Gaps in Oral Health-care Service Provision Systems for Children in Nigeria: A Case Study of a Tertiary Health Institution

Abstract

Background: The study investigated the common dental conditions of children seen in a Nigerian tertiary hospital. The referral patterns were also determined to know how many of the patients had sought care at the lower levels of health before visiting a tertiary hospital. Methods: All the children aged 0–15 years seen at the Dental hospital, Obafemi Awolowo University Teaching Hospitals Complex, Ile-Ife, Nigeria over a 4-year period were included in the study. Information retrieved from their case notes including patterns of referral, presenting complaints, diagnosis, and treatment were extracted from the case records of the patients. Treatment plans for patients seen at this tertiary hospital were categorized into primary, secondary, and tertiary health-care services. Results: A total of 1,866 children sought treatment over a 4-year period at this tertiary hospital of which 1715 (91.9%) sought treatment without referral from lower levels of care. Only 102 (5.4%) children were referred from primary health care (PHC) centers. Six hundred and seventy-five (36.2%) children presented with pain while 502 (26.9%) attended for a “check-up.” Furthermore, 779 (41.8%) children were diagnosed with periodontal disease (including gingivitis) and 539 (28.9%) with dental caries. Scaling and polishing with oral hygiene instruction was the most common treatment recommended. Only 5% of children seen at this tertiary health facility required specialized oral health-care services provided by tertiary health institutions. Conclusions: The range of oral health care needed and service provided by and for patients who visited this tertiary health-care institution can be effectively provided in a primary or secondary oral health-care delivery center. The poor integration of oral health care into PHC services in Osun State burdens the tertiary health-care institutions to provide nonspecialized oral health-care services.

Keywords: Dental caries, gingivitis, primary health care, referral patterns

Background

Oral and dental diseases are among the most common diseases in the world and they account for much pain and suffering. Although oral diseases are seldom fatal, the social and psychological consequences are usually serious and the cost in financial terms is enormous. The burden of oral health disease for the general population in Nigeria and in children in particular remains unknown; oral diseases do contribute significantly to poor quality of life in children. Of significant concern is the high prevalence of untreated dental caries, the sequelae of untreated dental caries, and the impact of dental anomalies and developmental dental defects on oral health.

Unfortunately, the national policy and strategy to achieve health for all Nigerians makes no specific mention of oral or dental health. The National Oral Health Policy was launched in 2012. However, there has been no working or strategic plan for its implementation. Neither is there any coherent national program that addresses the implementation of the policy. These gaps have serious consequences on the oral health of the general population and the oral health of children in Nigeria when viewed in the light of a rising trend in oral diseases that have been witnessed within the last few years in developing countries.

Although the country operates a three-tier system of health-care delivery system and the National health policy is anchored on primary health care (PHC) as defined in the Alma Ata declaration, oral health is still a neglected part of the PHC programs in Nigeria. Ideally, the PHC system should provide a systematic entry into the entire health-care system with oral health being

Access this article online

Website: www.ijdr.in
DOI: 10.4103/ijdr.IJDR_734_16

How to cite this article: Fatusi OA, Ogunbodede E, Sowole CA, Folayan MO. Gaps in oral health-care service provision systems for children in Nigeria: A case study of a tertiary health institution. Indian J Dent Res 2018;29:622-6.
treated as an integral part of general health activities and not an isolated component. Thus, a high percentage of oral health problems could be managed at the PHC level while complimentary services would then be provided at the secondary and tertiary-care levels. The services provided at the PHC should focus on activities that directly impact the provision of oral health. These include pain relief in form of analgesics, antibiotics, scaling and polishing, oral health education to mothers and children, extractions, simple fillings including zinc-oxide eugenol dressings and atraumatic restorative treatment, and application of fluorides. This is in line with the proposition made by Isman.

Where oral health problems are beyond this scope, patients are referred to secondary health institutions where they receive more specialized care. The World Health Organization has suggested that the tertiary care level should be reserved for the treatment of neoplasms and management of trauma, congenital defects, malocclusions and complex problems in prosthetics, endodontics, and rehabilitation.

There is very little understood about the impact of the unavailability of primary oral health care on the oral health-care system and structure in Nigeria. Currently, health care is provided through 22,850 public health facilities: 21,808 PHC, 969 secondary, and 73 tertiary health institutions. There are currently only 679 dental clinics available in Nigeria with over 65% of these clinics being operated as private practices. There are <30 PHC providing primary oral health care in Nigeria. None of the 621 PHC and 55 comprehensive health-care centers in Osun State, Nigeria, where this study was conducted, provide oral health care.

