Oral health in Kenya

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This paper gives general information on the location of Kenya, its demography, economy, organisation of health services, general health policy, health financing, oral health infrastructure, problems that hamper health financing and proposals on how to solve these problems. Further, a summary of health status of the Kenyan people is given based on the results of studies. The mean DMFT for the rural and urban populations is low and there is no evidence of an increase or decrease. Similarly, the prevalence of periodontitis is low (1–10%), with no increase. Ulcerative lesions are rare (0.12%). The most common birth defects are cleft lip and palate. Oral cancer is very low, accounting for 2% of all malignancies. Comparative studies have not demonstrated any dramatic change in the frequency of oral cancer for the last 25 years. Oral candidiasis is the most prevalent oral lesion amongst HIV/AIDS patients. In June 2003, Kenya formulated a National Oral Health Policy, which gives direction on how to improve the oral health status of the citizens.

Key words: Oral health, oral health policy, caries, periodontal diseases, Kenya

Kenya is situated in East Africa, between longitudes 34°E and 42°W and the Equator divides the country into equal parts. It is bordered by Somalia to the east; Ethiopia and Sudan to the north; Uganda to the west; Tanzania to the south west and the Indian Ocean to the south. The capital city is Nairobi and other cities are Kisumu and Mombasa.

The population is currently about 30 million with 5% under one year, 20% under five years and 50% under 15 years. At Independence in 1963, the population growth rate was 3%, then rose to 4% in 1979 and declined in mid-1995 to 2.9%. The current population growth rate is 2.5%. Life expectancy stands at 54 years because of the AIDS pandemic. In the absence of the AIDS pandemic, it would be 60 years. The crude birth rate is estimated at 37/1,000. However, the crude death rate could have been 12/1,000.

Kenya has a tropical climate with most parts experiencing two rainy seasons per year. Its economy is predominantly agricultural, and GDP per capita is about US$ 230. The poverty level stands at 50%, the poor defined as those who cannot meet food or non-food requirements. One third of the rural population suffer from absolute poverty, compared with 10% of the urban population. The absolute poor are those who cannot meet their food requirements even if they do not spend on other requirements. In 1997, absolute poverty levels were estimated at Ksh 1,237 (US$ 16) per person.
per month in the rural areas and Kah 2,648 (US$ 34) per person per month in the urban areas.

The economic growth is negative. Therefore, poverty levels are rising and getting entrenched. According to the economic survey in 1999, the growth rates of the agricultural and manufacturing sectors, which are key sectors of the economy, reduced, on average 2.7% and 2.9% respectively. This was due to competition from the liberalised market, the rundown infrastructure and the depressed domestic demand.

Organisation of health services in Kenya

Ministry of Health

The Ministry of Health (MOH) is structured into three departments: Curative and Rehabilitative, Promotive and Preventive, and Standards and Regulatory Services. The Division of Oral Health Services falls under the Curative and Rehabilitative department. The Oral Health Division comprises a Promotive and Preventive Section, and Curative and Rehabilitative Sections. The Chief Dental Officer heads the Oral Health Division, assisted by two auxiliary oral health persons, a community oral health officer and a chief dental technologist. Oral health services are offered by the public and the private sectors, which comprise of the following: hospitals, health centres, dispensaries, nursing and maternity homes, and health clinics. There are two national referral hospitals – Kenyatta National Hospital and Moi teaching hospital. Oral health personnel are trained by the government in the tertiary and middle level colleges. The oral health personnel also provide services in the research institutions and the military hospitals.

General health policy

The Ministry of Health endeavours to create an enabling environment for the provision of sustainable health which is acceptable, affordable and accessible to all Kenyans. The Mission of the Ministry is “to provide promotive, preventive, curative and rehabilitative health care services to all Kenyans”.

The majority of the oral health personnel are dentists (Table 1). The number of registered dentists in Kenya is 700. The dentist/population ratio is 1:378,000 in the public sector. When all the sectors are combined, the dentist/population ratio is 1:60,000, 20% are in the rural areas and 80% urban. The reason behind having very few trained auxiliary personnel can be traced to lack of a National Oral Health Policy for Kenya before 2002. The majority of the dental specialists in Kenya are oral and maxillofacial surgeons (Table 2).

