

WHO RECOMMENDATIONS

ON

Child Health

GUIDELINES APPROVED BY THE
WHO GUIDELINES REVIEW COMMITTEE

UPDATED MAY 2017



World Health
Organization

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WHO/MCA/17.08

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Suggested citation. WHO recommendations on child health: guidelines approved by the WHO Guidelines Review Committee. Geneva: World Health Organization; 2017 (WHO/MCA/17.08). Licence: CC BY-NC-SA 3.0 IGO.

Cataloguing-in-Publication (CIP) data. CIP data are available at <http://apps.who.int/iris>.

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Abbreviations

3TC	lamuvidine
ABC	abacavir sulfate
AIDS	acquired immunodeficiency virus
ART	antiretroviral therapy
ARV	antiretroviral
AZT	zidovudine
BCG	Bacillus Calmette-Guérin
SMC	seasonal malaria chemoprevention
CSOM	chronic suppurative otitis media
DTP	diphtheria-pertussis-tetanus
E	ethambutol
EFZ	efavirenz
FTC	emtricitabine
GRADE	Grading of Recommendations, Assessment, Development and Evaluation
GRC	Guidelines Review Committee
INH	isoniazid
HIV	human immunodeficiency virus
IM	intramuscular
IPV	inactivated polio vaccine
MCV	measles-containing vaccine
MDR	multi-drug resistant
PI	protease inhibitor
NVP	nevirapine
NNRTI	non-nucleotide reverse transcriptase inhibitor
NRTI	nucleotide reverse transcriptase inhibitor
OPV	oral polio vaccine
ORS	oral rehydration solution
PCV	pneumococcus-containing vaccine

PMTCT	prevention of mother-to-child transmission
R	rifampicin
RV	rotavirus vaccine
SAM	severe acute malnutrition
SMC	seasonal malaria chemoprevention
SP	sulfadoxine-pyrimethamine
TB	tuberculosis
TDF	tenofovir
WHO	World Health Organization
WPV	wild poliovirus
Z	pyrazinamide

Introduction

This publication on WHO recommendations related to child health is one of four in a series; the others relate to newborn, maternal and adolescent health. The objective of this document is to make available WHO recommendations on child health in one easy-to-access document for WHO staff, policy-makers, programme managers, and health professionals. The compilation can also help better define gaps to prioritize guideline updates.

This document is meant to respond to the questions:

- What health interventions should the child receive and when should s/he receive it?
- What health behaviours should a mother/caregiver practise (or not practise)?

WHO produces guidelines according to the highest international standards for guideline development. The main principles are transparency and minimizing bias in every step of the process. The process of developing guidelines is documented in *WHO Handbook for guideline development*.¹ The development process includes the synthesis and assessment of the quality of evidence, and is based on the Grading of Recommendations, Assessment, Development and Evaluation (GRADE) approach. GRADE categorizes the quality (or certainty) of the evidence underpinning a recommendation as high, moderate, low or very low.

- High: further research is very unlikely to change our confidence in the estimate of effect;
- Moderate: further research is likely to have an impact on our confidence in the effect;
- Low: further research is very likely to have an important impact on our confidence in the effect and is likely to change the estimate of effect;
- Very low: any estimate of effect is very uncertain.

Once the quality of the body of evidence on benefits and harms has been assessed, an expert group formulates the recommendations using a structured evidence to decision framework. When determining whether to recommend an intervention or not, the expert group carefully considers the balance of benefits and harms of an intervention, and other factors such as values and preferences of persons affected by the recommendation, stakeholders' perceptions of the acceptability and feasibility of the options and interventions, resource implications, the importance of the problem, and equity and human rights considerations.

The expert group then decides on the strength of the recommendation – strong or conditional. A strong recommendation is one where the desirable effects of adhering to the recommendation outweigh the undesirable effects. Recommendations that are conditional or weak are made when the expert group is less certain about the balance between the benefits and harms or disadvantages of implementing a recommendation. Conditional recommendations generally include a description of the conditions under which the end-user should or should not implement the recommendation.

¹ *Handbook for guideline development, 2nd edition*. Geneva, WHO, 2014.

The quality of evidence and strength of the recommendation, as well as the link to the source, are included in this publication. Different expert groups may employ different terminology in the guideline processes. We suggest the Reader refer to the Source where more details are available.

In this publication we have indicated publications which are New – published after 2013 and Update – to indicate that the recommendation has been revised since 2013.

Promotion of child health and prevention of childhood illnesses

1. IMMUNIZATION²



UPDATE

Bacillus Calmette-Guérin (BCG)

- In countries with a high burden of TB, a single dose of BCG vaccine should be given to all infants as soon as possible after birth. Since severe adverse effects of BCG vaccination are extremely rare even in asymptomatic, HIV-positive infants, all healthy neonates should be BCG-vaccinated, even in areas endemic for HIV. However, where resources permit, long-term follow-up of BCG-vaccinated infants of known HIV-positive mothers is desirable for early treatment, should disseminated BCG disease occur in children with rapid development of immunodeficiency. Infants and children with symptomatic human immunodeficiency virus (HIV) or those known to have other immunodeficiency states should not be BCG vaccinated. In cases where infants have been exposed to smear-positive pulmonary TB shortly after birth, BCG vaccination should be delayed until completion of 6 months of prophylactic isoniazid treatment. Countries with a low burden of TB may choose to limit BCG vaccination to neonates and infants of recognized high-risk groups for the disease or to skin-test negative older children. In some low-burden populations, BCG vaccination has been largely replaced by intensified case detection and supervised early treatment.

[Source](#)

Diphtheria

- The primary series of DTwP (whole cell)- or DTaP (acellular)-containing vaccines should be administered in 3 doses, starting as early as 6 weeks of age, and given with a minimum interval of 4 weeks. Where resources permit, additional doses can be given after the completion of the primary series. (*Strong recommendation, high quality evidence*). [Source](#)

Haemophilus influenzae type B (HiB)

- WHO recommends the inclusion of conjugate Hib vaccines in all infant immunization programmes. The use of Hib vaccines should be part of a comprehensive strategy to control pneumonia including exclusive breastfeeding for six months, hand washing with soap, improved water supply and sanitation, reduction of household air pollution, and improved case management at community and health facility levels.

² For updated information on all recommended immunizations, see http://www.who.int/immunization/policy/immunization_tables/en/index.html.

Recommended schedule: WHO recommends that any one of the following Hib immunization schedules may be followed:

- 3 primary doses without a booster (3p);
- 2 primary doses plus a booster (2p+1);
- 3 primary doses with a booster (3p+1). In countries where the peak burden of severe Hib disease occurs in young infants, providing 3 doses of vaccine early in life may confer a greater benefit.

Booster dose: In some settings (e.g. where the greatest disease morbidity and mortality occur later, or where rate reductions of disease are not fully sustained after the routine use of Hib vaccine), it might be advantageous to give a booster dose by following either a 2p+1 or 3p+1 schedule. Age at first dose: Because serious Hib disease occurs most commonly in children aged between 4 months and 18 months, immunization should start from 6 weeks of age, or as early as possible thereafter. Interval between doses: The interval between doses should be at least 4 weeks if 3 primary doses are given, and at least 8 weeks if 2 primary doses are given. Booster doses should be administered at least six months after completion of the primary series. Interrupted schedule/late commencement: If the schedule has been interrupted, vaccination should be resumed without repeating the previous dose. Children who start vaccination late, but are aged under 12 months, should complete the vaccination schedule (e.g. have 3 primary doses or 2 primary doses plus a booster). When a first dose is given to a child older than 12 months of age, only one dose is recommended. Hib vaccine is not required for healthy children after 5 years of age. [Source](#)

Hepatitis A

- WHO recommends that vaccination against hepatitis A be integrated into the national immunization schedule for children aged ≥ 1 year if indicated on the basis of incidence of acute hepatitis A, change in the endemicity from high to intermediate, and consideration of cost-effectiveness. (*Strong recommendation, high quality evidence*). [Source](#)

Hepatitis B

- All infants should receive their first dose of hepatitis B vaccine as soon as possible after birth, preferably within 24 hours. (*Strong recommendation, moderate quality evidence*). [Source](#)

To complete the primary series the birth dose should be followed by two doses, e.g. at the time of the first and third doses of DTP vaccine, or, if programmatically more convenient, by three doses coinciding with DTP or other routine infant vaccinations. Minimum interval between doses is four weeks. (*Strong recommendation, high quality evidence*). [Source](#)

Influenza

- *Children aged 6–23 months*, because of a high burden of severe disease in this group, should be considered a target group for influenza immunization when sufficient resources are available and with due consideration for competing health priorities and operational feasibility. (*Strong recommendation, high quality evidence*). [Source](#)

Japanese encephalitis

- Japanese encephalitis immunization should be integrated into Expanded Programmes on Immunization in all areas where Japanese encephalitis constitutes a public health problem. (*Strong recommendation, high quality evidence*). [Source](#)

Measles

- Measles vaccines are recommended for all susceptible children and adults for whom measles vaccination is not contraindicated. On-time delivery of the first dose remains the highest programme priority, but reaching all children with 2 well recorded doses of measles vaccine should be the standard for all national immunization programmes. The second dose can be administered through routine services or given periodically through mass campaigns to defined age groups. Measles elimination requires $\geq 95\%$ nation-wide coverage with both doses. To achieve reduction of measles mortality immunization coverage should be $\geq 90\%$ at the national level and $\geq 80\%$ in each district. Where measles transmission is high, the first dose of measles containing vaccine (MCV1) should be given at 9 months of age, but also to all unvaccinated children over this age. Where transmission is low, MCV1 administration at 12 months of age is preferable. MCV2 may be added to the routine immunization schedule in countries that regularly achieve $> 80\%$ national MCV1 coverage. Countries that do not meet this criterion should rather prioritize improving MCV1 coverage and conducting high quality follow-up campaigns. Where MCV1 is given at 9 months of age, the routine MCV2 should be administered at 15–18 months of age. In countries with very low measles transmission and MCV1 administered at 12 months, the optimal time for routine MCV2 (e.g. between age 15–18 months – school entry) depends on programmatic considerations. In countries with moderate to weak health systems, regular measles immunization campaigns can protect children who do not have access to routine health services. Measles vaccination should be routinely given to potentially susceptible, asymptomatic HIV-infected children and adults. To limit the impact of measles outbreaks, WHO encourages thorough surveillance and risk assessment and rapid response, including expanded use of vaccination. Careful safety surveillance of possible adverse events must remain a key component of all immunization programmes. [Source](#)

Meningococcal vaccines

- WHO recommends that countries completing mass vaccination campaigns introduce meningococcal A conjugate vaccine into the routine childhood immunization programme within 1–5 years following campaign completion, along with a one-time catch-up campaign for birth cohorts born since the initial mass vaccination and which would not be within the age range targeted by the routine immunization programme. In areas where coverage with meningococcal A conjugate vaccine is less than 60%, periodic campaigns could be 1 Meningitis Vaccine Project. (<http://www.meningvax.org/index.php>, accessed December 2014). Considered to complement routine vaccination, as herd protection may not be sufficient to protect those who are not immunized.
- WHO recommends a 1-dose schedule with vaccine administration by deep intramuscular injection, preferably in the anterolateral aspect of the thigh at 9–18 months of age based on local programmatic and epidemiologic considerations. Any children who miss vaccination at the recommended age should be vaccinated as soon as possible thereafter. If in a specific context there is a compelling reason to vaccinate infants younger than 9 months, a 2-priming dose infant schedule should be used starting at 3 months of age, with doses at least 8 weeks apart. MenAfriVac 5 μg should be used for routine immunization of those 3 to 24 months of age. MenAfriVac 10 μg should be used for catch-up and periodic campaigns from 12 months of age onwards unless bridging studies have been conducted and show that MenAfriVac 5 μg can be used in older age groups. The need for a booster dose has not been established.
- Data on co-administration with other vaccines has been evaluated and found to be acceptable for diphtheria toxoid, tetanus toxoid, whole cell pertussis, hepatitis B, Haemophilus influenzae type b, oral poliovirus, yellow fever, measles and rubella vaccines.

No evidence exists for co-administration with rotavirus vaccine, pneumococcal conjugate vaccine or inactivated polio vaccine; however, absence of data should not discourage co-administration. [Source](#)

Pertussis

- All children worldwide, including HIV-positive individuals, should be immunized against pertussis. Protection can be obtained after a primary series of vaccination with either whole cell pertussis (wP) or Acellular pertussis (aP) vaccine. Although local and systemic reactogenicity are more commonly associated with wP-containing vaccines, both vaccines have excellent safety records. A switch from wP to aP vaccines for the primary schedule should only be considered if additional periodic booster or maternal immunization can be assured and sustained.
- National programmes currently administering wP vaccination should continue to use wP vaccines for primary vaccination series. National programmes currently using aP vaccine may continue using this vaccine but should consider the need for additional booster doses and additional strategies such as maternal immunization in case of resurgence of pertussis.
- The following vaccine dosing schedules and ages of administration are recommended:
 - Recommends a 3-dose primary series, with the first dose administered as early as 6 weeks
 - subsequent doses should be given 4–8 weeks apart, at age 10–14 weeks and 14–18 weeks
 - last dose of the recommended primary series should ideally be completed by 6 months
 - for those who have not completed the primary schedule, vaccine may be given later than 6 months of age, at any age and at the earliest opportunity
 - national programmes using alternate primary vaccination schedules with adequate surveillance should continue using these schedules and continue to monitor disease trends
- This schedule should provide protection for at least 6 years for countries using wP vaccine. For countries using aP vaccine, protection may decline appreciably before 6 years of age.
- Only aP-containing vaccines should be used for vaccination of persons aged ≥ 7 years. [Source](#)

Pneumococcus

- WHO recommends that inclusion of pneumococcus-containing vaccines (PCVs) be given priority in childhood immunization programmes worldwide, especially in countries with under-5 mortality of $>50/1000$ live births. For administration to infants, three primary doses (3p+0 schedule) or, as an alternative, two primary doses plus a booster (2p+1 schedule) are recommended. Primary vaccination can be initiated as early as at 6 weeks of age. (*Strong recommendation, high quality evidence*). [Source](#)

Polio

- WHO recommends that all children worldwide should be fully vaccinated against polio, and every country should seek to achieve and maintain high levels of coverage with polio vaccine in support of the global commitment to eradicate polio.
- WHO no longer recommends an OPV-only vaccination schedule. For all countries currently using OPV only, at least 1 dose of IPV should be added to the schedule. In polio-endemic countries and in countries at high risk for importation and subsequent spread, WHO

recommends a bivalent OPV (bOPV) birth dose (a zero dose) followed by a primary series of 3 bOPV doses and at least 1 IPV dose. The primary series consisting of 3 bOPV doses plus 1 IPV dose can be initiated from the age of 6 weeks with a minimum interval of 4 weeks between the bOPV doses. If 1 dose of IPV is used, it should be given from 14 weeks of age (when maternal antibodies have diminished and immunogenicity is significantly higher) and can be co-administered with a bOPV dose.

