THE SURGEON'S HANDS AND THE HUMAN FACE ADVANCING THE SCIENCE AND PRACTICE OF ORAL AND MAXILLOFACIAL SURGERY

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By

Olawunmi Adedoyin Fatusi
Professor of Oral & Maxillofacial Surgery

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INTRODUCTION

As I prepared for this inaugural lecture, I once again became conscious of the distinct grace and mercy of God, acknowledging that "*no man can receive anything except it is given of heaven*". I fully acknowledge today's event as a culmination of several measures of God's grace over a lifetime of my academic endeavours. God, the giver of life, grace, wisdom, and elevation, laid the foundation of my journey in academia, inclusive of my grooming years as an undergraduate in the then University of Ife when I won a federal government scholarship in my first year for outstanding academic performance. This award for academic excellence was given annually to the top ten students in each faculty in Nigerian universities. For the then Faculty of Health Sciences (the precursor of today's College of Health Sciences), the top ten students were drawn from the four programmes namely: medicine, dentistry, medical rehabilitation, and nursing sciences. By God's grace, I sustained my academic performance throughout my undergraduate years and retained my scholarship for the entire period of 1980 to 1987. During this period, I obtained my Bachelor of Science (BSc) degree in Health Sciences in 1984, and my Bachelor of Dental Surgery (B.Ch.D) in 1987.

I was a beneficiary of the legendary Ife 7-year medical school programme that put a premium on equipping the medical and dental students with scientific research capacity as part of the health profession educational package, known then as the 'Ife Philosophy'. My first publication in an international peer-reviewed journal[1] was in 1986 – and was from my BSc project. The publication was co - authored with my BSc project supervisor, Dr. Isaac A. Elegbe. My early interest in the academgia in my

undergraduate years also inspired me to initiate *Orodent*, a journal of the Ife University Dental Students' Association, in 1984[2] when I served as the president of the association. When I served as the national president of the Nigerian Association of Dental Students (NADS) between 1985 and 1987, I also facilitated the publication of the *NADS Journal*.

My entry to dentistry was fortuitous with my late uncle, Professor Olusegun A. Badejo, a much-admired surgeon on the staff of the Faculty of Health Sciences of this great university being instrumental to my decision. My choice of oral and maxillofacial surgery as an area of specialisation was shaped largely by my interactions with, and admiration for another great teacher, excellent surgeon and life-long mentor, Professor Stephen A. Odusanya. Professor Odusanya was a staff of the Faculty of Health Sciences of this university, the pioneer oral and maxillofacial surgeon in Ife and my primary trainer. In 1990, after working for a short period as a dental officer at Obafemi Awolowo University Teaching Hospitals Complex, I started my residency as the first female resident doctor in maxillofacial surgery in Ife and one of the three in Nigeria.

With God's support, I became the first female maxillofacial surgeon in Ife after obtaining my fellowship from the National Postgraduate Medical College of Nigeria (FMCDS) in 1996, and the first female professor of oral and maxillofacial surgery in West Africa, following the announcement of my professorship with effect from 1st October 2008. I also served as the first female dean of the Faculty of Dentistry in Obafemi Awolowo University, Ile-Ife. Today, I have the privilege of presenting the first inaugural lecture in the field of oral and maxillofacial surgery in the history of my *alma mata*—the 'Great Ife'– 10 years after attaining the rank

of a professor and with over two decades of experience as a qualified oral and maxillofacial surgeon.

The late Professor Michael A. Bankole, an erudite scholar and celebrated paediatric surgeon, in the first inaugural lecture ever given by a surgeon in this university, described the university surgeon in his lecture of 16 February 1982. To quote him, the university surgeon is a doctor—

> *. . . who can competently carry out a surgical intervention when necessary, and whose mind is committed to the great heritage of rational thoughts; the commitment being such that he acknowledges the body of rational thought inherited from the past, accepts the responsibility to assimilate it unto daily professional thought and activity, and in the process, replicate and alter it by adding to it, and finally pass it on to future generations in order to ensure its continuity.*[3]

Based on the perspective of this university surgeon, with which I strongly align, and the classical tradition of an inaugural lecture, I plan to examine the field of oral and maxillofacial surgery and highlight how I have been able to interrogate and add to the 'inherited' body of knowledge, as well as passing it on in ways that also ensure its continuity. In this wise, I plan to discuss some of my scientific work and research output. In addition, drawing from my experience of over three decades in clinical practice, I will highlight some of the challenges in the practice of oral and maxillofacial surgery in Nigeria.

Furthermore, I will underscore some of my other activities and services through which I have been contributing to my specialty in line with my topic for today's lecture: *The Surgeon's Hands and the Human Face: Advancing the Science and Practice of Oral and*

Maxillofacial Surgery. To start with, however, I recognize that this being the first inaugural lecture in my field in this citadel of learning, part of my responsibility is to provide insight into the field of oral and maxillofacial surgery—its science as well as its practice.

DENTISTRY AND THE SCOPE OF ORAL AND MAXILLOFACIAL SURGERY

Oral and maxillofacial surgery is one of the ten dental specialties recognised by dental professionals in Nigeria, as well as the leading medical and dental bodies all over the world, including the American Dental Association, the Royal College of Surgeons across Europe (England, Edinburg, Ireland, Glasgow), the Royal College of Dentists of Canada, and the Royal Australasian College of Dental Surgeons. The scope of oral and maxillofacial surgery can be viewed from the constituent elements of its terminology: oral (mouth) + maxillo (maxillary area, which is used to represent the jaws) + facial (face). Thus, the oral and maxillofacial surgeon is a specialist who treats health conditions affecting the skeletal frame of the head and neck including the anatomical area of the mouth, jaws, face and other associated structures.[4]

The other nine specialties of dentistry include: oral pathology (which focuses on diagnosis just as the pathologist in medicine); oral radiology (the equivalent of the radiologist); paedodontics (like the paediatrician, who deals with children); orthodontics and dentofacial orthopaedics (similar to the orthopaedic surgeon, it involves the use of braces and other appliances to correct and maintain optimal configuration of the teeth); oral medicine (like the internal medicine specialist, who treats diseases without

surgical interventions); and community dentistry (a public health professional, who focuses mostly on prevention, just as the field of community medicine).