Financing of health care

The two main sources of health care funding are the government and individual households (Table 3). The health budget constitutes only 3.8% of the total budget. Further, MOH per capita recurrent health expenditure is US$ 3.4. Public Health expenditure as a percentage of GDP is 2.3%. The budgetary allocation for oral health is 0.0016 of the total health budget. In view of this, improvement of oral health care delivery has been an uphill task. Individual household financing comes mainly from out-of-pocket user fees, cost sharing and over the counter payment for medications. There is donor funding available, provided by several donor agencies for project and non-project funding. Currently,

Table 1 Oral health public sector personnel in Kenya ($^2$)

<table>
<thead>
<tr>
<th>Category of personnel</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Dental specialists</td>
<td>50</td>
</tr>
<tr>
<td>2. General dentists</td>
<td>107</td>
</tr>
<tr>
<td>3. Dental technologists</td>
<td>114</td>
</tr>
<tr>
<td>4. Community oral health officers</td>
<td>97</td>
</tr>
<tr>
<td>5. Dental hygienists</td>
<td>1</td>
</tr>
</tbody>
</table>

Table 2 Breakdown of the number of dental specialists in various disciplines of oral health ($^2$)

<table>
<thead>
<tr>
<th>Specialty</th>
<th>Number of oral health specialists</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Oral &amp; Maxillofacial Surgery</td>
<td>15</td>
</tr>
<tr>
<td>2. Oral Medicine and Oral Pathology</td>
<td>4</td>
</tr>
<tr>
<td>3. Oral Biology</td>
<td>1</td>
</tr>
<tr>
<td>4. Restorative Dentistry</td>
<td>6</td>
</tr>
<tr>
<td>5. Prosthetic Dentistry</td>
<td>4</td>
</tr>
<tr>
<td>6. Orthodontics</td>
<td>3</td>
</tr>
<tr>
<td>7. Paediatric Dentistry</td>
<td>6</td>
</tr>
<tr>
<td>8. Periodontology and Periodontics</td>
<td>4</td>
</tr>
<tr>
<td>9. Biomaterials</td>
<td>2</td>
</tr>
<tr>
<td>10. Community and Preventive Dentistry</td>
<td>2</td>
</tr>
<tr>
<td>11. Public Health (MPH)</td>
<td>10</td>
</tr>
</tbody>
</table>

Table 3 Health care financing ($^3$). Funding sources and contributions

<table>
<thead>
<tr>
<th>Source</th>
<th>%</th>
<th>KSH. (billions)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. GOK</td>
<td>47</td>
<td>17–37</td>
</tr>
<tr>
<td>2. Households</td>
<td>41</td>
<td>15–37</td>
</tr>
<tr>
<td>3. Insurance</td>
<td>5</td>
<td>1.8</td>
</tr>
<tr>
<td>4. NHIF</td>
<td>4</td>
<td>1.4</td>
</tr>
<tr>
<td>5. Private</td>
<td>1</td>
<td>0.4</td>
</tr>
<tr>
<td>6. Donor Agencies</td>
<td>3</td>
<td>1.1</td>
</tr>
</tbody>
</table>

NB:1US$ = 80Ksh.
it constitutes 60% of the health development budget. Other sources include employers, community based insurance schemes and co-operatives. The oral health services infrastructure in most health facilities do not have sufficient resources and the majority of dental equipment does not function adequately. Similarly, the majority of dental laboratories are poorly equipped and most facilities lack sufficient supplies.

Consequences of the current health in Kenya could be listed as: inadequate or poor oral health care services in the public institutions, cost escalation in the private sector, and lack of access to health services for an increasing section of the population. Funding options are constrained because an increase in health budget allocation to the MOH would be likely to lead to an increase in taxation, and an increase of cost sharing in the public health facilities. This would also lead to a further increase in the cost of health care to individuals, and possibly to the establishment of health insurance schemes. This scenario would in turn increase the risks associated with health insurance.

There are also specific problems hampering oral health financing. Oral health has traditionally been segregated from the general health and there is a lack of appreciation of the importance of oral health to general health and welfare. Consequently, oral health does not have priority in health financing programmes which also suffer from a reluctance for the development of financing. There is an association of oral health services with high cost, and an incoherent approach in the management of oral diseases.

The road map forward would include: a correction to the negative attitudes towards oral health; integration of oral health into the general funding programmes; establishment of comprehensive health insurance programmes to make funding available to the health sector; the setting of good financial oral health incentives for providers of oral health care; ensuring that all individuals have access to effective public and personal health care. This can be done by petitioning the government to take an active role in establishing basic health benefits associated with health insurance cover.

Oral health status of the Kenyan people based on studies to date

Oral health is defined as: “The absence of disease and the optimal functioning of the mouth and its tissues, in a manner that preserves the highest level of self esteem”.

