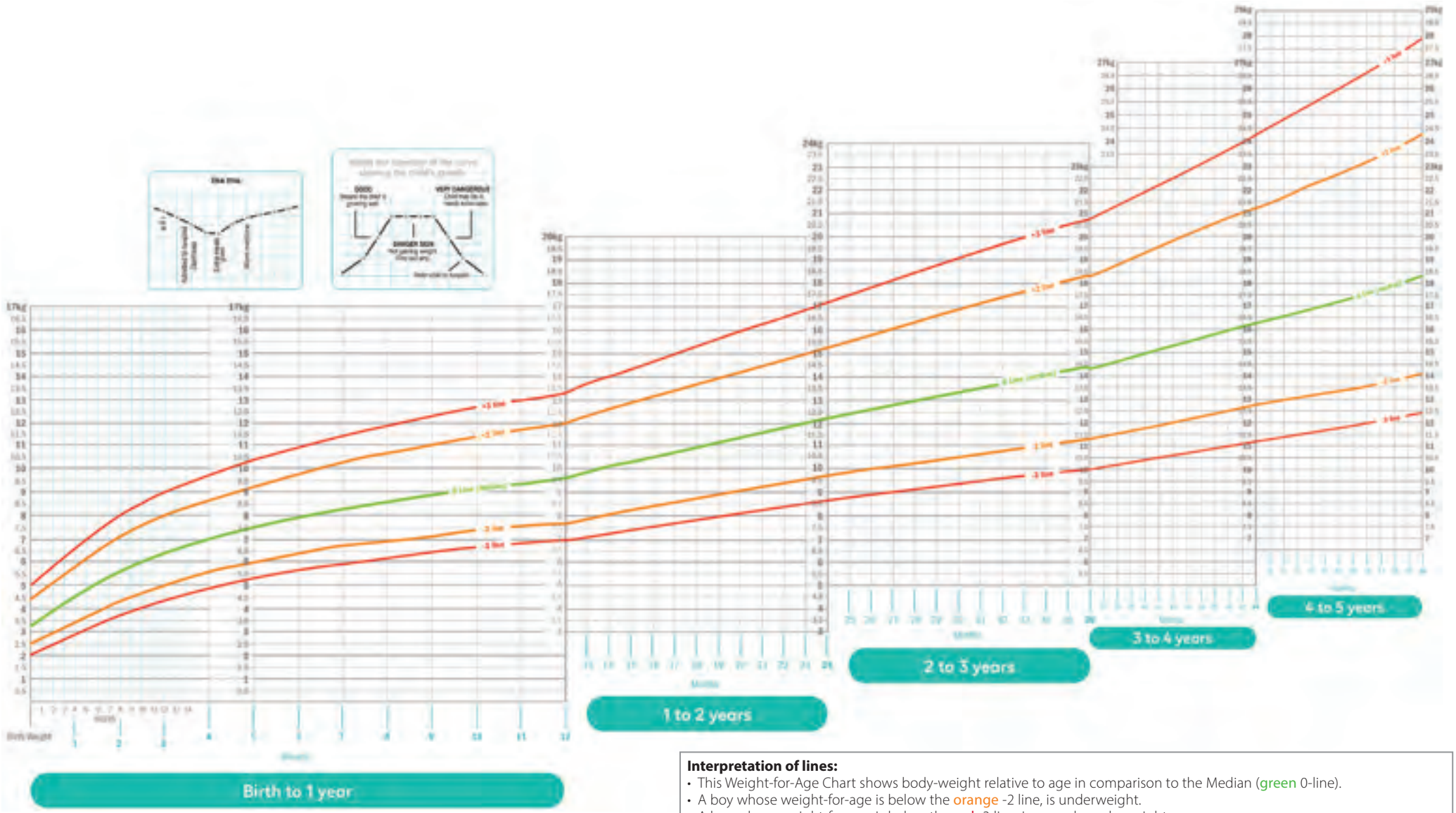


Interpretation of lines:

- This Weight-for-Age Chart shows body-weight relative to age in comparison to the Median (green 0-line).
- A girl whose weight-for-age is below the orange (-2 line), is underweight.
- A girl whose weight-for-age is below the red (-3 line), is severely underweight.
- If her line crosses a z-score line and the shift is away from the median, this may indicate a problem or risk of a problem.
- If her line shifts away from her birth trend line, this may indicate a problem or a risk of a problem.

Department of Health South Africa. Road to Health Booklet for Girls. 2018

Boy's weight-for-age chart

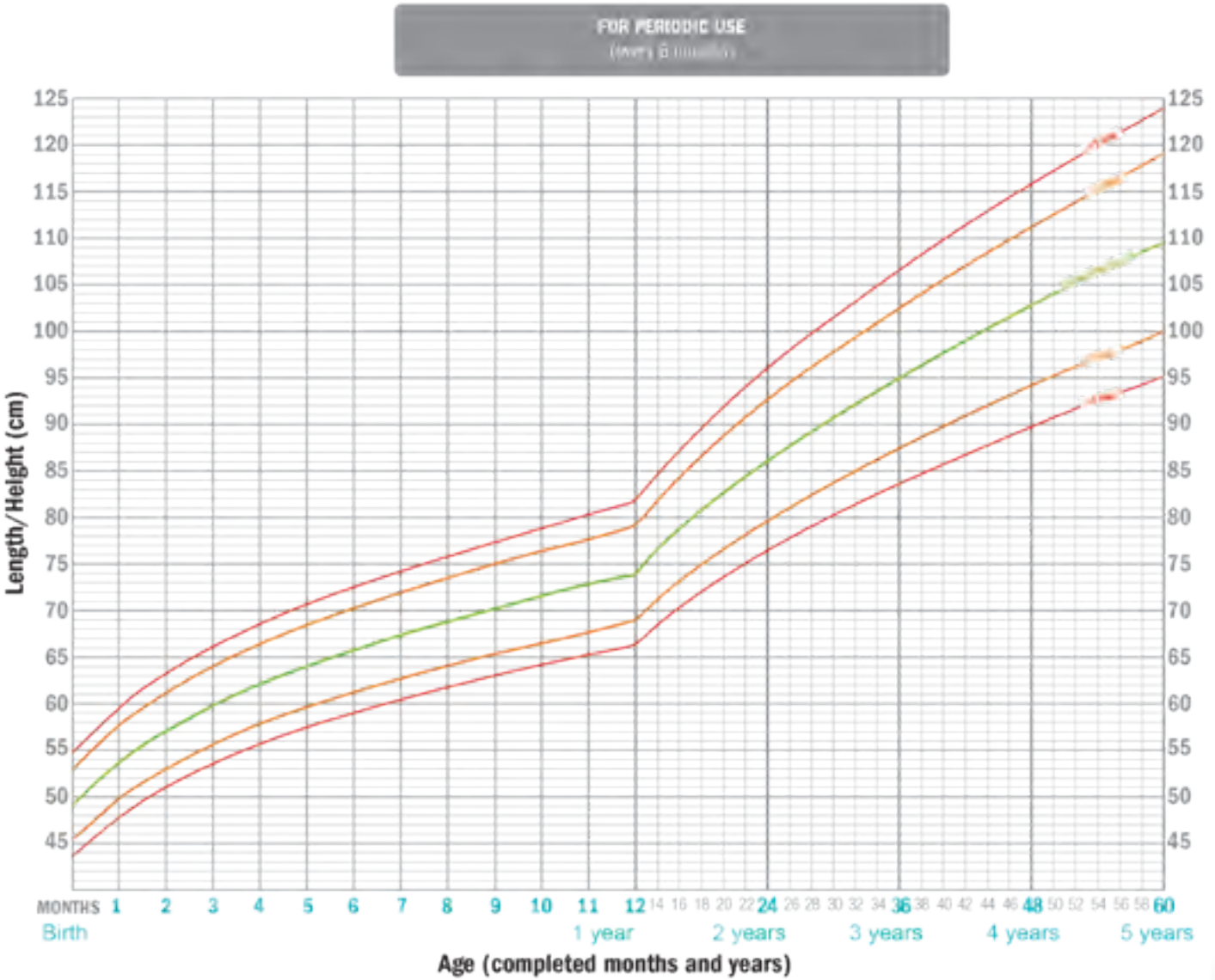


Interpretation of lines:

- This Weight-for-Age Chart shows body-weight relative to age in comparison to the Median (green 0-line).
- A boy whose weight-for-age is below the orange -2 line, is underweight.
- A boy whose weight-for-age is below the red -3 line, is severely underweight.
- I If his line crosses a z-score line and the shift is away from the median, this may indicate a problem or risk of a problem.
- If his line shifts away from his birth trend line, this may indicate a problem or a risk of a problem.

Department of Health South Africa. Road to Health Booklet for Boys. 2018

Length/height-for-age: GIRLS

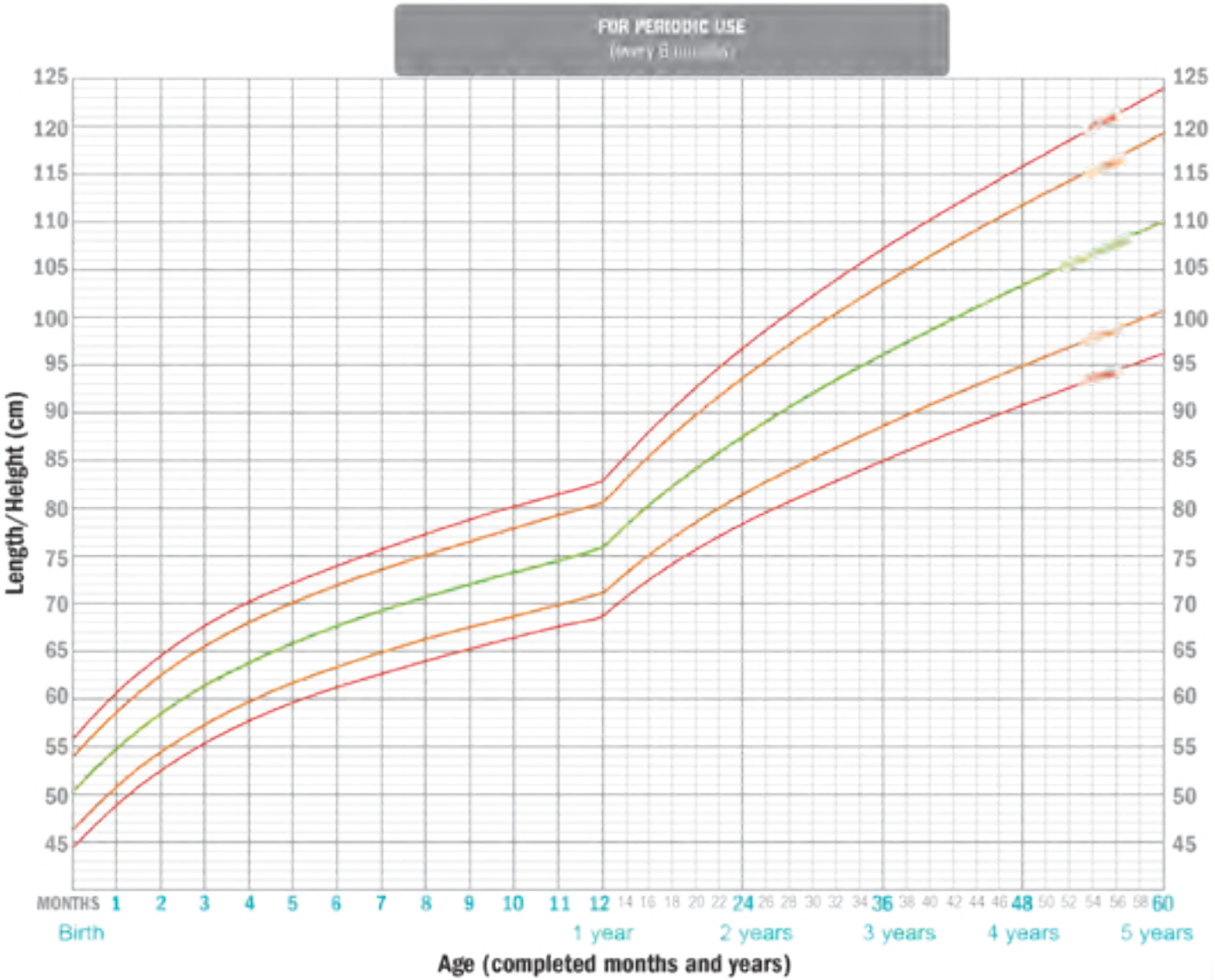


Interpretation of lines:

- This **Length/Height-for-Age Chart** shows height relative to age in comparison to the Median green (0-line)
- A girl whose length/height-for-age is below the orange -2 line, is **stunted**
- A girl whose length/height-for-age is below the red -3 line, is **severely stunted**

Department of Health South Africa. Road to Health Booklet for Girls. 2018

Length/height-for-age: BOYS



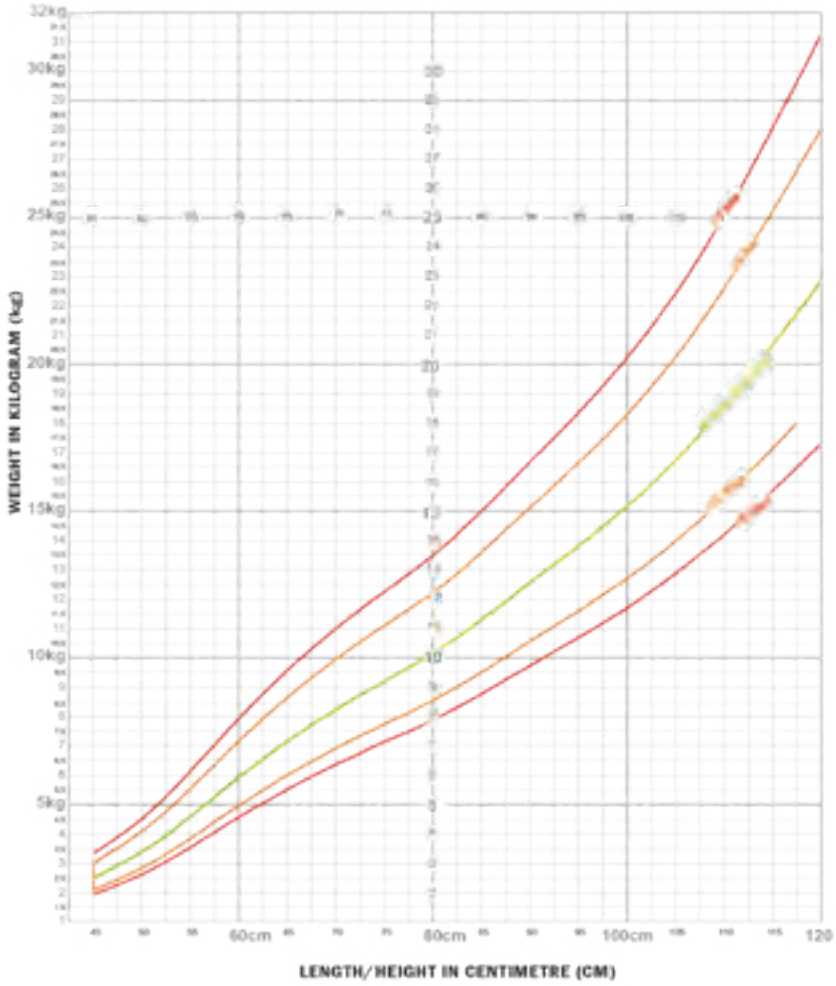
Interpretation of lines:

- This **Length/Height-for-Age Chart** shows height relative to age in comparison to the Median green (0-line)
- A boy whose length/height-for-age is below the orange -2 line, is **stunted**
- A boy whose length/height-for-age is below the red -3 line, is **severely stunted**

Department of Health South Africa. Road to Health Booklet for Boys. 2018

Weight-for-length/height chart

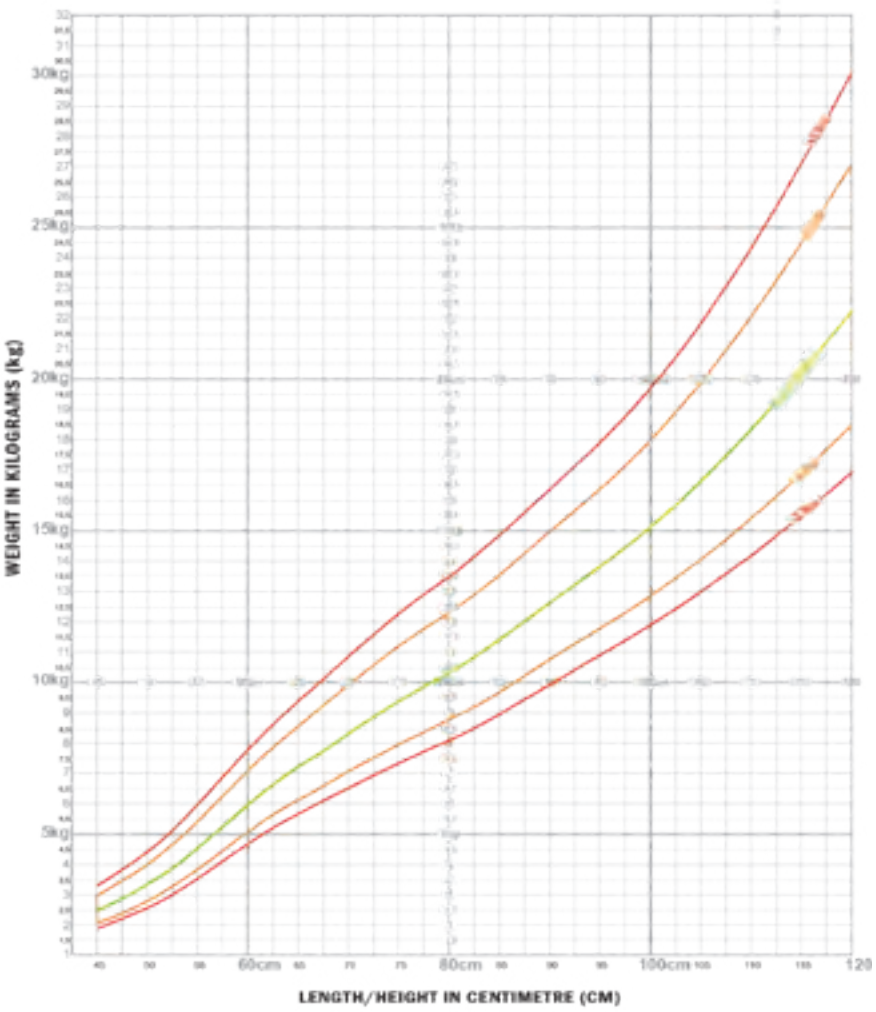
Girls



This **Weight-for-Height/Length Chart** shows body-weight relative to length/height in comparison to the Median (the 0 z-score line).

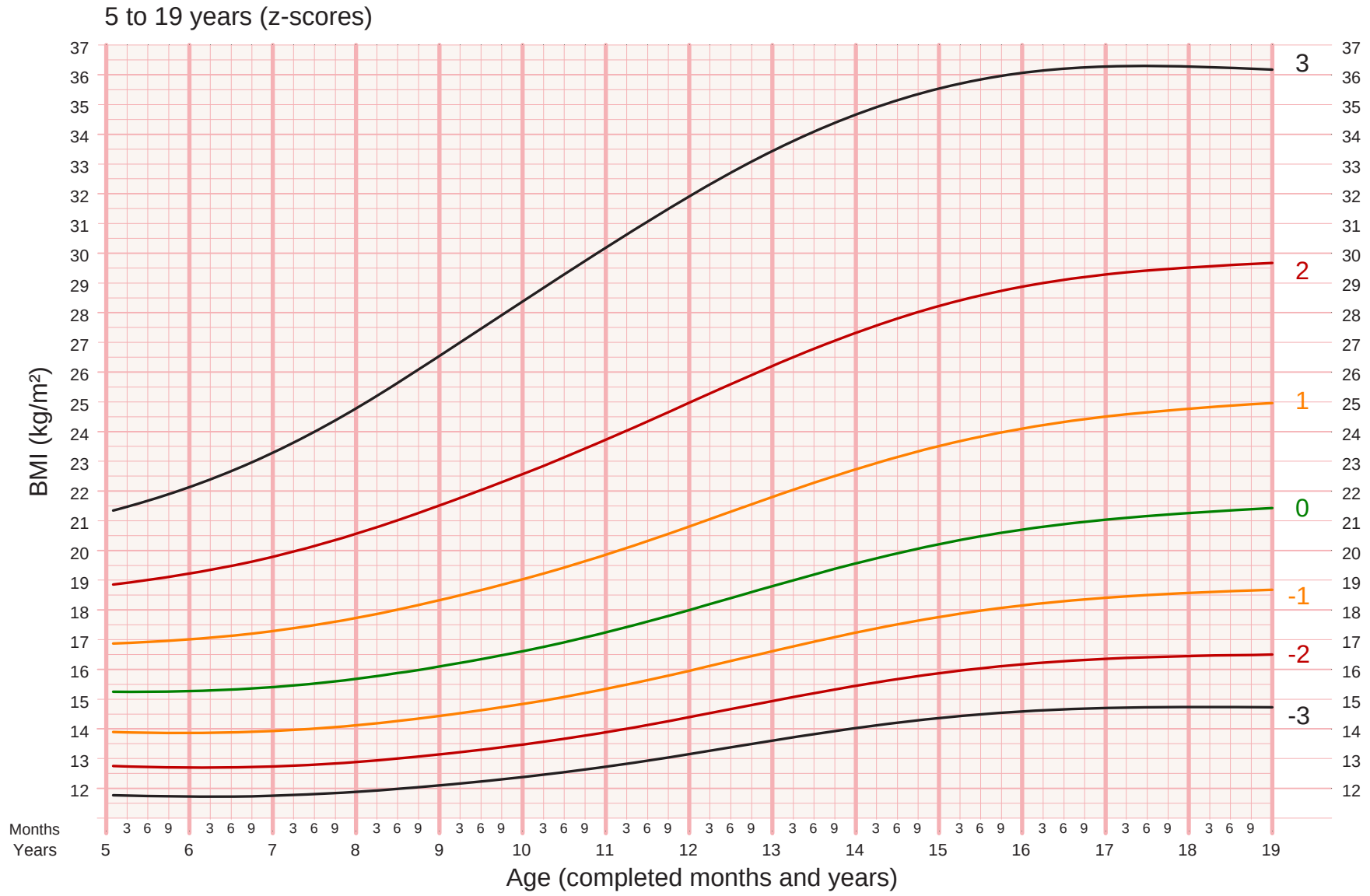
- A child whose weight-for-length/height is above the +3 (red) line, is **obese**.
- A child whose weight-for-length/height is above the +2 (orange) line, is **overweight**.
- A child whose weight-for-length/height is below the –2 (orange) line, is **wasted**.
- A child whose weight-for-length/weight is below the –3 (red) line, is **severely wasted** (**SEVERE ACUTE MALNUTRITION**). **Refer for urgent specialised care**.

Boys



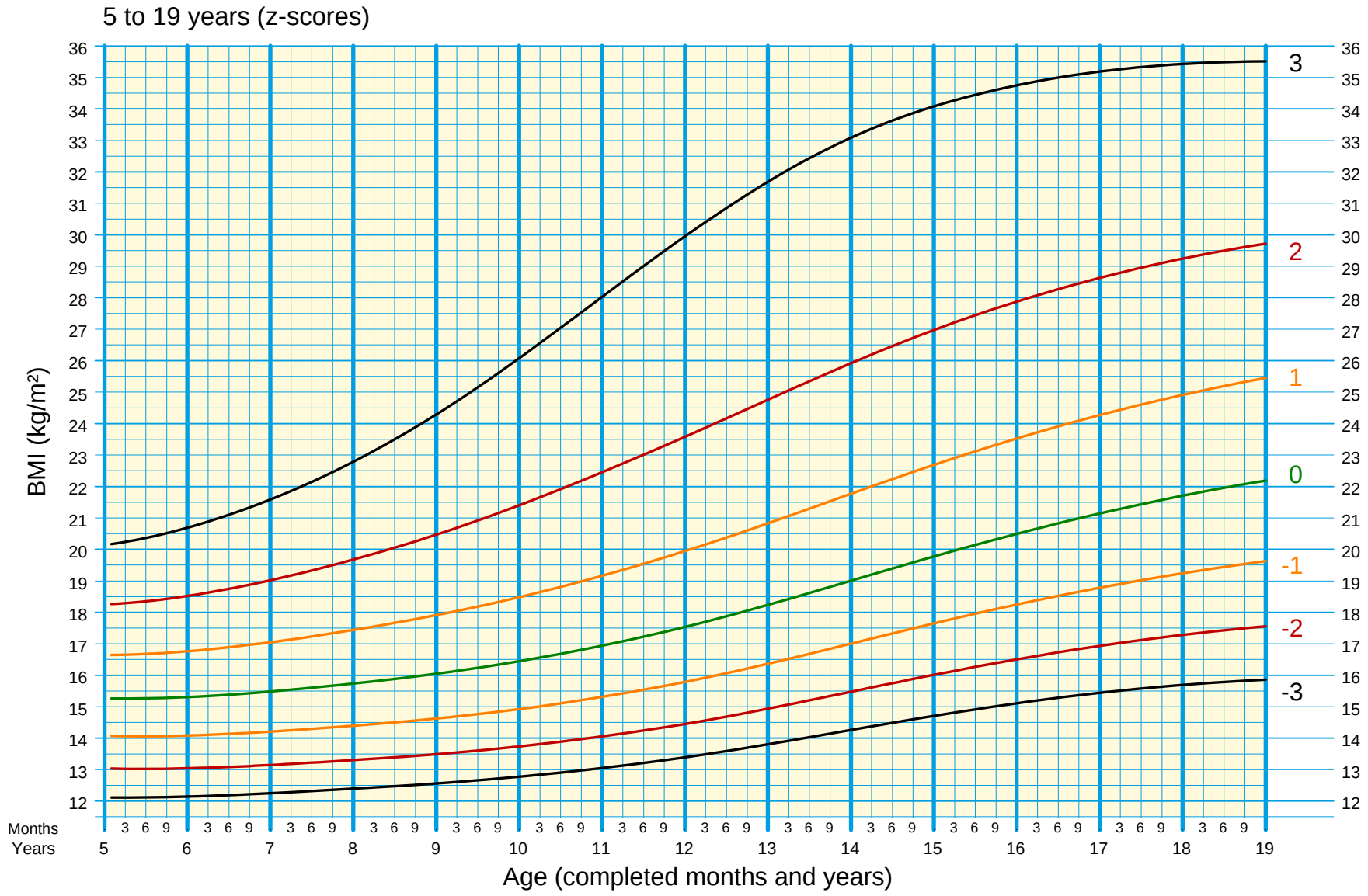
Department of Health South Africa. Road to Health Booklet for Girls and Boys. 2018

Girl's BMI chart



World Health Organization. BMI-for-age Girls 5-19 years (z-scores). 2007

Boy's BMI chart



World Health Organization. BMI-for-age Boys 5-19 years (z-scores). 2007

Help baby breathe at birth

Give urgent attention to the baby at birth

"The Golden Minute"

Do the following in the first 30 seconds:
- If meconium, only suction if non-vigorous (floppy and not crying) baby.
- Place baby on mother's chest skin-to-skin and dry thoroughly. If weight ≤ 1500g: avoid drying, wrap body (not head) in clear plastic wrap to prevent heat loss instead.
- Is baby crying?

Crying/breathing well

Not crying
- Clear airway, stimulate and keep warm.
- Then assess breathing (gasping/respiratory rate < 30):

Breathing well/crying

Check Apgar score and give routine care below

Determine the Apgar score at 1 and 5 minutes and record in RtHB:
Score each criteria and add together to give 1 and 5 minute score.

	0	1	2
Crying?	No response	Grimace	Vigorous cry
Breathing?	Absent	Slow or irregular	Good cry
Colour?	Blue or pale	Pink but blue feet	Pink all over
Heart rate?	Absent	< 100/ minute	≥ 100/minute
Is baby active?	Limp	Slight flexion	Active, moves

- Place baby on mother's chest skin-to-skin and cover. Keep warm and check breathing regularly. Clamp and cut the umbilical cord in 1-3 minutes. Start breastfeeding within 1 hour.
- Give vitamin K 1mg IM and apply chloramphenicol 1% eye ointment into both eyes.
- Then fully assess baby in first few hours after birth →**9**.

Not breathing well/gasping/respiratory rate < 30
- Immediately give 1 breath every 2 seconds with bag mask and room air (no oxygen). If preterm, connect bag mask to oxygen at no more than 2L/minute. Ensure chest rise with each breath.
- Clamp and cut umbilical cord.
- Assess breathing every 30-60 seconds:

Breathing well

- Record Apgar score and give routine care adjacent.
- Refer urgently to MOU/closest hospital if:
  - > 5 minutes to breathe well
  - Apgar score ≤ 7 at 5 minutes

Not breathing well/gasping/respiratory rate < 30
- Improve bag and mask ventilation: check neck slightly extended and that mask seal is adequate, suction if secretions and bag with mask more firmly.
- Check pulse rate:

Pulse rate < 100

Pulse rate < 60
- Continue to bag with mask.
- Start chest compressions; 3 compressions : 1 breath.

Assess breathing and heart rate every 30-60 seconds.

Pulse rate ≥ 100
Continue to bag with mask until breathing well.

Pulse rate 60-100
Continue bag and mask ventilation with oxygen until referral.

Pulse rate < 60
Continue chest compressions and bag and mask ventilation.

Refer urgently to MOU/closest hospital.
- Record Apgar score (see adjacent). Keep baby warm, do not overheat. Check glucose ↩ 9.
- Give vitamin K 1mg IM and apply chloramphenicol 1% eye ointment into both eyes.
- If doing chest compressions, doctor to establish IV/IO access and give adrenaline 0.1mL/kg (1:10 000 solution)[1] IV/IO. Repeat every 4 minutes until transfer.
- If transport delayed, only consider stopping resuscitation if: no heart beat or breathing after 10 minutes; *or* no breathing after 20 minutes; *or* only gasping after 30 minutes.

[1]To make adrenaline 1:10 000 solution, draw up 1 ampoule (1mg/mL, 1:1000) adrenaline and then 9mL sodium chloride 0.9% into a 10mL syringe.

The emergency child

Give urgent attention to the emergency child (if newborn baby →23)

Does child respond to voice or physical stimulation?

Yes

Continue to assess and manage airway, breathing, circulation *and* level of consciousness:

No

- Call for help.
- Open airway with head tilt and chin lift. If injured, keep head and neck stable and use instead jaw thrust[1] only.
- Check breathing for up to 10 seconds:

Child breathing well

Continue to assess and manage airway, breathing, circulation *and* level of consciousness:

Child gasping

- Give 1 breath every 5 seconds (over 1 second each) with bag-valve-mask attached to 100% oxygen at 10-15L/min.
- Feel for pulse for up to 10 seconds: if < 1 year old feel brachial pulse, if 1- 8 years old feel carotid pulse. If ≥ 8 years old, feel femoral pulse.

Pulse ≥ 60

Continue to assess and manage airway, breathing, circulation *and* level of consciousness:

Child not breathing

- Give 1 breath every 5 seconds (over 1 second each) with bag-valve-mask attached to 100% oxygen at 10-15L/min.
- Feel for pulse for up to 10 seconds: if < 1 year old feel brachial pulse, if 1- 8 years old feel carotid pulse. If ≥ 8 years old, feel femoral pulse.

Pulse ≥ 60

Continue to assess and manage airway, breathing, circulation *and* level of consciousness:

Unsure

- Give 1 breath every 5 seconds (over 1 second each) with bag-valve-mask attached to 100% oxygen at 10-15L/min.
- Feel for pulse for up to 10 seconds: if < 1 year old feel brachial pulse, if 1- 8 years old feel carotid pulse. If ≥ 8 years old, feel femoral pulse.

Pulse ≥ 60

Continue to assess and manage airway, breathing, circulation *and* level of consciousness:

Pulse < 60

Start CPR[2] →25.

No pulse or unsure

Start CPR[2] →25.

Airway

- Check for airway obstruction: if poor chest movement, decreased breath sounds, exhaled air not felt or noisy breathing, open airway with head tilt and chin lift. If injured, keep head and neck stable and use instead jaw thrust[1] only.
- Check mouth for foreign body: if easy to reach, carefully remove. Suction secretions.
- If child has been choking →26.
- If unresponsive, insert oropharyngeal airway[3]. If resists/coughs/gags, remove.
- If airway still obstructed, doctor to consider intubation. Decide ET tube size (↩ 167).

Breathing

- If difficulty breathing, reduced consciousness or oxygen saturation < 94%, give 100% oxygen via face mask at 6-8L/min.
- If respiratory rate decreased (↩ 167) or blue lips/tongue, assist each breath with bag-valve-mask attached to oxygen. Ensure 1 breath every 4 seconds.
- If difficulty breathing no better, doctor to consider intubation. Decide ET tube size (↩ 167).
- If sudden difficulty breathing, decreased breath sounds/more resonant/pain on 1 side of chest, deviated trachea: **tension pneumothorax** likely:
  - Doctor to insert large bore cannula above 6th rib in anterior axillary line.
  - Arrange urgent chest tube.

Circulation

- Establish IV/IO access.
- If ≥ 2 of 1) cold hands/ feet, 2) weak/fast pulse (↩ 167), 3) CRT[4] > 2 seconds, 4) decreased level of consciousness (↩ 166), **shock** likely:
  - Give fluids ↩ 27.
  - Give 100% oxygen via face mask at 6-8L/ min.
- If actively bleeding or enlarging/pulsating swelling, elevate and apply direct pressure. If no better, compress the nearest large artery.

Level of consciousness

- Determine AVPU (↩ 166):
  A: alert
  V: responds to voice or lethargic
  P: responds to pain
  U: unresponsive
- If V, P or U, check glucose: if < 3mmol/L or ≥ 11mmol/L ↩ 31.
- If P or U:
  - Insert oropharyngeal airway[3]. If resists/coughs/gags, remove.
  - Doctor to consider intubation. Decide ET tube size (↩ 167).

Manage further and refer urgently:

- While awaiting transport, continue to assess and manage airway, breathing, circulation and level of consciousness.
- If injured →32.
- If fitting →28, if just had fit →28, if decreased consciousness →30, if overdose/poisoning →35, if burns →37, if bites/stings →39, if fever →42, if rash →71, if anaphylaxis →36.
- If other symptom, manage as on symptom page.

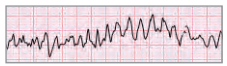
[1]Lift chin forward with fingers under bony tips of jaw. [2]If known with life-limiting illness, follow advanced care plan and consider whether or not to proceed. [3]For correct oropharyngeal size, place against cheek with one tip at corner of mouth and check other tip reaches front of earlobe. [4]Capillary refill time (CRT): hold hand/foot higher than level of heart. Press soft pad of finger/toe until it turns pale, then release pressure and note time taken for colour to return.

Cardio-pulmonary resuscitation (CPR) of the child

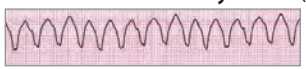
In the unresponsive child with no pulse or pulse < 60, start chest compressions:

- Record start time.
- Give continuous cycles of 15 chest compressions and 2 breaths with bag-valve-mask attached to 100% oxygen at of 10-15L/min. If you are alone, give cycles of 30 compressions and 2 breaths.
- Attach monitor/defibrillator and pause compressions to check heart rhythm:

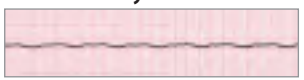
Ventricular fibrillation (VF)



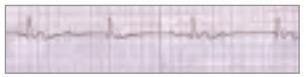
Pulseless ventricular tachycardia (pVT)



Asystole



Any other rhythm:
Pulseless electrical activity (PEA)



Give 1 shock of 4J/kg using paediatric paddles.

Immediately restart CPR, starting with compressions.

While giving continuous cycles of CPR:

- Establish IV access. If unsuccessful after 1 minute, establish IO access.
- Give adrenaline 0.01mg/kg IV/IO (see dose table), followed by 5mL sodium chloride 0.9%. Repeat every 4 minutes (every 2 cycles).
- Doctor to consider intubation: decide ET tube size (↺ 167). If intubated, give 1 breath every 6 seconds and continuous chest compressions.
- Look for and manage possible cause:
  - If trauma, anaphylaxis, diarrhoea/vomiting or sepsis, give sodium chloride 0.9% 20mL/kg IV/IO. If trauma or known heart problem, give instead 10mL/kg. Repeat if needed. If unsure, discuss with doctor.
  - If temperature ≤ 35°C, **hypothermia** likely ↺ 30. If glucose < 3mmol/L ↺ 31. If overdose/poisoning ↺ 35.
  - If decreased breath sounds/more resonant on 1 side of chest or deviated trachea, **tension pneumothorax** likely: doctor to insert large bore cannula above 6th rib in anterior axillary line.

After every 2 minutes of CPR or if any breathing/coughing/movement, pause compressions and check heart rhythm:

- VF → Give 1 shock of 4J/kg using paediatric paddles.
- pVT → Give 1 shock of 4J/kg using paediatric paddles.
- Asystole
- Other rhythm → Feel for pulse for up to 10 seconds.
  - No pulse → PEA
  - Pulse < 60 → PEA
  - Unsure → PEA
  - Pulse ≥ 60 → Stop CPR and reassess the emergency child →24.

Immediately restart CPR as above.

Decide when to stop CPR:

- If no pulse after 30 minutes of continuous CPR:
  - If ongoing VF/pVT, temperature ≤ 35°C or overdose/poisoning, continue CPR and discuss/transfer urgently.
  - If none of above and fixed dilated pupils, stop CPR and pronounce dead. Arrange bereavement counselling for family/carer.

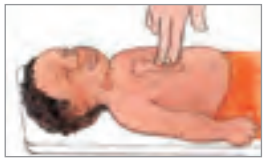
Dose IV/IO adrenaline (1:10 000 solution)[1] according to weight. If weight unknown, use age.

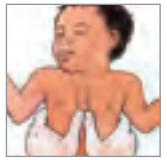
Weight	Volume	Age
2.5-7kg	0.5mL	0-6 months
7-11kg	1mL	6-18 months
11-17.5kg	1.5mL	18 months- 5 years
17.5-25kg	2mL	5-7 years
25-35kg	3mL	7-11 years
35-55kg	5mL	11-15 years

Ensure correct chest compression technique

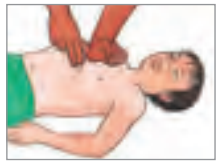
- Push hard (≥ ⅓ of depth of chest) and fast (100/minute).
- Compress over lower sternum (not on xiphisternum). Allow full chest recoil.
- Minimise interruptions in compressions.
- Rotate compressor every 2 minutes.

Baby < 1 year old
Use 2 fingers or 2 thumbs encircling chest.





Child ≥ 1 year old
Use heel of hand/s.



[1]To make adrenaline 1:10 000 solution, draw up 1 ampoule (1mg/mL, 1:1000) adrenaline and then 9mL sodium chloride 0.9% into a 10mL syringe.

Choking

Give urgent attention to the child who is choking or has been choking

Assess if child able to cough effectively: can child speak/cry and take a breath between coughs?

Yes
Child able to cough effectively

- Encourage child to cough repeatedly.
- Continue until obstruction relieved or child unable to cough effectively.

Child unable to cough effectively → Manage in adjacent column.

Obstruction relieved

- Observe child for 2 hours.
- Are there any of: difficulty breathing, wheeze, persistent cough, abdominal thrusts given or any part of foreign body left behind/unsure?

Yes → Refer.

No → Discharge, advise to return urgently and refer if difficulty breathing, wheeze, persistent cough or fever develops.

Advise how to prevent choking: avoid choking hazards (hard sweets/fruit pips, nuts) and running/jumping/talking when eating, and ensure small objects (buttons/coins/marbles) not left within child's reach.

No
Child unable to cough effectively

Is child conscious or unconscious?

Child conscious

If < 1 year old:
- Give 5 back slaps (see below).
- If obstruction persists, turn baby over and give 5 chest thrusts.

If ≥ 1 year old:
- Give 5 back slaps (see below).
- If obstruction persists, give 5 abdominal thrusts.

- Check in mouth: if foreign body visible and easy to reach, carefully remove. Do not try blind finger sweeps.
- Repeat back slaps and chest/abdominal thrusts until obstruction relieved or child becomes unconscious.

Obstruction relieved

Child unconscious

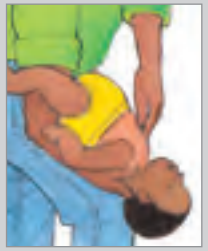
- Check in mouth: if foreign body visible and easy to reach, carefully remove. Do not try blind finger sweeps.
- Open airway with head tilt and chin lift.
- Give 5 breaths (over 1 second each) with bag-valve-mask.

- Start CPR and doctor to consider intubation →25.
- Check mouth for foreign body after every cycle of compressions, before giving next 2 breaths.

If baby < 1 year old

Back slaps

- Lie baby face down on arm or thigh, in head-down position.
- Using heel of hand, slap between shoulder blades 5 times.



Chest thrusts

- Keeping in head-down position, turn baby over to face upwards.
- Place two fingers on lower half of sternum and give 5 firm chest thrusts (one per second).
- Check baby's mouth for any foreign body that can be easily removed.

If child ≥ 1 year old

Back slaps

- Child can be lying or leaning forward in a sitting, kneeling or standing position.
- Using heel of hand, slap between shoulder blades 5 times.

Abdominal thrusts

- Wrap arms round child's body from behind.
- Form fist with one hand and place below chest on abdomen, above umbilicus.
- Place other hand over fist and pull upwards into abdomen. Repeat this 5 times.

Assess and manage child's fluid needs

First, weigh child or estimate weight ⮌ 167**. Then assess for signs of shock: are there ≥ 2 of: 1) cold hands/feet, 2) weak/fast pulse (** ⮌ 167**), 3) CRT[1] > 2 seconds, 4) decreased level of consciousness (** ⮌ 166**)?**

Yes

Shock likely

- Give oxygen 2L/min via nasal prongs.
- Check fingerprick glucose: if < 3mmol/L or ≥ 11mmol/L ⮌ 31.
- Establish IV access: try 3 times for < 90 seconds each. If unsuccessful, insert IO or external jugular line.
- Give 1st bolus NaCl 0.9% 10mL/kg IV/IO over 30-60 minutes.
- If IV/IO access unsuccessful, discuss with doctor to give instead 1st bolus ORS 10mL/kg via NGT. If NGT not possible, give ORS 10mL/kg orally.
- Is the child injured?

Yes

- If actively bleeding or enlarging/ pulsating swelling, apply direct pressure and call doctor. If still bleeding, apply tourniquet above injury if possible.
- Assess response to first fluid bolus after 30 minutes: feel hands and check pulse and CRT.

Hands still cold or pulse weak or not felt, CRT > 2 seconds

Poor response
Give 2nd bolus NaCl 0.9% 10mL/ kg IV/IO. Consider giving O-negative emergency blood 10mL/kg IV, if available.

Hands warmer, CRT faster, pulse slower and stronger

Good response
Avoid giving further IV/IO fluid.

No

After 30 minutes, assess response: feel hands and check pulse and CRT.

Hands still cold or pulse weak or not felt, CRT > 2 seconds

Still shocked
- Give 2nd bolus NaCl 0.9% 10mL/kg IV/ IO.
- Discuss need for 3rd bolus with doctor.

Hands warmer, CRT faster, pulse slower and stronger

No longer shocked
Is there any of: < 2 months old, ≥ 5 years old, SAM[3], difficulty breathing, suspected meningitis?

No
Give NaCl 0.9% 10mL/kg/ hour IV/ IO.[6]

Yes
Give NaCl 0.9% 4mL/kg/hour IV/ IO.[6]

No

Assess for signs of dehydration
Are there any of: 1) lethargy, 2) sunken eyes, 3) slow skin pinch[2] ≥ 2 seconds, 4) drinking poorly?

Yes: **moderate/severe dehydration** likely

- Check fingerprick glucose: if < 3mmol/L or ≥ 11mmol/L ⮌ 31.
- If drinking well, continue feeds, especially if breastfeeding.
- Is there any of: < 2 months old, ≥ 5 years old, SAM[3], difficulty breathing, suspected meningitis?

Yes
- Give ORS 10mL/kg/ hour orally. If drinking poorly, give via NGT.
- If vomits everything or NGT not possible, give instead NaCl 0.9% 10mL/kg IV/IO over 30 minutes.

- If drinking well, give ORS 5mL/kg/hour.
- If hydration improving, give NaCl 0.9% 5mL/kg/hour IV/IO.[6]

No
- Give ORS 20mL/kg/hour orally. If drinking poorly, give via NGT.
- If vomits everything or NGT not possible, give instead NaCl 0.9% 20mL/kg IV/IO over 1 hour.[6]
- Reassess hydration status after 1 hour:

Hydration *not* improving
- Give NaCl 0.9% 20mL/kg IV/IO over 1 hour.
- Reassess after 1 hour:

Hydration improving
- Give ORS 20mL/kg/hour orally for 3 hours.
- Reassess hydration status hourly:

Hydration *not* improving

Child drinking well, *not* vomiting and has *no* signs of dehydration after 4 hours of rehydration: referral not needed. Manage cause: if diarrhoea ⮌ 61, if vomiting ⮌ 60.

No

Dehydration unlikely
- Continue to manage on symptom page:
  - If diarrhoea ⮌ 61.
  - If vomiting ⮌ 60.

- **Refer urgently.** If poor response/hydration status not improving or unsure, discuss further fluid needs with referral centre. While awaiting transfer:
  - If < 3 months old, SAM[5] or shock/dehydration not due to watery diarrhoea or trauma, give single dose ceftriaxone[4] 80mg/kg (up to 2g) IV/IM[5] (⮌ 151:11).
  - Reassess fluid status hourly and keep warm: place child skin-to-skin with mother and cover with blanket.
  - Check fingerprick glucose every 15 minutes. If glucose < 3mmol/L or ≥ 11mmol/L ⮌ 31.

CRT - capillary refill time; **IO** - intra-osseous; **IV** - intravenous; **NaCl 0.9%** - sodium chloride 0.9%; **NGT** - nasogastric tube; **ORS** - oral rehydration solution; **SAM** - severe acute malnutrition

[1]CRT: hold hand/foot higher than level of heart. Press soft pad of finger/toe until it turns pale, then release pressure and note time taken for colour to return. [2]Pinch skin on abdomen between 2 fingers. Release. Skin usually snaps rapidly back to its normal position. A slow skin pinch takes longer. [3]SAM: weight-for-length/height below -3 line or BMI below -3 line or MUAC < 11.5cm or any malnutrition with oedema. [4]Avoid mixing Ringer's lactate and IV/IM ceftriaxone. If severe penicillin allergy (previous anaphylaxis, urticaria or angioedema), discuss with doctor. [5]Avoid injecting ≥ 1g IM at one injection site. [6]Ideally use NaCl 0.9% 200mL bag and give via buretrol/dial-a-flow device.

Seizures/fits

Give urgent attention to the child who is unconscious and fitting:

- Open airway: clear mouth, chin lift/jaw thrust, suction secretions. Place in recovery position[1]. Do not place anything in mouth.
- Give facemask oxygen with (non-rebreather) reservoir bag at 15L/min.
- Check fingerprick glucose: if < 3.0mmol/L *or* unable to measure, manage as hypoglycaemia ⮌ 31.

If fit has lasted > 5 minutes, give medication according to age to stop the fit:

- If neonate (< 28 days old): doctor to give phenobarbital[3] 20mg/kg IV over 5 minutes or IM (⮌ 155:35) and refer urgently.
- If child (or baby ≥ 28 days), give one of the following:
  - If > 6 months old, give single dose buccal[2] midazolam[3] 0.5mg/kg (up to 10mg) (⮌ 154:31) *or*
  - If weight > 13kg, give single dose midazolam[3] 5mg IM or single dose rectal[4] diazepam[3] 0.5mg/kg (up to 5mg if < 5 years old; up to 10mg if ≥ 5 years old)(⮌ 152:17).
- Monitor breathing: if respiratory rate < 20, call doctor. If breathing stops or gasping, ventilate with bag-valve mask (1 breath every 3-5 seconds) ⮌ 24.
- Establish IV access.
- Expect a response within 5 minutes:

Child still fitting

- If IV access available, give over 1 minute: midazolam[3] 0.25mg/kg IV (up to 10mg)(⮌ 155: 32) *or* diazepam[3] 0.25mg/kg (up to 10mg) IV (⮌ 152:18).
- If IV access or doctor not available: give a repeat dose of one of the following:
  - If > 6 months old, give single dose buccal[2] midazolam[3] 0.5mg/kg (up to 10mg) (⮌ 154:31) *or*
  - If weight > 13kg, give single dose midazolam[3] 5mg IM *or*
  - Single dose rectal[4] diazepam[3] 0.5mg/kg (up to 5mg if < 5 years old; up to 10mg if ≥ 5 years old) (⮌ 152:17).
- Monitor breathing: if respiratory rate < 20, call doctor. If breathing stops or gasping, ventilate with bag-valve mask (1 breath every 3-5 seconds) ⮌ 24.
- Expect a response within 5 minutes:

Child still fitting *or* repeated fits without regaining consciousness

Manage for status epilepticus and refer urgently:

- If IV phenobarbital[3] available: give phenobarbital 20mg/kg (up to 1g) IV over 5 minutes, or IM (⮌ 155:35). If IV phenobarbital *not* available: give phenytoin[3] 20mg/kg IV *slowly* over 30 minutes (mix in 50mL sodium chloride 0.9%, avoid mixing with dextrose. Ensure cardiac monitoring if available).
- If IV access not available: give crushed phenobarbital[3] tablets, 20mg/kg, via nasogastric tube (⮌ 156:36).
- Monitor breathing: if respiratory rate < 20, call doctor. If breathing stops or gasping, ventilate with bag-valve mask (1 breath every 3-5 seconds) ⮌ 24.
- Expect a response within 5 minutes:

Child still fitting

- Doctor to give phenobarbital[3] 10mg/kg (up to 1g) IV over 5 minutes or IM (⮌ 155:35).
- Doctor to assess need for intubation ⮌ 24.
- Refer urgently.

Child stops fitting

- Keep child in left lateral position with oxygen.
- Establish IV if not done already.
- Refer urgently.

Child stops fitting

Decide if child needs urgent referral and manage →29.

[1]Recovery position: turn onto left side, place left hand under cheek with neck slightly extended and bend the right leg to stabilise position. [2]Buccal: use 5mL syringe to draw up correct dose, remove needle and give midazolam between the cheek and gum. Avoid buccal midazolam if < 6 months old. [3]If no doctor available, nurse to get telephonic prescription. [4]Rectal administration: use 2mL syringe to draw up correct dose, remove needle, lubricate whole syringe barrel and insert into rectum, inject contents, remove syringe and hold buttocks together.

Approach to the child who is no longer fitting:

Confirm that child indeed had a fit: jerking movements, loss of consciousness, eyes open during fit, incontinence, post-fit drowsiness and confusion. If not, refer to specialist same week[1].

Give urgent attention to the child with recent fit and any of:

- First fit in child < 2 years old
- Temperature ≥ 38°C *and* < 18 months old or ≥ 5 years old
- Fit lasted > 15 minutes
- Does not respond to voice > 1 hour after fit
- More than one fit in 24 hours
- ≥ 2 of: temperature ≥ 38°C, headache, decreased level of consciousness (↻ 166), neck stiffness: **meningitis** likely
- Fit occurs only on one side of body
- Weakness of arm/leg/face, even if resolved
- Lethargy/altered level of consciousness, sunken eyes, slow skin pinch[2] ≥ 2 secs, dry mouth/mucous membranes or drinking poorly: **dehydration** likely
- Ingestion of medication/potentially harmful substance ↻ 35
- Known with long term health condition
- Recent travel to a malaria area: **malaria** likely
- HIV positive
- Head injury within past week
- TB contact[3]

Manage and refer urgently:

- Establish IV access.
- Check fingerprick glucose: if < 3.0mmol/L ↻ 31.
- If **meningitis** likely, give ceftriaxone[4] 80mg/kg (up to 2g) IV/IM[5] (↻ 151:11).
- If temperature ≥ 38°C, give paracetamol 15mg/kg (up to 1g) orally (↻ 155:34) or rectally if available.
- If **dehydration**, assess and manage child's fluid needs ↻ 27.
- If been in a malaria area in the past 3 months, **malaria** likely, urgently discuss with referral centre.

Approach to the child with recent fit not needing urgent attention

- If fingerprick glucose < 3.0 ↻ 31.
- Is temperature ≥ 38°C?

Yes

- If child < 18 months old or ≥ 5 years old, refer same day.
- If child ≥ 18 months - 5 years old:

Simple febrile seizure/fit likely

- Look for source of fever ↻ 42. If none found, refer.
- Discharge if alert within 1 hour of fit.
- Reassure and advise carer:
  - Febrile seizures/fits common from 6 months - 5 years old.
  - There is a 30% chance that the child will fit with a fever in the next 2 years.
  - There is a very slight risk of epilepsy later but this will not effect intellect, academic performance or behaviour in future.
  - Give paracetamol for fever to relieve discomfort but explain that this will not prevent further fits.
- If > 3 febrile seizures/fits in 6 months, refer to paediatrician. Avoid starting anticonvulsants.

No

- If child known with epilepsy, give routine epilepsy care →123.
- Is there history of birth trauma, head injury, meningitis, family history of epilepsy[6]?

Yes

Refer to or discuss with paediatrician same week.

No

Has child had ≥ 2 fits in the last year on 2 different days?

Yes

Refer to or discuss with paediatrician same week.

No

Doctor to review

- If not talking/understanding problems, refer.
- If otherwise well, review in 3 months for further fits, new symptoms or delayed milestones.

Advise the carer on what to do if child fits at home

- Place child in safe place (on floor or bed) away from objects that may cause injury.
- Lie child on their side in recovery position. Do not place anything in his/her mouth. Wipe away secretions.
- Time fit: get help if fit continues for more than 3 minutes or child does not wake up properly between fits.
- Encourage carer/s to have a plan ready if medical attention needed urgently: know where nearest clinic is, have reliable transport plan.

[1]Encourage carer to take a video of event to show specialist. [2]Skin pinch: pinch skin on abdomen between 2 fingers. Release. Skin normally snaps rapidly back to its normal position. A slow skin pinch takes longer. [3]A TB contact refers to a child who shared an enclosed space (at school, socially, or in a household setting), for ≥ 1 night or for frequent/extended daytime periods, with an adult/adolescent with pulmonary TB ("index patient"), during the 3-month period before the index patient started their TB treatment. [4]Avoid mixing Ringer's lactate and IV/IM ceftriaxone. If severe penicillin allergy (previous anaphylaxis, urticaria or angioedema), discuss with doctor/paediatrician. [5]Avoid injecting ≥ 1g IM at one injection site. [6]Family history of epilepsy refers to a parent or sibling with childhood onset epilepsy.

Decreased level of consciousness

- The child with a decreased level of consciousness is not alert. S/he may or may not respond to voice or pain.
- Assess level of consciousness ⮌ 166.

Give urgent attention to the child with a decreased level of consciousness

- If not already done, assess and manage airway, breathing and circulation ⮌ 24.
- Place child in recovery position: turn onto left side, place left hand under cheek with neck slightly extended and bend the right leg to stabilise position.
- Ask about possible causes and manage symptoms: trauma or injury ⮌ 32, fitting ⮌ 28, just had a fit ⮌ 29, poisoning ⮌ 35, burns ⮌ 37.
- If sudden decreased consciousness and any of: generalised itch/rash, face/tongue itch/swelling, tight throat/hoarseness, cough, difficulty breathing, wheeze, chest pain, abdominal pain/nausea/vomiting/diarrhoea or exposure to possible allergen[1], **anaphylaxis** likely →36.
- Check fingerprick glucose, temperature and pupils:

Glucose

If < 3mmol/L or ≥ 11mmol/L ⮌ 31.

Temperature

≤ 35.5°C

Hypothermia likely
- Remove cold/wet clothing.
- Place skin-to-skin with mother if possible or dress in warm, dry clothing and cover head. Cover with warm blankets.
- If giving IV fluids, warm to 40°C (avoid cold fluids).
- If no response or temperature ≤ 32°C, also use a warming device.

≥ 35.5°C

If temperature > 40°C, **hyperthermia** likely:
- Remove clothing.
- Use fan and water spray to cool child.
- Apply ice-packs to axillae, groin and neck.
- Stop once temperature < 39°C.
- If recent travel to malaria area, urgently discuss with referral centre.

Also treat for likely **meningitis/sepsis**: give ceftriaxone[2] 80mg/kg IV/IM[3] (⮌ 151:11).

Pupils

Both pinpoint → **Poisoning** likely →35.

Both dilated → Consider poisoning → Poisoning unlikely

Unequal size

Poor response to light

- Raise head by 30 degrees.
- If injured, avoid bending spine: keep body straight and tilt bed to raise head

- If any of: history inconsistent with examination, delay in presentation, skull fracture, old and new scars on body, unusual or patterned wounds, burns, wounds around ano-genital region , consider child abuse ⮌ 136.
- If child aggressive or violent:
  - Ensure child and health workers safety.
  - Assess child with help of other staff. Use security personnel if needed.
  - If sedation needed, discuss with paediatrician or psychiatrist.
- **Refer urgently with advanced life support ambulance.**
- While awaiting transport:
  - Check pulse (⮌ 167), respiratory rate (⮌ 167), sats (if available), capillary refill[4] time and AVPU/GCS ⮌ 166 every 15 minutes.
  - If pulse/respiratory rate abnormal (⮌ 167), sats drop ≤ 92%, capillary refill time > 3 seconds, or AVPU/GCS worsens, reassess and manage airway, breathing and circulation ⮌ 24.

[1]Common allergens include medications, new food or an insect bite/sting within the last few hours. [2]Avoid mixing Ringer's lactate and IV/IM ceftriaxone. If severe penicillin allergy (previous angioedema, anaphylaxis or urticaria), discuss with doctor. [3]Avoid injecting ≥ 1g IM at one injection site. [4]Capillary refill time: hold hand/foot higher than level of heart. Press soft pad of finger/toe until it turns pale, then release pressure and note time taken for colour to return.

Manage glucose

Interpret and manage random fingerprick glucose (if baby < 6 hours old →9).

Glucose ≤ 3mmol/L
Child has **hypoglycaemia**

Give urgent attention to the child with hypoglycaemia

Decreased level of consciousness (↩ 166), lethargy, temperature < 35°C, fits or unable to drink?

No

- Breastfeed or feed expressed milk.
- If not breastfeeding: give formula or oral sugar solution[1] or a therapeutic feed (F75®) 5mL/kg.
- If child refusing or not completing > 80% of feed orally within 1 hour, give via NGT.
- Recheck glucose after 15 minutes:

≥ 3mmol/L

- Refer same day unless cause is obvious (child has not eaten for a long period) and recurrence can be prevented.
- If known with diabetes, refer.

< 3mmol/L

- Give dextrose 10%[2] 5mL/kg IV/ IO as a bolus.
- If decreased level of consciousness ↩ 30, if fitting ↩ 28.
- Recheck glucose after 15 minutes:

< 3mmol/L
Repeat dextrose 10%[2] 5mL/kg IV/IO.

≥ 3mmol/L

- Give dextrose 5% infusion[3] at 3mL/kg/hour IV/IO.
- Refer urgently.

Yes

Glucose 3.1-11 mmol/L

Is child urinating large volumes, very thirsty, losing weight and very tired?

No

Is child shaky, sweaty, drowsy, fitting or irritable?

Yes

Discuss/ refer.

No

Glucose normal
Reassure and manage other symptom/s on symptom pages.

Yes

Check fasting plasma glucose after an 8 hour fast:

< 7 mmol/L

Glucose normal
Reassure and manage other symptom/s on symptom pages.

≥ 7 mmol/L

Suspect diabetes
Discuss/refer same day with specialist unit that can manage child with possible diabetes.

Glucose ≥ 11 mmol/L

Check if child needs urgent attention

- Does child have ≥ 2 of: 1) cold hands/feet, 2) weak/fast pulse (↩ 167), 3) CRT[4] > 2 seconds, 4) decreased level of consciousness (↩ 166)? If yes, **shock** likely:
  - Give sodium chloride 0.9% 10mL/kg IV/IO *rapidly*.
  - Reassess: if cold hands/feet, weak/fast pulse, CRT > 3 seconds persist, repeat sodium chloride 0.9% 10mL/kg IV/IO over 30 minutes and reassess.
  - If still shocked, give 3rd bolus of sodium chloride 0.9% 10mL/kg IV/IO over 30-60 minutes and discuss with paediatrician.
- If not shocked, does child have any of the following:
  - Decreased level of consciousness (↩ 166)
  - Vomiting
  - Abdominal pain
  - Rapid deep breathing
  - Fruity smelling breath
  - Dehydration[5]

No
Check urine for ketones

No ketones

Yes

Ketones present

Diabetic ketoacidosis likely

Give urgent attention to the child with diabetic ketoacidosis

- If no shock or after shock is treated, give sodium chloride 0.9% IV according to table.
- Reassess for shock every 15 minutes.
- **Refer urgently** to tertiary facility:
  - Ensure drip running at planned rate. If transport delayed > 2 hours: once 1st hour of fluid complete, recheck glucose hourly:
- If glucose still ≥ 11 *and* child has type 1 diabetes, discuss with paediatrician if short-acting insulin 0.1 units/kg IM needed before transfer. Avoid using insulin needle for IM injection.

Give sodium chloride 0.9% IV

Weight	Rate (mL/hr)
4-6kg	25
6-10kg	40
10-15kg	60
15-20kg	85
20-30kg	100
30-45kg	150
≥ 45kg	200

[1]Dissolve 3 teaspoons of sugar (15g) into 200mL water. [2]If dextrose 10% unavailable: in same 20mL syringe, draw up 4mL of dextrose 50% and 16mL of water for injection in same syringe (syringe now contains 20mL of 10% dextrose). [3]Add 10mL dextrose 50% to each 100mL of sodium chloride 0.9%. [4]Capillary refill time (CRT): hold hand/foot higher than level of heart. Press soft pad of finger/toe until it turns pale, then release pressure and note time taken for colour to return. [5]**Dehydration** likely if: lethargy/ altered level of consciousness, sunken eyes, slow skin pinch ≥ 2 seconds (pinch skin on abdomen between 2 fingers. Release. Skin normally snaps rapidly back to its normal position. A slow skin pinch takes longer), or drinking poorly.

The injured child

Give urgent attention to the injured child with any of:

- **Airway**:
  - Decreased level of consciousness (↺ 166)
- **Breathing:**
  - Abnormal respiratory rate (↺ 167): noisy breathing/grunting/nasal flaring/chest indrawing
- **Circulation:**
  - Bleeding despite direct pressure
  - Amputation
  - Distended abdomen
- **Disability:**
  - Weak/numb limb
  - Unexplained severe pain in a limb
- **Type of injuries:**
  - Multiple injuries
  - Burns ↺ 37
  - Suspected fracture ↺ 33
  - Poor perfusion below injury: cold, pale, numb, no pulse
  - Severe unexplained pain, muscle tightness, numbness in limb, **compartment syndrome** likely ↺ 33
  - Pulsatile/growing swelling
  - Stab/gunshot wound
- **Severe mechanism of Injury:**
  - Ejected from a vehicle
  - Fatality in same vehicle
  - Fall from more than twice child's height

Also give urgent attention to the child with a head injury and any of:

- Lethargy or decreased level of consciousness (↺ 30)
- Fitting or recent seizures ↺ 28
- History of loss of consciousness
- Strange behaviour or memory loss since injury
- Suspected skull fracture
- Vomiting ≥ 2 episodes
- Blurry/double vision
- Blood or clear fluid leaking from ear/nose
- Bruising around eyes or behind ears
- Drug or alcohol intoxication
- Severe headache
- Pupils unequal or respond poorly to light
- Blood behind eardrum
- Palpable swelling on head

Manage and refer urgently:

- Assess and manage airway, breathing, circulation ↺ 24. Establish IV access and assess and manage fluid needs ↺ 27.
- If actively bleeding or enlarging/pulsating swelling, apply direct pressure while calling doctor. If unsuccessful, apply tourniquet above injury.
- If severe head injury, neck/spine tenderness, decreased of consciousness or weak/numb limb, immobilise head with tape and sandbags/bags of IV fluid. Use spine board if child moving around.
- If pupils unequal/respond poorly to light, keep body straight, raise head by 30 degrees (do not bend spine) and keep head in midline.
- Identify all injuries: undress child fully and assess front and back using log-roll to turn. Then cover and keep warm.
- While awaiting transport, monitor every 15 minutes: pulse, respiratory rate, sats (if available) and AVPU/GCS ↺ 30. If deteriorates, reassess and manage airway, breathing and circulation ↺ 24.

Approach to the injured child not needing urgent attention

Wound

- Apply direct pressure to stop bleeding. If bite →39.
- If open wound, give tetanus toxoid 0.5mL IM if none in past 5 years (check RtHB).
- Remove foreign material, loose/dead skin. Irrigate with sodium chloride 0.9% or if dirty, dilute chlorhexidine 5% solution with water.
- If sutures needed/wound > 4cm: suture and apply non-adherent dressing for 24 hours. Ensure correct lidocaine without adrenaline dose given (↺ 154:27). Plan to remove sutures after 5 days (face), 4 days (neck), 10 days (leg) or 7 days (rest of body).
- Do not suture if wound > 12 hours old (or > 24 hours on head/neck), infected, remaining foreign material or deep puncture:
  - Pack wound with saline-soaked gauze *and*
  - Give flucloxacillin[1]: if ≤ 7 years, give 12–25 mg/kg/dose 6 hourly (↺ 153:21). If > 7 years, give 500 mg 6hourly for 5 days.
  - Give paracetamol 15mg/kg (up to 1g) 6 hourly as needed up to 5 days (↺ 155:34).
  - Review in 2 days. If no infection, suture now if still needed, unless deep puncture (irrigate and dress every 2 days instead).
- Advise to return if skin red, warm, painful: **infection** likely.
- Refer if unable to close wound easily, cosmetic concerns or child needs sedation to suture.

Head injury

- Advise carer to observe child carefully for 24 hours and limit activity for at least 48 hours.
- Advise to return immediately if any of: blurred vision, vomiting, palpable swelling on head, headache despite paracetamol, difficult to wake, balance problem.
- Give head injury form (if available).

Painful limb

- Rest and elevate limb.
- Apply firm, supportive bandage.
- If limping for > 48 hours ↺ 68.
- If knee/hip injury, refer to physiotherapist.
- Give paracetamol 15mg/kg (up to 1g) 6 hourly as needed up to 5 days (↺ 155:34).
- Review after 1 week: if no better, arrange x-ray and doctor review.

Consider child abuse ↺ 136, if any of: clear history of abuse, history inconsistent with exam, delayed presentation, skull fracture, old and new scars, burns, unusual or patterned wounds, grasp marks on arms/chest/face, bruises on trunk, different colour bruises, wounds around anus/genitals region, injuries to mouth.

[1]If severe penicillin allergy (history of anaphylaxis, urticaria or angioedema), give instead azithromycin 10mg/kg (up to 500mg) daily for 3 days (↺ 151:10).

Fracture/s

Give urgent attention to the child with a fracture and any of:

- Poor perfusion (capillary refill > 3 seconds[1]/no pulse, cold, pale, numb) below fracture
- If ≥ 2 of: 1) cold hands/feet, 2) weak/fast pulse (↩ 167), 3) CRT[1] > 2 seconds, 4) decreased level of consciousness (↩ 166): **shock** likely ↩ 27
- Fracture of femur or pelvis
- Suspected spine fracture
- If severe pain (more than expected)/numbness/tingling/muscle tightness, **compartment syndrome** likely
- Deformity
- Open wound over fracture
- > 1 fracture

Manage and refer urgently:

- If poor perfusion, deformity or weakness/numbness below fracture: doctor to give morphine 0.4mg/kg (up to 10mg) (↩ 155:33) and re-align into position.
- If open fracture: remove foreign material, irrigate with sodium chloride 0.9% and cover with saline-soaked gauze. Give ceftriaxone[2] 80mg/kg (up to 2g) IV/IM[3] (↩ 151:11).
- If **compartment syndrome** likely, remove any tight clothing/jewellery or dressings.
- Splint limb to immobilise joint above and below fracture. If pelvic fracture, tie sheet tightly around hips to immobilise.
- Give tetanus toxoid 0.5mL IM if not had in last 5 years (check RtHB).
- Manage pain: give paracetamol 15mg/kg (up to 1g) 6 hourly (↩ 155:34) and if needed morphine 0.4mg/kg (up to 10mg) (↩ 155:33) 4 hourly.
- Keep nil per mouth.

Approach to the child with a fracture not needing urgent attention:

- Do x-ray and arrange doctor review.
- Is there a fracture seen?

No

Manage as sprain/strain →34.

Yes

Apply backslab →34, sling and refer same day.

Yes

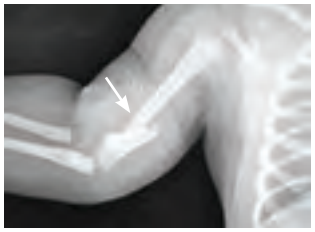
Is there displacement >50% (two ends of fracture move and don't line up straight) or is there joint involvement?

No

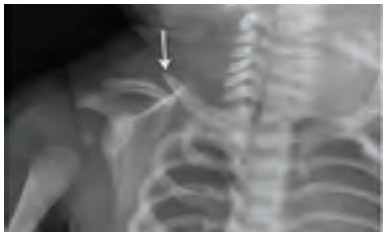
- Manage common fractures according to site →34, if uncertain discuss with orthopaedic specialist.
- If baby (<28 days) with humerus or clavicle fracture, manage below:

Young baby (< 28 days old)

Humerus



Clavicle



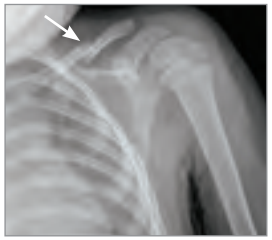
Strapping for humerus or clavicle fracture in young baby (< 28 days)

- If little/no movement in arm/shoulder, weakness/ absent grasp: brachial plexus injury likely discuss/ refer to orthopaedic specialist.
- If brachial plexus injury excluded, immobilise: lightly strap arm to chest (see picture above). Follow up in fracture clinic at 2 weeks.

[1]Capillary refill: hold hand/foot higher than level of heart. Press pad of finger/toe until pale, then release and note time for colour to return. [2]Avoid mixing Ringer's lactate and IV/IM ceftriaxone If severe penicillin allergy (previous anaphylaxis, urticaria or angioedema), discuss with doctor/paediatrician. [3]Avoid injecting ≥ 1g IM at one injection site

Assess and manage common fractures below:

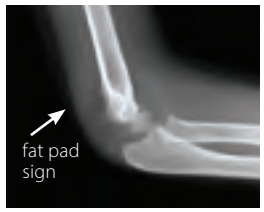
Clavicle



Restrict shoulder movement with a sling for 3 weeks.

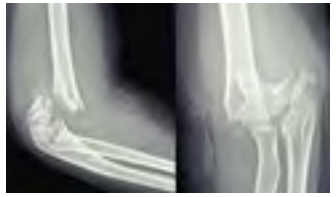
Elbow (supracondylar)
Look for displacement and black shadows around the joint.

Undisplaced (grade 1)



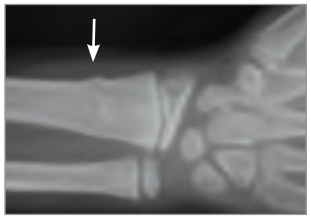
Backslab from hand to below shoulder, elbow at 90°.

Displaced fracture



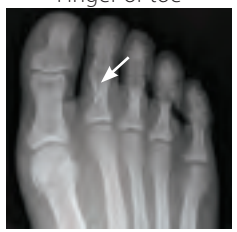
Backslab from hand to Apply backslab and refer same day.

Wrist (undisplaced radius)



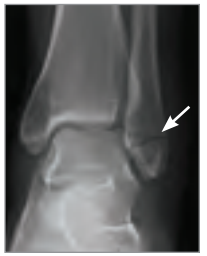
Backslab from hand to below elbow, keeping fore arm in line with hand.

Finger or toe



Buddy strap finger/toe to the longer adjacent finger/toe. Check position of finger/toe, compared to other digits, is correct.

Ankle (fibula)



Backslab from foot to below knee, ankle at 90°.

Treat the child with a fracture:

- Give paracetamol 15mg/kg (up to 1g) 6 hourly up to 5 days (↺ 155:34). If no response, give ibuprofen 5-10mg/kg 8 hourly with food (↺ 153:25) up to 5 days. Avoid ibuprofen if asthma, heart failure or kidney disease.
- Elevate limb.
- Review next day: check pulses and sensation.
  - If problem, refer same day.
  - If wrist, ankle or foot fracture remove backslab and apply full Plaster of Paris in same position. Recheck pulses and sensation.
- Review again in 3 weeks. Remove POP/sling. If still pain or not moving limb well, refer to orthopaedic OPD.

If concerns about poor supervision at home, refer to social worker to arrange home visit. If any of the following, consider abuse: child < 1 year old, leg fracture in non-walking child, bilateral fractures, rib/skull fracture, multiple fractures in different stages of healing, any fracture out of keeping with history, delay in presentation to health facility.

How to apply a backslab

- Wrap limb in cotton bandage, to protect skin (cut hole for thumb if needed). Extend 3cm beyond area that backslab will be applied.
- Measure Plaster of Paris for blackslab, slightly longer than needed. Fold open 10 layers for arm or 14 layers leg. Ensure wide enough to cover half limb circumference and long enough to reach past fracture site (include joint above/below if needed to immobilise fracture).
- Dip Plaster of Paris in room temperature water, squeeze out lightly and mould by rubbing smooth. Hold limb in position of function, for at least 5 minutes to form backslab. Reassure child that Plaster of Paris may heat up whilst setting.
- Secure with bandage.
- Check pulses and sensation. Advise to return if increased pain, numbness, discolouration in limb.

Poisoning

- The child has suspected poisoning if s/he has swallowed, inhaled or absorbed a potentially harmful substance like a medication, chemical/cleaning agent, toxin, pesticide, drug, gas, corrosive, plant.
- While assessing child, contact Poisons Information Helpline of the Western Cape ⮌ 162. Notify[1] if child with symptoms has been exposed to pesticides (like organophosphates, rat poison), mercury/lead.

