

Summary of the differences between the WHO AWaRe antibiotic book and new WHO guidelines for serious bacterial infections, pneumonia and diarrhoea in children

New WHO guidelines:

- 1. WHO recommendations for management of serious bacterial infections in infants aged 0-59 days
Link: <https://www.who.int/publications/i/item/9789240102903>
- 2. Guideline on management of pneumonia and diarrhoea in children up to 10 years of age
Link: <https://www.who.int/publications/i/item/9789240103412>

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Table 1. Serious bacterial infections in infants aged 0-59 days in non-hospital settings

Indication	2022 WHO AWaRe antibiotic book	2024 WHO guidelines for serious bacterial infections in infants aged 0-59 days	Comment on recommendations
Focus of guideline			
Age of child	Neonates aged 0-28 days	Infants aged 0-59 days	- Infants up to 59 days of age included*
Diagnosis			
Diagnostic accuracy of clinical signs of sepsis	Commonly used classifications (by timing/setting) and signs of possible serious bacterial infection provided	Use the 7-sign integrated management of childhood illness (IMCI) algorithm to identify infants with possible serious bacterial infection who require further evaluation or treatment	- Use the IMCI to support decision making for escalation of care*
Referral to hospital			
Critical illness	Recommended	Recommended	
Clinical severe illness	Recommended	Recommended	
Fast breathing as only IMCI sign of illness in young infant aged 0-6 days	Not specifically addressed	Recommended	- Fast breathing in the first week of life should be referred to hospital*
Fast breathing as only IMCI sign of illness in young infant aged 7-59 days	Not specifically addressed	Treat as outpatient	- Infants after the first week of life with only fast breathing can be treated in the outpatient setting
Treatment			
Referral to hospital not possible			

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Critical illness	Amoxicillin 50 mg/kg q12h PO plus gentamicin 5 mg/kg q24h IM for 7 days	<u>First week of life:</u> Ampicillin 50 mg/kg q12h IM/IV plus gentamicin 5 mg/kg q24h IM/IV for at least 10 days	<u>After first week of life:</u> Ampicillin 50 mg/kg q8h IM/IV plus gentamicin plus 7.5 mg/kg q24h IM/IV for at least 10 days	- Description of the recommended management of critical illness included - Differentiation between critical and clinical severe infection* - At least 10 days treatment for critical illness - IM/IV ampicillin recommended for critical illness
Clinical severe illness	Amoxicillin 50 mg/kg q12h PO plus gentamicin 5 mg/kg q24h IM for 7 days	<u>First week of life:</u> Amoxicillin 50 mg/kg q12h PO plus gentamicin 5 mg/kg q24h IM/IV for at least 7 days (or 2 days gentamicin if 7 days not feasible)	<u>After first week of life:</u> Amoxicillin 50 mg/kg q8h PO plus gentamicin 7.5 mg/kg q24h IM/IV for at least 7 days (or 2 days gentamicin if 7 days not feasible)	- If 7 days of gentamicin is not feasible, 2 days is given as an option*
Fast breathing as only IMCI sign of illness in young infant aged 0-6 days	Not specifically addressed	Amoxicillin 50 mg/kg q12h PO for at least 7 days		- Recommendation for treatment of infants with fast breathing*
Referral to hospital not necessary				
Fast breathing as only IMCI sign of illness in young infant aged 7-59 days	Not specifically addressed	Amoxicillin 50 mg/kg q12h PO for at least 7 days		- Recommendation for treatment of infants with fast breathing*

* This recommendation was also in the previous version of the WHO guidelines for serious bacterial infections in infants aged 0-59 days published in 2015.

Table 2. Serious bacterial infections in infants aged 0-59 days in hospital settings

Indication	2022 WHO AWaRe antibiotic book		2024 WHO guidelines for serious bacterial infections in infants aged 0-59 days		Comment on recommendations
Focus of guideline					
Age of child	Neonates aged 0-28 days		Infants aged 0-59 days		- Infants up to 59 days of age included*
Diagnosis					
Diagnostic accuracy of clinical signs of sepsis	Commonly used classifications (by timing/setting) and signs of possible serious bacterial infection provided		No recommendation provided (knowledge gap)		
Treatment					
Suspected sepsis					
First choice	<u>First week of life:</u> Ampicillin 50 mg/kg q12h IV or Benzylpenicillin 30 mg/kg q8h IV plus Gentamicin 5 mg/kg q24h IV for 7 days	<u>After first week of life:</u> Ampicillin 50 mg/kg q8h IV or Benzylpenicillin 30 mg/kg q8h IV plus Gentamicin 5 mg/kg q24h IV for 7 days	<u>First week of life:</u> Ampicillin 50 mg/kg q12h IM/IV plus gentamicin 5 mg/kg q24h IM/IV for at least 10 days	<u>After first week of life:</u> Ampicillin 50 mg/kg q8h IM/IV plus gentamicin plus 7.5 mg/kg q24h IM/IV for at least 10 days	- Longer treatment duration of 10 days (previously 7 days) recommended based on a review of high-income country guidelines - No alternatives to ampicillin provided due to paucity of evidence for other options
Second choice	Cefotaxime 50 mg/kg q8h IV or Ceftriaxone 80 mg/kg q24h IV or Cloxacillin 25-50 mg/kg q12h IV plus		Not addressed		- No second choice options provided due to paucity of evidence for other options