- The primary series can administered according to the regular schedules of national immunization programmes, for example at 6, 10, and 14 weeks (bOPV1, bOPV2, bOPV3+IPV), or at 2, 4, and 6 months (bOPV1, bOPV2+IPV, bOPV3 or bOPV1, bOPV2, bOPV3+IPV). Both OPV and IPV may be co-administered with other infant vaccines. For infants starting the routine immunization schedule late (age >3 months) the IPV dose should be administered at the first immunization contact along with bOPV and the other routinely recommended vaccines. In countries with high vaccination coverage (e.g. 90%–95%) and low importation risk (neighboring countries and major population movement all having similarly high coverage) an IPV–bOPV sequential schedule can be used when vaccine-associated paralytic poliomyelitis (VAPP) is a significant concern.
- Where a sequential IPV–bOPV schedule is used, the initial administration of 1 or 2 doses of IPV should be followed by ≥ 2 doses of bOPV to ensure both sufficient levels of protection in the intestinal mucosa and a decrease in the burden of VAPP. For sequential IPV–bOPV schedules, WHO recommends that IPV be given at 2 months of age (e.g. a 3-dose IPV–bOPV–bOPV schedule), or at 2 months and 3–4 months of age (e.g. a 4-dose IPV–IPV–bOPV–bOPV schedule) followed by at least 2 doses of bOPV. An IPV-only schedule may be considered in countries with both sustained high immunization coverage and the lowest risk of both wild-strain polio viruses (WPV) importation and transmission. A primary series of 3 doses of IPV should be administered beginning at 2 months of age. If the primary series begins earlier (e.g. with a 6, 10 and 14-week schedule) then a booster dose should be given after an interval of ≥ 6 months (for a 4-dose schedule). To mitigate the risk of undetected transmission, WHO recommends that endemic countries and countries with a high risk of WPV importation should not switch to an IPV-only or a sequential IPV– bOPV schedule at this time. The 3 bOPV+1 IPV schedule as currently recommended should be adopted and supplemental immunization activities should continue to support intensive efforts to eliminate poliovirus transmission. A sequential IPV–bOPV schedule or IPV-only schedule can be considered in order to minimize the risk of VAPP, but only after a thorough review of local epidemiology. Polio vaccine (IPV or bOPV) may be administered safely to asymptomatic HIV-infected infants. HIV testing is not a prerequisite for vaccination. bOPV is contraindicated in severely immunocompromised patients. These populations can safely receive IPV.

[Source](#)

Rotavirus

- The first dose of rotavirus vaccine (RV) should be administered as soon as possible after 6 weeks of age. RV1 should be administered in a two-dose schedule at the time of DTP1 and DTP2, and RV5 in a three-dose schedule at the time of the DTP1, DTP2, and DTP3 contacts. Both vaccines are given orally with an interval of at least four weeks between doses. Infants should receive rotavirus vaccine together with DTP regardless of the time of vaccination. Rotavirus vaccination of healthy children aged over 2 years is not considered necessary. Rotavirus vaccinations can be administered simultaneously with other routine infant vaccines. (*Strong recommendation, high quality evidence*). [Source](#)

Rubella

- Rubella-containing vaccines are administered subcutaneously or intramuscularly, usually at age 12–15 months, but may be administered to children aged 9–11 months and to older children, adolescents and adults. Although one dose of rubella vaccine probably induces life-long protection, in most countries using the measles-rubella or measles-mumps-rubella vaccines a second dose is offered at 15–18 months or 4–6 years, as indicated for protection against measles and mumps. (*Strong recommendation, high quality evidence*). [Source](#)

Tetanus

- WHO recommends a 3-dose primary series, with the first dose of TTCV administered as early as 6 weeks of age. Subsequent doses should be given with a minimum interval of 4 weeks between doses. The third dose of the primary series should ideally be completed by 6 months of age. WHO recommends that immunization programmes ensure that 3 TTCV booster doses are provided. These should be given at: 12–23 months of age; 4–7 years of age; and 9–15 years of age. Ideally, there should be at least 4 years between booster doses. [Source](#)

Typhoid Vaccine

- Immunization of school-age and/or preschool-age children is recommended in areas where typhoid fever in these age groups is shown to be a significant public health problem, particularly where antibiotic-resistant *S. Typhi* is prevalent. The selection of delivery strategy (school- or community-based vaccination) depends on factors such as the age-specific incidence, subgroups at particular risk and school enrolment rates, and should be decided by the concerned countries. Also, the choice of the Vi or the Ty21a vaccine will depend on the capacity of the local immunization programme and other logistic and cultural factors. In view of the epidemic potential of typhoid fever, and observations on the effectiveness of vaccination in interrupting outbreaks, typhoid fever vaccination is recommended also for outbreak control. [Source](#)

Yellow fever

- Endemic countries should introduce yellow fever vaccine into their routine immunization programmes, giving it to children at age 9–12 months at the same time as the measles vaccine. (*Strong recommendation, high quality evidence*). [Source](#)

Rabies

- Pre-exposure prophylaxis is recommended for anyone who will be at continual, frequent or increased risk of exposure to rabies virus, either by nature of their residence, travel or occupation. Children living in or visiting rabies-affected areas are at particular risk. The protection is long-lasting (at least 10 years) and booster doses are only recommended for people whose occupation puts them at continual or frequent risk of exposure. The indication for post-exposure prophylaxis depends on the type of contact with the suspected rabid animal: category I – touching or feeding animals, licks on intact skin; category II – nibbling of uncovered skin, minor scratches or abrasions without bleeding; category III – single or multiple transdermal bites or scratches, contamination of mucous membrane with saliva from licks, licks on broken skin, and exposures to bats. For category I exposures, no prophylaxis is required; for category II, immediate vaccination is recommended; and for category III, immediate vaccination and administration of rabies immunoglobulin are recommended. [Source](#)

Vaccinations for HIV-exposed infants and children

- HIV-exposed infants and children and young adults with HIV should receive all vaccines under routine vaccination according to recommended national immunization schedules. Those with more severe immunosuppression may be at higher risk of complications from live vaccines. Inactivated vaccines are more effective among people receiving antiretroviral therapy (ART) and those without immunosuppression, but they are safe and can be used with some efficacy in all groups. (*No strength, quality*). [Source](#)

2. BREASTFEEDING

Exclusive breastfeeding

- All babies should be exclusively breastfed from birth until 6 months of age.
- Mothers should be counselled and provided support for exclusive breastfeeding at each postnatal contact.
- Breastfeeding progress should be assessed at each postnatal contact. (*Strong recommendation based on moderate quality evidence*). [Source](#)

Ten steps to successful breastfeeding

- Every facility providing maternity services and care for newborn infants should:
 1. Have a written breastfeeding policy that is routinely communicated to all health care staff.
 2. Train all health care staff in skills necessary to implement this policy.
 3. Inform all pregnant women about the benefits and management of breastfeeding.
 4. Help mothers initiate breastfeeding within a half-hour of birth.
 5. Show mothers how to breastfeed, and how to maintain lactation even if they should be separated from their infants.
 6. Give newborn infants no food or drink other than breastmilk unless *medically* indicated.
 7. Practise rooming in – allow mothers and infants to remain together – 24 hours a day.
 8. Encourage breastfeeding on demand.
 9. Give no artificial teats or pacifiers (also called dummies or soothers) to breastfeeding infants.
 10. Foster the establishment of breastfeeding support groups and refer mothers to them on discharge from the hospital or clinic.

[Source](#)

Acceptable medical reasons for use of breast-milk substitutes

- Nearly all women are able to breastfeed. In rare infant and maternal conditions, formula and/or foods other than breast milk may be required for short- or long-term feeding. (See document on web site for specific conditions.) (*Recommendations agreed by consensus*) [Source](#)

3. COMPLEMENTARY FEEDING

- No GRC-approved recommendations currently exist.
- Guidance on this topic is in the process of being updated. Meanwhile, the following guidance could be used:

Guiding principles for complementary feeding of the breastfed child, 2003. [Source](#)

Guiding principles for feeding non-breastfed children 6-24 months of age, 2005. [Source](#)

4. MICRONUTRIENTS (VITAMINS AND MINERALS)

Neonatal vitamin A supplementation

- At the present time, neonatal vitamin A supplementation (that is, supplementation within the first 28 days after birth) is not recommended as a public health intervention to reduce infant morbidity and mortality (*Strong recommendation, moderate quality evidence for mortality-related outcomes*). [Source](#)

Vitamin A supplementation in infants 1–5 months of age

- Vitamin A supplementation in infants 1–5 months of age is not recommended as a public health intervention for the reduction of infant morbidity and mortality. (*Strong recommendation, moderate quality evidence for infant mortality and the side-effect of bulging fontanelles and low quality evidence for other critical outcomes*). [Source](#)

Vitamin A supplementation in infants and children 6–59 months of age

- In settings where vitamin A deficiency is a public health problem, vitamin A supplementation is recommended in infants and children 6–59 months of age as a public health intervention to reduce child morbidity and mortality. (*Strong recommendation, high quality evidence for all-cause mortality, moderate to very low quality for all other critical outcomes, moderate quality for all-cause mortality outcomes in human immunodeficiency virus (HIV)-positive children*). [Source](#)

Daily iron supplementation in infants and children

- Daily iron supplementation is recommended as a public health intervention in infants and young children aged 6–23 months, living in settings where anaemia is highly prevalent, for preventing iron deficiency and anaemia (*strong recommendation, moderate quality of evidence*). Suggested supplementation scheme: 10–12.5 mg elemental iron given daily for 3 consecutive months in a year. [Source](#)
- Daily iron supplementation is recommended as a public health intervention in preschool-age children aged 24–59 months, living in settings where anaemia is highly prevalent, for increasing haemoglobin concentrations and improving iron status (*strong recommendation, very low quality of evidence*). Suggested supplementation scheme: 30 mg elemental iron given daily for 3 consecutive months in a year. [Source](#)
- Daily iron supplementation is recommended as a public health intervention in school-age children aged 60 months and older, living in settings where anaemia is highly prevalent, for preventing iron deficiency and anaemia (*strong recommendation, high quality of evidence*). Suggested supplementation scheme: 30–60 mg elemental iron given daily for 3 consecutive months in a year. [Source](#)

- In malaria-endemic areas, the provision of iron supplementation in infants and children should be done in conjunction with public health measures to prevent, diagnose and treat malaria (*strong recommendation, high quality of evidence*). [Source](#)

NEW

Use of multiple micronutrient powders for point-of-use fortification of foods consumed by infants and young children aged 6–23 months and children aged 2–12 years

- In populations where anaemia is a public health problem, point-of-use fortification of complementary foods with iron-containing micronutrient powders in infants and young children aged 6–23 months is recommended, to improve iron status and reduce anaemia (*strong recommendation, moderate-quality evidence*).

Scheme for fortification:

Target group: infants and young children aged 6–23 months

Composition per sachet:

- Iron: 10 to 12.5 mg of elemental iron
- Vitamin A: 300 µg retinol
- Zinc: 5 mg elemental zinc
- With or without other micronutrients to achieve 100% of the RNI_{b,c}

Regimen: Programme target of 90 sachets/doses over a 6-month period

Settings: Areas where the prevalence of anaemia in children aged under 2 years or under 5 years is 20% or higher. [Source](#)

- In populations where anaemia is a public health problem, point-of-use fortification of foods with iron containing micronutrient powders in children aged 2–12 years is recommended, to improve iron status and reduce anaemia (*strong recommendation, moderate-quality evidence*).

Scheme for fortification:

Target group: children aged 2–12 years

Composition per sachet

- Iron: 10 to 12.5 mg of elemental iron for children aged 2–4 years; and 12.5 to 30 mg elemental iron for children aged 5–12 years
- Vitamin A: 300 µg retinol
- Zinc: 5 mg elemental zinc
- With or without other micronutrients to achieve 100% of the RNI_b

Regimen: Programme target of 90 sachets/doses over a 6-month period

Settings: Areas where the prevalence of anaemia in children under 5 years of age, is 20% or higher.