Give urgent attention to the child with suspected poisoning and any of:

- Attempted self-harm/suicide
- Fitting ⮌ 28
- Decreased level of consciousness (⮌ 166)
- Persistent vomiting
- Excessive drooling/sweating
- Agitation, severe restlessness or hallucinations
- Pupils dilated or pinpoint
- Temperature ≥ 38°C
- Difficulty breathing: abnormal respiratory rate (⮌ 167), blue lips/tongue, sats < 94%, stridor, grunting, nasal flaring, chest indrawing
- If ≥ 2 of: 1) cold hands/feet, 2) weak/fast pulse (⮌ 167), 3) CRT[2] > 2 seconds, 4) decreased level of consciousness (⮌ 166): **shock** likely ⮌ 27.
- Neck twisting, upward gaze, facial grimace, clenched jaw, speech difficulty: **dystonic reaction** likely

Manage and refer urgently:

- If not already done, manage airway, breathing and circulation ⮌ 24. If difficulty breathing, give oxygen 2L/min via nasal prongs.
- If poison on skin: remove clothes and wash skin with soap and water. Protect yourself: wear gloves and apron.
- If poison in eye/s: immediately flush under running water or sodium chloride 0.9% for at least 20 minutes.
- Contact Poisons Information Helpline of the Western Cape ⮌ 162. Ask carers about time of exposure, amount and type of substance (ask to see tablets, packets, containers). Calculate toxic dose[3]:
  - If toxic dose swallowed within past hour *and* child fully conscious, give activated charcoal 1g/kg (up to 100g) with 50-100mL water (⮌ 149:3). Avoid if child swallowed petrol/paraffin/iron/ lithium/ alcohol/corrosives. Avoid inducing vomiting/doing gastric lavage unless specifically instructed by poisons centre because of aspiration risk.
- If pinpoint pupils, excessive drooling/sweating, coughing up or choking on secretions, slow pulse (⮌ 167), **organophosphate poisoning** likely: give atropine 0.05mg/kg IV (up to 3mg) (⮌ 150:9). If no response, double the dose every 3 minutes until improving.
- If shallow breathing/decreased respiratory rate (⮌ 167) and **opioid**[4] **overdose** suspected: give naloxone 0.1 mg/kg IV/IM (up to 2mg) every 2 minutes, up to a total dose of 10mg. Naloxone has a short duration of action (45 minutes) - continue to monitor closely as further doses of naloxone may be needed while awaiting/during transport.
- Monitor for recurrence of respiratory depression. If needed, doctor to start naloxone infusion if required at 0.01 mg/kg/hour.
- If **dystonic reaction**: give biperiden 0.1mg/kg IM/slow IV (up to 2mg if < 7 years; 3mg if 7-10 years; 5mg if ≥ 10 years) or promethazine 0.5mg/kg IM (up to 12.5mg if < 10 years; 25mg if ≥ 10 years).

Approach to a child with suspected poisoning not needing urgent attention

- Try to identify poison: obtain careful history and ask to see tablets, packets, containers of suspected agent used. Record time of exposure and how much child exposed to.
- Contact Poison Information Helpline of the Western Cape ⮌ 162. Determine if toxic dose[2] has been swallowed and manage according to symptoms:

Non-toxic dose		Unknown poison or dose	Toxic dose
Child has no symptoms	Child has symptoms		• Refer urgently. • Discuss need for activated charcoal with Poisons Information Helpline of the Western Cape ⮌ 162.
Discharge child home.	• Refer if: - Child swallowed an unknown dose of ≥ 1 of: paracetamol, anti-epileptics, warfarin, tricyclic anti-depressants, sulphonylureas, iron. - Child swallowed paraffin and has increased respiratory rate. • Observe for 4-6 hours: if child has no symptoms, discharge home. If symptoms persist or worsen, discuss with Poison centre again.		

- Advise carer to return if condition worsens. If concerns about poor adult/parental supervision at home, refer to social worker to arrange home visit.
- Prevent future poisoning, advise to lock away toxic substances. Share Poisons Information Helpline of the Western Cape ⮌ 162.

If child has had poisoning more than once, history not consistent with findings, or concern that carer intentionally exposed child to poison, manage as suspected child abuse →136.

[1]Complete the notifiable medical conditions (NMC) case notification form and send to NMCsurveillanceReport@nicd.ac.za or notify electronically: https://www.nicd.ac.za/nmc-overview/notification-process. [2]Capillary refill time (CRT): hold hand/ foot higher than level of heart. Press soft pad of finger/toe until it turns pale, then release pressure and note time taken for colour to return. [3]Poison centre can help to calculate this ⮌ 162. [4]Examples of opioids include: codeine, tramadol, morphine, oxycodone, hydrocodone, fentanyl.

Anaphylaxis

Give urgent attention to the child with possible anaphylaxis

In the few hours before symptoms started, was child exposed to medication/vaccine, food[1] or insect bite/sting which has caused anaphylaxis before?

Yes
Is there sudden onset of tongue swelling, tight throat/hoarseness, cough, difficulty breathing, wheeze, chest pain, shock, dizziness/collapse?

- Yes → Treat for **anaphylaxis**

No
Is there sudden onset of generalised itch/rash or face/tongue itch/swelling and any of: tight throat/hoarseness, cough, difficulty breathing, wheeze, chest pain, shock[2], dizziness/collapse, abdominal pain/nausea/vomiting/diarrhoea?

- Yes → Treat for **anaphylaxis**
- No: Anaphylaxis unlikely. Was child exposed to insect bite/sting?
  - **No**: Swelling of lips/face/eyes, hives/welts, tingling mouth *only*:
  - **Yes**:
    - Remove stinger if visible.
    - If redness/swelling/itch at site of insect bite/sting *only* (no redness/swelling/itch on rest of body):

→
- Give cetirizine once daily until symptoms resolve: If 2-6 years old, give 5mg. If ≥ 6 years old, give 10mg. Avoid if < 2 years old and discuss.
- Monitor for at least 4 hours: if worse, treat for anaphylaxis. If better, assess child and advise child/carer below. Discharge with anaphylaxis action plan ↩ 162.

Manage anaphylaxis and refer urgently:
- Lie child flat, raise legs and give 100% face mask oxygen at 15L/min. Avoid lying child flat if difficulty breathing.
- Give immediately adrenaline 0.01mg/kg (1:1000) IM into mid-outer thigh (see table). Repeat every 5 minutes if no response. If auto-injector (like EpiPen®) available, use instead: if 7.5-25kg (usually < 6 years old), give 0.15mL. If ≥ 25kg (usually ≥ 6 years old), give 0.3mL.
- If shock (≥ 2 of: cold hands/feet, weak/fast pulse (↩ 167), capillary refill time (CRT) > 2 seconds, decreased level of consciousness ↩ 165), give sodium chloride 0.9% 20mL/kg IV. Repeat until signs of shock resolved. Stop if breathing worsens.
- If generalised itch/rash or face/tongue swelling, give promethazine IM/slow IV: if 2-6 years old, give 6.25mg. If 6-12 years old, give 12.5mg. If ≥ 12 years old, give 25mg. Avoid if < 2 years old or low BP (↩ 167).
- If difficulty breathing or known with asthma, give salbutamol 400-600mcg (4-6 puffs) with metered dose inhaler (MDI) and large volume (500mL) spacer *or* nebulise with 1mL salbutamol 0.5% solution *and* 2mL ipratropium bromide 0.25mg/mL in 4mL sodium chloride 0.9%. Repeat every 5-10 minutes if no response. Assess and further manage airway if needed ↩ 24.
- Give hydrocortisone IM/*slow* IV: if < 1 year old, give 25mg. If 1-6 years old, give 50mg. If 6-12 years old, give 100mg. If ≥ 12 years old, give 200mg.
- If delay in referral, collect blood in 2 yellow topped tubes (tryptase sampling) within 2 hours of symptom onset and send with child. If delay > 4 hours, store tubes on ice.
- If anaphylaxis due to medication/vaccine, report ↩ 148.

Adrenaline dosing

Weight (kg)	Injection 1mg/mL (1:1000)	Age (if weight unknown)
< 9kg	0.05mL	< 1 year
9-12kg	0.1mL	1-2 years
12-17.5kg	0.2mL	2-5 years
17.5-40kg	0.3mL	5-12 years
≥ 40kg	0.5mL	≥ 12 years

Assess the child with previous anaphylaxis

Assess	When to assess	Note
Trigger	At diagnosis	Ensure a specialist has reviewed the child with anaphylaxis to confirm trigger/s. Common triggers include medications, food[1] and insect bites/stings.
Other allergy	At diagnosis	Check for other allergy ↩ 120.

Advise the child with previous anaphylaxis
- Advise to avoid known trigger/s. If trigger is a medication/vaccine, inform health worker at every visit.
- Ensure child/carer has an anaphylaxis action plan available from (Allergy foundation South Africa) and arrange MedicAlert® bracelet ↩ 162. Ensure child/carer knows ambulance telephone number, where nearest hospital is and has reliable transport. If adrenaline prescribed, ensure child/carer knows when and how to use it ↩ 120.

[1]Common foods causing anaphylaxis include peanuts, tree nuts, egg, milk and fish.

Burns

Assess depth and area of burn and calculate percentage total body surface area (%TBSA) burnt ⮌ 38. Accurate estimation of burn size is critical to ongoing fluid replacement and management.

Give urgent attention to the child with burn/s and any of:

- Child < 1 year old
- Likely inhalation burn (burns to face/neck, hoarse, stridor or black sputum)
- Burn of face, hand, foot, genitals, joint
- Circumferential[1] burn of chest/limbs
- Full-thickness burn
- Burn > 10% TBSA
- Burn > 5% TBSA in child 1-2 years old
- ≥ 2 of: 1) cold hands/feet, 2) weak/fast pulse (⮌ 167), 3) CRT[2] > 2 seconds, 4) decreased level of consciousness (⮌ 166): **shock** likely ⮌ 27
- Temperature ≥38°C
- Sudden skin swelling with redness, pain or warmth
- Electric/chemical burn
- Unable to drink/breastfeed

Manage and refer urgently:

- Remove burnt/hot and tight clothing. Cool burn with water or wet towel for 30 minutes. Avoid hypothermia.
- If burn > 10% TBSA, inhalational burn, sats ≤ 92%, drowsy/confused, give oxygen 2L/minute via nasal prongs. Doctor to consider intubation.
- Give IV fluid:
  - If **shock** likely, assess and manage child's fluid needs ⮌ 27.
  - If > 10% TBSA: give sodium chloride 0.9% IV 4mL x weight (kg) x %TBSA over first 24 hours. Give half this volume in first 8 hours from time of burn.
  - *In addition*, begin maintenance fluids: sodium chloride 0.9% + dextrose 50%[3] according to table in reference guide (⮌ 167).
- Give paracetamol 20mg/kg (up to 1g) and then 15mg/kg 4 hourly (⮌ 155:34). If severe pain, give morphine 0.4mg/kg (up to 10mg) IV as needed (⮌ 155:33). If respiratory rate decreases (⮌ 167) or sats ≤ 92%, give oxygen 2L/minute via nasal prongs.
- If other injuries, manage ⮌ 33.
- Clean burn with water mixed with 4% chlorhexidine soap and remove loose/dead skin.
- Dress the burn:
  - If hydrogel product (like Burnshield®) available: apply for up to 3 hours. If transfer delayed > 3 hours, remove and replace with antimicrobial dressing (like silver sulfadiazine, if > 2 months old, and/or paraffin gauze).
- If no Burnshield available: cover with antimicrobial dressing (like silver sulfadiazine, if > 2 months old, and/or paraffin gauze).
- Keep child warm: cover with a clean dry sheet and blanket to prevent hypothermia. Monitor temperature.
- Give tetanus toxoid 0.5mL IM if not had in last 5 years (check RtHB).
- Reassess airway, breathing and circulation hourly ⮌ 24 and refer same day to closest burns centre.

Approach to the child with burn/s not needing urgent attention:

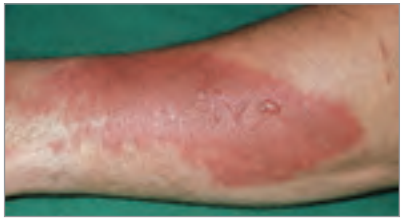
- Cool burnt area < 3 hours old with cold tap water for 30 minutes.
- Give paracetamol 15mg/kg (up to 1g) 6 hourly as needed for up to 5 days (⮌ 155:34).
- Clean burnt area with water mixed with 4% chlorhexidine soap. Cover burnt area with a non-stick antimicrobial dressing (like silver sulfadiazine, if > 2 months old, or paraffin gauze).
- Give tetanus toxoid 0.5mL IM if not had in last 5 years (check RtHB).
- If imprint burns , glove and stocking hot water burns, cigarette burns or burns not matching history, consider **child abuse** ⮌ 136.
- Review daily the child with burn/s not needing urgent attention:
  - Dress wound daily silver sulfadiazine, if > 2 months old, and/or paraffin gauze. If pain/anxiety with dressing changes, give paracetamol 15mg/kg (up to 1g) (⮌ 155:34) 1 hour before changing dressing.
  - Refer if **infection** likely (skin red, warm, painful), rash, fever, diarrhoea develops, pain despite medication or burn not healing.

[1] Circumferential refers to a burn that extends right around the chest or limb. It is important as it may affect breathing movement of chest or circulation of limb. [2] Capillary refill time (CRT): hold hand/foot higher than level of heart. Press soft pad of finger/toe until it turns pale, then release pressure and note time taken for colour to return. [3] Maintenance fluids: add 10mL dextrose 50% to each 100mL of sodium chloride 0.9%.

Assess depth and area of burn

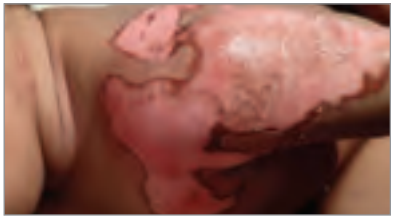
Step 1. Assess depth of burn:
Look to see if burn dry or moist, blisters, colour of skin.

Burn is dry and blanches[1]. There may be minor blisters and/or redness. Painful.



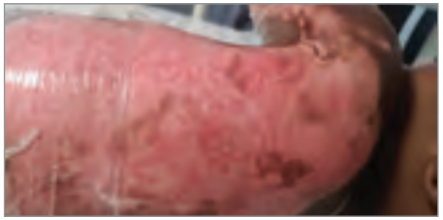
Superficial burn

Red, blistering burn that is moist and may weep. Painful.



Superficial partial thickness burns

Burn may be moist or have waxy appearance. May be white/yellow slough or red, mottled. Less painful.



Deep partial thickness burn

Burn is dry, charred whitish or brown or black. Painless and firm to touch.

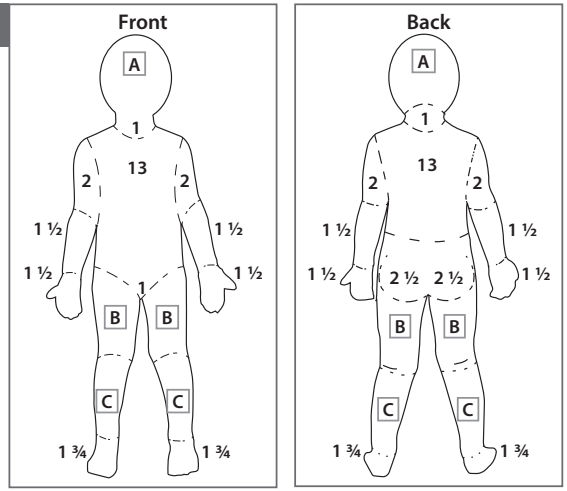
Full thickness burn

Burns areas may vary in depth, with some areas being superficial and some areas deep.

Step 2. Calculate the body surface area of burn using one of the methods below:

- **Method 1:** Use the percentages shown in the figures and table to estimate the area the burn covers. - If available use the Vula mobile application[1] burns referral section to assist with this calculation.
- **Method 2:** Use to calculate small burn wounds.

Method 1



Lund and Browder chart
- Estimating percentage total body surface area in children affected by burns
- Do not include areas of simple erythema (redness)

Body Part	Age			
	0	1	5	10
A - ½ head	9 ½	8 ½	6 ½	5 ½
B – ½ of 1 thigh	2 ¾	3 ¼	4	4 ½
C – ½ of 1 lower leg	2 ½	2 ½	2 ¾	3 ½

Method 2

If burn wound is small: estimate using the area of child's open hand as a guide. The area of the palm of hand represents 1% TBSA. Do not include simple erythema (redness) in calculation.

Example *A 2½-year child has a superficial burn that covers the half their face and neck (front), their full arm and their hand:*
- *The burn involves:*
  - *front of the head and neck, therefore: 8½% + 1% = 9 ½%*
  - *full arm 2% + 2% + 1 ½% + 1½% = 7%*
  - *full hand 1½% + 1 ½% = 3%*
- *Total body surface area affected: 9 ½% + 7% + 3% = 19 ½%*

If burn depth varies in different areas, add % superficial burns and % deep to get a total % burns. Continue to manage burn →37.

[1]Vula mobile application: Mobile system used to improve referral system of patients to various hospitals and specialties.

Bites and stings

Give urgent attention to the child with bite/sting and any of:

- Snakebite[1] even if bite not seen
- Scorpion[1] sting
- Deep or large wound needing sutures
- Actively bleeding
- Venom in eyes
- Weakness
- Drooping eyelids
- Difficulty swallowing/speaking
- Double vision
- Spider bite with drooling, restlessness, muscle cramps, erection
- Sudden onset of generalised itch/rash or face/tongue itch/swelling and any of: tight throat/hoarseness, cough, difficulty breathing, wheeze, chest pain, shock[2], dizziness/collapse, abdominal pain/nausea/vomiting/diarrhoea or exposure to possible allergen[3], **anaphylaxis** likely →36

Manage and refer urgently:

- Apply direct pressure to stop bleeding. Assess and manage child's fluid needs ⮌ 27.
- Wash wound well with chlorhexidine 0.05% or povidone iodine 10% solution and irrigate under running water for 5 minutes and apply dressing. Do not suture.
- If snakebite or spider bite: avoid tourniquet and ice pack. Do not cut or squeeze the bite or try to suck out the venom. Contact Poisons Information Helpline of the Western Cape ⮌ 162.
- If venom in eyes: immediately flush under running water or sodium chloride 0.9% for 20-30 minutes.
- If pain, give paracetamol 15mg/kg (⮌ 155:34). If very painful scorpion sting, doctor to inject lidocaine 2% 2mL around site.

Approach to the child with bite/sting not needing urgent attention

- Wash wound thoroughly with chlorhexidine 0.05% or povidone iodine 10% solution and irrigate under running water for 10 minutes.
- Do not suture unless wound on face, < 24 hours old *and* uninfected. Dress wound every 2 days.
- If bite and immunisations not up to date, give tetanus toxoid 0.5mL IM. If pain, give paracetamol 15mg/kg (up to 1g) 6 hourly as needed (⮌ 155:34).
- Manage further according to type of bite:

Animal bite: was bite from a dog, cat, cow, goat, mongoose, jackal, bat?

No → Yes. Any of: strange behaviour in animal[4], unprovoked attack, unknown immunisation status of animal?

No → Yes. Any of: broken skin with blood; animal licked broken skin/eyes/mouth? (If unsure, discuss with rabies hotline →162.)

Yes

- Inject rabies immunoglobulin 20 IU/kg (human derived) *or* 40 IU/kg (equine derived), around the bite[5].
- Also inject rabies vaccine, 1 ampoule, IM (anterolateral thigh) on days 0, 3, 7 and 14. Immunocompromised child needs a 5th dose on day 28.
- If either not available, refer urgently.
- Give antibiotics:

No

- Inject rabies vaccine, 1 ampoule, IM (anterolateral thigh) on days 0, 3, 7 and 14. Immunocompromised child needs a 5th dose on day 28.
- Stop if animal tests negative for rabies or is still well after 10 days.
- If bite involves hand, also give antibiotics:

Human bite

- Ensure immunisations up to date. Give catch up doses if needed ⮌ 12.
- If broken skin and biter hepatitis B positive/unknown, give hepatitis B post-exposure prophylaxis (PEP) ⮌ 85.
- Also give antibiotics:

Spider bite or insect bite/sting

- Reassure carer anti-venom not needed for cytotoxic spider bites[6].
- Remove bee stingers immediately, by any means (pinching or scraping).
- If severe pain, itch, redness or swelling, apply ice pack and give:
  - Calamine lotion to apply to area.
  - Cetirizine once daily until itch controlled/up to 2 weeks:
    - If 2-6 years old, give 5mg.
    - If ≥ 6 years old, give 10mg.

If spider bite with any signs of infection (skin red, warm, painful), give antibiotics:

- Give amoxicillin/clavulanic acid: if < 25 kg, give 40-45mg/kg/dose 12 hourly (⮌ 150:8). If ≥ 25kg, give 875/125mg 12 hourly for 5 days.
- If severe penicillin allergy[7], give instead azithromycin 10mg/kg (up to 500mg) once daily for 3 days (⮌ 151:10) *plus* metronidazole 7.5mg/kg/dose 8 hourly (up to 400mg) for 5 days (⮌ 154:30).
- If wound infected, continue antibiotics for 10 days. If no better on antibiotics, refer.

[1]Obtain description of spider/snake/scorpion as this may help with specific management once referred. [2]If ≥ 2 of 1) cold hands/feet, 2) weak/fast pulse (⮌ 167), 3) capillary refill time (CRT)> 2 seconds, 4) decreased level of consciousness (⮌ 166), **shock** likely. [3]Common allergens include medications, new food or an insect bite/sting within the last few hours. [4]Example of strange behaviours may include a domestic animal that has shown unusual aggression or a wild animal that appeared weak/sick. [5]Inject as much rabies immunoglobulin as anatomical site of bite will allow. Discard any remaining immunoglobulin. [6]Cytotoxic features are local swelling, redness, or even bite marks. [7]History of anaphylaxis, urticaria or angioedema.

The blue child

Give urgent attention to the blue child with any of:

- Choking →26
- Newborn →23
- < 6 months old
- Known heart or lung disease
- If ≥ 2 of: 1) cold hands/feet, 2) weak/fast pulse (⮌ 167), 3) CRT[1] > 2 seconds, 4) decreased level of consciousness (⮌ 166): **shock** likely ⮌ 27
- Difficulty breathing: abnormal respiratory rate (⮌ 167), noisy breathing, grunting, nasal flaring or chest indrawing ⮌ 53
- Temperature < 35.5°C *or* ≥ 38°C
- Blue lips/tongue *and/or* sats ≤ 94%
- Has a life-limiting illness
- Hb ≤ 7 g/dL

Manage and refer urgently:

- If not already done, manage airway, breathing and circulation ⮌ 24.
- Give oxygen 2L/min via nasal prongs. If difficulty breathing, assist each breath with bag valve mask attached to oxygen ⮌ 24.
- Doctor to check for decreased breath sounds/hyper-resonance on percussion/pain on 1 side/deviated trachea: **tension pneumothorax** likely: insert large bore cannula above 3rd rib in mid-clavicular line and arrange urgent chest tube. Assess need for intubation.
- Check fingerprick glucose, if < 3mmol/L ⮌ 31.
- If temperature < 35.5°C *or* ≥ 38°C, give ceftriaxone[2] 80mg/kg (up to 2g) IV/IM[3] (⮌ 151:11).
- Keep child calm on carer's lap, if possible.
- If known heart disease, place in knee-chest position (knees bent in to chest). Discuss urgently with cardiology service.
- Warm child: place skin to skin with mother or clothe warmly including head and feet, and cover with warm blanket.

Approach to the child with a history of turning blue

Does child have a persistently blocked nose, snore or stop breathing during sleep?

Yes

Obstructive sleep apnoea likely
Discuss/refer urgently to ENT specialist.

No

Does child usually cry, then hold breath until s/he turns blue, becomes limp, unconscious and perhaps fit?

Yes

Breath holding spells likely

- Check Hb: if Hb < 10g/dL in child < 5 years old or Hb < 11g/dL in child ≥ 5 years old, **anaemia** likely ⮌ 45.
- Reassure carer that they are common in child 6 months - 4 years old. Prognosis is excellent and development is normal. No treatment is needed. During the spell, lay child on his/her side. Reassure carer that child will start to breathe on his/her own. Advise to avoid putting anything in mouth.
- If fits occur, advise carer about what to do if child fits at home ⮌ 29.
- Discuss/refer to paediatrician.

No

Discuss/refer same day.

[1]Capillary refill time (CRT): hold hand/foot higher than level of heart. Press soft pad of finger/toe until it turns pale, then release pressure and note time taken for colour to return. [2]Avoid mixing Ringer's lactate and IV/IM ceftriaxone. If severe penicillin allergy (previous anaphylaxis, urticaria or angioedema), discuss with doctor/paediatrician. [3]Avoid injecting ≥ 1g IM at one injection site.

The inconsolable crying/irritable child

- Assess the child if s/he cries continuously and frequently for no obvious reason.
- If baby < 3 months old cries for short periods and is easily consoled, reassure.

Give urgent attention to the inconsolable/crying/irritable child with any of:

- Baby < 2 months and not feeding well
- Nasal flaring/chest in-drawing →53
- Tires/sweats during feeds
- If ≥ 2 of: 1) cold hands/feet, 2) weak/fast pulse (↺ 167), 3) CRT[1] > 2 seconds, 4) decreased level of consciousness (↺ 166): **shock** likely ↺ 27
- Lethargy/altered level of consciousness, sunken eyes, slow skin pinch[2] ≥ 2 secs, dry mouth/mucous membranes or drinking poorly, **dehydration** likely
- Likely **meningitis**:
  - If < 2 years old: bulging fontanelle (when not crying), refusing food/drink or lethargy
  - Any age, ≥ 2 of: temperature ≥ 38°C, headache, decreased level of consciousness (↺ 166), neck stiffness
- Decreased level of consciousness (↺ 166)
- Not moving properly →89
- Cramping abdominal pain and lethargy and/or jelly-like stool

Manage and refer urgently:

- Check fingerprick glucose ↺ 31.
- Assess and manage child's fluid needs ↺ 27.
- If **meningitis** likely, give ceftriaxone[3] 80mg/kg (up to 2g) IV/IM[4] (↺ 151:11).
- If temperature ≥ 38°C, give paracetamol 15mg/kg (up to 1g) orally (↺ 155:34) or rectally if available.

Approach to the inconsolable/crying/irritable child not needing urgent attention

- Ask about other symptoms: if temperature ≥ 38°C or history of fever ↺ 42, abdominal pain/distension ↺ 58, vomiting ↺ 60, diarrhoea ↺ 61, burning urine ↺ 65, constipation with pain on passing stool, faecal impaction, involuntary leakage of stool, voluntarily withholding stool ↺ 62, recent injury ↺ 32 or may have swallowed potentially harmful substance ↺ 35.
- Assess growth ↺ 12.

Then check for source of pain/discomfort

- Examine child from head to toe; check eyes, ears, mouth/throat, skin, groin, genitalia, anal and nappy area:

Check eyes
If foreign body or scratch ↺ 47.

Check ears
If red, bulging eardrum or ear pain/discharge ↺ 48.

Look in mouth and throat
If white patches/blisters/ulcers or red throat ↺ 50.

Check skin
- Remove cause:
  - Thorns/splinters or something wrapped tightly around finger/toe/penis
- If bruising/skin marks, consider child abuse ↺ 136.
- If insect bites ↺ 37.

Look for groin swelling
If bulge in groin on crying/cough/passing stool, **inguinal hernia** likely discuss with doctor/surgeon same day.

Check genitalia
If scrotal swelling, discuss/refer same day.

Check anus
Check for crack, lump/pile or red/raw skin ↺ 63.

Check nappy area
If nappy rash ↺ 80.

Check teeth
If < 3 years old, consider **teething** problem ↺ 52.

- If no cause found, check urine. If blood, nitrites or leucocytes on urine dipstick →65.
- If child has a life-limiting illness, discuss/refer.

Screen for social risk/stressors

- Screen for depression in carer: in the past month, has carer: 1) felt down, depressed, hopeless or 2) felt little interest or pleasure in doing things? If yes to either ↺ PACK Adult.
- Ask carer if aware of any abuse of child. Ask child ask if anyone hurts/upsets him/her. If yes to either, consider child abuse ↺ 136.
- If violence or substance abuse at home, involve social worker. If school problem, ↺ 132. If child is stressed, miserable or angry ↺ 131.
- If newborn/breastfeeding, ask about maternal substance abuse. If found, refer baby to hospital same day and involve social worker.

- If < 4 months old and crying for ≥ 3 hours/day on ≥ 3 days a week, consider **colic** ↺ 58. Do not leave a young child (< 2 years) to cry alone.
- If unable to find cause, discuss/refer.

[1]Capillary refill time (CRT): hold hand/foot higher than level of heart. Press soft pad of finger/toe until it turns pale, then release pressure and note time taken for colour to return. [2]Skin pinch: pinch skin on abdomen between 2 fingers. Release. Skin normally snaps rapidly back to its normal position. A slow skin pinch takes longer. [3]Avoid mixing Ringer's lactate and IV/IM ceftriaxone. If severe penicillin allergy (previous anaphylaxis, urticaria or angioedema), discuss with doctor/paediatrician. [4]Avoid injecting ≥ 1g IM at one injection site.

Fever

A child with a fever has a tympanic temperature of ≥ 38°C (measured in the ear), or an axillary temperature of ≥ 37.5°C (measured under the arm) now or in the past 3 days.

Give urgent attention to the child with a fever and any of:

- Baby < 2 months old
- Just had a fit →28
- Blue skin/lips →40
- Increased respiratory rate (↩ 167) and/or difficulty breathing →53
- Decreased level of consciousness (↩ 166)
- ≥ 2 of: 1) cold hands/feet, 2) weak/fast pulse (↩ 167), 3) CRT[1] > 2 seconds, 4) decreased level of consciousness (↩ 166): **shock** likely ↩ 27
- Headache/neck stiffness/bulging fontanelle
- Purple/red rash that does not disappear with pressure
- Little or no urine →65
- Severe abdominal pain or tender right lower abdomen, **appendicitis** likely
- Jaundice
- Travel to a malaria area in the past 3 months
- Unable to feed/drink
- ≥ 2 of: strange movements of limbs/face, lumps over joints/tendons, rash (round pink lesions with pale centre), joint pain/swelling, **rheumatic fever** likely
- Previous rheumatic fever or known with rheumatic heart disease

Manage and refer urgently:

- Check fingerprick glucose ↩ 31.
- If headache, decreased level of consciousness (↩ 166), neck stiffness, bulging fontanelle and/or purple/red rash, **meningitis** likely, give ceftriaxone[2] 80mg/kg (up to 2g) IV/IM[3] (↩ 151:11).
- If baby < 2 months old *or* **appendicitis** likely, give ceftriaxone[2] 80mg/kg (up to 2g) IV/IM[3] (↩ 151:11).
- If in a malaria area in the past 3 months, do a malaria test[4]. If positive, notify[5] and refer. If negative or test unavailable, discuss/refer.
- Assess and manage fluid needs ↩ 27.
- If able to feed/drink, give paracetamol 15mg/kg (up to 1g) (↩ 155:34).

Approach to the child with a fever not needing urgent attention

Tick bite (red sore with dark centre) or tick present?

Yes

Tick bite fever likely

- May have body pains, headache, rash and lymphadenopathy.
- If present, grip tick close to skin using forceps and remove.
- Give treatment:
  - If < 8 years *or* < 45kg, give azithromycin 10mg/kg (up to 500mg) once daily for 3 days (↩ 151:10).
  - If ≥ 8 years *and* ≥ 45kg, give doxycycline 100mg 12 hourly for 7 days.

No

Ask about other symptoms and manage on symptom page:

- Cough →53
- Blocked/runny nose →49
- Sore throat →50
- Ear pain →48
- Nausea/vomiting →60
- Diarrhoea →61
- Abdominal pain/swelling →58
- Urinary symptoms →65
- Painful/swollen joint →70
- Limping/difficulty moving limb →89
- Lumps in neck, axilla or groin →46
- Skin symptoms →71
- Face pain/swelling →51
- Sore tooth →52
- Eye swelling →47

- Check urine dipstick (get clean catch sample if possible): if blood, leucocytes or nitrites →65.
- If recently started abacavir, check for abacavir hypersensitivity reaction (AHR) ↩ 118.
- If any of: TB contact[6], current cough, sweating at night, poor weight gain/failure to thrive, weight loss, decreased playfulness or visible neck mass, test for TB ↩ 102.
- Test for HIV if status unknown ↩ 109.

If no obvious cause found, **acute viral infection** likely

- Advise on cough/sneeze hygiene, adequate fluid intake, to wash hands regularly, rest, and keep home from school until well.
- Advise that antibiotics are not needed.

- If fever causes discomfort, give paracetamol 15mg/kg 6 hourly (up to 1g) for up to 5 days (↩ 155:34). Avoid tepid sponging or positioning child in front of a fan[7]. Dress child to suit weather condition.
- If fever persists ≥ 3 days and no obvious cause found *or* fever recurs, discuss/refer.

[1]Capillary refill time (CRT): hold hand/foot higher than level of heart. Press soft pad of finger/toe until it turns pale, then release pressure and note time taken for colour to return. [2]Avoid mixing Ringer's lactate and IV/IM ceftriaxone. If severe penicillin allergy (previous anaphylaxis, urticaria or angioedema), discuss with doctor/paediatrician. [3]Avoid injecting ≥ 1g IM at one injection site. [4]Test for malaria with parasite slide microscopy or, if unavailable, rapid diagnostic test. If both unavailable, refer. [5]Complete the notifiable medical conditions (NMC) case notification form and send to NMCsurveillanceReport@nicd.ac.za or notify electronically: https://www.nicd.ac.za/nmc-overview/notification-process. [6]A TB contact refers to a child who shared an enclosed space (at school, socially, or in a household setting), for ≥ 1 night or for frequent/extended daytime periods, with an adult/adolescent with pulmonary TB ("index patient"), during the 3-month period before the index patient started their TB treatment. [7]This will cause shivering and increase core temperature even further.

Headache

- Sudden severe headache
- Headache/vomiting on waking from sleep
- Headache getting worse and more frequent or wakes child
- Travel to a malaria area in the past 3 months: **malaria** likely

Give urgent attention to the child with headache and any of:

- Temperature ≥ 38°C *and* neck stiffness
- Decreased level of consciousness (↺ 166)
- Head tilted to one side (torticollis)
- Weakness of arm or leg
- Vision problems (e.g. double vision)
- Pupils different sizes
- New squint or unable to move eyes as before
- Head trauma in last week →33
- Abnormal walk or balance problem
- Elevated BP ↺ 167

Manage and refer urgently:

- If temperature ≥ 38°C, decreased level of consciousness (↺ 166), neck stiffness, **meningitis** likely: give ceftriaxone[1] 80mg/kg (up to 2g) IV/IM[2] (↺ 151:11).
- Give paracetamol 15mg/kg (up to 1g) (↺ 155:34).
- If in a malaria area in past 3 months, do a malaria test[3]. If positive, notify[4] and refer. If negative or unavailable, discuss/refer.

Approach to child with headache not needing urgent attention

Is headache throbbing, disabling and recurrent with nausea/vomiting or light/noise sensitivity, that resolves completely within 72 hours?

Yes: **Migraine** likely

- Give immediately and then as needed: paracetamol 15mg/kg (up to 1g) 6 hourly (↺ 155:34) or if ≥ 20kg and able to swallow tablet, ibuprofen[5] 200mg 6 hourly with food. Advise to return if no better after 24 hours and refer same day.
- Advise child/carer with migraine:
  - Recognise migraine early and rest in dark, quiet room.
  - Advise to eat regular meals, keep hydrated, get regular exercise, control screen time and have a good sleep routine.
  - Keep a headache diary to identify triggers like lack of sleep, hunger, stress, menstrual period, caffeine, chocolate, cheese, smells or noise. Avoid triggers if possible.
- If ≥ 2 attacks/month or no response to treatment, refer.

No: fever in last few days and tick bite (red sore with dark centre) or tick present?

Yes

Tick bite fever likely →42

No

Pain over cheeks, thick nasal (or postnasal) discharge, recent common cold, headache worse on bending forward?

Yes: **sinusitis** likely

- Give paracetamol 15mg/kg (up to 1g) 6 hourly as needed for up to 5 days (↺ 155:34).
- Give sodium chloride 0.9% drops into nostrils as needed.
- If no better, give oxymetazoline 0.025% 2 drops in each nostril 8 hourly for up to 5 days.
- If symptoms > 10 days: give amoxicillin[6] 45mg/kg/dose (up to 1g) 12 hourly for 5 days (↺ 150:6).
- If > 1 episode, test for HIV ↺ 109.
- If poor response to antibiotic or > 4 episodes per year, refer.
- If swelling around sinus/eye or tooth infection, refer same day.

No: currently, any of: fever, body pain, cough, sore throat, runny nose?

Yes: **acute viral infection** likely

- Advise on cough/sneeze hygiene, adequate fluid intake, to wash hands regularly and rest.
- Keep home from school until well.
- Advise that antibiotics are not needed.
- Give paracetamol 6 hourly (up to 1g) for up to 5 days (↺ 155:34).
- Advise to return if no better in 2 days and discuss/refer.

No: consider tension-type headache and muscular neck pain

Tightness around head or generalised pressure-like pain (generally occurs late in the day)

Tension-type headache likely

- Give paracetamol 15mg/kg (up to 1g) 6 hourly as needed for up to 5 days (↺ 155:34)
- If child miserable/stressed/angry ↺ 131.
- If problem at school ↺ 132.
- Book eye test to exclude poor vision.

Constant aching neck pain, tender neck muscles

Muscular neck pain likely

- Give paracetamol 15mg/kg (up to 1g) 6 hourly as needed for up to 5 days (↺ 155:34).
- Advise sleeping on different pillow, avoid prolonged screen time and encourage correct posture.
- Refer to physiotherapist.

If unsure, poor response to treatment or headaches result in frequent school absences, discuss/refer.

[1]Avoid mixing Ringer's lactate and IV/IM ceftriaxone. If severe penicillin allergy (previous anaphylaxis, urticaria or angioedema), discuss with doctor/paediatrician. [2]Avoid injecting ≥ 1g IM at one injection site. [3]Test for malaria with parasite slide microscopy or, if unavailable, rapid diagnostic test. If both unavailable, refer. [4]Complete the notifiable medical conditions (NMC) case notification form and send to NMCsurveillanceReport@nicd.ac.za or notify electronically: https://www.nicd.ac.za/nmc-overview/notification-process. [5]Avoid if asthma, heart failure or kidney disease. [6]If severe penicillin allergy (history of anaphylaxis, urticaria or angioedema, give instead azithromycin 10mg/kg (up to 500mg) once daily for 3 days instead (↺ 151:10).

The tired or lethargic child

- If child is not moving or sitting properly (limb/s not working properly) →89.
- The lethargic child may be difficult to wake or excessively sleepy and wants to lie down and not move around for considerable periods.

Give urgent attention to the child with tiredness or lethargy and any of:

- Unable to drink/breastfeed
- Baby < 3 months old
- Vomiting everything
- Decreased level of consciousness (↩ 166)
- Increased respiratory rate (↩ 167) or breathing problem→53
- Bone pain or continuous pain
- Easy bruising or bleeding
- Likely **meningitis:**
  - If < 2 years old: bulging fontanelle (when not crying), refusing food/drink
  - Any age, ≥ 2 of: temperature ≥ 38°C, headache, decreased level of consciousness (↩ 166), neck stiffness

Manage and refer urgently:

- Check fingerprick Hb and glucose. Interpret and manage glucose ↩ 31.
- Assess and manage child's fluid needs ↩ 27.
- If **meningitis** likely, give ceftriaxone[1] 80mg/kg (up to 2g) IV/IM[2](↩ 151:11).

Approach to the child with tiredness or lethargy not needing urgent attention

- Assess and manage child's fluid needs ↩ 27.
- Check child's temperature: if ≥ 38°C or fever in last 3 days ↩ 42.
- Exclude heart problem: if < 1 year old and tires/sweats during feeds or if ≥ 1 year old and breathless on minimal exertion/exercise, discuss/refer same day.

If none of the above, ask about associated symptoms:

- If vomiting →60, diarrhoea →61, jaundice →59, headache →43, blocked/runny nose →49, sore throat →50, cough →53. Manage other symptoms on symptom pages.
- Exclude allergy: if persistent itchy blocked/runny nose and sneezing →49, if asthma →122.
- Check for lumps/swellings in neck, axilla or groin →46 and swollen joints →70.

Then exclude anaemia, diabetes, TB, HIV, growth problem and vision problem:

Test for anaemia	**Screen for diabetes**	**Screen for TB**	**Screen for HIV**	**Check for growth problems**	**Exclude vision problems**
Do Hb: if Hb < 10g/dL in child < 5 years old or < 11g/dL in child ≥ 5 years old, **anaemia** likely ↩ 45.	Check fingerprick glucose ↩ 31.	↩ 102.	If status unknown, test for HIV ↩ 109. If HIV, give routine care ↩ 111.	Assess growth ↩ 15.	Assess visual milestones ↩ 12.

- Check urine: if leucocytes, nitrites or blood on urine dipstick →65.
- If child has a life-limiting illness, also give palliative care →142.
- Assess child's mood: if withdrawn or change in mood, behaviour/feelings or not coping →131.

- Check if child sleeps enough daily:
  - baby < 12 months old should sleep ≥ 12 hours (including naps)
  - child 1 to 3 years old should sleep ≥ 11 hours (including naps)
  - child 3 to 6 years old should sleep ≥ 10 hours (including naps)
  - Child 6 to 13 years old should sleep ≥ 9 hours
- If child not sleeping enough or on any medication that could be causing tiredness →87.

If no cause found, review in a week. If no better, refer.

[1]Avoid mixing Ringer's lactate and IV/IM ceftriaxone. If severe penicillin allergy (previous anaphylaxis, urticaria or angioedema), discuss with doctor/paediatrician. [2]Avoid injecting ≥ 1g IM at one injection site.

Pallor or anaemia

A child has pallor if s/he has pale palms and/or conjunctiva (lower inner eyelid). If possible, check fingerprick Hb. Child has **anaemia** if:
- Child < 5 years old: Hb < 10g/dL
- Child ≥ 5 years old: Hb < 11g/dL

Give urgent attention to the child with pallor and/or a low Hb and any of:

- Hb < 7g/dL
- Baby < 6 months old
- Jaundice
- Swollen legs
- Widespread/easy bruising or bleeding
- Increased respiratory rate (↪ 167)
- Increased pulse rate (↪ 167)
- Palpitations or chest pain
- Bone or joint pain
- Lethargy or decreased level of consciousness (↪ 166)
- Purple/red rash that does not disappear with pressure
- Recent travel to a malaria area: **malaria** likely

Manage and refer urgently:
- If increased respiratory rate, give oxygen 2L/minute via nasal prongs.

Approach to the child with pallor not needing urgent attention

Manage according to age of child:

Child < 5 years old

Iron deficiency anaemia likely
- If child > 12 months old, deworm 6 monthly with mebendazole (↪ 154:28).
- Give ferrous gluconate (↪ 152:19) *or* ferrous sulphate (↪ 152:20) 8 hourly with food. Continue treatment for 3 months after Hb ≥ 10g/dL. Avoid giving iron if child is on Ready-to-use Therapeutic Food (RUTF) as this contains sufficient iron.
- Advise the carer:
  - Give foods rich in iron: liver, kidney, dark green leafy vegetables like spinach, egg yolk, beans, peas, lentils, fortified cereals.
  - Give food rich in vitamin C as this helps with iron absorption: oranges, naartjies, melons, tomatoes, broccoli, cauliflower, guavas, strawberries.
  - Avoid drinking tea/coffee with meals as this interferes with iron absorption.
  - Treatment with iron can make child's stools look black - no need to be concerned.
  - Iron can be extremely dangerous if child overdoses - keep out of reach of child.
- Review in 1 month:
  - If Hb drops, refer.
  - If Hb the same or higher, continue treatment. Review child and Hb at 1 month and monthly thereafter. If Hb has not improved after 1 month, refer.

Child ≥ 5 years old

Take blood for full blood count (FBC) and manage further according to MCV[1] result:

MCV[1] low	MCV[1] normal	MCV[1] high
Iron deficiency anaemia likely Anaemia may be due to occult (hidden) blood loss: discuss/refer.	**Anaemia of chronic disorder** likely • Exclude TB ↪ 102 and HIV ↪ 109. • If no cause found, refer/discuss same week.	**Megaloblastic anaemia** (folate and/or vitamin B12 deficiency) likely Refer/discuss same week.

[1]MCV: Mean Corpuscular Volume. The MCV helps to decide the underlying cause of anaemia and can be found on FBC result sheet. Check if MCV high, low or normal compared to the reference range for age of child.

Lump/swelling in neck, axilla or groin

Give urgent attention to the child with a lump/swelling in neck, axilla or groin and any of:
- Firm painful swelling in groin area, vomiting or not passing stool, **incarcerated/strangulated inguinal hernia** likely
- Red overlying skin, painful to touch and soft (fluctuant) in middle of swelling, **abscess** likely

Refer urgently.

Approach to the child with lump/swelling in neck, axilla or groin not needing urgent attention:
- If lump/swelling involves surface of the skin, manage as skin symptom →71.
- If lump/swelling beneath the skin, first exclude thyroid mass and hernia:
  - Neck lump compressible (cystic), in mid-line or moves when child swallows, **thyroid mass** likely: refer same week.
  - Lump in groin that bulges when child cries/coughs/passes stool, **inguinal hernia** likely: discuss with doctor/surgeon same day.
- If none of the above, a lump/swelling in neck, axilla or groin is likely an enlarged lymph node (lymphadenopathy). If unsure, refer.
- If lymphadenopathy likely, assess further according to child's age:

< 1 month old

- Test baby for HIV ⮌ 109. If HIV positive, give routine care ⮌ 111.
- Is lymphadenopathy localised (neck or axilla or groin) or generalised (≥ 2 areas)?

Localised

If axillary lymphadenopathy on BCG arm, **BCG lymph adenitis** likely

- Report adverse event ⮌ 148.
- Reassure that this is usually painless and resolves on its own. It may persist for up to 6 months.
- If < 1.5cm, review in one week.
- If ≥ 1.5cm or pus draining, refer.

Generalised

Check mother's syphilis result, **congenital syphilis** likely if any of:
- Mother's RPR is unknown/unable to get result
- Mother's RPR is positive and any of:
  - She is untreated
  - She was only partially treated (< 3 doses)
  - Treatment completed < 1 month before delivery
- Refer baby.
- Treat mother ⮌ PACK Adult.

≥ 1 month old

Is lymphadenopathy localised (neck or axilla or groin) or generalised (≥ 2 areas)?

Localised lymphadenopathy:

- If recent BCG vaccine and axillary lymphadenopathy on that side, **BCG lymph adenitis** likely (see column on the left).
- Is lymph node hot, red and painful?

Yes

- If sore throat with lymph nodes in neck, **tonsillitis** likely →50.
- Otherwise treat for **bacterial lymphadenitis**, give cephalexin 12-25mg/kg (up to 500mg) 6 hourly for 5 days (⮌ 151:12). If severe penicillin allergy (history of anaphylaxis, urticaria or angioedema), give instead azithromycin 10mg/kg (up to 500mg) once daily for 3 days (⮌ 151:10).
- Advise to return in 2 weeks if no better and refer.

No

- Look for sore throat ⮌ 50, skin infection or rash ⮌ 71, gums/teeth ⮌ 52 and ask about face symptoms ⮌ 51.
- If lymph node in groin and sexually active[1], treat for **bubo** →PACK Adult.

Local cause found

- Manage as on symptom page.
- Advise to return in 4 weeks if no better and refer.

No cause found

- If any of: TB contact[2], current cough/fever, poor weight gain/failure to thrive, decreased playfulness, visible neck mass, test for TB ⮌ 102.
- Test for HIV ⮌ 109. If HIV positive, give HIV routine care ⮌ 111.
- If HIV negative and no TB symptoms/close contact, discuss/refer same day if any of:
  - Generalised lymphadenopathy
  - Weight loss
  - Night sweats
  - Lymph node growing quickly
  - Pallor[3] ⮌ 45
  - Persistent tiredness
  - Swollen abdomen
  - Shortness of breath

If none of the above, reassure. Advise to return if lymph node > 1 cm persists for > 2 weeks, new symptoms develop or node grows: discuss/refer.

Generalised lymphadenopathy

If joint pain →70.

[1]If any of: 1) sex not consensual 2) < 12 years old 3) 12-16 years old and partner not in peer group (partner should also be 12-16 years old, **sexual abuse** likely ⮌ 136. Otherwise advise reliable contraception ⮌ PACK Adult. Check that s/he knows how to use condoms. [2]A TB contact refers to a child who shared an enclosed space (at school, socially, or in a household setting), for ≥ 1 night or for frequent/extended daytime periods, with an adult/adolescent with pulmonary TB ("index patient"), during the 3-month period before the index patient started their TB treatment. [3]Look for pale palms of the hands and conjunctival pallor: paleness of the lower inner eyelid.

Eye/vision symptoms

Give urgent attention to the child with eye/vision problems and any of:

- Baby < 1 month old with pus in eyes or swollen eyelids, **conjunctivitis of the newborn** likely
- Eyelid laceration
- Chemical burn: wash eye/s continuously for at least 20 minutes with sodium chloride 0.9% or clean water.
- Whole eyelid swollen/red or bulging eye: **orbital/periorbital cellulitis** likely
- One painful red eye
- Shingles involving eye or nose
- Sudden loss/change in vision (blurred/reduced)
- Penetrating injury (with/without foreign body)
- Corneal ulcer
- Hazy cornea
- Sudden drooping of eyelid
- Sudden onset squint in child > 5 years old
- Jaundice →59

Manage and refer urgently:

- If **conjunctivitis of the newborn** likely, give ceftriaxone[1] 50mg/kg (up to 2g) IV/IM[2]. Irrigate with sodium chloride 0.9% hourly until referral. Give postnatal care to mother →PACK Adult.
- If **orbital/periorbital cellulitis** likely and delay in referral expected > 6 hours, give ceftriaxone[1] 80mg/kg (up to 2g) IV/IM[2] (↩ 151:11).
- If penetrating/metallic foreign body in eye, do not try to remove. Cover gently with protective shield and avoid lying flat.

Approach to child with eye/vision symptoms not needing urgent attention

- If white eye (pupil white/hazy/cloudy or light reflex reflects white light), **cataract** or **retinoblastoma** likely: refer to eye OPD within 2 weeks.
- If longstanding squint present, refer next eye OPD appointment.
- Look for discharge, red/swollen eyelids, foreign body and poor vision:

Both eyes are discharging/watery

Are eyes very itchy?

Yes

May have persistently blocked/runny nose.

Allergic conjunctivitis likely

- Advise to apply cold compresses[3].
- If < 2 years, refer.
- If 2-6 years old: give cetirizine 5mg daily. If recurrent problem *and* ≥ 3 years old, give olopatidine 0.1% 1 drop in each eye 12 hourly as needed.
- If > 6 years old, give oxymetazoline 0.025% 1-2 drops in each eye 6 hourly for up to 7 days. If no response or recurrent problem, give olopatidine 0.1% 1 drop in each eye 12 hourly as needed. Give cetirizine 10mg daily.
- If recurrent problem, also give routine allergy care ↩ 120.
- If brown discolouration of eyes, corneal ulcer, sensitivity to light or poor vision, refer urgently.

No

Purulent discharge from eye/s

Bacterial conjunctivitis likely

- Wipe eyes gently from inside to outside with clean cotton wool soaked in sodium chloride 0.9% until pus clears.
- Insert chloramphenicol 1% ointment 6 hourly in each eye for 7 days.
- Advise to avoid rubbing eyes and to wash hands regularly.
- May return to school after 2 days of treatment and no pus.
- If no better in 2 days, refer to eye OPD.

Clear watery discharge from eye/s

- If both eyes red with generalised rash, consider **measles** ↩ 76.

Viral conjunctivitis likely

- Advise to avoid rubbing eyes and to wash hands regularly.
- Apply cold compresses[3].
- If painful, give paracetamol 15mg/kg (up to 1g) 6 hourly up to 5 days (↩ 155:34).
- If > 6 years old, give oxymetazoline 0.025% 1-2 drops in each eye 6 hourly up to 7 days.
- May return to school once discharge has cleared/after 1 week.
- If single red eye for > 1 day, any change in vision *or* no better after 5 days, refer.

Red or swollen eyelids

- Wash lids twice a day with warm water.
- Give chloramphenicol 1% ointment 6 hourly for 7 days.
- If yellow lump on eyelid, apply frequent warm compresses[3].
- Refer to eye OPD if:
  - If no better with warm compresses[3]
  - Eyelids bent out/in
  - Eyelashes rubbing on cornea

Foreign body

- Wash out eye with clean water or saline.
- Gently remove foreign body with cotton-tipped stick.
- If under eyelid, pull top lid over bottom eyelid and release.
- Refer same day if:
  - Removal unsuccessful
  - Abnormal vision or eye movement
  - Foreign body not visible
  - Not opening eye after 24 hours.

Poor vision

- If HIV status unknown, test for HIV ↩ 109.
- Refer to eye OPD within 1 month if:
  - Not meeting visual milestone
  - Not responding to mother's face
  - Wandering eye movements
  - Pokes/prods own eye
  - Staring at bright lights.
  - If ≥ 5 years old and poor vision with Snellen E chart.
  - HIV positive
- If cannot see in dark, **vitamin A deficiency** likely:
  - Refer and give single dose vitamin A (↩ 156:36). If eyes dry, give chloramphenicol 1% ointment in each eye 6 hourly for 7 days.

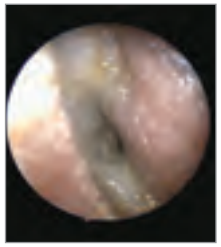
[1]Avoid mixing Ringer's lactate and IV/IM ceftriaxone. If severe penicillin allergy (previous anaphylaxis, urticaria or angioedema), discuss with doctor/paediatrician. [2]Avoid injecting ≥ 1g IM at one injection site. [3]Wet a clean facecloth with cold water for cold compresses and hot water (not boiling) for warm compresses, ring out facecloth and gently apply over the eyes for 10 minutes.

Ear symptoms/difficulty hearing

Ask about ear itch, pain, discharge from ear, foreign body, wax and difficulty hearing. Then look in ear.

Itchy ear

Ear canal red/swollen (pus may be present)



© University of Cape Town

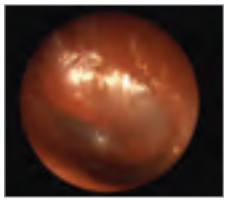
Otitis externa likely
- Clean ear[1].
- Instil acetic acid 2% in alcohol after cleaning, 4 drops 6 hourly for 5 days.
- Give paracetamol 15mg/kg (up to 1g) 6 hourly for 5 days as needed (↺ 155:34).
- If severe pain, firm red swelling in canal, or temperature ≥ 38°C, give cephalexin[2] 12-25mg/kg (up to 500mg) 6 hourly for 5 days (↺ 151:12).
- Refer if:
  - No better after 5 days
  - Blisters on ear, **herpes zoster** likely

Painful ear

- Ear canal not red/swollen.
- Able to view eardrum?

No
Pain > 2 days or pain waking at night?

Yes
- If normal looking ear drum, **referred pain** likely, check for face, mouth, gum or tooth problems.
- If red bulging eardrum:



© University of Cape Town

No
Has temperature been ≥ 38°C in last > 2 days?

No
- Give paracetamol 15mg/kg 6 hourly for 5 days as needed (↺ 155:34).
- Advise to return in 2 days if no better.

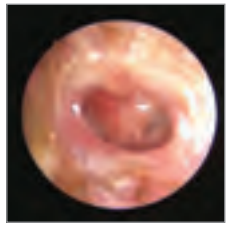
Yes

Acute otitis media likely
- Give paracetamol 15mg/kg (up to 1g) 6 hourly for 5 days as needed (↺ 155:34).
- If child has not had antibiotics in past 30 days, give amoxicillin[2] 45mg/kg/dose (up to 1g) 12 hourly for 5 days (↺ 150:6).
- If discharge, clean ear[1] and avoid getting ear wet.
- If > 1 episode, test for HIV ↺ 109.
- Advise to return if no better in 5 days: extend amoxicillin[2] for another 5 days and review after this.
- If amoxicilllin in past 30 days or poor response to 10 days amoxcillin, give amoxicillin/clavulanic acid: if < 25 kg, give 40-45mg/kg/dose 12 hourly for 10 days (↺ 150:8). If ≥ 25kg, give 875/125mg 12 hourly for 10 days.
- If no response to treatment or >5 episodes per year, refer.
- Refer *same day* if:
  - Painful swelling behind ear, **mastoiditis** likely
  - Neck stiffness
  - Baby ≤ 1 month old
- If treated above but communication problem present ↺ 88.

Discharge from ear[3]

Discharge for ≤ 2 weeks

Symptoms ≥ 2 weeks, hole in eardrum



© University of Cape Town

Chronic suppurative otitis media likely
- Explain that ear can only heal if dry.
- Clean ear[1].
- Avoid getting ear wet.
- If poor response to treatment, test for HIV ↺ 109 and TB ↺ 102.
- Refer if:
  - No better after 4 weeks
  - Bloody discharge for > 2 weeks
  - Large hole in drum
  - Difficulty hearing
- Refer same day if:
  - Neck stiffness
  - Painful swelling behind ear
  - Yellow/white deposit on eardrum, **cholesteatoma** likely.

Foreign body

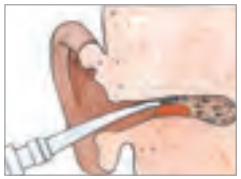
Wax

- Syringe ears[4] with warm water.
- Avoid syringing and refer instead if:
  - Uncooperative
  - Grommets
  - Chronic suppurative otitis media
  - Hole in eardrum
  - Battery/food in ear
  - Recent trauma to head or ear
  - Neck stiffness
- If unsuccessful after 3 attempts/ causes pain or if foreign body remains in ear, stop and refer to/ call doctor.
- If no better, arrange for hearing test.

Difficulty hearing

- If on drug resistant TB medication, discuss with TB doctor.
- If normal looking ear: arrange for hearing test (same week, if concerns about complete deafness).
- If wax/foreign body, itchy/painful ear, discharge from the ear, see adjacent.
- If fluid behind the eardrum, **otitis media with effusion** likely:

Otitis media with effusion likely
- Keep ear dry.
- Advise carer that usually resolves on own.
- If communication problem ↺ 88.
- Refer if still concerns about hearing after 3 months or if child clumsy/poor balance.



[4]How to syringe an ear: fill a 50-200mL syringe with warm water. Ask child/carer to hold container under ear to catch water. Pull ear upwards and backwards to straighten ear canal. Place tip of syringe at opening (no further than 8mm into canal) and spray water upwards into canal. Check after syringing to see if wax cleared.

[1]Cleaning the ear (dry mopping): roll a piece of clean soft tissue into a wick. Insert wick into ear with twisting action. Remove and replace with clean dry wick. Repeat until wick is dry when removed. Never leave wick or other object inside ear. [2]If severe penicillin allergy (history of anaphylaxis, urticaria or angioedema), give instead azithromycin 10mg/kg (up to 500mg) once daily for 3 days instead (↺ 151:10). [3]If grommets (small tubes in eardrum) and purulent discharge persists > 2 weeks, discuss/refer.

Nose symptoms

Give urgent attention to the child with nose symptoms and any of:
- Newborn unable to breathe through nose
- Unable to feed because of blocked nose
- Head trauma with watery discharge from nose

Refer urgently.

Approach to the child with nose symptoms not needing urgent attention

Blocked/running nose or persistent snoring
Ask about duration and associated symptoms:

Sore throat or fever
- If rash →71.

Any of: temperature ≥ 38°C, chills, nausea, sore muscles?

No → **Common cold** likely

Yes → **Acute viral infection** likely (like influenza or COVID-19)
Keep child home from school/crèche until well.

- Advise on cough/sneeze hygiene.
- If pain or fever causing discomfort, give paracetamol 15mg/kg (up to 1g) 6 hourly as needed up to 5 days (↺ 155:34).
- Instil sodium chloride 0.9% drops into nostrils as needed.
- Advise that antibiotics are not necessary.
- Advise to return if:
  - Symptoms persist > 7 days.
  - Initially better but fever returns and:
    - Productive cough →53.
    - Ear pain →48.
    - Pain over cheeks, **sinusitis** likely
- If HIV positive or other long-term health condition, advise influenza vaccination during influenza vaccine campaign.
- If child known with asthma ↺ 122.

Headache worse on bending forward, pain over cheeks.

Sinusitis likely
- Give paracetamol 15mg/kg 6 hourly as needed for up to 5 days (↺ 155:34).
- Give sodium chloride 0.9% drops into nostrils as needed.
- If no better, give oxymetazoline 0.025% 2 drops in each nostril 8 hourly for up to 5 days.
- If symptoms > 10 days: give amoxicillin[1] 45mg/kg/dose (up to 1g) 12 hourly for 5 days (↺ 150:6).
- If > 1 episode, test for HIV ↺ 109.
- Refer if:
  - Poor response to antibiotic
  - > 4 episodes per year
  - Neck stiffness
  - Temperature ≥ 38°C for > 2 days
- Refer same day if:
  - Swelling around sinus/eye or tooth infection

Recurrent sneezing or itchy/blocked nose/rubbing nose most days for > 4 weeks

Allergic rhinitis likely
- If < 4 years old, refer.
- If 4-6 years old: give fluticasone[2] nasal spray 50µg 12 hourly in each nostril. If symptoms > 1 month, give cetirizine 5mg once daily.
- If ≥ 6 years old, give fluticasone[2] nasal spray 100µg 12 hourly in each nostril. If symptoms > 1 month, give cetirizine 10mg once daily.
- For symptom relief:
  - Give chlorphenamine 0.1 mg/kg 6-8 hourly for up to 2 weeks (↺ 151:14).
  - If blocked nose at night affecting sleep, give oxymetazoline 0.025% 2 drops in each nostril at night for up to 5 nights.
- Give routine care to child with allergy ↺ 120.
- Review 3 monthly.

Only one nostril affected

Foreign body likely
- Examine nostrils and ears using good light and nasal speculum. Wrap child in sheet if need to restrain.
- Gently remove object with crocodile forceps. If unable, block clear nostril and ask child to blow out through his/her nose.
- If unsuccessful or object not visible, refer.

Persistent snoring and poor sleep

Obstructive sleep apnoea likely
- If child with allergy →120.
- If overweight, plot growth and →99.
- Refer if enlarged tonsils, episodes of no breathing for 10 seconds/chokes/gasps while sleeping.

Bleeding nose
- Check for foreign body.
- If able, firmly pinch nostrils together for 5-10 minutes with child sitting and leaning forward.
- If still bleeding, insert bismuth iodoform paraffin paste (BIPP) soaked ribbon gauze into nostril/s.
- If bleeding stops, advise to return next day to remove BIPP gauze.
- If still bleeding or unable to do above procedures, refer urgently.
- If recurrent bleeds:
  - Advise to avoid picking nose.
  - If rubbing nose, consider **allergic rhinitis**.
  - If no better, refer.

[1]If severe penicillin allergy (history of anaphylaxis, urticaria or angioedema), give instead azithromycin 10mg/kg (up to 500mg) once daily for 3 days instead (↺ 151:10). [2]Aim nozzle upwards and outwards (aim for the eye). Avoid aiming for back of throat or sniffing vigorously.

Mouth and throat symptoms

Give urgent attention to the child with mouth and throat symptoms and any of:

- Unable to open mouth or swallow at all (recent onset drooling).
- Red swelling blocking airway
- Sudden onset of generalised itch/rash or face/tongue itch/swelling and any of: tight throat/hoarseness, cough, difficulty breathing, wheeze, chest pain, shock[1], dizziness/collapse, abdominal pain/nausea/vomiting/diarrhoea or exposure to possible allergen[2], **anaphylaxis** likely →120

Manage and refer urgently:

- Check fingerprick glucose ⮌ 31.

Assess the child with mouth and throat symptoms not needing urgent attention

If problem with gums/teeth *or* if child < 3 years and drooling, consider teething ⮌ 52. Ask about sore throat and check for red throat, white patches, blisters or ulcers.

Red/sore throat

Are there ≥ 2 of: swollen tonsils, pus/white patches on tonsils, tender neck lymph nodes, no cough/runny nose present, temperature ≥38°C?

No

Viral tonsillo-pharyngitis likely

- Give paracetamol 15mg/kg (up to 1g) 6 hourly as needed up to 5 days (⮌ 155:34).
- Salt water gargle[3] twice a day.
- Explain that antibiotics are not necessary.

Yes

Bacterial tonsillopharyngitis likely

- Child may also have red rash, headache, abdominal pain, nausea and vomiting.
- Give paracetamol 15mg/kg (up to 1g) 6 hourly as needed for up to 5 days (⮌ 155:34).
- Give one of:
  - Single dose benzathine benzylpenicillin[4,5]: if < 30kg, give 600 000 units IM; if ≥ 30kg, give 1.2 million units IM *or*
  - amoxicillin[4] 50mg/kg once daily for 10 days (⮌ 150:7) *or*
  - phenoxymethylpenicillin[4]: if < 30kg, give 250mg 12 hourly; if ≥ 30kg, give 500mg 12 hourly for 10 days.
- If red rash develops only after starting antibiotic, **glandular fever** likely.
  - Stop antibiotic. Reassure will resolve spontaneously.
  - Child may return to school when better but can only resume sporting activities > 3 weeks from onset of illness.
- If no better or worse after 5 days, review: assess and manage fluids ⮌ 27, continue antibiotics and review again in 5 days. If still no better, refer.
- If ≥ 6 episodes per year or persistent snoring, refer to ENT.

Advise to return to immediately if any of the following develop: painful or swollen joint/s, strange movements of limbs or face, lumps over joints/tendons or rash (round lesions with pale centre) to exclude rheumatic fever ⮌ 42.

White patches on cheeks, gums, tongue, palate, or cracks in corners of mouth.

Oral thrush/candida likely

- Give nystatin suspension 1mL 6 hourly after meal/feed for 7 days. Keep inside mouth for as long as possible.
  - If baby, advise carer to apply inside mouth with clean finger. If breastfeeding and nipple painful, apply clotrimazole cream to nipples after feed.
  - Continue both for 2 days after cure.
- Give paracetamol 15mg/kg (up to 1g) 6 hourly as needed for up to 5 days (⮌ 155:34).
- If fever, generalised red rash and white spots in mouth/on inside of cheeks, **measles** likely ⮌ 76.
- If child on inhaled corticosteroids, use spacer and rinse mouth with water after use ⮌ 55.
- If status unknown, test for HIV ⮌ 109. If HIV positive, give routine care ⮌ 111.
- If recurrent candida in child with a life-limiting illness, also give palliative care ⮌ 142.

If difficulty/painful swallowing, refusing feeds, drooling or hoarse cry, **oesophageal candida** likely. Discuss/refer.

Groups of painful blisters on lips/mouth

Are blisters also on palms and soles?

Yes

Hand, foot and mouth disease likely

- Give paracetamol 15mg/kg (up to 1g) 6 hourly as needed for up to 5 days (⮌ 155:34).
- Advise carer that it should resolve in 10 days.

No

Herpes simplex likely

- Apply petroleum jelly to blisters on outside of mouth to prevent spread.
- Give paracetamol 15mg/kg (up to 1g) 6 hourly as needed for up to 5 days (⮌ 155:34).
- If ≥ 6 years old, apply thin layer of tetracaine 1% gel to blisters 6 hourly.
- If HIV or extensive herpes (and < 72 hours from onset), give aciclovir 8 hourly for 7 day (⮌ 149:2).
- Refer if extensive/ recurrent or no better after 7 days.
- If status unknown, test for HIV ⮌ 109.

Painful ulcer/s with central white patch

Aphthous ulcer/s likely

- Give paracetamol 15mg/kg (up to 1g) 6 hourly as needed for up to 5 days (⮌ 155:34).
- Rinse with salt water[2] for 1 minute 12 hourly.
- If ≥ 6 years old, apply tetracaine 1% gel on ulcers 6 hourly until healed.
- If recurrent, consider HIV ⮌ 109.
- Refer if large (> 1cm) or not healed within 10 days.
- If recurrent ulcers in child with a life-limiting illness, also give palliative care ⮌ 142.

[1]If ≥ 2 of 1) cold hands/feet, 2) weak/fast pulse (⮌ 167), 3) capillary refill time (CRT)> 2 seconds, 4) decreased level of consciousness (⮌ 166), **shock** likely. [2]Common allergens include medications, new food or an insect bite/sting within the last few hours. [2]Mix 1/2 teaspoon of salt in 1/2 cup of lukewarm water. [3]If severe penicillin allergy (history of anaphylaxis, urticaria or angioedema), give instead azithromycin 10mg/kg (up to 500mg) once daily for 3 days instead (⮌ 151:10). [5]For benzathine benzylpenicillin 1.2 million units injection: dissolve benzathine benzylpenicillin 1.2 million units in 3.2mL lidocaine 1% without adrenaline.

Face symptoms

If eye symptoms →47, mouth symptoms →50, nose symptoms →49, teeth symptoms →52.

Give urgent attention to the child with face swelling and any of:

- Sudden onset of generalised itch/rash or face/tongue itch/swelling and any of: tight throat/hoarseness, cough, difficulty breathing, wheeze, chest pain, shock[1], dizziness/collapse, abdominal pain/nausea/vomiting/diarrhoea or exposure to possible allergen[2], **anaphylaxis** likely →36
- Temperature ≥ 38°C, **cellulitis** likely
- Dark red/brown urine or little/no urine →65

Manage and refer urgently:

- If **cellulitis** likely, give cephalexin[3] 12-25mg/kg orally (up to 500mg) (↩ 151:12).

Approach to child with face symptoms not needing urgent attention

- If rash on face →71.
- If unusual facial features or syndrome suspected, check milestones ↩ 12.
- Manage according to face symptom/s:

Face pain

Ask about nasal discharge, teeth problems and jaw swelling.

Thick nasal/postnasal discharge. May have headache or pain when pushing over cheeks.

Sinusitis likely

- Give paracetamol 15mg/kg 6 hourly as needed for up to 5 days (↩ 155:34).
- Give sodium chloride 0.9% drops into nostrils as needed.
- If no better, give oxymetazoline 0.025% 2 drops in each nostril 8 hourly for up to 5 days.
- If symptoms > 10 days: give amoxicillin[3] 45mg/kg/dose (up to 1g) 12 hourly for 5 days (↩ 150: 6).
- If > 1 episode and status unknown, test for HIV ↩ 109.
- Refer if poor response to antibiotic or > 4 episodes per year.
- Refer same day if swelling around sinus/eye or tooth infection.

Teeth problem and/ or jaw swelling →52.

Unable to move one side of face, unable to wrinkle forehead or close eye.

Bell's palsy likely

- If status unknown, test for HIV ↩ 109.
- Give prednisone 2mg/kg (up to 60mg) for 7 days. If no better after 2 weeks, refer.
- Protect eye:
  - Tape eyelid closed at night.
  - If eye becomes very dry or irritated, refer.
- Refer for physiotherapy.
- Refer same day if:
  - Red eardrum
  - Any change in hearing
  - Recent ear discharge or pain
  - Recent head trauma
  - Damage to cornea
  - Unsure of diagnosis

Swelling of face

If sudden face swelling in last few hours, consider allergy ↩ 120.

Whole face not swollen

If gum or tooth problem →52.

Has child been unwell for or had swelling > 1 week?

No

Mumps likely

- Fever and pain on opening mouth for 1-2 days before swelling.
- Give paracetamol 15mg/kg (up to 1g) 6 hourly as needed for up to 5 days (↩ 155:34).
- Advise soft foods and fluids.
- Advise to stay away from school for 7 days after swelling started, but that swelling should resolve within 2 weeks.
- Refer same day if any of:
  - Neck stiffness
  - Painful scrotal swelling
  - Loss of hearing
  - Abdominal pain

Yes

- If status unknown, test for HIV ↩ 109.
- Check for TB ↩ 102.
- If no other cause found, consider **lymphocytic interstitial pneumonitis** (**LIP**). Child usually has had cough > 8 weeks.
  - Arrange x-ray and refer to doctor.

Whole face swollen

Check urine dipstick: if blood, **nephritis** likely →65. If no blood, check protein:

< 3+ protein

Assess growth ↩ 15: Is weight-for-height below the -2 line or MUAC[4] < 11.5cm?

No

Growth normal. Discuss/ refer.

Yes

Severe acute malnutrition likely Manage and refer urgently →96.

≥ 3+ protein

Nephrotic syndrome likely. Discuss/refer same day.

[1]1If ≥ 2 of 1) cold hands/feet, 2) weak/fast pulse (↩ 167) 3) capillary refill time (CRT) > 2 seconds, 4) decreased level of consciousness (↩ 166), **shock** likely. [2]Common allergens include medications, new food or an insect bite/sting within the last few hours. [3]If severe penicillin allergy (history of anaphylaxis, urticaria or angioedema), give instead azithromycin 10mg/kg (up to 500mg) once daily for 3 days instead (↩ 151:10). [4]Mid-upper arm circumference.

Gum/teeth symptoms

Give urgent attention to the child with gum/teeth symptoms and any of:
- Temperature ≥ 38°C and red/painful cheek
- Unable to eat or drink

Refer urgently.

Approach to the child with gum and teeth symptoms not needing urgent attention:
- If no teeth by 3 years old, refer to dentist.
- If grinding teeth, reassure carer that it should resolve by 10 years old. If child stressed, unhappy or angry →131.
- Is there drooling/biting on hard objects, bleeding gums, tooth pain or sensitivity, or face/jaw swelling?
- Look in mouth: lift the lip to look at teeth and manage according to symptoms and findings:

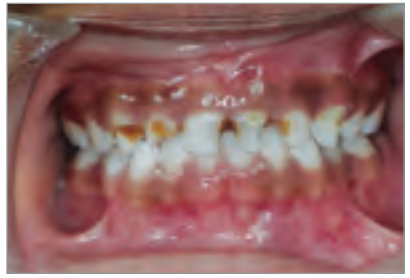
Child < 3 years old, drooling or biting on hard objects

Teething likely
- If child unwell, look for cause, e.g. fever ⮌ 42, diarrhoea ⮌ 61.
- Reassure carer that the teething process is normal.
- Advise carer to massage gum gently and encourage biting on objects (e.g. teething ring).
- Cooled objects to bite on can help ease symptoms.
- Advise against using local numbing preparations on gums.