Other areas of specialisation in dentistry include periodontics (which involves diagnosing, preventing and treating gum diseases), conservative dentistry (specialising in diseases of dental pulp and nerve—focussing on preserving the structure of the teeth and preventing undue tooth loss), and prosthodontics (the diagnosis, treatment, rehabilitation and maintenance of the oral function, comfort, appearance and health of patients with clinical conditions associated with missing or deficient teeth or oral and maxillofacial tissues using biocompatible substitutes).

It is often a surprise to many people in this environment that the duration of the undergraduate training for dentistry is the same six years as medicine in all Nigerian universities. It is not uncommon to hear people exclaim: "Why does one need six years to study just 32 teeth!'' Their surprise is compounded when they learn that the dentist also needs an average of an additional five years of training to specialize in any of the ten fields of practice. However, such are the intricacies, technical knowledge and expert skills set demanded to optimally handle our God-given "32-piece machinery" (the teeth) and the associated structures that help to hold the 32 teeth to function optimally. It reflects the awesome wisdom of our Creator who engineered and perfectly knitted together the elements of the human body. Indeed, the Psalmist is totally correct when he burst out in God's praise as he considered the wonders of his human body: "*I thank you, Most High God – you're breathtaking! Body and soul, I am marvelously made! I worship in adoration – what a creation*! (Psalm 139: 14-15a, the Message Bible).

Dentistry is the 'twin' course of medicine, and as co-physicians, the graduates of both courses subscribe to the same *physician's oath* and are regulated by the same body called the Medical and Dental Council of Nigeria. Students of dentistry and medicine need to understand the human system: its structure (anatomy), its function (physiology), its chemical processes (biochemistry and chemical pathology), its abnormalities and diseases (pathology), and the effect of drugs (pharmacology), among others. Thus, the dental and medical curricula cover the same essential courses in the preclinical years. Differences in the medical and dental curricula only emerge in the clinical training phase. Even in the clinical years, students of both dentistry and medicine still spend one year together taking classes as well as the junior clinical postings in medicine and surgery.

I benefited immensely from the original Ife curriculum that provided for medical and dental students to take exactly the same courses for their first four years and earn the BSc degree in health sciences– before proceeding to clinical training –akin to the system in the United States and some other high-income countries. This old curriculum also provided for the medical and dental students to be trained together with their colleagues in nursing science and medical rehabilitation for three years as members of a united health team. That old curriculum has been commended as a national model by the Medical Education Stakeholders' meeting convened by the Nigerian Academy of Science.[5] The National Universities Commission has also shown an interest in adopting a similar curriculum. I raise this to highlight that the founding fathers of the Faculty of Health Sciences were visionary leaders who saw beyond their days. They reflect the excellent insight and visionary leadership of our pioneers as a university.

Oral and maxillofacial surgery is a cross-breed of dentistry and medicine, and the oral and maxillofacial surgeon is fully a dentist, and fully a surgeon. As such, oral and maxillofacial surgeons are found in dental faculties as well as the departments of surgery of medical faculties the world over. In places like the United Kingdom, one cannot specialize in oral and maxillofacial surgery until (s)he has earned both a medical (MBChB/MBBS) and a dental (BChD/BDS) degree prior to proceeding for specialist training.[6]

Oral and maxillofacial surgery focuses primarily on the lower two- thirds of the human face as represented in Figure 1. The practice of oral and maxillofacial surgery involves the competent management of the diverse and complex health conditions that affect these anatomical areas and the associated structures— the bones, the soft tissues, and the teeth, with the goal of ensuring the integrity of the human face, preserving its key structures, and facilitating optimal performance of the associated functions of chewing, breathing, speaking and smiling.

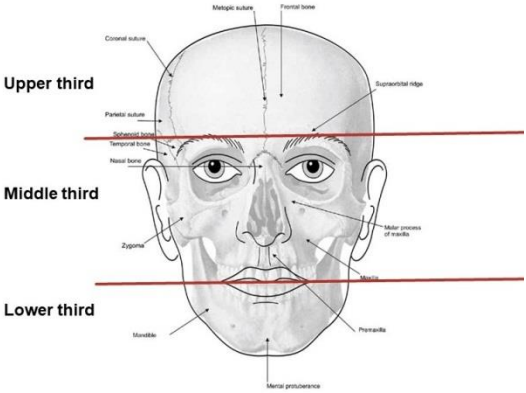

Figure 1. Anatomical mapping of the oral and maxillofacial region.

The field of operation of the oral and maxillofacial surgeon is delicate and linked with many contiguous structures. This necessitates working very closely with several other surgical specialists in patient management, including the ear, nose and throat surgeon (otolaryngologists), the eye surgeon (ophthalmologist), the neurosurgeon, the plastic surgeon, the oncologist, and the anaesthetist. The maxillofacial surgeon also works closely with other members of the health care fraternity, including the nursing professionals, the theatre staff and the laboratory scientists. Furthermore, the oral and maxillofacial surgeon also works closely with other dental professionals. The oral pathologist, for example, helps in making a definitive diagnosis to facilitate effective treatment, and the prosthodontist helps with facial reconstruction. The closest allies of the oral and maxillofacial surgeon in the day-to-day management of dental patients are the dental surgery assistants, dental nurses, dental therapists, and dental technologists.