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	Amikacin 15 mg/kg/dose q24h IV for 7 days				
Suspected staphylococcal sepsis	Cloxacillin 25-50 mg/kg q12h IV plus Amikacin 15 mg/kg/dose q24h IV for 7 days		First week of life: Cloxacillin 50 mg/kg q12h IM/IV plus gentamicin 5 mg/kg q24h IM/IV for at least 10 days	After first week of life: Cloxacillin 50 mg/kg q8h IM/IV plus gentamicin plus 7.5 mg/kg q24h IM/IV for at least 10 days	- Higher end of dosing range recommended due to severity of illness - Longer treatment duration of 10 days (previously 7 days) recommended based on a review of high-income country guidelines - Gentamicin recommended as the aminoglycoside of choice; amikacin is generally more costly and less easy to procure in low- and middle-income countries
Suspected meningitis					
First choice	<u>First week of life:</u> Ampicillin 50 mg/kg q12h IV or Cefotaxime 50 mg/kg q12h IV or Ceftriaxone 100 mg/kg q24h IV plus Gentamicin 5 mg/kg q24h IV for 3 weeks	<u>After first week of life:</u> Ampicillin 50 mg/kg q8h IV or Cefotaxime 50 mg/kg q6h IV or Ceftriaxone 100 mg/kg q24h IV plus Gentamicin 7.5 mg/kg q24h IV for 3 weeks	<u>First week of life:</u> Ampicillin 50 mg/kg q12h IM/IV or Cefotaxime 50 mg/kg q12h IM/IV or Ceftriaxone 100 mg/kg q24h IM/IV plus Gentamicin 5 mg/kg q24h IM/IV for at least 3 weeks	<u>After first week of life:</u> Ampicillin 50 mg/kg q8h IM/IV or Cefotaxime 50 mg/kg q6h IM/IV or Ceftriaxone 100 mg/kg q24h IM/IV plus Gentamicin 7.5 mg/kg q24h IM/IV for at least 3 weeks	- No change

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Second choice	Meropenem 40 mg/kg q8h IV		Not addressed		- No second choice options provided due to paucity of evidence for other options
Suspected pneumonia					
First choice	<u>First week of life:</u> Amoxicillin 50 mg/kg q12h IV or Ampicillin 50 mg/kg q12h IV or Benzylpenicillin 30 mg/kg q8h IV plus Gentamicin 5 mg/kg q24h IV for 5 days	<u>After first week of life:</u> Amoxicillin 50 mg/kg q8h IV or Ampicillin 50 mg/kg q8h IV or Benzylpenicillin 30 mg/kg q8h IV plus Gentamicin 5-7.5 mg/kg q24h IV for 5 days	<u>First week of life:</u> Ampicillin 50 mg/kg q12h IM/IV plus gentamicin 5 mg/kg q24h IM/IV for at least 7 days	<u>After first week of life:</u> Ampicillin 50 mg/kg q8h IM/IV plus gentamicin plus 7.5 mg/kg q24h IM/IV for at least 7 days	- Longer treatment duration of 7 days (previously 5 days) recommended based on a review of high-income country guidelines - No alternatives to ampicillin provided due to paucity of evidence for other options
Second choice	Cefotaxime 50 mg/kg q8h IV/IM or Ceftriaxone 80 mg/kg q24h IV/IM		Not addressed		- No second choice options provided due to paucity of evidence for other options
Suspected staphylococcal pneumonia	Not addressed		<u>First week of life:</u> Cloxacillin 50 mg/kg q12h IM/IV plus gentamicin 5 mg/kg q24h IM/IV for at least 7 days	<u>After first week of life:</u> Cloxacillin 50 mg/kg q8h IM/IV plus gentamicin plus 7.5 mg/kg q24h IM/IV for at least 7 days	- New recommendation

* This recommendation was also in the previous version of the WHO guidelines for serious bacterial infections in infants aged 0-59 days published in 2015.