Gums bleeding *and/or* red

Gum problem likely
- Advise to brush and floss teeth twice daily.
- Rinse mouth with salt water[1] for 1 minute twice daily.
- Give chlorhexidine 0.2% mouthwash twice daily for 5 days:
  - If ≥ 7 years old, swirl in mouth but not swallow it.
  - If < 7 years old, apply with gauze to area.
  - Avoid repeated use as can damage teeth.
  - Advise to wait 30 minutes before eating/drinking.
- If pain, give paracetamol 15mg/kg (up to 1g) 6 hourly for up to 5 days (⮌ 155:34).
- Look for dental caries.
- Refer to dentist if:
  - No better after 5 days
  - Foul-smelling breath
  - Temperature ≥ 38°C
  - Loss of supporting bone and gum around tooth
  - HIV

Brown/black staining of teeth at gumline, holes, pits or missing teeth

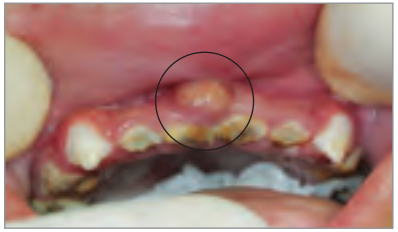


© University of the Western Cape

Dental caries likely
- Child might complain of tooth pain with hot/cold/sweet foods.
- Refer to dentist.
- If known with a heart valve problem, give antibiotic prophylaxis before extraction ⮌ 125.

- Check growth ⮌ 15 and Hb. If Hb < 10g/dL in child < 5 years old or Hb < 11g/dL in child ≥ 5 years old, **anaemia** likely ⮌ 45.
- Refer to dietitian and give dietary advice ⮌ 94.

Pus in mouth *and/or* swelling next to tooth or on face/jaw



© University of the Western Cape

Dental abscess likely
- Give paracetamol 15mg/kg (up to 1g) 6 hourly as needed up to 5 days (⮌ 155:34).
- If painful facial swelling and redness, give amoxicillin[2] 10-20mg/kg/dose (up to 500mg): if 11-25 kg, give 250 mg 8 hourly for 5 days. If ≥ 25kg, give 500 mg 8 hourly for 5 days. Also give metronidazole 7.5mg/kg/dose 8 hourly for 5 days (⮌ 154:30).
- Advise to return if temperature ≥ 38°C or red/painful cheek over tooth/gum no better after 2 days and refer.
- Refer to dentist for tooth extraction.

[1]Mix 1/2 teaspoon of salt in 1/2 cup lukewarm water. [2]If severe penicillin allergy (history of anaphylaxis, urticaria or angioedema), give instead azithromycin 10mg/kg (up to 500mg) once daily for 3 days instead (⮌ 151:10).

Cough and/or breathing problems

The child with breathing problems may have noisy breathing, wheeze, grunting, snoring or stridor (noisy, high-pitched breathing). If child not breathing ⮌ 24.

Give urgent attention to the child if any of:

- Baby < 2 months old
- History of apnoea (episodes of no breathing > 10 seconds)
- Unable to drink/feed
- Tires/sweats during feeds
- Lower chest indrawing
- Nasal flaring
- Grunting
- Stridor
- Blue lips/tongue
- Sats ≤ 92%
- Restless or irritable
- Lethargy or decreased level of consciousness (⮌ 166)
- Sudden onset of generalised itch/rash or face/tongue itch/swelling and any of: tight throat/hoarseness, cough, difficulty breathing, wheeze, chest pain, shock[1], dizziness/collapse, abdominal pain/nausea/vomiting/diarrhoea or exposure to possible allergen[2], **anaphylaxis** likely →36.

Manage and refer urgently:

- Give oxygen 2L/minute via nasal prongs. If < 1 year old with blocked nose, instil sodium chloride 0.9% solution 1 drop into each nostril and suction the nose.
- If wheeze →54 or known heart problem →125.
- Check fingerprick glucose: if ≤ 3 or ≥ 11mmol/L ⮌ 31.
- Give ceftriaxone[3] 80mg/kg (up to 2g) IV/IM[4] (⮌ 151:11). If < 1 year old and HIV positive/HIV status unknown, also give single dose co-trimoxazole (⮌ 152:16).
- If stridor, encourage carer to keep child calm:
  - Give prednisone 2mg/kg (up to 40mg). Give adrenaline (1:1000) 1mL in 1mL sodium chloride 0.9% via nebuliser (oxygen 8L/minutes) every 15 minutes until stridor disappears.

Approach to the child with cough and/or breathing problems not needing urgent attention:

- If smoking in the house, alert to risks and encourage smoker to quit ⮌ PACK Adult.
- If recent episode of choking, **inhaled foreign body** likely. Refer same day.
- If current wheeze →54.
- If breathless on minimal exertion/exercise, discuss/refer same day.
- If coughing attacks with "whoop" on breathing in, **pertussis** likely: give azithromycin 10mg/kg (up to 500mg) once daily for 5 days (⮌ 151:10), notify[5] and isolate for 2 days.
- Ask about duration and number of episodes:

1 episode of cough and/or breathing problems lasting < 2 weeks
Is respiratory rate increased (⮌ 167)?

Yes

Pneumonia likely
- Give amoxicillin[6] 45mg/kg/dose (up to 1g) 12 hourly for 5 days (⮌ 150:6).
- If > 2 episodes/year, do HIV test if status unknown, and refer/discuss non-urgently.
- Review after 2 days: if respiratory rate still increased (⮌ 167), refer.

No

Runny/blocked nose

Common cold likely
- Check ears ⮌ 48, throat ⮌ 50, nose ⮌ 49.
- Reassure carer antibiotics not needed.
- Advise to drink warm liquids to relieve symptoms.

Barking cough, may be hoarse

Viral croup likely
- Give single dose prednisone 2mg/kg.
- Advise to return immediately if worse or stridor develops.

Cough and/or breathing problems ≥ 2 weeks or repeated episodes
- If HIV status unknown, test for HIV ⮌ 109.
- Exclude TB ⮌ 102. While excluding TB consider other causes:

If recent common cold
- If wet cough ≥ 4 weeks, refer.
- If dry cough, **post-infectious cough** likely: reassure this should resolve by 8 weeks.

If blocked nose or noisy breathing worse at night and/or snoring ⮌ 49.

If known with long term health condition:
- Asthma ⮌ 122,
- Bronchiectasis ⮌ 124.
- Heart problem ⮌ 125.
- If life-limiting illness, also give palliative care ⮌ 142.

If repeated episodes of cough, wheeze, tight chest or difficulty breathing ⮌ 57.

Refer if cause uncertain or not growing well, chest deformity, cough > 8 weeks, coughs/chokes with feeds or cough worse despite treatment.

[1]Shock likely if cold hands/feet and capillary refill time > 2 seconds. [2]Common allergens include medications, new food or insect bite/sting within the last few hours. [3]Avoid mixing Ringer's lactate and IV/IM ceftriaxone. If severe penicillin allergy (previous anaphylaxis, urticaria or angioedema), discuss with doctor/paediatrician. [4]Avoid injecting ≥ 1g IM at one injection site. [5]Complete the notifiable medical conditions (NMC) case notification form and send to NMCsurveillanceReport@nicd.ac.za or notify electronically: https://www.nicd.ac.za/nmc-overview/notification-process. [6]If severe penicillin allergy (history of anaphylaxis, urticaria or angioedema), give instead azithromycin 10mg/kg (up to 500mg) once daily for 3 days instead (⮌ 151:10).

Wheeze

- If known heart problem, start management as below. If poor response, consider **heart failure** ⮌ 125 and discuss/refer. If history of recent choking, refer same day.
- If exposed to possible allergen[1] *or* sudden generalised itch/rash *or* face/tongue itch/swelling *and* any of: tight throat/hoarseness, cough, difficulty breathing, wheeze, chest pain, shock[2], dizziness/collapse, abdominal pain/nausea/vomiting/diarrhoea, **anaphylaxis** likely →36.

Give urgent attention to the child who is wheezing or has a tight chest now:

Does child have one or more of:

- Increased respiratory or pulse rate ⮌ 167
- Oxygen saturation < 92% (or blue lips/tongue)
- PEFR (Peak expiratory flow rate) < 50% ⮌ 56
- Confused, drowsy
- Silent chest (tight chest with no wheeze)
- Unable to speak or talks only in single words
- Accessory muscle use[3]
- Unable to feed/drink

None of above

One or more of above

Mild or moderate

- Give salbutamol 400-600mcg (4-6 puffs), up to 10 puffs with metered dose inhaler (MDI) and large volume (500mL) spacer. If < 3 years old, use mask attached to spacer *or*
- Nebulise (oxygen 8L/min) 0.5mL salbutamol 0.5% solution[4] if < 3 years old or 1mL if ≥ 3 years old in sodium chloride 0.9% 4mL.
- If known asthma, also give single dose prednisone 2mg/kg (up to 40mg). If unable to take orally, give single dose hydrocortisone 4-6mg/kg IM/*slow* IV (⮌ 153:24).
- If oxygen saturation < 94%, give 100% oxygen 4–6 L/minute by facemask **or** 1–2 L/minute by nasal cannula.
- Assess response after 20 minutes:

Severe
give 100% oxygen 4–6 L/minute by facemask or 1–2 L/minute by nasal cannula while preparing nebuliser.

Symptoms resolve rapidly

Mild
Monitor for at least 1 hour

Symptoms do not recur and child able to eat and drink.

Symptoms recur

Poor response or unable to maintain good response: respiratory rate > 40, chest indrawing, sats < 92%, < 20% improvement in PEFR ⮌ 56, difficulty talking or drinking.
If < 2 years old and no response, **bronchiolitis** likely →55.

Worsening despite treatment

Moderate

- Repeat salbutamol above every 20 minutes to complete 1 hour of treatment.
- If not already given, give single dose prednisone 2mg/kg (up to 40mg).
- Assess response after 20 minutes:

Good response: respiratory rate < 40, normal chest movement, sats > 92%, > 20% improvement in PEFR , easily talking or drinking.

Poor response or unable to maintain good response

Continue to monitor for 3 more hours: if needed, give salbutamol 2-3 puffs every hour.

10 or less puffs salbutamol needed in last 3 hours and child able to eat and drink

> 10 puffs salbutamol needed in last 3 hours or child unable to eat and drink well.

Refer.

- Discharge child: give salbutamol 200mcg (2 puffs) 6 hourly for 5 days. If prednisone started, continue prednisone 2mg/kg (up to 40mg) daily for 5 days. Avoid antibiotics unless temperature ≥ 38°C with either thick yellow/green sputum or increased respiratory rate ⮌ 167: give amoxicillin[5] 45mg/kg/dose (up to 1g) 12 hourly for 5 days (⮌ 150:6). Advise to identify and avoid triggers[6] and check inhaler technique ⮌ 57. Advise to return if symptoms worsen or child needs > 10 puffs/24 hours.
- Review in 5 days. Stress importance of follow up to prevent further episodes: if known asthma, give routine asthma care ⮌ 122. If not known asthma with recurrent episode of wheeze, consider **asthma** ⮌ 57.

- Refer urgently. While awaiting transport: nebulise (oxygen 8L/min) with 2mL salbutamol 0.5% solution[4] *and* 2mL ipratropium bromide 0.25mg/mL in 4mL sodium chloride 0.9%.[7] Repeat every 20 minutes if needed for up to 4 doses in 2 hours. If not already given, give single dose prednisone 2mg/kg (up to 40mg). If unable to take orally, give single dose hydrocortisone 4-6mg/kg IM/*slow* IV (⮌ 153:24).
- If child deteriorates, discuss urgently with doctor possible IV magnesium sulphate/salbutamol and intubation.

[1]Common allergens include medications, new food or insect bite/sting within the last few hours. [2] If ≥ 2 of: 1) cold hands/feet, 2) weak/fast pulse (⮌ 167), 3) capillary refill time (CRT) > 2 seconds, 4) decreased level of consciousness (⮌ 166), **shock** likely. [3]Accessory muscle use is any of: indrawing inbetween and below the ribs (intercostal/subcostal recession), indrawing above the ribs at the base of the throat (tracheal tug), use of neck muscles, head bobbing. [4]If salbutamol 0.5% solution unavailable, nebulise instead with 2 mL fenoterol 0.5% solution. [5]If penicillin allergy (history of anaphylaxis, urticaria or angioedema), give azithromycin daily for 5 days instead (⮌ 151:10). [6]Triggers: cigarette smoke, dust, animals, chemicals, pollen, grass and aspirin/NSAIDs (e.g. ibuprofen). [7]Use dose ratio of 0.5mL: 0.5mL: 3mL if < 3 years old.

Approach to the child with wheeze not needing urgent attention

- Confirm wheeze: ask carer to describe wheeze, if noisy breathing/snoring/gurgling noises/stridor without wheeze →53.
- If history of choking or wheeze only on one side of chest, refer same day.
- If longstanding persistent wheeze present most of the time, refer.
- If intermittent wheeze or wheeze for short duration (hours or days), manage further according to age:

< 2 years old
Has child had runny nose 1-2 days before wheeze?

No

Does child have any of:

- At birth s/he was premature and needed oxygen
- Hoarseness or recurrent croup
- Before this illness, cough/wheeze with or after feeds
- Poor growth
- Cough/wheeze for > 1 month

Yes → Refer.

No

Bronchiolitis likely

- If nose blocked, instil sodium chloride 0.9% 1 drop into each nostril and gently suction nose as needed.
- If fever causing discomfort, give paracetamol 15mg/kg (up to 1g) 6 hourly as needed for up to 5 days (↩ 155:34).
- Advise carer to give small feeds often.
- Explain that antibiotics are not needed as usually viral cause, and inhalers usually do not benefit this age group.
- Discuss/refer if any of: < 3 months old, premature baby or low birth weight, apnoea, unable to feed, sats < 90% or blue lips/tongue, respiratory distress: nasal flaring, grunting, lower chest indrawing, increased respiratory rate (↩ 167), recurrent bronchiolitis.
- Advise carer to return immediately if any of: unable to feed, no wet nappy for 12 hours, apnoea, blue lips/tongue, new fever, grunting, nasal flaring, lower chest indrawing, lethargy.
- Review after 2 days: if worse, refer.

Yes

≥ 2 years old

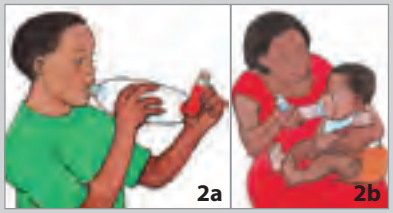
- If child has continuous wet cough for ≥ 1 month, refer.
- If recurrent wheezing episodes →57.
- Is this the 1st episode of wheeze?

- Assess bronchodilator response[1]: if responsive, give salbutamol 100-200mcg (1-2 puffs) 6 hourly via spacer when needed for 5 days.
- If temperature ≥ 38°C with either thick yellow/green sputum or increased respiratory rate (↩ 167): also give amoxicillin[2] 45mg/kg/dose (up to 1g) 12 hourly for 5 days (↩ 150:6). Review after 2 days.
- Advise to return if: no response, difficulty breathing, fever coughing green/yellow sputum or blood, chest pain.
- Review after 5 days if no better: discuss/refer.
- If parent or child have history of allergy (eczema/hayfever/asthma) ↩ 120.

How to use an inhaler with a spacer (with or without a mask)

- Spacers improve delivery of inhaled medications to lungs. Every child with asthma should have and use a spacer. If < 3 years old, use face mask with spacer. If ≥ 3 years old, use mouthpiece with spacer.
- Prime spacer initially with 10 puffs of medication. When medication is finished, replace only the canister.
- Clean spacer monthly: remove canister and wash spacer with soapy water. Do not rinse with water. Allow to drip dry (no need to re-prime).
- Demonstrate inhaler technique 2-3 times until child and/or carer understand.
- Then ask child and/or carer to show you how to use it.

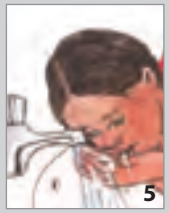
- Remove cap from inhaler and spacer.
- Shake inhaler for 5 seconds and insert into spacer.



- Hold baby on lap and firmly hold mask over baby's nose and mouth.
- If > 3 years old, child to put mouthpiece into mouth and close lips around it.

Press pump down once and allow 6 deep breaths before continuing[3].

Remove inhaler and spacer and wait for 30 seconds before repeat. Repeat for each puff prescribed.



Rinse mouth after using inhaled corticosteroid (e.g. budesonide).

[1]Give salbutamol via spacer 600mcg (6 puffs) and assess response after 15 minutes: if wheeze improves, child is responsive. If no better, child is bronchodilator unresponsive. [2]If severe penicillin allergy (history of anaphylaxis, urticaria or angioedema), give instead azithromycin 10mg/kg (up to 500mg) once daily for 3 days instead (↩ 151:10). [3]Advise the older child to breathe out as far as possible, press pump down once and breathe in slowly but deeply for 1 full breath. Child to hold breath for 10 seconds, then breathe out through the nose.

How to measure and interpret peak expiratory flow rate (PEFR)

If child ≥ 6 years old, measure and interpret PEFR to: 1) help diagnose asthma, 2) assess treatment response during acute asthma exacerbation, 3) assess asthma symptom control.

How to measure peak expiratory flow rate (PEFR)

Move marker to bottom of numbered scale.

- Stand up and take a full, deep breath.
- Hold breath, place mouthpiece between teeth and tongue below mouthpiece.
- Form a seal with lips.

Breathe out as hard and as fast as possible (keeping fingers clear of scale).

- Read the result.
- Move marker back to bottom and repeat twice. Use the highest of the 3 results.

How to assess response to inhaled beta-agonist

• Ideally, arrange lung function tests using spirometry to accurately diagnose and assess asthma. If spirometry unavailable, use PEFR as below.

• Calculate % PEFR response to inhaled beta-agonist to:
1) Help diagnose asthma.
2) Assess response to treatment if acute asthma exacerbation.
- Measure 'initial PEFR'. Use the highest reading of 3 results.
- Give inhaled salbutamol 400mcg (4 puffs via a spacer) and wait for 15 minutes.
- Repeat PEFR - this is the 'repeat PEFR'.
- Calculate % PEFR response = $\frac{\text{(repeat PEFR – initial PEFR)}}{\text{Initial PEFR}} \times 100$
- If % PEFR response is ≥ 20%, **asthma** likely or good response to treatment if acute asthma exacerbation ↩ 122.
- If % PEFR response is < 20%, manage further ↩ 54.

Recurrent respiratory symptoms

The child with recurrent respiratory symptoms has repeated episodes of cough, wheeze, tight chest or difficulty breathing.

Approach to the child with recurrent respiratory symptoms (or child with 1st episode wheeze *and* atopic background):
Exclude TB ⮌ 102. While excluding TB, ask about nature of cough (wet or dry) and difficulty breathing:

Recurrent dry cough, wheeze, tight chest or difficulty breathing

- If < 2 years old, **recurrent bronchiolitis** likely, manage as for bronchiolitis →55.
- If ≥ 2 years old, does child have 1 or more of:
  - History of eczema/allergic rhinitis
  - Parents with history of eczema/allergic rhinitis/asthma
  - > 3 episodes/year
  - Episode needing hospital admission
  - Symptoms worse at night and in early morning
  - Symptoms triggered by:
    - Smoking, pets, pollen
    - Perfume, paint, hairspray, cleaning agents
    - Change in weather or season
    - Exercise, emotion, laughter or stress

Yes (≥ 1 of above)

- Give inhaled salbutamol 100-200mcg (1-2 puffs) 6 hourly when needed.
- Doctor to consider trial of inhaled corticosteroid for 1 month. Ensure follow up after 1 month.
- Demonstrate inhaler technique ⮌ 55.
- If available, do peak expiratory flow rate (PEFR) ⮌ 56.
- Encourage child/carer to identify and avoid triggers.
- Assess response to treatment after 1 month:

Symptoms improve with trial of treatment and worsen when treatment is stopped *and/or* ≥ 20% improvement in PEFR response.

Asthma likely
- Give routine asthma care and start treatment →122.
- Refer to doctor within 1 month to confirm diagnosis if not yet done.

Symptoms remain the same.

Refer to specialist.

No (none of above)
Are symptoms triggered by common colds?

Yes

Do symptoms persist for > 10 days after a common cold or are there symptoms between colds?

Yes

Does child have recurrent wheeze?

Yes

Recurrent virus-induced wheeze likely
- If wheeze is bronchodilator responsive[2] give salbutamol via spacer 100-200mcg (1-2 puffs) 6 hourly when needed for 5 days.
- Check ears ⮌ 48, throat ⮌ 50, nose ⮌ 49.

No

- If not yet done, arrange posterior-anterior (PA) and lateral chest x-ray and doctor review.
- If TB ⮌ 102 and anxiety/depression ⮌ 131 excluded, refer to specialist.

No

- If not yet done, arrange posterior-anterior (PA) and lateral chest x-ray and doctor review.
- If TB ⮌ 102 and anxiety/depression ⮌ 131 excluded, refer to specialist.

Recurrent wet (productive) cough
≥ 2 episodes/year

- If known **bronchiectasis**, give routine bronchiectasis care →124.
- Does each episode last ≥ 14 days?

Yes

- If status unknown, test for HIV ⮌ 109. If HIV positive, give routine HIV care ⮌ 111.
- If not yet done, arrange posterior-anterior (PA) and lateral chest x-ray and doctor review: if TB excluded and cause uncertain, refer to specialist.

No

- If cough follows common colds, reassure carer this is due to common cold and will resolve on its own.
- If not growing well or cough lasts > 4 weeks, refer.

[1]Wheeze improves 20 minutes after salbutamol 600mcg (6 puffs) via spacer. If no better, child is not bronchodilator responsive.

Abdominal symptoms

Give urgent attention to the child with an abdominal problem:

- Guarding, rebound tenderness or rigidity of abdomen, **peritonitis** likely
- Tender in right lower abdomen and vomiting, **appendicitis** likely
- Cramping pain and jelly-like stool, **intussusception** likely
- Tender, elevated testes
- Painful groin/umbilical swelling
- Rash and joint pain
- Vomiting, deep sighing respiration, fatigue, **diabetic ketoacidosis** likely: check blood glucose ⮌ 31
- No stool/wind for 24 hours and vomiting
- Bile-stained vomiting

Manage and refer urgently:

- Assess and manage child's fluid needs ⮌ 27.
- Keep nil by mouth. Give maintenance fluid IV according to reference guide (⮌ 167).
- If baby < 1 month old or **peritonitis** or **appendicitis** likely, give ceftriaxone[1] 80mg/kg (up to 2g) IV/IM[2] (⮌ 151:11).

Approach to the child with an abdominal problem not needing urgent attention

- If recent injury/trauma →32, if jaundice →59. If temperature ≥ 38°C or history of fever →42, check throat: if white patches on tonsils →50.
- Check urine: if burning urine or nitrites/leucocytes/blood on dipstick →65.
- If any of: TB contact[3], current cough, fever, sweating at night, poor weight gain/failure to thrive, weight loss, decreased playfulness or visible neck mass, test for TB ⮌ 102.
- Is there abdominal swelling or a mass?

Yes

Mass or localised swelling

- If mass felt in abdomen, refer to surgeon same week.
- If bulge on crying/cough/passing stool:
  - If in groin area, **inguinal hernia** likely, discuss with doctor/surgeon same day.
  - If in umbilical area, **umbilical hernia** likely. Reassure. Refer to surgeon if still present when child ≥ 4 years old.

Generalised swelling

- Exclude TB ⮌ 102.
- Do urine dipstick:
  - ≥ 3+ protein, **nephrotic syndrome** likely, discuss/refer same day.
- Assess growth ⮌ 15.
  - If growth problem ⮌ 96.
  - If growth normal, discuss/refer.

No

- Assess if child constipated: stools infrequent and any of: pain, impaction, involuntary leakage or voluntary withholding ⮌ 62.
- If child > 12 months old, deworm 6 monthly with mebendazole (⮌ 154:28). Educate on personal hygiene and avoid uncooked meat.
- If no constipation or worms, manage abdominal problem according to age of child:

≤ 4 months

If crying for ≥ 3 hours/day on ≥ 3 days a week, doctor to assess baby:

- Exclude reflux ⮌ 60
- Assess growth ⮌ 15. If baby growing well and appears well, **colic** likely:
  - Give feeding tips:
    - Avoid over/under feeding
    - Burp adequately after each feed
    - Breastfeed if possible. Feed in semi-upright position.
  - Assess and advise the carer:
    - Discourage smoking in household.
    - Promote a calm, quiet home environment.
    - Screen for carer depression ⮌ PACK Adult.
    - Reassure colic should resolve by 4 months old.

4 months - 10 years old

Discuss/refer.

≥ 10 years old

- If girl and pain around time of period, dysmenorrhoea likely.
  - Give ibuprofen[4] 200mg 8 hourly with food for 3 days.
  - Reassure that is common and encourage to carry on with everyday activities.
- If girl and sexually active[5]:
  - If lower abdominal pain and/or vaginal discharge, **pelvic infection** likely, discuss with doctor.
  - If lower abdominal pain with amenorrhoea or vaginal bleeding 6-8 weeks after last period, **ectopic pregnancy** likely, refer same day.
  - If suspect abuse ⮌ 136.
- Is there pain with bloating and diarrhoea?

Yes
Functional abdominal pain likely, refer to specialist.

No
Daily short-lasting pain not related to stool pattern/meal times, screen for anxiety ⮌ 131.

If cause unclear or not resolved, refer.

[1]Avoid mixing Ringer's lactate and IV/IM ceftriaxone. If severe penicillin allergy (previous anaphylaxis, urticaria or angioedema), discuss with doctor/paediatrician. [2]Avoid injecting ≥ 1g IM at one injection site. [3]A TB contact refers to a child who shared an enclosed space (at school, socially, or in a household setting), for ≥ 1 night or for frequent/extended daytime periods, with an adult/adolescent with pulmonary TB ("index patient"), during the 3-month period before the index patient started their TB treatment. [4]Avoid ibuprofen if asthma, heart failure or kidney disease. [5]If any of: 1) sex not consensual 2) < 12 years old 3) 12-16 years old and partner not in peer group (partner should also be 12-16 years old) **sexual abuse** likely ⮌ 136. Otherwise advise reliable contraception ⮌ PACK Adult. Check that s/he knows how to use condoms.

Jaundice

Give urgent attention to the child with jaundice and any of:

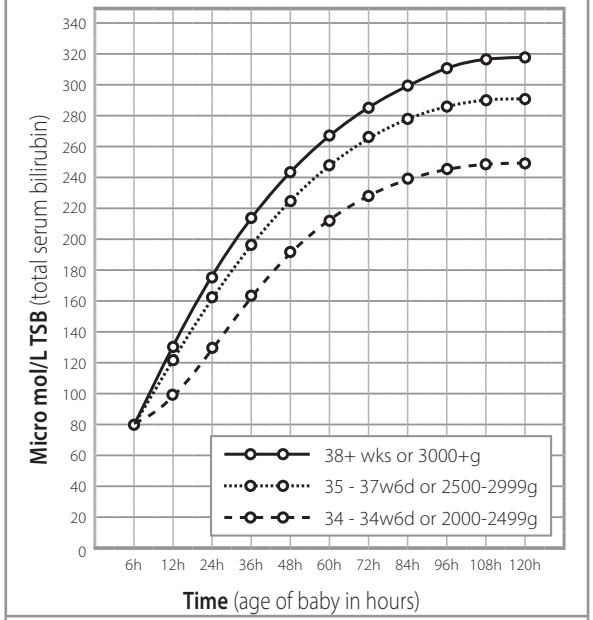
- Newborn within first 24 hours of birth
- Baby ≤ 10 days old with ≥ 10% weight loss
- Confused or decreased level of consciousness (↩ 166)
- Hb < 8g/dL
- Easy bruising or bleeding
- Temperature ≥ 38°C

Manage and refer urgently:
Check glucose ↩ 31.

Approach to the child with jaundice not needing urgent attention
Is child older than 14 days?

No

Phototherapy
If gestational age is accurate, rather use gestational age (weeks) instead of body weight.



Adapted from: Horn AR. Phototherapy and exchange transfusion for neonatal hyperbilirubinaemia. SAMJ. 2006; Vol. 96, No.9, figure 4, Phototherapy guidelines for all gestational ages.

- Assess growth ↩ 15 and feeding ↩ 90.
- Look for enlarged organs.
- Refer to hospital same day if:
  - Enlarged liver or spleen felt.
  - Not feeding well.
- Do heelprick total serum bilirubin (TSB) and check graph:
  - If TSB above phototherapy line, refer to hospital same day.
  - If TSB on phototherapy line, refer to MOU or if no MOU, closest hospital for phototherapy.
  - If TSB under phototherapy, repeat TSB level as follows:
    - If 1-20µmol/L below line: repeat TSB in 6 hours or refer for phototherapy.
    - If 21-50µmol/L below line: repeat TSB in 12-24hours.
    - If > 50µmol/L below line: repeat TSB until level is falling or jaundice improving.

Yes

Is child on any medication?

Yes
- Stop medication.
- Is there vomiting, abdominal pain or nausea?

  No → Refer same day.

  Yes → Refer same day.

No
Manage according to age of child:

- **≤ 1 year old** → Discuss/refer same day.
- **> 1 year old** → Any of tiredness, loss of appetite, vomiting, nausea, abdominal pain, pale stools, dark urine or bilirubin on urine dipstick?

  No → Discuss/refer same day.

  Yes → **Hepatitis A infection** likely

- Check blood hepatitis A IgM to confirm.
- Manage as hepatitis A while waiting for result.
- Advise child and carer to:
  - Wash hands after toilet and before eating/ preparing food to prevent spread.
  - Keep child home from school until jaundice cleared.
- Review blood results in 3 days: if IgM negative, **hepatitis A** unlikely, discuss/refer same day. If IgM positive, notify[1] and advise to:
  - Avoid fatty foods and drink lots of fluid.
  - Return if persistent vomiting, starts bleeding/ bruising easily, behaving strangely or drowsiness and refer urgently.
- Review in 2 weeks: if jaundice not resolved, refer.

[1]Complete the notifiable medical conditions (NMC) case notification form and send to NMCsurveillanceReport@nicd.ac.za or notify electronically: https://www.nicd.ac.za/nmc-overview/notification-process.

Vomiting or refluxing

First assess and manage child's fluid needs ⮌ 27. If cholera suspected, discuss child's fluid needs with doctor.

Then give urgent attention to the child with vomiting and any of:

- < 2 months old and vomiting (not refluxing)
- Vomits blood
- Unable to drink
- Continuous vomiting/vomiting everything
- Severe abdominal pain
- Headache
- No stool or wind for last 24 hours
- Several episodes early morning vomiting
- Decreased level of consciousness (⮌ 166)
- Neck stiffness/bulging fontanelle
- Guarding/rebound or rigidity of abdomen: **peritonitis** likely
- Tender in right lower abdomen: **appendicitis** likely
- Painful groin swelling that will not reduce
- Distended abdomen
- Abdominal mass
- Jelly-like stool
- Bile stained vomiting

Manage and refer urgently:

- Check glucose ⮌ 31.
- Give maintenance fluid IV according to reference guide ⮌ 167.
- Keep nil by mouth.
- If ≥ 2 of: temperature ≥ 38°C, headache, decreased level of consciousness (⮌ 166), neck stiffness/bulging fontanelle, **meningitis** likely: give ceftriaxone[1] 80mg/kg (up to 2g) IV/IM[2] (⮌ 151:11).
- If baby < 2 months old and unable to feed: give ceftriaxone[1] 80mg/kg (up to 2g) IV/IM[2] (⮌ 151:11) and keep warm.
- If **appendicitis** or **peritonitis** likely, give ceftriaxone[1] 80mg/kg (up to 2g) IV/IM[2] (⮌ 151:11).

Approach to child with vomiting not needing urgent attention

- A child is **vomiting** if there is tightening of stomach muscles and forceful expulsion of liquid/food.
- A child is **refluxing** if milk dribbles out mouth after a feed.
- If vomiting *and* refluxing, refer.

Vomiting

- Look for underlying cause:
  - If child bumped head in last few days ⮌ 32.
  - Check throat ⮌ 50 and ears ⮌ 48, if jaundice ⮌ 59. If current cholera outbreak, discuss with doctor.
  - Ask about urinary symptoms and check urine dipstick: if burning urine or leucocytes/nitrites/blood on dipstick ⮌ 65. If glucose, check finger prick glucose ⮌ 31, if bilirubin, **hepatitis A infection** likely ⮌ 59.
- Manage further according to duration of vomiting:

< 24 hours

Gastroenteritis likely, especially if child has diarrhoea.

- Reassure this is likely due to viral infection or food poisoning and will resolve on its own.
- If not dehydrated, advise fluids at home: if breastfeeding, offer frequently. Offer older child ORS/fluids frequently.
- Review in 5 days or if initially dehydrated review after 2 days.
- Advise to return immediately if unable to drink well/vomits everything, lethargic, sunken eyes, severe abdominal pain or vomits blood.

≥ 24 hours

- If sexually active[3] girl, exclude pregnancy.
- If on ART, advise taking it with food. If vomiting persists, discuss with doctor.
- If older child induces vomiting after eating, refer.
- If child has a life-limiting illness, also give palliative care ⮌ 142.
- Refer same day if vomits > 3 days.
- Refer if not growing well or none of the above.

Refluxing

- Check growth ⮌ 15 and feeding ⮌ 92.
- If baby growing and feeding well, reassure carer that reflux causes no harm. It may worsen between 4-6 months old.
- If smoking in house, alert to risks and encourage smoker to quit ⮌ PACK Adult helpline.

Refer if:

- Stridor
- Irritable/refuses feeds
- Not growing well and no cause found
- Episodes of no breathing > 20 seconds
- Recurrent wheeze/cough/chest infections
- If child known with cerebral palsy →138
- Still refluxing at 18 months old.

[1]Avoid mixing Ringer's lactate and IV/IM ceftriaxone. If severe penicillin allergy (previous anaphylaxis, urticaria or angioedema), discuss with doctor/paediatrician. [2]Avoid injecting ≥ 1g IM at one injection site. [3]If any of: 1) sex not consensual 2) < 12 years old 3) 12-16 years old and partner not in peer group (partner should also be 12-16 years old), **sexual abuse** likely ⮌ 136:

Diarrhoea

First assess and manage child's fluid needs ↺ 27. If cholera suspected, discuss child's fluid needs with doctor.

Give urgent attention to the child with diarrhoea and any of:

- Blood in stool in child < 1 year old
- Baby < 8 weeks old
- Unable to drink
- Distended abdomen
- Guarding/rebound tenderness or rigidity of abdomen, **peritonitis** likely
- Swelling of legs/wasting in child < 1 year old

Manage and refer urgently:

- Check glucose ↺ 31.
- If baby < 8 weeks old, temperature ≥ 38°C or < 35.5°C or likely **peritonitis**, give ceftriaxone[2] 80mg/kg (up to 2g) IV/IM[3] (↺ 151:11).
- Give vitamin A: if < 6 months old: 50 000IU, if 6-12 months old: 100 000IU, if ≥ 1 year old: 200 000IU.
- Give zinc: give 10mg (break scored 20mg tablet in half and give half a tablet).

Approach to the child with diarrhoea not needing urgent attention

- Confirm child has diarrhoea: watery stools and/or > 3 stools/day (changed from normal pattern).
- If not already done, assess and manage child's fluid needs ↺ 27.
- Ask about duration of diarrhoea:

Diarrhoea for < 7 days.
Is there blood in stool?

No

- If current cholera outbreak, discuss with doctor.
- If on antibiotic, it may be causing diarrhoea. Refer to doctor to stop/change.
- If not on antibiotic, **viral gastroenteritis** likely. Reassure that this should resolve within 3 days.

Yes

Dysentery likely
Give ciprofloxacin 15mg/kg/day (up to 500mg) 12 hourly for 3 days (↺ 151:15).

Diarrhoea for ≥ 7 days

- If HIV unknown, test for HIV ↺ 109. If HIV positive, give routine HIV care ↺ 111. Lopinavir/ritonavir cause diarrhoea, should resolves within 6 weeks.
- Check ears ↺ 48, check urine ↺ 65
- If abdominal pain/cramps, mucous in stools, poor growth or weight loss/low energy, check for TB ↺ 102 and discuss/refer.
- If known with a life-limiting illness, also give palliative care ↺ 142.

- Assess growth (weight-for length/height) ↺ 15 and if in nappies, check for nappy rash ↺ 80.
- If repeated episodes of diarrhoea and no access to clean water, refer to health promotion officer/social worker.
- Give treatment:
  - Give oral rehydration solution[4] 10mL/kg after each loose stool. Give extra fluids if child asks and continue until diarrhoea stops.
  - Give zinc: give 10mg/day (break scored 20mg tablet in half and give half a tablet), for 14 days.
  - If diarrhoea > 7 days, give additional dose of vitamin A (↺ 156:39).
- Advise the carer to practise good hygiene: wash hands before handling food, after using toilet/changing nappy, wash soiled clothing, bedding and dispose of dirty nappies.
- Discuss feeding: feed frequently and for longer if breastfeeding. If > 6 months of age, give soup, rice water, yoghurt or amasi. If diarrhoea > 7 days, give small, frequent meals 6 times/day. Once diarrhoea has resolved, give extra meal daily for a week.

- If initially dehydrated *or* treated for dysentery, review next day, otherwise arrange review in 5 days.
- If diarrhoea ≥ 7 days and well on review, review again in 14 days and assess growth (weight-for length/height) ↺ 15.
- Give an extra meal a day for a week.

Advise to return immediately if unable to drink well, sunken eyes, lethargy or stools are bloody.

[1]Capillary refill time (CRT): hold hand/foot higher than level of heart. Press soft pad of finger/toe until it turns pale, then release pressure and note time taken for colour to return. [2]Avoid mixing Ringer's lactate and IV/IM ceftriaxone. If severe penicillin allergy (previous anaphylaxis, urticaria or angioedema), discuss with doctor/paediatrician. [3]Avoid injecting ≥ 1g IM at one injection site. [3]Oral rehydration solution: dissolve ½ teaspoon salt + 8 teaspoons sugar in 1 litre cooled boiled water.

Constipation

The child is constipated if infrequent stools and any of: pain on passing stool, impaction, involuntary leakage of stool or voluntary withholding.

Give urgent attention to the child with constipation and any of:

- Distended abdomen and vomiting
- Mass in abdomen (not faecal mass)
- Newborn and no stool in first 2 days
- Temperature ≥ 38°C
- Bruising and lacerations around anus, consider child abuse ↩ 136

Refer same day.

Approach to child with constipation not needing urgent attention

- If constipation from birth or early infancy, refer to specialist same week.
- Inspect anus: if fissure (crack) ↩ 63. If rectal bleeding and no crack seen, refer.
- Refer to specialist same week if any of: anus does not tighten when child coughs/cries, abnormal spine, new urinary incontinence, involuntary leakage of retained stool, weight loss/poor weight gain, or delayed milestones (check milestones ↩ 15).
- Does child have reduced mobility (is child bed bound, or using a wheelchair) or is child using constipating medications (like morphine)?

Yes

Child in wheelchair, bed-bound or using morphine

- Advise a high fibre diet (vegetables, fruit, wholemeal cereals, bran and cooked dried prunes), adequate fluid intake.
- Give lactulose 0.5mL/kg once daily (↩ 153:26). If still constipated, give twice a day (up to 15mL 12 hourly).
- If child has a life-limiting illness, also give palliative care →142.

No

Is constipation associated with change in feeding, toilet training, starting school?

Yes

Changed from breastmilk to formula feeds

- Advise carer that baby may pass less frequent stools on formula compared to breastmilk.
- For more feeding advice ↩ 92.

- Advise to return if no stool after 3 days.
- Give glycerine suppositories: insert one and repeat 12 hourly until stool appears. If no stool after one day, refer.

Introduction of solids

- Advise several servings daily of pureed vegetables, fruits, especially prunes.
- Ensure regular fluid intake.
- For more feeding advice ↩ 92.

Toilet-training toddler

- Explain that forceful potty training is ineffective.
- Child may be fearful of painful defecation.
- Give advice on toilet habits:
  - Ensure bench next to toilet for child to rest feet on.
  - Encourage unhurried time on toilet, after meals.
  - Give child a reward after sitting on toilet.

School entry

- Child may withhold stool as reluctant to use school toilet or because change in schedule interferes with toileting.
- If child miserable, stressed or angry ↩ 131.
- Encourage an unhurried routine of using toilet before or after school.

No

- Check growth ↩ 15 and Hb: if Hb < 10g/dL in child < 5 years old or Hb < 11g/dL in child ≥ 5 years old, **anaemia** likely ↩ 45.
- Advise a high fibre diet (vegetables, fruit, wholemeal cereals, bran and cooked dried prunes), encourage age-appropriate exercise everyday, reduce activities where child sitting/lying for long periods and avoid processed food and sweet drinks. Refer to dietitian if struggling with child's diet.

Review in 5 days:

- If still constipated and on solids, give lactulose 0.5mL/kg once daily (↩ 153:26). If needed, increase to twice a day (up to 15mL 12 hourly).
- Review in one week. If no better with lactulose, increase it to 12 hourly.
- Review in 3 months, if still needing lactulose, discuss/refer.

Anal symptoms

Give urgent attention to the child with anal symptoms and any of :
- Very painful lump on anus
- Unable to pass stool because of anal symptoms
- Jelly-like stool
- If bruising or laceration around anus or history indicates possible inappropriate sexual conduct consider child abuse ⮌ 136

Refer same day.

Assess child with anal symptoms not needing urgent attention

- If bloody diarrhoea →61. If nappy rash →71. If burning urine, check urine dipstick. If leucocytes/nitrites →65. Review RtHB: check deworming up to date and that child is attending clinic visits.
- Manage according to symptom/s:

Itch/irritation
Are worms visible or is there a history of worms visible near anus?

No

Localised skin irritation likely
- Advise to:
  - Avoid wiping anus excessively.
  - Avoid tight-fitting underwear.
  - Keep area dry.
  - Avoid use of soaps, detergents and perfumes.
- Give zinc and castor oil ointment to apply to area twice a day.
- Review in 2 weeks, if no better, refer.

Yes

Manage as below.

Pain or bleeding

Fissure (crack) seen
- Give lactulose 0.5mL/kg (up to 10mL) once a day until crack healed.
- Apply lidocaine 2% gel to fissure/s (crack/s) as often as possible.
- Refer if severe pain, > 1 episode or no response to lactulose after one week.

- Give advice for soft stools: high fibre diet (vegetables, fruit, wholemeal cereals, bran and cooked dried prunes), adequate fluids , encourage age-appropriate exercise everyday, reduce activities where child sitting/lying inactive (like watching TV).
- Give advice on toilet habits:
  - Ensure bench next to toilet for child to rest feet on.
  - Encourage unhurried time on toilet, after meals and give reward after sitting on toilet.
  - Address child's anxiety: May be fearful of painful defecation.
  - Avoid straining when passing stool.

No fissure (crack) seen, refer.

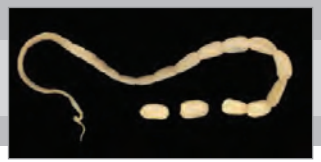
Perianal warts

Manage as for genital warts ⮌ 64.

Red/raw skin around anus

- Apply zinc and castor oil ointment after each nappy change/ bowel action.
- Do not wipe anus excessively.
- Expose area to air as much as possible.
- Keep area dry.
- If ongoing diarrhoea ⮌ 61.

Worms



Tapeworm

Carer may report seeing worm/s when child coughed, sneezed, vomited or was seen in stool.

- If worm flat and white worm segments (blunt ended), **tapeworm infestation** likely. If child > 12 months old, give albendazole once daily for 3 days (⮌ 149:5).
- If no worm seen or worm seen but not tapeworm, if child > 12 months old, give mebendazole (⮌ 154:28) or albendazole (⮌ 149:5). Treat all house members at same time.

- Assess and interpret growth ⮌ 15. If pallor (pale conjunctiva/palms of hands), check Hb: if Hb < 10g/dL in child < 5 years or Hb < 11g/dL in child ≥ 5 years, **anaemia** likely ⮌ 45.
- Advise to avoid uncooked meat and use good hygiene:
  - Wash hands with soap and water before handling food and after using toilet/changing nappy, wash soiled clothing and bedding and dispose of faeces properly.
  - Keep fingernails short and keep toilet seat clean.
- If abdominal tenderness or pain, abdominal mass felt or vomiting, refer.
- Review in 4 weeks and repeat treatment if still infected.

Genital symptoms

Before examining the child with a genital symptom, ensure that a chaperone is present.

Give urgent attention to the child with genital symptoms and any of:

- Sudden testicular pain: **torsion of testicle** likely
- Painful swelling of scrotum
- Foreskin retracted, swollen and unable to return to normal position; **paraphimosis** likely
- Rape/sexual assault: if wound or soft tissue injury needing urgent attention ⮌ 32

Management:

- If **paraphimosis**, try to replace foreskin: apply lidocaine 2% gel to glans, wrap in gauze and apply increasing pressure for 10-15 minutes until foreskin can be replaced over glans. If unsuccessful or glans blue/black; refer urgently.
- If rape/sexual assault →136.

Approach to child with genital symptoms not needing urgent attention

- If skin rash →71, if itching or red/raw skin around anal region →63, if burning/smelly urine →65, if lymph node →46.
- If testicle/testes not present in scrotum, review in one month. If still not felt, refer to surgical OPD.
- If girl with fused labia: reassure carer. If fused from birth, unable to see urethral opening, still fused after > 6 years old, recurrent urinary tract infections or if unsure, refer to gynaecologist.
- Manage according to genital symptom:

Sore/red/itchy vulva/vagina

Check urine: if leucocytes, nitrites or blood on dipstick →65. If glucose, exclude diabetes ⮌ 31.

Vulvovaginitis likely

- Ask carer/child if foreign object in vagina and examine vulva/vagina.
- Advise to wipe from front to back, avoid tights/leotards/ leggings/ wet swim-wear and bubble baths/perfumed soaps.
- Advise good hygiene: wash hands with soap and water before handling food and after using toilet/changing nappy and keep fingernails short.
- Apply clotrimazole 1% ointment at bed time until resolved.
- Treat for worms: if child > 12 months old, give mebendazole (⮌ 154:28).
- If no better after 2 weeks or recurs, refer.
- If recurrent, exclude diabetes ⮌ 31 and refer.
- Ask carer if aware of abuse of child. Ask child if anyone hurts him/her. If yes, consider child abuse ⮌ 136.
- If none of the above, refer.

Vaginal discharge

Discharge white/thick/cheesy

Vulvovaginitis likely

- Ask carer/child if foreign object in vagina and examine vulva/vagina.
- Advise to wipe from front to back, avoid tights/leotards/ leggings/ wet swim-wear and bubble baths/perfumed soaps.
- Advise good hygiene: wash hands with soap and water before handling food and after using toilet/changing nappy and keep fingernails short.
- Apply clotrimazole 1% ointment at bed time until resolved.
- Treat for worms: if child > 12 months old, give mebendazole (⮌ 154:28).
- If no better after 2 weeks or recurs, refer.
- If recurrent, exclude diabetes ⮌ 31 and refer.
- Ask carer if aware of abuse of child. Ask child if anyone hurts him/her. If yes, consider child abuse ⮌ 136.
- If none of the above, refer.

Discharge not smelly and clear or white in girl ≥ 8 years old

Physiological discharge likely. Reassure this is normal.

Discharge copious/ smelly/ green/ yellow

- If sexually active[1], manage genital symptom and advise reliable contraception ⮌ PACK Adult.
- If not sexually active or unsure, refer same week.
- If HIV unknown, test for HIV ⮌ 109. If HIV positive, give routine care ⮌ 111.
- Ask carer if aware of any abuse of child. Ask child if anyone hurts him/her. If yes, consider child abuse ⮌ 136.
- If none of the above, refer.

Urethral discharge

- If sexually active[1], manage genital symptom and advise reliable contraception ⮌ PACK Adult.
- If not sexually active or unsure, refer same week.
- If HIV unknown, test for HIV ⮌ 109. If HIV positive, give routine care ⮌ 111.
- Ask carer if aware of any abuse of child. Ask child if anyone hurts him/her. If yes, consider child abuse ⮌ 136.
- If none of the above, refer.

Warts

- If sexually active[1], manage genital symptom and advise reliable contraception ⮌ PACK Adult.
- If not sexually active or unsure, refer same week.
- If HIV unknown, test for HIV ⮌ 109. If HIV positive, give routine care ⮌ 111.
- Ask carer if aware of any abuse of child. Ask child if anyone hurts him/her. If yes, consider child abuse ⮌ 136.
- If none of the above, refer.

Ulcers

- If sexually active[1], manage genital symptom and advise reliable contraception ⮌ PACK Adult.
- If not sexually active or unsure, refer same week.
- If HIV unknown, test for HIV ⮌ 109. If HIV positive, give routine care ⮌ 111.
- Ask carer if aware of any abuse of child. Ask child if anyone hurts him/her. If yes, consider child abuse ⮌ 136.
- If none of the above, refer.

Scrotal/testicular problem

- If firm lump, refer same week.
- If scrotum soft, painless and fluid-filled, **hydrocoele** likely. If unsure or becomes painful, refer. Otherwise refer to surgeon when child > 1 year old.

Penis problem

- If glans red and swollen, **balanitis** likely: discuss/refer same day.
- If white patches on glans, **candida infection** likely: apply clotrimazole 1% ointment at bed time for up to 14 nights. Refer if no response.
- If foreskin has become non-retractile or if puberty and always been non-retractile, **phimosis** likely. Book surgical OPD appointment within next week.

[1]If any of: 1) sex not consensual 2) < 12 years old 3) 12-16 years old and partner not in peer group (partner should also be 12-16 years old), **sexual abuse** likely ⮌ 136.

Urinary symptoms

The child with urinary symptoms may have pain on passing urine, urinating very often/large volumes, urgency, new incontinence, bed-wetting, bloody/brown urine, unable to pass urine or foul-smelling urine.

Give urgent attention to the child with urinary symptoms and any of:

- Passing little amounts or unable to pass urine
- Temperature ≥ 38°C/rigors/flank pain, **pyelonephritis** likely
- Swelling of face/feet and either blood in urine or passing little amounts of urine, **nephritis** likely

Manage and refer urgently:

- If **pyelonephritis** likely, give ceftriaxone[1] 80mg/kg (up to 2g) IV/IM[2] (↺ 151:11).
- If **nephritis** likely and signs of fluid overload (increased pulse/respiratory rate (↺ 167) or puffy eyes), give oxygen 2L/minute via nasal prongs and give furosemide 1mg/kg (up to 40mg) IV over 5 minutes (avoid IV fluids) (↺ 153:23). Then check BP (↺ 167). If increased, give nifedipine 0.25mg/kg (up to 10mg) squirted into mouth[3].

Approach to the child with urinary symptoms not needing urgent attention

- Check urine dipstick. If child too young to urinate into specimen jar, clean perineum and apply urine bag:
  - If glucose/ketones in urine, check finger prick glucose ↺ 31.
  - Look for blood, leucocytes and nitrites on dipstick:

Blood on dipstick, no leucocytes or nitrites

Is there protein on urine dipstick?

- No → Has child been in a bilharzia area?[4]
  - Yes → **Schistosomiasis** likely
    - If child < 2 years old, refer.
    - Send urine for S. *haematobium* ova.
    - Give single dose praziquantel 40mg/kg (up to 3g) (↺ 156:37).
    - Advise to return if swelling of face or feet: refer same day.
    - Advise to avoid contaminated water to prevent re-infection.
    - Review results in 3 days for results and repeat dipstick. Refer if:
      - Blood not cleared
      - Symptoms not resolved
      - Urine schistosomiasis test negative
  - No → Discuss/refer same day.
- Yes → Discuss/refer same day.

Leucocytes/nitrites on dipstick

Urinary tract infection likely

- Send urine for microscopy, sensitivity and culture.
- If child < 1 year old, discuss/refer same day.
- Give amoxicillin/clavulanic acid: if < 25 kg, give 40-45mg/kg/dose 12 hourly dose (↺ 150:8). If ≥ 25kg, give 875/125mg 12 hourly for 7 days.
- Advise to wipe from front to back.
- Encourage child to drink frequently.
- Avoid irritant soaps and bubble baths.
- If no response to treatment after 2 days, refer.
- Urinary tract infection might indicate an abnormal urinary tract, refer for investigation once antibiotic complete.

- If recurrent urinary tract infections:
  - Assess if child constipated: stools infrequent and pain, impaction, involuntary leakage, voluntary withholding ↺ 62.
  - Check anus ↺ 63 and genitals ↺ 64.
  - Refer to specialist.

No blood or leucocytes/nitrites

- Confirm test results by repeating dipstick on same sample of urine.
- If still no blood or leucocytes/nitrites, ask about bed wetting.

No bed wetting → Reassure and reassess in one week if not better.

Bed wetting

- If < 5 years, reassure this is common.
- If previously dry, ask about recent stressful events. Discuss possible solutions. If daytime incontinence, exclude diabetes ↺ 31 and refer.
- If ≥ 5 years old, give advice:
  - Reduce fluid intake during evening: avoid fluids 1 hour before bedtime.
  - Teach child to wake with urination urge by initially waking him/her to urinate.
  - Suggest a reward system like a star chart for a dry bed.
  - Advise to avoid punishing child.
  - If above measures unhelpful, refer.

- Ask carer if aware of abuse of child. Ask child if anyone hurts or upsets him/her. If yes to either, consider **child abuse** →136.
- If incontinent and child has a life-limiting illness, also give palliative care →142.

[1]Avoid mixing Ringer's lactate and IV/IM ceftriaxone. If severe penicillin allergy (previous anaphylaxis, urticaria or angioedema), discuss with doctor/ paediatrician. [2]Avoid injecting ≥ 1g IM at one injection site. [3]Withdraw contents of 5mg nifedipine capsule with a 1mL syringe: if 10–25kg: give 2.5mg; if 25–50kg: give 5mg; if > 50 kg: 10mg. [4]Bilharzia areas include Limpopo, Mpumulanga, KwaZulu-Natal and isolated areas in Eastern Cape (Transkei). [5]If severe penicillin allergy (history of anaphylaxis, urticaria or angioedema), give instead ciprofloxacin 10mg/kg/dose (up to 500mg) 12 hourly for 7 days (↺ 151:15).

Back pain

Give urgent attention to the child with back pain and any of:

- Child < 4 years old
- TB contact[1] ⮌ 102 or current/previous TB
- Recent trauma or injury to back/spine →32
- Severe pain causing night waking/affecting daily activities
- Pain down leg
- Urinary or bowel incontinence
- Pins and needles in limb/s
- Temperature ≥ 38°C and/or weight loss
- Weakness in limb/s
- Sudden painful curve of spine
- New onset limp

Manage and refer urgently:

- If open area on spine, cover with sterile, saline-soaked gauze dressing. If difficulty breathing, give oxygen 2L/min via nasal prongs.

Approach to child with back pain not needing urgent attention

- Look at spine: if curved spine or deformity, refer to orthopaedic specialist.
- If asymmetric walk, refer to physiotherapist.
- Check for possible causes: carrying heavy weights, recent increase in physical activity little exercise, overweight.

If carrying heavy weights or recent increase in physical activity:

- If carrying heavy school bag (especially on one shoulder), advise to reduce weight of bag and carry on both shoulders.
- If recent increase in activity, advise to avoid exercise for 1-4 weeks/until no pain.

If < 1 hour/day of brisk exercise:

- Encourage child to be more active:
  - Go outside and play.
  - Join a team sport.
  - Take stairs instead of elevators or lifts, walk instead of taking transport.
- Limit screen time to less than 2 hours/day.

Overweight

- If < 5 years old, plot weight and height ⮌ 12. If WFL/H is on or above +2 line ⮌ 99.
- If ≥ 5 years old, plot BMI ⮌ 12. If BMI on or above the +1 line ⮌ 99.

- Give paracetamol 15mg/kg (up to 1g) 6 hourly as needed for up to 5 days (⮌ 155:34) whilst addressing contributing causes.
- Refer same week if:
  - Early morning stiffness or pain lasting > 15 minutes.
  - Back pain persists longer than 4 weeks or worsens despite above measures.
  - History of cancer

[1]A TB contact refers to a child who shared an enclosed space (at school, socially, or in a household setting), for ≥ 1 night or for frequent/extended daytime periods, with an adult/adolescent with pulmonary TB ("index patient"), during the 3-month period before the index patient started their TB treatment.

Arm or hand symptoms

Give urgent attention to the child with arm or hand symptoms and any of:
- Temperature ≥ 38°C
- Injury in past 48 hours and deformity or swelling →32
- Sudden weakness or unable to move arm

Manage and refer urgently:
- Keep nil per mouth.

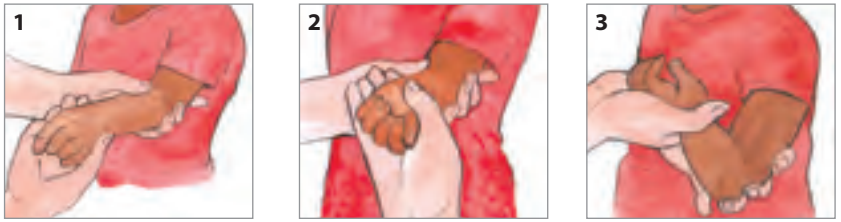
Approach to the child with arm or hand symptom not needing urgent attention
If baby < 2 months old →9.

- If palms pale, check Hb: if Hb < 10g/dL in child < 5 years old or Hb < 11g/dL in child ≥ 5 years old, **anaemia** likely ↩ 45.
- Was there an injury?

Yes
Manage according to site of injury

Sudden pull of arm or forcefully lifted with straight arms and now refusing to move arm.

Pulled elbow likely, doctor to manage using steps below.
If swelling or deformity, **fracture** likely →32



1. Hold elbow bent at 90° with child's palm facing downward and apply gentle pressure over radial head.
2. Next, firmly turn wrist so that child's palm is facing upwards, keeping pressure on radial head.
3. Then fully bend elbow up to shoulder. You may hear or feel a small click.

Refer if not wanting to move arm 10 minutes after manoeuvre.

Injury or blow to finger

- Give paracetamol 15mg/kg (up to 1g) 6 hourly as needed for up to 5 days (↩ 155:34).
- Arrange x-ray and doctor review.
- Buddy strap finger to the longer adjacent finger. Ensure finger rotation aligns:

- If fracture ends align by < 50% or fracture involves joint, buddy strap and refer same day.
- If fracture ends align by ≥ 50% and does not involve joint, buddy strap and review after 1 week.

Fall on outstretched hand

Exclude fracture →33.

No
Arm/hand swollen with no history of injury

Is there early morning stiffness lasting > 15 minutes?

Yes

Juvenile idiopathic arthritis likely. Refer to specialist same week.

No

Refer to orthopaedic OPD same week.

- Refer/discuss with specialist if unsure of diagnosis or problem no better.
- If child abuse or neglect suspected →136.

Leg symptoms/limp/walking problems

If joint symptoms →70. If foot symptoms →69. If not moving or sitting properly e.g. abnormal tone, posture or weakness →89.

Give urgent attention to the child with leg symptoms and any of:

- Sudden refusal to sit, stand or walk
- Sudden onset weakness in leg/s
- Leg pain and fever ≥ 38°C
- Limping and weight loss/lethargy
- Unable to bear weight after leg injury →33

Refer urgently.

Approach to the child with leg symptom not needing urgent attention

Examine leg for abnormal shape, swelling, pain and assess walking.

Problem walking
Is child limping?

Yes

Ask about duration of limp.

Limp < 48hrs

Sprain/strain likely
- Ensure can bear weight on leg, otherwise refer same day.
- Rest and elevate leg.
- Apply pressure bandage.
- If skin marks, bruises of different ages or poor growth ⮌ 95, suspect neglect ⮌ 136.
- Advise child to move leg after 2-3 days if not too painful.
- Give paracetamol 15mg/kg (up to 1g) 6 hourly as needed for up to 5 days (⮌ 155:34). If pain not responding to paracetamol, give ibuprofen[2] 5-10mg/kg 8 hourly with food (⮌ 153:25) for up to 5 days.
- Review after 1 week or sooner if symptoms worsen: if no better, arrange x-ray and doctor review.

Limp > 48hrs

Is it painful?

Yes
- If pain in joint/s →70.
- If pain not in joint, discuss/refer.

No

Ask about frequent falls.

No

Refer to physio-therapist for assessment.

Yes
- Refer to paediatrician.
- Arrange occupational therapy and physiotherapy while waiting for appointment.

No

Abnormal leg shape
- If bow-legs, look for forehead prominence, bowing of arms, bony lumps along ribcage. If present, **rickets** likely: do x-ray of left wrist (not leg) and discuss with doctor.
  - If no signs of rickets, advise that bow-legs appearance may be normal up to 18 months old.
  - If bow-legs persist > 3 years old, refer.
- If knock-knees, this is normal if 2-5 years old.
- If shape otherwise not normal or if legs painful, refer.

Leg pain
- If injury →32
- If well and leg pain only at night and active during day, **growing pains** likely, reassure pain will resolve.
- If leg pain occurs in day and night, discuss/refer same day.

Leg swelling
- If swelling of 1 leg and no history of injury, refer.
- If swelling of *both* legs, do urine dipstick:

< 3+ protein

Assess growth ⮌ 12.
Is weight-for-height below the -2 line or MUAC[1] < 12.5cm?

No

Heart failure likely. Refer same day.

Yes

Severe acute malnutrition likely. Manage and refer urgently →96.

≥ 3+ protein

Nephrotic syndrome likely. Discuss/refer same day.

[1]Mid-upper arm circumference. [2]Avoid ibuprofen if asthma, heart failure or kidney disease.

Foot symptoms

- If joint symptoms →70.
- If leg symptoms →68.

Give urgent attention to the child with foot symptoms and any of:
- Unable to/refuses to bear weight following injury
- Foot pain and temperature ≥ 38°C

Refer urgently.

Approach to child with a foot symptoms not needing urgent attention

- If injury →32.
- If nail symptoms →82.
- Examine foot for rough areas underneath foot with black or white dot/s, foreign body, deformity and assess walking.

Rough, thickened area underneath foot with black or white dots causing pain/discomfort with pressure.

Plantar wart likely
- Reassure warts often disappear spontaneously.
- Soften wart by soaking in warm water and remove loosened skin with light abrasion.
- Apply wart magic (podophyllin/salicyclic acid/benzoin tincture) to the wart at night and allow to dry. Protect surrounding skin with petroleum jelly. Wash off with soap and water in morning.
- Repeat every night for up to 5 days, until wart disappears. Repeat after 1 week, if needed.
- Refer if warts extensive.

Foreign body in foot: glass, thorn, metal

- Examine area with good light. Attempt to remove foreign body with forceps.
- Clean wound with sodium chloride 0.9% solution.
- Give tetanus toxoid 0.5mL IM if not had in last 5 years (check RtHB).
- Give paracetamol 15mg/kg (up to 1g) 6 hourly as needed up to 5 days (↩ 155:34).
- Refer if removal fails.

Deformity

- If baby just born →10.
- If baby and foot/feet bent with sole/s facing inward, **clubfoot** likely, refer to orthopaedic specialist

Can child walk on sides of his/her feet?

No

Rigid flat foot likely. Refer to orthopaedic OPD for assessment.

Yes

- Reassure that foot is normal.
- Encourage child to go barefoot where possible.
- Refer to physiotherapist if carer still concerned.

Walking on toes

Ask about frequent falls.

No

Refer to physiotherapist for assessment.

Yes

- Discuss/refer to paediatrician.
- Arrange occupational therapy and physiotherapy while awaiting appointment.

No obvious cause of pain

- Ensure shoes fit properly.
- Is pain mostly at night?

Yes

Discuss/refer.

No

Is pain related to exercise?

Yes

Reassure carer that pain will resolve spontaneously as heel bone fuses with age.

No

If pain worse early morning with stiffness lasting > 15 minutes, **juvenile idiopathic arthritis** likely, refer same week.

Joint symptoms

- Check that problem is indeed in joint/s. If child old enough to understand, ask him/her to do the following: walk on heels then tip-toes. Make fist and open hand. Press palms together and back to back with elbows lifted (should be able to flex/extend to 90°). Put hands behind head. Touch shoulder with ear. Reach up and "touch the sky" (with straight arms) and "look at ceiling". Open mouth wide enough to fit 3 fingers. Bend forward and touch toes. Squat then stand up. If unable to do any of these actions comfortably, **joint problem** likely.
- If pain not over joint: if back problem →66, if arm problem →67, if leg problem →68, if foot problem →69.

Give urgent attention to the child with a joint problem and any of:

- Trauma in past 48 hours with severe pain: arrange x-ray and doctor review
- Refusing to weight-bear
- Pain occurs night and day
- Known haemophiliac
- Sudden painful back curvature
- Temperature ≥ 38°C
- Joint swelling
- ≥ 2 of: strange movements of limbs/face, lumps over joints/tendons, breathlessness on exertion, rash (round pink lesions with pale centre), joint pain/swelling, **rheumatic fever** likely
- Previous rheumatic fever or known with rheumatic heart disease

Manage and refer urgently:

- If ≤ 2 months old and temperature ≥ 38°C , give ceftriaxone[1,2] 80mg/kg (up to 2g) IV/IM[3] (↩ 151:11).
- If **rheumatic fever**, give benzathine benzylpenicillin[2,4] IM according to weight: if < 30kg, give 600 000 units. If ≥ 30kg, give 1.2 million units. Notify[5].
- If pain, give paracetamol 15mg/ kg (up to 1g) (↩ 155:34). If not responding to paracetamol, give ibuprofen 5-10mg/kg with food (↩ 153:25). Avoid ibuprofen if asthma, hear failure or kidney disease.

Approach to the child with a joint symptom not needing urgent attention

- Has there been any recent injury? If yes →32.
- Screen for child abuse: ask carer if aware of any abuse of child, ask if anyone hurts or upsets him/her. If yes to either →136.
- Has child had a runny/blocked nose, sore throat or cough in last 2 weeks?

Yes

Viral reactive arthritis likely
- Reassure carer that it will resolve.
- Give pain relief: paracetamol 15mg/kg (up to 1g) 6 hourly as needed up to 5 days (↩ 155:34). If pain not responding to paracetamol, give ibuprofen 5-10mg/kg 8 hourly with food (↩ 153:25) for up to 5 days. Avoid ibuprofen if asthma, heart failure or kidney disease.
- Follow up in 2 weeks.
- Refer if:
  - If joint pain persists on follow up.
  - If temperature ≥ 38°C.
  - Any signs of rheumatic fever appear (as above).

No
Does child have any of: fever, weight loss, night sweats, weakness, fatigue, rash, bruising?

Yes
Discuss/refer same day.

No, manage according to site of joint problem:

Pain in hip, knee or thigh

Is there pain on hip movement?

Yes
- If available, do x-ray of pelvis (anterior/posterior) and frog lateral of both hips.
- Advise not to bear weight on painful side.
- Discuss/refer with doctor/orthopaedic specialist same week.

No

Pain in joint other than hip, knee or thigh

Is there early morning stiffness lasting > 15 minutes?

No
How long has joint been painful for?

< 6 weeks
- Reassure should resolve spontaneously.
- Refer if pain persists for ≥ 6 weeks or if temperature ≥ 38°C.

≥ 6 weeks
Refer same week.

Yes
Refer same week.

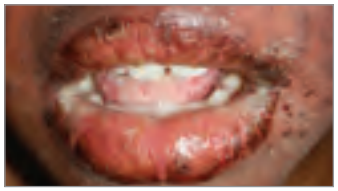
[1]Avoid mixing Ringer's lactate and IV/IM ceftriaxone. [2]If severe penicillin allergy (previous anaphylaxis, urticaria or angioedema), discuss with doctor/paediatrician. [3]Avoid injecting ≥ 1g IM at one injection site. [4]For benzathine benzylpenicillin 1.2 million units injection: dissolve benzathine benzylpenicillin 1.2 million units in 3.2mL lidocaine 1% without adrenaline. [5]Complete the notifiable medical conditions (NMC) case notification form and send to NMCsurveillanceReport@nicd.ac.za or notify electronically: https://www.nicd.ac.za/nmc-overview/notification-process.

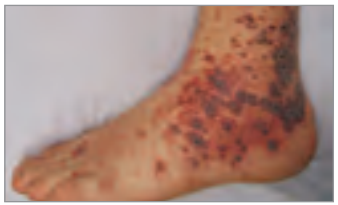
Skin symptoms

Start on this page for the child with skin symptoms.

Give urgent attention to the child with skin symptom/s and any of:

- Sudden onset of generalised itch/rash or face/tongue itch/swelling and any of: tight throat/hoarseness, cough, difficulty breathing, wheeze, chest pain, shock, dizziness/collapse, abdominal pain/nausea/vomiting/diarrhoea or exposure to possible allergen[1], **anaphylaxis** likely →36
- Purple/red rash that does not disappear when pressure is applied with any of: neck stiffness, drowsy/confused, temperature ≥ 38°C, headache, nausea/vomiting: **meningococcal disease** likely
- Baby < 1 month old with red, swollen skin around umbilical area
- Diffuse rash appearing within 8 weeks of starting a new medication and any of the following, **serious drug reaction** likely:
  - Temperature ≥ 38°C
  - Shocked: ≥ 2 of 1) cold hands/feet, 2) weak/fast pulse (↩ 167), 3) CRT[2]> 2 seconds, 4) decreased level of consciousness (↩ 166)
  - Jaundice
  - Abdominal pain/vomiting/diarrhoea
  - Rash involving mouth, eyes or genitals
  - Blisters, peeling or raw areas
- Weeping skin lesions in child with severe wasting (WFL/H[3] below -3 line), BMI[4] below -3 line, or MUAC[5]< 11.5cm, **severe acute malnutrition with complications** likely →96.





Manage and refer urgently:

- If **meningococcal disease** likely: give ceftriaxone[6] 80mg/kg (up to 2g) IV/IM[7] (↩ 151:11).
  - Ensure all contacts[8] receive prophylaxis: if < 6 years old, give ceftriaxone[6] 125mg IM[7], if 6-12 years old, give ciprofloxacin 250mg , if >12 years old, give ciprofloxacin 500mg, if pregnant, give ceftriaxone[6] 250mg IM[7]. Notify[9].
- If **serious drug reaction** likely, stop all medication. If peeling or raw skin, wrap in clean dry sheet and refer urgently.
- Assess and manage child's fluid needs ↩ 27.
- Refer urgently.

Approach to the child with skin symptom/s not needing urgent attention

- Pain →72
- Itch
  - Rash
    - Generalized →73
    - Localized →74
  - No rash →75
- Generalized red rash →76
- Lumps and bumps →77
- Crusts →78
- Flaky skin →78
- Ulcers →78
- Change in skin colour →79
- Nappy rash →80
- Hair and scalp problems →81
- Nails →82

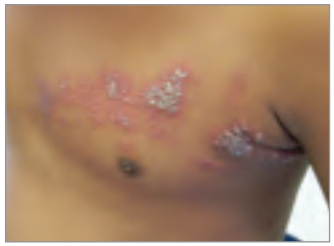
If status unknown, test for HIV ↩ 109, especially if rash is extensive, recurrent or difficult to treat.

[1]Common allergens include medications, new food or an insect bite/sting within the last few hours. [2]Capillary refill time (CRT): hold hand/foot higher than level of heart. Press soft pad of finger/toe until it turns pale, then release pressure and note time taken for colour to return. [3]Weight-for-length/height. [4]Body mass index in a child ≥ 5 years old. [5]Mid-upper arm circumference in child under 5 years old. [6]Avoid mixing Ringer's lactate and IV/IM ceftriaxone. If severe penicillin allergy (previous anaphylaxis, urticaria or angioedema), discuss with doctor/paediatrician. [7]Avoid injecting ≥ 1g IM at one injection site. [8]Contacts are household members, school/childcare contacts or anyone directly exposed to the child's oral secretions (kissing, mouth-to-mouth resuscitation, intubation). [9]Complete the notifiable medical conditions (NMC) case notification form and send to NMCsurveillanceReport@nicd.ac.za or notify electronically: https://www.nicd.ac.za/nmc-overview/notification-process.

Painful skin

Check for crops of blisters around mouth, on palms of hand and soles of feet, or in a band on one side of the body. Also check for areas of redness, swelling and warmth:

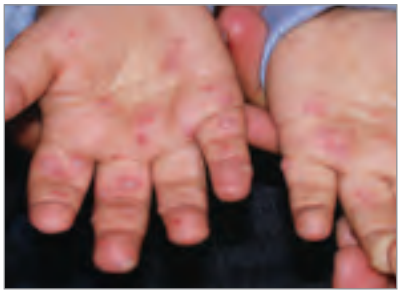
Painful blisters in band along one side of body.



Shingles (**herpes zoster**) likely

- If status unknown, test for HIV ⮌ 109.
- Give aciclovir 20mg/kg (up to 800mg) 6 hourly for 7 days (⮌ 149:1).
- Give paracetamol 15mg/kg (up to 1g) 6 hourly as needed for up to 5 days (⮌ 155:34).
- If itchy, apply calamine lotion as needed.
- Advise to keep lesions clean and dry and avoid skin contact with others until crusts have formed.
- If infected (skin red, warm, painful), give cephalexin[1] 12-25mg/kg (up to 500mg) 6 hourly for 5 days (⮌ 151:12).
- Refer same day if:
  - Eye involvement
  - Signs of meningitis (≥ 2 of: temperature ≥ 38°C, headache, decreased level of consciousness, neck stiffness)
  - Blisters elsewhere on the body

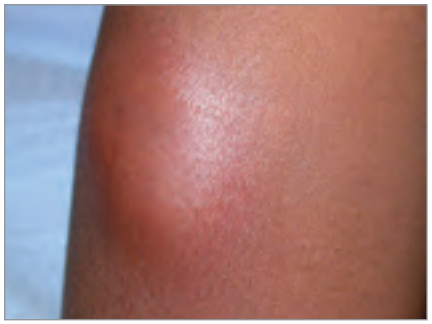
Crops of blisters around mouth and on palms and soles.



Hand, foot and mouth disease likely

- If infected (surrounding skin red, warm, swollen, painful), give give cephalexin[1] 12-25mg/kg (up to 500mg) 6 hourly for 5 days (⮌ 151:12).
- Give paracetamol 15mg/kg (up to 1g) 6 hourly as needed for up to 5 days (⮌ 155:34).
- Reassure that this is a viral illness that usually resolves on its own within 10 days and that antibiotics are not needed.
- Virus can be spread without symptoms/after symptoms have resolved.
- Advise child/carer to wash hands regularly and to avoid popping blisters due to risk of infection.
- Advise to keep child home if:
  - Fever
  - Unwell
  - Extensive drooling from mouth lesions
  - Many open blisters.
- Refer same day if any of: temperature ≥ 38°C, vomiting, neck stiffness, lethargy, balance problem, weakness of limbs, difficulty breathing or chest pain.

Firm, red lump which softens in the centre to discharge pus.