It is important to note that diseases that affect the oral and maxillofacial or orofacial region may have their roots in some other parts of the body. For example, cancer of the throat can manifest in the mouth. A generalized systemic infection can also show up as a jaw infection. Similarly, health problems that have their roots in the orofacial region can manifest in other parts of the body. For example, the cancer of the mouth can spread to the brain or an infection from a tooth socket can spread to the entire face. Due to its close affinity to other delicate structures, dental problems and oral and maxillofacial disorders can easily lead to disability and death. A tooth infection, as simple as it sounds, if not properly managed can spread to the brain and lead to death, as I have severally witnessed in clinical practice over the years. Thus, though common, the Yoruba phrase "*àrùn eyin ki pa ènìyàn*"

(dental problems do not kill!) is not only false but also dangerously misleading!

THE SCIENCE OF MAXILLOFACIAL SURGERY AND MY RESEARCH CONTRIBUTIONS

Oral and maxillofacial surgery has several areas of sub-specialisation. These include oncology (cancer), trauma (injuries), infections, reconstructive surgery, clefts and craniofacial anomalies, dento-alveolar surgery, temporo-mandibular joint disorders, implantology, and orthognathic surgery. While my clinical practice has involved most sub-specialties over the years, my research has focussed mainly on four areas: cancer, injuries, infection, and reconstructive surgery. Cancer, injury, and infection constitute a high proportion of our cases; their management sometimes requires reconstructive surgery, for example, when tissue loss is involved.*

Cancer in the oral and maxillofacial region

One of the main reasons patients come or are referred to the dental hospital is for the management of abnormal growth in the oral regions. The term "neoplasms" or "tumour" is used for "any abnormal mass of tissue that results when cells divide more than they should or do not die when they should."[7] Such a mass can either be benign (non-cancer) or malignant (technically referred to as cancer). Cancer has the potential to spread to other parts of the body through the blood and lymph systems; cancer is a dreaded condition globally.

Cancers (malignant neoplasms) tend to assume huge dimensions within a very short time, but benign neoplasms are slow growing.

*I will focus on cancer, injuries, and infection in this section and discuss reconstructive surgery in the next section of the lecture.

However, huge benign lesions are common in our clinics because of the delay in seeking treatment. It is amazing that some Nigerians even convert their benign neoplasm to a means of generating income by taking to alms begging on our streets. The general assumption is that benign neoplasms do not recur following treatment but some of them in the orofacial region do. Ameloblastoma, which is the most common jaw neoplasm in Nigeria, is one of such. It is highly infiltrating and has the propensity to recur.

Late presentation of patients, even in cases of benign neoplasms, can interfere with eating, swallowing, speech, and breathing and often result in facial disfigurement. The late presentation of cases also poses management challenges; huge benign neoplasms like that illustrated in Figure 2 leave significant surgical defects post-treatment which makes reconstruction very challenging. The oral and maxillofacial surgeon manages both the cancers that occur in the orofacial region and those that occur elsewhere in the body but affect or spread (metastasize) to the orofacial region. However, metastatic tumours to the jaws are rare.[8]

Figure 2. Huge benign neoplasm.

The entire mucosa of the oral cavity is exposed to a wide range of environmental carcinogens, which makes it prone to the simultaneous occurrence of premalignant conditions. Based on an extensive histological review, Slaughter and colleagues posited that 'cancer does not arise as an isolated cellular phenomenon, but rather as an anaplastic tendency involving many cells at once.'[9] This perspective gave rise to the concept of 'field cancerization,' which was first examined in the upper orodigestive tract.[10] This concept indicates that oral cancer develops in multifocal areas of precancerous change and abnormal tissue surrounds the tumour. Oral cancer often consists of multiple independent lesions that sometimes coalesce, and the persistence of abnormal tissue after surgery may explain second primary tumours and local recurrences. This implies that it is possible for several tumours to develop at different distant sites due to gene aberration induced by carcinogens, and not due to metastasis of tumour cells.

Carcinogens implicated in the development of oral cancers include the use of tobacco (smokeless tobacco inclusive) and alcohol. Viruses are also associated with oral cancers: the human

papilloma virus (HPV) is particularly important in this respect, especially regarding cancers occurring in the posterior part of the mouth (the oropharynx, the tonsils, the base of tongue areas). Oral sex increases the risk of HPV-related oral cancers. Poor oral hygiene and poor nutrition have been implicated in the multifactorial causation of oral cancer.[11]

Cancer can originate from both hard and soft orofacial tissues. Orofacial cancers that affect the bone are known as sarcomas and chondrosarcoma when they affect the cartilages. Orofacial cancers that arise from various parts of the soft tissues are also named differently. They may arise from the epithelial tissues (carcinomas), mesenchymal tissues (sarcomas) and haematolymphoid tissues (leukaemias/lymphomas/plasmacytomas). Figures 3 and 4 show lesions arising from hard and soft orofacial tissue, respectively. The only neoplasm that invades the pulp of teeth is Burkitt's lymphoma, a common childhood neoplasm.

Figure 3. Ameloblastic carcinoma in a 24-year old female patient.

Figure 4. Mucoepidermoid carcinoma of the right parotid gland.

