

# Congenital Heart Disease

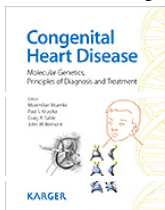
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## Epidemiology

# Clinical Epidemiology and Management of Congenital Heart Defects in a Developing Country

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**ABSTRACT**

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## Abstract

Congenital heart defects (CHD) remain one of the most common categories of birth defects worldwide. In many developing countries, high early childhood mortality and limited diagnostic facilities often obscure the true scope of the problem. In this review, we provide an overview of the clinical epidemiology and management of CHD in a developing country: Nigeria, Africa's most populous country. We describe the types of CHD and the clinical presentation, echocardiographic diagnosis, management, and outcome of CHD. Ventricular septal defects are the commonest CHD reported in Nigeria while tetralogy of Fallot is the commonest cyanotic CHD. Their etiology is often unknown, although the congenital rubella syndrome and Down syndrome account for a significant minority of cases. Thus far, there is no modern genetic study of CHD in Nigeria. Diagnosis is often delayed, with only about half of CHD cases getting diagnosed within the 1st year of life and up to 10% diagnosed in adulthood. Echocardiography has played a major role in improving diagnosis. Management remains challenging, but a number of initiatives (especially by nongovernmental organizations) provide access to corrective surgery for a select few. The field of CHD in Nigeria offers opportunities for research into etiology, natural history, clinical management, and outcomes.

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### **Bibliographic Details**

## **References**

### **Prices & Order Information**

1. Caddell JL, Morton P: The pattern of congenital heart diseases in Yoruba children of Western Nigeria. *Am Heart J* 1967;73:431-432.
2. Jaiyesimi F, Antia AU: Congenital heart disease in Nigeria; a ten-year experience at UCH, Ibadan. *Ann Trop Paediatr* 1981;1:77-85.
3. Fadahunsi HO: Congenital heart disease in Nigerian children: a study from the Lagos University Teaching Hospital. *W Afr J Med* 1987;6:21-30.
4. Ibadin MO, Sadoh WA, Osarogiagbon W: Congenital heart disease at the University of Benin Teaching Hospital. *Nig J Paediatr* 2005;32:29-32.
5. Bode-Thomas F, Okolo SN, Ekedigwe JE, Kwache IY, Adewunmi O: Paediatric echocardiography in Jos University Teaching Hospital: problems, prospects and preliminary audit. *Nig J Paediatr* 2003;30:143-149.
6. Hoffman JIE, Kaplan S: The incidence of congenital heart disease. *J Am Coll Cardiol* 2002;39:1890-1900.
7. Fixler DE, Pastor P, Chamberlin M, Sigman E, Eifler CW: Trends in congenital heart disease in Dallas county births 1971-1984. *Circulation* 1990;81:137-142.
8. Ekure EN, Animasahun A, Bastos M, Ezeaka VC: Congenital heart diseases associated with identified syndromes and other extra-cardiac congenital malformations in children in Lagos.



West Afr J Med 2009;28:33-37.

9. Okoromah CA, Ekure EN, Ojo OO, Animasahun BA, Bastos MI: Structural heart disease in children in Lagos: profile, problems and prospects. Niger Postgrad Med J 2008;15:82-88.
10. Sani M, Mukhtar-Yola M, Karaye KM: Spectrum of congenital heart disease in a tropical environment: an echocardiography study. J Natl Med Assoc 2007;99:665-669.
11. Chinawa JM, Eze JC, Obi I, Arodiwe I, Ujunwa F, Daberechi AK, Obu HA: Synopsis of congenital cardiac disease among children attending University of Nigeria Teaching Hospital Ituku Ozalla, Enugu. BMC Res Notes 2013;6:475.
12. Sadoh WE, Uzodimma CC, Daniels Q: Congenital heart disease in Nigerian children: a multicenter echocardiographic study. World J Pediatr Congenit Heart Surg 2013;4:172-176.
13. George IO, Frank-Briggs AI: Pattern and clinical presentation of congenital heart diseases in Port-Harcourt. Niger J Med 2009;18:211-214.