[Source](#)

Infant feeding in areas of ZIKA Virus transmission

- Infants born to mothers with suspected, probable or confirmed Zika virus infection, or who reside in or have travelled to areas of ongoing Zika virus transmission, should be fed according to normal infant feeding guidelines. They should start breastfeeding within one hour of birth, be exclusively breastfed for six months and have timely introduction of adequate, safe and properly fed complementary foods, while continuing breastfeeding up to two years of age or beyond. [Source](#)

Breastfeeding in the context of Zika virus: Interim Guideline

- Infants born to mothers with suspected, probable or confirmed Zika virus infection, or who reside in or have travelled to areas of ongoing Zika virus transmission, should be fed according to normal infant feeding guidelines. They should start breastfeeding within one hour of birth, be exclusively breastfed for six months and have timely introduction of adequate, safe and properly fed complementary foods, while continuing breastfeeding up to two years of age or beyond. [Source](#)

5. CARE FOR DEVELOPMENT

- No GRC-approved recommendations currently exist. Guidance on this topic is in the process of being updated. Meanwhile, the guidance in *Care for child development: improving the care for young children*, 2012, may be used. [Source](#)

6. HANDWASHING AND WATER AND SANITATION

- No GRC approved guidelines for the general population of children. However WHO recommends interventions on access to safe drinking water household water treatment and safe storage, access to improved sanitation facilities and hand washing with soap for all populations to prevent deaths due to diarrhoea. [Source](#)

WHO has the following GRC-approved recommendations concerning persons living with HIV:

- Promotion of handwashing with soap after defecation and handling of human or animal faeces and before food preparation and eating, along with the provision of soap, are recommended for people with HIV and their households. (*Strong recommendation, good quality evidence*). [Source](#)
- Household-based water treatment methods that are effective in reducing diarrhoea and the storage of water in containers that inhibit manual contact are recommended for people with HIV and their households. (*Strong recommendation, high quality evidence*). [Source](#)
- Proper disposal of faeces in a toilet, latrine, or at a minimum, buried in the ground is recommended for people with HIV and their households. (*Strong recommendation, good quality evidence*). [Source](#)
- Vitamin A supplementation is recommended for all HIV-infected and -exposed infants and children aged 6 months to 5 years, in doses given every 6 months (100 000 IU for those aged 6–12 months and 200 000 IU for those aged > 12 months). (*Strong recommendation; low quality of evidence*). [Source](#)

7. MALARIA PREVENTION



UPDATE

Intermittent preventive treatment in infants

- In areas of moderate-to-high malaria transmission of Africa, where SP is still effective, provide intermittent preventive treatment with SP to infants (< 12 months of age) (SP-IPTi) at the time of the second and third rounds of vaccination against diphtheria, tetanus and pertussis (DTP) and vaccination against measles. (*Strong recommendation*). [Source](#)

Seasonal malaria chemoprevention

- In areas with highly seasonal malaria transmission in the sub-Saharan region of Africa, provide seasonal malaria chemoprevention (SMC) with monthly amodiaquine + SP for all children aged < 6 years during each transmission season. (*Strong recommendation, high-quality evidence*). [Source](#)

8. PREVENTION OF TB IN CHILDREN

NEW

- In settings where TB is highly endemic or where there is high risk of exposure to TB, a single dose of BCG vaccine should be given to all infants. (*Recommendation strength and evidence quality have not been graded*). [Source](#)
- In children who are known to be HIV-infected, BCG vaccine should not be given. (*Recommendation strength and evidence quality have not been graded*). [Source](#)
- In infants whose HIV status is unknown and who are born to HIV-positive mothers and who lack symptoms suggestive of HIV, BCG vaccine should be given after considering local factors. (*Recommendation strength and evidence quality have not been graded*). [Source](#)
- Clinical evaluation of household and close contacts for active TB should be done on the basis of their risk for having or developing active TB or for the potential consequences of the disease if it develops. Priority should be given to contacts who are:
 - children with symptoms suggestive of TB;
 - children <5 years of age;
 - children with known or suspected immunocompromising conditions (especially those living with HIV); and
 - child contacts of index cases with multidrug-resistant or extensively drug-resistant TB (proven or suspected)
 (*Strong recommendation, very low quality of evidence*). [Source](#)
- It is recommended that contact investigation be conducted for household and close contacts when the index case has any of the following characteristics:
 - has sputum smear-positive pulmonary TB;
 - has multidrug-resistant or extensively drug-resistant TB (proven or suspected);

- is a person living with HIV; or
- is a child <5 years of age

(*Strong recommendation, very low quality of evidence*). [Source](#)

- Contact investigation may be conducted for household and close contacts of all other index cases with pulmonary TB, in addition to the index cases covered in Recommendation 19. (*Conditional recommendation, very low quality of evidence*). [Source](#)
- Children <5 years of age who are household or close contacts of people with TB and who, after an appropriate clinical evaluation, are found not to have active TB should be given 6 months of IPT (10 mg/kg per day, range 7–15 mg/kg, maximum dose 300 mg/day). (*Strong recommendation, high quality of evidence*). [Source](#)
- In settings of high HIV prevalence, all household and close contacts of people with TB should be counselled and tested for HIV. (*Strong recommendation, very low quality of evidence*). [Source](#)
- In settings of low HIV prevalence, all household members and close contacts of people with TB who have symptoms compatible with TB disease may be offered counselling and testing for HIV as part of their clinical evaluation. (*Conditional recommendation, very low quality of evidence*). [Source](#)
- All household contacts of an index case who is a person living with HIV should be counselled and tested for HIV. (*Strong recommendation, very low quality of evidence*). [Source](#)

9. PREVENTION OF HIV IN CHILDREN

Prevention of mother-to-child transmission (PMTCT)

Infant prophylaxis

- Infants born to mothers with HIV who are at high risk of acquiring HIV should receive dual prophylaxis with AZT (twice daily) and NVP (once daily) for the first 6 weeks of life, whether they are breastfed or formula fed. (*Strong recommendation, moderate-quality evidence*). [Source](#)
- Breastfed infants who are at high risk of acquiring HIV, including those first identified as exposed to HIV during the postpartum period, should continue infant prophylaxis for an additional 6 weeks (total of 12 weeks of infant prophylaxis) using either AZT (twice daily) and NVP (once daily) or NVP alone. (*Conditional recommendation, low-quality evidence*). [Source](#)

Updates on HIV and infant feeding

- “Mothers known to be HIV-infected (and whose infants are HIV uninfected or of unknown HIV status) should exclusively breastfeed their infants for the first six months of life, introducing appropriate complementary foods thereafter and continue breastfeeding.”
- “Breastfeeding should then only stop once a nutritionally adequate and safe diet without breast milk can be provided. [Source](#)

Prevention of mother-to-child transmission through breastfeeding³

- ***In settings where national or sub-national authorities have decided that maternal, newborn and child health services will principally promote and support breastfeeding and ARV interventions*** – Mothers known to be HIV-infected (and whose infants are HIV uninfected or of unknown HIV status) should exclusively breastfeed their infants for the first 6 months of life, introducing appropriate complementary foods thereafter. Breastfeeding should then only stop once a nutritionally adequate and safe diet without breast milk can be provided. *(Strong recommendation, high quality evidence for first six months; low quality evidence for recommendation for 12 months).* [Source](#)
- Mothers living with HIV should breastfeed for at least 12 months and may continue breastfeeding for up to 24 months or longer (similar to the general population) while being fully supported for ART adherence (see the WHO consolidated guidelines on ARV drugs for interventions to optimize adherence). *(Strong recommendation, low quality of evidence 12 months, very low quality of evidence 24 months).* [Source](#)
- ***In settings where national or sub-national authorities have decided that maternal, newborn and child health services will principally promote and support breastfeeding and ARV interventions*** – Mothers known to be HIV-infected who decide to stop breastfeeding at any time should stop gradually within one month. Mothers or infants who have been receiving ARV prophylaxis should continue prophylaxis for one week after breastfeeding is fully stopped. Stopping breastfeeding abruptly is not advisable. *(Strong recommendation, very low quality evidence).* [Source](#)
- ***In settings where national or sub-national authorities have decided that maternal, newborn and child health services will principally promote and support breastfeeding and ARV interventions*** -When mothers known to be HIV-infected decide to stop breastfeeding at any time, infants should be provided with safe and adequate replacement feeds to enable normal growth and development. Alternatives to breastfeeding include:
 - For infants less than six months of age:
 - Commercial infant formula milk as long as home conditions outlined in Recommendation #5 are fulfilled;
 - Expressed, heat-treated breast milk (see Recommendation #6).

Home-modified animal milk is not recommended as a replacement food in the first six months of life.

 - For children over six months of age:
 - Commercial infant formula milk as long as home conditions outlined in Recommendation#5 are fulfilled;
 - Animal milk (boiled for infants under 12 months), as part of a diet providing adequate micronutrient intake;
 - Meals, including milk-only feeds, other foods and combination of milk feeds and other foods, should be provided four or five times per day. All children need complementary foods from six months of age.

(Strong recommendation, low quality evidence). [Source](#)

³ The key principles and recommendations established in 2010 remain valid. *Consolidated guidelines on general HIV care and the use of antiretroviral drugs for treating and preventing HIV infection: recommendations for a public health approach.* Geneva, WHO, 2013.

- Mothers known to be HIV-infected should only give commercial infant formula milk as a replacement feed to their HIV-uninfected infants or infants who are of unknown HIV status, when specific conditions are met:
 - a. safe water and sanitation are assured at the household level and in the community; **and**
 - b. the mother or other caregiver can reliably provide sufficient infant formula milk to support normal growth and development of the infant; **and**
 - c. the mother or caregiver can prepare it cleanly and frequently enough so that it is safe and carries a low risk of diarrhoea and malnutrition; **and**
 - d. the mother or caregiver can, in the first six months, exclusively give infant formula milk; **and**
 - e. the family is supportive of this practice; **and**
 - f. the mother or caregiver can access health care that offers comprehensive child health services.

(Strong recommendation, low quality evidence). [Source](#)

- Mothers known to be HIV-infected may consider expressing and heat-treating breast milk as an interim feeding strategy:
 - in special circumstances such as when the infant is born with low birth weight or is otherwise ill in the neonatal period and unable to breastfeed; **or**
 - when the mother is unwell and temporarily unable to breastfeed or has a temporary breast health problem such as mastitis; **or**
 - to assist mothers to stop breastfeeding; **or**
 - if antiretroviral drugs are temporarily not available.

(Weak recommendation, very low quality evidence). [Source](#)

- If infants and young children are known to be HIV-infected, mothers are strongly encouraged to exclusively breastfeed for the first six months of life and continue breastfeeding as per the recommendations for the general population, that is, up to two years or beyond.

(Strong recommendation, moderate quality evidence). [Source](#)

Interventions to support infant feeding practices by mothers living with HIV

Can facility- and community-based interventions improve the quality of infant feeding practices among mothers living with HIV?

- National and local health authorities should actively coordinate and implement services in health facilities and activities in workplaces, communities and homes to protect, promote and support breastfeeding among women living with HIV.

(Strong recommendation, high quality of evidence). [Source](#)

Guiding practice statements

(A guiding practice statement is made to encourage action or clarify an issue of concern. It addresses an area of suboptimal practice and provides a contingency and guidance to health workers regarding how to respond to a specific challenge.)

When mothers living with HIV do not exclusively breastfeed

- Mothers living with HIV and health-care workers can be reassured that ART reduces the risk of postnatal HIV transmission in the context of mixed feeding. Although exclusive breastfeeding is recommended, practising mixed feeding is not a reason to stop breastfeeding in the presence of ARV drugs.

When mothers living with HIV do not plan to breastfeed for 12 months

- Mothers living with HIV and health-care workers can be reassured that shorter durations of breastfeeding of less than 12 months are better than never initiating breastfeeding at all.

Antiretroviral drugs for post-exposure prophylaxis

An HIV post-exposure prophylaxis regimen with two antiretroviral drugs is effective, but three drugs are preferred. (*Strong recommendation, low quality of evidence*). [Source](#)

For children ≤10 years old

- AZT + 3TC is recommended as the preferred backbone regimen for HIV post-exposure prophylaxis among children 10 years and younger.
- ABC + 3TC or TDF + 3TC (or FTC) can be considered as alternative regimens. (*Strong recommendation, low quality of evidence*). [Source](#)
- LPV/r is recommended as the preferred third drug for HIV post-exposure prophylaxis among children younger than 10 years.
- An age-appropriate alternative regimen can be identified among ATV/r, RAL, DRV, EFV and NVP. (*Conditional recommendation, very low quality of evidence*). [Source](#)

Prescribing frequency

- A 28-day prescription of antiretroviral drugs should be provided for HIV post-exposure prophylaxis following initial risk assessment. (*Strong recommendation, very low quality of evidence*). [Source](#)

Adherence support

- Enhanced adherence counselling is suggested for all individuals initiating HIV postexposure prophylaxis. (*Conditional recommendation, moderate quality of evidence*). [Source](#)

Cotrimoxazole for HIV-related infections among adults, adolescents and children

- Co-trimoxazole prophylaxis is recommended for infants, children, and adolescents with HIV, irrespective of clinical and immune conditions. Priority should be given to all children less than 5 years old regardless of CD4 cell count or clinical stage, and children with severe or advanced HIV clinical disease (WHO clinical stage 3 or 4) and/or those with CD4 ≤350 cells/mm³ (*strong recommendation, high-quality evidence*).
 - In settings where malaria and/or severe bacterial infections are highly prevalent, cotrimoxazole prophylaxis should be continued until adulthood, irrespective of whether ART is provided (*conditional recommendation, moderate-quality evidence*).
 - In settings with low prevalence for both malaria and bacterial infections, co-trimoxazole prophylaxis may be discontinued for children 5 years of age and older who are clinically

stable and/or virally suppressed on ART for at least 6 months and with a CD4 count >350 cells/mm³ (*strong recommendation, very low-quality evidence*).

- Co-trimoxazole prophylaxis is recommended for HIV-exposed infants from 4 to 6 weeks of age and should be continued until HIV infection has been excluded by an age-appropriate HIV test to establish final diagnosis after complete cessation of breastfeeding (*strong recommendation, very low-quality evidence*). [Source](#)

INH prophylaxis for children living with HIV

- Children living with HIV who do not have poor weight gain, fever or current cough are unlikely to have active TB. Children living with HIV who have poor weight gain, fever or current cough or contact history with a TB case may have TB and should be evaluated for TB and other conditions. If the evaluation shows no TB, they should be offered IPT preventive therapy regardless of their age (*strong recommendation, low-quality evidence*).
- Children living with HIV who are more than 12 months of age and who are unlikely to have active TB on symptom-based screening and have no contact with a TB case should receive 6 months of IPT (10 mg/kg/day) as part of a comprehensive package of HIV prevention and care (*strong recommendation, moderate-quality evidence*). [Source](#)

10. NON-COMMUNICABLE DISEASES PREVENTION

Physical activity

- Children and young people aged 5–17 years old should accumulate at least 60 minutes of moderate- to vigorous-intensity physical activity daily. Physical activity of amounts greater than 60 minutes daily will provide additional health benefits. Most of daily physical activity should be aerobic. Vigorous-intensity activities should be incorporated, including those that strengthen muscle and bone, at least three times per week. (*Strong recommendation, high quality evidence*.) [Source](#)

NEW

Sugar Intakes

- WHO recommends a reduced intake of free sugars throughout the lifecourse (*strong recommendation*).
 - In both adults and children, WHO recommends reducing the intake of free sugars to less than 10% of total energy intake (*strong recommendation*).
 - WHO suggests a further reduction of the intake of free sugars to below 5% of total energy intake (*conditional recommendation*).

[Source](#)

Remarks:

- Free sugars include monosaccharides and disaccharides added to foods and beverages by the manufacturer, cook or consumer, and sugars naturally present in honey, syrups, fruit juices and fruit juice concentrates.
- For countries with a low intake of free sugars, levels should not be increased.