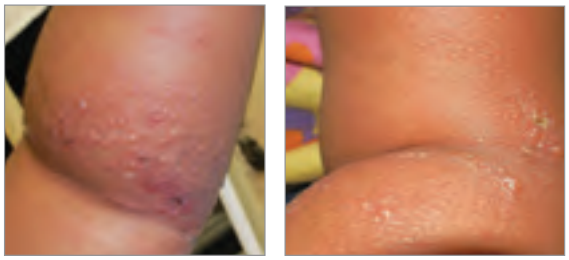
Boil/**abscess** likely

- If area fluctuant[2], arrange for incision and drainage.
- Give paracetamol 15mg/kg (up to 1g) 6 hourly as needed for up to 5 days (⮌ 155:34).
- If ≥ 1 boil/abscess, cellulitis, temperature ≥ 38°C, swollen lymph nodes in area, HIV or < 1 month old, give cephalexin[1] 12-25mg/kg (up to 500mg) 6 hourly for 5 days (⮌ 151:12).
- If recurrent boils or abscesses:
  - Wash once with sodium chloride 0.9% and chlorhexidine 0.05% from neck down.
  - Test for HIV ⮌ 109 and check fingerprick glucose ⮌ 31.
- Advise to wash with soap and water, keep nails short and avoid sharing clothing/towels.
- Refer if:
  - Difficult area to drain (face, genitals, hands)
  - No better within 48 hours
  - Recurrent boils/abscesses

Sudden onset swelling of an area of skin with redness, pain, warmth and temperature ≥ 38°C .

Refer urgently if any of:

- Severe swelling
- Loss of function
- Blisters
- Grey/black skin
- Decreased level of consciousness (⮌ 166)



Bacterial skin infection (**like cellulitis/ erysipelas**) likely

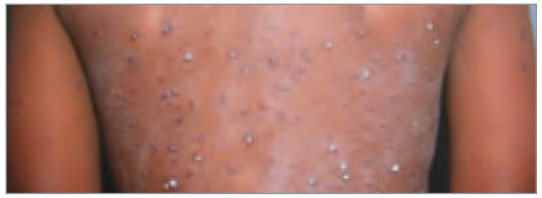
- If baby < 1 month old and skin red and swollen around umbilical area, refer same day.
- Elevate area if possible.
- Give cephalexin[1] 12-25mg/kg (up to 500mg) 6 hourly for 5 days (⮌ 151:12).
- Give paracetamol 15mg/kg (up to 1g) 6 hourly as needed for up to 5 days (⮌ 155:34).
- Refer if no improvement within 48 hours.

[1]If severe penicillin allergy (history of anaphylaxis, urticaria or angioedema), give instead azithromycin 10mg/kg (up to 500mg) once daily for 3 days instead (⮌ 151:10). [2]Fluid filled mass, that can be compressed/squeezed between two fingers.

Generalised itchy rash

If patches of red, scaly, crusted skin in baby or dry scaly skin in older child, usually on flexor surfaces of elbows, knees and on scalp and neck, consider **eczema** →121.

- Raised red bumps that become fluid-filled blisters (vesicles) which then break and leak and finally form crusts and scabs.
- Typically starts on chest, back, and face, then spreads over entire body.
- Usually fever and tiredness before onset of rash.

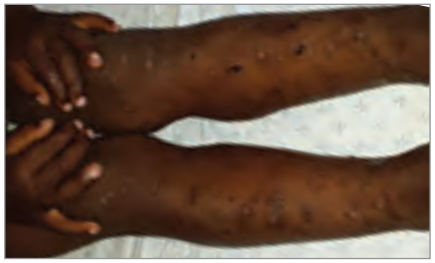


© University of Cape Town

Chickenpox likely

- Apply calamine lotion and give paracetamol 15mg/kg (up to 1g) 6 hourly for up to 5 days (⮌ 155:34).
- If very itchy, give cetirizine once daily until itch controlled/up to 2 weeks:
  - If 2-6 years old, give 5mg.
  - If ≥ 6 years old, give 10mg.
- If rash extensive or child has HIV, give aciclovir 20mg/kg (up to 800mg) 6 hourly for 7 days (⮌ 149:1).
- If rash and surrounding skin red, painful and swollen with temperature ≥ 38°C, **cellulitis** likely ⮌ 72.
- If recurrent, test for HIV ⮌ 109.
- Advise child/carer:
  - Chickenpox is highly contagious
  - Avoid school and pregnant women until all lesions have crusted.
- Refer same day if any of:
  - Baby < 1 month old.
  - No better after 10 days.
  - Difficulty breathing.
  - Any signs of meningitis (≥ 2 of: temperature ≥ 38°C, headache, decreased level of consciousness, neck stiffness.
  - Severely ill.

Small, red, itchy, firm bumps (papules) that become dark (hyperpigmented) bumps on limbs, trunk or face.

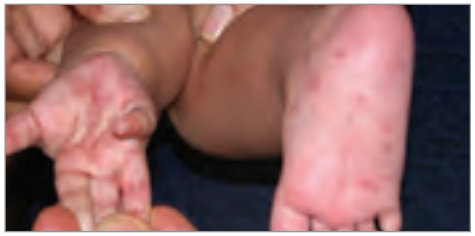


© Atlas of Paediatric HIV infection. CC BY 4.0 (www.creativecommons.org/licenses/by/4.0)

Papular pruritic eruption (**PPE**) likely

- If HIV unknown, test for HIV ⮌ 109. If HIV positive, give routine HIV care ⮌ 111.
- Exclude scabies (see adjacent column). PPE does not involve web-spaces between fingers and toes.
- If < 2 years old: apply calamine lotion.
- If ≥ 2 years olds: apply hydrocortisone 1% cream twice a day for 7 days (apply only very thin layer to face).
- Give cetirizine once daily until itch controlled/up to 2 weeks:
  - If 2-6 years old, give 5mg.
  - If ≥ 6 years old, give 10mg.
- If poor response, refer.
- If red itchy crops of bumps that blister, and heal with darkening of skin, may have scratch marks, **insect bites** likely ⮌ 77.
- Advise child/carer:
  - Explain that PPE may be long-standing and skin often remains hyperpigmented.
  - May temporarily worsen on starting ART.
  - Reduce exposure to insect bites.

Small red bumps (burrows) in web spaces of fingers and toes and skin folds of axillae (armpits), waist or genitals. Very itchy, worse at night.

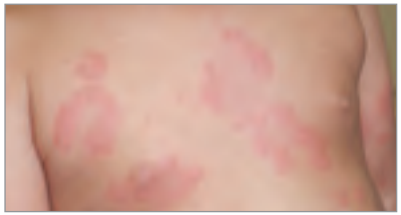


© University of Cape Town

Scabies likely

- If < 2 months old: apply sulphur ointment 5% once daily for 3-5 days.
- If 2 months - 6 years old: apply permethrin 5% to whole body from neck to feet, at night. Wash off after 8-12 hours. If permethrin unavailable, use diluted[1] benzyl benzoate lotion 25%.
- If ≥ 6 years old: apply benzyl benzoate lotion 25% to whole body from neck to feet. Wash off after 24 hours with soap and water. If severe, repeat once within 5 days. If no improvement, apply permethrin 5% as above.
- Treat itch for up to 2 weeks:
  - If < 2 years old, apply calamine lotion with emulsifying ointment.
  - If 2-6 years old, give cetirizine 5mg daily.
  - If ≥ 6 years old: give cetirizine 10mg daily.
- Treat all household members at same time.
- Advise child/carer:
  - Put on clean, washed clothes after treatment.
  - Wash linen and clothes in hot water and expose bedding to direct sunlight.
  - Keep fingernails short and clean.
- If yellow crusts appear, **impetigo** likely ⮌ 78.
- If no better after 2 weeks, repeat treatment.

Very itchy, red, raised wheals that appear suddenly and usually disappear within 24 hours.



© University of Cape Town

Urticaria likely

Sudden generalised itch/rash or face/tongue swelling and any of: wheeze, difficulty breathing, dizziness/collapse, abdominal pain, vomiting or exposure to possible allergen[2], anaphylaxis likely →36.

- If recently started new medication, check for drug reaction →76.
- If < 5 years old, ensure deworming up to date (check RtHB).
- Consider possible triggers: foods (milk, eggs, nuts, wheat, seafood), medications, insect bites/stings and latex.
- Apply calamine lotion.
- If ≥ 2 years old: give cetirizine once daily until itch controlled/up to 2 weeks:
  - If 2-6 years old, give 5mg.
  - If ≥ 6 years old, give 10mg.
- If not better after 24 hours, refer to specialist within one month.
- If repeated episodes, **allergy** likely ⮌ 120.
- Advise to return immediately if any symptoms of anaphylaxis occur.

If no response to treatment, refer to specialist for review.

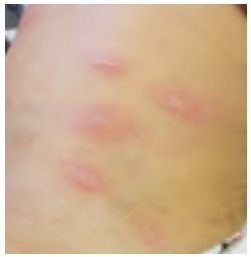
[1]Dilute benzyl benzoate according to age: if 1-2 years old: dilute benzyl benzoate lotion 25% (dilute 1:4 with water). If 2-6 years old: dilute benzyl benzoate lotion 25% (dilute 1:2 with water). [2]Common allergens include medications, new food or insect bite/sting within the last few hours.

Localised itchy rash

- If rash on scalp →81.
- If very itchy, small red bumps (burrows) in web spaces of fingers and toes and skin folds of axillae (armpits), waist or genitals, **scabies** likely →73.
- If patches of itchy, scaly skin usually inside elbows, behind knees and on cheeks, scalp and neck, **eczema** likely →121.
- Are there red itchy bumps that may have blistered or healed with darkening of skin?

Yes

Usually occurs in crops.



© University of Cape Town

Insect bites likely

- If extensive, test for HIV ⮌ 109.
- Advise carer to reduce exposure to insects:
  - Treat pets, use bed nets, wash bedding, use insect repellents.
  - Clear away puddles of water around house.
- Apply calamine lotion as needed.
- If very itchy, give cetirizine once daily until itch controlled/up to 2 weeks: if 2-6 years old, give 5mg. If ≥ 6 years old, give 10mg.
- If yellow crusts, **impetigo** likely →78.
- Advise to return if no better.

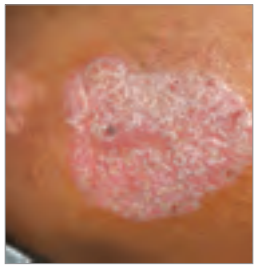
No. Assess further according site of rash:

Rash involves head, face, trunk or limbs

Does rash have ring-shaped lesion/s?

No

Well-defined, raised plaques covered with silvery scale. Often on knees, elbows, lower back, scalp. May have pitted nails.



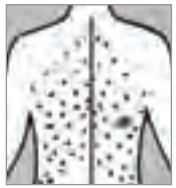
© Atlas of Paediatric HIV infection. CC BY 4.0 (www.creativecommons.org/licenses/by/4.0)

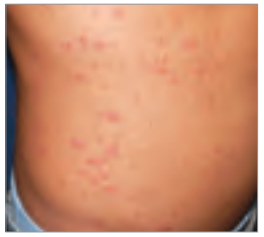
Psoriasis likely

- Doctor to confirm diagnosis and refer to specialist, ideally within 2 weeks.
- If delay in specialist review and acute flare (worsening redness, dryness, itchiness, pain), apply betamethasone 0.1% ointment twice a day for 1-2 weeks (avoid face and genitalia). Then hydrocortisone 1% ointment twice a day until flare subsides.
- Advise carer/child to:
  - Keep nails short and avoid scratching.
  - Expose skin to sunlight before 11am for 30 minutes/day.
- If status unknown, test for HIV ⮌ 109.

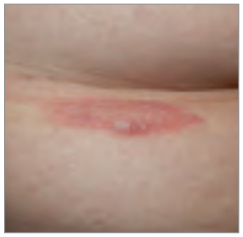
Yes

Oval scaly patches involving mostly the trunk (may be in pattern of Christmas tree on back). May have started with one large ring (herald patch) with fine scale in centre, usually on chest or back. Usually affect older children.





© University of Cape Town

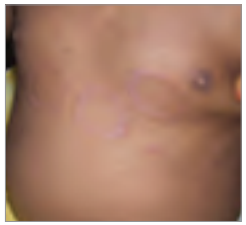


© Atlas of Paediatric HIV infection. CC BY 4.0 (www.creativecommons.org/licenses/by/4.0)

Pityriasis rosea likely

- Reassure that rash will resolve on its own within 2 months.
- Moisturise skin with aqueous cream 8 hourly.
- If very itchy:
  - If ≥ 2 years old, give cetirizine once daily for itch until itch controlled/up to 2 weeks: if 2-6 years old, give 5mg. If ≥ 6 years old, give 10mg.

Slow-growing lesion/s with raised ring of scale, clear in centre

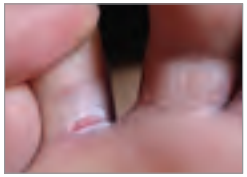


© University of Cape Town

Tinea corporis (**ringworm**) likely

Rash involves feet/toes

Cracks, peeling or scaly lesions between toes, or thickened scaly skin on soles, heels and sides of feet.



© University of Cape Town

Tinea pedis (**athlete's foot**) likely

- Advise to keep skin clean, to dry well and avoid sharing towels/clothes.
- If on feet, encourage open shoes or sandals.
- Apply clotrimazole 1% cream twice a day. Continue for 2 weeks *after* rash has cleared.
- If extensive or recurrent, test for HIV ⮌ 109 and diabetes ⮌ 27.
- If involves nails ⮌ 82. If on head or any hair loss ⮌ 81.
- If no better after 4 weeks, check child/carer is applying cream correctly. If still no better after a further 4 weeks, discuss/refer.

If diagnosis uncertain, discuss/refer.

Itch with no rash

- Confirm there is no rash, especially scabies, lice or insect bites.
  - If generalised itchy rash ⮌ 73.
  - If localised itchy rash ⮌ 74.
- If itch around anus only →63.
- Is the skin very dry?

Yes

Dry skin (**xerosis**) likely

- Advise to:
  - Avoid hot baths, wool/itchy fabrics and scratching as these may worsen itch.
  - Wash with aqueous cream instead of soap.
  - Moisturise skin with emulsifying ointment, twice a day.
  - Avoid scrubbing the skin and washing more than once a day. Gently pat skin dry.
  - Keep nails short.
- Apply calamine lotion as needed.
- If ≥ 2 years old, give cetirizine daily until itch controlled, up to 2 weeks:
  - If 2-6 years old, give 5mg.
  - If ≥ 6 years old, give 10mg.
- If no better with treatment, discuss/refer.

No

Did child start any new medications in the weeks before the itch started?

Yes

Medication side-effect likely

- Discuss with doctor whether to stop or change medication.
- Advise to:
  - Avoid hot baths, wool/itchy fabrics and scratching as these may worsen itch.
  - Wash with aqueous cream instead of soap.
  - If skin dry, moisturise skin with emulsifying ointment, twice a day.
  - Keep nails short.
- Apply calamine lotion as needed.
- If ≥ 2 years old, give cetirizine daily until itch controlled, up to 2 weeks:
  - If 2-6 years old, give 5mg.
  - If ≥ 6 years old, give 10mg.
- Advise to return if rash develops.

No

- If yellow skin/eyes, jaundice likely →59
- If pallor (pale conjunctiva/palms of hands), check Hb: if Hb < 10g/dL in child < 5 years or Hb < 11g/dL in child ≥ 5 years, **anaemia** likely ⮌ 45.
- If any of: dry skin, brittle hair, constipation, puffy face, intolerant to cold or thyroid enlargement, check TSH. If abnormal, refer to doctor.
- Advise to:
  - Avoid hot baths, wool/itchy fabrics and scratching as these may worsen itch.
  - Wash with aqueous cream instead of soap.
  - Moisturise skin, with emulsifying ointment twice a day.
  - Keep nails short.
- Apply calamine lotion as needed.
- If ≥ 2 years old,give cetirizine daily until itch controlled, up to 2 weeks:
  - If 2-6 years old, give 5mg.
  - If ≥ 6 years old, give 10mg.
- If no better after 2 weeks, discuss/refer.

- If known with a life-limiting illness, also give palliative care ⮌ 142.
- If diagnosis uncertain, discuss/refer.

Generalised red rash

- Ask about: when and where rash started and spread, exposure to medications, other people who are ill, associated symptoms. If joints symptoms →70.
- Look closely at type, pattern and distribution of rash. Check eyes, inside of mouth (inside of cheeks, tongue and palate), feel lymph nodes. Check for tick bite →42.
- Use responses to assess and manage further:

Child taking medication and rash appeared after medication started.

If child being treated for bacterial tonsillopharyngitis and red rash develops only after starting antibiotic (amoxicillin), **glandular fever** likely. Stop antibiotic. Reassure will resolve spontaneously. Otherwise:

Drug reaction likely
Rash may be mild, patchy spots or widespread (like burns)

If any of:
- Temperature ≥ 38°C
- Shock[1]
- Difficulty breathing
- Face/tongue swelling
- Abdominal pain
- Extensive rash
- Vomiting/diarrhoea
- Blisters, peeling areas
- Jaundice
- Rash in mouth, eyes/ genitals

Give urgent attention →71

If urgent attention not needed:
- Stop all medication and discuss/refer unless newly started on ART or TB treatment, discuss/refer first.
- If itch: give cetirizine daily until itch controlled, up to 2 weeks: If 2-6 years old, give 5mg. If ≥ 6 years old, give 10mg. If < 2 years old, apply calamine lotion.
- Advise to return if condition worsens.

Child not taking medication or rash appeared before medication started.

Ask about recent fevers and check temperature:
- If no fevers (temperature ≥ 38°C) now or in past 3 days: reassure carer and advise to return if rash persists after 2 days.
- If fever (temperature ≥ 38°C) now or in past 3 days: is there conjunctivitis, cough, coryza (runny nose)?

Yes, did rash start on face and then spread to trunk and limbs?

Yes: **Measles** likely
Numerous, blanching flat red spots (some spots may have merged together).
Usually starts on head/neck and then spread down to trunk and out limbs.

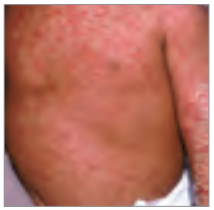
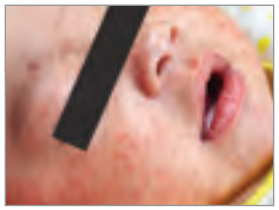


Image used with permission from VisualDx (www.visualdx.com)


© CDC Public Health Image Library

Give urgent attention to the child with measles and any of:
- Child < 6 months old
- Difficulty breathing
- Swelling of legs/hands/feet
- Headache, drowsy, neck stiffness, **meningitis** likely →42
- Wasting
- HIV
- TB

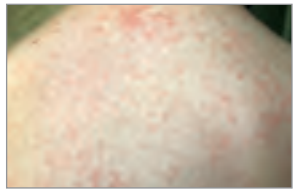
Manage and refer urgently:
- Assess and interpret glucose ⮌ 31 and assess and manage child's fluid needs ⮌ 27.

Approach to the child with measles not needing urgent attention:
- Notify[4] and send clotted blood to confirm diagnosis ⮌ 162.
- Advise that measles is contagious and child needs to isolate for 4 days after start of rash.
- If < 5 years[5], give additional vitamin A (⮌ 156:39).
- Give close contacts ≥ 6 months old measles vaccination within 72 hours.
- Advise to return if not better after 1 week.

No

No
- If sore throat and rash rough to touch like sand-paper or circumoral pallor[2], or strawberry tongue[3], **scarlet fever** likely. Treat as for bacterial tonsillopharyngitis →50.
- If no sore throat: are there painful lymph nodes behind ears or back of head/neck?

No


© University of Cape Town

Non-specific viral rash likely
- Reassure that illness will resolve spontaneously.
- Advise carer/child to return if:
  - Condition worsens.
  - Fever for > 3 days
  - Rash persists > 1 week.

Yes

Rubella likely
- Reassure that illness will resolve spontaneously.
- Advise to strictly isolate away from pregnant women.
- Keep home for 7 days after onset of rash.
- Advise to return if condition worsens.

Give paracetamol 15mg/kg (up to 1g) 6 hourly as needed up to 5 days (⮌ 155:34).

[1]If ≥ 2 of 1) cold hands/feet, 2) weak/fast pulse (⮌ 167), 3) capillary refill time (CRT) > 2 seconds, 4) decreased level of consciousness (⮌ 166)), **shock** likely. [2]Circumoral pallor describes white area around the mouth, contrasting with rest of red flushed face. [3]A strawberry tongue is name given to a swollen, bumpy inflamed tongue that resembles the skin of a strawberry. [4]Complete the notifiable medical conditions (NMC) case notification form and send to NMCsurveillanceReport@nicd.ac.za or notify electronically: https://www.nicd.ac.za/nmc-overview/notification-process. [5]Only give vitamin A in child ≥ 5 years old if measles confirmed on blood test.

Lumps and bumps on skin

- If painful, red, warm lump, **boil/abscess** likely →72.
- If pimples/pustules on scalp, **folliculitis** likely →81.
- If red itchy crops of bumps that blister, and heal with darkening of skin, may have scratch marks, **insect bites** likely →74.

< 1 year old and bumpy rash.

Tiny red bumps progressing to pustules, appears within 72 hours of birth.

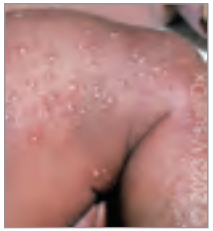
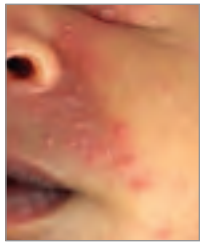


Image used with permission from VisualDx (www.visualdx.com)

Erythema toxicum likely

Reassure carer that rash is common and will resolve on its own within 1 week.

White bumps on nose and cheeks, appears before 1 month old.



© University of Cape Town

Milia likely

Reassure carer that no treatment is needed - it will resolve on its own within a few months of life.

Red bumps and pustules on face only (usually cheeks), appears around 3 weeks old.

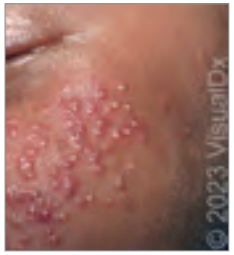
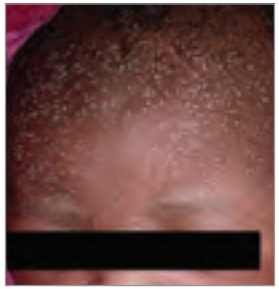


Image used with permission from VisualDx (www.visualdx.com)

Baby acne likely

- Advise carer:
  - Wash skin with mild soap daily.
  - Avoid moisturisers/ oils on affected areas.
- Reassure that it will resolve within 2 months with no scarring.
- If extensive, scarring or no better after 2 months, refer.

Small clear/red, itchy bumps on head/neck/ trunk in hot, humid climate, heavily wrapped baby, or following fever.

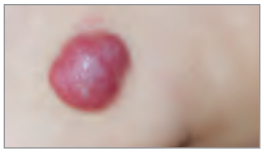


© University of Cape Town

Miliaria (**heat rash**) likely

- Advise carer:
  - Keep baby cool and avoid sweating.
  - Dress in loose cotton clothing.
  - Give cool baths.
  - Wash daily and gently rub skin with cloth.
- If fever, give paracetamol 15mg/kg (up to 1g) (↺ 155:34) as needed for up to 5 days.
- For itch/discomfort, apply calamine lotion as needed.

Pink, red or blue lump/s, warm to the touch. Present from birth or in first few weeks.

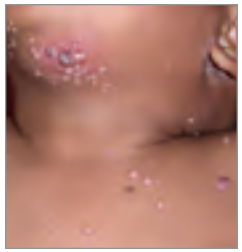


© University of Cape Town

Haemangioma likely

- Advise carer:
  - Grows rapidly over first year of life, then starts to shrink.
  - No treatment is needed.
  - It should resolve by age 9 but small red mark may remain.
- Refer if:
  - Lesion on lips, around eyes/nose/ear, over spine/front of neck.
  - Ulcerating or bleeding
  - Infected (skin red, warm, painful)
  - Multiple or extensive
  - Not starting to shrink after first year.

Skin coloured or pearly white bump/s with central dimple.

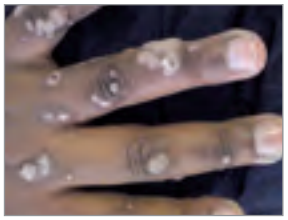


© Atlas of Paediatric HIV infection. CC BY 4.0 (www.creativecommons.org/licenses/by/4.0)

Molluscum contagiosum likely

- If extensive or large, test for HIV ↺ 109.
- Reassure child/carer that bumps should resolve on their own after several years or with ART.
- Refer for liquid nitrogen or treatment with podophyllin or topical retinoids if:
  - Extensive
  - On eyelid
  - Intolerable and not responding to treatment.

Raised, rough lumps and bumps, often on hands, fingers, elbows or knees.



© University of Cape Town

Warts likely

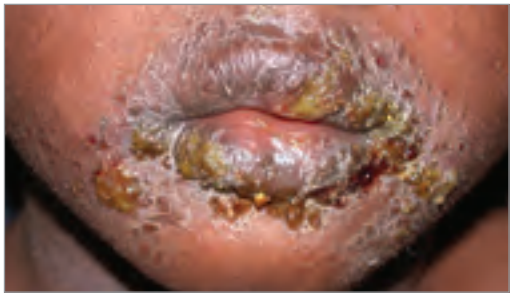
- If under foot, **plantar wart** likely →69.
- Reassure child/carer that warts often disappear on their own.
- If treatment desired:
  - Soften wart by soaking in warm water and scrub gently with clean nail file.
- After drying well, protect surrounding skin with petroleum jelly.
- Apply wart magic (podophyllin/ salicyclic acid/benzoin tincture) to the wart at night and allow to dry. Protect surrounding skin with petroleum jelly. Wash off with soap and water in morning.
- Repeat every night for up to 5 days, until wart disappears. Repeat after 1 week, if needed.
- If extensive or no better with treatment, test for HIV ↺ 109.
- If extensive, refer.

If diagnosis uncertain, discuss/refer.

Crusts, flaky skin and ulcers

Ask how and when skin symptoms started and look at the colour, characteristics and distribution. Also check for additional clues like pus-filled blisters.

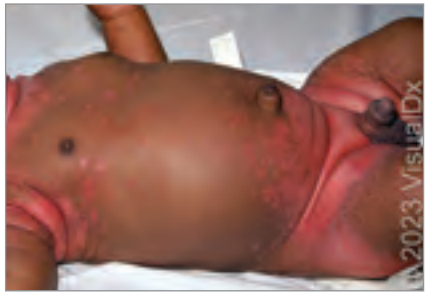
Pus-filled blisters which dry to form honey coloured crusts. Often around mouth or nose. May have started as insect bite, scabies, injury or eczema.



Impetigo likely

- Keep nails short. Wash and soak sores in soapy water to soften and remove crusts. Cover draining lesions with saline-soaked gauze dressing.
- Apply povidone iodine 5% cream 8 hourly and give cephalexin[1] 12-25mg/kg (up to 500mg) 6 hourly for 5 days (↩ 151:12).
- Look for cause: if insect bites ↩ 37, lice/nits ↩ 81, scabies ↩ 74, eczema ↩ 121.
- If extensive or poor response to 5 day course of cephalexin , repeat treatment.
- Advise carer that impetigo is contagious:
  - Ensure regular hand-washing to prevent spread.
  - May return to school 1 day after starting antibiotic.
- Refer if:
  - Extensive lesions/cellulitis/abscess/temperature ≥ 38°C
  - No better after 2 courses of cephalexin.
- Advise child/carer to return immediately if blood in urine or limb/face/feet swelling and refer same day.

Flaky or greasy crusts with underlying red base. Often affects face, forehead, behind ears, eyebrows, eyelids and nose creases. May be itchy. Usually in infant < 1 year old.



Seborrhoeic dermatitis likely

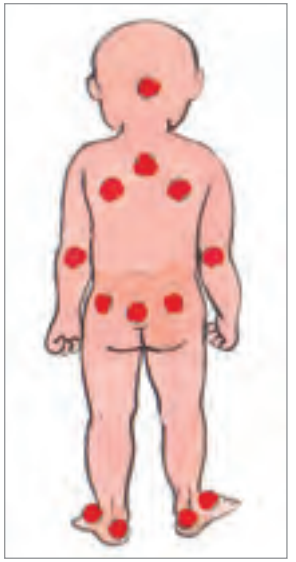
- Reassure carer that it will resolve without treatment in few weeks/months.
- If on scalp, →81. If on nappy area →80.
- If extensive or > 1 year old, and HIV status unknown, test for HIV ↩ 109.
- Advise carer to:
  - Trim nails and avoid scratching.
  - Wash body with aqueous cream and avoid perfumed soap.
- Apply hydrocortisone 1% cream once a day for 4 weeks. Then as maintenance, apply once or twice weekly as needed.
- If poor response/severe, apply betamethasone ointment 0.1% once a day for 7 days. Avoid face, neck and flexures (skin creases around joints).
- Refer if extensive and no response to treatment.

Well-defined, raised plaques covered with silvery scale. Often on knees, elbows, lower back, scalp. May have pitted nails.

Psoriasis likely

- Doctor to confirm diagnosis and refer to specialist, ideally within 2 weeks.
- If delay in specialist review and acute flare (worsening redness, dryness, itchiness, pain), apply betamethasone 0.1% ointment twice a day for 1-2 weeks (avoid face and genitalia). Then hydrocortisone 1% ointment twice a day until flare subsides.
- Advise carer/child to:
  - Keep nails short and avoid scratching.
  - Expose skin to sunlight before 11am for 30 minutes/day.
- If status unknown, test for HIV ↩ 109.

Ulcer in common bedsore site, child usually in bed or wheelchair.



Pressure ulcer likely

- Gently clean ulcer with sodium chloride 0.9% solution then apply zinc and castor oil ointment.
- Educate carer to prevent further bedsores:
  - Wash and dry skin daily.
  - Look daily for skin changes.
  - Keep linen/wheelchair seat dry.
  - Move (lift, do not drag) child every 1-2 hours if unable to shift own weight.
- If child known with a life-limiting illness, also give palliative care ↩ 142.
- Refer to hospital.

If skin lesions in child with severe wasting (WFL/H[2] below -3 line), BMI[3] below -3 line, or MUAC[4]< 11.5cm, **severe acute malnutrition with complications** likely →96.

[1]If severe penicillin allergy (history of anaphylaxis, urticaria or angioedema), give instead azithromycin 10mg/kg (up to 500mg) once daily for 3 days instead (↩ 151:10). [2]Weight-for-length/height. [3]Body mass index in a child ≥ 5 years old. [4]Mid-upper arm circumference in child under 5 years old.

Altered skin colour

- If yellow skin, **jaundice** likely →59.
- Look at affected area of skin: is area of skin red/pink, dark, light or absent colour?

Red/pink areas present from birth

Is there a clear edge?

Sharply defined edge

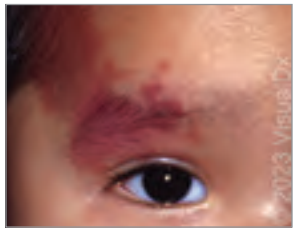


Image used with permission from VisualDx (www.visualdx.com)

Port wine stain likely (congenital malformation)

- Advise child/carer:
  - Gently explain that this is likely permanent. It usually grows with child and may get darker and thicker in adulthood.
  - If causing distress, try covering with cosmetics.
- As child gets older, ask about school refusal and bullying/teasing ⮌ 132.
- Refer if:
  - Becomes warm, painful or raised
  - Around eye
  - Vision problems
  - Seizures/fits
  - Weakness of limb/s
  - Developmental delay
  - Causing significant distress

No clear edge

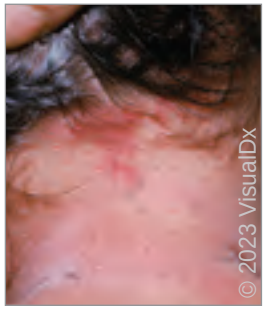


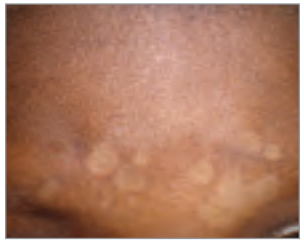
Image used with permission from VisualDx (www.visualdx.com)

Salmon patch/storkbite likely

- Reassure carer it will fade, usually within 2 years.
- No treatment needed.

Dark patches

Fine scale may be seen if scraped.



© Atlas of Paediatric HIV infection. CC BY 4.0 (www.creativecommons.org/licenses/by/4.0)

Tinea versicolor likely

- Apply selenium sulphide 2.5% shampoo. Lather shampoo on affected areas.
  - Apply daily for 3 days in a row: leave on for 30 minutes, then wash off, *or*
  - Apply once weekly for 3 weeks: leave on overnight, then wash off in the morning.
- Advise that colour may take months to return to normal, but absence of scale indicates adequate treatment.
- If ≥ 6 years old, give 10mg.
- Recurrence is common.

Light patches

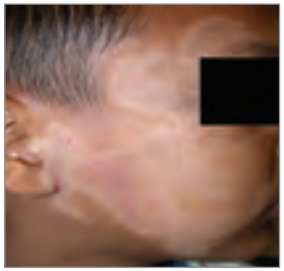
Where is patch on body?

Trunk

Pityriasis alba likely

- Mild form of eczema.
- Reassure carer it will resolve in a few months.
- Apply hydrocortisone 1% cream twice a day until resolved.
- Advise child/carer:
  - Apply sunscreen daily.
  - Avoid sun exposure, wear hats/long-sleeved tops.

Face

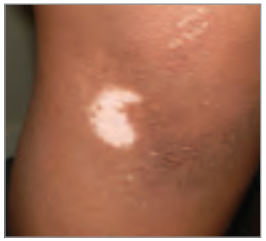


© University of Cape Town

Absence of colour

Is absence of colour patchy or generalized?

Patchy



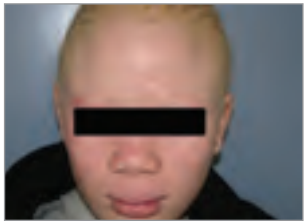
© University of Cape Town

Vitiligo likely

- Apply sun barrier cream to sun-exposed areas, 15 minutes before going out into the sun.
- Advise child/carer:
  - If causing distress, try covering with cosmetics.
  - Skin colour may return, although usually not on hands, feet, lips and genitals.
- As child gets older, ask about school refusal and bullying/teasing ⮌ 132.
- Refer to specialist.

Generalised

Present from birth. Involves skin, hair and eyes.



© University of Cape Town

Albinism likely

- Give sun barrier cream and advise to apply to sun-exposed areas (face,neck, ears, chest, legs, arms and feet) *every day.*
- Advise child/carer:
  - Avoid sun exposure as much as possible, wear hats, long-sleeved tops, long pants, and use an umbrella to shade from sun.
  - Wear sunglasses, to prevent eye damage.
  - Check skin regularly for new or changing skin lesions, especially in sun-exposed areas.
- Refer to specialist for eye care.
- If any skin changes, refer to exclude skin cancer.
- Ask about school refusal/bullying/teasing ⮌ 132.

Refer if diagnosis uncertain.

Nappy rash

- Ask about: when and where rash started, type of nappies used, frequency of nappy changes, stools (if watery stools and/or > 3 stools/day ↩ 61), changes in diet, treatment tried already.
- Look at: the rest of the skin, check buttocks, area around anus and open groin folds to see if rash involves creases. Look for: scaling/satellite spots (small red flat dots near edge of rash).

Does rash involve inguinal creases (skin folds between the abdomen and thigh)?

No

Irritant nappy dermatitis likely

Most common rash. Red patches on surfaces that are in direct contact with the nappy. Inguinal crease not involved.

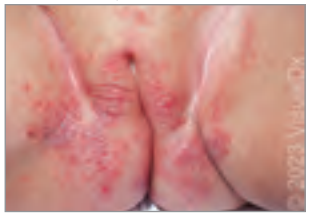


Image used with permission from VisualDx (www.visualdx.com)

Explain that moist environment of nappy and prolonged contact and friction of soiled nappy irritates baby's sensitive skin. May also be caused by: harsh soaps or detergents used to clean nappies.

Yes

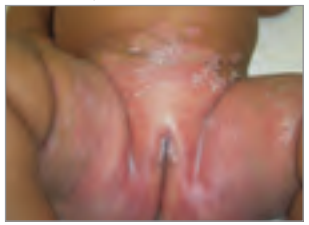
Does infant have a rash anywhere else on their body (check: face, scalp, and skin folds like armpits, neck, and behind ears)?

Yes

Seborrheic dermatitis likely

- Usually presents in the first month of life.
- Salmon-pink patches and scaling or flakiness.
- Often begins on scalp and face.
- More likely to develop irritant nappy dermatitis.

© Atlas of Pediatric HIV infection. CC BY 4.0 (www.creativecommons.org/licenses/by/4.0)



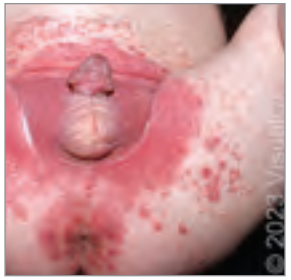
© University of Cape Town

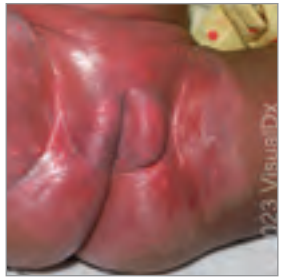
- Give barrier cream (zinc and castor oil ointment) to apply at every nappy change.
- If rash persists > 3 days: add clotrimazole 1% cream before covering with barrier cream (zinc and castor oil ointment), with each nappy change.

No

Candida likely

Usually involves inguinal creases, with discrete/separate satellite pustules and spots, and scaling along the margins.





Images used with permission from VisualDx (www.visualdx.com)

Apply clotrimazole 1% cream and then barrier cream (zinc and castor oil ointment) with each nappy change.

Advise the parent/carer on good nappy practice:

- Change nappy frequently, as soon as soiled or at least every 2 hours, more often if diarrhoea or if newborn. Avoid waterproof pants. If able, use disposable nappies while rash healing.
- Use warm water and a soft cloth to clean area. Avoid soaps and bubble baths. Pat gently or air dry, avoid rubbing. Allow time without nappy on - expose to air and sunlight.
- Apply thick layer of barrier cream at every change. Avoid removing barrier cream after each nappy change, apply another layer. Continue for at least 2 weeks, after rash has resolved.

- For pain or discomfort, give paracetamol 15mg/kg (up to 1g) 6 hourly as needed until rash improved or for up to 5 days (↩ 155:34).
- Advise to return if new pustules, blisters, honey-crusted lesions develop, **bacterial infection** (like **impetigo**) likely: give povidone iodine 5% cream to apply before barrier cream 8 hourly. If severe, also give cephalexin[1] 12-25mg/kg (up to 500mg) 6 hourly for 5 days (↩ 151:12).
- If rash worsens or no better after 3 days, discuss/refer.

If burns, bruising or unusual/patterned wounds in nappy area, or poor hygiene, consider abuse/neglect ↩ 136.

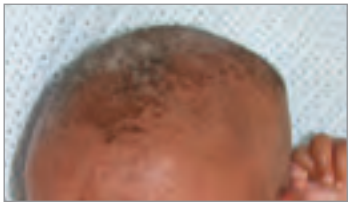
[1]If severe penicillin allergy (history of anaphylaxis, urticaria or angioedema), give instead azithromycin 10mg/kg (up to 500mg) once daily for 3 days instead (↩ 151:10).

Hair and scalp symptoms

- If dark hair has turned reddish or hair has become sparse/brittle, assess growth ⮌ 15. If itchy, scaly, dry skin affecting scalp and inside of elbows, knees, cheeks or neck, **eczema** likely →121.
- Ask about rash, itch and hair loss:

Rash with or without itch

Greasy scale over red/pink patches
May also occur between eyebrows, in nose folds, behind ears. Usually itchy.



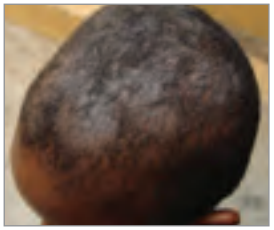
Seborrhoeic dermatitis likely
- If < 1 year old and only on scalp, **cradle cap** likely:
  - Apply baby shampoo to scalp, massage and rinse off, then gently brush scalp with fine-toothed comb or soft brush to remove loosened scale.
  - Repeat daily until resolved.
- If ≥ 1 year old:
  - Apply selenium sulphide 2.5% shampoo to scalp and massage
  - Rinse off after 10 minutes.
  - Use once a week until resolved (usually 2-4 weeks) then every second week for maintenance.
- If involving face, forehead, behind ears, eyebrows, eyelids and nasal creases ⮌ 78.
- If extensive HIV status unknown, test for HIV ⮌ 109.
- If no better after 3 months, refer.

Red pimples, pustules or nodules around hair follicles

Folliculitis likely
- Wash scalp with povidone iodine scrub once a day until lesions resolved.
- Advise to wash hands regularly to prevent spread.
- If deep/extensive/ recurrent or no response:
  - cephalexin[1] 12-25mg/kg (up to 500mg) 6 hourly for 5 days (⮌ 151:12).
  - Test for HIV ⮌ 109.

Itch *without* rash

Scaly patches, itchy scalp with patchy (usually circular) hair loss



Tinea capitis likely
- Give fluconazole 6mg/kg (up to 200mg) once daily for 28 days (⮌ 153:22).
- Advise child/carer to wash combs and hairbrushes with bleach and avoid sharing them.
- Explain to carer that child can go to school once treatment started and there is no need to shave head or cut hair.

Severe itch with lice or eggs in hair. May have small red bites on back of neck.

Lice likely
- If < 2 months old: comb wet hair with fine toothed comb after shampooing with normal shampoo.
- If ≥ 2 months old: apply permethrin 5% lotion to dry hair:
  - Ensure whole scalp covered and hair saturated.
  - Comb hair with fine toothed comb, rinsing or wiping comb frequently.
  - Rinse off after 1 hour.
  - Repeat every 5 days for 3 weeks.
- Wash comb/hair items, clothes and linen used in past 2 days in very hot water.
- Treat household contacts if infected or sharing a bed with child.
- Consider child abuse if lice on pubic, peri-anal areas or eyelashes/ eyebrows ⮌ 136.

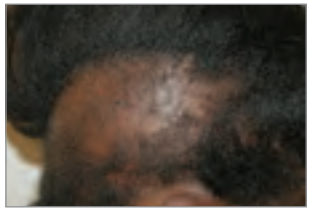
Fine, white flakes on hair and clothing

Dandruff likely
- Apply selenium sulfide 2.5% shampoo:
  - Massage into scalp.
  - Rinse off after 10 minutes.
  - Use at least once a week until resolved (usually 2-4 weeks) then every second week for maintenance.

Hair loss *without* rash/itch

Does child wear tightly-pulled ponytails/ braids/weaves, with hair loss along hairline/in area of braids/weave *or* does child pulls at hair a lot *and* are hair follicles visible?

Yes



Traction alopecia likely
- Explain cause and advise to avoid tight hairstyles.
- Reassure hair will usually grow again once cause removed.
- If pulling at hair, check:
  - If angry, withdrawn or change in mood/behaviour/ feelings and not coping ⮌ 131.
  - If school problems ⮌ 132.
  - Ask child if anyone hurts/ upsets him/her. If appropriate, ask carer if aware of any abuse of child or siblings. If yes to either ⮌ 136.
- If no better after 3 months, refer.

No

Discuss/ refer.

If diagnosis uncertain, discuss/refer.

[1]If severe penicillin allergy (previous angioedema, anaphylaxis or urticaria), give instead give instead azithromycin 10mg/kg (up to 500mg) once daily for 3 days (⮌ 151:10).

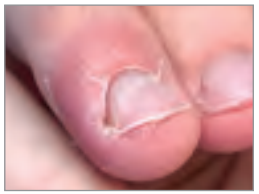
Nail symptoms

Look at nail/s and ask about trauma to nail:

Pain, redness and swelling of nail folds/edges. Often with history of trauma, such as nail biting, cutting nails too short or pushing the cuticle/edges back.

Is there pus visible?

Yes



© ARMcgrath, CC BY-SA 4.0 https://creativecommons.org/licenses/by-sa/4.0, via Wikimedia Commons

Acute paronychia likely

- Advise to avoid trauma to nail.
- If any pus collection under skin and able to tolerate procedure, incise and drain.
- Advise soaks in warm salt water for 20 minutes twice a day.
- Apply povidone iodine 5% cream after soaking.
- If severe pain/infection, pus or temperature ≥ 38°C, give cephalexin[1] 12-25mg/kg (up to 500mg) 6 hourly for 5 days (↺ 151:12).
- If no response, refer.

No

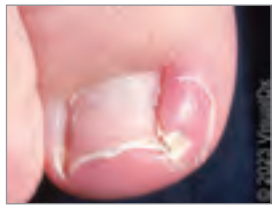
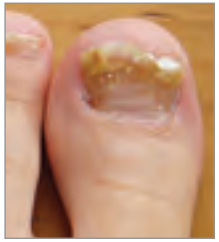


Image used with permission from VisualDx (www.visualdx.com)

Ingrown toenail likely

- If mild, pain not too severe and no signs of infection: trim nails in straight line to allow growth. Advise well fitting shoes.
- If severe redness and swelling/very painful and no pus: clean then elevate nail, separating nail from skin. Insert cotton swab to keep it separated for 2-12 weeks. Advise to apply dry dressings.
- If signs of infection, manage as for acute paronychia in adjacent box.
- If chronic/severe refer to surgical/orthopaedic service.

White/yellow disfigured nails, nail/s lifting from nail bed



pepsyrock, Public domain, via Wikimedia Commons

Fungal infection likely

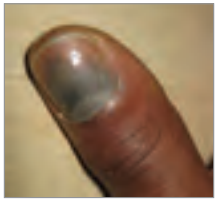
- Test for HIV ↺ 111 and diabetes ↺ 31.
- Psoriasis may cause nail thickening. Check for psoriasis on skin ↺ 78.
- Fungal nail infection is difficult to treat.
- Discuss/refer to dermatologist.

Blue/brown/black discolouration of nail

Has there been recent trauma to nail?

Yes

Blood and swelling under nail



© Grook da oger, CC BY-SA 4.0, https://creativecommons.org/licenses/by-sa/4.0, via Wikimedia Commons

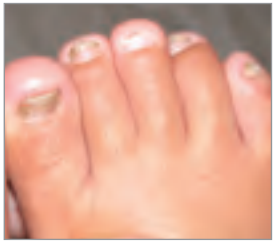
Haematoma likely

- Treat if painful and injury < 2 days old and able to tolerate procedure:
  - Clean nail with povidone iodine 100% solution.
  - Hold finger secure and gently twist a large bore needle into nail over centre of haematoma. Stop when blood drains through hole.
  - Cover with sterile gauze dressing.
  - Advise child/carer that nail may drain for up to 2 days.
- If no pain and no need to refer, reassure no treatment is needed.
- Advise to return if:
  - New pain occurs
  - Infection develops (red, swollen, warm, painful) **cellulitis** likely ↺ 72.
- Refer if:
  - Finger fracture likely
  - Extensive damage to nail bed
  - Unable to perform/tolerate procedure
  - No improvement after treating infection

No

- Ask about onset and appearance:
  - If changing, refer.
  - If present for some time and unchanged, review in 6 months: if still unchanged, reassure **pigmented naevus** likely and no treatment needed. Advise to return and refer if starts to change.
- Psoriasis may discolour nails. If psoriasis on skin ↺ 78.
- Review medication: chloroquine, fluconazole, ibuprofen, lamivudine, phenytoin and zidovudine can cause discolouration of nails. Discuss with doctor.

Transverse dents in nail/s (Beau's lines)



© University of Cape Town

- If fever ↺ 42.
- Consider malnutrition: assess growth ↺ 15.
- Check for paronychia in adjacent column.
- If above excluded, reassure dents are likely due to previous illness/ injury and will grow out with nail.

If diagnosis uncertain, discuss/refer.

[1]If severe penicillin allergy (previous angioedema, anaphylaxis or urticaria), give instead azithromycin 10mg/kg (up to 500mg) once daily for 3 days (↺ 151:10).

Prevent communicable infections in the newborn

Assess and manage the newborn exposed to HIV, TB, hepatitis B or syphilis. If exposed to HIV, assess and manage further ⮌ 84.

Assess the newborn exposed to TB, or the newborn who tests positive for HIV, for TB preventive treatment (TPT)

Was baby born to mother or household contact with TB and any of: 1) diagnosed with TB ≤ 2 months before delivery, 2) poor clinical response to TB treatment, 3) TB smear *or* TB culture positive at delivery, 4) diagnosed with TB soon after delivery?

- **Yes**
  - Baby HIV positive
    - If x-ray available, do anterior-posterior (AP) and lateral chest x-ray and arrange doctor review.
    - Does baby have any of: 1) respiratory rate > 60, 2) breathing problem, 3) feeding problem, 4) birth weight < 2500g/premature, 5) abdominal distension/enlarged liver/spleen, 6) jaundice, 7) weight loss > 10% , 8) appears unwell/lethargic?
      - **Yes**
        - **Congenital TB** likely. Refer urgently and notify[1].
        - If breathing problem ⮌ 53.
        - Avoid giving BCG vaccine if not yet given.
      - **No**
        Treat further according to TB exposure history and HIV status:
        - **TB exposed**
          - Avoid giving BCG vaccine soon after birth. Give BCG vaccine after TPT completed.
          - If exposed to drug-resistant TB, discuss with TB expert/hotline ⮌ 162.
          - **HIV unexposed**
            Give 3RH ⮌ 157 and pyridoxine 12.5mg daily and review after 1 month.
          - **HIV positive *or* HIV exposed on nevirapine**
            Give 6H ⮌ 157 and pyridoxine 12.5mg daily and review after 1 month.
        - **HIV positive, *not* TB exposed**
          - Give BCG vaccine if not yet given.
          - Start 6H ⮌ 157 and pyridoxine 12.5mg daily at 14 weeks routine care visit.
          - If not yet done, give HIV routine care ⮌ 111.
  - Baby HIV negative
    No need for TPT. Give routine care.
- **No**

Manage the baby born to mother with hepatitis B infection

- Arrange delivery at facility that stocks immunoglobulin (HBIG) and the monovalent hepatitis B vaccine:
  - Give hepatitis B immunoglobulin (HBIG) 200IU IM and hepatitis B vaccine 0.5mL (10mcg/0.5mL) IM within 12 hours of delivery.
  - Continue routine hepatitis B immunisations at 6, 10 and 14 weeks.

Arrange follow up when baby is 9 months old: take blood from baby for HBsAg and hepatitis B surface antibodies (HBsAbs):

- **HBsAg positive**
  Baby has **hepatitis B infection**, refer and notify[1].
- **HBsAg negative and HBsAbs positive (HBsAb titre ≥ 10)**
  Baby has immunity against hepatitis B.
  Reassure parent/carer, no further testing needed.
- **HBsAg negative and HBsAbs negative (HBsAb titre <10)**
  Repeat hepatitis B vaccine 0.5mL (10mcg/0.5mL) IM at this visit and again in 1 month. Then repeat HBsAbs test 1 month later: if HBsAbs still negative, refer.

Manage the baby born to mother with syphilis

- If rash (peeling rash, red/blue spots or bruising especially on soles and palms), jaundice, pallor (pale conjunctiva/palms of hands), distended abdomen, swelling, birth weight < 2500g, runny nose, respiratory distress, hypoglycaemia, **congenital syphilis** likely. Refer urgently and notify[1].
- If no signs/symptoms of congenital syphilis and any of the following, give baby single dose benzathine benzylpenicillin 50 000 units/kg IM into outer thigh, and discuss/refer:
  1) Mother received < 3 doses of benzathine benzylpenicillin injections
  2) Mother received antibiotic other than benzathine benzylpenicillin to treat syphilis
  3) Delay (> 14 days) between maternal doses of benzathine benzylpenicillin
  4) baby delivered within 30 days of mother receiving last dose of benzathine benzylpenicillin
  - If mother received antibiotic other than benzathine benzylpenicillin or baby born within 30 days of mother receiving at least one dose of benzathine benzylpenicillin, notify[1] congenital syphilis.

[1]Complete notifiable medical conditions (NMC) case notification form and send to NMCsurveillanceReport@nicd.ac.za or notify electronically: https://www.nicd.ac.za/nmc-overview/notification-process.

Manage the HIV-exposed infant

Approach to the HIV-exposed baby

- Do mother's viral load at delivery and do HIV PCR test on baby as soon after birth as possible (within 48 hours). Place barcodes on discharge form and RtHB (with mother's consent).
- If abandoned/orphaned baby, do HIV PCR test and HIV rapid test on baby same day. Manage as higher risk formula feeding baby below, even if HIV rapid test negative[1].

Start post-exposure prophylaxis (PEP) as soon as possible, ideally within 1 hour of birth

- Give baby zidovudine (AZT) 12 hourly (see dosing table below) *and* give nevirapine (NVP) once daily (see dosing table below). Give supply for 6 weeks and advise carer to bring all medication to next visit.
- Advise to return for baby's HIV PCR and mother's viral load results in 3-6 days.

At 3-6 day postnatal visit, check results of baby's HIV PCR and mother's viral load and manage according to results:
If results not available, continue AZT and NVP and follow-up after 1 week. If no HIV PCR done, do at this visit and follow-up after 1 week.

Baby's HIV PCR negative

Mother's VL < 50 at delivery

Low risk

- Stop AZT[2].
- Give NVP daily for 6 weeks (see table).
- Repeat mother's VL 6 monthly if breastfeeding and support mother's adherence to ART ⮌ PACK Adult.

Mother's VL ≥ 50 *or* unknown at delivery

Higher risk

- Manage mother's unsuppressed VL ⮌ PACK Adult.
- If mother's VL ≥ 1000, discuss need for HIV resistance test for mother and baby with HIV expert/hotline ⮌ 162.

Breastfeeding[3]

- Give AZT 12 hourly for 6 weeks (see dosing table below *and*
- Give NVP daily for *at least* 12 weeks (see dosing table below)
- Stop NVP only once mother's VL < 50 *or* 4 weeks after final breastfeed.
- If mother on 3rd line ART ≥ 3 months and VL ≥ 1000, alert to risks of breastfeeding, discuss changing to formula feeding and refer to nutritional therapeutic programme (NTP). Discuss with HIV expert/hotline ⮌ 162.

Formula feeding

Give AZT (12 hourly) *and* NVP (daily) for 6 weeks (see dosing tables below).

- Repeat baby's HIV test at 10 weeks, 6 months, 18 months, 6 weeks after final breastfeed or nevirapine stopped (if given ≥ 12 weeks) or any time if baby unwell.
- If mother's VL ≥ 50 at any time during breastfeeding after NVP and/or AZT stopped *or* mother tests HIV positive for the first time during breastfeeding: repeat/do child's HIV test at this visit, restart/start NVP and AZT (see above), and reassess once child's HIV test result available.

Nevirapine syrup (10mg/mL)

Age	Weight	Dose
Birth to 6 weeks	2-2.49kg[4]	1mL (10mg) daily
	≥ 2.5kg	1.5mL (15mg) daily
6 weeks to 6 months		2mL (20mg) daily
6 to 9 months		3mL (30mg) daily
≥ 9 months		4mL (40mg) daily

Zidovudine syrup (10mg/mL)

Age	Weight	Dose
Birth to 6 weeks	2-2.49kg[4]	1mL (10mg) 12 hourly
	≥ 2.5kg	1.5mL (15mg) 12 hourly
6 weeks to 6 months		6mL (60mg) 12 hourly
≥ 6 months		Dose 12 hourly according to weight ⮌ 160.

Baby's HIV PCR positive

- Send 2nd HIV PCR test and refer to doctor to change to ART ⮌ 111.
- Advise mother to breastfeed for at least 2 years.
- If formula feeding, consider feasibility of re-establishing breastfeeding.
- Check if baby needs TB preventive treatment (TPT) ⮌ 83.

Baby's HIV PCR indeterminate

- Continue HIV PEP according to mother's delivery VL result (see adjacent).
- Do HIV PCR test *and* HIV viral load, review child and check results within 3 days.

[1]An HIV rapid test shows whether baby was exposed to HIV, but cannot determine whether baby is infected with HIV. An HIV PCR test determines if baby is infected with HIV. [2]Return unused AZT to pharmacy to be discarded. [3]A breastfed baby has breastfed in the past 7 days or is mixed feeding. [4]If weight < 2kg, discuss medication options with HIV expert/hotline ⮌ 162.

Exposed to infectious fluid: post-exposure prophylaxis (PEP)

- Prevent HIV and hepatitis B with PEP following sexual assault or accidental exposure to potentially infectious blood or bodily fluids. For prevention of vertical transmission of HIV and hepatitis B →84.
- If exposure involved intact skin, or if exposed to vomit, stool, urine, saliva or sweat (non-blood stained), PEP is *not needed*. If unsure, discuss with HIV expert/hotline ↩ 162.

Give urgent attention to the child exposed to infectious fluids in the last 72 hours and any of:

- Exposure through mucosa or broken skin to any of: blood or blood-stained fluid, semen, vaginal secretions, breast milk from woman other than mother, wound secretions
- Received or gave a human bite that broke the skin
- Sexual assault (oral, vaginal or anal) ↩ 136
- Needle-stick or sharps injury

STEP 1: Give child immediate attention

- If broken skin, clean area immediately with soap and water. If human bite severe enough to cause bleeding only, prevent only hepatitis B if needed: move to Step 3 below.
- If splash to eyes, mouth or nose, immediately rinse mouth/nose or irrigate eye thoroughly with water.
- If child exposed to breast milk from woman other than mother, discuss immediately with HIV expert/hotline if milk needs to be aspirated via nasogastric tube (NGT) ↩ 162.

STEP 2: Assess exposed child's need for HIV PEP according to HIV status

Child HIV negative or status unknown
Obtain consent, test for HIV, check other blood tests (see below) and manage further according to age and HIV test result:

Child known HIV positive

Child < 18 months old
- Check HIV PCR test and review result within 2 days.

Child ≥ 18 months old: check HIV rapid test.

Negative

≥ 24 months old
Confirm with HIV ELISA.

18-24 months old
Do HIV PCR test. Review result within 2 days.

Positive

≥ 24 months old
Confirm with HIV rapid test.

- Give PEP while awaiting results: choose HIV PEP according to age and weight:
  - If exposed is a neonate[1] *or* < 3 kg *or* if source failing PI-based ART *or* on 3rd line ART, discuss HIV PEP options with HIV expert/hotline ↩ 162
  - If < 10 years old *or* < 30kg, give zidovudine (AZT) + lamivudine (3TC) + dolutegravir (DTG)[2] for 28 days ↩ 160. Give first dose now.
  - If ≥ 10 years old *and* ≥ 30kg, give tenofovir (TDF) + lamivudine (3TC) + dolutegravir (DTG)[2] (TLD) fixed dose combination (FDC) for 28 days ↩ 160. Give first dose now.

- Avoid giving HIV PEP, give instead HIV routine care ↩ 111.
- If newly diagnosed, communicate result ↩ 110.

STEP 3: Assess exposed child's need for hepatitis B PEP and give first dose if needed within 72 hours of exposure

- Check RtHB: a fully vaccinated child received 4 doses of hepatitis B vaccine, usually at 6, 10, 14 weeks and 18 months.
- If not fully vaccinated/vaccination status unknown, give hepatitis B vaccine 0.5mL (10mcg/0.5mL)[3] IM. Continue to assess child for hepatitis B PEP, even if fully vaccinated ↩ 86.

STEP 4: Check other blood tests in exposed and source clients

- Exposed child:
  - **All:** FBC + diff, hepatitis B surface antibodies (HBsAb)
  - **If PEP includes TDF:** creatinine.
  - **If sexual exposure:** syphilis.
  - **If needle-stick/sharps injury or source hepatitis C positive/unknown:** hepatitis C antibody (HCV Ab)
- Source (if available and consents to test/s):
  - **If HIV unknown:** HIV ELISA
  - **If hepatitis B unknown:** hepatitis B surface antigen (HBsAg)
  - **If hepatitis C unknown:** hepatitis C antibody (HCV Ab)
  - **If sexual exposure:** syphilis

STEP 5. Review with blood results within 3 days ↩ 86.
If sexual assault, ensure child transferred to Thuthuzela care centre/district hospital same day.

[1]Baby < 28 days old. [2]If child on rifampicin, adjust dose ↩ 160. If < 20kg and DTG 10mg dispersible tablets unavailable, give instead lopinavir + ritonavir (LPVr) ↩ 160. [3]If ≥ 11 years old, give instead hepatitis B vaccine 1mL (20mcg/mL) IM.

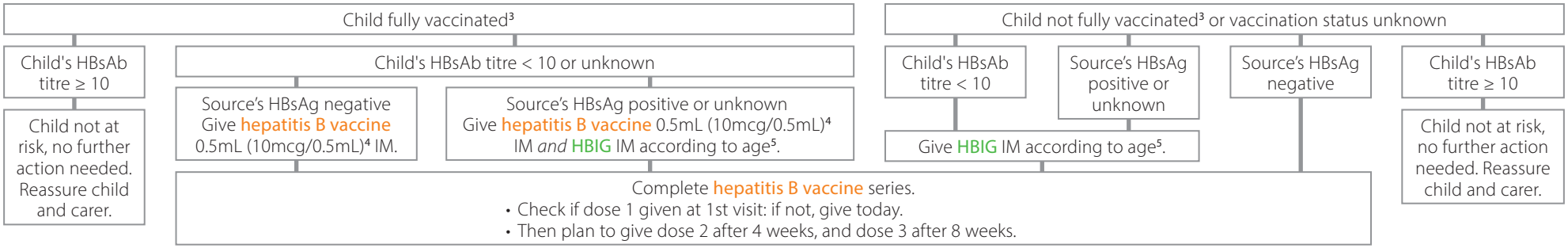
Review the child on post-exposure prophylaxis (PEP)

Review the child on PEP within 3 days, at 2 weeks, 4 weeks, 6 weeks and 4 months after exposure. Check results of 1st visit within 3 days.

Assess	When to assess	Note
Adherence, side effects	3 days, 2 weeks	Ask about adherence to HIV PEP and side effects: nausea, vomiting, diarrhoea. Manage on symptom pages. Advise that these should resolve within 2 weeks. Advise to return immediately if side effects worsen or persist ≥ 2 weeks.
Mental health	Every visit	Assess emotional support and address anxieties around exposure. Link with counselor or support helpline ⮌ 162.
Sexual health	Every visit	If sexually active[1], emphasise condom use, especially for 4 weeks after exposure. If sexual assault ⮌ 136.
Source blood results (if done)	3 days	• If source HIV ELISA negative, discuss continuation of child's HIV PEP with HIV expert/hotline ⮌ 162. • If source HIV ELISA, HBsAg, hepatitis C antibody, or syphilis positive, refer source for care. Use results to decide when to do tests in child (below).
HIV PCR	• Done at 1st visit • 6 weeks, 4 months	• If HIV PCR positive: communicate result ⮌ 110, confirm with 2nd HIV PCR, and give HIV routine care ⮌ 111. Change HIV PEP to ART. • If HIV PCR negative: if < 24 months old, repeat after 6 weeks and 4 months. If ≥ 24 months old, use HIV ELISA test instead.
HIV ELISA	• Done at 1st visit • 6 weeks, 4 months	• If HIV ELISA positive: communicate result ⮌ 110, confirm with 2nd HIV ELISA , and give HIV routine care ⮌ 111. Change HIV PEP to ART. • If HIV ELISA negative: if ≥ 24 months old, repeat at 6 weeks and 4 months. If < 24 months old, use HIV PCR test instead.
FBC + diff	• Done at 1st visit • If on AZT: 2 weeks, 4 weeks	If Hb < 8g/dL or neutrophils < 1.0 x 10^9/L or platelets < 50 x 10^9/L, discuss/refer.
Creatinine and eGFR[2]	• If done at 1st visit • If on TDF: 2 weeks	• If eGFR[2] < 80: avoid TDF, give instead zidovudine (AZT) ⮌ 160. • If Hb < 8g/dL or neutrophils < 1.0 x 10^9/L or platelets < 50 x 10^9/L, avoid AZT and discuss/refer.
Hepatitis B surface antibodies (HBsAb)	Done at 1st visit	Use HBsAb titre result to decide if further hepatitis B PEP needed (see below).
Hepatitis C antibody (HCV Ab)	If done at 1st visit	If negative, do hepatitis C PCR at 6 weeks. If positive, refer/discuss.
Hepatitis C PCR	If needed: 6 weeks	Only check if child's HCV Ab negative and source's positive/unknown. If hepatitis C PCR positive, refer.
Hepatitis B surface antigen (HBsAg)	If needed: 4 months	Only check if source HBsAg positive/unknown. If positive, discuss/refer.
Syphilis	If needed: 4 months	Only check If sexual exposure or source syphilis result positive/unknown. If positive, discuss/refer.

Decide if further hepatitis B prophylaxis needed

• Use child's vaccination status[3] and HBsAb result together with source's HBsAg results to decide if further prophylaxis needed:



[1]If any of: 1) sex not consensual 2) < 12 years old 3) 12-16 years old and partner not in peer group (partner should also be 12-16 years old), **sexual abuse** likely ⮌ 136. Otherwise advise reliable contraception ⮌ PACK Adult. Check that s/he knows how to use condoms. [2]eGFR = [height (cm) x 40] ÷ creatinine (µmol/L). [3]Check RtHB for child's vaccination status: a fully vaccinated child received 3 doses of hepatitis B vaccine, usually at 6, 10 and 14 weeks. If < 3 doses, child is not fully vaccinated. [4]If ≥ 11 years old, give instead hepatitis B vaccine 1mL (20mcg/mL) IM. [5]Hepatitis B immunoglobulin (HBIG): if < 5 years old, give 200IU. If 5-9 years old, give 300IU. If ≥ 10 years old, give 500IU. Use different injection sites for hepatitis B vaccine and HBIG. If HBIG unavailable, refer.

Sleep problems

Baby/child has a **sleep problem** if:
- Baby < 12 months old is sleeping < 12 hours per day (including naps).
- Child 1 to 3 years old is sleeping < 11 hours per day (including naps).
- Child 3 to 6 years old is sleeping < 10 hours per day (including naps).
- Child 6 to 13 years old is sleeping < 9 hours per day.

Approach to the child with sleep problems

- **Check medication (review with doctor):**
  - Phenobarbital, valproate and carbamazepine may cause daytime sleepiness.
  - Methylphenidate (used in ADHD), salbutamol inhalers (used in asthma) may cause difficulty falling asleep.
  - If HIV on ART: if on efavirenz, check if ART can be switched ⮌ 114. If on dolutegravir, advise child and carer to take dolutegravir in the morning to avoid difficulty falling asleep or staying asleep.
- **Ask about social risk/stressors:**
  - Ask who looks after child most of time and if carer aware of any abuse of child. Ask child if anyone hurts/upsets him/her. If yes to either, **child abuse** likely ⮌ 136.
  - Ask if different carers have different sleeping time rules.
  - If violence or drug/alcohol abuse at home, involve social worker.
  - Manage further according to type of sleep problem. Ask about difficulty falling asleep/staying asleep, bed-wetting/soiling, abnormal movements/behaviour or breathing problem/s:

Difficulty falling asleep or staying asleep	Bed-wetting or soiling	Abnormal movements or behaviour	Breathing problem/s
• If tight chest →57, persistent runny, itchy nose →49, itchy skin →75. • If anal itch/irritation, exclude worms ⮌ 63. • If miserable, stressed or angry →131. • If behaviour problem →128. • If child has a life-limiting illness, also give palliative care ⮌ 142.	• If previously dry, ask about recent stressful events. Discuss possible solutions. • If bed wetting and ≥ 5 years old, →64. If bed soiling and ≥ 4 years old →61. • If fits →28.	• If teeth grinding →52. • If child has fits →28. • If wakes up suddenly screaming or confused and inconsolable and > 3 years old, **night terrors** likely. - Advise carer there is no need to wake child. Advise to stay with child until s/he is asleep peacefully. - Reassure night terrors are not dangerous and will resolve by age 12.	• If cough/wheeze →53. • If snoring →49. • If episodes of no breathing > 10 seconds, **apnoea** likely, discuss/ refer same day.

If none of the above, disrupted sleep may be due to bad habits. See below for advice.

Advise the carer of the child with sleep problems to develop sensible sleep habits: inform carer that correcting a poor sleeping cycle can take a few weeks.

Prepare the sleeping environment:
- Make sure space is safe, warm, quiet and not brightly lit. Check child has enough space.
- Remove television, electronic games and cell phones from bedroom.

Establish a good bedtime routine:
- Advise on a consistent bed time and wake up time. Ensure all carers know the sleeping rules.
- Sit quietly with child and read story before bed time. An object of attachment, like a soft toy can help.
- In older child, allow time to unwind/relax before. Avoid screen time in the hour before bed.
- If struggling with parenting or child disobedient ⮌ 137.

Physical activity:
- Ensure child has > 1 hour of brisk exercise every day.

Food:
- Check child has adequate food and not going to bed hungry.
- Avoid drinking fluids in the 2 hours before bed. Avoid caffeine (coffee/tea, excluding rooibos) and sugar.

School environment:
- If school refusal/bullying/poor school grades ⮌ 132.
- If communication/learning problem ⮌ 88.

Advise the carer with a baby:
- Place baby on back to sleep (reduces risk of Sudden Infant Death Syndrome).
- Put baby to bed slightly awake, after a nappy change, food and comfort.
- Ensure night-time feed/s continue until 6 months old.

If sleep problem is causing significant distress, unable to find cause and no response to sensible sleep habits, discuss/refer.

Communication problem

Give urgent attention to the child with a communication problem if:
Suddenly unable to communicate as before. **Refer urgently.**

Approach to the child with a communication problem not needing urgent attention:
Ask carer if child appears to hear as other children do.

Child does not appear to hear as other children do.
Check ears for pain, discharge or eardrum problem.

If red, bulging/ abnormal looking eardrum or ear pain/ discharge

→48

No ear pain, discharge or eardrum problem
Refer to audiologist for hearing screen.

Test abnormal

- Ensure child has follow up with audiology and speech therapy.
- Help access support ⮌ 162.

Child appears to hear as other children do.
Arrange hearing test. If test abnormal, ensure follow up with audiology and speech services.

Test normal

Child does not have hearing problem. Assess communication (talking) problem:

- If child ≥ 6 years old, ask if talking problem affecting school work (failing grades): refer to school-based support team or speech therapist, where available.
- Check if understanding is appropriate for age by asking the following in child's home language:

≥ 1 year old	2 years old	3 years old	4 years old	5 years old
• Points to common items (cup, shoe, bottle). • Uses simple words ("mama, dada, ball")	• Points to a few body parts. • Does a one-step command ("fetch your bottle"). • Uses 2 word combinations ("come mommy").	• Understands opposites ("go-stop", "in-on", "big-little", "up-down"). • Follows 2 part command ("Pick up the book and give it to your mommy"). • Answers simple questions: - "Who is your best friend?" and "What is your favourite food?"	• Understands words like "cold", "hot", "hungry", "tired". • Stranger can understand what child is saying. • Says name, age, sex.	• Speaks clearly. • Answers questions about school.

Is child's understanding appropriate for age?

No, ***understanding*** **problem** likely.

- Assess milestones ⮌ 12.
- Refer to paediatrician. While waiting for appointment, also assess:
  - If child uses language in an unusual way such as copies sounds, has difficulty initiating or sustaining age-appropriate conversation, makes unusual or repetitive sounds or appears not to respond to normal language cues, consider **autism spectrum disorder**, assess further ⮌ 129, and refer to paediatrician.
  - If adequate parental supervision. If harm or neglect suspected →136
  - If violence or substance abuse in home, refer to social worker.
  - If behavioural problems ⮌ 129 or if child miserable, stressed or angry ⮌ 131.
  - If carer struggling with parenting ⮌ 137.
  - Screen for depression in carer: in the past month, has carer: 1) felt down, depressed, hopeless or 2) felt little interest or pleasure in doing things? If yes to either ⮌ PACK Adult.
- Encourage carer to play and interact with child: provide contact/hold child regularly, sing/dance with child, encourage activity outside, kick/throw a ball, read books daily.

Yes, but child has ***speaking*** **problem**

- Assess mouth and throat: look for cleft palate or tongue-tie. If found, refer to ENT same week.
- If stuttering or other speaking problem, refer to speech therapist.

Not moving or sitting properly

Give urgent attention to the child not moving/sitting properly:

- Baby < 2 months old
- Acute onset (unable to move/sit properly for < 72 hours)
- Not talking or using hands as before
- Injury ↺ 32
- Recent loss of milestones
- Headache
- Painful movement
- Decreased level of consciousness (↺ 166)
- Temperature ≥ 38°C

Manage and refer urgently:

- If temperature ≥ 38°C, decreased level of consciousness or baby < 2 months old, **infection** likely. Give ceftriaxone[1] 80mg/kg (up to 2g) IV/IM[2] (↺ 151:11).

Approach to the child not moving/sitting properly not needing urgent attention:

- If problem only in leg/s ↺ 68.
- If problem only in arm/s ↺ 67.
- If painful or stiff joint, check if problem in joint ↺ 70.

Check the child's motor milestones. If born premature, use corrected age[3] until 2 years old.

14 weeks old	6 months old	9 months old	15 months old	18 months old	3 years old	5-6 years old
Lifts head when held against shoulder.	Holds toy in each hand.	Sits and plays without support.	Stands on own.	Walks unsupported, uses fingers to feed.	Runs well, can climb.	Hops on one foot, draws a stick person.

Has child achieved milestone at the appropriate age?

Yes

Refer to paediatrician.

No

Check for HIV, TB, thyroid problem, anaemia, growth problems:

If status unknown, test for HIV ↺ 109. If HIV positive, give routine HIV care ↺ 111.

Exclude TB ↺ 102.

If ≤ 1 year old, check TSH. If abnormal, refer to doctor.

Do Hb: if Hb < 10g/dL in child < 5 years old or Hb < 11g/dL in child ≥ 5 years old, **anaemia** likely ↺ 45.

Assess growth ↺ 15.

Then check for abnormal spine, head circumference ↺ 12, tone (child floppy or stiff) and posture.

Head circumference, tone, posture and spine are normal

- Review motor milestones in 8 weeks:
  - If child has not achieved milestone, refer to paediatrician.
  - Arrange occupational therapy and physiotherapy appointments in meantime.
- Encourage carer to play and interact with child: provide contact/hold child regularly, sing/dance with child, encourage activity outside, kick/throw a ball, read books daily.
- Check if carer coping. If struggling, check carer's mental health ↺ PACK Adult.

Abnormal head circumference, tone posture or spine

- Check visual, hearing and communication milestones ↺ 15.
- If abnormal behaviour ↺ 128.
- Refer same day if abnormal spine.
- Refer to next level of care.