Oral health describes a standard which enables an individual to eat, speak and socialise without disease, discomfort or embarrassment and which contributes to their general well-being. While this paper reports on oral diseases and oral disorders, as no national oral health survey has been carried out in Kenya the results of the studies presented cannot be representative for the entire Kenyan population. However, they are very important because they provide a general understanding and appreciation of the oral health status of the Kenyan people.

Dental caries

Urban populations

Under 18-year-olds have a mean DMFT of 0.2–1.8, 12–15 year olds 1.2–1.9 and handicapped children aged between 5–15 years, 0.8. Most of these studies have been conducted in the capital city, Nairobi. For unknown reasons, caries status of adults has received very little attention. In one study, 26–59-year-olds in the rural population were found to have a mean DMFT of 5.8.

Rural population

The information that has been collected is scanty. The mean DMFT recorded to date is below 2. Molars are the most affected teeth. Lesions are mainly occlusal and involve the dentine. Relatively few people have fillings. The prevalence of dental caries is highest amongst the middle socioeconomic groups and females have a higher prevalence than males. There are no follow-up reports of these studies. Consequently, there is no certainty whether dental caries in Kenya is on the decrease or not.

Periodontal diseases

Prevalence of gingivitis varies between 0.2–90% and of chronic periodontitis between 1–10%. In Kenya, and in East Africa in general, many patients have heavy plaque and calculus deposits, but minimal or no destruction of the periodontium. Prevalence of juvenile periodontitis amongst the young adults aged 18–26 years was 0.28%. This falls within the range of the published prevalence of 0.1–3.4% among young adults globally. The prevalence of acute necrotising ulcerative gingivitis among school children has been reported to be 0.06%, with the majority (88.6%) of these children being below 11 years of age. The prevalence amongst hospital patients was 0.15%. In general, other ulcerative lesions amongst patients seeking dental treatment are rare (0.12%). Of these, 5% are NOMA, 25% aphthous ulcers, 5% atypical ulcerations, 10% angular cheilitis, 5% oral candidiasis (dorsum of tongue), 10% aspirin burns and 5% radiotherapy induced. There is no equivocal evidence that periodontal disease is on the increase in Kenya.

Dental fluorosis

Data has been collected using either the Dean’s or the Thystrup and Fejerskov (TF) indices. The prevalence of fluorosis ranges between 44% (using Dean’s index) and 72% using TF index. It varies from place
to place\textsuperscript{11,12} and the severity increases with increasing concentrations of fluoride in water\textsuperscript{13-15}. In some places dental fluorosis is found to be substantially higher than would be expected from the levels of fluoride in drinking water. A number of hypotheses, among them altitude and fluoride ingestion from other sources, have been suggested. Between 60.4–84.3\% of Kenyans view dental fluorosis as an important health problem, because of its unfavourable effects\textsuperscript{16}. While 60\% of the respondents in some studies have attributed the problem to water, knowledge on perceived methods of prevention of dental fluorosis is very low. Fluoride levels in some Kenyan lakes such as Lake Nakuru are as high as 2.4ppm\textsuperscript{1}. Skeletal fluorosis has been reported amongst patients drinking borehole water with fluoride levels of 18.29ppm\textsuperscript{1}.

**Malocclusion**

Reported prevalence rates of malocclusion are as follows: 39\% in 3–15-year-olds\textsuperscript{1}, 47\% in 13–15-year-olds\textsuperscript{17}, and 58\% in 12–18-year-olds\textsuperscript{6}. Of these, 84\% have neutral occlusion, 11.5\% distal occlusion, and 5\% mesial occlusion\textsuperscript{1}.

Occurrence of impacted teeth has only been investigated on the third molars by radiographs\textsuperscript{1}. Most of the impactions occur in the mandible and are bilateral. Information on the prevalence of the other teeth is not available.

**Other occlusion related problems**

The prevalence of artificial sucking habits is low\textsuperscript{18}. The reported prevalence of supernumerary teeth amongst children is 3.7\%\textsuperscript{6}. Supernumerary teeth occur more frequently in the mandibular premolar areas. The prevalence of hypodontia amongst children has been reported as 6.3\%\textsuperscript{6}. Of these, 80\% lack one or two teeth and 8\% have two or more teeth missing in the same quadrant. The most frequently missing teeth are the mandibular second premolars. Intraocclusion of the deciduous molars is relatively common amongst Kenyans and the most common craniofacial birth defects are cleft lip and palate\textsuperscript{1}, estimated to affect 1/1,000 live births. There are 30,000 untreated birth defect cases in Kenya.