- Higher intakes of free sugars threaten the nutrient quality of diets by providing significant energy without specific nutrients.
- These recommendations were based on the totality of evidence reviewed regarding the relationship between free sugars intake and body weight (low and moderate quality evidence) and dental caries (*very low and moderate quality evidence*).
- Increasing or decreasing free sugars is associated with parallel changes in body weight, and the relationship is present regardless of the level of intake of free sugars. The excess body weight associated with free sugars intake results from excess energy intake.
- The recommendation to limit free sugars intake to less than 10% of total energy intake is based on moderate quality evidence from observational studies of dental caries.
- The recommendation to further limit free sugars intake to less than 5% of total energy intake is based on very low quality evidence from ecological studies in which a positive dose–response relationship between free sugars intake and dental caries was observed at free sugars intake of less than 5% of total energy intake.
- The recommendation to further limit free sugars intake to less than 5% of total energy intake, which is also supported by other recent analyses is based on the recognition that the negative health effects of dental caries are cumulative, tracking from childhood to adulthood. Because dental caries is the result of lifelong exposure to a dietary risk factor (i.e. free sugars), even a small reduction in the risk of dental caries in childhood is of significance in later life; therefore, to minimize lifelong risk of dental caries, the free sugars intake should be as low as possible.
- No evidence for harm associated with reducing the intake of free sugars to less than 5% of total energy intake was identified. Although exposure to fluoride reduces dental caries at a given age, and delays the onset of the cavitation process, it does not completely prevent dental caries, and dental caries still progresses in populations exposed to fluoride. Intake of free sugars is not considered an appropriate strategy for increasing caloric intake in individuals with inadequate energy intake if other options are available. These recommendations do not apply to individuals in need of therapeutic diets, including for the management of severe and moderate acute malnutrition. Specific guidelines for the management of severe and moderate acute malnutrition are being developed separately.

[Source](#)

Management of childhood illnesses

11. PNEUMONIA AND OTHER RESPIRATORY ILLNESSES

Treatment of non-severe pneumonia with wheeze

- Antibiotics are not routinely recommended for children aged 2–59 months with non-severe pneumonia (i.e. fast breathing with no chest indrawing or danger sign) with a wheeze but no fever (temperature <38 °C), as the cause is most likely to be viral. (*Strong recommendation, low quality evidence*). [Source](#)

Antibiotic treatment for non-severe pneumonia with no wheeze

- Children with non-severe pneumonia (i.e. fast breathing with no chest indrawing or danger sign) should be treated with oral amoxicillin. The exception is in patients with HIV:
 - with low HIV prevalence, give amoxicillin at least 40mg/kg per dose twice daily for 3 days.
 - with high HIV prevalence, give amoxicillin of at least 40mg/kg per dose twice daily for 5 days.

(*Weak recommendation, moderate quality evidence*). [Source](#)

- Children with non-severe pneumonia who fail on the first line treatment with amoxicillin should have the option of referral to a facility where there is appropriate second line treatment. (*Weak recommendation, expert opinion*). [Source](#)

Antibiotic treatment for severe pneumonia

- Children aged 2–59 months with severe pneumonia (chest indrawing) should be treated with oral amoxicillin at least 40mg/kg per dose twice daily for 5 days. (*Strong recommendation, moderate quality evidence*). [Source](#)
- In HIV-infected children, specific guidelines for treatment of severe pneumonia in the context of HIV should be followed. (*Strong recommendation, low quality evidence*). [Source](#)

Antibiotic treatment for very severe pneumonia

- Children aged 2–59 months with very severe pneumonia should be treated with parenteral ampicillin (or penicillin) and gentamicin as a first line treatment.
 - Ampicillin: 50 mg/kg, or Benzyl penicillin: 50 000 units per kg IM/IV every 6 hours for at least 5 days
 - Gentamicin: 7.5 mg/kg IM/IV once a day for at least 5 days

(*Strong recommendation, moderate quality evidence*). [Source](#)

- Ceftriaxone should be used as a second line treatment in children with severe pneumonia with failure on the first line treatment. (*Strong recommendation, expert opinion*). [Source](#)

Inhaled salbutamol for treatment of acute wheeze/asthma and bronchoconstriction

- Children with acute wheeze/asthma and bronchoconstriction should be treated with inhaled salbutamol using a metered dose inhaler with spacer devices to relieve bronchoconstriction. (*Strong recommendation, low quality evidence*). [Source](#)
- Oral salbutamol should not be used for treatment of acute or persistent wheeze except where inhaled salbutamol is not available. Oral salbutamol is not useful in testing response to bronchodilators. (*Strong recommendation, low quality evidence*). [Source](#)

Antibiotic regimens for severe and very severe pneumonia

- Ampicillin (or penicillin when ampicillin is not available) plus gentamicin or ceftriaxone are recommended as first-line antibiotic treatment for HIV-infected and -exposed infants and children under 5 years of age with severe or very severe pneumonia. (*Conditional recommendation, low quality of evidence*). [Source](#)
- For HIV-infected and -exposed infants and children with severe or very severe pneumonia who fail treatment while on ampicillin or penicillin plus gentamicin, ceftriaxone alone should be used as second-line treatment. (*Conditional recommendation, low quality of evidence*). [Source](#)

12. DIARRHOEA

Oral rehydration solution

- Low-osmolality ORS is recommended for the treatment of dehydration, or intravenous electrolyte solution in cases of severe dehydration, in HIV-infected and -exposed infants and children with diarrhoea. (*Strong recommendation, high quality evidence*). [Source](#)

This recommendation is the same for all children.

Zinc

- Elemental zinc supplementation for 10–14 days is recommended, with increased fluids and continued feeding, for all HIV-infected and -exposed children with diarrhoea, at 10 mg/day for infants 2 to 6 months of age and 20 mg/day for infants and children > 6 months. (*Strong recommendation, high quality evidence*). [Source](#)

This recommendation is the same for all children.

Antibiotics for treatment of dysentery

- Children with diarrhoea and blood in stool (i.e. dysentery) should be treated with ciprofloxacin as a first line treatment. Ceftriaxone should be given as a second line treatment in severely ill children where local antimicrobial sensitivity is not known.

- Ciprofloxacin: 15 mg/kg/dose twice daily for 3 days

- Ceftriaxone: 50–80 mg/kg daily for 3 days

(*Strong recommendation, low quality evidence*). [Source](#)

- Where local antimicrobial sensitivity is known, local guidelines should be followed. (*Strong recommendation, low quality evidence*). [Source](#)

13. TUBERCULOSIS (TB)



UPDATE

Diagnosis of TB in children

Xpert MTB/RIF for the diagnosis of pulmonary TB and rifampicin resistance in children

- Xpert MTB/RIF should be used rather than conventional microscopy and culture as the initial diagnostic test in children suspected of having MDR TB or HIV-associated TB. (*Strong recommendation, very low quality of evidence*). [Source](#)
- Xpert MTB/RIF may be used rather than conventional microscopy and culture as the initial test in all children suspected of having TB. (*Conditional recommendation acknowledging resource implications, very low quality of evidence*). [Source](#)

Xpert MTB/RIF for the diagnosis of extrapulmonary TB in children

- Xpert MTB/RIF may be used as a replacement test for usual practice (including conventional microscopy, culture, and/or histopathology) for testing of specific non-respiratory specimens (lymph nodes and other tissues) from children suspected of having extrapulmonary TB. (*Conditional recommendation, very low quality of evidence*). [Source](#)
- Xpert MTB/RIF should be used in preference to conventional microscopy and culture as the initial diagnostic test in testing cerebrospinal fluid specimens from children suspected of having TB meningitis. (*Strong recommendation given the urgency of rapid diagnosis, very low quality of evidence*). [Source](#)
- Interferon-gamma release assays (IGRAs) should not replace the tuberculin skin test (TST) in low- and middle-income countries for the diagnosis of latent TB infection in children or for the diagnostic work-up of children (irrespective of HIV status) suspected of TB disease in these settings. (*Strong recommendation, low quality of evidence*). [Source](#)
- Commercial serodiagnostics should not be used in children suspected of active pulmonary or extrapulmonary TB, irrespective of their HIV status. (*Strong recommendation, very low quality of evidence for the use of commercial serodiagnostics*). [Source](#)
- Routine HIV testing should be offered to all patients, including children, with presumptive and diagnosed TB. (*Strong recommendation, low quality of evidence*). [Source](#)



UPDATE

Treatment of TB in children

- The following dosages of anti-TB medicines should be used daily for the treatment of TB in children:
 - isoniazid (H) 10 mg/kg (range 7–15 mg/kg); maximum dose 300 mg/day
 - rifampicin (R) 15 mg/kg (range 10–20 mg/kg); maximum dose 600 mg/day

— pyrazinamide (Z) 35 mg/kg (range 30–40 mg/kg)

— ethambutol (E) 20 mg/kg (range 15–25 mg/kg)

(*Strong recommendation, moderate quality of evidence*). [Source](#)

- Children with suspected or confirmed pulmonary TB or tuberculous peripheral lymphadenitis who live in settings with low HIV prevalence and/or low prevalence of isoniazid resistance¹ and children who are HIV-negative, can be treated with a three-drug regimen (HRZ) for 2 months followed by a two drug (HR) regimen for 4 months at the dosages specified in Recommendation 8. (*Strong recommendation, moderate quality of evidence*). [Source](#)
- Infants aged 0–3 months with suspected or confirmed pulmonary TB or tuberculous peripheral lymphadenitis should be promptly treated with the standard treatment regimens. Treatment may require dose adjustment to reconcile the effect of age and possible toxicity in young infants. The decision to adjust doses should be taken by a clinician experienced in managing paediatric TB. (*Strong recommendation, low quality of evidence*). [Source](#)
- During the continuation phase of treatment, thrice-weekly regimens can be considered for children known not to be HIV-infected and living in settings with well-established directly-observed therapy (DOT). (*Conditional recommendation, very low quality of evidence for use of intermittent treatment in children in specific settings*). [Source](#)
- Streptomycin should not be used as part of first-line treatment regimens for children with pulmonary TB or tuberculous peripheral lymphadenitis. (*Strong recommendation, moderate quality of evidence*). [Source](#)
- Children with suspected or confirmed tuberculous meningitis and children with suspected or confirmed osteoarticular TB should be treated with a four-drug regimen (HRZE) for 2 months, followed by a two-drug regimen (HR) for 10 months, the total duration of treatment being 12 months. The doses recommended for the treatment of tuberculous meningitis are the same as those described for pulmonary TB. (*Strong recommendation, low quality of evidence*). [Source](#)

Management of TB in children living with HIV

NEW

- Children living with HIV who are more than 12 months of age and who are unlikely to have TB disease on symptom-based screening and who have no contact with a TB case:
 - should be offered 6 months of IPT (10 mg/kg per day, range 7–15 mg/kg, maximum dose 300 mg/day) as part of a comprehensive package of HIV prevention and care services if living in settings with a high TB prevalence. [Source](#)

(*Strong recommendation, low quality of evidence*)
- Children with suspected or confirmed pulmonary TB or tuberculous peripheral lymphadenitis living in settings with a high HIV prevalence (or with confirmed HIV infection) should not be treated with intermittent regimens (that is, twice-weekly or thrice-weekly doses). (*Strong recommendation, low to moderate quality evidence against the use of intermittent treatment in children*). [Source](#)

Management of drug-resistant TB in children

NEW

- Children with proven or suspected pulmonary TB or tuberculous meningitis caused by multidrug-resistant bacilli can be treated with a fluoroquinolone in the context of a well-functioning MDR-TB control programme and within an appropriate MDR-TB regimen. The decision to treat should be taken by a clinician experienced in managing paediatric TB. (*Strong recommendation, very low quality evidence*). [Source](#)

Nutritional care and support for patients with tuberculosis:

Guideline – Nutrition assessment and counselling

- All individuals with active TB should receive
 - an assessment of their nutritional status and
 - appropriate counselling based on their nutritional status at diagnosis and throughout treatment.
 (*Strong recommendation, quality of evidence not available*). [Source](#)

Management of severe acute malnutrition

- School-age children and adolescents (5 to 19 years), and adults, including pregnant and lactating women, with active TB and severe acute malnutrition should be treated in accordance with the WHO recommendations for management of severe acute malnutrition.
- Children who are less than 5 years of age with active TB and severe acute malnutrition should be treated in accordance with the WHO recommendations for the management of severe acute malnutrition in children who are less than 5 years of age. (*Strong recommendation, very low quality of evidence*). [Source](#)

Management of moderate undernutrition

- School-age children and adolescents (5 to 19 years), and adults, including lactating women, with active TB and moderate undernutrition, who fail to regain normal body mass index after 2 months' TB treatment, as well as those who are losing weight during TB treatment, should be evaluated for adherence and comorbid conditions. They should also receive nutrition assessment and counselling and, if indicated, be provided with locally available nutrient-rich or fortified supplementary foods, as necessary to restore normal nutritional status. (*Conditional recommendation, low quality of evidence*). [Source](#)
- Children who are less than 5 years of age with active TB and moderate undernutrition should be managed as any other children with moderate undernutrition. This includes provision of locally available nutrient rich or fortified supplementary foods, in order to restore appropriate weight-for-height. (*Strong recommendation, very low quality of evidence*). [Source](#)

Contact investigation

- In settings where contact tracing is implemented, household contacts of people with active TB should have a nutrition screening and assessment as part of contact investigation. If malnutrition is identified, it should be managed according to WHO recommendations (2–4). (*Conditional, very low quality of evidence*). [Source](#)

14. FEVER CONDITIONS

Malaria

Malaria diagnosis



UPDATE

- All cases of suspected malaria should have a parasitological test (microscopy or malaria rapid Diagnostic test: RDT) to confirm the diagnosis.
- Both microscopy and mRDTs should be supported by a quality assurance programme. (*Good practice statement*). [Source](#)

Treatment of uncomplicated *P. falciparum* malaria



UPDATE

- Treat children and adults with uncomplicated *P. falciparum* malaria (except pregnant women in their first trimester) with one of the following recommended artemisinin-based combination therapies (ACT):
 - artemether + lumefantrine
 - artesunate + amodiaquine
 - artesunate + mefloquine
 - dihydroartemisinin + piperaquine
 - artesunate + sulfadoxine – pyrimethamine (SP)
 (*Strong recommendation, high-quality evidence*). [Source](#)

Duration of ACT treatment

- ACT regimens should provide 3 days' treatment with an artemisinin derivative. [Source](#)

NEW

Revised dose recommendation for dihydroartemisinin + piperaquine in young children

- Children < 25 kg treated with dihydroartemisinin + piperaquine should receive a minimum of 2.5 mg/kg body weight (bw) per day of dihydroartemisinin and 20 mg/kg bw per day of piperaquine daily for 3 days. (*Strong recommendation based on pharmacokinetic modelling*). [Source](#)

Reducing the transmissibility of treated *P. falciparum* infections

- In low-transmission areas, give a single dose of 0.25 mg/kg bw primaquine with ACT to patients with *P. falciparum* malaria (except pregnant women, infants aged < 6 months and women breastfeeding infants aged < 6 months) to reduce transmission. Testing for glucose-6-phosphate dehydrogenase (G6PD) deficiency is not required. (*Strong recommendation, low-quality evidence*). [Source](#)