[1]Avoid mixing Ringer's lactate and IV/IM ceftriaxone. If severe penicillin allergy (previous anaphylaxis, urticaria or angioedema), discuss with doctor/paediatrician. [2]Avoid injecting ≥ 1g IM at one injection site. [3]Corrected age = actual age in months (or weeks) - number of months (or weeks) premature. To calculate corrected age of 9 month old baby born premature at 32 weeks (this is 8 weeks or 2 months premature): 9 months - 2 months = 7 months old.

Breastfeeding

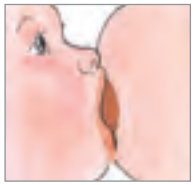
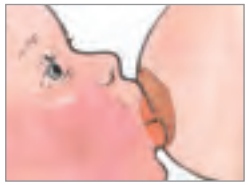
Give urgent attention to the breastfeeding baby with any of:

- Unable to feed
- Vomits everything
- No attachment/sucking
- Chokes/coughs when feeding
- Difficulty swallowing (milk pools in mouth)
- Difficulty breathing, blue lips or sweats during feeds
- Cleft palate

Manage and refer urgently:

- If baby < 2 months old and unable to feed: give ceftriaxone[1] 80mg/kg (up to 2g) IV/IM[2] (↺ 151:11) and keep warm.
- Check glucose: if < 3.0mmol ↺ 31, if ≥ 3.0mmol, prevent hypoglycaemia: give 3mL/kg of expressed breastmilk every hour via NGT.

Assess breastfeeding mother and baby to identify feeding problem

Assess	When to assess	Note
Routine care	Every visit	Integrate routine care of the child into every visit : if < 2 months old ↺ 11, if ≥ 2 months old ↺ 12. If any other symptoms, manage as on symptom page.
Feeding frequency	Every visit	• If not feeding on demand (as often and as long as baby wants day and night), there is a feeding problem ↺ 91. • If baby < 6 weeks old not feeding at least 8 times in 24 hours, there is a feeding problem ↺ 91.
Solids	Every visit	• If baby < 6 months old getting other foods/fluids, there is a feeding problem ↺ 91. • If baby ≥ 7 months old has not started solids, there is a feeding problem ↺ 91.
Mother	Every visit	• If mother has a body mass index (BMI)[3] < 18.5 or mid-upper arm circumference (MUAC) < 23cm, refer to nutritional therapeutic programme (NTP). • Screen for increased psychosocial risk and mental health problem ↺ 11 (if baby ≥ 2 months old ↺ 12). • Check HIV status, contraceptive needs, TB symptoms and mental health (including substance abuse) ↺ 12. • If breast problem (painful breast, breast lump or cracked/sore nipples) ↺ PACK Adult.
Growth	Every visit	Measure and record in RtHB: weight-for-age, length-for-age, weight-for-length ↺ 15.
Baby's mouth	Every visit	If white patches in mouth (inside of cheeks/lips and on tongue), **oral thrush** likely ↺ 50. If teeth present when baby is born, refer to dentist for possible removal.
Breastfeeding position	At first visit and if feeding problem	Baby's body should be close to mother, facing mother's breast, with nose opposite mother's nipple and with baby's whole body supported in a straight line. If baby is not positioned like this, there is a feeding problem ↺ 91.
Attachment and suckling	At first visit and if feeding problem	• If blocked nose, clear with sodium chloride 0.9% 1 drop into each nostril and suction nose. • If possible, observe mother breastfeeding for 4 minutes and assess attachment and suckling:
	 **Good attachment/suckling** likely if: • Mouth wide open • Lower lip turned outwards • More areola (dark part of the breast) visible above than below baby's mouth • Chin touching breast • Slow, deep sucks and swallowing sounds	 **Poor attachment/suckling** likely if: • Baby sucking on nipple, not areola (dark part of the breast) • Rapid shallow sucks • Smacking or clicking sounds • Cheeks drawn in • Chin not touching breast • If poor attachment or suckling, there is a feeding problem ↺ 91.
HIV risk	Every visit	• If mother HIV unknown/negative, do HIV test in mother 3 monthly while breastfeeding ↺ PACK Adult. • If mother tests HIV positive, do HIV PCR in baby same day ↺ 109, start post exposure prophylaxis (PEP) ↺ 84 in baby and ART in mother ↺ PACK Adult. • If mother known HIV positive, check HIV PCR test done on baby at birth (or at first presentation) and follow up result. Ensure PEP given ↺ 85. • If baby has HIV, ensure baby on ART and give routine HIV care ↺ 111. Continue breastfeeding until 2 years old.

Advise the breastfeeding mother →91.

[1]Avoid mixing Ringer's lactate and IV/IM ceftriaxone. If severe penicillin allergy (previous anaphylaxis, urticaria or angioedema), discuss with doctor/paediatrician. [2]Avoid injecting ≥ 1g IM at one injection site. [3]BMI is weight (kg) ÷ height (m) ÷ height (m).

Advise the breastfeeding mother and correct feeding problems

If feeding problem, refer to breastfeeding counsellor (or lactation consultant if available) or support group and advise on how to feed, what to feed and how often to feed:

How to feed

Position baby:
- Seat mother comfortably.
- Baby faces mother's breast (baby's head should not be turned) with nose opposite nipple and body close to mother's body.
- Mother supports baby's whole body, not just neck and shoulders.

Help baby attach:
- Touch baby's lips with mother's nipple.
- Express a few milk drops onto baby's lip.
- Wait until baby's mouth opens widely, then move baby quickly onto mother's breast.
- Aim baby's lower lip well below nipple.

What to feed:

0-6 months old
- Encourage exclusive breastfeeding for 6 months: baby gets only breastmilk and prescribed medicines if needed (no formula, water, cereal). This decreases risk of diarrhoea, pneumonia and allergies. Other foods may damage gut and allow infections in (including HIV). If mother HIV positive, ensure viral load < 50 ↩ PACK Adult.
- If concerns about milk supply:
  - Reassure that mother naturally produces enough milk for child's needs.
  - Increase frequency and length of feeds and feed day and night.
  - Advise to rest, drink plenty of fluids and encourage partner support.

≥ 6 months old
- From 6 months old, introduce solids ↩ 93.
- If mother HIV positive, ensure viral load < 50 ↩ PACK Adult.
- Continue to breastfeed until at least 2 years old.

Advise about expressed breastmilk:
- If mother away from baby, explain how to express and store breastmilk (see below). Give expressed breastmilk with cup: 1) hold baby upright with arms wrapped and head supported 2) rest half full cup on lower lip 3) avoid pouring; baby will sip and spill some milk 4) rest between sips.
- The exclusively breastfed baby needs about 750mL/day between 1-6 months old.

How often to feed (feeding frequency):

- Breastfeed on demand as often as baby wants, day and night for as long as baby wants per feed. A hungry baby turns head to find breast (rooting), puts hands in mouth or makes suckling noises.
- A baby < 6 weeks old should feed at least 8 times in 24 hours.
- If poor growth, advise mother to wake baby to feed after 3 hours if baby has not woken by him/herself (during day and night).

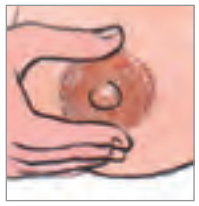
If mother wants to formula feed instead, ask the following questions. If the answer is no to/mother is doubtful about ≥ 1, formula feeding is *not* recommended. If yes to all →92:

1 Is there piped water and a flush toilet in house?
2 Is there money to buy formula (12 months supply), feeding equipment, cleaning materials and to cover costs of fuel/travel, for extra clinic/hospital visits?
3 Is mother able to prepare formula hygienically on demand day and night?
4 Is mother sure she will not breastfeed as well as formula feed during the first 6 months?
5 Has mother disclosed HIV status to partner/someone in household?
6 Is nearest health care facility easily accessible?

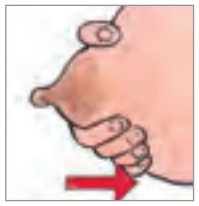
Review baby with newly diagnosed feeding problem in 2 days, thereafter review every 5 days until feeding problem corrected. If young baby has lost weight or problem unlikely to be corrected, refer.

How to express breastmilk

To express, first wash hands. Then stimulate the milk reflex by massaging, stroking or gently shaking breasts. When milk/colostrum appears, express the breast until empty (at least 10 minutes/breast):



1 Wash hands. Position thumb just behind the edge of areola (dark part of the breast) and rest of fingers to form the letter "C". Avoid cupping the breast.



2 Push straight into chest wall. Avoid spreading fingers apart. For large breasts, first lift and then push back.

3 Roll thumb and fingers forward at the same time bringing the milk from the "back to the front".

4 Repeat rhythmically to completely drain reservoirs: position, push, roll... position, push, roll... position, push, roll...
5 Rotate thumb and fingers to milk other reservoirs, moving all around the areola. Avoid squeezing breast, sliding hands over the breast or pulling nipple.

How to store breastmilk

- Use hard plastic (or glass) container with large opening and tight lid to store the breastmilk.
- Boil container and lid for 10 minutes before use.
- Write time and date that milk expressed on container.
- Store in fridge for up to 6 days or in cool place for 8 hours.
- When ready to use milk: warm by placing upright in container of clean warm water (do not microwave). Gently swirl.
- Drop small amount milk on inside of wrist to check milk not too hot for baby before feeding.
- Check person feeding baby knows how to cupfeed.

Formula feeding

Give urgent attention to the formula feeding baby with any of:

- Unable to feed
- Vomiting everything
- Choking/coughing when feeding
- Difficulty swallowing (milk pooling in mouth)
- Cleft palate
- Difficulty breathing, blue lips or sweats during feeds
- Baby lost ≥ 10% body weight

Manage and refer urgently:

- If baby < 2 months old and unable to feed: give ceftriaxone[1] 80mg/kg (up to 2g) IV/IM[2] (↺ 151:11) and keep warm.
- Check glucose: if < 3mmol ↺ 31, if ≥ 3mmol, prevent hypoglycaemia: give 3mL/kg of expressed breastmilk/formula feed every hour via NGT.

Assess the formula feeding carer and baby to identify feeding problem

Assess	When to assess	Note
Routine care	Every visit	Integrate routine care of the child into every visit ↺ 11. If baby ≥ 2 months old ↺ 12. If any other symptoms, manage as on symptom page.
Type of formula	Every visit	If child getting formula not appropriate for his/her age, there is a feeding problem.
Preparation	Every visit	Ask carer if s/he: washes hands, boils water for 3 minutes, measures water and formula according to tin instructions with scoop supplied, makes enough for only one feed at a time. If no to any, there is a feeding problem.
Feeding frequency	Every visit	< 6 weeks old: 8 feeds/24 hours, 6 weeks - 6 months old: 6 feeds/24 hours, 6-12 months old: 4 times/24 hours. If baby feeds less frequently than this, there is a feeding problem.
Solids	Every visit	If solids have been started too early (< 6 months old) or have not started after 6 months old, there is a feeding problem.
Cleaning	Every visit	Ask carer if s/he: washes all containers with hot soapy water and rinses, sterilises cup at least once/day (or if using bottles, after each use), sterilises containers by boiling in pot of water for at least 10 minutes and keeps pot covered until containers needed. If no to any, there is a feeding problem.
Social	Every visit	• If formula feeding not accepted at home, no access to clean water or carer cannot afford formula each month for 12 months, there is a feeding problem. • If mother absent/has died, unable to care for baby due to illness, poses threat to baby or is on medications contraindicated in breastfeeding/on PI-based or 3rd line ART with viral load > 1000, refer to NTP[3] for formula and discuss post-exposure (PEP) options for baby with HIV expert/hotline ↺ 162. Ensure mother receives HIV routine care ↺ PACK Adult.
Growth	Every visit	Measure and record in RtHB: weight-for-age, length/height-for-age, weight-for-length/height, MUAC[4] ↺ 15.
Cup feeding	Every visit	Check that carer knows how to use a cup to feed as it is safer than bottle feeding: 1) hold baby upright with arms wrapped and head supported 2) rest half full cup on lower lip 3) avoid pouring; baby will sip and spill some milk 4) rest between sips.

Advise the carer about formula feeding and address feeding problems

What to feed

- Do not give other foods/fluids before 6 months old.
- Give formula appropriate for age as indicated on tin.
- From 6 months old, introduce solids ↺ 93.
- Continue with formula until 12 months old, then give pasteurised full cream milk.

How much and how often to feed

Weight (kg)	Number of feeds	Amount per feed
0-3.9kg	8	50mL
4-4.9kg	7	75mL
5-6.4kg	6	125mL
6.5-6.9kg	6	150mL
7-7.9kg	6	175mL
8-8.9kg	6	200mL
≥ 9kg	4	250mL

How to prepare feeds

- Wash hands. Boil water for 3 minutes.
- Measure water first, then add formula carefully, using tin instructions and scoop supplied.
- Mix formula while water still hot, use clean spoon to stir.
- Allow to cool to body temperature. Feed using cup: safer (cleaner) than bottle feeding.
- Make enough formula for one feed at a time.
- Discard leftover formula milk within two hours.

How to clean containers

- Wash with hot soapy water and rinse.
- Sterilise cup at least once/day (if using bottles, sterilise after each use).
- Cover containers with water in pot and boil for at least 10 minutes.
- Keep pot covered until containers needed.

Review in 2 days, then every 5 days until feeding problem corrected. If < 3 months old, check if breastfeeding can be re-established. If young baby has lost weight or problem unlikely to be corrected, refer.

[1]Avoid mixing Ringer's lactate and IV/IM ceftriaxone. If severe penicillin allergy (previous anaphylaxis, urticaria or angioedema), discuss with doctor/paediatrician. [2]Avoid injecting ≥ 1g IM at one injection site. [3]Nutrition Therapeutic Programme. [4]Mid-upper arm circumference.

Eating

Assess eating to identify if feeding problem: ask carer to recall what child has eaten in the last 24 hours.

Assess	When to assess	Note
Routine care	Every visit	Integrate routine care of the child into every visit ↩ 12. If any other symptoms, manage as on symptom page.
Solids	If 6-12 months old	If solids have been started too early (< 6 months old) or have not started by ≥ 7 months old, there is a feeding problem.
Variety of food	Every visit	• If not introducing 6-12 month old baby to a variety of foods, there is a feeding problem: introduce porridge, vegetables, fruit, and protein-rich foods (mashed dried beans, cooked egg, meat, fish, chicken, chicken livers). • If not giving the child ≥ 12 months old protein[2] at least once/day and fresh fruit or vegetables twice/day, there is a feeding problem. • If child not eating healthy meals because of unhealthy snacking (sweets/chips/chocolates), there is a feeding problem.
Quantity of food	Every visit	If not getting at least half a cup (125mL per meal) by 12 months old, there is a feeding problem.
Frequency of food	Every visit	• If 6-8 months old and getting fewer than 2 meals/day or not getting breast/formula milk as well as meals, there is a feeding problem. • If 8-12 months old and not getting increasing number of meals so that by 12 months old they are getting 5 meals/day, there is a feeding problem. • If ≥ 12 months old and getting < 5 small meals/day (3 family meals/day and 2 nutritious snacks like bread with peanut butter, fruit, yoghurt), there is a feeding problem.
Fluids	Every visit	If drinking lots of juice, tea or sugary drinks, there is a feeding problem.
Social	Every visit	Ask who looks after child/feeds child most of time. If concerns about poor parental care, refer to social worker/community health worker.
Mouth/teeth	Every visit	• If mouth/throat/swallowing problem making eating difficult ↩ 50. • If dental caries ↩ 52.
Growth	Every visit	Measure and record weight-for-age, length/height-for-age, weight-for-length/height (or BMI), MUAC[1] ↩ 15.

Advise the carer on eating according to child's age

6-12 months old

When to start solids:
- Start solids at 6 months old.
- Continue breastfeeding/formula feeding (offer baby breastmilk/formula first, then offer soft foods).

What to feed:
- Introduce new food every 2-3 days in order: soft porridge/cereal, mashed/pureed vegetables, fruit, protein[2].
- From 9 months, give foods rich in iron[3].
- Give clean safe water regularly. Avoid juice/tea/sugary drinks.

How much and how often:
- Gradually increase amount and frequency of feeds:
- **6-9 months old:** give 2 meals/day plus breast/formula milk. Start with 2-3 tablespoons per meal and slowly increase to half a cup. Give milk first, then give food.
- **9-12 months old:** increase to 3 meals/day. Give half a cup per meal. Also give 2 nutritious snacks (fruit, yoghurt) between meals. Give food first, then give milk.

1-2 years old

- Breastfeed as often as child wants.
- If no longer breastfeeding, give 2 cups full cream milk or maas every day (avoid giving more as this may reduce appetite for food).

How much and how often:
Give 3 meals/day: ¾ to full cup per meal. Also give 2 nutritious snacks (bread with peanut butter, fruit, yoghurt).

What to feed:
- Give protein[2] at least once a day.
- Give fresh fruit/vegetables twice a day.
- Give foods rich in iron[3], vitamin A[4] and C[5].
- Avoid adding salt or sugar to food.
- Avoid sugary/fizzy drinks/coffee, give water instead.

How to feed:
Actively feed child and encourage him/her to eat on their own.

2-5 years old

- Give child his/her own serving (1 cup) of family foods 3 times/day.
- Also give 2 nutritious snacks (bread with peanut butter, fruit, yoghurt).

≥ 5 years old

What to eat:
- Eat a variety of food.
- Eat plenty of fruit and vegetables every day.
- Make starch part of most meals.
- Eat protein[2] regularly.
- Have milk, maas or yoghurt every day.
- Use fats (butter, margarine), sugar and salt sparingly.
- Avoid sweetened drinks and coffee.

How much:
- Eat 3 meals/day and 2 nutritious snacks (fruit, yoghurt).
- Stop eating when full.

How often:
- Do not skip meals, especially breakfast.

[1]Mid-upper arm circumference. [2]Protein-rich foods: chicken, fish, cooked eggs, beans, dahl, soya, peanut butter. [3]Iron-rich foods: liver, kidney, dark green leafy vegetables like spinach, cooked egg, beans, peas, lentils, fortified cereals. [4]Vitamin A-rich foods: vegetable oil, liver, yellow sweet potatoes, dark green leafy vegetables like spinach (imifino), mango, pawpaw, full cream milk. [5]Vitamin C-rich foods: oranges, naartjies, melons, tomatoes.

If feeding/weight problem, advise about correct eating habits

Help child and carer correct eating habits and weight problems:

If not growing well

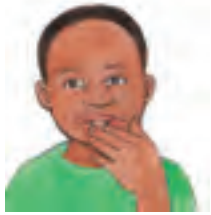
- Add a teaspoon of margarine, vegetable oil or peanut butter (or Imunut®) to porridge.
- Increase frequency of feeds to at least 5 meals per day.

If poor appetite or fussy eater

- Offer meals when child is alert and happy. Give more food if child shows interest.
- Use correct spoon size, put food within reach of child, actively feed child, try sitting child on lap while eating.
- If blocked nose, clear with sodium chloride 0.9% 1 drop into each nostril.
- Encourage child to drink a glass of water with every meal once eating solids. If < 1 year old, give 50-100mL of water and increase as s/he gets older. Advise carer that this is the healthiest fluid option and prevents constipation.
- Use varied, favourite foods.
- Give foods of suitable consistency.
- Offer small frequent feeds.

- Avoid unhealthy snacks (chips, sweets, chocolates) in between meals.
- Avoid juice/tea/ sugary drinks - these make the child feel full.
- Avoid giving too much formula/milk as this may also reduce appetite.

If child has mouth ulcers/ sores, offer soft foods that don't burn mouth like eggs, mashed potatoes, pumpkin or avocado.



If overweight or obese

Help to maintain weight and increase growth appropriately: invite child/carer to address 1 lifestyle risk factor or dietary change at a time and build on these:

- Plan how to fit change into child's day. Explore what might hinder or support this. Together set reasonable target/s for next visit.
- Emphasise that support from the carers is very important for success. Encourage carers to improve their own lifestyle choices, diet and weight.
- Emphasise that weight management is a lifelong process and not a brief period of change.

Eat a healthy balanced diet:

Reduce portion sizes - eat less.

- Avoid sugar and fried food.
- Avoid fast foods.

- Avoid snacking on chips, sweets, chocolates, fizzy drinks in between meals.
- If hungry between meals, snack on fruit, nuts or unsweetened yoghurt.
- Eat more fruit and vegetables.

Eat meals together as a family. Avoid watching TV when eating.

Get active:

- Limit screen time to < 1 hour per day: this includes TV, movies, video games, phones, internet and social media.
- Encourage child to go outside and play or join a team sport.
- Take the stairs instead of lifts.
- If safe, walk or ride to school instead of taking transport.

Encourage whole family to do moderate intensity activity (brisk walking, dancing, housework, gardening) for at least 30 minutes/ day (adult) and 60 minutes/day (child). This can be accumulated in 10 minute sessions.

If feeding/weight problem, review 1-2 monthly until eating habits have been corrected.

Poor growth in the baby < 2 months old

The baby with any of the following has poor growth:

- > 10% loss of birth weight[1] in first week of life
- Weight below birth weight after 10 days of age
- Weight gain unsatisfactory (growth curve flattening or crossing z-score lines)
- Any weight loss if birth weight < 2.5kg

Give urgent attention to the baby with poor growth and any of:

- Unable to feed/drink
- Apnoea (episodes of no breathing > 10 seconds)
- Tires/sweats during feeds
- Lethargy or decreased level of consciousness (↪ 166)
- Vomits everything
- Temperature < 35.5°C *or* ≥ 38°C
- Bulging fontanelle
- Reduced movements
- Difficulty breathing: respiratory rate > 60, grunting, nasal flaring or chest indrawing
- Diarrhoea (> 3 watery stools/24 hours)
- Glucose < 3.0mmol/L

Manage and refer urgently:

- If difficulty breathing, give oxygen 1L/minute via nasal prongs.
- Assess and manage child's fluid needs ↪ 27.
- Treat glucose < 3.0mmol/L ↪ 31.
- Prevent low glucose: if alert, encourage breastfeeding or give formula/F75®/sugar water[2] 3mL/kg/hour orally (use NGT if baby refusing or unable to feed/drink). Feed at least 2 hourly until transfer.
- Treat for infection: give ceftriaxone[3] 80mg/kg (up to 2g) IV/IM[4] (↪ 151:11).
- Keep baby warm: place baby skin to skin with mother or clothe warmly including head and feet and cover with blanket.

Approach to the baby with poor growth not needing urgent attention:

- If baby < 2.5kg, discuss/refer to dietitian same day.
- Check for feeding problem: if breastfeeding ↪ 90, if formula feeding ↪ 92. Screen for psychosocial risk, mother-baby bonding and/or mental health problem/s ↪ 11.

Manage further according to age and presence of feeding problem:

Baby < 2 weeks old *or* feeding problem	Baby ≥ 2 weeks old *and* no feeding problem
Review in 2 days • If baby has lost weight since last visit: - If < 2 weeks old, refer. - If feeding problem, refer to dietitian same day. If dietitian unavailable same day, discuss/refer. • If baby gaining weight and feeding problem corrected, review again in 2 weeks. • If baby not gaining weight or feeding problem persists, give feeding advice again and review again in 5 days. If still not gaining weight, refer to next level of care.	Review in 7 days • If baby gaining weight, review again at next immunisation visit. • If baby not gaining weight, review again in 2 weeks. • If baby has lost weight since last visit: - If dietitian available same day, refer to dietitian. - If dietitian unavailable same day, discuss/refer.

If weight gain unsatisfactory or feeding problem persists on follow up, refer.

[1]Birth weight (kg) ÷ 10 = 10% of birth weight: if weight loss in first week of life more than this, baby has poor growth. [2]Dissolve 4 teaspoons of sugar (20g) into 200mL water. [3]Avoid mixing Ringer's lactate and IV/IM ceftriaxone. If severe penicillin allergy (previous anaphylaxis, urticaria or angioedema), discuss with doctor/paediatrician. [4]Avoid injecting ≥ 1g IM at one injection site.

Not growing well: diagnosis

- If not already done, assess growth ↩ 15. A child not growing well may have any of:
  - Weight-for-age, length/height-for-age, weight-for-length/height or BMI-for-age below -2 line
  - MUAC < 12.5cm
  - Abnormal growth curve pattern on growth chart (flattening, falling or crossing z-score lines on 2 consecutive visits)
  - Unintentional weight loss ≥ 5% of body weight (weight lost ÷ weight at last visit x 100 = % weight loss)

Are there any of: swelling of both feet, weight-for-length/height below -3 line, BMI-for-age below -3 line or MUAC < 11.5cm?

Yes

Severe acute malnutrition (**SAM**) likely

Does child have any of:

- < 6 months old
- Unable to drink/feed
- Tires/sweats during feeds
- Vomiting everything
- Diarrhoea (watery stools or > 3 stools/day)
- Weight ≤ 4kg
- Lethargy or decreased consciousness (↩ 166)
- Jaundice
- ≥ 2 of 1) cold hands/feet, 2) weak/fast pulse (↩ 167), 3) CRT[1] > 2 seconds, 4) decreased level of consciousness (↩ 166), **shock** likely
- Infected skin lesions (red/warm/painful)
- Hazy/cloudy eye/s
- Increased respiratory rate (↩ 167)
- Temperature < 36°C or ≥ 38°C
- Hb < 7g/dL or spontaneous bleeding
- Glucose < 3mmol/L
- Leucocytes/nitrites on urine dipstick
- Seizure/fit ↩ 28

Yes

Severe acute malnutrition (SAM) with medical complications

- If oxygen saturation < 90%, increased respiratory rate (↩ 167) or decreased level of consciousness (↩ 166), give oxygen 2L/min via nasal prongs.
- Assess and manage child's fluid needs ↩ 27.
- If glucose < 3mmol/L ↩ 31.
- Give ceftriaxone[2] 80mg/kg (up to 2g) IV/IM[3] (↩ 151:11).
- Give additional dose of vitamin A (↩ 156:39).
- Feed at least 2 hourly until transfer. If refusing/not breastfeeding, give 50mL formula/F75®/sugar water[4] orally. If refusing orally, give via NGT.
- Keep warm: place child skin to skin with mother/carer and/or cover with blanket.
- Refer urgently to level 2 (regional or secondary) hospital. If < 6 months old, refer urgently to level 3 (tertiary) hospital.

No

Is child 6 months - 5 years old?

Yes

Do appetite test ↩ 98

Fails appetite test

Refer same day to level 1 (district) hospital.

Passes appetite test

Severe acute malnutrition (SAM) without medical complications likely

Refer same day to level 1 (district) hospital.

No

Are there any of:

- Weight-for-length/height below -2 line *or*
- BMI-for-age below -2 line *or*
- MUAC < 12.5cm

Yes

Moderate acute malnutrition (**MAM**) likely

Is outpatient care available and carer able to care for child at home?

No

Refer same day to level 1 (district) hospital.

Yes

Give routine care →97.

No

Is length/height-for-age below -2 line?

Yes

Chronic malnutrition (**stunting**) likely

Give routine care →97.

No

Growth faltering likely

Give routine care →97.

[1]Capillary refill time (CRT): hold hand/foot higher than level of heart. Press soft pad of finger/toe until it turns pale, then release pressure and note time taken for colour to return. [2]Avoid mixing Ringer's lactate and IV/IM ceftriaxone. If severe penicillin allergy (previous anaphylaxis, urticaria or angioedema), discuss with doctor/paediatrician. [3]Avoid injecting ≥ 1g IM at one injection site. [4]Dissolve 4 teaspoons of sugar (20g) into 200mL water.

Not growing well: routine care

Give routine care to the child not growing well with any of:

- Acute malnutrition
  - Severe acute malnutrition (SAM) without medical complications after discharge from hospital *or*
  - Moderate acute malnutrition (MAM)
- Chronic malnutrition (stunting)
- Growth faltering

Assess the child not growing well : record child's condition and care plan in RtHB.

Assess	When to assess	Note
Symptoms	Every visit	• If severe acute malnutrition and any of: unable to drink/feed, tires/sweats during feeds, vomiting everything, profuse diarrhoea, lethargy or decreased consciousness (↺ 166), swelling of both feet, jaundice, infected skin lesions (red/warm/painful), increased respiratory rate (↺ 167), **severe acute malnutrition (SAM) with medical complications** likely, manage and refer urgently →96. • Manage other symptoms as on symptoms pages. If abnormal facial features or suspected congenital problem, refer to doctor.
Feeding	Every visit	Check for feeding problem: if breastfeeding (or mixed feeding) ↺ 90, if formula feeding ↺ 92, if eating solids ↺ 93.
TB	Every visit	• Exclude TB at diagnosis and at any time if any of: TB contact[1], current cough/fever, sweating at night, poor weight gain/failure to thrive, weight loss, decreased playfulness, visible neck mass ↺ 102. • If newly diagnosed TB, strong suspicion of TB or on TB treatment, discuss/refer same day.
Mother/carer	Every visit	• Ask about carer's general and mental health, HIV status, contraceptive needs and TB symptoms. If any problem ↺ PACK Adult. • If breastfeeding mother has BMI[2] < 18.5 and/or MUAC[3] < 23cm, refer to nutritional therapeutic programme (NTP).
Social	Every visit	• Ask carer: 1) Is s/he struggling with or feeling overwhelmed by parenting? 2) Would s/he like help with this? If yes to both ↺ 137. • Ask who looks after child most of the time. If concerns about neglect ↺ 136. Screen for psychosocial risk ↺ 12. • If acute malnutrition and carer not able to care for child at home, refer same day.
Mental health	If ≥10 years old: at diagnosis	Screen for depression/anxiety ↺ 131 and eating disorder/substance abuse ↺ PACK Adult.
Routine care	Every visit	Integrate routine care into every visit ↺ 11. If other long-term health conditions, ensure these are adequately treated.
Weight-for-age	Every visit	• If unintentional weight loss ≥ 5% of body weight (weight lost ÷ weight at last visit x 100), refer. • If weight loss on 2 consecutive visits, refer. • If no weight gain on 3 consecutive visits, refer to dietitian if not yet done.
Weight-for-length/height *or* BMI-for-age	Monthly	• If < 5 years old, assess weight-for-length/height. If ≥ 5 years old, assess BMI-for-age. • If chronic malnutrition (stunting) or growth faltering: if drops below -2 line, **acute malnutrition** likely, assess severity and manage ↺ 96.
Mid-upper arm circumference (MUAC)	If 6 months to 5 years old: monthly	If chronic malnutrition (stunting) or growth faltering: if drops below 12.5cm, **acute malnutrition** likely, assess severity and manage ↺ 96.
Mouth/teeth	At diagnosis	If white patches in mouth (inside of cheeks/lips and on tongue), **oral thrush/candida** likely ↺ 50. If dental caries ↺ 52.
Oedema	Every visit	If swelling of both feet, **severe acute malnutrition (SAM) with medical complications** likely: manage and refer urgently →96.
Hb	At diagnosis	• If Hb < 10g/dL in child < 5 years old or Hb < 11g/dL in child ≥ 5 years old, **anaemia** likely ↺ 45. If Hb < 7g/dL, refer. • If getting Ready-to-use Therapeutic Food (RUTF), avoid giving additional iron.
HIV	At diagnosis	Test for HIV if unknown ↺ 109. If HIV positive, discuss/refer same day.
Glucose	At diagnosis	Assess and manage glucose ↺ 31. If diabetes, refer.
Thyroid function	If > 10 years old: at diagnosis	If increased pulse rate (↺ 167), palpitations, tremor, unable to tolerate hot weather or thyroid enlargement, check TSH. If abnormal, refer.

Continue to advise and treat the child not growing well →98.

[1]A TB contact refers to a child who shared an enclosed space (at school, socially, or in a household setting), for ≥ 1 night or for frequent/extended daytime periods, with an adult/adolescent with pulmonary TB ("index patient"), during the 3-month period before the index patient started their TB treatment. [2]Body mass index: weight (kg) ÷ height (m) ÷ height (m). [3]Mid-upper arm circumference.

Advise the child not growing well and his/her carer

- Educate that good nutrition is vital for normal development of the brain and body. Advise carer that first 1 000 days of child's life are vital to his/her development. To access further information ↩ 162.
- Give feeding advice: if breastfeeding (or mixed feeding) ↩ 90, if formula feeding ↩ 90, if ≥ 6 months old ↩ 93.
- Give hygiene advice: wash hands with soap and water regularly, especially before handling food/after using toilet/changing nappies. Wash fruit/vegetables. Use boiled water if no access to clean water.
- Encourage carer to interact and play with child as much as possible. Encourage sensory stimulation by singing songs, tellings stories and playing with different colours, shapes, textures and sounds.
- Refer for community health worker support.
- If available, refer to physiotherapist and occupational therapist for physical and rehabilitation and emotional stimulation.
- Refer to social worker and link with local NGOs (like Philani) ↩ 162.
- If any child < 18 years needs child support grant, advise to take child's birth certificate and carer's ID to SASSA[1] to apply.

Treat the child not growing well

- Check that routine vitamin A, mebendazole (deworming) and immunisations are up to date ↩ 11.
- Refer to nutritional therapeutic programme (NTP) for a total of 6 months and complete NTP register. Ensure a monthly supply of correct product and amount:
  - < 6 months old: infant formula
  - 6-12 months old: infant formula *plus* infant cereal
  - ≥ 12 months old: instant/enriched porridge *plus* energy drink *plus* Ready-to-use Therapeutic/Supplementary Food (RUTF/RUSF). Avoid RUTF/RUSF if nut allergy.
- Refer to dietitian if any of:
  - baby not breastfeeding and < 2.5kg
  - growth faltering
  - severe or moderate acute malnutrition
  - poor response to NTP after 3 months
  - child needs NTP > 6 months
- If **chronic malnutrion** (**stunting**) (length/height-for-age below -2 line), give NTP and refer to dietitian immediately.

Review the child not growing well

- If feeding problem, review in 5 days. If no better, discuss/refer.
- If no feeding problem or feeding problem better, review every 2 weeks until growing well[2], then monthly until NTP completed (6 months total) , then discharge from NTP.

How to do an appetite test

- The child must be ≥ 6 months old: give Ready-to-use-Therapeutic-Food (RUTF/F75®/10% dextrose) according to weight (see table).
- Test may take up to one hour. Do not force child to eat. Offer child plenty of water to drink.
- If child finishes minimum amount of feed, s/he passes the appetite test.
- If child does not finish minimum amount of feed: s/he fails the appetite test.

Minimum amount to be given to child			
Body weight (kg)	RUTF Imunut® Sachet (92g)	F75®	10% dextrose
4-7	23g	70mL	80mL
7-10	30g	100mL	150mL
10-15	45g	150mL	175mL
15 -30	70g	200mL	200mL
≥ 30	92g	250mL	250mL

Advise to return immediately if worsens: unable to drink/feed, tires/sweats during feeds, vomiting everything, profuse diarrhoea, lethargy or decreased consciousness, swelling of both feet, fever.

[1]South African social security agency (SASSA). [2]Growing well: weight-for-age and weight-for-length/height or BMI-for-age on or above -2 line, MUAC ≥ 12.5cm and upward growth curve for 2 consecutive visits.

Overweight/obesity: routine care

- The **overweight** child has: WFL/H[1] between the +2 line and +3 lines, or a BMI[2] between the +1 and +2 lines.
- The **obese** child has: WFL/H[1] on or above +3 line, or a BMI[2] on or above +2 line. The **very obese** child has a BMI[2] on or above +3 line.
- Refer to dietitian for initial assessment and healthy meal plan. Give routine care in meantime:

Assess the overweight child

Assess	When to assess	Note
Routine care	Every visit	Integrate routine care into every visit ↩ 12. If unusual facial features or syndrome suspected, refer to doctor.
Symptoms	Every visit	Manage symptoms as on symptom page. Ask about hip/leg pain ↩ 68 or back pain ↩ 66.
Medications	At diagnosis	If on long term medications (steroids, anticonvulsants, antidepressants), antipsychotics, discuss with doctor.
Diet	Every visit	Ask about diet and eating habits ↩ 94.
Activity	Every visit	If < 1 hour/day moderate intensity activity (brisk walking, dancing, housework, gardening) or > 1 hour/day screen time (TV, phone) ↩ 94.
Sleep	At diagnosis	If poor sleep with persistent snoring or breathing problems (apnoea[4], gasping) at night ↩ 49.
Mental health	Every visit	If over past few months, child has been miserable, stressed or angry ↩ 131.
School problems	At diagnosis	If poor attendance, bullying, learning problems, difficulty interacting with other children ↩ 132.
Carer	At diagnosis	Check carer's Body Mass Index (BMI): weight (kg) ÷ height (m) ÷ height (m). If > 25, assess and manage overweight/obesity ↩ PACK Adult.
Weight-for-age	Every visit	• If ≥ 7 years old or complications (glucose, liver or musculoskeletal problems), aim for a weight loss of 0.5kg/month. • If < 7 years old and no complications (glucose, liver or musculoskeletal problems), aim to keep weight same as child grows until no longer overweight.
Length/height-for-age	Every 6 months	If L/HFA[5] below -2 line, refer to paediatrician same month.
Weight-for-length/height	If < 5 years old: 3 monthly	Aim to keep weight same as child grows until WFL/H[1] eventually below +2 line. If < 2 years old and WFL/H[1] on or above +3 line, refer to paediatrician.
BMI	If ≥ 5 years old: 3 monthly	BMI is weight (kg) ÷ height (m) ÷ height (m). Aim to keep weight same as child grows until BMI eventually below +1 line.
Blood pressure	At diagnosis, then yearly	If raised ↩ 167, discuss with doctor.
Teeth	At diagnosis	If dental caries ↩ 52.
Total cholesterol	At diagnosis, then 2 yearly	If ≥ 5.2 mmol/L, refer for fasting lipid profile: if ≥ 4.4 mmol/L, repeat total cholesterol in 6 months after supportive measures to lose weight and improve diet.
Glucose	If obese: at diagnosis, then yearly	If ≥ 10 years old and ≥ 1 of: 1) family member with type 2 diabetes 2) mother had diabetes during pregnancy 3) darkening of skin folds and creases 4) hypertension/dyslipidaema, check fasting glucose after 8 hour overnight fast. If < 5.6mmol/L, reassure. If 5.6-6.9mmol/L, **impaired fasting glucose** likely, discuss further tests with doctor. If ≥ 7mmol/L, **diabetes** likely. Refer.
ALT	If obese: at diagnosis, 2 yearly	If ALT > 100, refer.
Thyroid function	At diagnosis	Check TSH if any of: dry skin, brittle hair, constipation, puffy face, intolerant to cold or thyroid enlargement. Refer to doctor if result abnormal.
Hb	If pallor[6]	If Hb < 10g/dL in child < 5 years old or Hb < 11g/dL in child ≥ 5 years old, **anaemia** likely ↩ 45. If Hb < 7g/dL, refer.

Advise the overweight child and/or carer

- Alert child and carer to increased risks associated with obesity:
  - Joint (hip, knee and back) and medical problems (hypertension, type 2 diabetes, cholesterol problems, heart attack, stroke, liver disease, heartburn, breathing problems) including asthma and snoring.
  - School and social problems (bullying, teasing, anxiety, depression, poor self-esteem, isolation, relationship problems).
- Encourage a balanced healthy diet and daily exercise ↩ 94. Encourage parents/carers and siblings to change to healthy lifestyle as well.

Review every 3 months.

[1]Weight-for-length/height. [2]Body Mass Index in a child ≥ 5 years old. [3]Mid-upper arm circumference. [4]Episodes of no breathing > 10 seconds. [5]Length/height-for-age. [6]Look for pale palms of the hands and conjunctival pallor: paleness of the lower inner eyelid.

Assess and manage TB infection

TB tests changing from 'Xpert Ultra' to 'TB NAAT'
(**NAAT** = nucleic acid amplification test and includes Xpert as well as newer TB tests).

'TB infection' is different from 'TB disease'. TB infection refers to TB bacteria that has entered the body but is not yet making the body sick – often called latent TB, which means hidden/inactive.

Assess the need for TB preventive treatment (TPT)

- If TB symptoms: current cough/fever, drenching night sweats, poor weight gain/failure to thrive, weight loss, decreased playfulness/fatigue, visible neck mass, avoid TPT and start TB work up instead →102.
- If HIV status unknown, test for HIV ↩ 109.
- Is child a TB contact: has s/he shared an enclosed space at school, socially, or in a household, for ≥ 1 night or for frequent/extended daytime periods, with an adult/adolescent with lung TB ("index client") during the 3-month period before the index patient started their TB treatment?

Yes

- Check for TB disease ↩ 102:
  - If unable to collect specimens for TB testing, arrange posterior-anterior (PA) and lateral chest x-ray, if available. Doctor to review chest x-ray within 2 days, if possible.
  - If chest x-ray unavailable within 2 days or child/carer unable to travel for chest x-ray if not on site, continue below.
- Choose TPT regimen based on TB exposure history and, if available, index patient's TB drug sensitivity results[2] and clinical response[3] to TB treatment:

No known TB exposure

Choose TPT regimen according to weight and HIV status:

Child < 25kg

If newborn exposed to TB, or newborn tests positive for HIV, assess and manage →83.

- **HIV exposed**
  - Child on ART → Give 6H.
  - Child on PEP → Give 6H.
  - Child no longer on PEP → Give 3RH or 6H.
- **HIV unexposed or HIV negative** → Give 3RH or 6H.

Child ≥ 25kg

- **HIV positive**
  - If child on ART (even ALD or TLD) with VL < 50 in last 6 months: give 3HP.
  - If any of the following, give instead 12H:
    - Newly diagnosed HIV and starting ALD or TLD
    - Already on ART with VL ≥ 50
    - 3HP unavailable.
- **HIV negative**
  - Give 3HP. If 3HP unavailable, give instead 3RH or 6H.

Susceptible to rifampicin and INH (or unknown)
If index patient has poor clinical response[3] to TB treatment, discuss with TB expert/hotline ↩ 162.

Resistance to rifampicin or INH

- If index patient has poor clinical response[3] to TB treatment, discuss with TB expert/ hotline ↩ 162.
- If resistance to rifampicin →101.
- If resistance to INH only, give 4R. If 4R unavailable or on ART, discuss.

No: both HIV/compromised immunity[1] *and* never completed TPT before?

No

TPT is not needed.

- Assess for TPT with every new TB exposure.
- Continue routine care.

- If severe peripheral neuropathy, active liver disease or previous adverse reaction to TPT, discuss TPT options with TB expert/hotline ↩ 162.
- Give routine care ↩ 12 (if ≤ 2 months old ↩ 11) and assess and interpret growth ↩ 15 monthly while on TPT.
- Ensure each TB contact is screened for TB and TPT with every new TB exposure.
- Treat the child needing TPT →101.

6H – 6 months isoniazid; 12H – 12 months isoniazid; 3RH – 3 months rifampicin and isoniazid; 3HP – 3 months isoniazid and rifapentine; 4R – 4 months rifampicin

[1]Compromised immunity: severe acute malnutrition (SAM), cancer, child without a spleen, child awaiting/received blood/organ transplant or receiving chemotherapy, dialysis or long-term corticosteroids. [2]If index patient treated at different clinic, contact treating clinic or laboratory with patient details to get index patient's TB history and results. If child exposed to > 1 person with different drug sensitivity results, child needs TPT that will treat the most drug resistant TB that child was exposed to. [3]Index patient has poor clinical response to TB treatment if smear/culture remains positive while on TB treatment, TB symptoms worsening/not resolving, missed appointments/poor adherence to TB treatment.

Index patient's TB shows resistance to rifampicin

Arrange posterior-anterior (PA) and lateral chest x-ray if not yet done. Doctor to review chest x-ray (and child's TB test results if done):

Chest x-ray *not* suggestive of TB

Doctor to decide TPT regimen according to isoniazid (INH) resistance results of index patient in consultation with TB expert/hotline ↩ 162:

No resistance to INH[1] detected	Resistance to INH *or* resistance unknown
Give 6H.	Discuss TPT options with TB expert/hotline ↩ 162 or provincial clinical advisory committee (PCAC)[2].

Changes on chest x-ray suggestive of TB

- Avoid giving TPT.
- **Diagnose RR-TB** and refer to start treatment.

Treat the child needing TPT: record all TB information in RtHB

- Give TPT according to chosen TPT regimen and weight ↩ 157.
- Also give pyridoxine: if < 5 years old, give 12.5mg daily. If ≥ 5 years old, give 25g daily (not needed if on 4R).
- Explain possible minor side effects like orange discolouration of secretions, and advise to return earlier if unwell.
- Review monthly while on TPT. Check weight and ask about TB symptoms and side effects at every visit:
  - If weight loss/not gaining weight or TB symptoms develop, test for TB ↩ 102 and discuss with TB expert/hotline ↩ 162.
  - If side effects develop ↩ 107.
- If index patient's TB shows resistance to rifampicin, doctor to review at month 2, 4, 6, 9, and 12, even if TPT completed.

At TPT initiation, decide patient category

- If never had TPT before or took TPT < 4 weeks, document as **new**.
- If completed TPT before or took TPT ≥ 4 weeks and stopped (due to adverse event, developed TB or was lost to follow up), document as **previously treated**.

Manage the child who interrupts TPT

Missed 1 dose

- If on 3RH, 4R, 6H or 12H: child to take missed dose as soon as child/carer remembers same day. If missed 1 day, take next dose as scheduled and continue daily dosing. Advise to avoid taking 2 doses on same day.
- If on 3HP: child to take missed dose as soon as child/carer remembers within 3 days. Advise to take next dose as scheduled or start new weekly schedule from day missed dose was taken.

Interrupted < 1 month on 3RH, 3HP, 4R *or* interrupted < 3 months on 6H or 12H:

- Support the child taking long-term medication ↩ 144.
- If TB symptoms, avoid TPT and check for active TB ↩ 102.
- If no TB symptoms, continue TPT. Add missed doses at the end of treatment.

Interrupted ≥ 1 month on 3RH, 3HP, 4R *or* interrupted ≥ 3 months on 6H or 12H

- Support the child taking long-term medication ↩ 144.
- Check if eligible for new course of TPT ↩ 100.
- Refer to psychologist and/or social worker if available. If intentional neglect suspected ↩ 136.

Interrupted TPT for a second time, regardless of duration of interruption

- Avoid restarting TPT.
- Reassess child for TPT if TB contact[3].

Once TPT completed, decide on treatment outcome

- If completes full duration of TPT, document as **treatment completed**.
- If on 3HP, 3RH or 4R: If interrupts treatment for ≥ 4 weeks, document as **lost to follow-up**.
- If on 6H: If interrupts treatment for 2 consecutive months, document as **lost to follow-up**.
- If on 12H: if interrupts treatment for 3 consecutive months, document as **lost to follow-up**.
- If stops TPT due to serious adverse event or developed TB, document as **treatment stopped**.
- If died during TPT, document as **died**.

[1]Check index patient's INH phenotypic DST result to confirm INH sensitivity. [2]Provincial clinical advisory committee (PCAC): vanessa.mudaly@westerncape.gov.za. [3]A TB contact refers to a child who shared an enclosed space (at school, socially, or in a household setting), for ≥ 1 night or for frequent/extended daytime periods, with an adult/adolescent with pulmonary TB ("index patient"), during the 3-month period before the index patient started their TB treatment.

TB: diagnosis

TB tests changing from 'Xpert Ultra' to 'TB NAAT'
(**NAAT** = nucleic acid amplification test and includes Xpert as well as newer TB tests).

Decide when to test for TB

- **If TB symptom/s:** test for TB if current cough/fever, drenching night sweats, poor weight gain/failure to thrive, weight loss, decreased playfulness, visible neck mass, blood-stained sputum, headache, persistent vomiting (without diarrhoea).
- **If no TB symptoms:** routinely test for TB if:
  - Excluding TB disease during TB preventive treatment (TPT) work up
  - HIV positive: at HIV diagnosis, then yearly when viral load checked
  - Completed TB treatment in last 2 years: check for TB yearly, for 2 years after completing TB treatment
  - Abnormal TB screening chest x-ray, even if not known to be a TB contact[1].

Give urgent attention to the child with possible TB and any of:

- Fitting/seizures ↻ 28
- Breathing problem: difficulty breathing ↻ 53, increased respiratory rate ↻ 167, chest indrawing, nasal flaring, grunting, wheeze ↻ 54, blue lips/tongue ↻ 40
- Breathless at rest or while talking
- Coughs up ≥ 1 tablespoon of fresh blood
- Drowsy/confused ↻ 30
- Difficulty feeding/eating
- Neck stiffness
- Persistent vomiting/headache
- New weakness of arm/leg
- Pupils different sizes
- Swollen abdomen
- Abnormal spine ↻ 89
- Not moving or sitting properly ↻ 89

Manage and refer urgently:
If able, send 2 specimens: 1 for for TB NAAT and 1 for smear, culture and DST. If HIV positive with advanced HIV disease[2], do rapid urine LAM test, if available.

Start the workup to diagnose TB in the child not needing urgent attention

- If previously HIV negative or status unknown, retest for HIV ↻ 109.
- If HIV positive with TB symptoms and advanced HIV disease[2], do rapid urine LAM test, if available. If positive, **diagnose TB** and manage further with other results/information.
- Collect 2 specimens[3]: 1 for TB NAAT and 1 for smear, culture and DST ↻ 104. If TB symptoms and unable to obtain specimens, assess child clinically and arrange posterior-anterior (PA) and lateral chest x-ray →103. If no TB symptoms, continue to assess for TPT if needed ↻ 100.
- Advise to return after 2 days and manage further according to results:

MTB complex NOT detected

- If *no* TB symptoms: TB unlikely. If needed, continue to assess for TPT ↻ 100. Review TB culture and DST results ↻ 103.
- If TB symptoms: assess child clinically, arrange PA and lateral chest x-ray and review culture and DST results ↻ 103.

MTB trace detected

- If treated for TB in last 2 years and *no* TB symptoms: TB unlikely. If needed, continue to assess for TPT ↻ 100. Review TB culture and DST results ↻ 103.
- If TB symptoms or *not* treated for TB in last 2 years: assess child clinically, arrange PA and lateral chest x-ray and review culture and DST results ↻ 103.

Test unsuccessful

- Collect new specimen for TB NAAT. Review TB culture and DST results ↻ 103.
- If unable to collect new specimen *or* TB symptoms: assess child clinically, arrange PA and lateral chest x-ray and review culture and DST results ↻ 103.

MTB complex detected

RIF resistance NOT detected

- If *not* treated for TB in last 2 years, **diagnose DS-TB** and start TB treatment ↻ 105.
  - If child is a TB contact[1] of index patient with drug-resistant TB: avoid starting TB treatment, discuss instead with TB expert/hotline ↻ 162.
- If treated for TB in last 2 years, check smear result:
  - If smear positive: **diagnose DS-TB** and start TB treatment ↻ 105.
  - If smear negative: assess child clinically, arrange PA and lateral chest x-ray and review culture and DST results ↻ 103.
  - If child is a TB contact[1] of index patient with drug-resistant TB: avoid starting TB treatment, discuss instead with TB expert/hotline ↻ 162.

RIF resistance detected

- If *not* treated for TB in last 2 years: **diagnose RR-TB** and refer to TB doctor to start treatment.
- If treated for TB in last 2 years, check smear result:
  - If smear positive: **diagnose RR-TB** and refer to TB doctor to start treatment.
  - If smear negative: arrange PA and lateral chest x-ray and discuss with TB expert/hotline ↻ 162.

RIF unsuccessful

- If *not* treated for TB in last 2 years: **diagnose TB**, assess child clinically , arrange PA and lateral chest x-ray, review culture and DST results ↻ 103 and start TB treatment in consultation with TB expert/ hotline ↻ 162.
- If treated for TB in last 2 years: assess child clinically, arrange PA and lateral chest x-ray and review culture and DST results ↻ 103.

[1]A TB contact refers to a child who shared an enclosed space (at school, socially, or in a household setting), for ≥ 1 night or for frequent/extended daytime periods, with an adult/adolescent with pulmonary TB ("index patient"), during the 3-month period before the index patient started their TB treatment. [2]Advanced HIV disease: any of: 1) child ≥ 5 years old has CD4 ≤ 200 or stage 3 or 4 disease, 2) child < 5 years old on ART ≤ 1 year, 3) child < 5 years old on ART > 1 year and clinically unstable (symptoms, CD4 ≤ 25% or VL ≥ 50). [3]If able to collect only 1 specimen, send for TB NAAT.

Assess child clinically

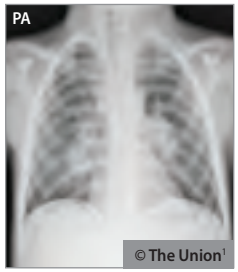
Check for TB symptoms

- If current cough/fever, drenching night sweats, poor weight gain/failure to thrive, weight loss, decreased playfulness/fatigue, visible neck mass, blood-stained sputum: review with chest x-ray (see below).
- If available and < 6 years old, do tuberculin skin test (TST) if no known TB exposure.

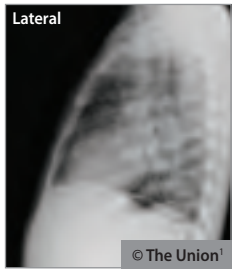
Look for extrapulmonary TB

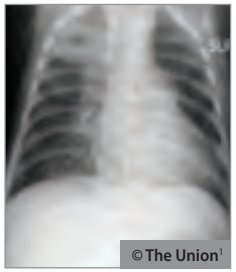
- If abdominal pain, swelling or diarrhoea, refer for abdominal ultrasound.
- If headache or vomiting (without diarrhoea), refer for CT scan/lumbar puncture.
- If back pain, arrange spinal x-ray.
- If lymph node ≥ 2cm, refer for/doctor to perform fine needle aspiration (FNA).

Arrange posterior-anterior (PA) and lateral chest x-ray and doctor review. Compare to previous chest x-ray if available.

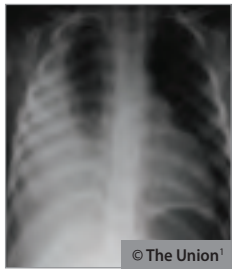


Hilar lymphadenopathy

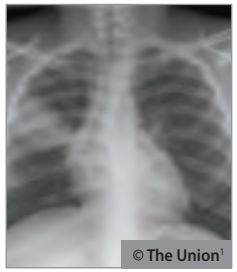




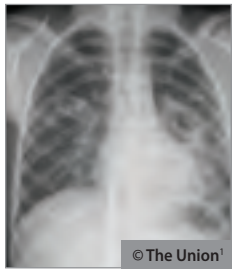
Upper lobe cavitation



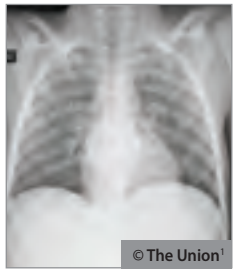
Pleural effusion



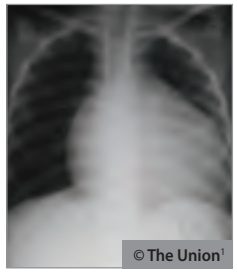
Lobar consolidation/ collapse



Lower lobe cavitation



Miliary TB



Pericardial effusion

Chest x-ray similar to any of above

- If previous chest x-ray available, compare. If new changes on chest x-ray, **diagnose TB on chest x-ray**. If unsure, discuss.
- If miliary TB or pleural/pericardial effusion, refer same day.

Chest x-ray not suggestive of TB/unsure *or* chest x-ray unavailable: does child have TB symptoms?

Yes: Look for and treat other cause: if cough ↻ 53, if fever ↻ 42, if poor weight gain/failure to thrive or weight loss ↻ 15, if tiredness ↻ 44, if lump/swelling in neck ↻ 46.

- Review after 1 week with TB test results (if done):
  - If symptoms resolved, TB tests negative (if done): if needed, continue to assess for TPT ↻ 100. If TPT not needed, continue routine care and advise to return if symptoms recur.
  - If symptoms persist, no other cause found and tests not done/results unavailable, **diagnose TB clinically**:

- If TB NAAT confirmed DS-TB *or* child is a close contact[2] of index patient with DS-TB, **diagnose DS-TB** and start DS-TB treatment ↻ 105.
- If child is a TB contact[2] of index patient with drug-resistant TB: avoid starting TB treatment, discuss instead with TB expert/hotline ↻ 162.

No

TB disease unlikely

- If done, review results of TB tests (see below).
- If TB tests negative *or* not done:
  - If needed, continue to assess for TPT ↻ 100.
  - If TPT not needed, continue routine care and advise to return if symptoms recur.

If done, review culture and DST results. Follow up weekly until culture result confirmed:

Culture positive for MTB[3]

No resistance to rifampicin and INH detected
Diagnose DS-TB: start treatment if not yet started ↻ 105.

Resistance to INH *only* detected
Diagnose INH mono-resistant TB: refer to TB doctor to start treatment if not yet started.

Resistance to rifampicin detected
Diagnose RR-TB: refer to TB doctor to start treatment if not yet started.

Culture negative for MTB

- If on TPT or TB treatment *and* well, continue.
- If not on TPT/TB treatment *and* TB symptoms persist *or* unwell on TPT/TB treatment, refer.

[1] atlaschild.theunion.org. [2] A TB contact refers to a child who shared an enclosed space (at school, socially, or in a household setting), for ≥ 1 night or for frequent/extended daytime periods, with an adult/adolescent with pulmonary TB ("index patient"), during the 3-month period before the index patient started their TB treatment. [3] If culture positive for *mycobacterium other than tuberculosis* (MOTT) or *non-tuberculous mycobacterium* (NTB), discuss with TB expert/hotline ↻ 162.

How to collect a good specimen for TB testing

- Aim to collect sputum in the early morning. This improves the chance of an accurate result. However, avoid missing the opportunity to collect specimen anytime during a consultation.
- If TB symptoms[1], make every effort to collect a good specimen for TB testing.

If child able to produce sputum (usually if ≥ 5 years old), follow the steps below

- Explain that a good quality sputum specimen is important to make an accurate diagnosis of TB.
- Advise to avoid putting saliva or nasal secretions into specimen jar. Sputum is the secretion that comes from deep within the lungs and a forceful cough is needed to bring it up for collection.
- If observing sputum collection, health worker/carer to use mask (N95/FFP2) in well ventilated area/outside. Use a designated sputum collection area if available.
- Explain how to collect a good sputum specimen:

Step 1	Child to rinse mouth with water to remove food, mouth wash or medication.	**Step 2**	Child to breathe in and out deeply two times. Have an open specimen jar ready. Keep the jar sterile (clean), avoid touching inside it.	**Step 3**	On the third breath, child to give a strong cough. Child to try to cough 2-10mL (1-2 teaspoons) sputum into the jar. Child may need several coughs to get at least 2mL.	**Step 4**	Replace lid and screw on tightly to prevent leaking.	**Step 5**	Child/carer and health worker to hands after sputum collection.

If child unable to produce sputum (usually if < 5 years old), use another method to collect specimen for TB testing

- **Induce sputum:** follow same steps as above, only use nebuliser to help produce sputum after child fasted for a least 2 hours.
  - Pre-treat with salbutamol in spacer to prevent bronchospasm: give 100mcg (1 puff) into spacer, hold spacer in place and count for 10 seconds as child breathes in and out. Repeat once. Wait 5 minutes before starting nebulisation.
  - Add 5mL 3% or 5% saline to nebuliser and nebulise child at 6L/min for 10 minutes. Keep nebuliser running throughout procedure.
  - If child able to follow instructions: ask child to remove mask, breathe in and out deeply 2-3 times, followed by a strong cough into specimen jar.
  - If child unable to follow instructions: measure correct length for catheter insertion: tip of child's nose to tragus of ear and suction secretions from nasopharynx using a soft-tipped suction catheter. Avoid suctioning for longer than 10 seconds.
  - Repeat until at least 2mL sputum collected. If no sputum collected after 10 minutes, repeat nebulisation once.
- If unable to induce sputum after nebulisation, do **gastric washings** after child fasted for at least 4 hours.
- If enlarged lymph node suspicious of TB[2], refer for/doctor to perform **fine needle aspiration** (**FNA**).
- If available and < 6 years old, do **tuberculin skin test** (**TST**) if no known TB exposure.

How to collect respiratory samples in a child[4]

Prepare specimens for transport to the laboratory

- Check specimens are adequate: if child unable to produce 2-5mL (1 teaspoon) but quality of sputum is still good[3], still send specimens to laboratory. If quality of specimen is poor, see below.
- Ensure lid is closed tightly and correctly, and that the specimen jar is correctly labelled. Wash hands after handling specimens.
- If room temperature is > 25°C or transport delayed for > 24 hours, store in refrigerator (2-8°C). Keep cool but do not freeze.
- Complete specimen request form: include on form how specimen was collected, ensure contact details correct and advise child/carer to return for results in 2 days ↩ 102.

If specimen inadequate

- If specimen is inadequate and/or of poor quality after repeated attempts, discard used jar in medical waste bin and give child/carer new labelled specimen jar. Instruct on how to collect sputum at home:
  - Collect sputum specimen early in the morning after waking up, before eating or taking any medications. Collect sputum specimen outside home. Follow the same steps tried above.
  - Once collected, protect sputum specimen sample from heat and light. Keep at room temperature and bring to the clinic as soon as possible.
- If specimen from home is adequate, prepare for transport to laboratory (above).

[1]TB symptoms: current cough/fever, drenching night sweats, poor weight gain/failure to thrive, weight loss, decreased playfulness/fatigue, visible neck mass, blood-stained sputum, headache, persistent vomiting (without diarrhoea). [2]Enlarged lymph node suspicious of TB: ≥ 2cm, not warm to touch, may have a discharging sinus. [3]A good quality sputum specimen contains a thicker secretion than saliva, with or without pus, mucous or blood, from deep within the lungs. A poor quality specimen contains saliva (with or without blood). [4]YouTube video provided through the courtesy of the Desmond Tutu Treatment Centre (DTTC).

Drug-sensitive TB (DS-TB): routine care

TB tests changing from 'Xpert Ultra' to 'TB NAAT'
(**NAAT** = nucleic acid amplification test and includes Xpert as well as newer TB tests).

Assess the child with DS-TB

Assess	When to assess	Note
Registration	At diagnosis	Ensure patient record completed and captured in TB register. Record all TB information in RtHB.
Symptoms	Every visit	• Check if urgent attention needed ↩ 102. • Expect gradual improvement on TB treatment. If symptoms worsen or do not get better, refer to doctor. • New lymph nodes or lymph nodes increasing in size may be expected and do not indicate treatment failure. If severe/unsure, discuss.
Adherence	Every visit	Request child/carer brings all medication to each visit. Check adherence on TB card. Manage the child who interrupts TB treatment ↩ 108.
Side effects	Every visit	Ask about TB treatment side effects ↩ 107.
TB contacts	At diagnosis	Advise that all TB contacts[1] visit the clinic for TB screening/prevention. Ensure community health worker (CHW) does a home visit for TB screening and testing.
Family planning	Every visit if sexually active[2]	• Encourage older child to avoid pregnancy during treatment: assess contraceptive needs ↩ PACK Adult.
Mental health	Every visit	• Screen for depression/anxiety in carer: in the past month, has carer: 1) felt down, depressed, hopeless or 2) felt little interest or pleasure in doing things? 3) Often nervous, anxious or panicky? 4) Unable to stop worrying or thinking too much? 5) Had thoughts of harming him/herself? If yes to any ↩ PACK Adult. • If over past few months, child has been miserable, stressed or angry ↩ 131 or if problematic change in behaviour ↩ 128.
Routine care	Every visit	Integrate routine care into every visit: if < 2 months old ↩ 11. If ≥ 2 months old ↩ 12.
Growth	Every visit	• Assess and interpret growth ↩ 15. • Expect weight gain on treatment and adjust TB treatment Drug sensitive TB treatment table.
Vision	If on ethambutol: every visit	• If change in vision, refer.
Chest x-ray	If needed	Arrange if poor response to treatment (ongoing symptoms, poor weight gain). Do at 2 months if pleural effusion or diagnosis based on chest x-ray alone.
HIV	If > 3 months since last test	Test for HIV ↩ 109. If HIV positive, give HIV routine care ↩ 111. If on dolutegravir or atazanavir/lopinavir/ritonavir, doctor to adjust medication ↩ 160.
TB NAAT result	At diagnosis (if done)	Register according to laboratory result.
TB microscopy (smear)[3] *(To be done in clinic if child able to give sample. No need to refer if unable to give sample)*	If TB NAAT positive: at diagnosis	Register as smear negative or smear positive depending on result. If results unavailable, register as not done.
	Week 7: If TB NAAT or smear positive at diagnosis	• If week 7 smear positive: send 1 sputum for DST, prolong intensive phase for 1 month and manage further as per positive week 7 smear algorithm ↩ 107. • If week 7 smear negative and clinically improving: change to continuation phase for further 4 months.
	Week 23: only if smear positive at diagnosis	Use week 23 smear result to decide treatment outcome ↩ 108.
TB culture and DST result *(To be done in clinic if child able to give sample. No need to refer if unable to give sample)*	• If sent during diagnostic workup • At 8 weeks: if still smear positive	• If both TB culture and TB NAAT negative at diagnosis, discuss with TB expert/hotline ↩ 162. • If MTB on culture, check DST result: - If sensitive to rifampicin and INH, continue treatment. - If resistant to INH only, diagnose **INH mono-resistant TB** and refer to TB doctor to start treatment. - If resistant to rifampicin, diagnose **rifampicin-resistant TB** (**RR-TB**) and refer to TB doctor to start treatment. • If culture contaminated, repeat.
Treatment outcome	At completion of TB treatment	Decide on treatment outcome ↩ 108.

Advise and treat the child with DS-TB →106.

[1]A TB contact refers to a child who shared an enclosed space (at school, socially, or in a household setting), for ≥ 1 night or for frequent/extended daytime periods, with an adult/adolescent with pulmonary TB ("index patient"), during the 3-month period before the index patient started their TB treatment. [2]If any of: 1) sex not consensual 2) < 12 years old 3) 12-16 years old and partner not in peer group (partner should also be 12-16 years old), **sexual abuse** likely ↩ 136. Otherwise advise reliable contraception ↩ PACK Adult. Check that s/he knows how to use condoms. [3]Make every effort to obtain sputum. If difficulty, try in early morning or arrange for induced sputum or gastric washings ↩ 104.

Advise the child with DS-TB and his/her carer

- Arrange TB counselling and refer for community adherence support.
- Educate about TB treatment side effects ↻ 107 and advise to return promptly should they occur.
- Educate about infection control: adequate ventilation/open windows (if area is not well ventilated, to wear a face mask), cough/sneeze into upper sleeve or elbow. Wash hands with soap regularly.
- If child has smear positive TB, advise to stay home from school for the first 2 weeks of treatment.
- If older child uses tobacco or alcohol/drugs, alert to risks and support change ↻ PACK Adult.
- Give **enhanced adherence support** if poor adherence or has a positive smear after 2 months of treatment ↻ 144.

Treat the child with DS-TB

Decide if child has complicated or uncomplicated TB:

Does child have any of:

- HIV
- Smear positive TB
- Extensive lung disease on chest x-ray (bilateral cavities)
- TB pericarditis
- TB spine/bone/joint
- Tuberculous pus collection
- TB meningitis
- Abdominal TB
- Miliary TB
- < 3 months old
- Treated for TB in past 2 years
- Severe acute malnutrition (SAM)

No

Treat for **uncomplicated TB**
Includes minimal lung involvement on chest x-ray, hilar lymphadenopathy, TB lymphadenitis and TB pleural effusion

Treat 7 days a week, for 6 months:

- Give intensive phase:
  - If < 8 years old *or* < 25kg, give RHZ for 2 months.
  - If ≥ 8 years old *and* ≥ 25kg, give RHZE for 2 months.
- Change to continuation phase if well[2]: give RH for another 4 months. If unwell, discuss with TB expert before changing.

Yes

Treat for **complicated TB**[1]
Does child have miliary TB or TB meningitis?

No
Treat 7 days a week:

- Give intensive phase RH, Z and E for 2 months.
- If well[2], change to continuation phase: give RH for another 4 months.
  - If unwell, discuss with TB expert before changing.
  - If TB spine, bone or joint or tuberculous pus collection, prolong continuation phase to 7 months as guided by a TB expert.

Yes
Treat 7 days a week:
give RH, Z and Eto throughout for 6-9 months as guided by a TB expert.

- Dose TB treatment according to weight and adjust as weight increases ↻ 158. **Refer to doctor if not growing well.**
- Give pyridoxine until treatment completed: if < 5 years old, give 12.5mg daily; if ≥ 5 years old, give 25mg daily. If miliary TB (any age), give 25mg daily.

R - rifampicin **H** - isoniazid **Z** - pyrazinamide **E** - ethambutol **Eto** - ethionamide

Manage the child with DS-TB and HIV

- Give co-trimoxazole and HIV routine care throughout TB treatment ↻ 111. If not on ART, check when to start ART ↻ 114 or restart ART ↻ 115.
- If on ART and not on dolutegravir (DTG), assess eligibility for switch to DTG ↻ 116. If baby ≤ 4 weeks old or ≤ 3kg, discuss with HIV/TB expert ↻ 162.
- Manage further according to ART regimen:

On/starting DTG
Give DTG dose 12 hourly according to weight until 2 weeks after TB treatment completed ↻ 160.

On lopinavir/ritonavir (LPVr) or atazanavir/ritonavir (ATVr)

- If unable to switch to DTG, doctor to adjust LPVr dose ↻ 160.
- Avoid ATVr while on TB treatment. If on ATVr, doctor to change to LPVr and adjust dose ↻ 160 *or* discuss changing rifampicin to rifabutin with HIV/TB expert/hotline ↻ 162.

[1]The child with TB pericarditis, miliary TB or TB meningitis will usually be treated in hospital. Ensure s/he also gets prednisone 2mg/kg (up to 60mg) daily for 4 weeks at the start of treatment, tapered to stop over 2 further weeks. [2]The child on TB treatment is well if TB symptoms are improving, child is gaining weight and, if done, week 7 smear is negative for AFB.

Look for and manage TB treatment side effects

Side effect	Likely cause	Management
Nausea, vomiting, abdominal pain (may have jaundice)	Most TB medications	• If jaundice or tender/enlarged liver, refer to hospital same day. • If vomiting, doctor to check for other cause (e.g. drug-induced liver injury, TB meningitis, urinary tract infection, upper respiratory tract infection). Discuss/refer if unsure. • If nausea/vomiting only after taking TB treatment *without* jaundice or tender/enlarged liver: advise to take treatment after eating or at night. If persists after 1 week, discuss/refer.
Skin rash/itch	Most TB medications	Assess and manage ⮌ 71.
Seizures	Levofloxacin, isoniazid	Manage seizure ⮌ 28 and refer to hospital same day.
Psychosis	Levofloxacin, isoniazid	Refer to hospital same day.
Change in vision	Ethambutol	Stop ethambutol and refer to eye specialist same day.
Joint pain	Pyrazinamide, levofloxacin	• Assess joint symptoms ⮌ 70. • Give paracetamol 15mg/kg (up to 1g) 6 hourly as needed up to 5 days (⮌ 155:34). If pain not responding to paracetamol, give ibuprofen 5-10mg/kg 8 hourly with food (⮌ 153:25) for up to 5 days. Avoid ibuprofen if asthma, heart failure or kidney disease. • If available, refer to physiotherapist. Child/carer to use ice/heat on affected joint.
Dark or orange urine	Rifampicin	Reassure this is normal while taking rifampicin.
Pain/numbness/burning of hands and feet	Isoniazid	**Peripheral neuropathy** likely. Increase pyridoxine by 12.5mg every second day until a maximum dose of 50mg daily. If severe or worsens despite increased pyridoxine, discuss/refer.

Review the child with DS-TB

- If well[1], review at 2 weeks, then monthly.
- Advise to return sooner if worsening or side effects develop.
- If child completed drug-resistant TB treatment, review child 6 months after TB treatment completed and check for TB ⮌ 102.
- Check for TB yearly for 2 years after TB treatment completed ⮌ 102.
- If child has ongoing TB contact[2] with index patient with TB, assess for TB preventive treatment (TPT) after TB treatment completed ⮌ 100.
- If HIV-positive child's treatment outcome is not registered as cured, assess for TPT 3 months after TB treatment completed ⮌ 100.

Manage the child with DS-TB and a positive week 7 smear

- Look for explanation for result: if poor adherence, give enhanced adherence support ⮌ 144, or check for treatment side effects (see above).
- Register smear positive result.
- Send 1 sputum for DST and continue intensive phase treatment for a month. Review DST result in 1 week:

Sensitive to rifampicin and INH

- Change to continuation phase ⮌ 106 and monitor clinically.
- Repeat TB microscopy (smear) at week 11:

Smear positive

Discuss/refer.

Smear negative

- Continue treatment and monitor clinically for a total of 6 months.
- Register smear negative result.

Resistant to INH only

Diagnose INH mono-resistant TB

- Stop DS-TB treatment and discuss/refer to TB doctor.
- Register as INH mono-resistant TB.

Resistant to rifampicin

Diagnose RR-TB

- Stop DS-TB treatment:
  - If resistant to rifampicin only, give outcome of "rifampicin mono-resistant TB" in TB register.
  - If resistant to rifampicin and INH, give outcome of "multidrug-resistant TB" in TB register.
- Register in drug-resistant TB register.
- Refer to TB doctor to start RR-TB treatment.

[1]The child on TB treatment is well if TB symptoms are improving, child is gaining weight and, if done, week 7 smear is negative for AFB. [2]A TB contact refers to a child who shared an enclosed space (at school, socially, or in a household setting), for ≥ 1 night or for frequent/extended daytime periods, with an adult/adolescent with pulmonary TB ("index patient"), during the 3-month period before the index patient started their TB treatment.

Manage the child who interrupts TB treatment

- Look for reason for treatment interruption and give enhanced adherence support ⮌ 144. If child interrupted drug-resistant TB treatment, discuss with TB expert/hotline ⮌ 162.
- Manage the child who interrupted DS-TB treatment according to duration of interruption/number of missed doses and ability to obtain specimens for TB testing:

Interrupted for < 1 month

- If interrupted for < 2 months: continue DS-TB TB treatment and give DS-TB routine care →105. Extend treatment phase by number of missed doses.
- If interrupted for ≥ 2 months: restart full course of DS-TB treatment →105. Register as **re-treatment after loss to follow up**.
- If done: review culture and DST result →103.

Interrupted for 1-2 months

Unable to collect specimens

- Check if TB exposure[1] history changed:
  - If new exposure to drug-resistant TB: discuss with TB expert/hotline ⮌ 162.
  - If exposed to DS TB *only* or exposure unknown:

Able to collect specimens
Collect 2 specimens: 1 for TB NAAT and 1 for smear, culture and DST:

TB NAAT negative

- If interrupted for < 2 months: continue DS-TB TB treatment and give DS-TB routine care →105. Extend treatment phase by number of missed doses.
- If interrupted for ≥ 2 months: restart full course of DS-TB treatment →105. Register as **re-treatment after loss to follow up**.
- If done: review culture and DST result →103.

