

TREATMENT OF CHILDHOOD PNEUMONIA AT THE COMMUNITY LEVEL WITH AMOXICILLIN DISPERSIBLE TABLETS

Pneumonia is one of the leading causes of death in children in the developing world, killing about 1.2 million children under five per year.¹ The number of children with pneumonia symptoms who receive medical care is extremely low,² and as a result, they are not properly treated with antibiotics. A child receiving antibiotic treatment within the first 24 hours of displaying bacterial pneumonia symptoms can be saved. Many countries are currently attempting to increase access to appropriate treatment through community-based initiatives such as community case management³—and appropriately so, because studies show that by increasing the coverage of integrated interventions to 90%, we can, by 2025, reduce the number of global under-five pneumonia deaths by 67%.⁴ In response to these high but preventable infant and child mortality rates, the child survival community has declared an unambiguous commitment to rapidly scaling up efforts to increase access to antibiotic treatment for pneumonia.

The World Health Organization (WHO) has established dispersible amoxicillin as the newly recommended first-line treatment for pneumonia in children under the age of five. Details can be found in the *WHO Recommendations for Management of Common Childhood Conditions*.⁵

Oral amoxicillin is preferred over co-trimoxazole as first-line treatment because it is effective against both nonsevere and severe pneumonia in low-HIV settings and because of increased resistance to co-trimoxazole and lower efficacy of co-trimoxazole than amoxicillin. In high-HIV settings, amoxicillin is also preferred because oral co-trimoxazole is recommended for *Pneumocystis pneumonia* prophylaxis.



Although 500 mg amoxicillin capsules and tablets are widely available, this strength is not suitable to treat pneumonia in younger age groups (lower weight bands), and capsules cannot be split.

Traditionally, amoxicillin powder for oral suspension has been the dosage form of choice for children under the age of five years. However, dispensing

complications are associated with this formulation, which makes it unsuitable for some settings; for example, it requires clean water and a measuring device for mixing, cold storage

after reconstitution, and another marked measuring device for administering the medicine. In addition, the mixed suspension has a short shelf life of 14 days.

Amoxicillin dispersible tablets are equivalent to the oral suspension powder, but each dose is pressed into a tablet that quickly disperses in a small amount of water (5–10 mL) or breast milk at the time of use. Furthermore, older children and adults can swallow dispersible tablets just as they do other, nondispersible tablets.

Community case management of pneumonia by community health workers (CHWs) presents unique supply chain considerations—

- Often long distances are traveled to resupply points.
- Products are transported on bicycle, foot, or donkeys, presenting temperature and space challenges.

“WHO names dispersible amoxicillin in 250 mg tablets as the optimal product for pneumonia treatment.”

- Storage space is limited, and products are exposed to sunlight, heat, and rain during transport and community use.
- The repackaging environment is unclean.

Amoxicillin dispersible tablets meet the special needs of CHWs.

Dispersible tablets—

- Are child- and supply chain-friendly
- Come in appropriate strengths and pack sizes to meet the needs of CHWs, caregivers, and children
- Are packaged for easy dispensing and inventory management—course of treatment is one or multiple blister strips
- Do not have to be split to get the correct dosage
- Are packaged with information and pictures for caregivers to remember instructions for administration

Dispersible tablets are also more cost-effective. Suspensions—even the dry powder for oral suspension—are bulkier and therefore costlier to ship and more challenging to distribute. In addition, the price of treating an 11-month-old child with amoxicillin syrup ranges from US\$0.44 to US\$1.60,⁶

Amoxicillin dispersible tablets are child- and caregiver-friendly and appropriate for both the supply chain and management by CHWs.

whereas the cost of treatment with amoxicillin dispersible tablets ranges from US\$0.21 to US\$0.86.⁷

The dosing specifications for amoxicillin dispersible tablets used at community level are summarized below.

They are described in detail in WHO's *Integrated Management of Childhood Illness: Caring for Newborns and Children in the*

Community Handbook and in the new CHW training package from UNICEF and WHO.

With simple dosing and clear, easy instructions on prescribing and administration, the most effective and practical treatment is oral amoxicillin dispersible tablets.

Age	Pneumonia*	Severe pneumonia with danger signs
1–11 months	1 × 250 mg tablet twice a day for 5 ⁸ days	Give 1 × 250 mg tablet immediately, and refer urgently to a health facility
12–59 months	2 × 250 mg tablets twice a day for 5 days	Give 2 × 250 mg tablets immediately, and refer urgently to a health facility

*Classification based on assessment of respiratory rate (RR): RR > 50/min (2-11 mo.); RR > 40/min (12-59 mo.)

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¹ WHO. GAPPD: ending preventable child deaths from pneumonia and diarrhoea by 2025. http://www.who.int/woman_child_accountability/news/gappd_2013/en/index.html.

² UNICEF. 2012. *Pneumonia and Diarrhoea: Tackling the Deadliest Diseases for the World's Poorest Children*. New York: UNICEF. http://www.unicef.org/media/files/UNICEF_P_D_complete_0604.pdf, pp. 24–38.

³ WHO/ UNICEF Joint Statement: Integrated Community Case Management (iCCM). 2012. http://www.who.int/maternal_child_adolescent/documents/statement_child_services_access_whounicef.pdf.

⁴ Child Health Epidemiology Reference Group (CHERG). Case Management on Childhood Pneumonia Mortality. <http://cherg.org/projects/List-summaries/pneumonia-management.html>.

⁵ WHO. 2012. *Recommendations for Management of Common Childhood Conditions: Evidence for technical update of pocket book recommendations: newborn conditions, dysentery, pneumonia, oxygen use and delivery, common causes of fever, severe acute malnutrition and supportive care*. Geneva; WHO. http://www.who.int/maternal_child_adolescent/documents/management_childhood_conditions/en/, pp. 15–16.

⁶ Using prices from the Management Sciences for Health, *International Drug Price Indicator Guide 2011*. <http://erc.msh.org/mainpage.cfm?file=1.0.htm&module=DMP&language=English>.

⁷ Prices from UNICEF Supply Division.

⁸ Three days in a low-HIV setting.