South and southeast Asia have the highest incidence rates for oral cancer.[12] Population-based data on the incidence of oral cancer is generally lacking in sub-Saharan Africa due to inadequate and poor-performing cancer registries. Nevertheless, the available evidence suggests that the rate is lowest in West Africa and highest in the African islands in the Indian Ocean and the southern and eastern African countries.[13] Worldwide, oral cancer is more common among men and older people, although a systematic review has shown an increasing incidence among young people.[14]

Oral cancer at the Obafemi Awolowo University Teaching Hospitals Complex, Ile-Ife, Nigeria

We recently reviewed cases of histologically diagnosed oral cancers arising from the oral and maxillofacial region and

diagnosed in the Obafemi Awolowo University Teaching Hospitals Complex (OAUTHC) between January 2008 and December 2017. Squamous cell carcinoma was the most common type (42.2%), followed by sarcomas (18.4%) and lymphomas (7.3%).[8] Lymphoma was the most common malignancy in children, while carcinomas were predominant in the older age group. The maxilla was involved in 36% of the cases and the mandible in 38% (Figure 5). Although smoking is a highly reported risk factor for squamous cell carcinoma, all the cancer patients in our study were non-smokers.[8] Other studies conducted outside Nigeria have reported that a third (33%) of patients with orofacial cancer are not smokers.[15] Our findings add to the few published works on the clinicopathological patterns of oral cancer in Nigeria.[16,17]

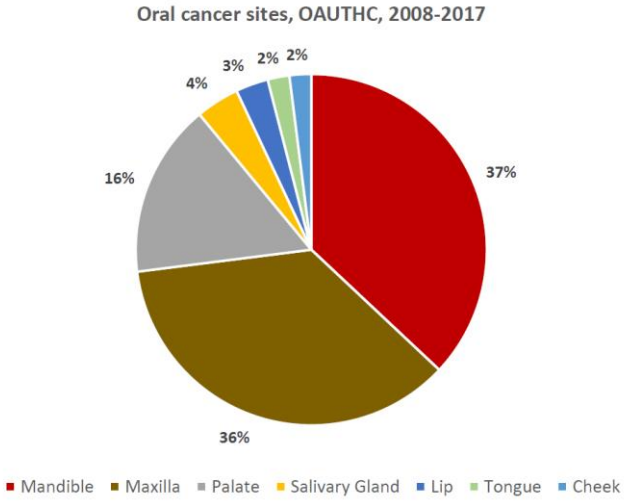

Figure 5. Percentage distribution of oral malignancies in OAUTHC, 2008-2017.

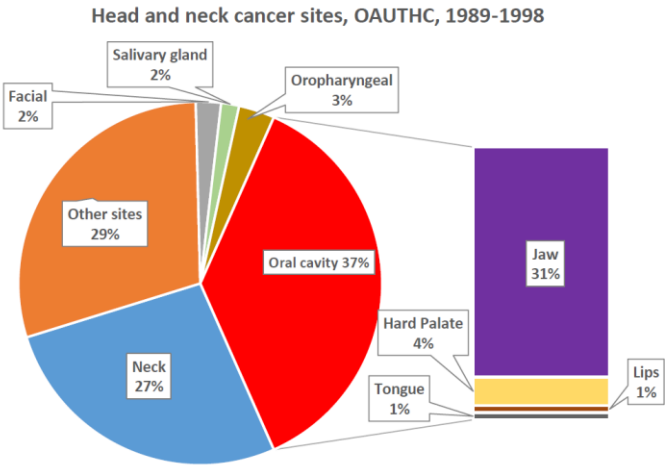

Figure 6. Head and neck cancers in Ife Hospital Unit, OAUTHC, 1989-1998.

Orofacial cancer

Orofacial cancer is a form of head and neck cancers. Globally, cancers of the lip and the oral cavity constitute the highest proportion of head and neck cancers, followed by cancer of the larynx. There are, however, geographical variations in the epidemiological profile of head and neck cancers.[18] The research conducted by our multi- disciplinary team at the Ife Hospital Unit, OAUTHC, showed that the most predominant lesion, over a 10-year period, was lymphoma (70.1%). The oral cavity (36.8%) was the most common site for head and neck cancers in our study as reflected in Figure 6.[19] Studies conducted in other centres in

Nigeria have all reported a lower prevalence of head and neck cancers affecting the oral cavity.[20]

Nasopharyngeal cancer

Nasopharyngeal cancer also belongs to the family of head and neck cancers. There are different types of tissues in the nasopharynx and so many types of cancer can arise from the region. The most common types are those that arise from the epithelium and known as carcinomas. Figure 7 is the photo of one of our patients who presented with nasopharynx cancer. Management of nasopharyngeal carcinoma is challenging because of the obscured location of the tumour. Often, by the time nasopharyngeal cancer shows any evidence in the oral cavity, the nasopharynx would have been destroyed. These cases, when managed surgically, involve a multi-disciplinary team including otolaryngologists (ear, nose and throat surgeons) and oral and maxillofacial surgeons, as well as the anaesthesiologists, anaesthetic nurses, and theatre nurses.

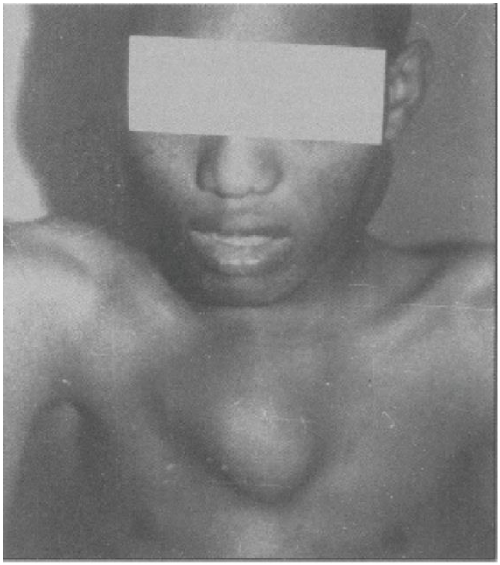

Figure 7. A case of nasopharyngeal tumour with extension to the chest.