TB NAAT positive

Rifampicin resistance NOT detected

- If interrupted for < 2 months: continue DS-TB TB treatment and give DS-TB routine care →105. Extend treatment phase by number of missed doses.
- If interrupted for ≥ 2 months: restart full course of DS-TB treatment →105. Register as **re-treatment after loss to follow up**.
- If done: review culture and DST result →103.

Rifampicin resistance detected

Diagnose RR-TB

- Refer to TB doctor to start RR-TB treatment.
- Register in drug-resistant TB register.

Interrupted for ≥ 2 months
Do no restart DS-TB treatment: discharge as **loss to follow up**.

Unable to collect specimens
Check if TB exposure[1] history changed and discuss with TB expert/hotline ⮌ 162.

Once TB treatment completed, decide on treatment outcome

Drug sensitive TB (DS-TB)

Pulmonary TB
Was TB diagnosed on either TB NAAT or culture?

Yes

Smear positive at diagnosis

Smear negative at week 23

Smear negative at week 7 (or week 11)

Stop treatment and register as **cured**.

Smear positive at week 11

Stop treatment and register as **treatment completed**.

Smear positive at week 23

- Stop treatment and register as **treatment failure**.
- Send 1 sputum specimen for DST. Decide on further treatment according to results:

Sensitive to rifampicin and INH

Re-start full course of DS-TB treatment and register as **re-treatment after failure**.

Resistant to INH only

Diagnose INH mono-resistant TB and refer to TB doctor to start treatment.

Resistant to rifampicin

Diagnose RR-TB and refer to TB doctor to start treatment.

Smear negative (or culture positive) at diagnosis

No

TB diagnosed on chest x-ray or clinically.

Is child well and has s/he gained weight?

Yes

Stop treatment and register as **treatment completed**.

No

Stop treatment. Register as **treatment failure** and refer.

- If RR-TB ⮌ PACK Adult.
- If INH mono-resistant TB:

Extrapulmonary TB

Pulmonary TB

- If two consecutive negative cultures 30 days apart, register as **cured**.
- If culture negative but does not meet criteria for cured *or* culture results unavailable, register as **treatment completed**.

[1]Older child/adolescent/adult with pulmonary TB (index patient) was in enclosed space with child for > 15 minutes in 24 hours during the period starting 3 months before index patient started TB treatment. Child needs TB treatment effective against the most drug-resistant TB child was exposed to.

HIV: diagnosis

Remember to confirm a positive HIV PCR test result with a 2nd HIV PCR test on a different sample.

Regardless of HIV exposure, test child for HIV when child 18 months old. Decide when else to test for HIV and review child and result after 2 days if needed:

Mother known with HIV
- Test routinely: at birth (within 48 hours/at first visit), 10 weeks, 6 months, 18 months, 6 weeks after final breastfeed *or* nevirapine stopped[1].
- If mother newly diagnosed with HIV, test child same day.

Mother *not* known with HIV[2]
- Child was exposed to infectious fluid ⮌ 85.
- Fostered/adopted
- Parent/guardian requests test
- Father/sibling with HIV
- Mother/father/sibling died
- Mother/child has TB
- Recurrent/persistent infection
- Enlarged lymph nodes
- Growth/development problem

- Educate carer/child (if old enough) about HIV/AIDS, modes of HIV transmission, risk factors, treatment and benefits of knowing HIV status.
- Explain test procedure. The child < 12 years needs parental/guardian consent. If consent granted, proceed to testing immediately.
- Decide which HIV test to use according to age:

< 18 months old
- If mother has HIV, do child's HIV PCR test and interpret below.
- If mother HIV negative/status unknown, first do child's HIV rapid test:
  - If HIV rapid negative, advise breastfeeding mother to test for HIV 3 monthly.
  - If HIV rapid positive *or* orphaned/abandoned baby[3], do child's HIV PCR test:

Negative

Child does not have HIV
If on HIV PEP, continue if needed ⮌ 84.

Indeterminate
- If 1st test and on HIV PEP, continue giving HIV PEP ⮌ 84.
- Manage further according to whether previous HIV tests have been done and results:

Previous HIV PCR positive/ indeterminate (or viral load detectable).

Do HIV PCR test *and* HIV viral load.

Manage further according to HIV PCR and/or HIV viral load result:

HIV PCR positive/indeterminate *or* HIV viral load detectable

Child has HIV
- Give HIV routine care and start/continue ART ⮌ 111.
- Advise to breastfeed for at least 2 years[6].

HIV PCR negative *or* HIV viral load undetectable

- If on PEP/ART, continue.
- Discuss with HIV expert/ hotline ⮌ 162.

No previous HIV PCR result available *or* previous HIV PCR negative (or viral load undetectable).

Do HIV PCR test *or* HIV viral load.

Positive

Start ART while awaiting results ⮌ 111.

Yes

≥ 18 months old
Do HIV rapid screening test.

Positive

Is child < 24 months old?

No

Do confirmatory[4] HIV rapid test.

Positive

Child has HIV
- Give HIV routine care and start/continue ART ⮌ 111.
- Advise to breastfeed for at least 2 years[5].

Negative (discordant results)
Repeat both screening and confirmatory[5] HIV rapid tests.

Both positive

Child has HIV
- Give HIV routine care and start/continue ART ⮌ 111.
- Advise to breastfeed for at least 2 years[5].

One positive and one negative
Do HIV ELISA test. Mark as urgent.

HIV ELISA positive

Child has HIV
- Give HIV routine care and start/continue ART ⮌ 111.
- Advise to breastfeed for at least 2 years[5].

HIV ELISA indeterminate

Discuss with HIV expert/ hotline ⮌ 162.

HIV ELISA negative

Child does not have HIV
If on HIV PEP, continue if needed ⮌ 84.

Both negative

Child does not have HIV
If on HIV PEP, continue if needed ⮌ 84.

Negative

Child does not have HIV
If on HIV PEP, continue if needed ⮌ 84.

- Provide support for child and carer. Ensure they understand test results and know where to access further care. If child has HIV, share result and support the process of talking about HIV ⮌ 110.
- Record tests and results in RtHB and ensure child and carer knows when to re-test if further tests needed.

[1]Only if nevirapine was extended for ≥ 12 weeks. [2]Test mother for HIV when child 6 months old. If positive, test baby same day. If negative, test not needed for baby. If mother unavailable/refuses test, get parental/guardian consent to screen baby with HIV rapid test. [3]An HIV rapid test shows whether baby was exposed to HIV, but cannot determine whether baby is infected with HIV. An HIV PCR test determines if baby is infected with HIV. [4]Use a new finger-prick blood sample on a different HIV rapid test kit for the confirmatory test. [5]If formula feeding, consider feasibility of re-establishing breastfeeding.

Talk to child and carer about HIV

Communicate child's HIV positive test result

Plan to share result with child and/or carer in a quiet, private area according to child's age:

< 12 years old	≥ 12 years old
Share result with primary carer[1] first.	If HIV test done *without* carer's consent (child presented alone), offer child the opportunity to receive result with carer present.

Share result by following the steps below:

Step 1	Assess knowledge and expectation	• Assess what is already known and what is expected from this visit. Remind child/carer that HIV test was done. • Ask questions like: "What do you understand about what's been happening so far?" or "Is there anything specific you were hoping to discuss today?"
Step 2	Prepare for news	Prepare child/carer for the news: "I have the result of your HIV test. Unfortunately, it is not what I hoped. I'm going to explain more to you now."
Step 3	Give information	• Talk clearly, slowly and use simple language: "The result of your child's HIV test came back positive. This means your child has HIV." • Emphasise that HIV is treatable: "HIV is a serious infection with no cure but we are able to treat it with medicines everyday, that keep the immune system strong, so that your child can live a long, normal life." • If HIV was vertically transmitted, reassure that it's not mother's fault and that she is doing the best thing for her child accessing testing and treatment.
Step 4	Check understanding	Encourage questions and check understanding: "I know this is a lot to understand. Has anything I have said been unclear?" or "Do you have any questions?" or "Do you need further information?" Allow a moment of silence after each question to allow for processing and questions.
Step 5	Offer support and discuss next steps	• Reassure that ongoing support is available. Encourage child/carer to share this news with someone they trust and can rely on. • Give HIV routine care ↩ 111 and support child and carer through their journey with HIV (see below). • Refer to psychologist if needed and available.

Support child and carer through their journey with HIV

- Advise that disclosure is a gradual process. Emphasise the importance of fully disclosing a child's HIV status to them, as appropriate for their age, and explain the risks of not doing this. Inadequate disclosure may result in poor adherence, poor school performance, emotional problems, transmission of HIV and distrust of carer and health workers.
- Assist carer with a plan of how to explain HIV to their child and share the level of understanding that a child should have according to their age/level of maturity[2]:

Child < 5 years old

- Child should know how to take medications correctly and be praised for this.
- If asking questions and seems ready, start to give basic HIV information (next column).

Child 5-10 years old (partial disclosure)

- Child should know the basics of HIV:
  - How to live a healthy life
  - Basics of the immune system (white cells are fighter cells against germs)
  - The importance of taking daily treatment (to keep the fighter cells healthy so they can ensure the germs stay 'sleeping')
- If asking questions and seems ready, give more information (next column).

Child ≥ 10 years old (full disclosure)

- Child should know:
  - That s/he has HIV - who to trust/share status with
  - What HIV is, how it is spread (what safe sex is)
  - Importance of medication adherence (to prevent illness/treatment resistance developing)
- Emphasise that it is not child's or parent's fault and they can live a normal life.

- Support the child taking long-term medication ↩ 144.

[1]1Primary carer: child's parent or legal guardian. [2]A child < 6 years old has sufficient maturity for age if s/he has no delayed milestones (see RtHB). A child ≥ 6 years old has reached sufficient maturity for age if s/he progresses through school grades at appropriate age and does not have a poorly controlled mental illness or severe neurological condition.

HIV: routine care

Assess the child with HIV

Assess	When to assess	Note
Symptoms	Every visit	Ask if child has any problems, especially new skin rash, yellow eyes, vomiting, difficulty breathing: manage on symptom pages.
TB	Every visit	• Check for TB at diagnosis, yearly and any time if TB symptoms[1] ↩ 102. Assess if eligible for TB preventive treatment (TPT) ↩ 100. • If starting/on rifampicin-based TB treatment and on dolutegravir or lopinavir/ritonavir, adjust dose ↩ 160.
Adherence	Every visit	Ask about missed doses and look at pharmacy refill records. If poor adherence[2], give increased support ↩ 144.
Side effects	Every visit	Ask about ART side effects ↩ 118.
Medication interactions	Every visit	• Ask about other medications like TB or epilepsy treatment, contraceptives, calcium, iron, zinc, antacids, metformin. Adjust medications ↩ 119. • For any other medication interactions, check SAMF, EMGuidance app, use web-based drug interaction checker[3] or discuss with doctor.
Mental health	Every visit	If low mood, anger, stress or anxiety ↩ 131. If behaviour problems ↩ 128.
Understanding of HIV	Every visit	Support the process of talking about HIV at appropriate age ↩ 110.
Sexual health	If sexually active	• When age appropriate (usually ≥ 12 year old), start to discuss safe sex. Educate that when or if child chooses to start having sex: - It needs to be consensual[4] and within own peer group[5]. Consider **child abuse** if < 12 years old or partner is not within peer group[5] ↩ 136. - Use protection against STIs: advise to protect him/herself and others. Demonstrate how to use a condom. If genital symptoms ↩ 64. - Use reliable contraception (intra-uterine device, subdermal implant, *plus condoms*). If currently needed ↩ PACK Adult.
Carer	Every visit	Ask about health (including mental health) of the carer: if unwell, assess using PACK Adult. If parent with child, ask about HIV status and if HIV positive, ensure parent on ART.
Other conditions	Every visit	If other long-term health conditions, ensure these are adequately treated. If known with epilepsy, check seizure control and if medication adjustment needed ↩ 123.
Routine care	Every visit	Integrate routine care into every visit: if < 2 months old ↩ 11. If ≥ 2 months old ↩ 12.
Growth	Every visit	Check weight at every visit, height every 6 months and MUAC[6] and head circumference if needed: assess and interpret ↩ 15. Adjust ART doses as child grows ↩ 160.
Development	Every visit	• If ≤ 5 years old, assess milestones ↩ 12. • If > 5 years old: if there is a delay in reading and writing or delay in self-care (such as dressing, bathing, brushing teeth), refer. If problems at school ↩ 132.
WHO clinical stage	Every visit	Check weight, mouth, skin, previous and current problems to determine HIV stage (see table below). If stage worsens on ART, discuss/refer.
Need for tests	Every visit	At diagnosis, decide which ART regimen the child needs before deciding which bloods to check ↩ 112. If on ART, check routine tests and interpret results ↩ 112.

Stage 1	Stage 2	Stage 3	Stage 4
• No symptoms • Persistent generalised lymphadenopathy	• Recurrent/chronic sinusitis, otitis media, tonsillitis • Fungal nail infections • Chronic dermatitis/papular pruritic eruption (PPE) • Extensive warts/molluscum contagiosum • Herpes zoster (shingles) • Recurrent mouth ulcers/cheilitis • Enlarged parotid glands/liver/spleen	• Pulmonary TB or TB lymphadenopathy • Severe recurrent bacterial pneumonia • Lymphoid interstitial pneumonitis (LIP) or bronchiectasis • Oral thrush if child > 6 weeks old • Oral hairy leukoplakia or acute necrotising ulcerative gingivitis/periodontitis • Unexplained conditions unresponsive to treatment: diarrhoea ≥ 14 days, fever ≥ 1 month, anaemia (Hb < 8g/dL), neutropaenia neutrophils (< 0.5x10^9/L) or thrombocytopaenia platelets (< 50x10^9/L) ≥ 1 month. • Moderate acute malnutrition (MAM) not responding to treatment	• Extrapulmonary TB (not TB lymphadenopathy) • Cryptococcal meningitis • Oesophageal thrush (pain on swallowing) • ≥ 2 severe bacterial infections per year (not pneumonia) • *Pneumocystis jirovecii* pneumonia (PJP) • Herpes simplex ulcers ≥ 1 month • Kaposi's sarcoma • HIV encephalopathy • Toxoplasmosis if child > 6 weeks old • Severe wasting, stunting or severe acute malnutrition (SAM)

Continue to assess the child with HIV →112.

[1]TB symptoms: current cough/fever, drenching night sweats, poor weight gain/failure to thrive, weight loss, decreased playfulness/fatigue, visible neck mass, blood-stained sputum, persistent headache/vomiting (without diarrhoea). [2]Check script for pharmacy refills and notes for clinic appointment attendance. If available, do drug level on urine or blood specimen. Adherence is considered good if ≥ 1 of: 1) Child has come to collect his/her medication at least 80% of the time. 2) Child has attended > 80% of scheduled clinic visits. 3) Medications are detected in child's urine/blood. [3]www.hiv-druginteractions.org/checker. [4]Consensual means that all partners are willing and agree to participate. [5]Partner should also be 12-16 years old. [6]Mid-upper arm circumference.

Check tests according to table and review results below. *Results do not have to be available to start child on ART same day. Record correct contact details in case of abnormal results to recall child/carer.*

At diagnosis or restarting ART	Starting/ changing ART	1 month on ART	3 months on ART	4 months on ART	6 months on ART	1 year on ART	6 monthly	Yearly
• **Blood:** CD4, FBC + diff, syphilis (if sexually active[1]) - If starting TDF: creatinine - If < 2 years old and mother failing DTG or PI: genotype testing • **TB test:** If able to produce sputum: TB NAAT. If unable to produce sputum *and* TB symptoms[2], do chest x-ray. • **Urine:** if ≥ 10 years old, urine dipstick and pregnancy test[3] • **Cervical screening:** if girl sexually active[1]	• **Changing to TDF:** creatinine • **Changing from TDF:** HBsAg • **Starting AZT:** FBC + diff	• **TDF:** creatinine • **AZT:** FBC + diff	• **AZT:** FBC + diff • **ATVr/LPVr:** random total cholesterol, triglycerides • **Restarted ART *or* changed to DTG-based regimen with previous VL ≥ 50:** viral load	• Viral load • **TDF:** creatinine	• **AZT:** FBC + diff	• Viral load • CD4 • **TDF:** creatinine	• CD4 until child stops co-trimoxazole	• Viral load • **TB test:** If able to produce sputum: TB NAAT. If unable to produce sputum, no further TB tests needed. • **TDF:** creatinine, urine dipstick

ABC- abacavir; **ALD**- ABC + 3TC + DTG; **AZT**- zidovudine; **CrAg**- cryptococcal antigen; **DTG**- dolutegravir; **Diff**- differential white cell count; **FBC**- full blood count; **Hb**- haemoglobin; **HBsAg**- hepatitis B surface antigen; **LPVr**- lopinavir/ritonavir; **TDF**- tenofovir; **TLD**- TDF + 3TC + DTG; **PI**- protease inhibitor

CD4	• If CD4 < 200, check CrAg result and manage below. • Use CD4 to guide co-trimoxazole preventive therapy (CPT) ⮌ 113. Stop monitoring CD4 once child stops CPT and viral load < 1000. If VL ≥ 1000, do CD4 6 monthly until VL < 1000. • If child returning to care > 90 days after missing ART appointment, check CD4.
CrAg	Laboratory will automatically do this if CD4 ≤ 200. If CrAg positive, refer. If symptomatic (severe or recurrent/persistent headache/neck stiffness/vomiting) or pregnant, refer urgently.
Hb (FBC + diff)	• If Hb < 10 in child < 5 years old or Hb < 11 in child ≥ 5 years old, **anaemia** likely. Check FBC + diff and manage further ⮌ 45. • If on AZT and Hb < 8g/dL or neutrophils < 1.0 x 10^9/L or platelets < 50 x 10^9/L, refer to doctor.
Syphilis	If syphilis positive ⮌ PACK Adult.
Creatinine and eGFR[4]	• If eGFR < 30, stop TDF and refer same day. • If eGFR 30-80, recall child/carer: - Refer to doctor to check BP, glucose, urine dipstick, send urine for protein/creatinine ratio, arrange kidney ultrasound and check if other medication doses need adjusting. - Treat according to HbsAg result: • If HBsAg positive: refer. • If HBsAg negative: stop TDF, use ABC instead. If on TLD: switch to ALD. If previous hypersensitivity to ABC, use AZT instead of ABC.
TB test	Interpret TB test results ⮌ 102. Repeat TB test yearly, at same time as yearly viral load done.
Chest x-ray	Doctor to interpret chest x-ray ⮌ 103.
Urine dipstick	• If proteinuria, check creatinine (eGFR) if not already done. Interpret result below. • If glucose in urine: check random fingerprick glucose ⮌ 31.
Urine pregnancy test	• If pregnancy test positive, give antenatal care ⮌ PACK Adult and if not on ART, start same day. • If pregnancy test negative and ≥ 12 years old, advise to use reliable contraception (intra-uterine device, subdermal implant, *plus* condoms) ⮌ PACK Adult.
Cervical screen	Interpret result ⮌ PACK Adult. Repeat 3 yearly if normal.
HBsAg	• If HBsAg positive, discuss/refer. • If HBsAg negative, ensure routine immunisations are up to date ⮌ 12, check immune response and re-vaccinate against hepatitis B if needed ⮌ 85.
Total cholesterol, triglycerides	• If triglycerides ≥ 10, discuss/refer same day. • If total cholesterol > 6 or triglycerides > 5, avoid LPVr. Check if child eligible to switch to DTG ⮌ 116.
Viral load (VL)	• If VL < 50, continue routine VL monitoring. If not yet on DTG, switch ART ⮌ 116. Check if eligible to collect medications from a repeat prescription collection point (RPC) ⮌ 113. • If VL ≥ 50, manage unsuppressed viral load ⮌ 117.

TB tests changing from 'Xpert Ultra' to 'TB NAAT' (**NAAT** = nucleic acid amplification test and includes Xpert as well as newer TB tests).

Advise and treat the child with HIV →113.

[1]If any of: 1) sex not consensual 2) < 12 years old 3) 12-16 years old and partner not in peer group (partner should also be 12-16 years old), **sexual abuse** likely ⮌ 136. [2]TB symptoms: current cough/fever, drenching night sweats, poor weight gain/failure to thrive, weight loss, decreased playfulness/fatigue, visible neck mass, blood-stained sputum, persistent headache/vomiting (without diarhoea). [3]Only do pregnancy test if girl sexually active, has missed period and is not on contraception. [4]eGFR = [height (cm) x 40] ÷ creatinine (µmol/L).

Advise the child with HIV and his/her carer

Support starting or restarting ART
- Identify a willing carer able to correctly administer/supervise ART when needed. If this is not possible and child needs ART, discuss/refer.
- Refer for fast-track initiation counselling (FTIC), explain need for lifelong treatment adherence and risks of resistance.
- If child starting abacavir, educate about the signs of abacavir hypersensitivity reaction (AHR) ↩ 118. Alert child/carer to special "patient alert card" in abacavir packaging.

Support carer to talk to child about HIV
- Support with the process of communicating HIV positive test result and talking about HIV at appropriate age ↩ 110.
- Encourage carer/s to disclose own status to child and encourage talking about HIV at home. Recommend that carer finds at least one other adult to help with ART.

Give increased adherence support if poor adherence[1] (or viral load ≥ 50):
- Support the child taking ART ↩ 144.
- Explore child/carer concerns about harms of ART and educate about side effects ↩ 119.
- Ensure carer on ART adherent to his/her own medication.
- If intentional neglect suspected ↩ 136.

Treat the child with HIV

- If *not* on ART, plan to start or restart ART, same day if possible. If starting ART, follow Steps 1-5 ↩ 114. If restarting ART ↩ 115.
- If on ART, check if child on best possible regimen for age and weight:
  - If not on dolutegravir, check if eligible to switch to dolutegravir ↩ 116.
  - Check if ART dose needs adjusting as child grows. Where possible, use most effective ART, fixed dose combination medications, once a day dosing and best tasting options.
  - If child on abacavir + lamivudine + dolutegravir is ≥ 10 years old and ≥ 30kg, switch to tenofovir + lamivudine + dolutegravir.
  - If child not tolerating syrups, switch to tablets/capsules as soon as child able to swallow these. If child on lopinavir/ritonavir pellets/granules in capsules, avoid swallowing these whole ↩ 161.
  - If on dolutegravir/abacavir/lamivudine dispersible tablets or lopinavir/ritonavir pellets/granules in capsules, support carer to give ART correctly ↩ 161.
  - If on lopinavir, atazanavir/ritonavir tablets or capsules, child to avoid chewing, crushing or splitting these.

Give prophylaxis/preventive therapy to prevent against infections

Medication	Age	Note
Co-trimoxazole ↩ 160	< 6 weeks	Only start when baby 6 weeks old.
	6 weeks - 12 months	Give regardless of CD4 or stage. Continue until at least 1 year old, then reassess according to CD4 and stage below.
	1 - 5 years	Give if CD4 ≤ 25% or stage 2, 3, 4. Stop once CD4 > 25%, unless previous PJP[2]: then continue and reassess at age 5.
	≥ 5 years	Give if CD4 ≤ 200 or stage 2, 3, 4. Stop once CD4 > 200, regardless of clinical stage.

- If never completed TB preventive treatment (TPT), assess eligibility for TPT ↩ 100.
- If cryptococcal antigen positive and lumbar puncture negative for cryptococcal meningitis, start or continue fluconazole in consultation with HIV expert/hotline ↩ 162.
- If ≥ 6 months old and CD4 > 100, advise influenza vaccination during influenza vaccine campaign.

Review the child with HIV

Child < 5 years old
- Review monthly until on ART for at least 6 months and stable[3]. Then review 3 monthly.
- Where possible, align visit dates with immunisation or routine care visit.

Child ≥ 5 years old
- Review monthly until on ART for at least 4 months and stable[3]. Then review 3 monthly.
- Consider enrolling child for repeat prescription collection (RPC)[4]:
  - Child is eligible to collect medications from a RPC if all of: 1) child on ART for ≥ 6 months, 2) no medication/dose changes in last 3 months, 3) VL < 50 in last 6 months, 4) all disclosure sessions attended by child/carer, 5) child/carer consents to RPC, 6) child stable[3], 7) child not pregnant.

[1]Estimate adherence by checking script for pharmacy refills and notes for clinic appointment attendance. Adherence is 'good' if child tolerates medications (swallows medication, does not spit/vomit it out) and either: has come to collect medication at least 80% of the time; or has attended > 80% of scheduled clinic visits. [2]*Pneumocystis jirovecii* pneumonia. [3]A stable child on ART attends appointment within 28 days of given appointment date, is growing and developing well, does not have opportunistic infections (like TB) and has a VL < 50 in the last 6 months. [4]Repeat prescription collection (RPC) points include 'facility pick-up points' (FAC-PUP), 'external pick-up points' (EX-PUP), clubs. Medications are pre-dispensed by Central Dispensing Unit (CDU) or Central Chronic Medicine Dispensing and Delivery (CCMDD).

Start ART

ART experienced doctor to start ART if any of:

- Weight < 3kg
- Age < 4 weeks
- Severe acute malnutrition (SAM)
- TB

STEP 1. Plan to start ART same day according to age and weight.

If child < 10 years old *or* < 30kg:
Plan to give abacavir (ABC) + lamivudine (3TC) + dolutegravir (DTG), known as ALD1.
Check if any reason not to start this regimen (see below).

If child ≥ 10 years old *and* ≥ 30kg:
Plan to give tenofovir (TDF) + lamivudine (3TC) + dolutegravir (DTG), known as TLD1.
Check if any reason not to start this regimen (see below).

STEP 2. Check for possible medication interactions and adjust ART or dosing if needed.
Check for possible medication interactions: ask specifically about TB, epilepsy, contraception, iron, zinc, antacids, metformin. If taking any of these ↩ 119.

STEP 3. Check tests according to chosen ART regimen if not yet done ↩ 112.

STEP 4. Check if there is a reason to delay starting ART

Does child have TB or possible TB?

- Yes → Does child have TB meningitis?
  - Yes → Start ART **after 4-6 weeks** of TB treatment.
  - No → Start ART as soon as possible **within 2 weeks** of TB treatment, once tolerating TB treatment and symptoms improving.
- No → Does child have cryptococcal meningitis?
  - Yes → Start ART **after 4-6 weeks** of meningitis treatment.
  - No → Is CD4 result available?
    - No → Does child have jaundice, signs of meningitis (severe or recurrent/persistent headache, neck stiffness, confusion, vomiting), or difficulty breathing?
      - Yes → **Refer urgently.**
      - No → • Start ART, even if child comes from a different facility without a transfer/referral letter[1].
        • Review blood results when available.
    - Yes → If CD4 ≤ 200, check cryptococcal antigen (CrAg) result:
      - CrAg not done (CD4 > 200) → Does child have jaundice, signs of meningitis (severe or recurrent/persistent headache, neck stiffness, confusion, vomiting), or difficulty breathing?
      - CrAg negative → Does child have jaundice, signs of meningitis (severe or recurrent/persistent headache, neck stiffness, confusion, vomiting), or difficulty breathing?
      - CrAg positive → Delay ART and refer for lumbar puncture (LP). If symptomatic (severe headache, neck stiffness, vomiting), refer urgently.
        If no cryptococcal meningitis on LP, start ART **after 2 weeks** of fluconazole.

STEP 5. Dose ART correctly according to weight ↩ 160. Give practical tips for giving ART correctly if needed ↩ 161.

[1]Avoid delaying treatment until transfer/referral letter available. Contact previous treatment facility to check treatment and clinical history, if possible.

Restart ART

Explore and address reasons for treatment interruption and try to resolve issues ⮌ 144.

STEP 1. Decide what ART regimen to restart

- If previously on AZT + 3TC + DTG or third-line ART, discuss with experienced ART doctor, HIV expert or HIV hotline ⮌ 162.
- Was child taking LPVr or ATVr for 2 or more years?

Yes

First check eligibility for restarting ART and switching to DTG-based regimen same day ⮌ 116.

No

Previously on: LPVr or ATVr for < 2 years, or a DTG-, NVP- or EFV-based regimen, or unknown.

Plan to restart DTG-based regimen same day based on age and weight:

< 10 years old *or* weight < 30kg

- Choose ALD: abacavir (ABC) + lamivudine (3TC) + dolutegravir (DTG).
- Only if previous hypersensitivity reaction to ABC, use instead AZT + 3TC + DTG.

≥ 10 years old *and* ≥ 30kg

- Choose TLD: tenofovir (TDF) + lamivudine (3TC) + dolutegravir (DTG).
- If known kidney disease (eGFR[1] ≤ 80):
  - Use instead ABC + 3TC + DTG (ALD).
  - Only if previous hypersensitivity reaction to ABC, use instead AZT + 3TC + DTG.

Any of:

- Child unwell with symptoms
- Known with CD4 < 200 (< 25% if < 5 years old) or TB or stage 4 illness
- High VL before treatment interruption
- Switching regimens to ALD/TLD today

Yes

- Manage any symptoms as on symptom page.
- If no TB test done in past year, check for TB ⮌ 102.
- Do CD4 at this visit, and repeat VL after 3 months.

No

Do VL as per routine schedule.

STEP 2. Check for possible medication interactions and adjust ART or dosing if needed.

Ask about other medications client is taking: especially TB and epilepsy treatment, contraceptives and other common medications like: calcium, iron, zinc, antacids, metformin ⮌ 119.

STEP 3. Take bloods according to chosen ART regimen ⮌ 112.

STEP 4. Check if there is a reason to delay ART →114.

ABC - abacavir; **ATVr** - atazanavir/ritonavir; **AZT** - zidovudine; **DTG** - dolutegravir; **EFV** - efavirenz; **NVP** - nevirapine; **LPVr** - lopinavir/ritonavir; **TDF** - tenofovir; **3TC** - lamivudine

[1]eGFR = [height (cm) x 40] ÷ creatinine (µmol/L).

Switch ART

Aim to switch all children ≥ 3kg and ≥ 4 weeks to dolutegravir (DTG). Resistance to DTG is rare and DTG provides rapid VL suppression and has minimal side effects.

Check if child eligible to switch, or restart, DTG-based regimen same day:
Child's current ART regimen includes LPVr or ATVr?

No

- Either of: child on AZT + 3TC + DTG *or* a regimen *without* EFV or NVP, discuss with HIV expert/hotline ⮌ 162.
- If child on EFV- or NVP-based regimen:

Switch to DTG-regimen today, regardless of VL.

- Check VL result in last 12 months:
  - If VL ≥ 50: continue to switch but assess and support adherence ⮌ 144.
  - If VL not done in last 12 months, do it at this visit (no need if switching baby from AZT + 3TC + NVP). No need to wait for results before switching.
- Switch to DTG according to child's age and weight:

< 10 years old *or* weight < 30kg
- Switch to ALD: abacavir (ABC) + lamivudine (3TC) + dolutegravir (DTG).
- Only if previous hypersensitivity reaction to ABC, use instead AZT + 3TC + DTG.

≥ 10 years old *and* ≥ 30kg
- Switch to TLD: tenofovir (TDF) + lamivudine (3TC) + dolutegravir (DTG).
- If known kidney disease (eGFR[2] ≤ 80), use instead ABC + 3TC + DTG (ALD).

- If VL done in last 12 months < 50, continue routine VL checks.
- If VL done in last 12 months ≥ 50, repeat VL in 3 months.

Yes
- If regimen includes AZT, discuss with HIV expert/hotline ⮌ 162.
- Has child been on LPVr or ATVr for 2 or more years?

No

Yes: manage further according to last two VL results, taken at least 2 years after starting LPVr or ATVr (if VL unknown, discuss):

Both VL results < 1000

VL < 1000

Switch to DTG-regimen today, regardless of VL.

- Check VL result in last 12 months:
  - If VL ≥ 50: continue to switch but assess and support adherence ⮌ 144.
  - If VL not done in last 12 months, do it at this visit (no need if switching baby from AZT + 3TC + NVP). No need to wait for results before switching.
- Switch to DTG according to child's age and weight:

< 10 years old *or* weight < 30kg
- Switch to ALD: abacavir (ABC) + lamivudine (3TC) + dolutegravir (DTG).
- Only if previous hypersensitivity reaction to ABC, use instead AZT + 3TC + DTG.

≥ 10 years old *and* ≥ 30kg
- Switch to TLD: tenofovir (TDF) + lamivudine (3TC) + dolutegravir (DTG).
- If known kidney disease (eGFR[2] ≤ 80), use instead ABC + 3TC + DTG (ALD).

- If VL done in last 12 months < 50, continue routine VL checks.
- If VL done in last 12 months ≥ 50, repeat VL in 3 months.

Latest VL result ≥ 1000
- Continue same regimen and assess and support adherence ⮌ 144.
- Repeat VL in 3 months:

Both VL results ≥ 1000

VL ≥ 1000

Virological failure confirmed
Estimate adherence[1] in the last 6-12 month. Has adherence been good?

No
Aim to improve adherence by improving medication tolerability:

Child on LPVr tablets or ATVr or unknown

- Switch to ALD2 or TLD2 according to child's age and weight (see adjacent). If unsure, discuss with HIV expert/hotline ⮌ 162.
- If restarting ART, manage further →115.
- Repeat VL in 3 months.

Child on LPVr solution/pellets in capsules

'4-in-1' ABC + 3TC + LPVr unavailable

'4-in-1' ABC + 3TC + LPVr granules in capsule available
- Restart on/switch to '4-in-1' ABC + 3TC + LPVr granules in capsules today ⮌ 160.
- Repeat VL after 2 months:

VL < 1000

- Switch to ALD2 or TLD2 according to child's age and weight (see adjacent). If unsure, discuss with HIV expert/hotline ⮌ 162.
- If restarting ART, manage further →115.
- Repeat VL in 3 months.

VL ≥ 1000

- Discuss need for resistance test and choice of new regimen with HIV expert, infectious disease specialist, third line ART committee or HIV hotline ⮌ 162.
- Avoid switching ART at this visit.

Yes

Check for possible medication interactions ⮌ 119, then dose ART correctly ⮌ 160 and give practical tips if needed ⮌ 161.

ABC - abacavir; **ATVr** - atazanavir/ritonavir; **AZT** - zidovudine; **DTG** - dolutegravir; **EFV** - efavirenz; **NVP** - nevirapine; **LPVr** - lopinavir/ritonavir; **TDF** - tenofovir; **3TC** - lamivudine

[1]Estimate adherence by checking script for pharmacy refills and notes for clinic appointment attendance. Adherence is 'good' if child tolerates medications (swallows medication, does not spit/vomit it out) and either: has come to collect medication at least 80% of the time; or has attended > 80% of scheduled clinic visits. Calculate adherence % for pharmacy refills: 'number of actual refills done during period assessed' ÷ 'number of months in period assessed'. Then x by 100. Calculate adherence % for clinic attendance: 'number of scheduled visits actually attended by child during period assessed' ÷ 'number of scheduled visits during period assessed'. Then x by 100. [2]eGFR = [height (cm) x 40] ÷ creatinine (µmol/L).

Manage the child with an unsuppressed viral load (VL ≥ 50)

ALD - abacavir + lamivudine + dolutegravir; **DTG** - dolutegravir; **TLD** - tenofovir + lamivudine + dolutegravir

Assess and manage possible causes of unsuppressed viral load (VL ≥ 50):
- Check for underlying causes of unsuppressed VL, especially adherence issues[1] ↩ 144 and medication interactions ↩ 119.
- If sexually active[2], emphasise condom use and contraception.

Repeat VL after 3 months:

VL < 50

Continue routine VL monitoring ↩ 111.

VL ≥ 50

- If not on DTG-based regimen, check if same-day switch to DTG is appropriate →116.
- If on DTG-based regimen, continue below.
- Intensify efforts to resolve adherence issues[1] ↩ 144 and address possible medication interactions ↩ 119.
- Manage further according to duration of DTG: has child been on DTG for *at least* 2 years?

No

Child has been on DTG for *less than* 2 years

If medication interaction suspected *and* VL ≥ 1000, discuss need for resistance test with HIV expert/hotline ↩ 162.

Yes

Estimate adherence[3] in the last 6-12 months: has adherence been good?

No

Adherence still suboptimal

No resistance test needed.

Yes

Any of:
- 2 or more VL results ≥ 1000 at least 2 years after starting ALD2/TLD2[4]
- At least one VL ≥ 1000 and any of:
  - CD4 ≤ 200 (≤ 25% if < 5 years old)
  - Opportunistic infection[5]
  - Medication interaction suspected

Yes

- Discuss need for resistance test and choice of new individualised ART regimen with HIV expert/hotline ↩ 162.
- Monitor CD4 6 monthly.
- Check whether co-trimoxazole preventive therapy (CPT) needs to be restarted ↩ 113.
- Repeat VL 3 months after starting new ART regimen:
  - If VL < 50, continue HIV routine care ↩ 111.
  - If VL ≥ 50, discuss with HIV expert/hotline ↩ 162.

No

- Continue to address adherence and possible drug interactions.
- Continue current ART and repeat VL after 6 months:
  - If VL < 50, continue HIV routine care ↩ 111.
  - If VL ≥ 50, discuss with HIV expert/hotline ↩ 162.

[1]Resistance to a DTG is rare – the most probable causes for VL non-suppression is poor adherence. [2]If any of: 1) sex not consensual 2) < 12 years old 3) 12-16 years old and partner not in peer group (partner should also be 12-16 years old), **sexual abuse** likely ↩ 136. [3]Estimate adherence by checking script for pharmacy refills and notes for clinic appointment attendance. Adherence is 'good' if child tolerates medications (swallows medication, does not spit/vomit it out) and either: has come to collect medication at least 80% of the time; or has attended > 80% of scheduled clinic visits. Calculate adherence % for pharmacy refills: 'number of actual refills done during period assessed' ÷ 'number of months in period assessed'. Then x by 100. Calculate adherence % for clinic attendance: 'number of scheduled visits actually attended by child during period assessed' ÷ 'number of scheduled visits during period assessed'. Then x by 100. [4]ALD2 means child was switched to ABC + 3TC + DTG after failing any other first- or second-line regimen. TLD2 means child was switched to TDF + 3TC + DTG after failing any other first- or second-line regimen. If unsure of ART history, discuss. [5]Examples of opportunistic infections include TB, oesophageal thrush, *pneumocysits jirovecii pneumonia* (PJP).

Manage ART side effects

- If recently started ABC and ≥ 2 of: 1) fever, 2) rash, 3) fatigue or body pain, 4) nausea, vomiting, diarrhoea, abdominal pain, 5) sore throat, cough or difficulty breathing, **abacavir hypersensitivity reaction** (**AHR**) likely. Discuss/refer urgently.
- Look for and manage ART side effects:

Side effect	Possible cause	Management
Jaundice	LPVr, ATVr, EFV, DTG	• If on LPVr or EFV or DTG, refer urgently. • If on ATVr[1]: - If no other symptoms (nausea, vomiting, diarrhoea, abdominal pain), consider switch to DTG ⮌ 116. Check ALT and bilirubin. If raised, discuss with HIV expert/hotline ⮌ 162. - If other symptoms (nausea, vomiting, diarrhoea, abdominal pain), discuss/refer.
Nausea, vomiting, diarrhoea, abdominal pain	ABC, LPVr, ATVr, AZT, EFV, TDF, DTG	• If recently started ABC, check if **AHR** likely (see above). If AHR unlikely: - Advise that it should resolve within 2 weeks. Assess and manage child's fluid needs ⮌ 27. - If persists ≥ 2 weeks, discuss with doctor. • If on LPVr, ATVr or EFV, consider switch to DTG ⮌ 116. • If on AZT, discuss with doctor. • If on TDF and/or DTG: - Advise that it should resolve within 2 weeks. Assess and manage child's fluid needs ⮌ 27. - If persists ≥ 2 weeks, discuss with doctor.
Fatigue/lethargy/tiredness	AZT	• Look for pallor[2] and check fingerprick Hb: - If pallor[2] *or* Hb < 10 in child < 5 years old or Hb < 11 in child ≥ 5 years old, **anaemia** likely. Check FBC + diff and mange further ⮌ 45. - If no pallor[2] and Hb normal, reassure that tiredness should resolve. If persists ≥ 2 weeks, discuss with doctor.
Rash	ABC, EFV	• If recently started ABC, check if **AHR** likely (see above). If AHR unlikely, assess rash further ⮌ 71. • If on EFV: - Switch to DTG ⮌ 116. - Assess rash further ⮌ 71.
Psychosis (hallucinations, delusions, confused and disturbed thoughts)	EFV	Refer urgently.
Headache	DTG, AZT, EFV	• Give paracetamol 15mg/kg (up to 1g) 6 hourly as needed for up to 5 days (⮌ 155:34). • Advise that it should resolve within 2 weeks. If persists ≥ 2 weeks, discuss with doctor.
Difficulty sleeping	DTG, EFV	• If on DTG, advise to take in the morning. • If on EFV, switch to DTG ⮌ 116.
Dizziness or low mood	EFV	Switch to DTG ⮌ 116.
Lipoatrophy (fat loss in face, limbs and buttocks)	AZT	Refer to doctor.
Muscle weakness/cramps/stiffness/spasms		
Tingling or numbness in feet and hands		
Dyslipidaemia	LPVr, EFV	Check eligibility for switch to DTG ⮌ 116. Discuss dyslipidaemia with doctor.
Gynaecomastia (breast enlargement)	EFV	Switch to DTG ⮌ 116.

ABC - abacavir; **ATVr** - atazanavir/ritonavir; **AZT** - zidovudine; **DTG** - dolutegravir; **EFV** - efavirenz; **LPVr** - lopinavir/ritonavir

[1]Atazanavir can cause jaundice without hepatitis. [2]Look for pale palms of the hands and conjunctival pallor: paleness of the lower inner eyelid.

Manage ART medication interactions

Check for HIV medication interactions

- Ask child and carer about any over the counter or herbal/traditional medication use.
- If child ≥ 12 years old using contraception, reassure there are no interactions with dolutegravir (DTG). If on lopinavir/atazanavir/ritonavir (LPVr/ATVr) or efavirenz (EFV), check eligibility for switch to DTG ⮌ 116, and assess for contraception interactions ⮌ PACK Adult.
- For any other medication interactions, check SAMF, EMGuidance app, use web-based drug interaction checker[1] (see QR code) or discuss with HIV expert/hotline ⮌ 162
- Assess and manage common ART medication interactions below:

ART drug	Interacting medications	Management
Dolutegravir (DTG)	Rifampicin	Give DTG dose 12 hourly instead of daily until 2 weeks after TB treatment completed ⮌ 160.
	Carbamazepine Phenobarbital Phenytoin	• Avoid giving these anticonvulsants together with DTG. Discuss medication adjustments with paediatrician: - Discuss switch to lamotrigine, levetiracetam or valproate. Avoid valproate if older girl[2]. - If unable to switch anticonvulsant, double dose of DTG (give 12 hourly instead of daily) ⮌ 160.
	Iron and/or calcium	• If taking iron only, advise to take iron and DTG together with food. • If taking calcium only, advise to take calcium and DTG together with food. • If taking iron *and* calcium, advise to take DTG and calcium together with food, then to take iron at least 4 hours later.
	Zinc	Advise to take zinc at least 6 hours before *or* 2 hours after DTG.
	Magnesium or aluminium (antacids)[1]	Advise to take antacid at least 6 hours before *or* 2 hours after DTG.
	Metformin	Avoid giving more than 500mg metformin 12 hourly.
Lopinavir/ritonavir (LPVr)	Rifampicin	• If starting rifampicin: - If able to swallow tablets, double LPVr dose until 2 weeks after TB treatment completed ⮌ 160. - If unable to swallow tablets, super-boost standard LPVr dose with ritonavir powder until 2 weeks after TB treatment completed ⮌ 160. • If jaundice, refer urgently. • If persistent nausea/vomiting/diarrhoea/abdominal pain, check ALT: - If ALT raised, discuss with HIV/TB expert/hotline ⮌ 162. - If ALT normal, continue TB treatment and follow up more regularly. - Decide when to recheck ALT according to weight: • If < 40kg and symptoms (jaundice, persistent nausea/vomitingdiarrhoea/abdominal pain), check ALT. If jaundice/ALT raised, refer. • If ≥ 40kg, double LPVr dose gradually and monitor ALT ⮌ PACK Adult.
	Carbamazepine Phenobarbital Phenytoin	• Avoid giving these anticonvulsants together with LPVr. Discuss medication adjustments with paediatrician: - Assess eligibility for switch to DTG ⮌ 116. - Discuss switch to lamotrigine or valproate. Avoid valproate if a girl.
	Fluticasone/budesonide	Avoid giving LPVr and fluticasone/budesonide together. Discuss medication adjustments with paediatrician.
Atazanavir/ ritonavir (ATVr)	Rifampicin	• Avoid ATVr. Assess eligibility for switch to DTG ⮌ 116. • If not eligible for DTG switch, discuss with TB expert/hotline to switch rifampicin to rifabutin *or* switch ATVr to LPVr ⮌ 162.
	Fluticasone/budesonide	Avoid giving ATVr and fluticasone/budesonide together. Discuss medication adjustments with paediatrician.
Efavirenz (EFV)	Bedaquiline	Avoid EFV. Switch to DTG ⮌ 116.
Zidovudine (AZT)	Linezolid	Avoid AZT. Discuss switch to ABC or TDF with doctor.

[1]Also ask about other multivitamins and nutritional supplements. Check if these interact with DTG by using www.hiv-druginteractions.org/checker, the Liverpool HIV iChart application for smart phones, or HIV expert/hotline ⮌ 162. [2]If valproate used, ensure risk acknowledgment form is signed by child/carer yearly (available from www.sahpra.org.za/wp-content/uploads/2022/08/GLF-CEM-PV-S01_v1-Valproate-Annual-Risk-Acknowledgement-Form.pdf). If older girl becomes pregant, valproate can cause problems with development of spine, brain and other learning problems in baby. Ensure older girl on reliable contraception ⮌ PACK Adult.

The child with allergy

- Allergy likely if: recurrent sneezing and runny/itchy/blocked nose, itchy/watery/red eyes, itchy rash, eczema or recurrent tight chest.
- If exposed to possible allergen[1] *or* sudden generalised itch/rash *or* face/tongue itch/swelling *and* any of: tight throat/hoarseness, cough, difficulty breathing, wheeze, chest pain, shock[2], dizziness/collapse, abdominal pain/nausea/vomiting/diarrhoea, **anaphylaxis** likely. Manage and refer urgently →36.

Assess the child with allergy not needing urgent attention: record child's condition and care plan in RtHB, print and give child/carer allergy action plan (Allergy foundation South Africa) ↩ 162.

Assess	When to assess	Note
Symptoms	Every visit	• If recurrent cough, wheeze, tight chest or difficulty breathing, exclude **asthma** ↩ 57. If known asthma, give routine asthma care ↩ 122. • If patches of dry, scaly, itchy skin on wrists, ankles, inside elbows or behind knees, **eczema** likely ↩ 121. • If itchy, red, raised wheals that appear suddenly and usually disappear within 24 hours, **urticaria** likely ↩ 71. • If recurrent sneezing or itchy/runny/blocked nose most days for > 1 month (may have line across nose from repeated rubbing), **allergic rhinitis** likely ↩ 49. • If both eyes watery and itchy, **allergic conjunctivitis** likely ↩ 47.
Triggers	Every visit	• Ask if using new medication. If yes, then stop use. If sudden rash/face swelling following medication, refer to specialist. • If sudden rash/face swelling following new food, refer to specialist. • Consider other triggers: insect bites, dogs/cats in home, pollen, cigarette smoke, mould, cockroaches. If food suspected, refer/discuss with specialist. • Refer to specialist if unable to identify trigger after 6 months.
Allergy control	Every visit	Allergy uncontrolled if symptoms interfere with sleep, school or sport. Refer to specialist if poor response to maximum treatment.
Adherence	Every visit	If using creams or ointments, check these are being applied correctly. If using an inhaler, check technique ↩ 55.
Routine care	Every visit	Integrate routine care into every visit ↩ 12.

Advise the child/carer with allergy

- If trigger found, advise child/carer to try avoid it.
- Ensure child/carer understands need for medication and to bring medication (inhalers, nasal spray, creams /ointment) to every visit to ensure correct use.
- If previous anaphylaxis, arrange MedicAlert® bracelet if not yet done ↩ 162.
- If allergic to medication/food, advise child/carer to always inform health worker/school.
- If adrenaline prescribed, check child/carer knows when and how to use it:
  - Advise to use if **anaphylaxis** likely (see above).
  - Advise child/carer how to use prescribed adrenaline before calling ambulance:

If using adrenaline auto-injector (like Epipen®)

- Remove from protective case and pull off blue safety release cap.
- Ensure fingers are not over either end and make a fist around the pen to ensure a tight grip.
- Remember "blue to the sky, orange to the thigh."
- Firmly push orange tip against upper outer thigh so it clicks. Inject through clothes.
- Hold in place, count to 3, then remove.

If using adrenaline vial and needle with syringe

- Attach needle to syringe.
- Ensure no liquid in top end of adrenaline vial (flick top end to move fluid to bottom of vial), then open vial.
- Draw up correct adrenaline dose for weight/age ↩ 36.
- Hold syringe with needle facing up. Inject out adrenaline until correct dose remains in syringe, if needed. If air in syringe, flick syringe until air is at the top and inject air out until correct dose remains in syringe.
- Stick needle straight down into upper outer thigh and inject dose into muscle.
- Remove syringe and needle and discard safely.

Treat the child/carer with allergy

- If chronic allergy, check adherence and technique for using medication (inhalers, nasal spray, creams /ointment) before adjusting or adding medication. Review child 3 monthly.
- If mild new onset allergic reaction (generalised itchy rash/itchy nose/sneezing/nausea/abdominal pain/vomiting *without* other symptoms), give cetirizine once daily until symptoms resolve: If 2-6 years old, give 5mg. If ≥ 6 years old, give 10mg. Refer if symptoms of anaphylaxis (see above), not better after 24 hours or rash recurs.

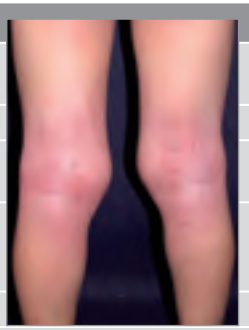
[1]Common allergens include medications, new food or insect bite/sting within the last few hours. [2]If ≥ 2 of 1) cold hands/feet, 2) weak/fast pulse (↩ 167), 3) CRT> 2 seconds, 4) decreased level of consciousness (↩ 166), **shock** likely.

Eczema

The child with eczema has itchy, scaly skin which is usually red in the baby and dry in the older child. Affects inside of elbows, knees as well as cheeks, scalp and neck. Usually not in groin and axilla.

Assess the child with eczema: record child's condition and care plan in RtHB, print and give child/carer eczema action plan (Allergy foundation South Africa) ⮌ 162.

Assess	When to assess	Note
Control	Every visit	Consider eczema **not controlled** if any of: 1) skin very itchy, thickened and scaly, 2) increased redness, rawness and oozing, 3) symptoms interfere with sleep, school or sport.
Adherence	Every visit	Check how often emulsifying ointment is being applied: if less than twice a day, educate on importance of frequent use for eczema control.
Infection	Every visit	• If skin oozing, crusting and scaling, **weeping eczema**. If yellow pustules that crust, **impetigo** likely. Treat below. • If crops of ulcers/blisters, **herpes simplex** (eczema herpeticum) likely ⮌ 50.
Other allergy	Every visit	• If purple rings around eyes, runny/blocked nose, mouth breathing, line across nose from repeatedly rubbing nose, **allergic rhinitis** likely ⮌ 49. • If ≥ 2 years old and recurrent dry cough/wheeze/tight chest/difficulty breathing, consider **asthma** ⮌ 57. • If after eating certain foods child develops hives, consider **food allergy**. Refer urgently to specialist for allergy testing.
Triggers	Every visit	Ask about triggers and advise to avoid/limit irritants: cigarette smoke exposure, soaps and detergents. If allergic trigger[1] identified, refer to specialist for testing.
Routine care	Every visit	Integrate routine care into every visit ⮌ 12.



© University of Cape Town

Advise the child and/or caregiver with eczema

- Advise that keeping the skin moisturised at all times is the key to improving eczema.
- Avoid soaps/fabric softener/harsh washing powder /scented creams/perfumes.
- Avoid direct skin contact with woollen or rough clothes and overheating by blankets at night. Keep nails short and clean.
- When applying corticosteroid cream, apply a thin layer. See picture for amount to apply. Carer to avoid rubbing onto own palms.
- Wash daily to remove crusts and prevent infection.

One fingertip unit is the amount of cream/ointment squeezed from the tip of the index finger to the first crease of adult-sized finger.

Treat the child with eczema

- Avoid soap, use aqueous cream instead.
- Use emulsifying ointment as a moisturiser as often as possible, at least twice a day.
- If **not controlled** and adherent, give hydrocortisone 1% cream twice a day for 7 days then taper over next 7 days. Use table to explain amounts to use. Apply to only eczema patches, use thin layer to face and avoid eye area.
- If not improving after 7 days advise to return, give betamethasone 0.1% cream once a day for 7 days then taper over next 7 days (avoid face). If still no response, discuss/refer to specialist.
- If itching, give chlorphenamine 0.1mg/kg (up to 4mg) at night (⮌ 151:14). If no better after 2 weeks, and ≥ 2 years old, give cetirizine once daily: if 2-6 years old, give 5mg; if ≥ 6 years old, give 10mg.
- If **weeping eczema** likely, wet wrap daily until better: apply hydrocortisone 1% cream and a thick layer of emulsifying ointment to affected area. Soak gauze in luke-warm water and cover this, then cover again with dry dressing.
- If **impetigo** likely, clean infected areas with povidone iodine scrub, then wrap with povidone iodine soaked gauze and cover wth dry dressing. Repeat twice a day for a week. Also give cephalexin[2] 12-25mg/kg (up to 500mg) 6 hourly for 5 days (⮌ 151:12) and review in 7 days.
- Refer if: no improvement in 2 weeks, eczema herpeticum, *or* extensive weeping eczema.
- Review 3 monthly.

	 Face and neck	 Arm and hand	 Leg and foot	 Front	 Back and buttocks
Age	**Number of fingertip units: according to area affected and age of child**				
3 months -1 year old	1	1	1.5	1	1.5
1-3 years old	1.5	1.5	2	2	3
3-6 years old	1.5	2	3	3	3.5
6-10 years old	2	2.5	4.5	3.5	5

Adapted from Long C, C. and Finlay A. Y. The finger-tip unit - a new practical measure. Clinical and Experimental Dermatology, 1991; 16: 444-447.

[1]Dust mites, animals in the home, pollen, cockroaches, mould, foods. [2]If severe penicillin allergy (history of anaphylaxis, urticaria or angioedema), give instead azithromycin 10mg/kg (up to 500mg) once daily for 3 days instead (⮌ 151:10).

Asthma

- Doctor to confirm asthma diagnosis within 1 month. Ideally, arrange spirometry to accurately diagnose and assess asthma. If spirometry unavailable, use peak expiratory flow rate (PEFR).
- Calculate peak expiratory flow rate (PEFR) at every visit if ≥ 6 years old ↩ 56. If < 6 years old *and* responding to treatment below, continue. If not responding to treatment *or* diagnosis uncertain, refer.

Assess the child with asthma: record child's condition and care plan in RtHB, print and give child/carer asthma action plan (Allergy foundation South Africa) ↩ 162.

Assess	When to assess	Note
Asthma symptoms to determine asthma severity and control	Every visit	• If wheeze/tight chest or difficulty breathing, not responding to inhaler/s manage acute exacerbation ↩ 54. • Asthma **poorly controlled** if acute exacerbation with hospitalisation in the past year *or* if in past month any of: - 1) daytime cough, wheeze or difficulty breathing more than twice a week, 2) runs/plays less or tires easily due to asthma *and* child requires salbutamol to relieve symptoms 3) inhaled salbutamol needed more than twice a week, 4) night waking/night coughing due to asthma 5) PEFR < 80% (or a drop of > 20%) ↩ 164. • If none of the above, then asthma is **well controlled**. Record child's best PEFR reading in his/her RtHB and folder to compare follow up readings.
Symptoms	Every visit	Manage other symptoms as on symptom pages. If child using inhaled corticosteroid and white patches on cheeks/gums/tongue/palate, **oral candida** likely ↩ 50.
Allergy	Every visit	Ask about other symptoms of allergy: if recurrent sneezing or itchy/running/blocked nose, watery/itchy eyes, itchy/dry skin or itchy, red, raised wheals ↩ 120.
Adherence	Every visit	• Check that the child and/or carer can use inhaler and spacer correctly ↩ 55. Ensure child is adherent to treatment before adjusting or adding treatment.
Routine care	Every visit	Integrate routine care into every visit ↩ 12.

Advise the child with asthma and/or carer

- Advise to identify and avoid triggers[1] that may worsen asthma. If smoking in house, alert to risks and encourage smoker to quit ↩ PACK Adult.
- Demonstrate inhaler technique ↩ 55. Ensure child/carer understands medication: short acting beta-agonist (e.g. salbutamol) only relieves symptoms and does not control asthma. Inhaled corticosteroid (e.g. budesonide) prevents and controls symptoms. If child needs combination therapy (inhaled corticosteroid *plus* rapid onset long-acting beta-agonist, e.g. budesonide *plus* formoterol), advise child and carer that these work together in one inhaler. It prevents and controls symptoms. Doctor to advise whether combination therapy can be used 12 hourly only or also as needed[2].
- Recognise and manage acute exacerbation: if wheeze/tight chest or difficulty breathing not responding to inhaler/s, go to nearest emergency unit urgently.

Treat the child with asthma

- Advise influenza vaccination during influenza vaccine campaign.
- If **poorly controlled** asthma, give salbutamol 100-200mcg (1-2 puffs) 6 hourly as needed *plus* inhaled budesonide 100mcg (1 puff) 12 hourly for 3 months. If on protease inhibitor (e.g. lopinavir/atazanavir/ritonavir), give instead beclomethasone 100mcg (1 puff) 12 hourly for 3 months. Review child monthly and manage further according to asthma severity and asthma symptoms control:

Asthma **poorly controlled**

- Before adjusting treatment, ensure no ongoing exposure to triggers (see above), that child adherent and can use inhaler and spacer correctly ↩ 55.
- Increase inhaled budesonide or beclomethasone to 200mcg (2 puffs) 12 hourly.
- If still poorly controlled after 3 months, arrange posterior-anterior (PA) and lateral chest x-ray and doctor review.

Review monthly. If still not controlled after 3 months, refer to specialist.

Asthma **well controlled**

- Continue inhaled corticosteroid at same dose.
- If controlled for at least 3 months, decrease inhaled budesonide or beclomethasone:
  - Half dose 12 hourly for 3 months.
  - Then decrease to a daily dose for another 3 months.
  - If still controlled, discontinue treatment. If symptoms recur, re-start treatment.

Review 3 monthly.

- **If child received prednisone (or hydrocortisone) for an acute exacerbation, continue prednisone 2mg/kg (up to 40mg) once daily for 5 days. If not responding to prednisone within 2 days, refer.**
- **Advise to return before next appointment if symptoms suddenly worsen or do not respond to inhaler/s.**

[1]Asthma triggers include animals, insects, cigarette smoke, dust, mould, chemicals, pollen, grass. [2]Combination therapy inhalers (inhaled corticosteroid *plus* long-acting beta-agonist) include: budesonide *plus* formoterol (used to control and relieve symptoms) and fluticasone *plus* salmeterol (used to control symptoms *only*). Dry powder inhalers need more force than aerosol inhalers to deliver medication into lungs.

Epilepsy

- If child fitting now →28. If child is not known with epilepsy and has had a recent fit →29 to assess further.
- It is a doctor (usually paediatrician) decision to start long-term treatment in child with ≥ 2 fits and no identifiable cause.

Assess the child with epilepsy: record epilepsy diagnosis and care plan in RtHB

Assess	When to assess	Note
Long term health conditions	Every visit	If other long-term health conditions present, ensure they are adequately treated. If child has cerebral palsy ↩ 138.
Adherence and side effects	Every visit	Ask if child takes medication every day. If not, explore reasons for poor adherence. Ask about side effects of treatment (below).
Other medication	Every visit	If child started TB or HIV treatment or antibiotics, refer to doctor to assess for drug interactions.
Fit frequency	Every visit	Review fit diary. If still fitting after 2 months *and* adherent to treatment (correct dose) with no obvious triggers[1] or medication interactions, refer to specialist.
Mental health	Every visit	If over past few months, child has been miserable, stressed or angry ↩ 131 or if problematic change in behaviour ↩ 128.
School problems	Every visit	If failing grades, not coping with school work or bullying/violence at school ↩ 132.
Family planning	If girl menstruating	If on valproate, discuss change to another anti-epileptic medication with specialist. Ensure girl on reliable contraception if sexually active[2] ↩ PACK Adult.
Routine care	Every visit	Integrate routine care into every visit ↩ 12. Manage symptoms as on symptom page.
Development	6 monthly	Check milestones ↩ 12: if not talking properly ↩ 88, if not moving properly ↩ 89, if hearing problem ↩ 48, if vision problem ↩ 47.

Advise the carer of a child with epilepsy

- Explain what to do if child fits at home ↩ 29. Avoid possible triggers: lack of sleep, alcohol/drug use, dehydration and flashing lights.
- Educate about epilepsy and need for adherence to be fit free.
- Advise to keep a home record/fit diary to record frequency of fits, length of fit, possible triggers and changes in medication. Encourage carer to take a video of event.
- Help carer to get Medic alert bracelet ↩ 162. Refer for support (Epilepsy SA) ↩ 162. Carer to inform teachers, explain what to do if child fits and what activities child should avoid.
- Reduce chance of injury: supervise swimming/bathing/crossing roads (walking to school/shops), shield fireplaces/cookers, avoid contact sports (rugby), advise not to lock doors (bed/bathroom).

Treat the child with epilepsy

- A single medication is best. Start with a low dose and increase slowly every 2 weeks until fit free or side effects intolerable (treatment usually initiated by specialist).

Medication	Dose	Maximum dose	Indication	Side effects
Phenobarbital	Start and maintain: 3.5-5mg/kg/dose as a single dose at night.	5mg/kg/day	• Choose if baby < 6 months old (specialist review). • Avoid if absence seizures, > 2 years old or child on ART.	Drowsiness, behaviour problems, hyperactivity.
Carbamazepine[3]	• Start dose: 5mg/kg/day 8-12 hourly • Increase to: 10mg/kg/day 8-12 hourly • Maintenance:10-20mg/kg/day in divided doses	20mg/kg/day in divided doses (maximum 1g/day)	• Choose if focal seizures/fits. • Avoid if absence/myoclonic seizures or child on ART.	Urgent: skin rash ↩ 71 to manage and refer. Self-limiting: drowsiness, dry mouth, dizziness, ataxia, nausea, loss of appetite, constipation, abdominal pain. If drowsiness affects school performance, refer to specialist.
Valproate[4]	• Start dose: 5mg/kg/dose 8-12 hourly • Increase to: 15mg/kg/dose 8-12 hourly • Maintenance dose: 20-30mg/kg/dose 8-12 hourly	40mg/kg/day in divided doses	• Choose if generalised tonic/clonic seizures, absence seizures, child on ART. • Avoid if liver disease or girl menstruating.	Urgent: jaundice, vomiting, abdominal pain: stop medications and refer urgently. If < 2 years old or lethargy or loss of appetite and nausea, check ALT. Self-limiting: nausea, diarrhoea, constipation.

- If fits worsen or persist despite maximum treatment or if loss of milestones, refer to specialist.
- If fit free, review 6 monthly. If no fits for 2 years: discuss stopping treatment with paediatrician. Gradually decrease dose of anticonvulsant over 2 months. If fits recur, refer/discuss with paediatrician.

[1]Triggers include: lack of sleep, dehydration, flashing lights, recent illness (fever), alcohol/drug use. [2]If any of: 1) sex not consensual 2) < 12 years old 3) 12-16 years old and partner not in peer group (partner should also be 12-16 years old), **sexual abuse** likely ↩ 136. [3]Give syrup formulation 8 hourly and tablet formulation 12 hourly. [4]If unable to swallow tablet, give crushable formulation (100mg tablets) 8 hourly. If able to swallow, give controlled release (CR) formulation 12 hourly.

Bronchiectasis

Bronchiectasis is a chronic lung condition where the small airway walls are thickened and widened from inflammation and infection. A specialist must confirm the diagnosis.

Assess the child with bronchiectasis

Assess	When to assess	Note
Symptoms	Every visit	• Manage other symptoms as on symptom pages. If coughing up blood, refer urgently. • If signs of respiratory distress (lower chest wall indrawing, nasal flaring, accessory muscle use[1], difficulty feeding/talking, sats < 92%) ↩ 53. • If worsening cough, increased sputum, change in sputum colour, **acute exacerbation** likely. Manage below.
TB risk	Every visit	• At diagnosis, check for TB even if no symptoms or TB contact[2] ↩ 102.
Inhaler technique	Every visit if using inhaler	Check that the child and/or carer can use inhaler and spacer correctly ↩ 55.
Lung clearance	Every visit	Check if child/carer performing routine chest physiotherapy/lung clearance techniques at home. Refer to physiotherapy.
Palliative care	If disease extensive/deteriorating	If bronchiectasis severe enough to be life-limiting, also give palliative care ↩ 142.
Routine care	Every visit	Integrate routine care into every visit ↩ 12.
Growth	At diagnosis	• Measure and record weight-for-age, length/height-for-age, weight-for-length/height (or BMI), MUAC[3] ↩ 15. • Refer to dietitian for nutritional support regardless of measurements.
HIV	At diagnosis	If HIV negative or unknown, test for HIV ↩ 109. If HIV positive, give routine HIV care ↩ 111.
Hb	At diagnosis, if coughing blood	If Hb < 10g/dL in child < 5 years old or Hb < 11g/dL in child ≥ 5 years old, **anaemia** likely ↩ 45. If Hb < 7g/dL, refer.
Chest x-ray	At diagnosis and yearly	• If disease localised to one area of lung, refer for specialist review. • If chest X-ray progressively worsening, refer to specialist.
Sputum	If ≥ 3 exacerbations in 1 year	Send early morning sputum for microscopy, culture and sensitivity and refer to specialist.
Bronchodilator response	If wheeze and not already done	Give salbutamol 600mcg (6 puffs) via spacer and assess response after 15 minutes: if wheeze better, child is bronchodilator responsive.

Advise the child with bronchiectasis and/or carer

- If smoking in the house or child smokes, alert to risks and encourage smoker to quit ↩ PACK Adult helpline.
- Help child/carer to recognise and manage acute exacerbation: if worsening cough, increased sputum, change in sputum colour, advise to return to clinic same day.
- If starting/using salbutamol, demonstrate inhaler technique ↩ 55.
- Educate about need for chest physiotherapy and lung clearance techniques at home. Clearing lungs can help prevent acute exacerbations and further lung damage:
  - Encourage child to blow a piece of rolled up tissue/paper across the table or blow bubbles into air/through a straw into soapy water.
  - Ask child to take 10 deep breaths daily (as big as possible) and give deep cough.
  - Encourage child to do age-appropriate daily physical exercise, as guided by specialist.

Treat the child with bronchiectasis

- If **acute exacerbation**: give amoxicillin/clavulanic acid[3]: if < 25kg, give 40-45mg/kg/dose 12 hourly dose (↩ 150:8). If ≥ 25kg, give 875/125mg 12 hourly for 10 days and review. Continue up to 14 days if needed.
- If bronchodilator responsive, give salbutamol via spacer 100-200mcg (1-2 puffs) as needed, up to 4 times a day.
- Advise influenza vaccination during influenza vaccine campaign. If not already given, also give extra dose of pneumococcal vaccine.

- Review 3 monthly. Doctor to review at least once a year. Advise to return immediately if symptoms worsen.
- Refer to specialist if acute exacerbation not responding to antibiotics within 2 days or > 1 acute exacerbation in 4 months.

[1]Accessory muscle use is any of: subcostal recession, intercostal recession, tracheal tug, use of neck muscles. [2]A TB contact refers to a child who shared an enclosed space (at school, socially, or in a household setting), for ≥ 1 night or for frequent/extended daytime periods, with an adult/adolescent with pulmonary TB ("index patient"), during the 3-month period before the index patient started their TB treatment. [3]TB symptoms: current cough/fever, drenching night sweats, poor weight gain/failure to thrive, weight loss, decreased playfulness/fatigue, visible neck mass. [4]Mid-upper arm circumference. [5]If severe penicillin allergy (history of anaphylaxis, urticaria or angioedema), give instead azithromycin 10mg/kg (up to 500mg) once a day for 10 days (↩ 151:10).

Known heart problem

Give urgent attention to the child with a known heart problem and any of:

- < 1 year old and difficulty feeding or sweats during feeds: **heart failure** likely
- Any child with known heart problem and difficulty breathing /tires easily/new onset increased pulse rate (↺ 167), **heart failure** likely
- Fainting
- Chest pain
- Sudden weakness of one side of body
- Blue skin/lips
- Temperature ≥ 38°C or fever in last 3 days

Manage and refer urgently:

- If **heart failure** likely, give furosemide 1mg/kg (up to 40mg) IV over 5 minutes (↺ 153:23). Avoid IV fluids.
- Assess and manage child's fluid needs ↺ 27.
- If difficulty breathing/increased respiratory rate (↺ 167) and temperature ≥38°C or fever in last few days: give ceftriaxone[1,2] 80mg/kg (up to 2g) IV/IM[3] (↺ 151:11).
- Give oxygen 2L/minute via nasal prongs and raise head of bed to 45 degrees.

Assess the child with a known heart problem: Record child's heart condition and care plan in RtHB.

Assess	When to assess	Note
Symptoms	Every visit	• If sore/red throat ↺ 50, if cough ↺ 53 • If difficulty breathing at rest, child needs urgent attention above. If difficulty breathing only on exercise, refer for specialist assessment.
Long term health conditions	Every visit	If bronchiectasis ↺ 124, if HIV ↺ 111, if cerebral palsy ↺ 138, if Down syndrome ↺ 141.
Growth	Every visit	Assess growth ↺ 15.
Routine care	Every visit	Integrate routine care into every visit ↺ 12.
Teeth	Every visit	If dental caries ↺ 52. If needing dental extraction, give prophylaxis (see below). Arrange yearly dentist review.

Advise the carer of child with a known heart problem

- Ensure child brushes teeth twice a day and encourage good feeding and eating ↺ 93.
- Advise carer/child to seek health care promptly: if sore throat, coughing or fever, always go to the clinic the same day.
- Ensure child attends regular specialist appointments. Encourage family to join a support group/s ↺ 162.
- Encourage child to do daily physical exercise, as guided by specialist.
- If previous rheumatic fever or known rheumatic heart disease, explain the importance of treatment adherence and the risk of damage to heart valves.

Treat the child with previous rheumatic fever or known rheumatic heart disease:

- Advise influenza vaccination during influenza vaccine campaign.
- If previous rheumatic fever *and/or* known rheumatic heart disease: give prophylaxis: give single dose benzathine benzylpenicillin[4,5] 4 weekly according to weight: if < 30kg, give 600 000 units IM. If ≥ 30kg, give 1.2 million units IM. If child on warfarin, avoid IM injections, give instead phenoxymethylpenicillin[5] 125mg 12 hourly or amoxicillin[5] daily according to weight: if < 30kg, give 125mg. If ≥ 30kg: give 250mg. Decide when to stop prophylaxis:
  - If rheumatic valvular disease: give lifelong.
  - If no rheumatic valvular disease:
    - If first episode of rheumatic fever when child < 11 years old, give until age 21.
    - If first episode of rheumatic fever when child ≥ 11 years old, give for 10 years.
- If known with a heart valve problem, also give antibiotic prophylaxis if:
  - Requiring dental extraction, give amoxicillin[5] 50mg/kg (up to 500mg) 1 hour before to procedure and another dose amoxicillin[5] 50mg/kg (up to 500mg) 6 hours after the procedure.
  - Child needs surgery, refer to specialist.

[1]Avoid mixing Ringer's lactate and IV/IM ceftriaxone. [2]If severe penicillin allergy (previous anaphylaxis, urticaria or angioedema), discuss with doctor/paediatrician. [3]Avoid injecting ≥ 1g IM at one injection site. [4]For benzathine benzylpenicillin 1.2 million units injection: dissolve benzathine benzylpenicillin 1.2 million units in 3.2mL lidocaine 1% without adrenaline. [5]If severe penicillin allergy (history of anaphylaxis, urticaria or angioedema), If < 11 years old, give azithromycin 10mg/kg three times per a week. If ≥ 11 years old, give azithromycin 250mg daily.

Chronic arthritis

- The child with chronic arthritis has had painful and/or swollen joints for ≥ 6 weeks that limits daily activities.
- Ensure arthritis is diagnosed and managed by a specialist. Ensure regular specialist dates review in place; these are usually 3-4 monthly.

Assess the child with chronic arthritis

Assess	When to assess	Note
Symptoms	Every visit	If joint pain, swelling, fever or worsening function, see treatment box below.
Eye test	4 monthly	Ensure eye tests (at eye OPD) for first five years from diagnosis to screen for uveitis.
Routine care	Every visit	Integrate routine care into every visit ↩ 12.
Mental health	Every visit	Screen for depression/anxiety at every visit ↩ 131.
Growth	Every visit	Plot growth ↩ 15. If weight loss ↩ 96.
Teeth	Yearly	Arrange yearly dentist review. If gum or tooth problem ↩ 52.
Joints	Every visit	• If swollen/tender joint/s with limited movement and early morning stiffness, **active arthritis** likely. Treat as below. • Arrange regular physiotherapy or occupational therapy to give child exercises to keep joint mobile and maintain muscle strength. • Arrange splints if worried about permanent joint tightening/deformity. Refer to occupational therapist for hand, knee and elbow splints. • Check if shoes fit well and that child can walk easily. If problem, refer to orthopaedic nurse/ orthotist to arrange shoe inserts.
HIV	At diagnosis	If not yet done, test for HIV ↩ 109.
FBC, creatinine, ALT	If on methotrexate: 2-4 monthly	If results abnormal, arrange specialist referral. Specialist will determine frequency of blood tests.

Advise the carer of child with chronic arthritis

- Educate carer arthritis may take months to years to improve. Advise that early treatment prevents joint damage and lessens length of illness.
- Stress importance of continuing the treatment and attending the clinic and specialist dates.
- If child well and no joint symptoms at visit, do not stop prescribed specialist medication as joint symptoms may flare up if medication is stopped.
- Encourage physical exercise on a daily basis. Swimming and cycling are helpful.
- Encourage a healthy and balanced diet. If unsure, see advice box in general assessment ↩ 12.
- Advise that child can live a full and happy life as long as joint symptoms are managed.
- Provide carer and child with social support services ↩ 162.