The main aim of the present study is to determine the common dental complaints and diseases of children seen in a Nigerian tertiary hospital located in Osun State, Nigeria, and to assess which of these can be effectively handled at the lower levels of care. The study would also consider the referral patterns and determine how many of the patients had sought care at the lower levels before patronizing a tertiary hospital. The paper would also identify new models for oral health-care practices in a resource-poor setting like Nigeria where the cost implications for setting up primary health-care services is challenging.

Methods

Study site

The study was conducted at the Child Oral Health Clinic of the Dental hospital, Obafemi Awolowo University Teaching Hospitals Complex, Ile-Ife, Nigeria. The hospital provides tertiary oral health care. It is one of three tertiary health-care centers in Osun State. However, the Child Oral Health Clinic is the only clinic that provides tertiary oral health care in the State. The Clinic serves 40%-45% of the 9.2 million from Osun, Ondo, Ekiti, and Kogi States referred to the hospital. These are the catchment areas for oral health-care delivery for the center. At the time of this study, only two qualified pedodontists were serving the population of children seen at this clinic.

Study population

All the children aged 0–15 years seen at the Child Oral Health Clinic, Dental hospital, Obafemi Awolowo University Teaching Hospitals Complex, Ile-Ife, Nigeria, over a 4-year period, were included in the study.

Study procedure

Information was retrieved from the case notes of children who attended the Child Oral Health Clinic during the study period. Information retrieved were sex of the child, point of referral, presenting complaints, diagnosis, and the treatment plan.

Data analysis

Descriptive analysis was conducted to determine the proportion of children with specific oral health complaints, diagnosis, and required treatment. The proportion of children who were referred to the institution was also determined. Finally, the proportion of children who required services that could be provided at the primary, secondary and tertiary health-care facility was also determined.

Ethical considerations

The study received ethical clearance from the Ethical committee of the Dental hospital, Obafemi Awolowo University Teaching Hospitals Complex, Ile-Ife, Nigeria. Informed consent was not sought because it was a retrospective study, and data were generated from the biomedical records department by a personnel not engaged with this study.

Results

A total of 1866 children sought treatment over the 4-year period at the tertiary health-care facility. This included 956 males (51.2%) and 910 females (48.8%). The mean age of the patients (+ standard deviation) was 7.38 ± 2.34 years. There was no statistically significant difference in the sex distribution of the patients, and similarly, no difference was found in the monthly and yearly distribution of patients’ attendance; hence, the data were pooled for analysis.

The referral pattern of the patients is presented in Table 1. Over the period, 1715 (91.9%) of the patients sought treatment directly at the teaching hospital without any referral from lower levels of care. Only 102 (5.4%) were referred from PHC centers.

The presenting complaints of the children are presented in Table 2. About a third of the patients (36.2%) presented with pain, while 502 (26.9%) attended for a “check-up” or to have scaling and polishing of the teeth. Only 155 patients (8.3%) complained of decayed teeth and/or...
broken fillings. Periodontal disease was the most common diagnosis recorded for the patients - 779 (41.8%) children were managed for periodontal health diseases including 119 (6.4%) cases of Acute Necrotizing Ulcerative Gingivitis. Five hundred and thirty-nine (28.9%) children had had dental caries [Table 3].

The recommended treatments recommended for the patients are presented in Table 4. About half (46.9%) of the children needed scaling and polishing with oral hygiene instruction. Furthermore, 409 (21.9%) children needed extractions and 321 (16.7%) children needed tooth filling. None of the cases required management under general anesthesia. Only 15 (0.8%) children were referred for care with other medical specialty.

Table 4 also highlights the categories of services provided at the tertiary health institution. Only 5.0% of the treatment need was specifically tertiary health-care institution focal priority. Other services could have been provided at the primary and secondary health institutions.

**Discussion**

The present study showed that 1715 (91.9%) patients sought care directly at the tertiary care levels and did
not go through the lower levels of care. In addition, majority of the treatment needed by children seen at this tertiary health facility – scaling and polishing, extraction, amalgam filling, medication, temporary dressing, and fluoride therapy – were treatments that can be provided by functional PHC facilities. Only 5.0% of the oral health-care needs – orthodontic treatment and surgical interventions – actually required attention at the tertiary health-care institution. Some of the treatment-pulp therapy and partial denture provision could be provided at secondary health-care facilities. The implications of these findings are multiple.