Infants less than 5kg body weight

- Treat infants weighing < 5 kg with uncomplicated *P. falciparum* malaria with ACT at the same mg/kg bw target dose as for children weighing 5 kg. (*Strong recommendation*). [Source](#)

Patients co-infected with HIV

- In people who have HIV/AIDS and uncomplicated *P. falciparum* malaria, avoid artesunate + SP if they are being treated with co-trimoxazole, and avoid artesunate + amodiaquine if they are being treated with efavirenz or zidovudine. (*Good practice statement*). [Source](#)

Treating uncomplicated *P. vivax*, *P. ovale*, *P. malariae* or *P. knowlesi* malaria

Blood Stage Infection:

- If the malaria species is not known with certainty, treat as for uncomplicated *P. falciparum* malaria. (*Good practice statement*)
- In areas with chloroquine-susceptible infections, treat adults and children with uncomplicated *P. vivax*, *P. ovale*, *P. malariae* or *P. knowlesi* malaria with either ACT (except pregnant women in their first trimester) or chloroquine. (*Strong recommendation, high-quality evidence*)
- In areas with chloroquine-resistant infections, treat adults and children with uncomplicated *P. vivax*, *P. ovale*, *P. malariae* or *P. knowlesi* malaria (except pregnant women in their first trimester) with ACT. (*Strong recommendation, high-quality evidence*)
- Treat pregnant women in their first trimester who have chloroquine-resistant *P. vivax* malaria with quinine. (*Strong recommendation, very low-quality evidence*). [Source](#)

Preventing relapse in *P. vivax* or *P. ovale* malaria

- The G6PD status of patients should be used to guide administration of primaquine for preventing relapse. (*Good practice statement*)
- To prevent relapse, treat *P. vivax* or *P. ovale* malaria in children and adults (except pregnant women, infants aged < 6 months, women breastfeeding infants aged < 6 months, women breastfeeding older infants unless they are known not to be G6PD deficient, and people with G6PD deficiency) with a 14-day course (0.25–0.5 mg/kg bw daily) of primaquine in all transmission settings. (*Strong recommendation, high-quality evidence*)
- In people with G6PD deficiency, consider preventing relapse by giving primaquine base at 0.75 mg/kg bw once a week for 8 weeks, with close medical supervision for potential primaquine-induced haemolysis. (*Conditional recommendation, very low-quality evidence*)
- When G6PD status is unknown and G6PD testing is not available, a decision to prescribe primaquine must be based on an assessment of the risks and benefits of adding primaquine. (*Good practice statement*). [Source](#)



UPDATE

Treating severe malaria

- Treat adults and children with severe malaria (including infants, pregnant women in all trimesters and lactating women) with intravenous or intramuscular artesunate for at least 24 h and until they can tolerate oral medication. Once a patient has received at least 24 h of parenteral therapy and can tolerate oral therapy, complete treatment with 3 days of ACT (add single dose primaquine in areas of low transmission). (*Strong recommendation, high-quality evidence*). [Source](#)

Revised dose recommendation for parenteral artesunate in young children

- Children weighing < 20 kg should receive a higher dose of artesunate (3 mg/kg bw per dose) than larger children and adults (2.4 mg/kg bw per dose) to ensure equivalent exposure to the drug. (*Strong recommendation based on pharmacokinetic modelling*). [Source](#)

Parenteral alternatives where artesunate is not available

- If artesunate is not available, use artemether in preference to quinine for treating children and adults with severe malaria. (*Conditional recommendation, low-quality evidence*). [Source](#)



UPDATE

Treating cases of suspected severe malaria pending transfer to a higher level facility (pre-referral treatment)

Pre-referral options

- Where complete treatment of severe malaria is not possible, but injections are available, give adults and children a single intramuscular dose of artesunate, and refer to an appropriate facility for further care. Where intramuscular artesunate is not available use intramuscular artemether or, if that is not available, use intramuscular quinine. (*Strong recommendation, moderate-quality evidence*)
- Where intramuscular injection of artesunate is not available, treat children < 6 years with a single rectal dose (10mg/kg bw) of artesunate, and refer immediately to an appropriate facility for further care. Do not use rectal artesunate in older children and adults. (*Strong recommendation, moderate-quality evidence*). [Source](#)

Ear problems

Antibiotics for treatment of acute otitis media

- Children with acute otitis media should be treated with oral amoxicillin at 40 mg/kg twice per day for 7–10 days. (*Strong recommendation, low quality evidence*). [Source](#)
- Where pathogens causing acute otitis media are known to be sensitive to co-trimoxazole, this antibiotic could be used as an alternative given twice per day for 7–10 days. (*Strong recommendation, low quality evidence*). [Source](#)

Antibiotics for treatment of chronic suppurative otitis media (CSOM)

- Children with CSOM should, in addition to aural toilet by dry wicking, be treated with instillation of drops containing quinolones (such as ciprofloxacin, norfloxacin, ofloxacin) three times daily for two weeks. (*Strong recommendation, low quality evidence*). [Source](#)
 - Children who fail to respond to treatment should be referred for further evaluation for other causes of CSOM, especially tuberculosis. (*Strong recommendation, expert opinion*). [Source](#)
-

Topical antiseptics for treatment of CSOM

- Topical antiseptics and steroids should not be used for the treatment of CSOM in children. (*Strong recommendation, low quality evidence*). [Source](#)
-

Topical steroids for treatment of CSOM

- Topical steroids should not be used in treating CSOM. (*Weak recommendation, very low quality evidence*). [Source](#)
-

Dengue

- No GRC-approved recommendations currently exist. Guidance on this topic is in the process of being updated. Meanwhile, the guidance in *Dengue: guidelines for diagnosis, treatment and control*, 2009, may be used. [Source](#)
-

Acute bacterial meningitis

Antibiotics for treatment of acute bacterial meningitis

- Children with acute bacterial meningitis should be treated empirically with 3rd generation cephalosporins.
 - Ceftriaxone: 50mg/kg per dose IV every 12 hours or 100 mg/kg once daily, or
 - Cefotaxime: 50mg/kg per dose every 6 hours for 10–14 days.(*Strong recommendation, moderate quality evidence*). [Source](#)
 - Where it is known that there is no significant resistance to chloramphenicol and beta lactam antibiotics among bacteria-causing meningitis follow national guidelines or choose any of the following two regimens:
 - Chloramphenicol: 25 mg/kg IM (or IV) every 6 hours plus ampicillin: 50 mg/kg IM (or IV) every 6 hoursOR
 - Chloramphenicol: 25 mg/kg IM (or IV) every 6 hours plus benzyl penicillin: 60 mg/kg (100 000 units/kg) every 6 hours IM (or IV).(*Conditional recommendation, moderate quality evidence*). [Source](#)
-

Measles

- No GRC-approved recommendations currently exist. Guidance on this topic is in the process of being updated. Meanwhile, the guidance in *Treating measles in children, updated*, 2004, may be used. [Source](#)
-

Septicaemia

- No GRC-approved recommendations currently exist. Guidance on this topic is in the process of being updated.

Typhoid fever

Antibiotics for treatment of typhoid fever

- Children with typhoid fever should be treated with a fluoroquinolone (i.e. Ciprofloxacin, Gatifloxacin, Ofloxacin, and Perfloracin) as a first line treatment for 7–10 days.
 - iprofloxacin: orally 15 mg/kg/dose twice daily for 7–10 days.
 (*Strong recommendation, moderate quality evidence*). [Source](#)
- If the response to treatment is poor, consider drug-resistant typhoid, and treat with a second line antibiotic like 3rd generation cephalosporins or azithromycin.
 - Cetriaxone (IV): 80 mg/kg per day for 5–7 days,
 - OR
 - Azithromycin: 20 mg/kg per day for 5–7 days.
 (*Strong recommendation, moderate quality evidence*). [Source](#)
- Where drug resistance to antibiotics among salmonella isolates is known, follow the national guidelines according to local susceptibility data. (*Strong recommendation, moderate quality evidence*). [Source](#)

15. MALNUTRITION

Severe acute malnutrition (SAM)

Criteria for identifying children with SAM for treatment

- In the context of early identification of children with SAM, trained community health workers and community members should measure the mid-upper arm circumference of infants and children 6–59 months of age and examine them for bilateral pitting oedema. Infants and children 6–59 months of age who have a mid-upper arm circumference less than 115 mm or who have any degree of bilateral oedema should be immediately referred for full assessment at a treatment centre for the management of SAM. (*Strong recommendation, low quality evidence*). [Source](#)
- In primary health care facilities and hospitals, health workers should assess the mid-upper arm circumference or the weight-for-height/length status of infants and children 6–59 months of age and also examine them for bilateral oedema. Infants and children 6–59 months of age who have a mid-upper arm circumference less than 115 mm or a weight-for-height/length less than -3 Z-scores of the WHO growth standards or who have bilateral oedema should be immediately admitted to a programme for the management of SAM. (*Strong recommendation, low quality evidence*). [Source](#)

Criteria for inpatient or outpatient care⁴

- Children with the above indications of SAM should first be assessed with a full clinical examination to confirm whether they have medical complications and whether they have an

⁴ Necessary resources and services need to be in place if children are referred to outpatient care.

appetite. Children who have appetite and are clinically well and alert should be treated as outpatients. Children who have medical complications, severe oedema or poor appetite or present with one or more Integrated Management of Childhood Illness danger signs⁵ should be treated as inpatients. (*Strong recommendation, low quality evidence*). [Source](#)

Criteria for transferring children from inpatient to outpatient care

- Children with SAM who are admitted to hospital can be transferred to outpatient care when their medical complications, including oedema, are resolving and they have good appetite and are clinically well and alert. The decision to transfer children from inpatient to outpatient care should not be determined by achieving specific anthropometric outcomes such as a specific mid upper-arm circumference or weight-for-height/length. (*Strong recommendation, low quality evidence*). [Source](#)

Criteria for discharging children from treatment

- Children with severe acute malnutrition should only be discharged from treatment when their:
 - weight-for-height/length is ≥ -2 Z-score and they have had no oedema for at least 2 weeks, or
 - mid-upper-arm circumference is ≥ 125 mm and they have had no oedema for at least 2 weeks.

(*Strong recommendation, low quality evidence*). [Source](#)

- The same anthropometric indicator that is used to confirm SAM should also be used to assess if a child has reached nutritional recovery, i.e. if mid-upper arm circumference is used to identify that a child has SAM then mid-upper arm circumference should be used to assess and confirm nutritional recovery. Similarly, if weight-for-height is used to identify that a child has SAM then weight-for-height should be used to assess and confirm nutritional recovery. (*Strong recommendation, low quality evidence*). [Source](#)
- Children admitted with only bilateral pitting oedema should be discharged from treatment based on whichever anthropometric indicator (mid-upper arm circumference or weight-for-height) is routinely used in programmes. (*Strong recommendation, low quality evidence*). [Source](#)
- Percentage weight gain should not be used as a discharge criterion. (*Strong recommendation, low quality evidence*). [Source](#)

Follow-up of infants and children after discharge from treatment for SAM

- Children with SAM who are discharged from treatment programmes should be periodically monitored to avoid a relapse. (*Strong recommendation, low quality evidence*). [Source](#)

Where to manage children with SAM who have oedema

- Children with SAM who have severe bilateral oedema, even if they present with no medical complications and have appetite, should be admitted for inpatient care. (*Strong recommendation, very low quality evidence*). [Source](#)

⁵ Danger signs: unable to drink or breastfeed; vomits everything; has had convulsions (more than one or prolonged > 15 min.); lethargic or unconscious; convulsing now.

Use of antibiotics in the management of children with SAM who are admitted

- In children with SAM with complications, give parenteral antibiotics as follows:
 - Benzyl penicillin: 50 000 U/kg IM/IV every 6 hours, or ampicillin: 50 mg/kg IM/IV every 6 hours for 2 days, then oral amoxicillin: 15 mg/kg per dose every 8 hours for 5 days.
- AND
- Gentamicin: 7.5 mg/kg IM/IV once daily for 7 days.
- (Weak recommendation, low quality evidence). [Source](#)

Use of antibiotics in the management of children with SAM in outpatient care

- Children with uncomplicated SAM not requiring to be admitted and who are managed as outpatients should be given a course of oral antibiotic such as amoxicillin or another broad spectrum antibiotic. (*Conditional recommendation, moderate quality evidence from randomized trial and very low quality evidence from non-randomized studies*). [Source](#)
- Children who are undernourished but who do *not* have severe acute malnutrition should *not* routinely receive antibiotics unless they show signs of clinical infection. (*Strong recommendation, moderate quality evidence from randomized trial and very low quality evidence from non-randomized studies*). [Source](#)

Vitamin A supplementation in the treatment of children with SAM

- Children with SAM should receive the recommended nutrient intake of vitamin A throughout the treatment period. Children with severe acute malnutrition should daily be provided with about 5000 IU vitamin A either as an integral part of therapeutic foods or as part of a multi-micronutrient formulation. (*Strong recommendation, low quality evidence*). [Source](#)
- Children with SAM do not require a high dose of vitamin A as a supplement if they are receiving F75, F100⁶ or RUTF that complies with WHO specifications (and therefore already contains sufficient vitamin A), or vitamin A is part of other daily supplements. (*Strong recommendation, low quality evidence*). [Source](#)
- Children with SAM should be given a high dose of vitamin A (50 000 IU, 10 000 IU or 200 000 IU depending on age) on admission only if they are given therapeutic foods that are not fortified as recommended in WHO specifications and vitamin A is not part of other daily supplements. (*Strong recommendation, low quality evidence*). [Source](#)

Therapeutic feeding approaches in the management of SAM in children 6–59 months

- Children with SAM who present with either acute or persistent diarrhoea can be given ready-to-use therapeutic food in the same way as children without diarrhoea, whether they are being managed as inpatients or outpatients. (*Strong recommendation, very low quality evidence*). [Source](#)
- In *inpatient* settings where ready-to-use therapeutic food is provided as the therapeutic food in the rehabilitation phase (following F-75 in stabilization phase): Once children are stabilized, have appetite and reduced oedema and are therefore ready to move into the rehabilitation phase, they should transition from F-75 to ready-to-use therapeutic food over 2–3 days, as tolerated. The recommended energy intake during this period is between 100–135 kcal/

⁶ F-75 and F-100 are formula diets used for the management of children with severe acute malnutrition in inpatient care. F-75 (75 kcal or 315kJ/100 ml) is used during the initial phase of treatment, while F-100 (100kcal or 420kJ/ 100 ml) is used during the rehabilitation phase.

kg per day. The optimal approach for achieving this is not known and may depend on the number and skills of staff available to supervise feeding and monitor the children during rehabilitation. Two options for transitioning children from F-75 to ready-to-use therapeutic food are suggested:

- Start feeding by giving ready-to-use therapeutic food as prescribed for the transition phase. Let the child drink water freely. If the child does not take the prescribed amount of ready-to-use therapeutic food, then top up the feed with F-75. Increase the amount of ready-to-use therapeutic food over 2-3 days until the child takes the full requirement of ready-to-use therapeutic food.

or,

- Give the child the prescribed amount of ready-to-use therapeutic food for the transition phase. Let the child drink water freely. If the child does not take at least half the prescribed amount of ready-to-use therapeutic food in the first 12 hours then stop giving the ready-to-use therapeutic food and give F-75 again. Retry the same approach after another one to two days until the child takes the appropriate amount of ready-to-use therapeutic food to meet energy needs. (*Strong recommendation, very low quality evidence*). [Source](#)

- *In inpatient settings where F-100 is provided as the therapeutic food in the rehabilitation phase:* Children who have been admitted with complicated severe acute malnutrition and are achieving rapid weight gain on F-100 should be changed to ready-to-use therapeutic food and observed that they accept the diet before being transferred to an outpatient programme. (*Strong recommendation, very low quality evidence*). [Source](#)

Fluid management of children with SAM

- Children with SAM who present with some dehydration or severe dehydration **but who are not shocked** should be rehydrated slowly, either orally or by nasogastric tube, using ORS for malnourished children (5–10 ml/kg per hour up to a maximum of 12 hours). (*Strong recommendation, low quality evidence*). [Source](#)
- Full strength, standard WHO low osmolarity ORS (75 mmol/L of sodium) should not be used for oral or nasogastric rehydration in children with severe acute malnutrition. Give either ReSoMal⁷ or half strength standard WHO low osmolarity oral rehydration solution with added potassium and glucose, unless the child has cholera or profuse watery diarrhoea. (*Strong recommendation, low quality evidence*). [Source](#)

ReSoMal (or locally prepared ReSoMal using standard WHO low osmolarity ORS should not be given if children are suspected of having cholera or have profuse watery diarrhoea.⁸ Such children should be given standard WHO low osmolarity ORS that is normally made i.e. not further diluted. (*Strong recommendation, low quality evidence*). [Source](#)

- Children with SAM **and signs of shock or severe dehydration** and who cannot be rehydrated orally or by nasogastric tube should be treated with intravenous fluids, either:
 - half-strength Darrow's solution with 5% dextrose, or
 - Ringer's Lactate solution with 5% dextrose.

If neither is available, 0.45% saline +5% dextrose should be used. (*Conditional recommendation, very low quality evidence*). [Source](#)

⁷ ReSoMal is a powder for the preparation of an ORS exclusively for oral or nasogastric rehydration of people suffering from severe acute malnutrition. It must be used exclusively under medical supervision in inpatient care, and must not be given for free use to the mother or carer.

⁸ Three or more loose or watery stools in a day, for more than fourteen days.

Management of HIV-infected children with SAM

- Children with SAM who are HIV infected and who qualify for life long ART should be started on ART as soon as possible after stabilization of metabolic complications and sepsis. This would be indicated by return of appetite and resolution of severe oedema. HIV-infected children with SAM should be given the same ART regimens, in the same doses, as children with HIV who do not have SAM. HIV-infected children with SAM who are started on ART should be monitored closely (inpatient and outpatient) in the first six to eight weeks following initiation of ART to identify early metabolic complications and opportunistic infections. (*Strong recommendation, very low quality evidence*). [Source](#)
- Children with SAM who are HIV infected should be managed with the same therapeutic feeding approaches as children with SAM who are HIV uninfected. (*Strong recommendation, very low quality evidence*). [Source](#)
- HIV-infected children with SAM should receive a high dose of vitamin A on admission (50 000 IU to 200 000IU depending on age) and zinc for management of diarrhoea as indicated for other children with SAM, unless they are already receiving F75, F100 or RUTF which contain adequate vitamin A and zinc if they are fortified following the WHO specifications. (*Strong recommendation, very low quality evidence*). [Source](#)
- HIV-infected children with SAM in whom persistent diarrhoea does not resolve with standard management should be investigated to exclude carbohydrate intolerance and infective causes that may require different management, such as modification of fluid and feed intake, or antibiotics. (*Strong recommendation, very low quality evidence*). [Source](#)

Identifying and managing infants less than 6 months of age with SAM

- Infants less than 6 months of age with SAM with any of the following complicating factors should be admitted for inpatient care:
 - a. Any serious clinical condition or medical complication as outlined for infants 6 months of age or older with SAM.
 - b. Recent weight loss or failure to gain weight.
 - c. Ineffective feeding (attachment, positioning and suckling) directly observed for 15-20 minutes, ideally in a supervised separated area.
 - d. Any pitting oedema.
 - e. Any medical or social issue needing more detailed assessment or intensive support (e.g. disability, depression of caretaker, or other adverse social circumstances).
 (*Strong recommendation, very low quality evidence*). [Source](#)
- Infants less than 6 months of age with SAM should receive the same general medical care as infants with SAM who are 6 months of age or older:
 - a. Infants with SAM who are admitted for inpatient care should be given parenteral antibiotics to treat possible sepsis and appropriate treatment for other medical complications such as TB, HIV, surgical conditions or disability;
 - b. Infants with SAM who are not admitted should receive a course of broad spectrum oral antibiotics, such as amoxicillin, in an appropriately weight-adjusted dose.
 (*Strong recommendation, very low quality evidence*). [Source](#)

- Feeding approaches of infants less than 6 months of age with SAM should prioritize establishing, or re-establishing, effective exclusive breastfeeding by the mother or other caregiver. (*Strong recommendation, very low quality evidence*). [Source](#)
- Infants less than 6 months of age with SAM who are admitted:
 - a. Should be breastfed where possible and the mothers or female caregivers should be supported to breastfeed the infants. If an infant is not breastfed, support should be given to the mother or female caregiver to re-lactate. If this is not possible wet-nursing⁹ should be encouraged.
 - b. Should be provided a supplementary feed:
 - i. Supplementary suckling approaches should, where feasible, be prioritized;
 - ii. For infants with SAM but no oedema, expressed breast milk should be given, and where this is not possible, commercial (generic) infant formula or F-75 or diluted F-100¹⁰ may be given either alone or as the supplementary feed together with breast milk;
 - iii. For infants with SAM and oedema, infant formula or F-75 should be given as a supplement to breast milk.
 - c. Should not be given undiluted F-100 at any time (*due to the high renal solute load and risk of hypernatraemic dehydration*).
 - d. If there is no realistic prospect of being breastfed, should be given appropriate replacement feeds such as commercial (generic) infant formula with relevant support to enable safe preparation and use, including at home when discharged;
 - e. Assessment of physical and mental health status of mothers or caretakers should be promoted and relevant treatment or support provided.(*Strong recommendation, very low quality evidence*). [Source](#)
- Infants less than 6 months of age who were admitted to inpatient care can be transferred to outpatient care when:
 - a. All clinical conditions or medical complications including oedema are resolved, and
 - b. The infant has good appetite, is clinically well and alert, and
 - c. Weight gain on either exclusive breastfeeding or replacement feeding is satisfactory e.g. above the median of the WHO growth velocity standards or more than 5gm/kg per day for at least 3 successive days, and
 - d. The infant has been checked for immunizations and other routine interventions, and
 - e. The mothers or caregivers are linked with needed community-based follow-up and support.(*Strong recommendation, very low quality evidence*). [Source](#)
- Infants less than 6 months of age can be discharged from all care when they:
 - a. Are breastfeeding effectively or feeding well with replacement feeds, and
 - b. Have adequate weight gain, and
 - c. Have a weight-for-length equal or higher than -2 z-scores(*Strong recommendation, very low quality evidence*). [Source](#)

⁹ All potential wet-nurses should be tested for HIV.

¹⁰ Prepared F-100 should be further diluted by adding 30% water.

- For infants less than 6 months of age with SAM who do not require inpatient care or whose caretakers decline admission for assessment and treatment:
 - a. Counselling and support for optimal infant and young child feeding should be provided based on general infant and young child feeding recommendations including for low-birth-weight infants.
 - b. Weight gain of the infant should be monitored weekly to observe changes;
 - c. If the infant does not gain weight, or loses weight while the mother or caregiver is receiving support for breastfeeding, then infants should be referred to inpatient care;
 - d. Assessment of physical and mental health status of mothers or caretakers should be promoted and relevant treatment or support provided.

(*Strong recommendation, very low quality evidence*). [Source](#)

Moderate acute malnutrition

- Management of moderate acute malnutrition in children 6–59 months of age should include actions such as breastfeeding promotion and support, education and nutrition counselling for families, and other activities that identify and prevent the underlying causes of malnutrition, including nutrition insecurity. Interventions to improve food security include the provision of conditional or non-conditional cash transfers and support to agriculture, such as crop diversification. (*No strength, no quality of evidence*). [Source](#)
- Children 6–59 months of age with moderate acute malnutrition need to receive nutrient-dense foods to meet their extra needs for weight and height gain and functional recovery. (*No strength, no quality evidence*). [Source](#)
- Proposed nutrient composition of supplementary foods for use in the management of moderate acute malnutrition in children for minerals, water soluble and fat soluble vitamins and fatty acids is available; refer to the composition table for specifications. [Source](#)

16. HIV/AIDS

Establishing a diagnosis of HIV infection in infants and children

NEW

Timing of virological testing

- Addition of nucleic acid testing (NAT) at birth to existing early infant diagnosis (EID) testing approaches can be considered to identify HIV infection in HIV-exposed infants (*conditional recommendation, low-quality evidence*). [Source](#)

Point-of care technologies for the diagnosis of HIV infection in infants and children

- Nucleic acid testing (NAT) technologies that are developed and validated for use at or near to the point of care can be used for early infant HIV testing (*conditional recommendation, low quality evidence*). [Source](#)
- Rapid diagnostic tests (RDTs) for HIV serology can be used to assess HIV exposure only in infants less than 4 months of age. HIV-exposure status in infants and children 4–18 months of age should be ascertained by undertaking HIV serological testing in the mother (*conditional recommendation, low-quality evidence*).

- Rapid diagnostic tests for HIV serology can be used at 9 months to rule out HIV infection in asymptomatic HIV-exposed infants (conditional recommendation, low-quality evidence).
- Rapid diagnostic tests for HIV serology can be used to diagnose HIV infection in children older than 18 months following the national testing strategy (strong recommendation, moderate quality evidence). [Source](#)

Provider initiated HIV testing and counselling for infants and children

- In generalized epidemic settings, infants and children with unknown HIV status who are admitted for inpatient care or attending malnutrition clinics should be routinely tested for HIV (*strong recommendation, low-quality evidence*).
- In generalized epidemic settings, infants and children with unknown HIV status should be offered HIV testing in outpatient or immunization clinics (*conditional recommendation, low quality evidence*). [Source](#)

Guidance for HIV testing and counselling and care for adolescents living with HIV

- HIV testing and counselling, with linkages to prevention, treatment and care, is recommended for adolescents from key populations in all settings (generalized, low and concentrated epidemics). [Source](#)
- In generalized epidemics, HIV testing and counselling with linkage to prevention, treatment and care is recommended for all adolescents. [Source](#)
- In low and concentrated epidemics, HIV testing and counselling with linkage to prevention, treatment and care is recommended to be made accessible to all adolescents. [Source](#)
- Adolescents should be counselled about the potential benefits and risks of disclosure of their HIV status to others and empowered and supported to determine if, when, how and to whom to disclose. [Source](#)
- Community-based approaches can improve treatment adherence and retention in care of adolescents living with HIV. [Source](#)
- Training of health-care workers can contribute to treatment adherence and improvement in retention in care of adolescents living with HIV. [Source](#)

Disclosure

- Children of school age should be told their HIV-positive status and their parents or caregiver's status; younger children should be told their status incrementally to accommodate their cognitive skills and emotional maturity, in preparation for full disclosure. (*Strong recommendation, low quality evidence*). [Source](#)

Interventions to ensure timely linkage

- Following an HIV diagnosis, a package of support interventions should be offered to ensure timely linkage to care for all people living with HIV (strong recommendation, moderate-quality evidence).
- The following interventions have demonstrated benefit in improving linkage to care following an HIV diagnosis:
 - streamlined interventions to reduce time between diagnosis and engagement in care including (i) enhanced linkage with case management; (ii) support for HIV disclosure; (iii)

- patient tracing; (iv) training staff to provide multiple services, and (v) streamlined services (*moderate-quality evidence*);
- peer support and navigation approaches for linkage (*moderate-quality evidence*); and
- Quality improvement approaches using data to improve linkage (*low-quality evidence*).
[Source](#)

CD4 cell count testing at the point of care

- CD4 cell count testing at the point of care can be used to prioritize patients for urgent linkage to care and ART initiation (*conditional recommendation, low-quality evidence*). [Source](#)

Laboratory connectivity

- Electronic communication can be considered to transfer test results and reduce delays in acting on the results of early infant diagnosis and other essential laboratory tests (*conditional recommendation, low-quality evidence*). [Source](#)



UPDATE

When to start ART in children

When to start ART in children younger than 10 years of age

- ART should be initiated in all children living with HIV, regardless of WHO clinical stage or at any CD4 cell count:
 - Infants diagnosed in the first year of life (*strong recommendation, moderate-quality evidence*).
 - Children living with HIV 1 year old to less than 10 years old (*conditional recommendation, low-quality evidence*).
- As a priority, ART should be initiated in all children <2 years of age or children younger than 5 years of age with WHO clinical stage 3 or 4 or CD4 count ≤ 750 cells/mm³ or CD4 percentage <25% and children 5 years of age and older with WHO clinical stage 3 or 4 or CD4 count ≤ 350 cells/mm³ (*strong recommendation, moderate-quality evidence*). [Source](#)

When to start ART in adolescents (10–19 years of age)

- ART should be initiated in all adolescents living with HIV, regardless of WHO clinical stage and at any CD4 cell count (*conditional recommendation, low-quality evidence*).
- As a priority, ART should be initiated in all adolescents with severe or advanced HIV clinical disease (WHO clinical stage 3 or 4) and adolescents with a CD4 count ≤ 350 cells/mm³ (*strong recommendation, moderate-quality evidence*).

[Source](#)

Timing of ART for adults and children with TB

- ART should be started in all TB patients living with HIV regardless of CD4 count (*strong recommendation, high-quality evidence*).