Table 3. Pneumonia in children 2-59 months of age

Indication	2022 WHO AWaRe antibiotic book	2024 WHO guidelines for pneumonia and diarrhoea in children up to 10 years	Comment on new recommendations
Classification			
Age	All children irrespective of age (including > 10 years)	Recommendations for 2-59 months and 5-9 years of age	- Recommendations stratified by age of child
Diagnosis			
Assessment with lung ultrasound	Not addressed	No recommendation provided (knowledge gap)	
Assessment with digital auscultation or cough sound algorithms	Not addressed	No recommendation provided (knowledge gap)	
Treatment			
Fast-breathing pneumonia (no chest-indrawing, no danger sign)	Amoxicillin 40-45 mg/kg q12h PO for 3 (areas with low HIV prevalence) or 5 days (areas with high HIV prevalence)	Amoxicillin 40 mg/kg q12h PO for 3 (areas with low HIV prevalence) or 5 days (areas with high HIV prevalence)	- No change
Chest-indrawing pneumonia (with or without fast breathing, no danger sign)	Amoxicillin 40-45 mg/kg q12h PO for 5 days	Amoxicillin 40 mg/kg q12h PO for 5 days with follow-up visits by community health workers in the community	- Emphasis on management of chest indrawing in children 2-59 months of age by community health workers
Management			
Identification of hypoxaemic children when pulse oximetry is not available	Not addressed	Trained facility-level health workers can evaluate respiratory distress using signs and symptoms	- New recommendation for trained facility-level health workers to evaluate respiratory distress using signs and symptoms when pulse oximetry not available or non-functional
Enhanced care for high-mortality risk children	Not addressed	No recommendation provided (knowledge gap)	

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Table 4. Pneumonia in children 5-9 years of age

Indication	2022 WHO AWaRe antibiotic book	2024 WHO guidelines for pneumonia and diarrhoea in children up to 10 years	Comment on new recommendations
Diagnosis			
Standardised clinical assessment of community-acquired pneumonia	Not addressed	No recommendation provided (knowledge gap)	
Treatment			
Antibiotic treatment with highest effectiveness in improving clinical outcomes	Not specifically addressed but same recommendation as for children of other ages i.e. amoxicillin 40-45 mg/kg q12h PO for 5 days	No recommendation provided (knowledge gap)	- No recommendation on optimal treatment in children 5-9 years due to knowledge gap

Table 5. Diarrhoea in children up to 10 years of age

Indication	2022 WHO AWaRe antibiotic book	2024 WHO guidelines for pneumonia and diarrhoea in children up to 10 years	Comment on new recommendations
Classification			
Age	All children irrespective of age (including > 10 years)	Recommendations for children up to 10 years of age	- Recommendations stratified by age of child
Treatment			
Acute watery diarrhoea	No antibiotic care but recommends oral zinc 10-20 mg daily for 10-14 days and low osmolarity oral rehydration salt solution	No antibiotic care (and no probiotics) but recommends oral zinc 5 mg daily for 10-14 days and low osmolarity oral rehydration salt solution	- Dose of zinc reduced to 5 mg daily and only recommended for watery diarrhoea - Probiotics explicitly discouraged
Persistent diarrhoea	Not addressed	No recommendation provided for antibiotics and probiotics (knowledge gap) but oral zinc 5 mg recommended for 10-14 days	- New additional category of diarrhoea, persistent diarrhoea, defined as diarrhoea for more than 14 days
Diarrhoea and blood in the stool	Consider treatment only if significant bloody diarrhoea or in severely immunocompromised patients	Treatment with antibiotics rather than no antibiotics	- Antibiotics indicated whenever there is blood in the stool
First choice	Ciprofloxacin 15 mg/kg q12h PO for 3 days	Ciprofloxacin 15 mg/kg q12h PO for 3 days	- No change
Second choice	Azithromycin 10 mg/kg q24h PO for 4 days or Cefixime 10 mg/kg/dose q24h PO for 5 days or Sulfamethoxazole+trimethoprim 20 mg/kg + 4 mg/kg q12h PO for 5 days or	Ceftriaxone 50-80 mg/kg daily IV/IM for 3 days	- Fewer second choice options provided

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	Ceftriaxone 80 mg/kg q24h IV/IM for 3 days		
Management			
Enhanced care for high-mortality risk children	Not addressed	No recommendation provided (knowledge gap)	