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14. Asani M, Aiyu I, Kabir H: Profile of congenital heart defects among children at Aminu Kano Teaching Hospital, Kano, Nigeria. J Med Trop 2015;15:131-134.
15. Wammanda RD, Danbauchi SS: An echocardiography analysis of paediatric cardiac diseases. Trop Cardiol 2002;28:29-31.
16. Kolo PM, Adeoye PO, Omotoso AB, Afolabi JK: Pattern of congenital heart disease in Ilorin. Niger Postgrad Med J 2012;19:230-234.
17. Gupta B, Antia AU: Incidence of congenital heart disease in Nigerian children. Br Heart J 1967;29:906-909.
18. Abudu OO, Uguru V, Olude O: Contribution of congenital malformation to perinatal mortality in Lagos, Nigeria. Int J Gynaecol Obstet 1988;27:63-67.
19. Sunday-Adeoye I, Okonta PI, Egwuatu VE: Congenital malformations in singleton and twin births in rural Nigeria. Niger Postgrad Med J 2007;14:277-280.
20. Ekanem TB, Okon DE, Akpantah AO, Mesembe OE, Eluwa MA, Ekong MB: Prevalence of congenital malformations in Cross River and Akwa Ibom states of Nigeria from 1980-2003. Congenit Anom (Kyoto) 2008;48:167-170.
21. Adeyemo AA, Okolo CM, Omotade OO: Major congenital malformations among paediatric admissions at University College Hospital, Ibadan, Nigeria. Ann Trop Paediatr 1994;14:75-79.
22. Adeyemo AA, Gbadegesin RA, Omotade OO: Major congenital malformations among neonatal referrals to a Nigerian university hospital. East Afr Med J 1997;74:699-701.
23. Ambe JP, Madziga AG, Akpede GO, Mava Y: Pattern and outcome of congenital malformations in newborn babies in a Nigerian teaching hospital. West Afr J Med 2010;29:24-29.

**Bibliographic Details**

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24. Chinawa JM, Eze JC, Obi I, Arodiwe I, Ujunwa F, Daberechi AK, Obu HA: Synopsis of congenital cardiac disease among children attending University of Nigeria Teaching Hospital Ituku Ozalla, Enugu. BMC Res Notes 2013;6:475.
25. Akang EE, Osinusi KO, Pindiga HU, Okpala JU, Aghadiuno PU: Congenital malformations: a review of 672 autopsies in Ibadan, Nigeria. Pediatr Pathol 1993;13:659-670.
26. Ekure EN, Abdulkareem FB: A review of 10 years autopsy of children with cardiovascular disorders. Clin J Med Sci 2005;5:35-39.
27. Cordell HJ, Bentham J, Topf A, Zelenika D, Heath S, Mamasoula C, Cosgrove C, Blue G, Granados-Riveron J, Setchfield K, Thornborough C, Breckpot J, Soemedi R, Martin R, Rahman TJ, Hall D, van Engelen K, Moorman AF, Zwinderman AH, Barnett P, Koopmann TT, Adriaens ME, Varro A, George AL Jr, dos Remedios C, Bishopric NH, Bezzina CR, O'Sullivan J, Gewillig M, Bu'Lock FA, Winlaw D, Bhattacharya S, Devriendt K, Brook JD, Mulder BJ, Mital S, Postma AV, Lathrop GM, Farrall M, Goodship JA, Keavney BD: Genome-wide association study of multiple congenital heart disease phenotypes identifies a susceptibility locus for atrial septal defect at chromosome 4p16. Nat Genet 2013;45:822-824.

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28. Hu Z, Shi Y, Mo X, Xu J, Zhao B, Lin Y, Yang S, Xu Z, Dai J, Pan S, Da M, Wang X, Qian B, Wen Y, Wen J, Xing J, Guo X, Xia Y, Ma H, Jin G, Yu S, Liu J, Zhou Z, Wang X, Chen Y, Sha J, Shen H: A genome-wide association study identifies two risk loci for congenital heart malformations in Han Chinese populations. Nat Genet 2013;45:818-821.
29. Ejim EC, Ike SO, Anisiuba BC, Onwubere BJ, Ikeh VO: Ventricular septal defects at the University of Nigeria Teaching Hospital, Enugu: a review of echocardiogram records. Trans R Soc Trop Med Hyg 2009;103:159-161.
30. Ogah OS, Adegbite GD, Akinyemi RO, Adesina JO, Alabi AA, Udofia OI, Ogundipe RF, Osinfade JKL: Spectrum of heart diseases in a new cardiac service in Nigeria: an echocardiographic study of 1441 subjects in Abeokuta. BMC Res Notes 2008;1:98.
31. Ejim EC, Anisiuba BC, Ike SO, Essien IO: Atrial septal defects presenting initially in adulthood: patterns of clinical presentation in Enugu, South-East Nigeria. J Trop Med 2011;2011:251913.
32. UN Children's Fund (UNICEF), The State of the World's Children 2014 in numbers: Every child counts. Revealing disparities, advancing child rights, January 2014;75. eISBN: 978-92-806-4731-0, available at: <http://www.unicef.org/sowc2014/numbers> [accessed June 4, 2014].
33. Adebajo SA: Open heart surgery in Nigeria; in Adebajo SA (ed): Development of Open Heart Surgery in West Africa: A Historical Perspective. Eruwa, Acecool Medical, 2008, pp 21-36.
34. Ifere OA, Masokano KA: Infective endocarditis in children in the Guinea savannah of Nigeria. Ann Trop Paediatr 1991;11:233-240.