- TB treatment should be initiated first, followed by ART as soon as possible within the first 8 weeks of treatment (strong recommendation, high-quality evidence).
- HIV-positive TB patients with profound immunosuppression (e.g. CD4 counts less than 50 cells/mm³) should receive ART within the first two weeks of initiating TB treatment. [Source](#)

First-line ART for adolescents

- First-line ART for adolescents should consist of two NRTIs plus an NNRTI or an INSTI:
TDF + 3TC (or FTC) + EFV as a fixed-dose combination is recommended as the preferred option to initiate ART (*strong recommendation, low-quality evidence*).
TDF + 3TC (or FTC) + DTG or TDF + 3TC (or FTC) + EFV4002 may be used as alternative options to initiate ART (*conditional recommendation, low-quality evidence*).

If preferred regimens are contraindicated or not available, one of the following alternative options is recommended (*strong recommendation, moderate-quality evidence*):

ABC + 3TC + EFV

ABC + 3TC + NVP

AZT + 3TC + EFV

AZT + 3TC + NVP

TDF + 3TC (or FTC) + NVP

[Source](#)

First-line ART for children three to ten years

- For children 3 to less than 10 years of age, the NRTI backbone should be one of the following, in preferential order (*conditional recommendation, moderate-quality evidence*):
 - ABC + 3TC
 - AZT or TDF + 3TC (or FTC)

[Source](#)

First-line ART for children younger than 3 years of age

- For infants and children younger than 3 years, the NRTI backbone for an ART regimen should be ABC or AZT + 3TC (*strong recommendation, moderate-quality evidence*).
- Where viral load monitoring is available, consideration can be given to substituting LPV/r with EFV at 3 years of age after viral suppression is sustained (*conditional recommendation, moderate-quality evidence*).

[Source](#)

Monitoring the response to ART and diagnosing treatment failure

- Routine viral load monitoring can be carried out at 6 months, at 12 months and then every 12 months thereafter if the patient is stable on ART to synchronize with routine monitoring and evaluation reporting (*conditional recommendation, very low-quality evidence*).
- In settings where routine viral load monitoring is available, CD4 cell count monitoring can be stopped in individuals who are stable on ART and virally suppressed (*conditional recommendation, low-quality evidence*).

- Dried blood spot specimens using venous or capillary whole blood can be used to determine the HIV viral load. A threshold of 1000 copies/mL can be used to determine virological failure when using dried blood spot samples, as defined for testing in plasma (*conditional recommendation, low-quality evidence*). [Source](#)



UPDATE

Second-line ART for children

- After failure of a first-line LPV/r-based regimen, children younger than 3 years should be switched to a RAL-based second-line regimen (*conditional recommendation, very low-quality evidence*).
- After failure of a first-line LPV/r-based regimen, children older than 3 years should be switched to a second-line regimen containing two NRTIs plus EFV or RAL (*conditional recommendation, very low-quality evidence*).
- After failure of a first-line NNRTI-based regimen, children should be switched to a boosted PI-based regimen. LPV/r or ATV/r are preferred (*conditional recommendation, very low-quality evidence*). [Source](#)

Second-line ART for adults and adolescents

- A heat-stable fixed-dose combination of DRV/r can be used as an alternative boosted PI option for second-line ART (*conditional recommendation, low-quality evidence*). [Source](#)
- A combination of RAL plus LPV/r can be used as an alternative second-line ART regimen (*conditional recommendation, low-quality evidence*). [Source](#)

Third-line ART

- National programmes should develop policies for third-line ART (*conditional recommendation, low-quality evidence*).
- Third-line regimens should include new drugs with minimal risk of cross-resistance to previously used regimens, such as INSTIs and second-generation NNRTIs and PIs (*conditional recommendation, low-quality evidence*).
- Patients on a failing second-line regimen with no new ARV options should continue with a tolerated regimen (*conditional recommendation, very low-quality evidence*).
- Consolidated guidelines on the use of antiretroviral drugs for treating and preventing HIV infection: recommendations for a public health approach. [Source](#)

Treatment of skin and oral HIV-associated conditions in children and adults

NEW

Kaposi sarcoma

- Mild/moderate disease: In HIV-infected adults, adolescents and children diagnosed with mild/moderate Kaposi sarcoma, immediate ART initiation is recommended. (*Strong recommendation, low quality evidence*)

- Severe/symptomatic disease: In HIV-infected adults, adolescents and children diagnosed with severe symptomatic Kaposi sarcoma, immediate ART initiation in combination with systemic chemotherapy is recommended. (*Strong recommendation, low quality evidence*)
- Recommended chemotherapy regimens in adults, adolescents and children may include vincristine with bleomycin and doxorubicin (ABV), bleomycin with vincristine (BV), and when available or feasible, liposomal anthracyclines (doxorubicin or daunorubicin), paclitaxel or oral etoposide at sites with the infrastructure, staff and resources to administer chemotherapy drugs and provide appropriate monitoring and supportive care. (*Conditional recommendation, low quality evidence*). [Source](#)

Seborrhoeic dermatitis

- Mild seborrhoeic dermatitis: HIV-infected children and adults with mild seborrhoeic dermatitis (including on the scalp) should be treated with topical ketoconazole 2% two to three times per week for four weeks, with a maintenance treatment once per week as needed. (*Conditional recommendation, low quality evidence*). [Source](#)

Severe seborrhoeic dermatitis and seborrhoeic dermatitis unresponsive to first line therapy:

- HIV-infected children and adults with severe seborrhoeic dermatitis and those patients with mild seborrhoeic dermatitis unresponsive to first-line therapy should be treated with a combination therapy of topical antifungals (e.g. ketoconazole 2%) and topical corticosteroids. (*Strong recommendation, very low quality evidence*)
- Patients with severe seborrhoeic dermatitis whose HIV status is unknown should be tested for HIV, and if positive, should be assessed for ART initiation according to WHO Consolidated guidelines on general HIV care and the use of antiretroviral drugs for treating and preventing HIV infection. [Source](#)

Papular pruritic eruption

- In HIV-infected children, adolescents, pregnant women and adults with papular pruritic eruption, ART should be considered as the primary treatment. (*Strong recommendation, low quality evidence*)
- Additional symptomatic therapy with antihistamines and topical corticosteroids (class 3, 4, 5 or 6, e.g. betamethasone valerate) is also recommended for the duration of persistent symptoms. (*Conditional recommendation, very low quality evidence*). [Source](#)

Eosinophilic folliculitis

- ART should be considered as the primary treatment of eosinophilic folliculitis in eligible patients. (*Strong recommendation, low quality evidence*). [Source](#)
- All HIV-infected adults (including pregnant women), adolescents and children who have been initiated on ART and who subsequently develop HIV-associated eosinophilic folliculitis should not discontinue the ART. (*Conditional recommendation, very low quality evidence*)
- Additional symptomatic therapy is recommended for the duration of the persistent symptoms with, depending on severity:
 - oral antihistamine; if no adequate response, add

- topical corticosteroids (class 3, 4, 5 or 6, e.g. betamethasone valerate); if no adequate response, add
- oral itraconazole; if no adequate response, add
- permethrin 5% cream (applied above the waist).

(Conditional recommendation, very low quality evidence)

Tinea infections

- In children and adults (including pregnant women) with tinea infections that are not extensive, topical treatment with terbinafine 1% cream/gel (for two weeks) or miconazole (for three to four weeks) should be initiated. *(Strong recommendation, low quality evidence)*
- In children and adults with extensive tinea infections or hair/nail involvement, oral griseofulvin should be considered. *(Conditional recommendation, very low quality evidence)*
- If there is no response, then oral terbinafine or itraconazole should be used. *(Conditional recommendation, very low quality evidence)*
- In children and adults having tinea infections with unknown HIV status, an HIV test should be offered. *(Strong recommendation, low quality evidence)*. [Source](#)

Herpes zoster

- For all HIV-infected children, adolescents and adults (including pregnant women) with herpes zoster, acyclovir is recommended to prevent dissemination and for resolution of disease (at any time in the course of the disease). [Source](#)
(Strong recommendation, low quality evidence)
- All children, adolescents and adults presenting with herpes zoster with unknown HIV status should be offered an HIV test and, if positive, assessed for ART eligibility. *(Strong recommendation, low quality evidence)*. [Source](#)

Scabies

Mild/moderate scabies:

- For scabies in HIV-infected children and adults (including pregnant women) topical application of permethrin 5% (two applications) is recommended. If permethrin is not available, benzyl benzoate (at least two applications) should be used.
- If there is poor response to treatment, or permethrin treatment is not feasible, then oral ivermectin at 200 µg/kg is recommended.
(Strong recommendation, low quality evidence). [Source](#)

Severe/crusted scabies:

For severe or crusted scabies in HIV-infected children ≥15 kg and adults:

- two doses (with one to two weeks in-between) of oral ivermectin;
- if ivermectin is not available, then treat with topical permethrin 5% (or alternatively benzyl benzoate) until clinically clear, as longer treatments may be required.

(Conditional recommendation, very low quality evidence). [Source](#)

For severe or crusted scabies in HIV-infected children <15 kg,

- topical permethrin 5% (or alternatively benzyl benzoate) until clinically clear, as longer treatments may be required. (*Conditional recommendation, very low quality evidence*)
- In addition, a keratolytic, such as 5% salicylic acid, can be used to remove scale bulk. (*Conditional recommendation, very low quality evidence*). [Source](#)

Molluscum contagiosum

- ART should be considered as the primary treatment of extensive and/or unusually distributed molluscumcontagiosum in HIV-infected patients. No additional specific treatment is recommended. (*Conditional recommendation, very low quality evidence*)
- All adults presenting with new-onset molluscumcontagiosum in high HIV-prevalence settings with unknown HIV status should be offered an HIV test and, if positive, assessed for ART eligibility. (*Strong recommendation, low quality evidence*). [Source](#)

Oropharyngeal candidiasis

Specific therapy:

In children:

- Oral fluconazole 3 mg/kg for children for seven to 14 days is recommended as the preferred treatment.
- When fluconazole is not available or contraindicated, alternatives include topical therapy with nystatin suspension or pastilles, or clotrimazole troches.
- In children with mild oropharyngeal candidiasis, topical therapy with nystatin suspension or pastilles (alternatively clotrimazole troches) is recommended.
(*Strong recommendation, low quality evidence*)

ART eligibility:

- Prompt ART initiation is recommended in all HIV-infected adults (including pregnant and breastfeeding women), adolescents and children with oropharyngeal candidiasis.
(*Strong recommendation, high quality evidence*). [Source](#)

Stevens-Johnson syndrome & toxic epidermal necrolysis

- In HIV-infected children and adults with Stevens-Johnson syndrome or toxic epidermal necrolysis, the suspected causative drug should be promptly discontinued and supportive therapies should be offered. (*Strong recommendation, very low quality evidence*)
- The use of systemic corticosteroids is not recommended. (*Conditional recommendation, very low quality evidence*). [Source](#)

Nutritional care of HIV-infected children

- Infants and children should undergo initial nutritional assessment (evaluation of nutritional status, diet and symptoms) and then be weighed and have height measured at each visit and monitored with reference to WHO or national growth curves. Growth monitoring should also be integrated into the assessment of ART response. (*No strength, quality of evidence*). [Source](#)

- Children living with HIV should be assessed, classified and managed according to a nutrition care plan to cover their nutrient needs associated with the presence of HIV and nutritional status and to ensure appropriate growth and development. (*No strength, quality*) [Source](#)

17. DEVELOPMENT DISORDERS

- No GRC-approved recommendations currently exist. Guidance on this topic is in the process of being updated.

18. SEIZURE DISORDER (EPILEPSY)

NEW

Choice of anticonvulsant medicines for children with acute seizures when IV access is not available

- When IV access is not available for the control of acute seizures in children, non-parenteral routes of administration of benzodiazepines should be used. Options include rectal diazepam, oral or intranasal midazolam and rectal or intranasal lorazepam. Some benzodiazepines (lorazepam and midazolam) may be given intramuscularly; this requires additional expertise and expense. The preference may be guided by availability, expertise and social preference (*Strength of recommendation strong, Quality of evidence low*). [Source](#)

Choice of anticonvulsant medicines for children with acute seizures when IV access is available

- For children presenting with acute seizures where IV administration is available, IV diazepam or IV lorazepam should be used to terminate the seizure. (*Strength of recommendation conditional, Quality of evidence very low*). [Source](#)

Choice of second-line anticonvulsant medicines for children with established status epilepticus resistant to first-line benzodiazepines

- In children with established status epilepticus, i.e. seizures persisting after two doses of benzodiazepines, IV valproate, IV phenobarbital or IV phenytoin can be used, with appropriate monitoring. [Source](#)
- The choice of drug depends on local resources, including availability and facilities for monitoring. IV valproate is preferred to IV phenobarbital or IV phenytoin because of its superior benefit–risk profile. When IV infusion or monitoring is not feasible, intramuscular (IM) phenobarbital remains an option. Phenytoin and valproate must not be given intramuscularly. (*Strength of recommendation conditional, Quality of evidence low*). [Source](#)
- Antiepileptic drugs should not be routinely prescribed to adults and children after a first unprovoked seizure. In adults and children with a high risk of recurrence (e.g. presence of neurological deficit, associated handicaps), referral should be made to specialist setting for further assessment. (*Strength of recommendation: STRONG, Quality of evidence: VERY LOW*). [Source](#)
- Monotherapy with any of the standard antiepileptic drugs (carbamazepine, phenobarbital, phenytoin, and valproic acid) should be offered to children and adults with convulsive epilepsy. Given the acquisition costs, phenobarbital should be offered as a first option if availability can be assured. If available, carbamazepine should be offered to children and adults with partial onset seizures. (*Strength of recommendation: STRONG, Quality of evidence: LOW*). [Source](#)