Surgical entry for the management of nasopharyngeal carcinoma is rarely through the maxillofacial unit. However, in our environment, several cases had been diagnosed and managed by the oral and maxillofacial unit in collaboration with our colleagues in other specialties. Our experience as oral and maxillofacial surgeons managing nasopharyngeal cancer was published internationally, highlighting our successful practices and the lessons learned.[21]

Rhabdomyosarcoma

Rhabdomyosarcoma is a rare and aggressive form of cancer, which develops from skeletal muscle cells that have failed to fully differentiate. In a study of cancer diagnosed in two specialist centres over a 10-year period, we documented 21 rhabdomyosarcoma cases involving the oral cavity.[22] The age of the patients ranged from 24 days to 42 years. Multiple anatomical

sites were involved in all the cases but the primary site of the lesion could not be determined. The embryonal and alveolar subtypes were mainly diagnosed in the lesions affecting the maxilla. Most patients reported at an advanced stage as shown in Figure 8. The late presentation, once again, contributes to the poor prognosis and management outcome.

Rhabdomyosarcoma in a child. Intra-oral involvement of rhabdomyosarcoma

Rhabdomyosarcoma in an adult. Direct extension of rhabdo-myosarcoma from posterior maxilla into the central nervous system.

Figure 8: Rhabdomyosarcoma in a child and in an adult.

Burkitt's lymphoma

Burkitt's lymphoma is a treatable condition with a high rate of success. Looking back, my point of 'initiation' into cancer research was the study I conducted on Burkitt's lymphoma as part of the requirements for the award of the Fellowship of the National Postgraduate Medical College of Nigeria in 1996.[23] The study provided Nigeria's first set of data on orofacial Burkitt's lymphoma in a non- urban population. I was privileged to have a distinguished team of scholars and clinicians as my supervisors. These were Professor Stephen A. Odusanya (oral and maxillofacial surgeon) and Professor Muheez A. Durosinmi (haemato-oncologist) from Obafemi Awolowo University (OAU), as well as Professor Jelili Akinwande (oral and maxillofacial

surgeon) from the University of Lagos. The late Professor Olufisan O. Taiwo, one of the greatest paediatricians in the history of OAU and OAUTHC, also gave me generous professional support.

Named after Dennis Burkitt, for his pioneering work on the condition in East Africa.[24] Three main types of Burkitt's lymphoma are now recognized – endemic, sporadic, and immunodeficiency-related.[25] The 'endemic' type is the most common and is seen almost exclusively in Africa. The 'sporadic' type occurs throughout the world, and the 'immunodeficiency-related' type is recorded among people with immune deficiency conditions or immuno- suppressive states. The endemic type of Burkitt's lymphoma classically presents as a large swelling in the jaw and is therefore of great interest to the oral and maxillofacial surgeon. It is not surprising that Burkitt's lymphoma is also of interest to some other specialists, particularly paediatricians and haemato-oncologists. Burkitt's lymphoma is the most common childhood malignancy in southwestern Nigeria.[26]

One tenth of the Burkitt's lymphoma patients in my study had both jaws and orbit affected. About one-third (32.2%) had two sites affected, and 57.4% had only one site affected. Overall, the maxilla was the most commonly involved site (55.1% of the cases), followed by the orbit (52.8%)[23.27] (Table 1). Interestingly, most of the cases that presented with jaw lesions alone had incipient abdominal and central nervous system lesions, but the cases that presented with only overt abdominal masses had no jaw involvement. This is the basis for the current practice of prophylactic central nervous system treatment in all Burkitt's lymphoma cases.

Table 1. Pattern of orofacial Burkitt's lymphoma in Ife Hospital Unit, OAUTHC, 1996.

Location	%
1-site location	***57.4***
Mandible	23.0
Maxilla	17.2
Orbit	17.2
2-site location	***32.2***
Orbit + Maxilla	20.7
Mandible + Maxilla	6.9
Orbit + Mandible	4.6
3-site location (Mandible+ maxilla + orbit	***10.3***

Source: Reference 23

Our work has also contributed to the global scientific debate on the interplay of factors in the aetiology of Burkitt's lymphoma. In a case series of patients we followed up, we identified multiple occurrences of the lesion in first-degree blood relatives. The study reported three Nigerian sibling-pairs with familial Burkitt's lymphoma. Two of the sibling pairs were sex concordant, including a set of monozygotic twins.[28] The occurrence of Burkitt's lymphoma in multiple members of the same family, the presence of sex concordance and the relatively wide variation in the time of onset of disease between each pair was highly suggestive of genetic predisposition as a possible additional aetiological factor for Burkitt's lymphoma in the families affected. Overall, familial Burkitt's lymphoma is rare, with less than 10 cases found in the indexed literature.[29-32] Our report is the only published work so far from Nigeria on familial Burkitt's lymphoma.

Over the years, our team has successfully managed several cases of Burkitt's lymphoma, one of which is shown in Figure 9. The administration of anticancer agents is the primary treatment, but sometimes surgical intervention is also carried out to reduce the mass of cancer to enable the drugs to have a greater impact.[33]

Figure 9. Burkitt's lymphoma (before and after treatment).

Photo credit: Prof. M A. Durosinmi

Management of oral cancer

The best approach to cancer is early detection and prompt treatment. Small-sized malignant lesions, if picked promptly, have a better chance of a possible cure following surgery. First, this calls for knowledge of potential signs among the population. It is not every toothache that is caused by holes in the teeth! The following signs require attention if they do not resolve within two weeks:

a) Sores anywhere in the mouth including tongue and

lips

b) White or red or speckled (white and red) patches on the gums, tongue or lining of the mouth

c) Loose teeth without obvious dental cause such as pain

d) Sudden numbness in any part of the face

e) Hoarseness or change in voice

A high index of suspicion among health workers is also important for the early detection of cancer. I have diagnosed some very rare cases of tumour on several occasions and published a few of them to help educate colleagues. These include cases of tongue lipoma[34,35] and primary haemangiopericytoma[36], a slow-growing, vascular tumour found in the head and neck region and extremely rare in Africans. To address the issue of misdiagnosis and improve early detection of cancers, our team assessed the histological pattern of soft tissues attached to extracted teeth. We noted a high probability for clinical misdiagnosis of jaw cysts and neoplasms.[37] We, thus, recommend that soft tissues associated with extracted teeth should be subject to histopathological examination. The advantage in terms of early diagnosis of neoplasms far outweighs the cost to be incurred.