Treat the child with chronic arthritis

- Child may be on steroids (methylprednisolone) and/or methotrexate.
- If on methotrexate, give folic acid 5mg weekly.
- Give ibuprofen 5-10mg/kg 8 hourly with food (↩ 153:25) for up to 5 days. Avoid ibuprofen if asthma, heart failure or kidney disease. If no response to treatment after 2 days *or* fever without other identified cause, refer to specialist same day.

- Record child's condition and care plan in RtHB.
- Arrange 3-4 monthly specialist review.

Suicide

Give urgent attention to the child who has attempted or considered suicide

Has child just attempted suicide?

Yes
- First assess and manage airway, breathing, circulation and level of consciousness ⮌ 24.
- If overdose or exposure to harmful substance ⮌ 35.
- If exposure to carbon monoxide (exhaust fumes), give 100% face mask oxygen.

No
Does child have current thoughts or plans to commit suicide?

Yes
Explore how often, how serious intent to die is and if a plan exists.

No
Has child had thoughts or plans of suicide in past month or performed act of self-harm or suicide in past year?

Yes
Is child agitated, violent, distressed, uncommunicative or does child have hallucinations or delusions?

Yes

Imminent risk of suicide

- Avoid leaving child alone. Ensure parent/carer is accompanying child at all times. Remove any possible means of suicide, (like shoelaces, pills).
- If aggressive or violent, ensure safety: assess child with other staff, use security personnel or police if needed. If sedation needed, discuss with paediatrician or psychiatrist.
- Refer urgently: while awaiting transport, monitor closely. If child or parent/carer refuses admission, discuss involuntary admission under the Children's Act urgently with paediatrician/psychiatrist.

No

No imminent risk of suicide

Manage as below.

No

No imminent risk of suicide

Manage as below.

Assess the child with no imminent risk of suicide

Assess	Note
Mental health	• If irritable, sad, unable to enjoy anything, crying a lot or feeling lonely for most of day for ≥ 2 weeks, **depression** likely, refer/discuss with mental health team. • If angry, withdrawn or change in mood/behaviour/feelings/sleep/appetite and not coping at school/work/home ⮌ 131.
Alcohol/drug use	If concerns about use of alcohol or drugs, link to psychosocial services (counsellor/social worker/support group, helpline) ⮌162.
Family/home situation	Refer all cases to social worker to assess family/home situation.
Chronic condition	Check child is receiving appropriate routine care and is adherent to long term medication. If HIV ⮌ 111, if life-limiting illness ⮌ 142. If pregnant, discuss with specialist.

Advise the child with no imminent risk of suicide and his/her carer

- Reassure parent/carer that discussing suicide does not increase the risk of suicide. Discuss with child reasons to stay alive. Together with carer/parent and child, work out a safety plan:
  - Spend time working out what behaviours/actions are considered warning signs of a crisis for this child. Encourage carer to closely monitor child. Discuss coping strategies:
    - Self help - encourage physical exercise, relaxation techniques.
    - Distraction activities - together identify people/social settings that may distract. List names/numbers.
    - Ways to make environment safe - remove firearms from house, keep medications/toxic substances locked away.
    - Provide hotlines/agencies they can contact during a crisis ⮌ 162.
    - Together identify trusted people to ask for help when it gets too much.
- Where available, refer child to psychologist or counsellor and link child and carer with support group/s ⮌ 162.

Review child at least weekly for 2 months. If still no imminent risk of suicide, follow up monthly.

Behaviour problems

If reported behaviour problem (in classroom or at home) →129. If current behaviour problem, assess and manage below.

Give urgent attention to the child with behaviour problems that include any of:

- At risk of harming self or others ⮌ 127
- Just had fit ⮌ 28
- Recent head injury ⮌ 32
- Sudden onset of abnormal thoughts/behaviour
- Hearing/seeing things that are not there
- Intoxicated/withdrawal needing restraint or sedation
- Confused ⮌ 30
- Varying level of consciousness ⮌ 166
- Temperature ≥ 38°C
- Agitated with any of:
  - Challenging, insulting or provocative behaviour
  - Frequently changing body position, pacing
  - Tense posturing like gripping arm rails tightly, clenching fists
  - Aggressive acts like pounding walls, throwing objects, hitting
  - Loud, aggressive speech or angry behaviour

Manage and refer urgently:

- Check breathing, respiratory rate, BP, pulse, CRT[1], glucose, temperature and pupil response:
  - If difficulty breathing, increased respiratory rate (⮌ 167), oxygen saturation < 90% or oxygen saturation machine not available, give face mask oxygen.
  - If ≥ 2 of 1) cold hands/feet, 2) weak/fast pulse (⮌ 167), 3) CRT[1] > 2 seconds, 4) decreased level of consciousness (⮌ 166), **shock** likely ⮌ 27.
  - If fingerprick glucose is < 3 or > 11 ⮌ 31.
- Look for delirium, poisoning, intoxication, withdrawal or psychosis and manage before referring urgently:

If temperature ≥ 38°C and/or varying levels of consciousness over hours/days.

Delirium likely
- Give ceftriaxone[2] 80mg/kg (up to 2g) IV/IM[3] (⮌ 151:11).
- Refer urgently.

If pupils pinpoint or dilated, sweating, drooling, vomiting, difficulty breathing.

Consider **poisoning** ⮌ 35.

If smells of alcohol, slurred speech, incoordination, unsteady gait.

Alcohol intoxication likely
- Give sodium chloride 0.9% at maintenance rate (⮌ 167).
- If child sobers up, consider discharge into care of family. Link with social worker.

If child is known to use alcohol/drugs and has stopped/reduced intake with tremor, sweating, nausea, severe restlessness/agitation or hallucinations

Alcohol/drug withdrawal likely
- If no other sedation given, give diazepam, oral, 0.1mg/kg/dose (up to 40mg daily for child < 12 years old; up to 60mg daily for child ≥ 12 years old). Avoid IM diazepam.
- If alcohol withdrawal, also give oral rehydration solution.
- Refer urgently.

If lack of insight with any of:
- Hallucinations (hearing voices/seeing
- things that are not there)
- Delusions (unusual/bizarre beliefs not shared by society, beliefs that thoughts are being inserted or broadcast)
- Disorganised speech (incoherent or irrelevant speech)
- Disorganised behaviour or catatonic (inability to talk, move or respond)

Refer urgently.

If child using substances, also complete a form 22[4]: under the abuse type, select 'Neglectful supervision' or 'Refusal to assume parental responsibility'.

If currently agitated/aggressive, manage ⮌ 130.

If behaviour problem not needing urgent attention →129.

[1]Capillary refill time (CRT): hold hand/foot higher than level of heart. Press soft pad of finger/toe until it turns pale, then release pressure and note time taken for colour to return. [2]Avoid mixing Ringer's lactate and IV/IM ceftriaxone. If severe penicillin allergy (previous anaphylaxis, urticaria or angioedema), discuss with doctor/paediatrician. [3]Avoid injecting ≥ 1g IM at one injection site. [4]A form 22 prompts a further detailed investigation into a case of suspected child abuse or neglect. Any adult working with a child in a professional capacity may complete the form.

Approach to the child with behaviour problems not needing urgent attention

First check for physical causes:

Check for pain, problems with vision, difficulty hearing or communication problem, sleep problem and developmental delay:

Look for pain
- Ask about other symptoms and manage as per symptom page.
- Check ears for foreign body ⮌ 48, teeth for caries ⮌ 52 and mouth for painful blisters/ulcers ⮌ 50.

Ask about vision, hearing and communication problem:
- If vision problem ⮌ 47.
- If speech/language problem ⮌ 88.
- If hearing problem ⮌ 48.

If sleep problems ⮌ 87.

Check development:
- Assess milestones if < 6 years old ⮌ 12.
- If > 6 years old: is there a delay in reading and writing or delay in self-care (such as dressing, bathing, brushing teeth) ⮌ 89.

Ask about emotional distress:

If sad, withdrawn, irritable, worry, stress, anxiety or emotional outbursts, assess and manage further ⮌ 131.

Screen for social risk/stressors

Screen for school problems, parenting difficulty, child abuse and depression and substance abuse in the carer:

- Ask if behaviour worse in a particular setting (school or home) or with a particular person, try to explore and address problem.
- If behaviour problem occurs only at school or school refusal/ bullying/poor school grades ⮌ 132.
- Ask about multiple carers with different rules/parenting style. Ask if father figure present and if family member currently serving prison sentence. Provide additional parenting support ⮌ 137.

Ask carer if aware of any abuse of child, carer or siblings. Ask child if anyone hurts or upsets him/her. If yes to either, **child abuse** likely ⮌ 136.

Screen for depression and substance abuse in carer:
- In the past month, has carer: 1) felt down, depressed, hopeless or 2) felt little interest or pleasure in doing things? If yes to either ⮌ PACK Adult.
- Does carer drink ≥ 6 drinks/session every month, drink every day, use illegal drugs or misuse prescription or over-the-counter medication ⮌ PACK Adult.

If other household members with mental health illness, recommend that they attend the clinic to ensure control.

Assess behaviour:

Screen for school problems, parenting difficulty, child abuse and depression and substance abuse in the carer:

If overactive, unable to stay still for long, easily distracted, not finishing tasks, restless and symptoms affecting school and home life, consider **attention deficit hyperactivity disorder** ⮌ 133.

If concerns about use of alcohol or drugs, consider substance abuse.

Do urine drug screen (if available) and link to psychosocial services (counsellor/social worker/support group ⮌ 162) and discharge into care of carer.

Consider **autism spectrum** if child:
- Prefers solitary play or has difficulty in new social contexts
- Avoids eye contact
- Displays repetitive behaviour, craves routine, becomes distressed with changes
- Displays an unusual sensory profile (taste, textures, sounds)
- Uses language unusually - copies sounds, uses unknown words, speaks about favourite subjects a lot
- Refer to paediatrician.

- Reassure parent that a child will do well if they can. Behavioural problems usually indicate a stress behaviour and not a misbehaviour. If carer struggling with parenting ⮌ 136.
- Review in 1 month. If no better and unable to find cause, discuss/refer to paediatrician/mental health practitioner.

Manage the agitated/aggressive child

If not yet done assess the child with behaviour problems ↩ 128.

Manage the agitated/aggressive child:

- **Try to first calm the aggressive/agitated child without restraints/sedation:**
  - Ensure the safety of yourself, the child and those around you: ensure security personnel present, call police if needed. They should disarm child if s/he has a weapon.
  - Move to a quieter area/room: reduce noise, dim lights, close curtains, minimise visitors.
  - Introduce yourself and try to verbally calm the child:
    - Avoid direct eye contact, sudden movements, approaching child from behind. Stand at least two arm's lengths away. Ensure exit is not blocked.
    - Use an honest, non-threatening manner. Use simple language. Avoid talking down, arguing or commanding him/her to calm down. Explain each step and what is to come next.
    - Discuss restraint and offer reward for calmer behaviour.
    - Ask about hunger, thirst, pain or discomfort and if needed, address these.
    - Listen to child, identify his/her feelings and desires and offer choices. Take all threats seriously.

- **Only if verbal attempts to calm the child fail *and* child is a danger to self or others, consider restraints/sedation:**
  - Before restraint/s sedation:
    - If not done yet, assess and manage possible causes of abnormal thoughts or behaviour ↩ 128.
    - If child < 6 years old, avoid restraints: discuss urgently with senior medical doctor (family physician, paediatrician or psychiatrist).
    - If restraints used, check restraint sites every 15 minutes.
    - If sedation needed, discuss with paediatrician or psychiatrist.
    - Refer urgently to district psychiatrist at District hospital: document history and time and dose of each medication given.

Emotional distress

Give urgent attention to the child with emotional distress and any of:
- Suicidal thoughts/attempt or at risk of harming self or others ↩ 127.

Approach to the child with emotional distress not needing urgent attention

First check for physical causes:

Ask about and manage symptoms as on symptom page:
- If abdominal pain ↩ 58
- If headache ↩ 43
- If weak or tired ↩ 44
- If bedwetting > age 5 years old ↩ 65

Assess and manage long-term health conditions:
- If asthma ↩ 122.
- If epilepsy ↩ 123.
- If eczema ↩ 121.
- If allergies ↩ 120.

Review medication:
Prednisone, efavirenz, metoclopramide, contraceptives can cause mood changes. Discuss with doctor.

Ask child and carer more about the emotional distress:

Ask more about the distress and what it is related to. Offer child the opportunity to chat without carer/parent present. Check what is considered appropriate for age ↩ 165.

- If sad, withdrawn, irritable, hopeless, little interest or pleasure in doing things they usually enjoy → **Low mood** likely
- If distress related to a specific situation (like separation from parent, performing an oral at school (despite obtaining good grades) → **Fear/worry** likely
- If distress related to a specific traumatic or dangerous experience/s (may be irritable, nervous, have disturbed sleep, nightmares, difficulty concentrating) → **Traumatic stress** likely
- If worried or scared all the time or unable to stop thinking about a problem → **Anxiety** likely
- If child having emotional outbursts
  - If child gets upset when not getting what they want immediately → **Low frustration tolerance** likely
  - If sudden rush of fear with physical symptoms[1] triggered by scenarios, peaking within 10 minutes → **Panic attack** likely
  - If related to other mental symptoms (like low mood, anxiety, inattention), refer/discuss with mental health team.
- If distress related to a significant loss → **Grief** likely

Address contributing factors where possible
- Ask about routine and quality of **sleep**: does child have regular times for going to bed and waking; is child waking at night and unable to go back to sleep. If sleep problem ↩ 87.
- If distress due to specific experiences at school either academically or socially, address **school problems** ↩ 132.
- If distress related to a family member, consider **abuse** – verbal (persistent criticising, bullying), neglect, physical. Ask child if anyone hurts/upsets him/her. If yes ↩ 136.
- If distress related to **parents who fight**, explain how this may negatively impact child. If needed, refer/discuss with social worker.
- If concerns about use of **alcohol or drugs**, link to psychosocial services (counsellor/social worker/support group, helpline ↩ 162).
- Screen for **depression in carer**: in the past month, has carer: 1) felt down, depressed, hopeless or 2) felt little interest or pleasure in doing things? If yes to either ↩ PACK Adult.

Advise carer and child:
- Encourage parent to be involved: acknowledge feelings, encourage listening, talking, understanding and respect. Offer parenting support ↩ 137 and link with support ↩ 162.
- Ensure routines: ensure healthy sleep and nutrition; encourage creative, fun activities that child enjoys; encourage safe outdoor play; spending time with family /friends.

Follow up in 1 month or sooner if worsening. If distress persistent and interfering with activities of daily living (school, home, social life), refer/discuss with mental health team.

[1]Physical symptoms may include: trembling, shaking, breathlessness, rapid or pounding heart beat, chest pain/discomfort, nausea, numbness/tingling, sweating, feeling of choking, dizziness/faintness, chills or hot flushes. Fear may be linked with fear of dying, losing control or going crazy and feelings of unreality.

School problems/bullying

Assess the child with school problems

Assess	Note
Symptoms	Ask about other symptoms and manage as on symptom page. If hearing problems ⮌ 48. If communicating/talking problems ⮌ 88. If vision problems ⮌ 47.
Long term health conditions (LTHC)	If HIV ⮌ 111, epilepsy ⮌ 123, if asthma ⮌ 122, if allergic rhinitis ⮌ 120 or eczema ⮌ 121.
School work	• Ask about repeated grades (failed grade or years that child was pushed through) and if coping with school work. Ask which subjects child struggles with. Ask if parents help with school work. If not coping with school work and no vision/hearing problem, refer to school-based support team. Write a brief letter to the team, indicating that medical/physical causes for poor school performance have been excluded and request further assessment for possible learning challenges (like dyslexia or intellectual disability). Review in 1 month to check if assessment has occurred. If not, refer to district-based support team. • If learner referred by school-based support for medical assessment, complete a Form DBE 126: Health and disability assessment form[1].
School refusal	• Establish how many days child was absent from school in last few terms. • Try to establish reason for not attending school, explore stressors by asking child/carer if: - There is something at school that causes feelings of stress, anxiety or low mood. - There are unpleasant social situations that make him/her not want to go to school (like bullying at school, unsafe school premises). Ask if there are drugs at school. Reassure child that the conversation is confidential in case they are afraid of gang involvement. - There are evaluations or tests that make him/her not want to go to school. - There are things that child does instead of attending school that makes them feel better about themselves or results in increased attention from family member/s. • If issue/s identified needing urgent assessment and intervention, refer/discuss with mental health team.
Behaviour	• If behaviour problem ⮌ 129.
Stressors	• Ask about violence at school, bullying, carer alcohol/drug use or if other family crisis. See below. • If not enough food at home or no lunch at school, assess growth ⮌ 15 and refer to Nutritional Support Programme if needed. • If appropriate, ask carer if aware of any abuse of child, carer or siblings. Ask child if anyone hurts/upsets him/her. If yes ⮌ 136.
Sleep	If difficulty sleeping ⮌ 87.
Mental health	• If angry, withdrawn or change in mood/behaviour/feelings and not coping ⮌ 131. • If previous traumatic event/accident and disturbed sleep, nightmares, irritability or difficulty concentrating for ≥ 1 month, **post-traumatic stress disorder** likely, refer.
Substance use	If child using alcohol or drugs, refer to social worker and link carer/child to support group ⮌ 162.
Parenting	• Ask who is responsible for the child most of the time. If harm or neglect suspected ⮌ 136. • If carer struggling with parenting ⮌ 137.

Advise the child with school problems

- Establish regular daily routine for sleeping, eating and free time. Limit all screen time to < 2 hours/day (TV/gaming/phones/ipads/tablets).
- Set aside specific time for homework daily. Encourage parents to try and support homework.
  - Encourage good nutrition: ensure breakfast before school and lunch at school. If not enough food at home or no lunch at school, refer to Nutritional Support Programme. Avoid fast foods, sugar and caffeine.
- Explore ways to address any stressors identified above. Encourage communication with teacher/school.
- Encourage safe after-school care and encourage activities with peers like sport and music to help reduce risk of gang/drug involvement.
- Address violence and drugs at school and unsafe school premises: involve social worker and school principal.
- If bullying: advise parents to talk to the school. If cyber-bullying, advise carer to monitor activity on social media and take action to stop it.

If school problem persists despite above measures, refer/discuss with mental health team

[1]Access Form DBE 126 using the following weblink (go to page 71, Annexure D): https://www.education.gov.za/LinkClick.aspx?fileticket=2bB7EaySbcw%3D&tabid=617&portalid=0&mid=2371

Attention deficit/hyperactivity disorder (ADHD): diagnosis

Assess for ADHD in the child ≥ 6 years old who has symptoms of inattention, hyperactivity, or impulsivity. If child < 6 years old, refer/discuss with mental health team or paediatrician.

Does child have 6 or more of the following inattention symptoms (check carefully in girls - inattention symptoms more common than hyperactive symptoms)**:**

- Difficulty staying focused on tasks that aren't highly stimulating or need sustained mental effort
- Often does not seem to listen when spoken to directly
- Often appears to be daydreaming
- Does not complete tasks
- Is easily distracted
- Lacks attention to detail
- Makes careless mistakes in school
- Loses things often
- Is forgetful in daily activities
- Has difficulty remembering to complete upcoming daily tasks/activities
- Difficulty planning/managing/organising schoolwork, tasks and activities

No

Yes

Does child have 6 or more of the following hyperactivity/impulsivity symptoms:

- Excessive activity
- Often runs about
- Talks too much
- Blurts out answers in school
- Leaves seat when expected to sit still
- Difficulty engaging in activities quietly
- Has difficulty sitting still without fidgeting (younger children)
- Difficulty waiting turn in conversation, games, or activities
- Feelings of physical restlessness, a sense of discomfort with being quiet or sitting still (adolescents)
- Interrupts or intrudes on others' conversations or games
- Behaves, acts or makes decisions without thinking (risky/reckless)

No

Yes. Have these symptoms been present for ≥ 6 months?

No

Yes. Are symptoms severe enough to have a negative effect on school, home or social functioning?

No

Yes. Check for underlying causes and if needed, assess and mange further before diagnosing as likely ADHD.

Check vision and hearing	**Check for pallor**	**Check for thyroid disease**	**Check for diabetes**	**Check for sleep problems**	**Screen for substance abuse**	**Check for medication side effects**
If ear problems ⮌ 48	If pallor, do Hb: if Hb < 11 ⮌ 45	If clinically suspected[1], check TSH.	If increased thirst, frequent urination, check glucose.	If sleeping < 9 hours/night ⮌ 87.	If concerns about use of alcohol/ drugs, consider drug levels.	If on treatment (like bronchodilators or thyroid replacement), discuss.

- Is child known or suspected of having any other mental health illnesses (including tics)? Screen especially for anxiety and PTSD[2]. Ask:
  - If previous/ongoing life experience/s result in disturbed sleep, nightmares, fear, irritability and difficulty concentrating?
  - If child is feeling worried or scared all the time or is unable to stop thinking about a problem?

Yes
Refer/discuss with mental health team.

No. **Attention deficit/hyperactivity disorder** likely

- Refer to family physician or trained doctor to confirm diagnosis.
- Arrange for following documents to be completed and sent with child for assessment (if needed, help parent/carer):
  - Parent/carer to complete ADHD parent questionnaire and SNAP questionnaire[3] and for copies of school reports.
  - Request that child's school teacher also completes a SNAP[3] questionnaire.

- Follow up 2 monthly to assess if symptoms improving.
- Advise parent/carer to:
  - Keep a structured daily routine.
  - Keep things simple: make only one request at a time.
  - Praise any improvements in behaviour. Avoid punishment.
  - Avoid overstimulation.
  - Encourage outdoor play.
  - Limit screen time (TV/phone/ipad/ tablet) to < 2 hours per day.
  - Avoid fast foods, sugar and caffeine, fizzy drinks and foods with additives.
- If problems persist, discuss with/ mental health team/paediatrician.

[1]Clinical signs and symptoms of thyroid disease include: hyperthyroidism - thyroid enlargement, increased pulse rate, weight loss or failure to gain weight, increased sweating, heat intolerance, bulging eyes, lid lag, tremor, poor sleep, exaggerated changes in mood; hypothyroidism - thyroid enlargement, dry skin, brittle hair, constipation, puffy face, intolerant to cold or thyroid enlargement. [2]PSTD – post traumatic stress disorder. [3]The SNAP scale is a questionnaire originally devised by Swanson, Nolan and Pelham (SNAP). It helps to objectively track the frequency of symptoms of ADHD and can be completed by parents and teachers. Access SNAP questionnaire http://www.shared-care.ca/files/Scoring_for_SNAP_IV_Guide_26-item.pdf. Afrikaans and Xhosa also available. Or calculate electronically: https://qxmd.com/calculate/calculator_147/snap-iv-26-teacher-parent-rating-scale. If capacity for more thorough assessment exists, use SNAP-IV 90-item assessment.

Attention deficit/hyperactivity disorder (ADHD): routine care

A family physician or trained doctor or mental health nurse must confirm the diagnosis using careful history, examination and observation reports and questionnaires.

Assess the child known with ADHD

Assess	When to assess	Note
Symptoms	Every visit	Ask about ADHD symptoms. Ask how child and family are coping at home.
SNAP[1] scale	Every visit	• Ask parent/carer *and* child's teacher to each complete a SNAP[1] form. Record scores and compare to assess trend of ADHD symptoms. Aim for: • For inattention symptoms (questions 1-9): aim for a score less than 13/27. • For hyperactivity/impulsivity symptoms (questions 10-18): aim for a score less than 13/27.
School progress	Every visit	• Ask about school attendance. Ask to see school report 6 monthly to track school performance. If school problems/bullying, assess further ⮌ 132. • Check if child has to access school-based support team, remedial teacher, facilitator, psychologist, occupational therapist and link with resources, if available. If child has not been linked to resources, contact Head of specialised learner and educator support[2].
Adherence and side effects	If on methyl-phenidate	Ask about adherence to methylphenidate (correct dose and time given) and side effects ⮌ 135.
General health/other conditions	First visit	• Integrate routine care into every visit ⮌ 12. Ensure any other long term health conditions are well controlled. • If epilepsy on anticonvulsant, blood clotting disorders or known with another mental health illness, discuss if on methylphenidate.
Mental health	Every visit	• If life experience/s result in disturbed sleep, nightmares, fear, irritability and difficulty concentrating, consider **post traumatic stress disorde**r. • If excessive fear, worry or child is unable to stop thinking about a problem, consider **anxiety**. • If irritable, sad, unable to enjoy anything, crying a lot or feeling lonely for most of day for 2 weeks, consider **depression**. • If concern of alcohol or drug use, link to psychosocial services (counsellor/social worker/support group, helpline ⮌ 162.
Parent/carer	Every visit	• At diagnosis, ask about family history of ADHD: if similar symptoms in sibling/parent, consider ADHD in parent, discuss/refer to mental health team. • Screen for depression: in past month, has parent/carer: 1) felt down, depressed, hopeless or 2) felt little interest or pleasure in doing things? If yes to either ⮌ PACK Adult. • Screen for substance abuse: does carer drink ≥ 6 drinks/session every month, drink every day, use illegal drugs or misuse prescription or over-the-counter medication ⮌ PACK Adult.
Weight	Every visit	• Methylphenidate may lead to changes in appetite: measure weight at every visit and track weight gain and weight loss. • If losing or not gaining weight, encourage good breakfast before taking treatment and a good supper, with healthy 'power snacks' (nuts, raisins, fruit) at school, ask for teachers assistance. Suggest a snack before bed. If needed, skip weekend doses of methylphenidate. If problem persists, discuss with paediatrician.
Height	6 monthly	Calculate BMI[3], plot and interpret growth ⮌ 15.
Blood pressure	Every visit	Measure blood pressure using correct size cuff and interpret result ⮌ 167. If increased BP, refer/discuss with paediatrician.
Heart rate	Every visit	Check heart rate and interpret result ⮌ 167. If heart rate above normal limit, refer/discuss with paediatrician.
Risk of heart disease	At diagnosis	Ask about heart problems in child or family: ask about dizziness/fainting/blackouts, especially related to exercise, palpitations, family history of sudden death in a young family member. Doctor to examine cardiac system. If any concerns, do ECG and refer to paediatrician and/or cardiologist.

Continue to advise and treat the child known with ADHD →135.

[1]The SNAP scale is a questionnaire originally devised by Swanson, Nolan and Pelham (SNAP). It helps to objectively track the frequency of symptoms of ADHD and can be completed by parents and teachers. Access SNAP-IV form: http://www.shared-care.ca/files/Scoring_for_SNAP_IV_Guide_26-item.pdf. Afrikaans and Xhosa also available. Or calculate electronically: https://qxmd.com/calculate/calculator_147/snap-iv-26-teacher-parent-rating-scale. If capacity for more thorough assessment exists, use SNAP-IV 90-item assessment. [2]https://wcedonline.westerncape.gov.za/contact/districts. [3]Body Mass Index: weight(kg) ÷ height (m) ÷ height (m).

Advise the child with ADHD and his/her parent/carer

- Try to keep to a structured routine with child. Try to do things in the same order every day. Set aside specific time for homework daily. Warn child about any changes of plan ahead of time.
- Keep things simple: make only one request at a time. Follow up on the instruction, ensure child complies. Praise/reward child when s/he obeys.
- Give praise when there is any improvement in the child's behaviour. Avoid punishment – the child is not to blame for being overactive.
- Avoid overstimulation: play with one friend at a time, take part in one activity at a time. Avoid background television and radio. Avoid crowded places where possible.
- Allow plenty of outdoor play in garden/park (or street , if safe) to 'blow off steam'. Limit screen time (TV/phone/ipad/tablet) to < 2 hours per day.
- Avoid fizzy drinks and foods with additives (e.g. heavily coloured sweets, fish fingers) if they seem to make things worse. Avoid fast foods, sugar and caffeine.
- Advise that appetite may be poor, so encourage bigger breakfast before taking treatment and a good dinner, as well as healthy 'power snacks' (nuts, raisins, fruit) at school and before bed.
- Advise that thirst may also be affected: child needs to be reminded to drink water during the day. Ask teacher to assist with this. Dehydration may cause headaches, which may be confused as a medication side effect.

Treat the child with likely ADHD

- A specialist, or doctor authorised to prescribe, needs to start and titrate dose methylphenidate (Ritalin®) and renew prescription 6 monthly.
  - Start methylphenidate only if: child ≥ 6 year old, trial of classroom/home interventions have been unsuccessful, medical problems have been excluded and ADHD symptoms are severe.
  - Avoid methylphenidate if known hypersensitivity, hyperthyroidism, glaucoma, pregnant/breastfeeding, heart disease, hypertension. Refer if high risk factors[1].
- Once stable, clinic doctor to re-prescribe each month.

Medication	Starting dose	Titrate	Usual maintenance dose	Maximum dose
Methylphenidate SA (short acting)	• Give 5-10mg half an hour before school starts. • If needed: - Give another 5-10mg 3-4 hours after initial dose. - If needed, give further 5-10mg 3-4 hours after second dose, no later than 3pm.	If needed, increase dose by 0.1mg/kg/dose (or 5-10mg/day), 2-4 weekly.	0.5-1mg/kg/day every day of week (no weekend/school vacation holidays)	1mg/kg/day or 60mg/day.

Look for and manage methylphenidate side effects

Chest pain, shortness of breath, palpitations	Stop methylphenidate, refer/discuss with paediatrician.
Raised BP or heart rate	Stop methylphenidate, refer/discuss with paediatrician.
Convulsions	Stop methylphenidate, refer/discuss with paediatrician.
Psychosis (disordered thoughts, loses touch with reality, hearing or seeing things that are not there)	Stop methylphenidate and refer to psychiatrist same day.
Nausea, vomiting, abdominal pain, drowsiness, headache	• Reassure that these side effects are temporary and only last a short time. • If symptoms persist > 5 days, stop methylphenidate and refer/discuss with paediatrician/psychiatrist.
Poor appetite or weight loss	If losing or not gaining weight, encourage good breakfast and supper, with healthy 'power snacks' (nuts, raisins, fruit) at school, ask for teachers assistance. If needed, skip weekend doses of methylphenidate. If problem persists, discuss with paediatrician
Insomnia, nightmares	Advise to give last dose before 3pm. If severe insomnia persists, refer/discuss with paediatrician.
Irritability/mood swings (unhappy, crying a lot)	Reassure that these are usually temporary and resolve. If persists, stop methylphenidate and refer/discuss with paediatrician/psychiatrist.
Tics, nervous movements	Decrease dose. Reassure that these are usually temporary and resolve. If persists, refer/discuss with psychiatrist.

Review the child with ADHD

- Specialist/doctor to review 2-4 weekly until stable. Give next appointment date letter needed for school. Once stable, clinic doctor to review 3-6 monthly. Parent/carer to collect medication monthly.
- Continue treatment for several years, extending into adolescence/adulthood if needed. Discuss stopping with psychiatrist before weaning.
- If mental health problem (like **depression**, **anxiety**, **post traumatic stress disorder**) develops, refer/discuss with paediatrician/psychiatrist.
- If symptoms and/or functioning worsen or no better after 6 months, refer/discuss with paediatrician/psychiatrist.

[1]Refer to tertiary hospital if any of: cardiovascular disease, congenital heart disease, vasculitis, stroke, history of syncope, family history of heart disease/long QT syndrome, tics, family history of Tourette's syndrome; psychosis, bleeding disorders, anorexia, bipolar disorder.

Suspected child abuse/neglect

Child abuse/neglect likely if: history of child abuse (carer or child discloses abuse), inconsistent history and examination, delay in presentation of injury, abuse clear on examination or interaction between carer and child seems odd.

Give urgent attention to the child where abuse/neglect is very likely:

- Definite history of rape/sexual assault
- Injury, soft tissue injury or bleeding needing urgent attention ⮌ 32
- At risk of being harmed and in need of shelter

Management:

- If rape/sexual assault: arrange urgent referral to closest designated facility for management of rape and sexual assault, like a Thuthuzela care centre.
  - Give PEP ⮌ 85 as soon as possible, if within 72 hours of rape, to prevent HIV (avoid if child known with HIV).
  - Do not bath or wash child. Make sure child comfortable and be kind. No need to examine or ask further questions.
- If urgent referral not available also consider giving emergency contraception or STI prevention, discuss with specialist/Thuthuzela care centre.

Approach to the child with suspected abuse/neglect

Look for warning signs that make abuse more likely and assess for other types of abuse simultaneously (do this in an area which is quiet):

- History of physical assault.
- If eardrum perforated, refer to ENT.
- Old and new scars, grasp marks on arms/chest/face, bruises, bruises of different ages, burns/cigarette burns, unusual or patterned wounds specifically on skin, ears, eyes or in/around mouth.

Physical abuse likely
Manage injuries needing attention ⮌ 32.

If any of the following with no other obvious cause:

- Vaginal or urethral discharge/bleeding or ano-genital warts/ulcers ⮌ 64
- Persistent urinary frequency/burning urine ⮌ 65
- Knowledge/interest in sexual acts inappropriate for age, or seductive behaviour.
- Sudden emotional/behavioural changes. Child is not him/herself.
- If sexually active and any of: 1) not consensual 2) child < 12 years old 3) child 12-16 years old with a partner not in peer group[2].

Sexual abuse a possibility
Doctor to obtain consent and examine with chaperone: do not perform internal examination. If tears in ano-genital area or unsure, discuss/refer to closest designated facility, like a Thuthuzela care centre.

- Poor growth with no obvious cause.
- Clothes ill-fitting, dirty or inappropriate clothes
- Unbathed, matted hair, body odour
- Untreated illnesses or physical injuries
- Frequently left unsupervised or unsafe.
- Often late or missing from school

Neglect likely

- Child excessively withdrawn, fearful or anxious.
- Child frightened of being bullied or exploited.

Emotional abuse likely

Assess general health of the child ⮌ 12.

Manage the abused/neglected child

- Complete form 22A[1] and email to social services agency ⮌ 162 or hand over to social worker to send to local Department of Social Development. .
- If neglect and inadequate food, refer to nutritional support programme/NGO (like Philani) ⮌ 162.
- Assess home environment - ask questions like: how often are there parties at home that get out of hand; or does child ever sees his/her parents getting physical with one another.
  - Ask about stressors in household like: loss of a breadwinner from death, imprisonment or separation/divorce; or a substance user who may be stealing food/money or showing aggression; or a carer misuing alcohol/substances; or a carer/siblings being mistreated. If concerns, refer to social worker.
- If bullying at school, contact teacher to work with carer to stop the abuse. If bullying at home, refer carer/s and child to psychologist for family therapy.
- If **physical abuse:** clearly record child and carer's story in their own words - include identity of perpetrator and child's name and date and sketch all injuries and scars.
  - Inform carer/s of all relevant investigations being done and referrals being made.
  - Notify police: if police not present yet, phone SAPS FCS ⮌ 162 (Family violence, Child protection and Sexual offences unit) to begin investigation. Fill in J88 if requested.
  - Involve social worker to arrange place of safety for child. If social worker unavailable, contact FCS ⮌ 162. If unable to respond same day, refer to hospital until suitable placement arranged.
  - Help carer identify sources of support for child. Refer to available trauma counsellor, mental health nurse, psychologist or helpline ⮌ 162. Refer also to community health worker to do home visit.

[1]A form 22 prompts a further detailed investigation into a case of suspected child abuse or neglect. Any adult working with a child in a professional capacity may complete the form. [2]Partner should also be 12-16 years old.

Parenting support

Approach the family with parenting difficulties to identify a cause, give general parenting advice and help access support.

Assess the carer and child with parenting difficulty

Assess	When to assess	Note
General health of carer	Every visit	• If carer unwell, assess and manage ⮌ PACK Adult. • If delivery in past 6 weeks, give postnatal care ⮌ PACK Adult.
Mental health of carer	Every visit	Screen for depression/anxiety in carer: in the past month, has carer: 1) felt down, depressed, hopeless or 2) felt little interest or pleasure in doing things? If yes to either ⮌ PACK Adult.
Substance abuse	Every visit	Screen for substance abuse: does carer drink ≥ 6 drinks/session every month, drink every day, use illegal drugs or misuse prescription or over-the-counter medication ⮌ PACK Adult.
Special needs	If needed	If child known with special needs, give routine care: cerebral palsy ⮌ 138, Down syndrome ⮌ 141.
Psychosocial risk	Every visit	• If family or relationship problems, violence at home, difficult life event in last year, family member serving time in prison, lack of partner/family support, carer < 20 years old, financial difficulty, refugee status, bereavement, help access support below. • Ask carer who looks after child most of time. If concerns about abuse or neglect ⮌ 136.
Parent/child relationship	Every visit	• If baby < 1 year old: if carer not interacting with baby or not responding appropriately to baby (avoids eye contact with baby or does not comfort/feed baby when crying), screen for depression in the carer if not yet done and if needed, refer to mental health nurse/psychologist/doctor. • Ask if persistent conflict, tension or dysfunction between parent/carer and child: ask if poor communication, (misunderstandings, frustration, resentment), control issues (carer overly authoritarian, demanding, rebelliousness in child), trust problems, emotional or physical absence (child feels unsupported or unloved).
Behaviour/sleep of child	If needed	If problem that persists despite parenting strategies below, assess thoroughly: behaviour problem ⮌ 128, sleep problems ⮌ 87.
School	If needed	If school problem persists despite parenting strategies below ⮌ 132.

Advise the carer with parenting difficulties

- If child has two parents, encourage both to be actively involved in parenting. If multiple carers (extended family, nanny), encourage discussion to ensure rules and parenting styles are consistent.
- Encourage carer to discuss concerns with crèche, preschool and school staff.
- Help the carer to consider strategies to cope with parenting and address issues impacting on parent/carer and child relationship:

Encourage a healthy bond

Encourage carer to be sensitive, reassuring, and consistent, especially during the 1st year. Avoid leaving baby < 2 years old to cry alone.

Establish routine

- Encourage routines for sleeping, meals, playing, homework and chores.
- Encourage supervision after school.

Provide consistent discipline

- Actively listen to child, respect his/her wishes and feelings and encourage him/her to express his/her opinions.
- Be firm, kind, reasonable and consistent.
- Set clear boundaries. Explain reasons for rules.
- Encourage praise/reward for good behaviour.
- Talk about issues when everyone is calm. Avoid shouting, shaming, smacking or other forms of emotional or physical punishment.

Encourage carer to look after him/herself

Spend time with supportive friends or family
Find a creative or fun activity to do.

Get active

Get enough sleep

Access support
Link client with helpline (like The Parent Centre) ⮌ 162.

Offer to review the carer in 1 month.

Cerebral palsy: routine care

Assess the child with cerebral palsy: record child's condition and care plan in RtHB.

Assess	When to assess	Note
Symptoms	Every visit	• Manage symptoms on symptom pages: If coughing ⮌ 53, constipation ⮌ 62, snoring on most nights ⮌ 49, change in sleeping pattern ⮌ 87. • If TB contact[1] ⮌ 100. If TB symptoms[2], check for TB ⮌ 102.
Seizures/fits	Every visit	If known epilepsy ⮌ 123 or fitting/uncontrolled fits ⮌ 28.
Vision, talking and hearing problems	Every visit	• If squint, cataracts or other problems with vision ⮌ 47. • If talking or hearing problem, ensure assessment by speech therapist or audiologist. If no previous assessment ⮌ 88.
Feeding	Every visit	If difficulty swallowing, coughing/choking with feeds or unable to chew, refer to speech therapist and to dietitian if specialized feed required.
Social risk	Every visit	• If in need of full-time care, apply for child dependency grant. Advise to take child's birth certificate and carer's ID to SASSA[3] to apply. • If concerns about abuse or neglect, refer to social worker.
Rehabilitation, home needs and equipment	Every visit	• Ensure referral to physiotherapist and occupational therapist to asisst with improving and maintaining muscle strength, balance, motor skills, and to prevent contractures. • If adaptation of home environment needed in terms of feeding, toileting and mobility or problem with equipment, refer to occupational therapist.
Behaviour problems	Every visit	• If problem or a noticeable change in behaviour ⮌ 128. Exclude abdominal pain ⮌ 58, joint pain ⮌ 70 or teeth pain ⮌ 52 as cause of problem.
Schooling	Every visit	Check if in school or appropriate alternative placement (like recreational therapy) ⮌ 162 and if coping. If not, write referral letter to school-based support team or occupational therapy.
Carer	Every visit	Assess carer's mental health: in the past month, has carer: 1) felt down, depressed, hopeless or 2) felt little interest or pleasure in doing things? If yes to either ⮌ PACK Adult. If pregnant, advise to book early.
Palliative care	At diagnosis and if deteriorating	If degree of cerebral palsy life-limiting, also give palliative care ⮌ 142.
Routine care	Every visit	Integrate routine care into every visit ⮌ 12.
Growth	Every visit	Weigh, plot and look at trend. If child using walking aids to be mobile, plot growth on cerebral palsy chart ⮌ 139, if child confined to wheelchair at all times ⮌ 140. If not growing well ⮌ 96. If overweight ⮌ 99.
Back/limbs	Every visit	• Check back: look for curved spine (kyphosis and scoliosis). If found for first time, refer to physiotherapist. • Check limbs: refer to paediatrician if marked stiffness in limb/difficulty moving joints, pain on moving limb/dressing child or if walking pattern has changed. If child was previously walking and now stopped, refer urgently. • Check hips: if child in wheelchair and pain or dislocation on movement, refer to paediatrician.
Teeth	Every visit	If dental caries ⮌ 52. Ensure that carer brushes child's teeth twice daily.
Skin	Every visit	Check skin over pressure areas, if pressure sore found ⮌ 78. If sudden onset demarcated redness with pain/warmth, **infected bedsore** likely ⮌ 78.

Advise the child and carer with cerebral palsy

- Cerebral palsy can range from mild (one hand stiff) to severe (quadriplegic). The child with cerebral palsy can have normal intelligence. Ensure a formal assessment is done by a specialist.
- Ensure that life-long physiotherapy or occupational therapy is in place, especially if problems with spine or walking/limbs.
- Cerebral palsy can be difficult to deal with so allow carer time to express feelings and to ask questions. Encourage family to get involved in social support networks ⮌ 162.

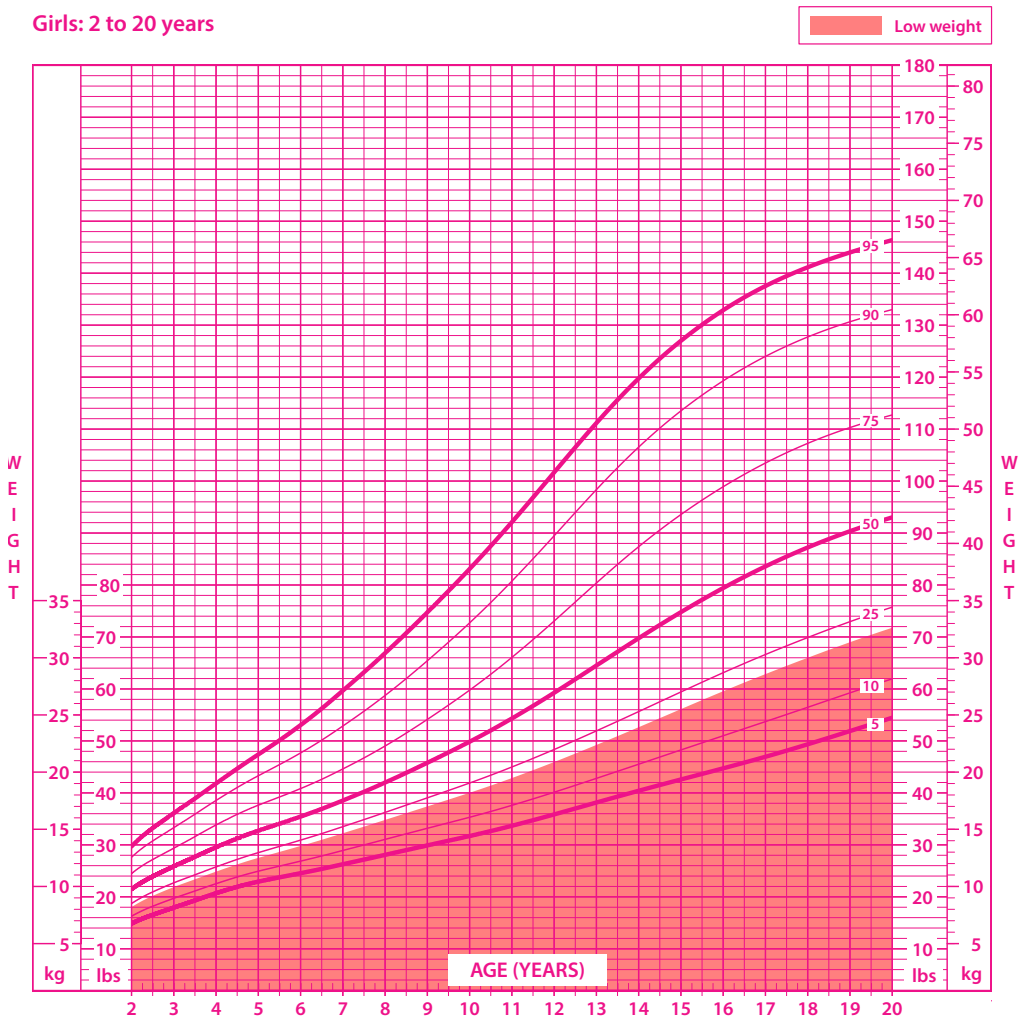
Treat the child with cerebral palsy

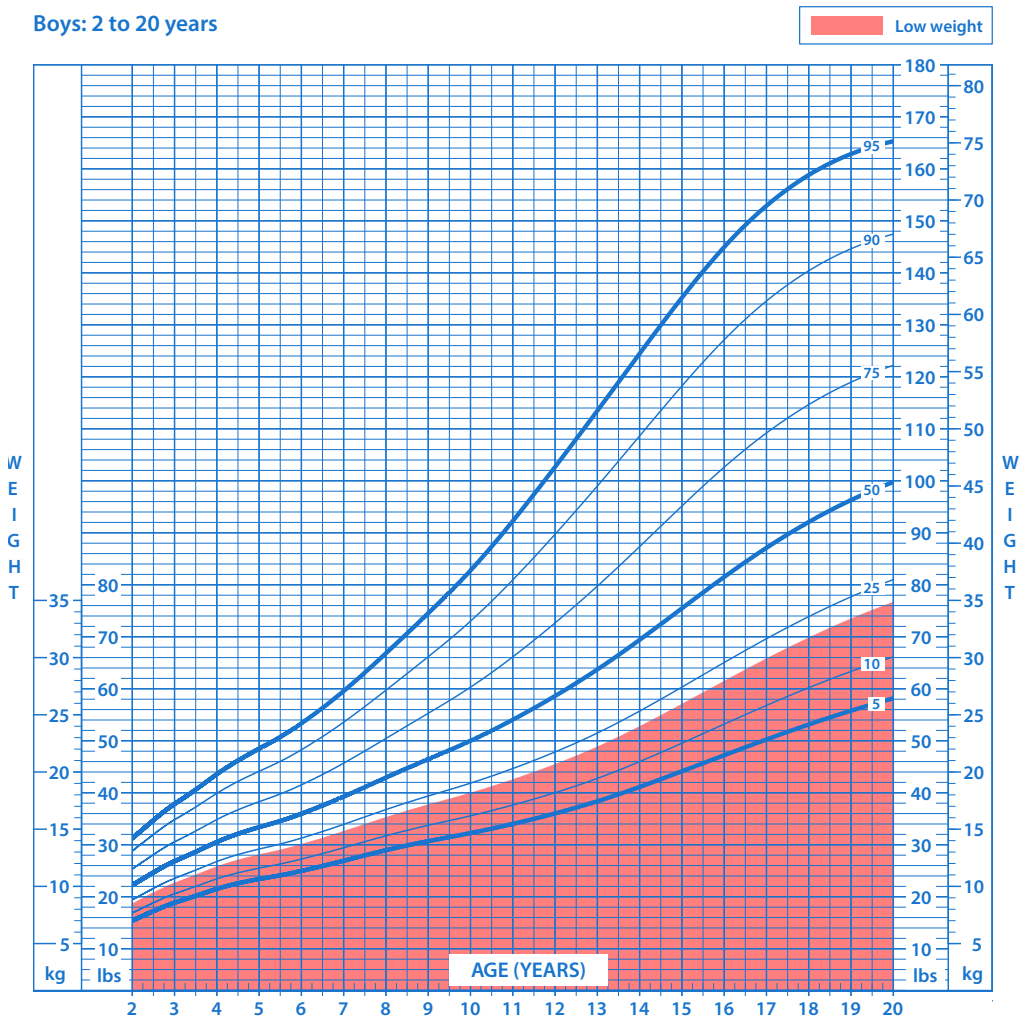
Continue treatment prescribed by specialist.

Ensure child attends 6-12 monthly paediatrician check-ups.

[1] A TB contact refers to a child who shared an enclosed space (at school, socially, or in a household setting), for ≥ 1 night or for frequent/extended daytime periods, with an adult/adolescent with pulmonary TB ("index patient"), during the 3-month period before the index patient started their TB treatment. [2]TB symptoms: current cough/fever, drenching night sweats, poor weight gain/failure to thrive, weight loss, decreased playfulness/fatigue, visible neck mass. [3]South African Social Security Agency.

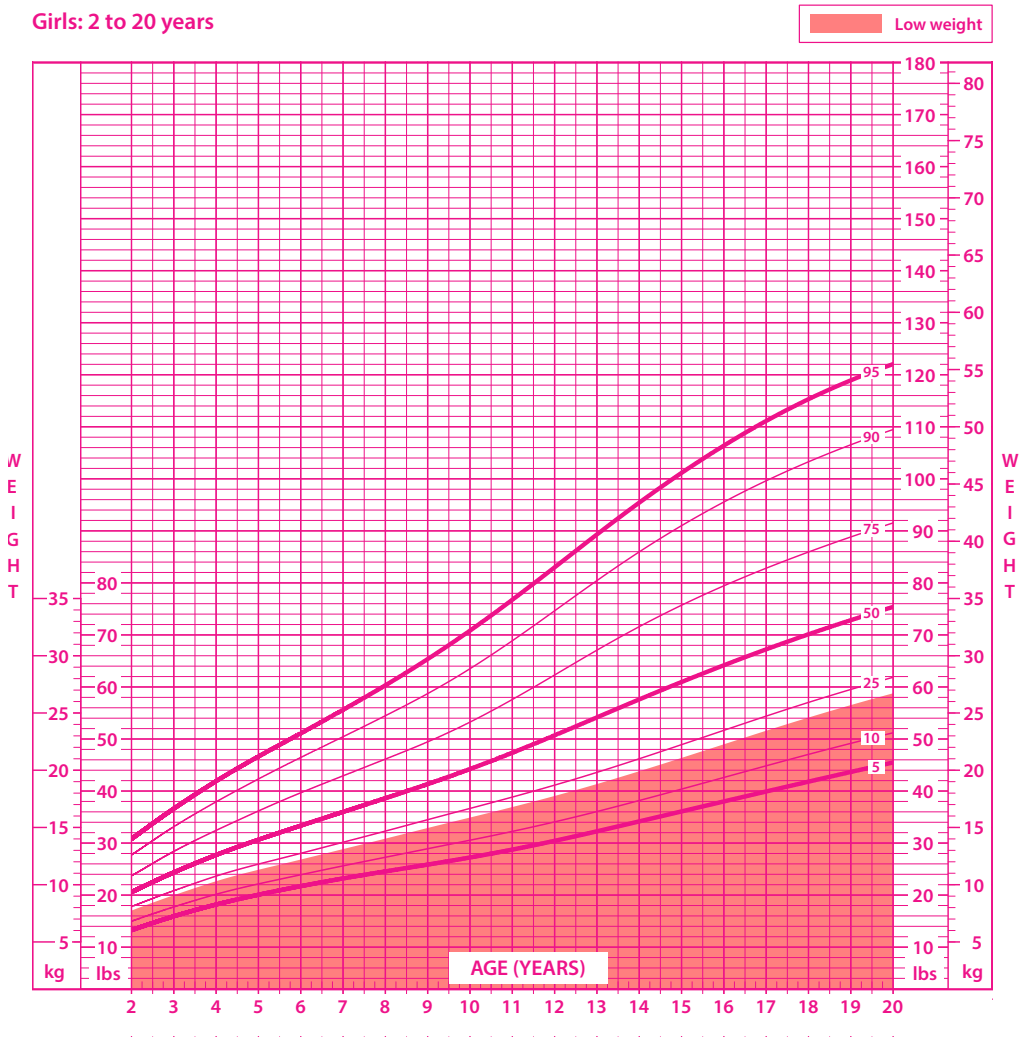
Weight-for-age chart: Cerebal palsy (GMFCS IV)

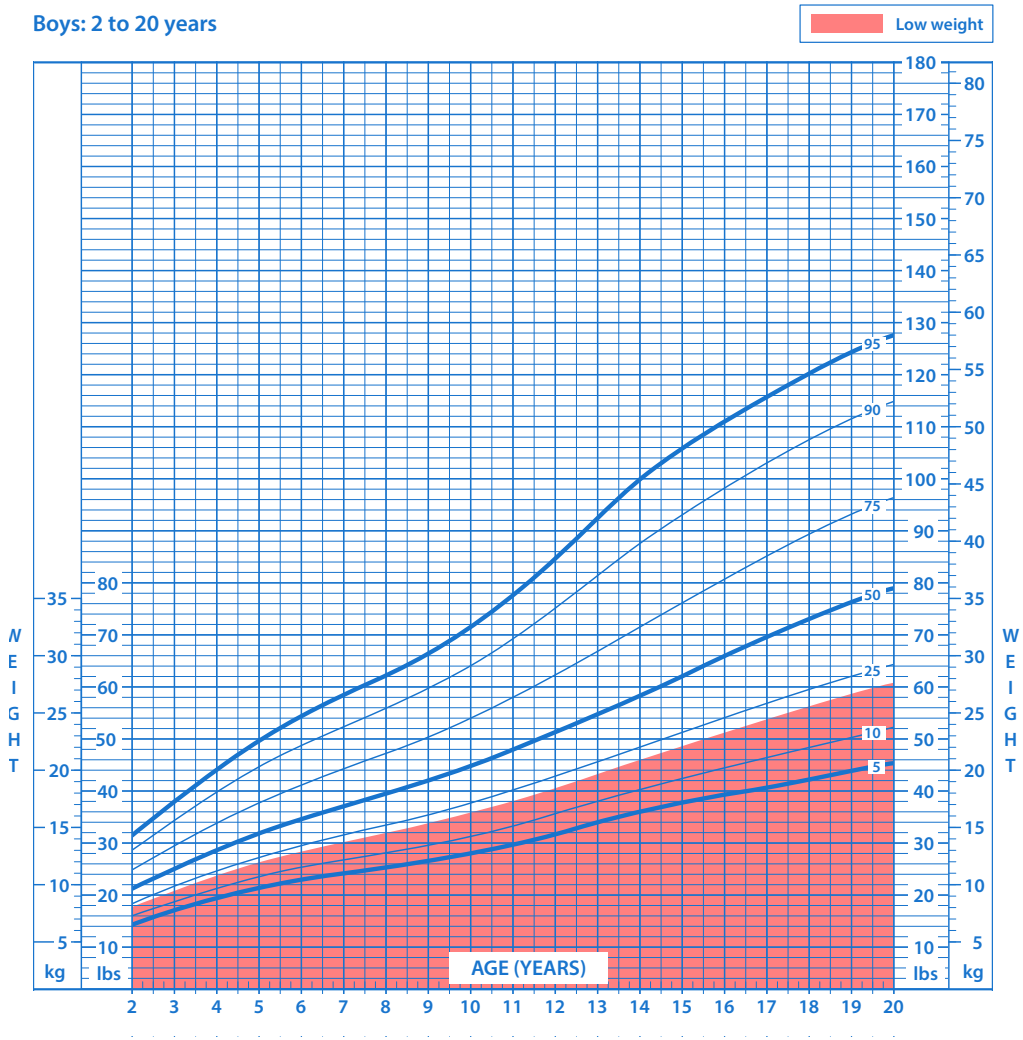




SOURCE: Life Expectancy Project (2011). Based on data from the California Department of Developmental Services and California Bureau of Vital Statistics. http://www.LifeExpectancy.org/Articles/NewGrowthCharts.shtml

Weight-for-age chart: Cerebal palsy (GMFCS V)





SOURCE: Life Expectancy Project (2011). Based on data from the California Department of Developmental Services and California Bureau of Vital Statistics. http://www.LifeExpectancy.org/Articles/NewGrowthCharts.shtml

Down syndrome: routine care

Assess the child with Down syndrome: record child's condition and care plan in RtHB.

Assess	When to assess	Note
Symptoms	Every visit	• Manage symptoms as on symptom page. • If child snores continuously, **obstructive sleep apnoea** likely ⮌ 49. If constipation ⮌ 62. • Check ear and eardrum. If red, bulging eardrum or ear pain/discharge ⮌ 48.
Feeding	Every visit	If struggles with feeding, refer to speech therapist for feeding assistance.
Heart disease	At birth	If neonate, refer to cardiology OPD for assessment. If known heart problem, give routine care ⮌ 125.
Carer	Every visit	Assess carer's mental health: in the past month, has carer: 1) felt down, depressed, hopeless or 2) felt little interest or pleasure in doing things? If yes to either ⮌ PACK Adult. Check family planning in place ⮌ PACK Adult.
Vision	Every visit	• Refer to ophthalmologist for formal eye and vision screen between 1-3 years old. • School nurse to do eye test at school entry and refer if problem found. • If squint, cloudy cornea or absent red reflex ⮌ 47.
Talking, hearing problems	Screen before 3 months old, at 6 months, 12 months and then yearly	• Refer to audiologist for hearing test before 3 months old and between 1-3 years old. • If talking problem, refer to speech therapist.
Behaviour	Every visit	If problematic behaviour or concerned about child's behaviour ⮌ 128.
Schooling and learning problems	Every visit	• At 5 years old, child must be assessed by a paediatrician to decide school placement. • Check attending and coping at school. Refer to occupational therapist if problems. • If learning problem, refer to remedial teacher/occupational therapist/school based support team.
Family planning	If started period	If girl has started period, refer to doctor to discuss contraception method.
Social risk	Every visit	• If in need of full-time care, apply for child dependency grant. Advise to take child's birth certificate and carer's ID to SASSA[1] to apply. • If concerns about abuse or neglect, refer to social worker.
Routine care	Every visit	Integrate routine care into every visit ⮌ 12.
Growth	Every visit	• Measure and record weight-for-age, length/height-for-age, weight-for-length/height (or BMI) ⮌ 15. • Refer to dietitian for weight and nutritional assessment.
Teeth	Every visit	If dental caries ⮌ 52. Ensure child (with carer help) brushes teeth twice daily.
TSH	At 6 months old, then yearly	If TSH abnormal, refer.
Haemoglobin	Yearly	If Hb < 10g/dL in child < 5 years old or Hb < 11g/dL in child ≥ 5 years old, **anaemia** likely ⮌ 45.

Advise the carer of child with Down syndrome

- Make carer aware child may always have weaker muscles than other children. Ensure regular occupational therapy is in place until walking and running well.
- Encourage family to join a support group/s ⮌ 162.
- Encourage carer to play and interact with child: provide contact/hold child regularly, sing/dance with child, read books, encourage outside activities, kick/throw a ball.

- Advise influenza vaccination during influenza vaccine campaign.
- Doctor to review child 6 monthly until 1 year old, yearly from 1-3 years old and 2 yearly thereafter unless otherwise instructed.

[1]South Africa Social Security Agency.

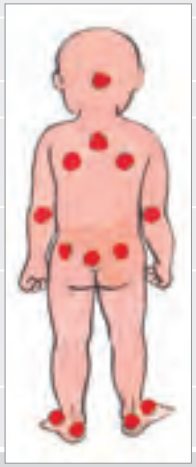
Life-limiting illness: routine palliative care

A child with a life-limiting illness can be given curative and palliative care at the same time. A doctor should confirm if the client needs palliative care:

- Child with life-threatening illness where cure is possible but could fail *and/or*
- Child with disease where cure not possible but can be managed (like HIV on ART) *and/or*
- Child with disease where cure not possible and no option for active management (like inoperable congenital heart disease, Trisomy 13, Trisomy 18) *and/or*
- Child with irreversible yet non-progressive conditions (like cerebral palsy).

Assess the child needing palliative care

Assess	Note
Symptoms	• If constipation, diarrhoea, nausea/vomiting, abdominal cramps, itchiness, anxiety, cough/difficulty breathing or manage ⮌ 143. • Manage other symptoms as on symptom pages.
Pain	• Does client have **cancer** pain or **non-cancer** pain? Cancer pain: constant and progressive. Non-cancer pain: > 4 weeks,nerve pain/tissue damage/ any other pain child suffering with. • Assess the severity of the pain: is it mild, moderate or severe, using the FLACC pain scale[1] ⮌ 165. This will help decide which pain medications the child needs to start/increase ⮌ 143. • If new or sudden pain, temperature ≥ 38°C, tender swelling, redness or pus, treat on symptom page. If no better or uncertain of cause, discuss.
Side effects	• Ask about side effects from pain medication ⮌ 143. • If on morphine, advise that nausea, confusion and sleepiness usually resolve after a few days. Check that client is using regular laxative.
Sleep	• If child has difficulty sleeping ⮌ 87.
Mental health	• Ask about how the child and carer are feeling. Do they have sadness or worry? Refer child and family/carer to counsellor to help identify their support network (family, schools, churches, mosques, community support groups). • Ask if child has suicidal thoughts or plans ⮌ 127. If low mood, stress, anxiety or anger ⮌ 131 or if problematic change in behaviour ⮌ 128.
Carer health	• Screen for depression/anxiety in carer: in the past month, has carer: 1) felt down, depressed, hopeless or 2) felt little interest or pleasure in doing things? If yes to either ⮌ PACK Adult. • Ask how the carer and family are coping and what support they need now and in the future, refer to social worker.
Chronic care	• Assess how much child and family understand about the condition and ask what further information the child and carer need. • Check adherence to treatment. Refer to doctor if child struggling with medications. • Assess ongoing need for chronic care in discussion with child, carer and health care team/specialist. Consider which medication could be discontinued. • If known kidney failure with eGFR < 15 or any unmanageable symptoms, refer to palliative care specialist.
Social risk	• If in need of full-time care, child dependency grant, hospice application or community healthcare workers refer to social worker. • If child abuse or neglect suspected ⮌ 136.
Mouth	• Check oral hygiene. If ulcers or oral candida ⮌ 50. If gum or tooth problem ⮌ 52. If difficulty swallowing, discuss/refer.
Pressure ulcers	If bedridden or in wheel chair, check common areas for damaged skin (change of colour) and pressure ulcers (see picture). If pressure ulcer ⮌ 78.



Advise the child needing palliative care and his/her carer

- Explain compassionately about the condition and prognosis. Explaining what is happening relieves fear and anxiety. Involve child as much as possible in self care and decision making.
- Aim to provide care in child's home. If unable, ensure care is close to home. Emphasize importance of school and "normal" activities and encourage carer to play with, comfort and massage child daily.
- Refer child and carer to community health worker, social worker, physiotherapist, counsellor, spiritual counsellor and/or support group. Deal with bereavement issues (recent terminal illness diagnosed) ⮌ 131.
- Prevent mouth disease: teach carer to wash out child's mouth after meals. Rinse mouth with ½ teaspoon of salt in 1 cup of water. Brush teeth and tongue regularly using toothpaste/dilute bicarbonate of soda.
- Prevent pressure ulcers: wash and dry skin daily. Keep linen dry. Move (lift, avoid dragging) child every 2-4 hours, if unable to shift own weight. Look daily for skin colour changes (see picture).
- If bedridden, prevent contractures: at least twice a day, gently bend and straighten joints as far as they go. Avoid causing pain. Massage muscles.
- The child's appetite will get less as s/he gets sicker. Offer small meals frequently, allow the client to choose what s/he wants to eat from what is available and encourage fluid intake.
- Discuss the plan for caring for the child. Advise whom to contact if pain or other symptoms get severe. Ensure child has advanced care plan in Road to Health Book. If not, refer to doctor to write one. Educate the carer to recognise signs of deterioration and impending death: s/he may be less responsive, become cold, sleep a lot, have irregular breathing, and will lose interest in eating.

[1]The FLACC pain scale: Face, Legs, Activity, Cry, and Consolability scale to assess pain in children.

Treat the child needing palliative care

- If pain, aim to have child pain free at rest, able to sleep and manage daily tasks.

Non-cancer pain
- If **mild** (1-3) pain, start at step 1.
- If **moderate** (4-7) or **severe** (8-10) pain, refer.

Cancer pain
- If **mild** (1-3) pain, start at step 1.
- If **moderate** (4-7) or **severe** (8-10) pain start at step 2.

If unsure, start at lower step and increase pain medication if needed.

- If pain controlled, continue same dose. Once controlled for 1 month, consider reducing dose/stepping down depending on condition. If pain worsens, then increase dose/step up again.
- If pain not controlled within 2 days, move to next step.
- If non-cancer pain uncontrolled on step 1, refer. If cancer pain uncontrolled on step 2, discuss/refer.

Step	Pain medication	Start dose	Maximum dose	Note
Step 1 Start one or both of:	Paracetamol	15mg/kg (up to 1g) 6 hourly	60mg/kg daily	If starting, give paracetamol 15mg/kg (up to 1g) in clinic and reassess pain after 4 hours. If no better, add ibuprofen.
	Ibuprofen	5mg/kg (up to 400mg) 8 hourly	40mg/kg daily	• If starting, give ibuprofen 5-10mg/kg in clinic and reassess pain after 4 hours. If no better, add paracetamol. • Give with food. Avoid if asthma, heart failure or kidney disease.
Step 2 (**only if cancer pain**) Continue paracetamol/ ibuprofen and add:	Morphine hydrochloride (short-acting, solution)	• > 1 year old: 0.2mg/kg (up to 10mg) 4 hourly • ≥ 2 months - 1 year old: 0.1mg/kg 4 hourly	• No maximum-titrate against pain. • If sedated/confused or respiratory rate low ⮌167 stop and discuss with doctor/specialist.	• Also give lactulose 0.5mL/kg daily to prevent constipation (⮌ 153:26). Avoid if diarrhoea. • If constipation, nausea/vomiting or itchiness, manage as below. • If on morphine hydrochloride and **breakthrough pain** (pain that occurs before next scheduled dose): - Give one extra dose morphine, then continue regular dose at scheduled times for the rest of that day. - If pain persists, increase morphine to 0.4mg/kg the next day and increase schedule to 4 hourly, if needed. - If no better after 2 days, or unsure about dose, discuss.

- If side effects from pain medication or other symptoms, manage:

Constipation
- Mobilize if possible and give abdominal massage[1] to bed bound child.
- Advise a high fibre diet (vegetables, fruit, wholemeal cereals, bran and cooked dried prunes), adequate fluid intake.
- If > 12 months old, give lactulose 0.5mL/kg (up to 10mL) daily (⮌ 153:26). If still constipated give twice a day.
- If no better, refer.

Diarrhoea
Manage as on symptom page ⮌ 61.

Nausea/vomiting
- Give metoclopramide 0.1mg/kg 8 hourly as needed (⮌ 154:29).
- Allow the child to choose what s/he wants to eat from what is available:
  - Advise bland/non-spicy food or very sweet/fatty foods.
  - Encourage frequent small sips of fluids like water, tea, juice or ginger drinks.
  - Offer small meals frequently.
- Advise caregiver to avoid cooking nearby.
- If no better, refer.

Abdominal cramps
- Give hyoscine butylbromide for 3 days:
  - if 1month - 4 year old, give 0.3mg (up to 1mg) 8 hourly
  - if ≥ 5 -11years old, give 5mg 8 hourly
  - if ≥ 12-17 years old, give 10mg 8 hourly
- If no response, discuss/refer.

Generalised itchiness
- Advise to:
  - Avoid hot baths, itchy fabrics and scratching as these worsen itch.
  - Wash with aqueous cream instead of soap.
  - Moisturise skin with emulsifying ointment, twice a day.
  - Keep nails short.
- If ≥ 2 years old, give cetirizine daily until itch controlled, up to 2 weeks:
  - If 2-6 years old, give 5mg.
  - If ≥ 6 years old, give 10mg.
- If yellow skin/eyes ⮌ 59.
- If no better with treatment or due to burn wounds, discuss/refer.

Anxiety
- Discuss the use of diazepam with a specialist.
- If low mood, anger, stress or anxiety ⮌ 131 .

Cough or difficulty breathing
- If thick sputum, give steam inhalations[2]. Refer to physiotherapy if available.
- If excess thin sputum or persistent dry cough, discuss with palliative care specialist.
- Refer/discuss with specialist if:
  - Severe discomfort (needing morphine)
  - Low saturation (needing home oxygen)

Dry mouth
- Place pieces of ice in child's mouth and apply petroleum jelly to child's lips.
- If child able to swallow, change to soft diet until improvement.
- Give chlorhexidine 0.2% mouthwash twice daily.
- If severe/ preventing good nutritional intake and no response to above, refer.

- Emphasize the importance of taking pain medication regularly (not as needed), and if using morphine to use a laxative daily to prevent constipation.
- Review 2 days after starting or changing pain medication. If pain persists/worsens despite maximum treatment or side effects intolerable, discuss/refer.

[1]Abdominal massage: massage in small clockwise circles in periumbilical area and in U-shaped pattern following direction of stool in colon. [2]Steam inhalations: Breathing in steam from heated water, to loosen sputum.

Support the child taking long-term medication

Assess the child taking long-term medication

Assess	Note
A Adherence	• Ask older child open ended questions like "What makes it difficult for you to take your treatment? Do you sometimes find it difficult to remember to take your medication? How many doses have you missed this week?" Encourage child to open up with statements like "We all miss doses now and then". • Ask child/carer about factors that may influence adherence: - Is the **cost** and **time** of clinic visits a problem (like transport, loss if income for the day, paying another person to take on responsibilities at home). - Are medications causing any **side effects** or is there **difficulty taking** medications (like horrible taste, difficulty swallowing, taken on an empty stomach)? If child on ART stopped taking ART because of these, check if ART can be switched ⮌ 116. - Is there a problem with **understanding**: check child/carer knows the diagnosis, understands the condition and what it means to be well controlled. If child has HIV, check where child/carer is in their journey with HIV. Support this communication ⮌ 110.
B Recent illness (Bugs)	• Ask about and document recent infection/s or illness. Manage other symptoms as on symptoms pages. • Test for TB if TB symptoms[1] or TB contact[2] ⮌ 102. Check if HIV test needed ⮌ 109.
C Correct doses	• Ask child/carer to show you medications, tell you the dose and how often s/he should take it. • Check child/carer knows how medication works and why it is important to take it as advised. • Check that dose is correct for age and weight. If on ART ⮌ 160. If on TB treatment ⮌ 158.
D Drug interactions	Review other medications and check for known interactions, especially ART, TB treatment or TPT, and epilepsy treatment. Ask if child taking traditional/herbal medications. Consult the South African Medicines Formulary (SAMF), EMGuidance app, use web-based drug interaction checker[2] (see QR code) or MIC helpline (021) 406 6829.
E Drug resistance	If on TB or HIV treatment, consider drug resistance if other causes have been excluded and child is adherent. Discuss with HIV expert/hotline ⮌ 162.
Daily routine	Ask about child/carer's daily routine and if it causes difficulty with adherence. Identify opportunities that can be used as reminders to take medication.
Support	Ask if child/carer receives support from family, friends or others in the community. If carer has a long-term condition (like HIV, TB, diabetes or hypertension), ensure that condition is well-controlled and assess whether carer needs extra support ⮌ PACK Adult.
Mental health	IIf child miserable, stressed or angry ⮌ 131. If poor school attendance, problematic change in behaviour, bullying, learning problems, difficulty socialising at school ⮌ 132.

Check for HIV medication interactions

Advise the child taking long-term medication

- Be supportive and non-judgemental. If newly diagnosed or poor understanding, spend extra time educating and counseling the child/carer. Explain condition and benefits of medication.
- If difficulty with adherence, avoid blaming child/carer. Rather explore reasons for poor adherence and come up with ideas together to improve.
- Discuss ways to help child/carer to remember to take medication, like star charts, games and rewards, diaries, alarms, pill boxes. Use reminders that form part of daily routine.
- Explain that good adherence is taking medication at the correct dose and time every day. If dose is skipped, advise to take dose as soon as s/he remembers. Medication will still work even if it is taken a bit late. This will improve control and reduce risk of long-term complications.
- Encourage child/carer to involve trusted partner or family member in his/her treatment.

Treat the child taking long-term medication

- Ensure patient adherence plan in child's folder and completed for sessions 1 - 4 of fast track initiation counselling (FTIC)[3] and enhanced adherence counselling (EAC)[4] if needed.
- Link with community health worker.
- Try to keep medication regimen simple with as few syrups/capsules/tablets and doses as possible. Use fixed dose combination formulations if available. Involve child in his/her treatment plan and adapt treatment schedule to daily routine as much as possible. Schedule appointments to align with routine visits or parent/carer appointments if possible. If child/carer misses appointment ≥ 7 days after scheduled date, establish contact and initiate tracing with community health worker.

[1]TB symptoms: current cough/fever, drenching night sweats, poor weight gain/failure to thrive, weight loss, decreased playfulness, visible neck mass, blood-stained sputum, persistent headache/vomiting (without diarhoea). [2] A TB contact refers to a child who shared an enclosed space (at school, socially, or in a household setting), for ≥ 1 night or for frequent/extended daytime periods, with an adult/adolescent with pulmonary TB ("index patient"), during the 3-month period before the index patient started their TB treatment. [3]Child qualifies for fast track initiation counselling (FTIC) if: 1) Medication started within 7 days of diagnosis 2) If HIV, child > 12 years old and fully disclosed to 3) carer of child < 12 years consents to FTIC and able to attend sessions alone if child has HIV 4) child has TB and needs ART. [4]Child qualifies for enhanced adherence counselling (EAC) if: 1) Child with HIV has VL ≥ 50 on ART 2) child with TB has positive TB smear at 2 months 3) child with other long-term health condition has poor adherence to treatment.

Protect yourself from occupational stress

Experiencing pressure and demands at work is normal. However if these demands exceed knowledge and skills and challenge your ability to cope, occupational stress can occur.

Arrange urgent assessment for the health worker with occupational stress and any of:
- Alcohol or drug intoxication at work
- Aggressive or violent behaviour at work
- Inappropriate behaviour at work
- Suicidal thoughts or behaviour

Adopt measures to reduce your risk of occupational stress

Protect yourself

Look after your health:
- Get enough sleep.
- Exercise, eat sensibly, minimise alcohol and avoid smoking.
- Address your general health and get screened for chronic conditions ⮌ PACK Adult.

Look after your chronic condition if you have one:
- Adhere to your treatment and your appointments.
- Avoid diagnosing and treating yourself.
- If you can, confide in a trusted colleague/manager.