First, the absence of an efficient primary oral health-care system in the catchment area of the Dental hospital, Obafemi Awolowo University Teaching Hospitals Complex, Ile-Ife, Nigeria implies that specialists are saddled with providing oral health-care services that do not require specialization. The inefficient use of available human resources has cost-benefit implications. This gap can be addressed through the training of PHC workers to provide some basic oral health care such as prescription of analgesics and antibiotics, oral health education to mothers and children, scaling and polishing and application of fluorides for children. Physicians in other parts of the world including the United States, provide these basic oral health-care services for children. [21,22] This model could be considered a viable alternative to meeting the oral health needs of children in Nigeria in view of the current gaps in service provision for children. If PHC workers are trained to provide basic oral health care, more patients will benefit from oral health services since there are more PHC workers available and they work closer to the community than secondary or tertiary health workers. In Osun State, 60% of residents live in rural areas. [20] This means that in the absence of primary oral health-care services, they have to travel long distances to the few available primary, secondary and tertiary health facilities. A prior study conducted in the country had highlighted that distance between residential homes of children and oral health-care facilities significantly reduce oral health-care service utilization. [23]

Training PHC workers to provide basic oral health care is possible and will increase the contact points of community members for oral health-care services. [14] Currently, oral diseases are poorly addressed in the training curriculum of PHC workers. [24] This deficiency is globally recognized and a few countries have extended the PHC principles to include dental services. [21] Nigeria may require a similar approach for there to be significant changes in oral health-care management system in ways that ensures all Nigerians have equitable access to oral health-care services.

A second important finding is the low number of children who presented at the tertiary hospital who actually required tertiary oral health care. This has implications for the training of pedodontists. The proportion of children with specialized oral health-care needs is low compared to the number of trained specialized personnel working in the hospital. Yet, the population need of dentists is far from being met with 25 pedodontists serving a population of 58,736,297, children under the age of 15 years in Nigeria. [26] Despite this low pedodontist: children ratio, there is no evidence to suggest that the number of trained specialists in the country is driven by any national, state or local government requirement. The current evidence suggests that the need for specialist care in pediatric dentistry is quite low except where there are large populations of children who need specialist care who do not turn up in the hospitals. This postulation needs to be explored further.

A third important finding is that none of the patients required treatment under general anesthesia. This is unusual for a facility that handles pre-cooperative and potentially noncooperative children. It is also unusual knowing that children required surgical interventions. While there are concerns that dental general anesthesia carries a small, but significant, risk of mortality [27] and may be unpleasant with negative experience which may be detrimental to future dental attendance and compliance with dental treatment, [28] management of precooperative and potentially noncooperative children under general anesthesia still has an important place in child-patient management. The nonindication for use of anesthesia for management of patients in this institution may reflect an absence of competency to use the facility, and/or the absence of such facility for child oral health care. It is important to understand why there is a gap in this respect and possibly institute measures to address this gap in the tertiary health institution.

This study highlights the system problem associated with the absence of oral health-care services integrated into the PHC system in Osun State and its impact on the tertiary oral health-care system. The study also highlights the need for the country to plan for oral health-care task force requirements while also maximizing the use of existing task force to provide basic oral health-care needs in Osun State. The study findings is likely to reflect what happens in Nigeria as a whole and so may be relevant for other parts of the country where primary oral health-care service provision is poor or nonexistent like in Osun State.

Financial support and sponsorship
Nil.

Conflicts of interest
There are no conflicts of interest.

References
1. Murray JJ, editor. From introduction. In: Prevention of Oral Disease. Oxford: Oxford University Press; 1996. p. 1-2.
2. Ogumbode EO, Sheiham A. Oral health promotion and health education programmes for Nigeria – Policy guidelines. Afr Dent
3. Chukwumah NM, Folayan MO, Oziegbe EO, Umweni AA. Impact of dental caries and its treatment on the quality of life of 12- to 15-year-old adolescents in Benin, Nigeria. Int J Paediatr Dent 2016;26:66-76.

4. Mashoto KO, Astrøm AN, Skeie MS, Masalu JR. Changes in the quality of life of Tanzanian school children after treatment interventions using the child-OIDP. Eur J Oral Sci 2010;118:626-34.

5. Folayan MO, Chukwumah NM, Onyejaka N, Adeniyi AA, Olatosu OO. Appraisal of the national response to the caries epidemic in children in Nigeria. BMC Oral Health 2014;14:76.