Many of our cancer cases are diagnosed late and have to be managed with anti-cancer drugs (chemotherapy). These drugs, unfortunately, tend to adversely affect the oral mucosa, periodontium, pulpal tissues, and salivary glands. In my study of cancer patients, 40% of those on chemotherapy reported oral complications.[33] Many of the cancer drugs are expensive and are not easily accessible. The same is true for radiotherapy, which is

only provided by a few facilities with epileptic services and widely variable results. Immunotherapy for cancer management is hardly available in the country. As such, the prognosis for cancer cases in Nigeria is poor: prevention and early detection and prompt treatment are, thus, critical.

In response to my research findings, I enlisted as a member of the 'Head and Neck Cancer Alliance' whose mission is to dramatically shift the stage of discovery of head and neck cancers from late to early detection, through collaborative prevention, and early detection research and programmes. I am a regular and committed host of the annual head and cancer screening programme of the group, but unfortunately, we have not been able to take the screening activity beyond OAUTHC because of resource constraint.

Maxillofacial injuries

According to the World Health Organization (WHO), more than 5 million people die annually as a result of injuries – nearly 1.7 times the number of deaths that result from HIV/AIDS, tuberculosis and malaria combined each year.[38] As Assael[39] aptly noted in an editorial in the Journal of Oral and Maxillofacial Surgery,

> *Trauma is a rolling pandemic that like a new infectious disease, emerges and blossoms in new forms before surgeons and health systems can respond effectively… As surgeons, we cannot influence the surge of this violence, but we are surely called upon to care for its victims.*

Oral and maxillofacial surgeons play a leading role in the management of trauma involving the oro-facial region —the teeth,

the underlying bones, the muscles, the associated nerves, and blood supply. My research work has broadly covered the different involvement of these anatomical parts; I will highlight a few of them.

Maxillofacial injuries and emergencies

The oral and maxillofacial surgeon's intervention is critical in maxillofacial emergencies as these conditions have the propensity to cause disfigurement, life-long disability and death. One of the studies our team conducted showed that trauma accounted for an overwhelming 96.2% of all maxillofacial emergencies that presented at the Accident and Emergency section of Ife Hospital Unit, OAUTHC.[40] The highest incidence was recorded for men and on weekends. Road traffic accidents accounted for over four-fifths (82.1%) of the trauma cases and the majority of cases involved commercial buses. Speed and efficiency are critical in the management of medical emergencies, including road traffic accidents victims (Figure 10 shows a road traffic accident victim who presented as a maxillofacial emergency). Our study on maxillofacial emergencies in the Accident and Emergency Unit of Ife Hospital Unit identified gaps in recognising and managing maxillofacial emergencies by doctors providing services to accident victims. We recommend basic training in the management of maxillofacial emergencies for all health workers in the accident and emergency unit.

Figure 10. A maxillofacial emergency from a road traffic accident (before and after surgical management).

Injury to bony structures

Fractures commonly occur in cases of significant trauma to the human face. The goals in the management of fractures in the orofacial region are to restore patients to their pre-injury appearance as much as possible, restore functions (including normal dental occlusion, chewing and eating, speech, respiratory airway, and vision) and minimise disability. Orofacial fractures, depending on their extent and clinical features, are treated by either closed reduction, which is the use of arch bars and wire for fixation as depicted in Figure 11 or by open reduction using plates as depicted in Figure 12.

Figure 11. Patient with jawbone fracture managed by closed reduction.

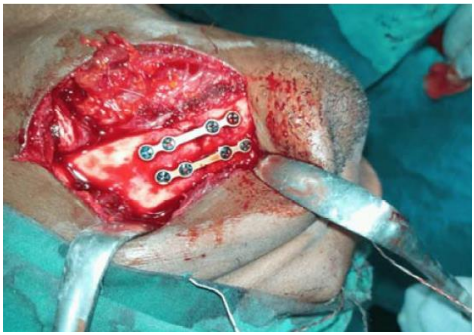

Figure 12: Patient with jawbone fracture managed by open reduction.

Our research indicates that the lower jaw bone (the mandible) has the greatest propensity to be fractured in oral and maxillofacial injuries. When injuries are limited to the middle third of the face, the zygoma (cheekbone) is the most commonly fractured bone, and one of the most complex to manage. Fracture of the zygomatic complex involves the zygoma and its surrounding facial bones (such as the orbital floor). It also affects its four points of attachments to the facial skeleton. Following trauma, the

alignment of the zygomatic complex is very important for the restoration of the facial appearance. The diagnosis and management of the zygomatic complex fracture are best achieved using computed tomography, which is classically considered the "gold standard".

However, computed tomography is quite expensive, not available in many Nigerian hospitals and associated with high dose radiation exposure. To find a suitable alternative for Nigeria and other low-resource settings, our team explored the use of ultrasonography, a cheaper, non-invasive and readily available diagnostic imaging modality. Interestingly, our finding showed a high level of agreement between the results of ultrasonography and that of computed tomography in the diagnosis of fractures of the zygomatic arch and displaced infraorbital margin[41] as shown in Table 2.

Table 2. Comparison of ultrasound scan and computed tomography findings for the diagnosis of zygomatic fractures.