No prevalence studies of edentulism have been conducted to date. However, it is important to note that the main cause of tooth loss in Kenya is dental caries\textsuperscript{1}. Although patients with disabling diseases such as temporomandibular disorders, Sjogren’s syndrome, trigeminal neuralgia and postherpetic neuralgia, fibromyalgia and Bell’s palsy present with some pain, no studies on these diseases have been carried out in Kenya. However, clinical experience shows that pain is a common symptom of craniofacial disorders and almost 80\% of adults report some form of oro-facial pain in their lifetime\textsuperscript{1}.

**Maxillofacial trauma**

This is a common occurrence in urban society where interpersonal violence is the main cause\textsuperscript{19}. Unintentional injuries including head, mouth and neck injuries are common\textsuperscript{20,21}. Amongst 13-to-15-year-olds in Nairobi, the reported prevalence of fractured anterior teeth is 16.8\%\textsuperscript{2}. Boys have a higher prevalence than girls and the causes include fall, assault, stationary objects, opening bottle tops and road traffic accidents. Falls alone account for 77\% of all injuries\textsuperscript{21}. Most of the injuries occur in the maxilla and involve enamel only. Studies on traumatised anterior teeth show a relation to the severity of the overjet in some communities, but no studies have been carried out to-date in Kenya\textsuperscript{3}.

**Oral cancer**

A retrospective study covering a 9-year period from 1968 to 1976, revealed that the frequency of oral cancer in Kenya is very low\textsuperscript{22}. Oral cancer accounted for 2\% of all malignancies. Amongst the Africans, Kenyans of Somalis origin and Kikuyus showed the highest rates of occurrence. On the other hand, amongst the non-Africans, the Kenyans of Asian origin showed the highest rate of occurrence. Cancer of the tongue and the palate were common compared with the other intra-oral sites.

Another recent study\textsuperscript{23} determined the changes in the pattern of oral cancer for the past 20 years (1978 to 1997). Of the 22,788 malignancies that were diagnosed during this period at the National Referral Hospital, 3.6\% were oral cancer. The most common site for oral cancer was the tongue. Comparison with the previous study did not demonstrate a dramatic change in the frequency or in the pattern of oral cancers in Kenya, despite the changes in lifestyle and emergence of AIDS in the country.

**HIV/AIDS**

In a cohort of women at high risk of AIDS, oral candidiasis was found to be the most common oral lesion\textsuperscript{24}. Clinical symptoms of viral infections, such as herpes labialis and oral ulcers are common in adulthood, affecting about 20\% of the adults between 25 and 44 years of age.

**The future of oral health care**

Kenya has recently (2002) formulated an Oral Health Policy that gives the direction on improving the oral health of the population. The policy is referred to as a “National Oral Health Policy and Strategic Plan for June 2002 to 2012”\textsuperscript{25}. The mission statement of this policy is: “The National Oral Health Policy shall, within the next 10 years, lead to the establishment of a comprehensive oral health care system fully integrated in the general health system, and based

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on primary health care, with emphasis on promotion of oral health and prevention of oral diseases”. The system will ensure continued facilities for curative and rehabilitative care, within the available resources, so that all individuals and communities are assured of the improved levels of oral health and function.

The general objective of the policy is “to ensure that Kenyans enjoy improved levels of oral health and function by significant lowering of oral diseases burden, equitable cost-effective quality oral health care and adoption of healthy lifestyles through promotion of public, private and community partnerships”1. The policy has specific objectives geared towards addressing the following oral health delivery related issues: integration, coverage, scope of care, quality assurance, vulnerable groups, technology, human resource, community involvement, partnership, information and research. The effective implementation of the National Oral Health Policy and its sustainability will be guided by the following principles:

- Preventive and promotive oral health care is essentially aimed at creating oral health awareness through targeted information, education and communication (IEC) to all i.e. policy makers, the public and professionals, in order to advocate for the need to have oral health as an acceptable component of general health.

- The focus of curative and rehabilitative care will be to reduce barriers between people and oral health care services such as costs, culture, access and ensuring promotion of public, private and community partnerships to deliver and improve oral health care.

- Strengthening and promotion of research will be achieved through identifying research priority areas in oral health, in order to accelerate the building of science and evidence based care to guide planning, implementation and evaluation of oral health services.

- Oral health services development is made to strengthen the national oral health structures, processes and outcomes in order to be more responsive to oral health needs and priorities of Kenyans.

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References