6. Oziegbe EO, Esan TA. Prevalence and clinical consequences of untreated dental caries using PUFA index in suburban Nigerian school children. Eur Arch Paediatr Dent 2013;14:227-31.

7. Popoola BO, Onyejaka N, Folayan MO. Prevalence of developmental dental hard-tissue anomalies and association with caries and oral hygiene status of children in Southwestern, Nigeria. BMC Oral Health 2016;17:8.

8. Oyedele TA, Folayan MO, Adekoya-Sofowora CA, Oziegbe EO. Co-morbidities associated with molar-incisor hypomineralisation in 8 to 16 year old pupils in Ile-Ife, Nigeria. BMC Oral Health 2015;15:37.

9. Federal Ministry of Health. The National Health Policy and Strategy to Achieve Health for all Nigerians. Lagos: Federal Ministry of Health; 1986. p. 54.

10. Federal Ministry of Health. National Oral Health Policy. Abuja, Nigeria: Federal Ministry of Health; 2012.

11. Petersen PE. The world oral health report 2003: Continuous improvement of oral health in the 21st century – The approach of the WHO global oral health programme. Community Dent Oral Epidemiol 2003;31 Suppl 1:13-23.

12. Olojugba OO, Lennon MA. Dental caries experience in 5- and 12-year-old school children in Ondo state, Nigeria in 1977 and 1983. Community Dent Health 1987;4:129-35.

13. World Health Organization/UNICEF. Primary Health Care. Geneva: World Health Organization; 1978.

14. Jeboda SO, Eriksen HM. Primary oral health care. The concept and suggestions for practical approach. Odontostomatol Trop 1988;11:121-6.

15. Lamster IB, Wolf DL. Primary health care assessment and intervention in the dental office. J Periodontol 2008;79:1825-32.

16. Isman RE. Integrating primary oral health care into primary care. J Dent Educ 1993;57:846-52.

17. Federal Ministry of Health and Measures Evaluation. Health Facilities Mapping Report. Abuja, Nigeria; 2011.

18. Otso EC. Current Concepts in the Management of Caries: Feasibility Analysis in the Present Nigerian Setting. Lecture Presented at the 9th Annual Faculty Lecture and Scientific Conference of the Faculty of Dental Sciences, College of Medicine, University of Lagos, Ido-Ibi, Lagos; 5 August, 2015.

19. Sanni L. Distribution pattern of healthcare facilities in Osun State, Nigeria. Ethiop J Environ Stud Manag 2010;3:65-76.

20. Lewis CW, Grossman DC, Domoto PK, Deyo RA. The role of the pediatrician in the oral health of children: A national survey. Pediatrics 2000;106:18.

21. National Population Commission. 1991 Population Census of the Federal Republic of Nigeria. Analysis Report at the National Level. Abuja: National Population Commission; 1998.

22. Prakash P, Lawrence HP, Harvey BJ, McIsaac WJ, Limeback H, Leake JL, et al. Early childhood caries and infant oral health: Paediatricians’ and family physicians’ knowledge, practices and training. Paediatr Child Health 2006;11:151-7.

23. Onyejaka NK, Folayan MO, Folaramimi N. Barriers and facilitators of dental service utilization by children aged 8 to 11 years in Enugu state, Nigeria. BMC Health Serv Res 2016;16:93.

24. Ogumbode EO, Jeboda SO. Integration of oral health into existing primary health care services in Nigeria – From policy to practice. Niger Dent J 1994;11:21-6.

25. van Palenstein Helderman W, Milks F, Begum A, Adyatmaka A, Bajracharya M, Kikwitu E, et al. Integrating oral health into primary health care – Experiences in Bangladesh, Indonesia, Nepal and Tanzania. Int Dent J 1999;49:240-8.

26. Folayan MO, Sofola OO, Khami MR, Esan AO, Popoola BO, Oremuwa AA, et al. Study motives, career choices and interest in paediatric dentistry among final year dental students in Nigeria. BMC Med Educ 2014;14:130.

27. Fayle SA, Welbury RR, Roberts JF, British Society of Paediatric Dentistry. BSPD. British society of paediatric dentistry: A policy document on management of caries in the primary dentition. Int J Paediatr Dent 2001;11:153-7.

28. Bridgman CM, Ashby D, Holloway PJ. An investigation of the effects on children of tooth extraction under general anaesthesia in general dental practice. Br Dent J 1999;186:245-7.