Anatomical site	Ultra-sound Scan	Computed Tomography (CT) Scan			Validity measures			
		Fracture present	Fracture absent	Total	Sensitivity (95% C.I.)	Specificity (95% C.I.)	PPV (95% C.I.)	NPV (95% C.I.)
Infra-orbital margin	Present	18	0	18	0.9 (0.68-0.99)	1.00 (0.03-1.00	1.00 (0.81-1.00)	0.33 (0.008-0.91)
	Absent	2	1	3				
	Total	***20***	***1***	***21***				
Zygomatic arch	Present	8	0	1	1.00 (0.63-	1.00 (0.75-	1.00 (0.63-	1.00 (0.75-1.00)
	Absent	0	13	13				

	Total	***8***	***13***	***14***	1.00)	1.00)	1.00)	
Fronto-zygomatic suture	Present	1	0	1	0.25 (0.006-0.81)	1.00 (0.81-1.00)	1.00 (0.03-1.00)	0.85 (0.62-0.97)
	Absent	3	17	20				
	Total	***4***	***17***	***21***				

Keys: PPV=Positive Predictive Value; NPT= Negative Predictive Value; C.I.=Confidence Interval

Source: Reference 41

Injury to the Nerves

Both sensory and motor nerves are found in the orofacial region. The infra-orbital nerve provides sensation to the cheek, upper lip, and side of the nose while the mental nerve provides sensation to the front of the chin and lower lip as well as the labial gingivae of the mandibular anterior teeth and the premolars. The mental nerve is a major and important nerve located in the mandible (lower jaw). The injury of either nerve results in altered sensory functions (touch, pressure, temperature or pain). The duration of the altered sensation depends on the extent of the nerve damage or persistence of the aetiology. The injury of sensory nerves following maxillofacial trauma poses a serious clinical challenge because of the consequences and impact on the quality of life of the affected individuals. Oral and maxillofacial surgeons need not only to prevent the trauma to these nerves but often have to manage the consequences of its damage with patients being particular about restoring the loss of sensation; of which most times, we are unable to do due to limited technology.

In a study conducted with peers, we found that 16.6% of 337 patients with maxillofacial injuries also had nerve injuries.[42] These included neurosensory deficits involving either the mental or infra-orbital nerve. In another study, we researched the occurrence of mental nerve injury in patients with sickle cell disorder. We reported that 13.4% of the 113 patients studied had mental nerve palsy. Of these, 60% had bilateral palsy.[43] The occurrence was significantly higher among female patients. We highlighted the need for dentists to be aware of this complication in patients with sickle cell disorder who require dental procedures in the mandible, as recovery may be slow. One of the patients also had facial nerve palsy (upper motor neuron type), which suggests that no peripheral nerve, whether sensory or motor, is immune to vaso-occlusive crises.

Injury to soft tissues

Injury to soft tissues can be of diverse origins and the extent varies. I will discuss only two specific types of soft tissue injuries—human bites and burns. Human bites in the adult population is a puzzling experience for me. Earlier in life, I imagined that only children bite one another. My clinical experience of managing human bites in adults has erased that notion. The lower lip almost always seems to be the target and, interestingly, we found both men and women to be victims and perpetrators as Figure 13 shows. We generally obtain good results in managing patients with human bites conservatively by debriding, dressing, and the use of antibiotics. However, lip avulsions involving significant tissue loss continues to be challenging as the reconstructive procedures require the use of flaps (tissues drawn from adjacent tissues or other parts of the body), which is costly. Keloid formation may also result from using certain flaps.

Figure 13. Bite injuries in both male and female patients.

Burns are primarily managed by the plastic surgeons, but the Oral and Maxillofacial Surgeons are involved when there are facial

involvements. Figure 14 is the picture of a case of burns I was involved with managing. Facial burns may be associated with life-threatening neurologic injuries and disfigurement. Oral and perioral problems are also often overlooked when there are severe injuries, resulting in severe challenges with oral function for the individual.

Figure 14: Facial burn injuries in a child.

We conducted a study to assess factors associated with different management outcomes in burns with facial and non-facial involvement between 1998 and 2003 in Ile-Ife[44], a period marked by a perennial fuel scarcity in Nigeria. Fuel-related flames were the main cause of burns affecting facial (71.1%) and non-facial areas (65.3%). More than a quarter of the cases died, with the mortality rate, slightly but not significantly higher in the cases of burns affecting the face (31.6%) compared to burns with no facial involvement (30.7%). Two factors were significantly associated with mortality: the body surface area involved in the burns and wound infection.

Injuries from firearms

Firearm injuries are another type of trauma encountered in oral and maxillofacial surgery. Figure 15 is a picture of a patient I managed with a gunshot injury and this was not the worst case I ever managed. Depending on the type of gun and the closeness to the human target, the bullet has the propensity to destroy every anatomical structure in its path, including the skin, muscles, nerve, blood vessels, bones, and the teeth. Firearms also cause damages to structures adjacent to the pathway of the projectile, through tearing, stretching, and compression of tissues.

Figure 15: A gunshot injury case managed by our OMF team.

While the incidence of gunshot injuries resulting from communal clashes has reduced in Ile-Ife and its environs, there is increasing incidence in many other parts of the country due to terrorist attacks, herdsmen-farmer clashes, communal conflicts, armed robbery, and politically-associated violence. Accidental self-inflicted firearm wound is an occupational hazard among security personnel (formal and informal) and local hunters and we have had to manage such occasionally. Gunshot injuries from dane

guns do not conform to the classical textbook description as the material for bullets vary widely (gun powder, metallic objects, etc). In the management of gunshot injuries to the orofacial region, we work closely with other specialists depending on the other parts of the body affected by injuries. For example, the ophthalmologists are involved when the eyes are affected, like in the case shown in Figure 16, where the pellet included a metallic object. Gunshot injuries constitute an emergency when the airway is involved or rapid and excessive blood loss occurs.