- In comparison with enzyme-inducing anti-epileptic medications (phenobarbital, phenytoin, carbamazepine) or valproic acid, newer generation anti-epileptic medications that are not hepatically metabolized (i.e. levetiracetam, lacosamide, topiramate, gabapentin and pregabalin) may be preferred to use in people with HIV on certain antiretroviral medications (protease inhibitors or non-nucleoside reverse-transcriptase inhibitors).
- If the treatment with newer generation anti-epileptic medications is not feasible, valproic acid is preferred over the enzyme-inducing anti-epileptic medications (phenobarbital, phenytoin, and carbamazepine). In all cases, close monitoring of HIV viral load and regular clinical monitoring is required. If resources are available, anti-epileptic medication levels should be monitored. (*Strength of recommendation: CONDITIONAL, Quality of evidence: VERY LOW*). [Source](#)
- Certain newer anti-epileptic medications (lamotrigine, levetiracetam and topiramate) should be offered as add-on therapy in patients with medication resistant convulsive epilepsy. The essential anti-epileptic medications (carbamazepine, phenobarbital, phenytoin, and valproic acid) may be of benefit as add-on therapy in patients with medication resistant convulsive epilepsy. (*Strength of recommendation: CONDITIONAL, Quality of the evidence: MODERATE*). [Source](#)
- In children and adults with epilepsy, discontinuation of antiepileptic drug treatment should be considered after two seizure-free years. After a two year seizure-free period, the decision to withdraw or continue antiepileptic drugs in a seizure-free patient, should be made after consideration of relevant clinical, social and personal factors and with the involvement the patient and the family. (*Strength of recommendation: CONDITIONAL, Quality of the evidence: MODERATE*). [Source](#)
- Prophylactic treatment with intermittent antipyretics, intermittent anticonvulsants (diazepam or clobazam), or continuous anticonvulsants (phenobarbital or valproic acid) should not be used for febrile seizures. (*Strength of recommendation: STRONG Quality of evidence: LOW*). [Source](#)

Pharmacological interventions for prophylaxis of recurrence of febrile seizures

- Prophylactic treatment with intermittent antipyretics, intermittent anticonvulsant medications (diazepam or clobazam) or continuous anticonvulsant medications (phenobarbital or valproate) should not be used for febrile seizures. (*Strength of recommendation strong, Quality of evidence low*). [Source](#)

Role of diagnostic tests in the management of seizures with altered consciousness, particularly when used by non-specialists in low- and middle-income countries

- The following diagnostic tests should be performed in children with acute seizures or altered consciousness:
 - blood glucose
 - blood sodium (in children with severe dehydration or diarrhoea)
 - lumbar puncture in febrile children with signs of meningitis
 (*Strength of recommendation strong, Quality of evidence very low*). [Source](#)
 - Lumbar puncture should be considered for any infant or child who appears severely ill (e.g. high fever with altered consciousness or seizure) and with any of the following:
 - age < 18 months (especially < 6 months);
 - complex febrile seizures (prolonged, focal or recurrent during the same febrile illness);

- antimicrobials were given before assessment;
- not vaccinated against Haemophilus influenza type b or Streptococcus pneumoniae or with unknown immunization status

(Strength of recommendation strong, Quality of evidence very low). [Source](#)

- Lumbar puncture should be performed in infants and children only after all of the following clinical signs have been resolved:

- unresponsive or in coma (based on ETAT AVPU scale)
- focal neurological signs
- signs of brainstem herniation
- signs of raised intracranial pressure
- signs of respiratory compromise
- ETAT signs of shock
- infections in the skin overlying the site of the proposed lumbar puncture
- evidence of a bleeding disorder

(Strength of recommendation strong, Quality of evidence very low). [Source](#)

- Neuroimaging [ultrasound in young infants, computerized tomography (CT) or magnetic resonance imaging (MRI)] should be considered for children with altered consciousness or a new focal neurological deficit (Strength of recommendation strong, Quality of evidence very low). [Source](#)

19. SUPPORTIVE CARE

Use and delivery of oxygen therapy

Pulse oximetry for detection of hypoxaemia

- Pulse oximetry is recommended to determine the presence of hypoxaemia and to guide administration of oxygen therapy in infants and children with hypoxaemia. (Strong recommendation, low quality evidence). [Source](#)

Clinical signs for detection of hypoxaemia in children

- Use pulse oximetry wherever possible for the detection of hypoxaemia in children with severe, lower respiratory infections. If oximetry is not available, then the following clinical signs could be used to guide the need for oxygen therapy:
 - central cyanosis
 - nasal flaring
 - inability to drink or feed (where this is due to respiratory distress)
 - grunting with every breath
 - depressed mental state (i.e. drowsy, lethargic).

(Strong recommendation, low quality evidence). [Source](#)

- In some situations and depending on the overall clinical condition, children with the following less-specific signs may also need oxygen:
 - severe lower chest wall indrawing
 - respiratory rate of 70/min or above
 - head nodding.

(*Strong recommendation, very low quality evidence*). [Source](#)

Oxygen therapy in treatment of hypoxaemia

- Children with hypoxaemia should receive appropriate oxygen therapy. (*Strong recommendation, low quality evidence*). [Source](#)
- Effective oxygen delivery systems should be a universal standard of care, and should be made more widely available. (*Strong recommendation, expert opinion*). [Source](#)

Thresholds for administering oxygen therapy

- Administering oxygen therapy should be guided by pulse oximetry where available and thresholds for giving oxygen may vary depending on the altitude. (*Strong recommendation, very low quality evidence*). [Source](#)
- Children living at ≤ 2500 m above sea level should receive oxygen therapy if their oxygen saturation is $\leq 90\%$, as measured by pulse oximetry. (*Strong recommendation, very low quality evidence*). [Source](#)
- In children living at high altitude (>2500 m above sea level), the normal oxygen saturation is lower than those living at sea level. At these altitudes, a lower level of saturation, such as $SpO_2 \leq 87\%$, could be used as a threshold for giving oxygen. (*Recommendation, very low quality evidence*). [Source](#)

Oxygen delivery methods

- Nasal prongs are the preferred method for delivering oxygen in infants and children under 5 years of age with hypoxaemia who require oxygen therapy. (*Strong recommendation, moderate quality evidence*). [Source](#)
- Where nasal prongs are not available, nasal or nasopharyngeal catheters could be used as alternative delivery methods. Face masks or head-boxes are not recommended. (*Strong recommendation, moderate quality evidence*). [Source](#)

Criteria for starting and stopping oxygen therapy

- Children with hypoxaemia should be closely monitored using pulse oximetry. (*Strong recommendation, very low quality evidence*). [Source](#)
- Oxygen therapy should be discontinued when oxygen saturation remains stable above recommended levels of 90% (≤ 2500 M above sea level) or 87% (> 2500 M above sea level) for at least 15 minutes on room air in a clinically stable child. (*Strong recommendation, very low quality evidence*). [Source](#)



UPDATE

When to start and stop oxygen therapy for severely ill children with emergency signs:

- Pulse oximetry is recommended to determine the presence of hypoxaemia in all children with ETAT emergency signs. When the child has only respiratory distress, oxygen supplementation is recommended at SpO₂ < 90%. Children presenting with other ETAT emergency signs with or without respiratory distress should receive oxygen therapy if their SpO₂ is < 94%. (*Strength of recommendation strong, Quality of evidence very low*). [Source](#)
- Oxygen therapy can be stopped when the child no longer has ETAT emergency signs and maintains an oxygen saturation of SpO₂ ≥ 90% in room air. (*Strength of recommendation conditional, Quality of evidence very low*). [Source](#)

Oxygen flow rate and humidification in severely ill children with emergency signs

- Severely ill children with signs of obstructed breathing, central cyanosis, severe respiratory distress, signs of shock or who are unconsciousness should receive oxygen initially by nasal prongs at a standard flow rate (0.5–1 L/min for neonates, 1–2 L/min for infants and 2–4 L/min for older children) or through an appropriately sized face mask (> 4 L/min) to reach an SpO₂ of ≥ 94%. (*Strength of recommendation strong, Quality of evidence very low*). [Source](#)
- For standard flow oxygen therapy, humidification is not needed. (*Strength of recommendation strong, Quality of evidence very low*). [Source](#)
- In an emergency setting, when a flow of > 4 L/min through nasal cannulae is required for more than 1–2 h, effective heated humidification should be added. (*Strength of recommendation strong, Quality of evidence very low*). [Source](#)

NEW

Fluid management

Children who are not in shock but have signs of circulatory impairment

- Children with only one or two signs of impaired circulation – cold extremities or capillary refill > 3 s or a weak and fast pulse – but who do not have the full clinical features of shock, i.e. all three signs present together, should not receive any rapid infusion of fluids but should still receive maintenance fluids appropriate for their age and weight. (*Strength of recommendation strong, Quality of evidence high*). [Source](#)
- In the absence of shock, rapid IV infusion of fluids may be particularly harmful to children who have severe febrile illness, severe pneumonia, severe malaria, meningitis, severe acute malnutrition, severe anaemia, congestive heart failure with pulmonary oedema, congenital heart disease, renal failure or diabetic ketoacidosis. (*Strength of recommendation strong, Quality of evidence high*). [Source](#)
- Children with any sign of impaired circulation, i.e. cold extremities or prolonged capillary refill or weak, fast pulse, should be prioritized for full assessment and treatment and reassessed within 1 h. (*Strength of recommendation strong, Quality of evidence high*). [Source](#)

Children who are in shock

- Children who are in shock, i.e. who have all the following signs: cold extremities with capillary refill > 3 s and a weak and fast pulse, should receive IV fluids.
- They should be given 10–20 mL/kg body weight (bw) of isotonic crystalloid fluids over 30–60 min.
- They should be fully assessed, an underlying diagnosis made, receive other relevant treatment and their condition monitored.
- The child should be reassessed at the completion of infusion and during subsequent hours to check for any deterioration:
 - If the child is still in shock, consider giving a further infusion of 10 mL/kgbw over 30 min.
 - If shock has resolved, provide fluids to maintain normal hydration status only (maintenance fluids).
- If, at any time, there are signs of fluid overload, cardiac failure or neurological deterioration, the infusion of fluids should be stopped, and no further IV infusion of fluids should be given until the signs resolve. (*Strength of recommendation strong, Quality of evidence low*). [Source](#)
- Children in shock and with severe anaemia [erythrocyte volume fraction (haematocrit) < 15 or haemoglobin < 5 g/dL as defined by WHO] should receive a blood transfusion as early as possible and receive other IV fluids only to maintain normal hydration. (*Strength of recommendation strong, Quality of evidence low*). [Source](#)
- Children with severe acute malnutrition who are in shock should receive 10–15 mL/kg bw of IV fluids over the first hour. Children who improve after the initial infusion should receive only oral or nasogastric maintenance fluids. Any child who does not improve after 1 h should be given a blood transfusion (10 mL/kg bw slowly over at least 3 h) (WHO, 2013b). (*Strength of recommendation strong, Quality of evidence low*). [Source](#)

Treatment of persisting pain

- It is recommended to use the analgesic treatment in two steps according to the child's level of pain severity. (*Strong recommendation, very low quality of evidence*). [Source](#)
- Paracetamol and ibuprofen are the medicines of choice in the first step (mild pain). Both paracetamol and ibuprofen need to be made available for treatment in the first step. (*Strong recommendations, low quality evidence*). [Source](#)
- The use of strong opioid analgesics is recommended for the relief of moderate to severe persisting pain in children with medical illnesses. (*Strong recommendation, low quality of evidence*). [Source](#)
- Morphine is recommended as the first-line strong opioid for the treatment of persisting moderate to severe pain in children with medical illnesses. There is insufficient evidence to recommend any alternative opioid in preference to morphine as the opioid of first choice. Selection of alternative opioid analgesics to morphine should be guided by considerations of safety, availability, cost and suitability, including patient-related factors. (*Strong recommendations, low quality of evidence*). [Source](#)
- It is strongly recommended that immediate-release oral morphine formulations be available for the treatment of persistent pain in children with medical illnesses. It is also recommended that child-appropriate prolonged-release oral dosage forms be available, if affordable. (*Strong recommendations, low quality of evidence*). [Source](#)

- Switching opioids and/or route of administration in children is strongly recommended in the presence of inadequate analgesic effect with intolerable side-effects. Alternative opioids and/or dosage forms as an alternative to oral morphine should be available to practitioners, in addition to morphine, if possible. Routine rotation of opioids is not recommended. (*Strong recommendations, low quality of evidence*). [Source](#)
- Oral administration of opioids is the recommended route of administration. The choice of alternative routes of administration when the oral route is not available should be based on clinical judgement, availability, feasibility and patient preference. The intramuscular route of administration is to be avoided in children. (*Strong recommendations, very low quality of evidence*). [Source](#)
- A careful distinction between end-of-dose pain episodes, incident pain related to movement or procedure, and breakthrough pain is needed. It is strongly recommended that children with persisting pain receive regular medication to control pain and also appropriate medicines for breakthrough pain. (*Strong recommendations, very low quality of evidence*). [Source](#)
- The use of corticosteroids as adjuvant medicines is not recommended in the treatment of persisting pain in children with medical illnesses. (*Weak recommendation, very low quality evidence*). [Source](#)
- The use of bisphosphonates as adjuvant medicines is **not** recommended in the treatment of bone pain in children. (*Weak recommendation, very low quality of evidence*). [Source](#)

20. CARE FOR SURVIVORS OF INTIMATE PARTNER VIOLENCE

- Where children are exposed to intimate partner violence at home, a psychotherapeutic intervention, including sessions where they are with, and sessions where they are without their mother, should be offered, although the extent to which this would apply in low- and middle income settings is unclear. (*Conditional recommendation, moderate quality evidence*). [Source](#)

21. MANAGEMENT OF BEHAVIOURAL DISORDERS

Attention Deficit Hyperactivity Disorder

- Provide family psycho-education.
- Consider parent skills training, when available.
- Contact person's teacher (if person goes to school and consent is given by the person and carer), provide advice and plan for special educational needs.
- Anticipate major life changes (such as puberty, starting school, or birth of a sibling) and arrange personal and social support.
- Consider psychosocial interventions such as cognitive behaviour therapy and social skills training based on availability.
- Assess carers regarding the impact of behavioural disorders and offer them support for their personal, social and mental health needs.
- **DO NOT** use medicines for behavioural disorders in children and adolescents.

[Source](#)



UPDATE

Mental Health**Effective strategies for detecting maltreatment of children and youth within the context of mental health and developmental assessment**

- Health care providers should be alert to the clinical features associated with child maltreatment and associated risk factors and assess for child maltreatment without putting the child at increased risk. (*Strength of recommendation: CONDITIONAL, Quality of evidence: VERY LOW*). [Source](#)

Psychosocial interventions, treatment of emotional disorders

- Psychological interventions, such as cognitive behavioural therapy (CBT), interpersonal psychotherapy (IPT) for children and adolescents with emotional disorders, and caregiver skills training focused on their caregivers, may be offered for the treatment of emotional disorders. (*Strength of recommendation: CONDITIONAL, Quality of evidence: LOW*). [Source](#)

Community-based rehabilitation for adults with developmental disorders including intellectual disabilities and autism spectrum disorders

- Non-specialized health care providers can offer supporting, collaborating and facilitating referral to and from community based rehabilitation (CBR) programmes, if available, for care of adults with developmental disorders, including intellectual disabilities and pervasive developmental disorders (including autism). (*Strength of recommendation: CONDITIONAL, Quality of the evidence: VERY LOW*). [Source](#)



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