35. Bode-Thomas F, Ige OO, Yilgwan C: Childhood acquired heart diseases in Jos, north central Nigeria. Niger Med J 2013;54:51-58.
36. Falase B, Sanusi M, Majekodunmi A, Animasahun B, Ajose I, Idowu A, Oke A: Open heart surgery in Nigeria; a work in progress. J Cardiothorac Surg 2013;8:1-9.
37. Nwiloh J, Edaigbini S, Danbauchi S, Babaniyi I, Aminu M, Adamu Y, Oyati A: Cardiac surgical experience in northern Nigeria. Cardiovasc J Afr 2012;23:432-434.
38. Maheshwari S, Animasahun BA, Njokanma OF: International patients with congenital heart disease: what brings them to India? Indian Heart J 2012;64:50-53.
39. Falase B, Sanusi M, Majekodunmi A, Ajose I, Idowu A, Oke D: The cost of open heart surgery in Nigeria. Pan Afr Med J 2013;14:61.
40. Ekure EN, Okoromah CAN: In-hospital outcome of children referred for cardiac surgery abroad from a developing country. Nig J Paediatr 2009;36:80-86.
41. Nwiloh JO, Otiudara MA, Adeboia PA: Heart surgery practice in Sub Saharan Africa: single Nigerian institutional midterm results and challenges. World J Cardiovasc Surg 2014;4:35-41.
42. Animasahun BA, Johnson A, Ogunkunle OO, Idowu OA, Bode-Thomas F, Maheshwari S, Omokhodion SI, Njokanma OF: Transcatheter closure of patent ductus arteriosus and atrial septal defect without on-site surgical backup: a two-year experience in an African community. Pediatr Cardiol 2014;35:149-154.
43. Ugochukwu O, Jerome A: An audit of intensive care unit admission in a pediatric cardio-thoracic population in Enugu, Nigeria. Pan Afr Med J 2010;6:10.
44. Adeyemo A, Rotimi C: What does genomic medicine mean for diverse populations? Mol Genet Genomic Med 2014;2:3-6.

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Clinical Epidemiology



# Clinical Epidemiology and Management of Congenital Heart Defects in a Developing Country

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## Abstract

Congenital heart defects (CHD) remain one of the most common categories of birth defects worldwide. In many developing countries, high early childhood mortality and limited diagnostic facilities often obscure the true scope of the problem. In this review, we provide an overview of the clinical epidemiology and management of CHD in a developing country: Nigeria, Africa's most populous country. We describe the types of CHD and the clinical presentation, echocardiographic diagnosis, management, and outcome of CHD. Ventricular septal defects are the commonest CHD reported in Nigeria while tetralogy of Fallot is the commonest cyanotic CHD. Their etiology is often unknown, although the congenital rubella syndrome and Down syndrome account for a significant minority of cases. Thus far, there is no modern genetic study of CHD in Nigeria. Diagnosis is often delayed, with only about half of CHD cases getting diagnosed within the 1st year of life and up to 10% diagnosed in adulthood. Echocardiography has played a major role in improving diagnosis. Man-

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In many developing countries (such as Nigeria), congenital malformations are often viewed as less of a priority than communicable diseases, malnutrition, and perinatal conditions, which account for much of the morbidity and mortality observed in such societies. Nonetheless, congenital malformations remain important clinical problems, occurring frequently enough and often posing appreciable burdens on health care systems, which are often ill prepared to manage such complex conditions. Indeed, the first studies of congenital heart defects (CHD) in Nigeria were reported in the 1960s [1] and several other studies [2–16] followed describing various aspects of CHD. The first study of the preva-

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