

Table 4. Antimicrobial susceptibility and resistance patterns of *Streptococcus pneumoniae* reported in Nigeria

Study	Setting and population	Study period	Pneumococcal isolates	Specimen / clinical context	Susceptibility testing	Reported findings
Adetifa et al. (2012)	14 contiguous peri-urban Nigerian communities; community participants	Pre-PCV	201 isolates tested for antimicrobial susceptibility	Nasopharyngeal carriage	E-test MIC; resistance/susceptibility interpreted according to product criteria	Cotrimoxazole: 93% resistant; tetracycline: 84% resistant; penicillin G: ~31% intermediate resistance; erythromycin: 0% resistant; cefotaxime: 0.5% resistant; chloramphenicol: 8.5% resistant
Kandakai-Olukemi & Dido- 2009	Two secondary schools, Jos; students aged 15–25 years	Not clearly specified in abstract; published 2009	37 isolates from 88 participants	Nasopharyngeal carriage	Disc diffusion	29.72% penicillin-resistant, 32.43% erythromycin-resistant, 10.81% ciprofloxacin-resistant. The authors also reported resistance to several other agents.
Iliyasu et al. 2017	Tertiary hospital, north-western Nigeria; adults with microbiologically confirmed community-acquired pneumococcal pneumonia	June 2009–January 2011	125 patients with pneumococcal pneumonia; susceptibility testing performed on confirmed isolates	Pneumococcal pneumonia; 7/125 had bacteraemic pneumonia	Susceptibility testing of confirmed pneumococcal isolates	5/125 isolates (3.8%) were sensitive to TMP-SMX; 19/125 (15.2%) were fully sensitive to penicillin; 121/125 (96.8%) were fully sensitive to ceftriaxone.
North-West Nigerian invasive-isolate study- 2015	North-western Nigeria; patients with community-acquired pneumonia, meningitis and bacteraemia	Two-year study period	132 isolates	Clinical specimens: sputum 117 (88.6%), CSF 7 (5.3%), blood 8 (6.1%)	E-test; interpreted according to CLSI; penicillin breakpoint 0.06 µg/mL	Penicillin: 22/132 (16.7%) fully sensitive, 73/132 (55.3%) intermediate, 37/132 (28.0%) fully resistant; TMP-SMX: 127/132 (96.2%) fully resistant; amoxicillin: 11/132 (8.5%) fully resistant; chloramphenicol: 106/132 (80.3%) fully susceptible.
Lo et al. 2023	Five government hospitals involving Kano, Nasarawa and FCT; predominantly children <5 years with suspected sepsis, pneumonia or meningitis	1 January 2014–31 May 2018	192 disease-causing isolates	Pneumonia (67), bacteraemia (53), meningitis (40), sepsis (28), other (4)	Whole-genome sequencing; resistance inferred from genomic data; predicted MICs interpreted using CLSI 2014 M100-S24; penicillin resistance threshold ≥0.12 µg/mL using meningitis breakpoint	99/192 (52%) penicillin non-susceptible; 85/192 (44%) multidrug-resistant; 185/192 (96.4%) cotrimoxazole non-susceptible; 3/192 (2%) erythromycin-resistant. These are genomic predictions rather than conventional phenotypic AST results.
Nnanna Joy et al. 2025	Two hospitals in Delta State; children and adults	July 2019–November 2020	5 confirmed isolates from 622 clinical specimens	All five confirmed isolates were from non-invasive specimens; none from blood, CSF or pleural fluid	Kirby–Bauer disc diffusion; EUCAST 2019; categorical interpretation only for agents with validated disc-diffusion breakpoints	4/5 (80%) susceptible to erythromycin, clindamycin and levofloxacin; 5/5 (100%) non-susceptible to TMP-SMX; 3/5 (60%) non-susceptible to tetracycline; 1/5 (20%) MDR. β-lactams, imipenem and vancomycin were not categorically interpreted because MIC testing was not performed.