Manage stress:
- Delegate tasks as appropriate, develop coping strategies.
- Talk to someone (friend, psychologist, mentor) or access helpline ⮌ PACK Adult.
- Take time to do a relaxing breathing exercise each day.
- Find a fun or creative activity to do.
- Spend time with supportive family or friends.

Have healthy work habits:
- Manage your time sensibly.
- Take scheduled breaks.
- Remind yourself of your purpose as a clinician.
- Be sure you are clear about your role and responsibilities.

Protect your team

Decide on an approved way of behaving at work:
- Communicate effectively with your clients and colleagues ⮌ 147.
- Treat colleagues and clients with respect.
- Support each other. Consider setting up a staff support group.
- Instead of complaining, rather focus on finding solutions to problems.

Cope with stressful events:
- Develop or access policies or procedures to deal with events like complaints, harassment/bullying, accidents/mistakes, violence, or death of client or staff member.

Look at how to make the job less stressful:
- Examine the team's workload to see if it can be better streamlined.
- Identify what needs to be changed to make the job easier and frustrations fewer: equipment, drug supply, training, space, décor in work environment
- Discuss each team member's role. Ensure each one has a say in how s/he does his/her work.
- Support each other to develop skills to better perform your role.

Celebrate:
- Acknowledge the achievements of individuals and the team.
- Organise or participate in staff social events.

Identify occupational stress in yourself and your colleagues

Possible alcohol or drug problem
- In the past year, have you/has your colleague: 1) drunk ≥ 4 drinks[1]/session, 2) used illegal drugs or 3) misused prescription or over-the-counter medications?
- Smells of alcohol

Possible depression
- Indifferent, tense, irritable or angry
- In the past month, have you/has your colleague: 1) felt down, depressed, hopeless or 2) felt little interest or pleasure in doing things?

Recent distressing event
- Diagnosis of chronic condition
- Bereavement
- Needlestick injury
- Traumatic event

Poor attendance at work
- Frequent absenteeism
- Frequent lateness
- Often takes sick leave

Marked decline in work performance
- Reduced concentration
- Fatigue

The health worker with any of the above may have substance misuse, stress, depression/anxiety or burnout and would benefit from referral for assessment and follow-up.

[1]One drink is 1 tot of spirits, or 1 small glass (125mL) of wine or 1 can/bottle (330mL) of beer.

Protect yourself from occupational infection

Give urgent attention to the health care worker who has had a sharps injury or splash to eye, mouth, nose or broken skin with exposure to any of:

- Blood
- Blood-stained fluid/tissue
- Pleural/pericardial/peritoneal/amniotic/synovial/cerebrospinal fluid
- Vaginal secretions
- Semen
- Breast milk

Management:

- If broken skin, clean area immediately with soap and water.
- If splash to eye, mouth or nose, immediately rinse mouth/nose or irrigate eye thoroughly with water.
- Assess need for HIV and hepatitis B post-exposure prophylaxis ⮌ PACK Adult.

Adopt measures to diminish your risk of occupational infection

Protect yourself

Adopt standard precautions with every child:

- Wash hands with soap/water or use alcohol-based cleaner after contact with child or body fluids.
- Dispose of sharps correctly in sharps bins.

Wear protective gear:

- Wear gloves when handling blood, body fluids, secretions or non-intact skin.
- Wear surgical mask if in contact with child with suspected respiratory viral illness (N95 respirator if performing aerosol-generating procedure or child has suspected or confirmed infectious TB).
- Wear surgical mask with a visor or glasses if at risk of splashes.

Get vaccinated:

- Get vaccinated against hepatitis B (if not yet done) and yearly against influenza.
- Ensure COVID-19 and pertussis vaccinations are up to date.

Know your HIV status:

- Test for HIV ⮌ PACK Adult. ART and TB preventive treatment (TPT) can decrease the risk of TB.
- If HIV positive, you are entitled to work in an area of the facility where exposure to TB is limited.

Protect your facility

Clean the facility:

- Clean frequently touched surfaces (door handles, telephones, keyboards) daily with soap and water.
- Disinfect surfaces contaminated with blood/secretions with 70% alcohol or chlorine-based disinfectant.

Ensure adequate ventilation:

- Leave windows and doors open when possible and use fans to increase air exchange.

Organise waiting areas:

- Prevent overcrowding in waiting areas.
- Fast track children with suspected respiratory viral infections, TB or acute gastroenteritis.

Manage sharps safely:

- Ensure sharps bins are easily accessible and regularly replaced.

Manage infection control in the facility:

- Appoint an infection control officer for the facility to coordinate and monitor infection control policies.

Manage possible occupational exposure promptly

Reduce TB risk

Identify children with possible TB promptly:

- The child with cough , other symptoms of TB[1] and/or TB contact[2] may have TB.
- Separate patients with possible from others in the facility.
- Educate about cough hygiene and give face mask/tissues to cover mouth/nose to protect others.

Diagnose TB rapidly:

- Fast track TB workup and start treatment as soon as diagnosed.

Protect yourself from TB:

- Wear an N95 respirator (not a surgical mask) if in contact with a child with suspected or confirmed infectious TB.

Screen and test yourself for TB every 6 - 12 months:

- Screen and test for TB according to your facility policy. If TB test negative and depending on your risk profile, discuss TB preventive treatment (TPT) with your occupational health practitioner.

Reduce risk of respiratory infections (including pertussis, influenza and COVID-19)

- Before managing a child with suspected or confirmed respiratory infection, wear appropriate personal protective equipment (PPE).
- Wash hands with soap and water.
- Wear a surgical mask over mouth and nose during procedures.
- Encourage child to cover mouth/nose with a tissue when coughing/sneezing, to dispose of used tissues correctly and to wash hands regularly with soap/water.
- Advise child/carer to avoid close contact with others while sick.
- If exposed to pertussis in the last month, discuss need for post-exposure prophylaxis against pertussis with your occupational health practitioner.

[1]Other symptoms of TB: fever, drenching night sweats, poor weight gain/failure to thrive, weight loss, decreased playfulness, visible neck mass, coughing up blood. [2]A TB contact refers to a child who shared an enclosed space (at school, socially, or in a household setting), for ≥ 1 night or for frequent/extended daytime periods, with an adult/adolescent with pulmonary TB ("index patient"), during the 3-month period before the index patient started their TB treatment.

Communicate effectively

Communicating effectively with a child/carer during a consultation need not take much time or specialised skills.
Try to use straightforward language and take into account child/carer's culture and belief system.

Integrate these four communication principles into every consultation:

Listen

Listening effectively helps to build an open and trusting relationship with the child/carer.

Do	The child/carer might feel:	Don't	The child/carer might feel:
• give all your attention • recognise non-verbal behaviour • be honest, open and warm • avoid distractions e.g. phones	• 'I can trust this person' • 'I feel respected and valued' • 'I feel hopeful' • 'I feel heard'	• talk too much • rush the consultation • give advice • interrupt	• 'I am not being listened to' • 'I feel disempowered' • 'I am not valued' • 'I cannot trust this person'

Discuss

Discussing a problem and its solution can help the overwhelmed child/carer to develop a manageable plan.

Do	The child/carer might feel:	Don't	The child/carer might feel:
• use open ended questions • offer information • encourage child/carer to find solutions • respect the child/carer's right to choose	• 'I choose what I want to deal with' • 'I can help myself' • 'I feel supported in my choice' • 'I can cope with my problems'	• force your ideas onto the child/carer • be a 'fix-it' specialist • let the child/carer take on too many problems at once	• 'I am not respected' • 'I am unable to make my own decisions' • 'I am expected to change too fast'

Empathise

Empathy is the ability to imagine and share the child/carer's situation and feelings.

Do	The child/carer might feel:	Don't	The child/carer might feel:
• listen for, and identify his/her feelings e.g. 'you sound very upset' • allow the child/carer to express emotion • be supportive	• 'I can get through this' • 'I can deal with my situation' • 'My health care worker understands me' • 'I feel supported'	• judge, criticise or blame the child/carer • disagree or argue • be uncomfortable with high levels of emotions and burden of the problems	• 'I am being judged' • 'I am too much to deal with' • 'I can't cope' • 'My health care worker is unfeeling'

Summarise

Summarising what has been discussed helps to check the child/carer's understanding and to agree on a plan for a solution.

Do	The child/carer might feel:	Don't	The child/carer might feel:
• get the child/carer to summarise • agree on a plan • offer to write a list of his/her options • offer a follow-up appointment	• 'I can make changes in my life' • 'I have something to work on' • 'I feel supported' • 'I can come back when I need to'	• direct the decisions • be abrupt • force a decision	• 'My health care worker disapproves of my decisions' • 'I feel resentful' • 'I feel misunderstood'

Prescribe rationally

Scan QR code to download Medsafety App to report medication adverse events.

Assess the child needing a prescription

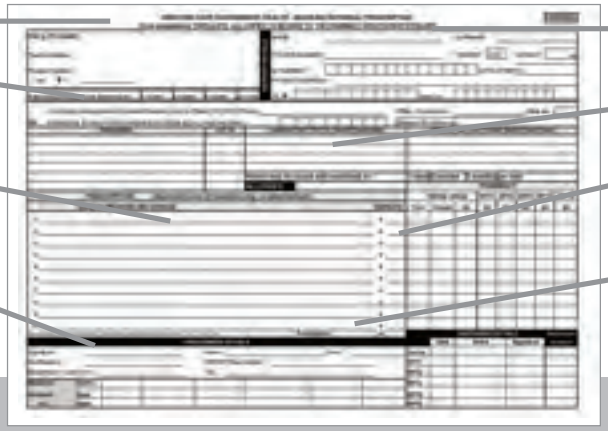
Assess	Note
Diagnosis	Confirm the child's diagnosis, that the medication is necessary and that its benefits outweigh the risks.
Other conditions	If necessary, adjust the dose (e.g. co-trimoxazole in kidney disease) or change medication (e.g. avoid ibuprofen if asthma, heart failure or kidney disease).
Other medications	Check all medication (prescribed, over-the-counter, herbal) is necessary and for possible interactions especially if on hormonal contraceptive or treatment for TB, HIV, epilepsy.
Allergies	If known allergy or previous bad reaction, record in child's notes and RtHB and discuss alternative with doctor.
Dose	Ensure dose is calculated according to child's weight. Increase dose as child grows. Show carer how to give medicines at home.
Response to treatment	• If the child's condition does not improve, first exclude poor adherence, then consider changing the treatment or an alternative diagnosis. • Check for side effects and report medication/vaccine reactions via: the MedSafety App (scan the QR code for download) or the reporting website https://primaryreporting.who-umc.org/ZA or using an Adverse reporting form[1]. Email this to adr@sahpra.org.za or fax to (021) 448 6181 or (012) 842 7609/10.

Advise the child and carer needing a prescription

- Explain to the child/carer when and how to take the medication and what to do if side effects occur. Ask the child/carer to repeat your explanation to ensure s/he understands how to take the medication.
- Ensure child/carer knows the generic name of all medication and advise to ask prescriber/pharmacist if s/he does not understand a change to regular medication.
- Educate the child/carer on the importance of adherence and that not adhering to medication may lead to relapse or worsening of the condition and in some instances, resistance to the medication.
- Over-the counter medications and herbal treatments may interfere with prescribed medication. Encourage child/carer to discuss with prescriber before using them.

Treat the child needing a prescription

- Ensure appropriate prescriber writes prescription: Orange-highlighted medications may be prescribed by a doctor or an authorised prescriber (clinical nurse practitioner or professional nurse) in accordance with his/her scope of practice within a specified field. Blue-highlighted medications may be prescribed by a doctor or clinical nurse practitioner who is an authorised prescriber. Green-highlighted medications may be prescribed by a doctor only. Pink-highlighted medications should be initiated by a doctor only, but may be continued by a clinical nurse practitioner who is an authorised prescriber.
- Consult the South African Medicines Formulary (SAMF) or MIC hotline (021 406 6829 or 0800 212 506) if unsure about your medicine choice and dosing, side-effects or drug interactions.
- Ensure that the prescription contains all the detail it needs - see sample prescription below. Write legibly.



[1]Adverse drug reaction report forms available from clinic pharmacy or may be accessed via website: www.sahpra.org.za

Medication dosing tables

- If child's age and weight not in same row, choose dose according to weight.
- Show carer how to give medicines at home.

A

Aciclovir for herpes zoster (chickenpox and shingles)
Oral, 20mg/kg (up to 800mg) 6 hourly for 7 days

1

Weight (kg)	Dose (mg)	Use one of the following:			Age
		Suspension	Tablet		
		200mg/5mL	200mg	400mg	
>3.5-5kg	100mg	2.5mL	-	-	1-3 months
5-7kg	140mg	3.5mL	-	-	3-6 months
7-9kg	160mg	4mL	-	-	6-18 months
9-11kg	200mg	5mL	1 tablet	½ tablet	18 months-3 years
11-14kg	240mg	6mL	-	-	3-7 years
14-25kg	300mg	7.5mL	1 ½ tablets	-	7-11 years
25-35kg	500mg	15mL	2 ½ tablets	-	11-15 years
35-55kg	700mg	-	3 ½ tablets	-	>15 years

Aciclovir for herpes simplex
Oral, 250mg/m²/dose (up to 400mg) 8 hourly for 7 days

2

Weight (kg)	Dose (mg)	Use one of the following:			Age
		Suspension	Tablet		
		200mg/5mL	200mg	400mg	
>3.5-5kg	50mg	1.25mL	-	-	1-3 months
5-7kg	80mg	2mL	-	-	3-6 months
7-11kg	100mg	2.5mL	½ tablet	-	6-18 months
11-14kg	120mg	3mL	-	-	18 months-3 years
14-25kg	160mg	4mL	-	-	3-7 years
25-35kg	200mg	5mL	1 tablet	½ tablet	7-11 years
35-55kg	300mg	7.5mL	1½ tablets	-	11-15 years
>55kg	400mg	-	-	1 tablet	>15 years

Activated charcoal
Oral, 1g/kg (up to 100g) mixed as a slurry with water

3

Weight (kg)	Dose (g)	Age
3.5-7kg	5g	1-6 months
7-11kg	10g	6-18 months
11-17.5kg	15g	18 months - 5 years
17.5-35kg	25g	5-11 years
35-55kg	50g	11-15 years
≥ 55kg	100g	≥ 15 years

Adrenaline
IM/IV, 1 mg/mL (1:1 000), 0.01mL/kg as a single dose

4

Weight (kg)	Dose (mg)	Injection 1mg/mL (1:1 000)	Age
< 9kg	0.05mg	0.05mL	< 1 year
9-12kg	0.1mg	0.1mL	1-2 years
12-17.5kg	0.2mg	0.2mL	2-5 years
17.5-40kg	0.3mg	0.3mL	5-12 years
≥ 40kg	0.5mg	0.5mL	≥ 12 years
≥ 55kg	1mg	1mL	≥ 15 years

Albendazole
- Treatment of tapeworm infestation: oral, once daily for 3 days
- Treatment of worm infestation, other than tapeworm: oral, as single dose

5

Age	Tablet 200mg	Tablet 400mg
12 – 24 months	1 tablet	-
≥ 2 years	-	1 tablet

Amoxicillin 6
Oral, 45mg/kg/dose (up to 1g) 12 hourly for 5 days

Weight (kg)	Dose (mg)	Use one of the following:				Age
		Suspension		Capsule		
		125mg/5mL	250mg/5mL	250mg	500mg	
2-2.5kg	100mg	4mL	2mL	-	-	Birth-1 month
2.5-3.5kg	125mg	5mL	2.5mL			
3.5-5kg	175mg	7mL	3.5mL	-	-	1-3 months
5-7kg	250mg	10mL	5mL	-	-	3-6 months
7-11kg	375mg	15mL	7.5mL	-	-	6-18 months
11-14kg	500mg	-	10mL	2 capsules	1 capsule	18 months - 3 years
11-17.5kg	750mg	-	15mL	3 capsules	-	3-5 years
≥ 17.5kg	1000mg	-	-	-	2 capsules	≥ 5 years

Amoxicillin 7
Oral, 50mg/kg/dose (up to 2g) daily for 10 days

Weight (kg)	Dose (mg)	Use one of the following:				Age
		Suspension		Tablet		
		125mg/5mL	250mg/5mL	250mg	400mg	
2-2.5kg	100mg	4mL	2mL	-	-	34-36 weeks
2.5-3.5kg	150mg	6mL	3mL	-	-	36 weeks-1 month
3.5-5kg	200mg	8mL	4mL	-	-	1-3 months
5-7kg	275mg	11mL	5.5mL	-	-	3-6 months
7-11kg	400mg	-	8mL	-	-	6-18 months
11-17.5kg	575mg	-	11.5mL	-	-	18 months - 5 years
17.5-25kg	750mg	-	15mL	3	-	5-7 years
25-35kg	1000mg	-	20mL	4	2	7-11 years
>35kg	2000mg	-	-	-	4	>11 years

Amoxicillin/clavulanic acid (600/42.9mg) 8
Oral, 40–45 mg/kg/dose (up to 900mg of amoxicillin component) 12 hourly for 7-10 days.

Weight Kg	Dose mg (amoxicillin component)	Use one of the following:	
		Suspension	Tablet
		600/42.9mg/5mL	875/125mg
3-4kg	120mg	1mL	-
4-5kg	180mg	1.5mL	-
5-7kg	240mg	2mL	-
7-8kg	300mg	2.5mL	-
8-10kg	360mg	3mL	-
10-12kg	480mg	4mL	-
12-13kg	540mg	4.5mL	-
13-15kg	600mg	5mL	-
15-16kg	660mg	5.5mL	-
16-18kg	720mg	6mL	-
18-20kg	840mg	7mL	-
20-25kg	900mg	7.5mL	-
≥ 25kg	900mg (solution) or 875mg (tablet)	7.5mL	1 tablet

Atropine 9
IV, 0.05mg/kg/dose (up to 3mg)

Weight (kg)	Dose (mg)	Use one of the following injections		Age
		0.5mg/mL	1mg/mL	
3.5-5kg	0.2mg	0.4mL	0.2mL	1-3 months
5-7kg	0.3mg	0.6mL	0.3mL	3-6 months
7-9kg	0.4mg	0.8mL	0.4mL	6-12 months
9-11kg	0.5mg	1mL	0.5mL	12-18 months
11-14kg	0.6mg	1.2mL	0.6mL	18 months - 3 years
14-17.5kg	0.8mg	1.6mL	0.8mL	3-5 years
≥ 17.5kg	1mg	2mL	1mL	≥ 5 years

Azithromycin 10
Oral, 10mg/kg/dose (up to 500mg) daily for 3 days

Weight (kg)	Dose (mg)	Use one of the following:			Age
		Suspension	Tablet		
		200mg/5mL	250mg	500mg	
3.5-5kg	40mg	1mL	-	-	1-3 months
5-7kg	60mg	1.5mL	-	-	3-6 months
7-9kg	80mg	2mL	-	-	6-12 months
9-11kg	100mg	2.5mL	-	-	12-18 months
11-14kg	120mg	3mL	-	-	18 months - 3 years
14-18kg	160mg	4mL	-	-	3-5 years
18-25kg	200mg	5mL	-	-	5-7 years
25-35kg	250mg	-	1 tablet	-	7-11 years
≥ 35kg	500mg	-	-	1 tablet	≥ 11 years

C

Ceftriaxone 11
- IV/IM, 80mg/kg/dose (up to 2g) immediately as a single dose.
- If giving IM injection, give injection into upper thigh, not buttocks. If giving ≥ 1g, split the dose and give into each thigh.

Weight (kg)	Dose (mg)	Use one of the following injections mixed with water for injection (WFI):			Age
		250mg/2mL (250mg diluted in 2mL WFI)	500mg/2mL (500mg diluted in 2mL WFI)	1000mg/3.5mL (1000mg diluted in 3.5mL WFI)	
2-2.5kg	190mg	1.5mL	0.75mL	-	Birth-1 month
2.5-3.5kg	225mg	1.8mL	0.9mL	-	
3.5-5.5kg	310mg	-	1.25mL	-	1-3 months
5.5-7kg	440mg	-	1.75mL	-	3-6 months
7-9kg	625mg	-	2.5mL	-	6-12 months
9-11kg	750mg	-	3mL	-	12-18 months
11-14kg	810mg	-	3.25mL	-	18 months - 3 years
If giving ≥ 1g, split the dose and give into each thigh					
14-17.5kg	1000mg	-	4mL	3.5mL	3-5 years
≥ 17.5kg	1500mg	-	-	5.5mL	≥ 5 years

Cephalexin 12
Oral, 12-25mg/kg/dose (up to 500mg) 6 hourly for 5 days

Weight (kg)	Dose (mg)	Syrup		Capsule	Age
		125mg/5mL	250mg/5mL	250mg	
2.5-5kg	62.5 g	2.5mL	-	-	Birth - 3 months
5-11kg	125 g	5mL	2.5mL	-	3-18 months
11-25kg	250 g	10mL	5mL	1 capsule	18 months - 7 years
≥ 25kg	500 g	-	-	2 capsules	≥ 7 years

Cetirizine 13
Oral, once daily until itch controlled/up to 2 weeks

Weight (kg)	Dose (mg)	Use one of the following:		Age
		Syrup	Tablet	
		1mg/mL	10mg	
12-21kg	5mg	5mL	-	2-6 years
≥ 21kg	10mg	10mL	1 tablet	≥ 6 years

Chlorphenamine 14
Oral, 0.1mg/kg/dose (up to 4 mg) 6-8 hourly or in mild cases only at night for up to 2 weeks

Weight (kg)	Dose (mg)	Use one of the following:		Age
		Suspension	Tablet	
		2mg/5mL	4mg	
12-14kg	1.2mg	3mL	-	2-3 years
14-17.5kg	1.6mg	4mL	-	3-5 years
17.5-25kg	2mg	5mL	-	5-7 years
25-35kg	3mg	7.5mL	-	7-11 years
≥ 35kg	4mg	-	1 tablet	≥ 11 years

Ciprofloxacin 15
Oral, 15mg/kg/dose (up to 500mg) 12 hourly for 3 days

Weight (kg)	Dose (mg)	Use one of the following:			Age
		Suspension	Tablet		
		250mg/5mL	250mg	500mg	
9-11kg	150mg	3mL	-	-	12-18 months
11-14kg	200mg	4mL	-	-	18 months - 3 years
14-17.5kg	250mg	5mL	1 tablet	-	3-5 years
17.5-25kg	300mg	6mL	-	-	5-7 years
≥ 25kg	500mg	10mL	2 tablets	1 tablet	≥ 7 years

Co-trimoxazole 16
Oral, daily dose

Weight (kg)	Dose (mg)	Use one of the following:		
		Suspension 200/40mg/5mL	Single strength tablet 400/80mg	Double strength tablet 800/160mg
3-5kg	100/20mg	2.5mL	¼ tablet	-
5-14kg	200/40mg	5mL	½ tablet	-
14-30kg	400/80mg	10mL	1 tablet	½ tablet
≥ 30kg	800/160mg	-	2 tablets	1 tablet

D

Diazepam 17
Rectal, 0.5mg/kg/dose for fits as a single dose

Weight (kg)	Dose (mg)	Ampoule 10mg/2mL	Age
3-6kg	2mg	0.4mL	< 6 months
6-10kg	2.5mg	0.5mL	6 months - 1 year
10-18kg	5mg	1mL	1-5 years
18-25kg	7.5mg	1.5mL	5-8 years
≥ 25kg	10mg	2mL	≥ 8 years

Diazepam 18
IV, 0.25mg/kg/dose (up to 5mg if < 5 years old and 10mg if ≥ 5 years old) for fits as a single dose

Weight (kg)	Ampoule 10mg/2mL (=5mg/mL)
4-5kg	0.2mL
5-6kg	0.25mL
6-7kg	0.3mL
7-8kg	0.35mL
8-9kg	0.4mL
9-10kg	0.45mL
10-11kg	0.5mL
11-12kg	0.55mL
12-13kg	0.6mL
13-14kg	0.65mL
14-15kg	0.7mL
15-16kg	0.75mL
16-17kg	0.8mL
17-18kg	0.85mL
18-19kg	0.9mL
19-20kg	0.95mL
20-25kg	1.0mL
≥ 25kg	0.25 x weight ÷ 5 = number of mL to give

F

Ferrous gluconate 19
Oral, 1-2mg/kg/dose (elemental iron) 8 hourly with food

Weight (kg)	Dose (mg)	Syrup 250mg/5mL 30mg elemental iron per 5mL	Age
3-6kg	10mg	1.7mL	0-3 months
6-10kg	20mg	3.3mL	3 – 12 months
10-25kg	40mg	6.7mL	1-5 years

Ferrous sulphate 20
Oral, 1-2mg/kg/dose (elemental iron) 8 hourly with food

Weight (kg)	Tablet 170mg ± 55mg elemental iron per 5mL	Age
10-25kg	½ tablet	1-5 years
≥ 25kg	1 tablet	≥ 5 years

Flucloxacillin 21
Oral, 12-25mg/kg/dose 6 hourly for 5 days.

Weight (kg)	Dose (mg)	Use one of the following:		Age
		Syrup	Capsule	
		125mg/5mL	250mg	
2.5–5 kg	62.5mg	2.5mL	-	Birth-3 months
5-11kg	125mg	5mL	-	3-18 months
11-25kg	250mg	10mL	1 capsule	18 months-7 years
25kg	500mg	-	2 capsules	>7 years

Fluconazole 22
Oral, 6mg/kg once daily

Weight (kg)	Dose (mg)	Use one of the following:			Age
		Suspension	Capsule		
		50mg/5mL	50mg	200mg	
3.5-5kg	25mg	2.5mL	-	-	1-3 months
5-7kg	30mg	3mL	-	-	3-6 months
7-9kg	50mg	5mL	1 capsule	-	6-12 months
9-11kg	60mg	6mL	-	-	12-18 months
11-14kg	70mg	7mL	-	-	18 months - 3 years
14-17.5kg	100mg	10mL	2 capsules	-	3-5 years
17.5-25kg	125mg	12.5mL	-	-	5-7 years
25-35kg	150mg	15mL	3 capsules	-	7-11 years
≥ 35kg	200mg	-	-	1 capsule	≥ 11 years

Furosemide 23
IV, 1mg/kg (up to 40mg), over 5 minutes

Weight (kg)	Dose (mg)	Injection 10mg/mL	Age
3.5-5kg	4mg	0.4mL	1-3 months
5-7kg	6mg	0.6mL	3-6 months
7-9kg	8mg	0.8mL	6-12 months
9-11kg	10mg	1mL	12-18 months
11-14kg	12mg	1.2mL	18 months - 3 years
14-17.5kg	15mg	1.5mL	3-5 years
17.5-25kg	20mg	2mL	5-7 years
25-35kg	30mg	3mL	7-11 years
≥ 35kg	40mg	4mL	≥ 11 years

H

Hydrocortisone 24
Slow IV, 4-6mg/kg (up to 100mg) immediately

Weight (kg)	Dose (mg)	Injection 100mg/2mL	Age
11-14kg	50mg	1mL	2-3 years
14-17.5kg	75mg	1.5mL	3-5 years
≥ 17.5kg	100mg	2mL	≥ 5 years

I

Ibuprofen 25
Oral, 5-10mg/kg/dose (up to 400mg) 8 hourly with food

Weight (kg)	Dose (mg)	Use one of the following:		Age
		Syrup	Tablet	
		100mg/5mL	200mg	
9-11kg	80mg	4mL	-	12-18 months
11-14kg	100mg	5mL	-	18 months - 3 years
14-17.5kg	120mg	6mL	-	3-5 years
17.5-25kg	150mg	7.5mL	-	5-7 years
25-40kg	200mg	10mL	1 tablet	7-12 years
≥ 40kg	400mg	-	2 tablets	≥ 12 years

L

Lactulose 26
Oral, 0.5mL/kg/dose (up to 15mL) once daily. If poor response, increase to 12 hourly

Weight (kg)	Syrup 3.3g/5mL	Age
5-7kg	3mL	3-6 months
7-9kg	4mL	6-12 months
9-11kg	5mL	12-18 months
11-14kg	6mL	18 months - 3 years
14-17.5kg	7.5mL	3-5 years
17.5-35kg	10mL	5-11 years
≥ 35kg	15mL	≥ 11 years

Lidocaine without adrenaline 27
Infiltrate around would as local anaesthetic.
Maximum dose: 3mg/kg.

Weight (kg)	Maximum dose (mg)	1% vial (10mg/mL)	2% vial (20mg/mL)	Age
2.5-3.5kg	7mg	0.7mL	0.35mL	< 1month
3.5-5kg	10mg	1mL	0.5mL	1-3 months
5-7kg	15mg	1.5mL	0.75mL	3-6 months
7-9kg	20mg	2mL	1mL	6-12 months
9-11kg	25mg	2.5mL	1.25mL	12-18 months
11-14kg	30mg	3mL	1.5mL	18 months-3 years
14-17.5kg	50mg	4mL	2mL	3-5 years
17-35kg	50mg	5mL	2.5mL	5-11 years
35-55kg	100mg	10mL	5mL	≥ 11 years

M

Mebendazole 28
Routine 6 monthly deworming: oral, from 12 months old – 5 years old

Age months/years	Use one of the following:		
	Suspension 100mg/5mL	**Tablet 100mg**	**Tablet 500mg**
12-24 months	5mL 12 hourly for 3 days	1 tablet 12 hourly for 3 days	-
2-5 years	25mL as a single dose	5 tablets as a single dose	1 table as a single dose

Metoclopramide 29
Oral, 0.1mg/kg (up to 10mg) 8 hourly as needed for up to 5 days

Weight (kg)	Dose (mg)	Suspension 5mg/5mL	Age
9-11kg	1mg	1mL	12-18 months
11-14kg	1.2mg	1.2mL	2-3 years
14-17kg	1.6mg	1.6mL	3-5 years
17.5-25kg	2mg	2ml	5-7 years
25-35kg	3mg	3mL	7-11 years
≥ 35kg	4.5mg	4.5mL	≥ 11 years

Metronidazole 30
Oral, 7.5mg/kg/dose (up to 400mg) 8 hourly for 5 days

Weight (kg)	Dose (mg)	Use one of the following:			Age
		Suspension	Tablet		
		200mg/5mL	200mg	400mg	
9-11kg	80mg	2mL	-	-	12-18 months
11-14kg	100mg	2.5mL	½ tablet	-	18 months - 3 years
14-17.5kg	120mg	3mL	-	-	3-5 years
17.5-25kg	160mg	4mL	-	-	5-7 years
25-35kg	200mg	5mL	1 tablet	½ tablet	7-11 years
35-55kg	300mg	7.5mL	1½ tablets	-	11-15 years
≥ 55kg	400mg	-	-	2 tablets	≥ 15 years

Midazolam 31
- Buccal (between the cheek and gum), 0.5mg/kg (up to 10mg)
- Check formulation: use 5mg/mL formulation for buccal administration.

Weight (kg)	Dose (mg)	Buccal 5mg/mL	Age
< 4kg	2mg	0.4mL	< 2 months
4-7kg	3mg	0.6mL	2-6 months
7-9kg	4mg	0.8mL	6-12 months
9-11kg	5mg	1mL	12-18 months
11-14kg	6mg	1.2mL	18 months - 3 years
14-17.5kg	7.5mg	1.5mL	3-5 years
≥ 17.5kg	10mg	2mL	≥ 5 years

Midazolam
IV, 0.25mg/kg (up to 10mg)

32

Weight (kg)	Midazolam 5mg/5mL ampoule (=1mg/mL)	Midazolam 15mg/3mL ampoule (=5mg/mL)
< 4kg	-	0.2mL
4-5kg	1.0mL	0.3mL
5-6kg	1.3mL	
6-7kg	1.5mL	
7-8kg	1.8mL	0.4mL
8-9kg	2.0mL	
9-10kg	2.3mL	0.5mL
10-11kg	2.5mL	
11-12kg	2.8mL	0.6mL
12-13kg	3.0mL	
13-14kg	3.3mL	0.7mL
14-15kg	3.5mL	
15-16kg	3.8mL	0.8mL
16-17kg	4.0mL	
17-18kg	4.3mL	0.9mL
18-19kg	4.5mL	
19-20kg	4.8mL	1.0mL
20-25kg	5.0mL	
25-35kg	7.5mL	1.5mL
≥ 35kg	9mL	1.8mL

Morphine
Oral, 0.2-0.4mg/kg/dose (up to 10mg) 4-6 hourly

33

Weight (kg)	Dose (mg)	Use one of the following:		Age
		Syrup	Tablet	
		1mg/mL	10mg	
7-9kg	2mg	2mL	-	6-12 months
9-11kg	2.5mg	2.5mL	-	12-18 months
11-14kg	4mg	4mL	-	18 months - 3 years
14-17.5kg	5mg	5mL	-	3-5 years
17.5-25kg	6mg	6mL	-	5-7 years
≥ 25kg	10mg	10mL	1 tablet	≥ 7 years

Paracetamol
Oral, 10-15mg/kg/dose (up to 1g) 6 hourly, as needed for up to 5 days.
- If < 1month: maximum daily dose is 60mg/kg/day.
- If ≥ 1 month: maximum daily dose is 90mg/kg/day (up to 4g daily).

34

Weight (kg)	Dose (mg)	Use one of the following:		Age
		Syrup	Tablet	
		120mg/5mL	500mg	
3.5-5kg	48mg	2mL	-	1-3 months
5-7kg	72mg	3mL	-	3-6 months
7-9kg	96mg	4mL	-	6-12 months
9-11kg	120mg	5mL	-	12-18 months
11-14kg	144mg	6mL	-	18 months - 3 years
14-17.5kg	180mg	7.5mL	-	3-5 years
17.5-25kg	240mg	10mL	½ tablet	5-7 years
25-35kg	360mg	15mL	-	7-11 years
35-55kg	500mg	-	1 tablet	11-15 years
≥ 55kg	1 000mg	-	2 tablets	≥ 15 years

Phenobarbital
IV/IM, 20mg/kg (up to 1g) over 5 minutes for fits. If still fitting, IV/IM 10mg/kg over 5 minutes

35

Weight (kg)	Injection 200mg/mL	
	1st dose: 20mg/kg IV/IM Volume 0.1mg/kg	2nd dose: 10mg/kg IV/IM Volume 0.05mg/kg
4kg	0.4mL	0.2mL
5kg	0.5mL	0.25mL
6kg	0.6mL	0.3mL
7kg	0.7mL	0.35mL
8kg	0.8mL	0.40mL
9kg	0.9mL	0.45mL
10kg	1.0mL	0.50nL
11kg	1.1mL	0.55mL
12kg	1.2mL	0.60mL
13kg	1.3mL	0.65mL
14kg	1.4mL	0.70mL
15kg	1.5mL	0.75mL
16kg	1.6mL	0.80mL
17kg	1.7mL	0.85mL
18kg	1.8mL	0.90mL
19kg	1.9mL	0.95mL
≥ 20kg	2.0mL	1.00mL

Phenobarbital 36
Oral, crushed and given by nasogastric tube (NGT), 20 mg/kg (up to 1g) as a single dose

Weight (kg)	Dose (mg)	Tablet 30mg	Age
2.5-3.5kg	60mg	2 tablets	Birth - 1 month
3.5-5kg	75mg	2½ tablets	1-3 months
5-7kg	120mg	4 tablets	3-6 months
7-11kg	180mg	6 tablets	6-12 months
11-14kg	210mg	7 tablets	18 months - 3 years
≥ 14kg	240mg	8 tablets	≥ 3 years

Praziquantel 37
Oral, 40mg/kg (up to 3g) as a single dose

Weight (kg)	Dose (mg)	Tablet 600mg	Age
12-17.5kg	600mg	1 tablet	2-5 years
17.5kg-25kg	900mg	1½ tablet	5-7 years
25-35kg	1200mg	2 tablets	7-11 years
≥ 35kg	1800mg	3 tablets	≥ 11 years

V

Vitamin A routine preventive 38
If routine treatment: oral, single dose 6 monthly (from age 6 months up to, and including, 5 years old):

Age months/years	Dose units	Use one of the following:		
		Capsule, snip off narrow end 50 000IU	**Capsule, snip off narrow end** 100 000IU	**Capsule, snip off narrow end** 200 000IU
6-12 months	100 000IU	2 capsules	1 capsule	-
12 months - 6 years	200 000IU	-	2 capsules	1 capsule

Vitamin A additional dose 39
- If measles, severe acute malnutrition, diarrhoea > 14 days, or symptoms of vitamin A deficiency: give an additonal dose of Vitamin A, single dose.
- Wait at least 1 month after last dose of vitamin A unless giving as part of measles treatment (for measles give 1 dose now and one dose following day).

Age months/years	Dose units	Use one of the following:		
		Capsule, snip off narrow end 50 000IU	**Capsule, snip off narrow end** 100 000IU	**Capsule, snip off narrow end** 200 000IU
< 6 months	50 000IU	1 capsule	½ capsule	-
6-12 months	100 000IU	2 capsules	1 capsule	-
12 months - 6 years	200 000IU	-	2 capsules	1 capsule

TB preventive treatment (TPT) dosing tables

- Choose one of the tables below according to chosen regimen and dose according to weight.
- If child unable to swallow whole tablet: if possible, encourage to swallow split tablets or dissolve/crush and mix with small amount of soft food such as yoghurt/honey/jam or give in water (see below).

Check for possible medication interactions:

- If on dolutegravir and 4R, give dolutegravir dose 12 hourly according to weight ↩ 160.
- If on lopinavir/atazanavir/ritonavir, avoid 3HP and 4R. Give instead 6H (if < 25kg) or 12H (if ≥ 25kg). If on 4R, discuss/refer.
- If older child on oral contraception/subdermal implant and 3HP, advise to use injectable contraceptive and condoms instead ↩ PACK Adult.

Isoniazid (6H and 12H):

- 6H is *daily* isoniazid for 6 months.
- 12H is *daily* isoniazid for 12 months.
- Give before eating (on an empty stomach).

Weight (kg) *If < 2kg, discuss with specialist*	Isoniazid (daily)		
	100mg tablet OR	100mg tablet/s in water OR	300mg tablet
2-3.5kg	¼ tablet	2mL[1]	-
3.5-5kg	½ tablet	4mL[1]	-
5-7.5kg	¾ tablet	6mL[1]	-
7.5-10kg	1 tablet	Crush and mix 1 tablet in small amount of water	-
10-15kg	1½ tablets	Crush and mix 1½ tablets in small amount of water	-
15-20kg	2 tablets	Crush and mix 2 tablets in small amount of water	-
≥ 20kg	3 tablets	Crush and mix 3 tablets in small amount of water	1 tablet

Isoniazid and rifapentine (3HP):

- 3HP is *weekly* rifapentine and isoniazid for 3 months.
- Give with food or immediately after eating.

Weight (kg)	Isoniazid (weekly)	+	Rifapentine (weekly)
	300mg tablet		150mg tablet
25-30kg	2 tablets		4 tablets
≥ 30kg	3 tablets		6 tablets

Rifampicin and Isoniazid (3RH):

- 3RH is *daily* rifampicin and isoniazid for 3 months.
- Give before eating (on an empty stomach).

Weight (kg) *If < 2kg, discuss with specialist*	RH (daily)			
	75/50mg tablet[2] OR	75/50mg tablet/s in water[2] OR	150/75mg tablet OR	300/150mg tablet
2-3kg	½ tablet	5mL[3]	-	-
3-4kg	¾ tablet	7.5mL[3]	-	-
4-6kg	1 tablet	10mL[3]	-	-
6-8kg	1½ tablets	15mL[3]	-	-
8-12kg	2 tablets	20mL[3]	-	-
12-16kg	3 tablets	30mL[3]	-	-
16-25kg	4 tablets	40mL[3]	-	-
25-38kg	-	-	2 tablets	-
38-55kg	-	-	3 tablets	-
≥ 55kg	-	-	-	2 tablets

Rifampicin (4R):

4R is *daily* dosing rifampicin for 4 months.

< 10 years old	15mg/kg daily
≥ 10 years old	10mg/kg daily

6H–6 months isoniazid; **12H**–12 months isoniazid; **3RH**–3 months rifampicin and isoniazid; **3HP**–3 months isoniazid and rifapentine; **4R**–4 months rifampicin

[1]Crush 1 x isoniazid 100mg tablet in 8mL of water, give required dose and discard unused solution. [2]If RH 75/50mg formulation unavailable, discuss giving RH 150/75mg or RH 60/60mg with pharmacist instead. [3]Dissolve 1 x rifampicin + isoniazid 75/50mg tablet in 10mL of water, give required dose and discard unused solution if needed.

Drug-sensitive TB treatment dosing tables

- Choose one of the tables below according to type of TB disease, age and weight. If child ≥ 8 years old *and* ≥ 25kg, or TB meningitis/miliary TB →159.
- If child unable to swallow whole tablet: if possible, encourage to swallow split tablets or dissolve/crush and mix with small amount of soft food such as yoghurt/honey/jam *or* give in water (see below).

Child < 8 years old *or* < 25kg

Uncomplicated TB disease

Weight (kg) *If < 2kg, discuss with specialist*	Intensive phase: 2 months		Continuation phase: 4 months		
	RHZ		RH		
	75/50/150mg tablet (OR)	75/50/150mg tablet/s in water	75/50mg tablet[2] (OR)	75/50mg tablet/s in water[2] (OR)	150/75mg tablet
2-3kg	½ tablet	2mL[1]	½ tablet	2mL[3]	-
3-4kg	¾ tablet	3mL[1]	¾ tablet	3mL[3]	-
4-8kg	1 tablet	4mL[1]	1 tablet	4mL[3]	½ tablet
8-12kg	2 tablets	8mL[1]	2 tablets	8mL[3]	1 tablet
12-16kg	3 tablets	12mL[1]	3 tablets	12mL[3]	1½ tablets
16-25kg	4 tablets	16mL[1]	4 tablets	16mL[3]	2 tablets

[1]Dissolve 1 x RHZ 75/50/150mg tablet in 4mL of water, give required dose and discard unused solution. [2]If RH 75/50mg formulation unavailable, discuss giving RH 150/75mg or RH 60/60mg with pharmacist instead. [3]Dissolve 1x RH 75/50mg tablet in 4mL of water, give required dose and discard unused solution.

Complicated TB disease

Weight (kg) *If < 2kg, discuss with specialist*	Intensive phase: 2 months				Continuation phase: 4-7 months		
	RHZ		⊕ E		RH		
	75/50/150mg tablet (OR)	75/50/150mg tablet/s in water	400mg tablet (OR)	400mg tablet in water	75/50mg tablet[2] (OR)	75/50mg tablet/s in water[2] (OR)	150/75mg tablet
2-3kg	½ tablet	2mL[1]	-	1mL[4]	½ tablet	2mL[3]	-
3-4kg	¾ tablet	3mL[1]	-	1.5mL[4]	¾ tablet	3mL[3]	-
4-8kg	1 tablet	4mL[1]	-	2.5mL[4]	1 tablet	4mL[3]	½ tablet
8-12kg	2 tablets	8mL[1]	½ tablet	4mL[4]	2 tablets	8mL[3]	1 tablet
12-16kg	3 tablets	12mL[1]	¾ tablet	6mL[4]	3 tablets	12mL[3]	1½ tablets
16-25kg	4 tablets	16mL[1]	1 tablet	8mL[4]	4 tablets	16mL[3]	2 tablets

[1]Dissolve 1 x RHZ 75/50/150mg tablet in 4mL of water, give required dose and discard unused solution if needed. [2]If RH 75/50mg formulation unavailable, discuss giving RH 150/75mg or RH 60/60mg with pharmacist instead. [3]Dissolve 1x RH 75/50mg tablet in 4mL of water, give required dose and discard unused solution if needed. [4]Crush 1 x E 400mg tablet and add to 8mL of water, give required dose and discard unused solution if needed.

RHZ - rifampicin + isoniazid + pyrazinamide; **RH** - rifampicin + isoniazid; **RHZE** - rifampicin + isoniazid + pyrazinamide + ethambutol; **E** - ethambutol; **Z** - pyrazinamide; **Eto** - ethionamide

If child unable to swallow whole tablet: if possible, encourage to swallow split tablets or dissolve/crush and mix with small amount of soft food such as yoghurt/honey/jam *or* give in water (see below).

Child ≥ 8 years old *and* ≥ 25kg (uncomplicated and complicated TB disease)

Weight (kg)	Intensive phase: 2 months	Continuation phase: 4 - 7 months	
	RHZE	RH	
	150/75/400/275mg tablet	150/75mg tablet	300/150mg tablet
25-38kg	2 tablets	2 tablets	-
38-55kg	3 tablets	3 tablets	-
55-71kg	4 tablets	-	2 tablets
≥ 71kg	5 tablets	-	2 tablets

TB meningitis/miliary TB (regardless of age and weight)

	Single phase treatment: 6-9 months					
Weight (kg) *If < 2kg, discuss with specialist*	RH		Z		Eto	
	60/60mg tablet	OR 60/60mg tablet/s in water	500mg tablet	OR 500mg tablet/s in water	250mg tablet	OR 250mg tablet/s in water
2-3kg	¾ tablet	3mL[1]	-	1mL[2]	-	1.5mL[3]
3-4kg	1 tablet	4mL[1]	-	2mL[2]	-	2mL[3]
4-5kg	1½ tablets	6mL[1]	-	2.5mL[2]	-	2.5mL[3]
5-6kg	1¾ tablets	7mL[1]	-	3mL[2]	-	3mL[3]
6-7kg	2 tablets	8mL[1]	½ tablet	4mL[2]	½ tablet	4mL[3]
7-9kg	2½ tablets	10mL[1]	½ tablet	4mL[2]	½ tablet	4mL[3]
9-10kg	3 tablets	12mL[1]	¾ tablet	6mL[2]	¾ tablet	6mL[3]
10-12kg	3½ tablets	14mL[1]	¾ tablet	6mL[2]	¾ tablet	6mL[3]
12-13kg	4 tablets	16mL[1]	1 tablet	8mL[2]	1 tablet	8mL[3]
13-15kg	4½ tablets	18mL[1]	1 tablet	8mL[2]	1 tablet	8mL[3]
15-17kg	5 tablets	20mL[1]	1 tablet	8mL[2]	1¼ tablet	10mL[3]
17-18kg	5½ tablets	22mL[1]	1¼ tablet	10mL[2]	1¼ tablet	10mL[3]
18-20kg	5½ tablets	22mL[1]	1¼ tablet	10mL[2]	1½ tablet	12mL[3]
20-25kg	6 tablets	24mL[1]	1½ tablet	12mL[2]	1½ tablet	12mL[3]
≥ 25kg	20mg/kg		40mg/kg		20mg/kg	

[1]Dissolve 1 x RH 60/60mg tablet in 4mL of water, give required dose and discard unused solution if needed. [2]Crush 1 x Z 500mg tablet in 8mL of water, give required dose and discard unused solution if needed. [3]Crush 1 x Eto 250mg tablet in 8mL of water, give required dose and discard unused solution if needed.

RHZ - rifampicin + isoniazid + pyrazinamide; **RH** - rifampicin + isoniazid; **RHZE** - rifampicin + isoniazid + pyrazinamide + ethambutol; **E** - ethambutol; **Z** - pyrazinamide; **Eto** - ethionamide

Antiretroviral and co-trimoxazole/multivitamin dosing table

ABC - abacavir; **ALD** - abacavir+lamivudine+dolutegravir; **am** - in the morning; **ATVr** - atazanavir+ritonavir; **AZT** - zidovudine; **bd** - twice daily dosing; **cap/s** - capsule/s; **DT** - dispersible tablet; **DTG** - dolutegravir; **EFV** - efavirenz; **FC** - film coated; **FDC** - fixed dose combination; **LPVr** - lopinavir+ritonavir; **od** - once daily dosing; **pm** - at night; **RTV** - ritonavir; **Sol** - solution; **tab/s** - tablet/s; **TEE** - tenofovir+emtricitabine+efavirenz; **TLD** - tenofovir+lamivudine+dolutegravir; **3TC** - lamivudine

Medication	ABC + 3TC	DTG	DTG[1] while on rifampicin	ABC	3TC	AZT	LPVr (FDC: LPV + RTV)	'4-in-1' ABC + 3TC + LPVr	LPVr[1] while on rifampicin		ATVr (ATV + RTV)	EFV	Medication
	• **DT FDC:** ABC/3TC 120/60mg (scored) • **Tabs FDC:** ABC/3TC 600/300mg, ALD 600/300/50mg	• **DTG DT:** 10mg • **FDC:** TLD 300/300/50mg or ALD 600/300/50mg • **DTG FC** tabs: 50mg 3 x DTG DT 10mg tablets = 1 x DTG FC 50mg tab (i.e. they are not bioequivalent)		• **Sol:** 20mg/mL • **Tabs:** 60mg (scored, dispersible), 300mg (not scored)	• **Sol:** 10mg/mL • **Tabs:** 150mg (scored)	• **Sol:** 10mg/mL • **Tabs:** 100, 300mg (not scored) • FDC: AZT/3TC 300/150mg	• **Sol:** 80/20mg/mL[2] • **Caps with pellets:** 40/10mg (if not tolerating solution)[3] • Tabs: 200/50mg, 100/25mg	• **Caps with granules:** 30/15/40/10mg • If child on rifampicin, add **RTV powder** (see green column)	Choose only one option:		• **ATV caps:** 150mg, 200mg • **RTV tabs** 100mg, • **RTV powder:** 100mg packet • **FDC:** ATVr 300/100 mg	• **Caps/tabs:** 50mg, 200mg, 600mg • **FDC:** TEE 300/200/600mg	
									Super-boost with **RTV powder** 100mg/packet	Double-dose with either: 200/50mg **tabs OR** 100/25mg **tabs**			
Weight 3-5.9kg	1 x 120/60mg tab od	0.5 x 10mg tab od	0.5 x 10mg tabs bd	3ml bd **OR** 1 x 60mg tab bd	3mL bd	6mL bd	1 mL bd **OR** 2 caps bd	2 caps bd	LPVr bd (see purple columns) **+** RTV powder 100mg (1 packet) bd	Avoid	Avoid	Avoid	**Weight 3-5.9kg**
6-9.9kg	1.5 x 120/60mg tabs od	1.5 x 10mg tab od	1.5 x 10mg tab **bd**	4ml bd **OR** 1.5 x 60mg tabs bd	4mL bd	9mL bd	1.5mL bd **OR** 3 caps bd	3 caps bd					**6-9.9kg**
10-13.9kg	2 x 120/60mg tabs od	2 x 10mg tabs od	2 x 10mg tabs **bd**	**od:** 4 x 60mg tabs od **OR** 12ml od	**od:** 12mL od	12mL bd **OR** 1 x 100mg tab bd	2mL bd **OR** 4 caps bd **OR** 2 x 100/25mg tabs am + 1 x 100/25mg tab pm	4 caps bd	LPVr bd (see purple columns) **+** RTV powder 200mg (2 packets) bd	3 x 100/25mg tabs bd	ATV 1 x 200mg cap od *plus* • RTV 1 x 100mg tab **OR** • RTV 100mg powder (1 packet) od	1 x 200mg cap/tab pm	**10-13.9kg**
14-19.9kg	2.5 x 120/60mg tabs od	2.5 x 10mg tabs od	2.5 x 10mg tabs **bd**	5 x 60mg tabs od **OR** 1 x 300mg tab od	1 x 150mg tab od	2 x 100mg tabs am + 1 x 100mg tab pm **OR** 15ml bd	2.5 mL bd **OR** 5 caps bd **OR** 2 x 100/25mg tabs bd **OR** 1 x 200/50mg tab bd	5 caps bd		4 x 100/25mg tabs bd **OR** 2 x 200/50mg tabs bd		1 x 200mg cap/tab + 2 x 50mg caps/tabs pm	**14-19.9kg**
20-24.9kg	3 x 120/60mg tabs od	3 x 10mg tabs od **OR** 1 x 50mg tab od	3 x 10mg tabs bd **OR** 1 x 50mg tab **bd**	1 x 300mg tab + 1 x 60mg tab od **OR** 6 x 60mg tabs od	2 x 150mg tabs od	2 x 100mg tabs bd **OR** 20mL bd	3mL bd **OR** 6 caps bd **OR** 2 x 100/25mg tabs bd **OR** 1 x 200/50mg tab bd	6 caps bd					**20-24.9kg**
25-29.9kg	1 x 600/300mg tab od **OR** ALD 600/300/50mg od	1 x 50mg tab od **OR** ALD 600/300/50mg od	1 x 50mg FC tab bd **OR** ALD 600/300/50mg od **+** 50mg DTG tab 12 hours later	2 x 300mg tabs od		1 x 300mg bd **OR** 1 x AZT/3TC 300/150mg tab bd	3.5mL bd **OR** 7 caps bd **OR** 3 x 100/25mg tabs bd **OR** 1 x 200/50mg tab bd + 1x 100/25mg tab bd	Avoid	LPVr bd (see purple columns) **+** RTV powder 300 mg (3 packets) bd	6 x 100/25mg tabs bd **OR** 3 x 200/50 mg tabs bd	1 x ATVr 300/100mg od **OR** ATV 2 x 150mg caps od *plus* • RTV 1 x 100mg tab **OR** • RTV 100mg powder (1 packet) od	2 x 200mg caps/tabs pm	**25-29.9kg**
30-39.9kg		1 x 50mg tab od **OR** TLD 300/300/50mg od **OR** ALD 600/300/50mg od	1 x 50mg tab bd **OR** TLD 300/300/50mg od **+** 50mg DTG tab 12 hours later **OR** ALD 600/300/50mg od **+** 50mg DTG tab 12 hours later				5mL bd **OR** 10 caps bd **OR** 4 x 100/25mg tabs bd **OR** 2 x 200/50mg tabs bd			8 x 100/25mg tabs bd **OR** 4 x 200/50mg tabs bd			**30-39.9kg**
≥ 40kg												2 x 200mg pm **OR** TEE 300/200/600mg pm	**≥ 40kg**

Weight (kg)	3- 5.9kg	6 - 13.9kg	14 - 24.9kg	≥ 25kg
Co-trimoxazole	2.5mL od	5mL OR ½ tab	10mL OR 1 tab od	2 tabs od
Multivitamin	2.5mL od	2.5mL od	5mL od	10mL od

Adapted from antiretroviral drug dosing chart for children 2022, by the Child and Adolescent Committee of the SA HIV Clinicians Society in collaboration with the Department of Health.

[1]Continue for 2 weeks after stopping rifampicin. [2]Improve taste by coating mouth with peanut butter or numbing taste buds with ice before giving LPVr solution and/or feeding child soft food after giving LPVr solution. [3]Avoid if child < 6 months old.

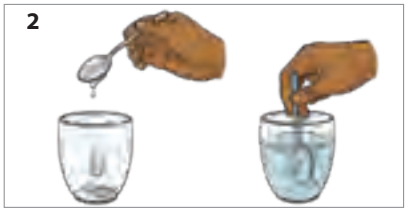
Practical tips for giving ART correctly

Support carer to give ART correctly

If child is taking abacavir + lamivudine (ABC + 3TC) and dolutegravir (DTG) dispersible tablets:

- Explain that ABC/3TC and DTG dispersible tablets can be dissolved whole, split or crushed in small amount of water. Child to avoid chewing tablet.
- Use steps 1-3 below to explain how to prepare and give tablets:

Add tablets to clean, empty glass or cup. If giving 1½ or 2½ tablets, split tablet down the middle on solid line. Store leftover ½ tablet in bottle/packet tablet came in as it contains a drying agent to help preserve tablets correctly until they are needed.



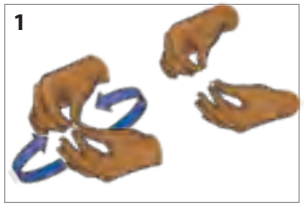
Add 4 teaspoons of fluid/food[1] to glass/cup and stir until tablets fully dissolve. If tablets dissolve incompletely or lump together, stir in 2 more teaspoons of fluid/food[1] until tablets fully dissolve.

Give within 30 minutes with spoon or allow child to drink mixture directly from glass/cup. If mixture left over, add 2 further teaspoons of fluid/food[1], gently swirl or stir and give to child to drink/eat. Repeat until all medication swallowed.

- If child not taking both ABC/3TC and DTG (taking only 1 of the 2), follow the same steps above, but adjust dosing:
  - If dispersing ½ - 1½ tablets, mix with 1 teaspoon of fluid/food[1].
  - If dispersing ≥ 2 tablets, mix with 2 teaspoons of fluid/food[1].

If child is taking lopinavir + ritonavir (LPVr) *pellets* in capsules:

- Explain that yellow and white capsules contain white pellets.
- Advise to avoid swallowing capsules whole or stirring, dissolving, crushing or chewing pellets. Pellets still need to be seen before child swallows these.
- Use steps 1-3 below to explain how to prepare and give pellets. Follow the same steps for every capsule:



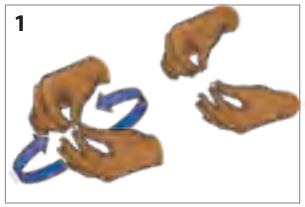
Hold capsule with yellow side up, then tap top of capsule to release pellets into lower half of capsule. Twist to loosen and lift yellow half of capsule.
Pour all pellets onto a teaspoon.

Cover food that child enjoys to eat (like yoghurt, mashed potato, porridge) with pellets[2].

Feed child immediately to prevent bad taste. Offer child a drink of fluid if some of the mixture remains in mouth. Encourage child to finish every spoon. Discard any food with uneaten pellets.

If child is taking '4-in-1' abacavir + lamivudine + lopinavir + ritonavir (ABC + 3TC + LPVr) *granules* in capsules:

- Explain that brown and white capsules contain white granules.
- Advise to avoid swallowing capsules whole.
- Use steps 1-3 below to explain how to prepare and give granules. Follow the same steps for every capsule:



Hold capsule with brown side up, then tap top of capsule to release granules into lower half of capsule. Twist to loosen and lift yellow half of capsule.
Pour all granules onto a teaspoon.

Add fluid/food[1] to cover the granules on spoon *or* add 4 teaspoons of fluid/food[1] to glass/cup and stir until granules fully dissolve.

Feed child immediately. Offer child a drink of fluid if some of the mixture remains in mouth. Encourage child to finish every spoon. Discard any fluid/food with uneaten granules.

[1]Clean water, breast milk, milk, juice, yoghurt, porridge, mashed potato. If food used, crush tablet to help with dissolving tablet in food. [2]Cover pellets with food if child refuses to swallow food while pellets are visible.

Helpline numbers

Helpline	Services provided	Contact number/s
General counselling		
ACVV	Help nurture and protect those in need.	021 461 7437; https://www.acvv.org.za/
Cape Mental Health	Provides mental health services in the Western Cape	021 447 9040
Childline South Africa	For children who are in crises, abuse or at risk of abuse and violence	116 or 0800 055 555 (24 hour toll-free); www.childlinesa.org.za
Family Services Directory	Area specific directory of family services available with contact details provided	www.pmhp.za.org/wp-content/uploads/Familycontent/uploads/Family-ServicesDirectory.updated.22.8.2016.pdf
First 1000 days	Information on development, nutrition, health, safety and support during first 1000 days of child's life	www.westerncape.gov.za/first-1000-days
Lifeline	Only if > 16 years old (If younger, referred to childline)	111 (helpline); 063 709 2620 (WhatsApp)
The South African Depression and Anxiety group	Telephonic counselling and assistance with mental health.	0800 567 567; www.sadag.org/
Safe Schools	For learners who are in crises. Help schools to mobilise community support for safe schools.	0800 45 46 47
Suicide Crisis Helpline	Assist with counseling and support where needed.	0800 554 433
The Parent Centre	Parenting information, support and training	021 762 0116 (8am-4pm); www.theparentcentre.org.za
Western Cape Education Department	Schooling information or child not enrolled in school	0861 819 919
Health Care Worker		
Poisons Information Helpline of the Western Cape	Advice on the management of exposure to or ingestion of poisonous substances	0861 555 777 (24 hour line)
Notifiable medical conditions	Notification and information on outbreaks	Ms Lawrence (021) 830 3727/ 072 356 5146 or Ms Daniels (021) 815 8660/1
Medicines Information Centre	For medicine advice (drug interactions, side effects, dosage, treatment failure)	021 406 6829 (8.30am-4.30pm); www.mic.uct.ac.za/MIC/Hotline
Provincial office: Communicable Disease Control - expanded programme on immunisation (EPI)	For reporting of investigation of adverse event following immunisations (AEFI)	021 830 3727 021 815 8810 021 815 8660/8664/8740
SASSA information line	Assess and arrange grants	0800 601 011 toll-free (7.30-4pm); www.sassa.gov.za
National HIV & TB Health Care Worker Hotline	For HIV and TB related clinical queries	0800 212 506 toll-free (8.30am-4.30pm); 071 840 1572; pha-mic@uct.ac.za
National Institute for Communicable Diseases hotline	Rabies and other infectious diseases advice.	0800 212 552
Philani Maternal, Child health and Nutritional Project	Helps prevent and support child malnutrition with food aid and support	021 387 5124 (8.30am-4.30pm); www.philani.org.za
Abuse		
Crime stop: Provincial Family Violence, Child Protection and Sexual Offences	To notify police in the case of physical or sexual abuse	10111/112
Department of Social Development	To notify a case of suspected child abuse or neglect and to obtain the fax number to fax the form 22A to.	0800 220 250 (7.00am-7.00pm)

Helpline	Services provided	Contact number/s
Resources Aimed at the Prevention of Child Abuse and Neglect, RAPCAN	Prevention-oriented child protection system, promoting gender equality and children's rights	www.saferspaces.org.za/organisation/entry/rapcan-resources-aimed-at-the-prevention-of-child-abuse-and-neglect
Rape Crisis Cape Town Trust	Advice and support for cases of sexual abuse. Information on closest crisis / Tutuhuzela centre	021 447 9762; WhatsApp counselling: 083 222 5164
Safeline	Abuse counselling, court preparation, anti-abuse awareness campaigns and group therapy	0800 035 553 or 021 705 2147 (8am-3pm Monday to Thursday); 082 934 4459 (24 hour crisis line)
Western Cape Directory of Services for Victims of Crime and Violence	Contact details of individuals, associations and organisations contributing to service delivery within the field of Victim Empowerment in the Western Cape	https://www.westerncape.gov.za/assets/departments/social-development/vep_directory_of_services_2.pdf
Western Cape Government contact center	Gender based violence assistance	0800 220 250
Chronic Condition		
Allergy Foundation of South Africa	Advice and support for children with allergies/asthma/eczema and their carers	081 405 8442; info@allergyfoundation.co.za; www.allergyfoundation.co.za
Down Syndrome Association	Advice and support groups for children with Down Syndrome and their families	072 652 2377 (8.30-4pm Monday to Thursday, 8.30am-1pm Friday); www.downsyndrome.org.za
Western Cape Cerebral Palsy	Advice and support for parents and guardians of children with cerebral palsy	021 685 4150 (8.30am-3pm); www.wccpa.pl-dev.co.za
Hi Hopes	Deaf children hearing support	Ms De Jager 083 552 2110 (8am-4pm); www.hihopes.co.za
Paedspal	Care and support for children living with life-limiting illness	021 200 5873 (8.30am-4h30pm); www.paedspal.org.za
Epilepsy SA	Education, counselling and support groups for child with epilepsy and their families	0860 374 537 (National Helpline, 8am-4.30pm Monday to Thursday, 8am-2pm Friday); www.epilepsy.org.za
Paediatric Cardiac Society of SA	Advice, counselling and information for children with heart disease	www.pcssa.org
Administration		
MedicAlert® bracelets	Assistance with application for MedicAlert® disc or bracelet	021 425 7328 (9am-4pm); 021 461 000 (24 hour emergency line); www.medicalert.co.za
Telephone directory/additional resources		

Predicted peak expiratory flow rate (PEFR) for height

- Compare child's PEFR to the table below according to his/her height: aim for child's PEFR to fall in between 80% -100%.
- A normal PEFR does not exclude poorly controlled asthma. If other symptoms, step up treatment ↩ 122 or discuss/refer.

Height (cm)	PEFR (L/min) zones		
	60%	80%	100%
95cm	51	68	85
96cm	54	72	90
97cm	57	76	95
98cm	60	80	100
99cm	63	84	105
100cm	66	88	110
101cm	69	92	115
102cm	72	96	120
103cm	75	100	125
104cm	78	104	130
105cm	81	108	135
106cm	84	112	140
107cm	87	116	145
108cm	90	120	150
109cm	93	124	155
110cm	96	128	160
111cm	99	132	165
112cm	102	136	170
113cm	105	140	175
114cm	108	144	180
115cm	111	148	185
116cm	114	152	190
117cm	117	156	195
118cm	120	160	200
119cm	123	164	205
120cm	126	168	210
121cm	129	172	215
122cm	132	176	220
123cm	135	180	225
124cm	138	184	230
125cm	141	188	235

Height (cm)	PEFR (L/min) zones		
	60%	80%	100%
126cm	144	192	240
127cm	147	196	245
128cm	150	200	250
129cm	153	204	255
130cm	156	208	260
131cm	159	212	265
132cm	162	216	270
133cm	165	220	275
134cm	168	224	280
135cm	171	228	285
136cm	174	232	290
137cm	177	236	295
138cm	180	240	300
139cm	183	244	305
140cm	186	248	310
141cm	189	252	315
142cm	192	256	320
143cm	195	260	325
144cm	198	264	330
145cm	201	268	335
146cm	204	272	340
147cm	207	276	345
148cm	210	280	350
149cm	210	284	355
150cm	216	288	360
151cm	219	292	365
152cm	222	296	370
153cm	225	300	375
154cm	228	304	380
155cm	231	308	385
156cm	234	312	390

Height (cm)	PEFR (L/min) zones		
	60%	80%	100%
157cm	237	316	395
158cm	240	320	400
159cm	243	324	405
160cm	246	328	410
161cm	249	332	415
162cm	252	336	420
163cm	255	340	425
164cm	258	344	430
165cm	261	348	435
166cm	264	352	440
167cm	267	356	445
168cm	270	360	450
169cm	273	364	455
170cm	276	368	460
171cm	279	372	465
172cm	282	376	470
173cm	285	380	475
174cm	288	384	480
175cm	291	388	485
176cm	294	392	490
177cm	297	395	495
178cm	300	400	500
179cm	303	404	505
180cm	306	408	510

Based on Polgar and Promadht: Pulmonary function testing in children: techniques and standards, 1979. Adapted from www.allergyfoundation.co.za.

Age-appropriate behaviour

Age-appropriate fears and anxieties in children and adolescents[1]	
Babies & Toddlers (9 months – 2 years old)	Weight (kg) = (0.5 x age in months) + 4
Young Children (2-5 years old)	Fear of storms, fire, water, darkness, nightmares, and animals.
Middle Childhood (6-12 years old)	• Fear of monsters, ghosts, germs, natural disasters, physical illness, and being badly injured. • Anxiety about school or about performing in front of others.
Adolescents (13-18 years old)	Fear of rejection by peers, performing in front of others, physical illness, medical procedures, catastrophes (e.g. war, terrorist attack, disasters).

Age-appropriate disruptive or challenging behaviour in children/adolescents[1]	
Toddlers and young children (18 months – 5 years old)	• Refusing to do what they are told, breaking rules, arguing, whining, exaggerating, saying things that aren't true, denying they did anything wrong, being physically aggressive and blaming others for their misbehaviour. • Brief tantrums (emotional outbursts with crying, screaming, hitting, etc.), usually lasting less than 5 minutes and not longer than 25 minutes, typically occur less than 3 times per week. Developmentally typical tantrums should not result in self-injury or frequent physical aggression toward others, and the child can typically calm themselves down afterward.
Middle Childhood (6-12 years old)	Avoidance of or delay in following instructions, complaining or arguing with adults or other children, occasionally losing their temper.
Adolescents (13-18 years old)	Testing rules and limits, saying that rules and limits are unfair or unnecessary, occasionally being rude, dismissive, argumentative or defiant with adults.

Assess pain in the child

Over 5 minutes, look at child's facial expression, position of legs, activity level, type of cry and ability to be consoled. Then use the table below to score each of these. Add scores to get a total and use this to rate the pain[2]:
- If score is 0: rate as **no pain**.
- If score is 1-3: rate as **mild pain**.
- If score is 4-6: rate as **moderate pain**.
- If score is 7-10: rate as **severe pain**.

Use pain rating to inform choice of pain relief medications.

Face	Legs	Activity	Cry	Consolibility
0 No particular expression or smile	0 Normal position or relaxed	0 Kicking, or legs drawn up	0 No cry (awake or asleep)	0 Content, relaxed
1 Occasional grimace or frown, withdrawn, uninterested	1 Uneasy, restless, tense	1 Squirming, shifting, back and forth, tense	1 Moans or whimpers; occasional complaint	1 Reassured by occasional touching, hugging or being talked to, distractible
2 Frequent to constant quivering chin, clenched jaw	2 Kicking, or legs drawn up	2 Arched, rigid or jerking	2 Crying steadily, screams or sobs, frequent complaints	2 Difficult to console or comfort

[1]Adapted from WHO mhGAP Intervention Guide for mental, neurological and substance use disorders in non-specialized health setting. Mental Health Gap Action Programme. Version 2.0. World Health Organization. Geneva, 2016. ISBN: 978 92 4 154979 0. [2]This is known as the FLACC pain scale (Face Legs, Activity, Cry, Consolability) and was developed by Sandra Merkel, MS, RN, Terri Voepel-Lewis, MS, RN, and Shobha Malviya, MD, at C. S. Mott Children's Hospital, University of Michigan Health System, Ann Arbor, USA.

Assess level of consciousness (LOC)

- If rapid, simple assessment of **LOC** needed, use **AVPU** scale.
- If more detailed assessment of **LOC** needed (like head injury or considering intubation), use **GCS**.

Assess level of consciousness (LOC) with the AVPU scale:

Is child alert and awake?

- Yes → Child has **normal LOC** (**A** on **AVPU** scale)
- No → Try to rouse child by talking to him/her or shaking his/her arm:
  - Child responds → Child is **lethargic** (V on AVPU scale). If this is main presenting symptom →44.
  - Child does not respond → Check if child responds to pain by firmly rolling a pen over child's nailbed:
    - Child responds → Child has a **decreased LOC** (**P** on **AVPU** scale)
    - Child still does not respond → Child is **unresponsive/unconscious/comatose** (**U** on **AVPU** scale)

→30

Assess level of consciousness with AVPU	
A	Alert
V	responds to Voice
P	responds to Pain
U	Unresponsive/Unconscious

Assess level of consciousness (LOC) using the Glasgow Coma Scale (GCS)

Add scores to give a single score out of 15: if GCS ≤ 9, intubate child.

Best motor response		Best verbal response		Eye opening	
6	Spontaneous movements (obeys commands	5	Age-appropriate vocalization, smile, or response to sound; interacts (coos, babbles); follows objects	4	Spontaneous
5	Withdraws to touch (localizes pain)	4	Cries, irritable	3	To voice
4	Withdraws from pain	3	Cries to pain	2	To pain
3	Abnormal flexion to pain	2	Moans to pain	1	None
2	Extends to pain	1	None		
1	None				

Quick reference chart

If emergency situation, rather use a Broselow® paediatric emergency tape, if available, to estimate weight, endotracheal tube size and emergency medicine doses.

Decide if pulse rate is normal for age

Age	Pulse rate (beats/minute)	
	Pulse rate decreased if:	Pulse rate increased if:
< 1 year	< 110	≥ 160
1-2 years	<100	≥ 150
2-5 years	< 95	≥ 140
5-12 years	< 80	≥ 120
≥ 12 years	< 60	≥ 100

Estimate weight according to age

0-12 months	Weight (kg) = (0.5 x age in months) + 4
1-5 years	Weight (kg) = (2 x age in years) + 8
5-12 years	Weight (kg) = (3 x age in years) + 7

Decide on maintenance fluid rate

Weight	24 hour fluid need
< 10kg	100mL/kg
10-20kg	1000mL + (50mL for every kg body weight over 10kg) e.g.: if 14kg: 1000mL + (50 x 4) = 1200mL/24 hours
≥ 20kg	1500mL + (20mL for every kg body weight over 20kg) Up to 2000mL in girls and 2500mL in boys e.g.: if 23kg: 1500mL + (20 x 3) = 1560mL/24 hours

Decide if respiratory rate is normal for age

Age	Respiratory rate (breaths/minute)	
	Respiratory rate decreased if:	Respiratory rate increased if:
0-2 months	< 30	≥ 60
2-12 months	< 30	≥ 50
1-5 years	< 25	≥ 40
5-12 years	< 20	≥ 25
≥ 12 years	< 15	≥ 20

Decide if blood pressure is normal for age

Age	Systolic blood pressure (mmHg)	
	Blood pressure decreased if:	Blood pressure increased if:
< 1 year	< 80	> 90
1-2 years	< 85	> 95
2-5 years	< 85	> 100
5-12 years	< 90	> 110
≥ 12 years	< 100	> 120

Decide on endotracheal tube (ETT) size (mm) and depth (cm)
Use cuffed tube. If only uncuffed available, use one size bigger.

Age	Weight (kg)	ETT size (mm) (internal diameter)	ETT depth (cm)	
			Oral (measurement at lips)	Nasal (measurement at nostril)
Preterm	1	2.5	7	8.5
Preterm	2	2.5 - 3	8	9.5
Term	3	3 – 3.5	9.5	11.5
2 months	4.5	3.5	11	12.5
1 year	10	4	12	14
18 months	12	4.5	13	15
2 years	15	5	14	16
4 years	17	5.5	15	17
6 years	21	6	16	19
8 years	25	6.5	17	20
10 years	31	7	18	21

Western Cape Government
Health and Wellness
FOR YOU

PACK
Practical Approach to Care Kit

About the Knowledge Translation Unit

The Knowledge Translation Unit is a health systems research unit in the University of Cape Town Lung Institute, committed to improving the quality of primary healthcare for underserved communities worldwide through practical tools, evidence-based implementation and engagement of health systems, their planners, providers and end-users.
www.knowledgetranslation.co.za

About the Health Foundation

The Health Foundation is an independent Non-Profit Company and Public Benefit Organisation, offering a unique platform for partnerships between public, private and civil sectors to boost resources and enhance services in the public health sector, in order to improve the quality and access of healthcare in South Africa and beyond.
www.thehealthfoundation.org.za

About the University of Cape Town

The University of Cape Town is a South African university founded in 1928, with a proud tradition of academic excellence and effecting social change and development through its pioneering scholarship, faculty and students.
www.uct.ac.za

Practical Approach to Care Kit

Knowledge TranslationUnit
THE HEALTH FOUNDATION
UNIVERSITY OF CAPE TOWN
IYUNIVESITHI YASEKAPA • UNIVERSITEIT VAN KAAPSTAD