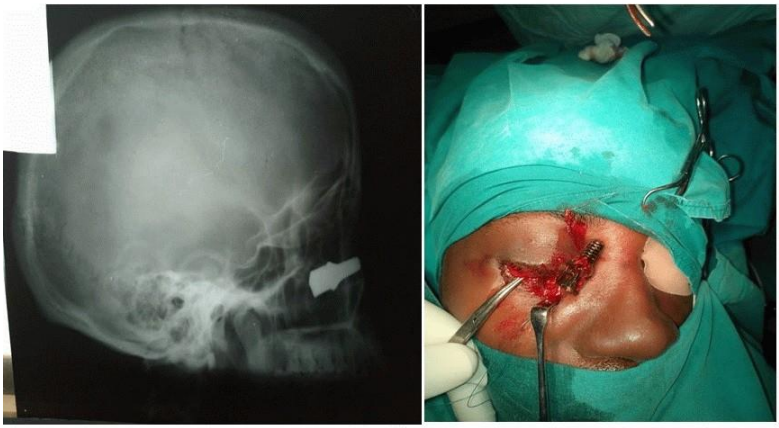

Figure 16. An accidental local gunshot injury, with an eye injury from the metallic object used as part of the pellet (or "bullet")

Orofacial infection

Infection is the leading cause of death across low- and middle-income countries, although the rate of non-communicable diseases is also increasing. The most commonly encountered infections by oral and maxillofacial surgeons in our setting are odontogenic infections (infections arising from teeth and the teeth supporting structures). The most common causes are dental caries (holes in the teeth), and pericoronitis (infection around the wisdom tooth). I have not forgotten my first encounter with a fatal case of

odontogenic infection as a house officer in 1988. This female patient had a severe infection (Ludwig's angina) and then an extraction in a private hospital. She was rushed to our clinic with laboured breathing, bleeding from the extraction socket and her raised tongue touching the palate. The patient died before we could make any attempt to relieve her airway.

Spreading odontogenic infections are particularly dangerous and may result in death due to spread into contiguous anatomical fascial spaces. The two most common complications of spreading odontogenic infections are life-threatening in nature. The first is carvenous sinus thrombosis, arising from an infection spreading upwards from upper teeth largely through the anterior facial veins as seen in the patient in Figure 17. The second type is Ludwig's angina, which often progresses to necrotising fasciitis (decaying infection of the fascia), a condition in which the skin, fat, and the tissue covering the muscles are destroyed in a very

A case of spreading odontogenic following mandibular fracture

Spreading odontogenic infection complicated by necrotizing fasciitis

short time as seen in Figure 18.

Most cases of Ludwig's angina result from infections associated with the second and third mandibular molars (the last two teeth on either side of the lower jaw). Our study on odontogenic infections in OAUTHC showed that polymicrobial infections with anaerobes were the most common.[45] There was high resistance to most of the antibiotics used routinely. The infection was mostly sensitive to ciprofloxacillin; we have since changed our antibiotic prescription based on this finding. In our review of 16 cases of necrotising fasciitis, we found a strong association with some systemic conditions– diabetes mellitus, hypertension, and obesity.[46] Alcoholism, liver disease, renal disease, heart failure, steroid therapy, and malnutrition were some of the other risk factors documented in the literature.[47]

Financial constraints, delayed referrals from rural clinics, and distance to the tertiary hospital were the major barriers constraining prompt access to treatment for the cases we reviewed. We also noted that poor oral health literacy and poverty contribute to the occurrence of odontogenic infections. Rather than seek care in dental care facilities, patients often resort to home care, including the use of caustic agents such as battery water, 'touch and go' and insertion of grounded aspirin into the tooth cavities. These caustic agents damage the pulp, burn off the nerve endings and abolish pain. Patients then think they are cured of their toothache but the sequelae of a necrotic pulp soon follow, resulting in spreading infections.

The classical teaching in the management of spreading odontogenic infections is to admit the patient into the hospital and give injectable (parenteral) antibiotics, among other drugs. I have witnessed a patient who already had difficulty with breathing, discharge himself from the Accident and Emergency Unit because he had no money to pay for the hospital admission. I remember another pathetic case of a young man who discharged himself

against medical advice because the family had no money to pay for his hospital care. These sad experiences challenged me to rethink my modality of managing these cases and to evolve a more individualized and practical approach that responds to the socio-economic situation of our patients. With the exception of those with severe cases, where in-patient management cannot be avoided, we now clinically stabilize our patients presenting with odontogenic infections in the Accident and Emergency Unit of the hospital and provide the remaining treatment on an outpatient basis. This approach has significantly improved our treatment completion rate as well as the clinical outcome.

Traditionally, clinical parameters used to grade severity and monitor response of patients with spreading infections to treatment were pain, swelling, and trismus[48] as well as the number and the distribution of the anatomic spaces involved.[49] However, the clinical presentation of odontogenic infections may vary, and these parameters may not serve as objective measures to adequately monitor the therapeutic efficiency and patient's response.[50] Improved measures of treatment response involve the use of various laboratory measures like microbiological samples, serum sodium levels, blood mean corpuscular volume and full blood count.

Following some suggestions in the literature, we conducted research on the use of serum prealbumin to monitor the clinical response of patients to treatment. Our result showed a significantly lower level of serum prealbumin in all patients with spreading odontogenic infections when compared with apparently healthy individuals. Serum prealbumin levels were negatively correlated with pain and swelling size and positively correlated with mouth opening (Figure 19). We concluded that serum prealbumin is a reliable tool for grading the severity of

illness and monitoring the response to treatment of odontogenic space infection.[51]

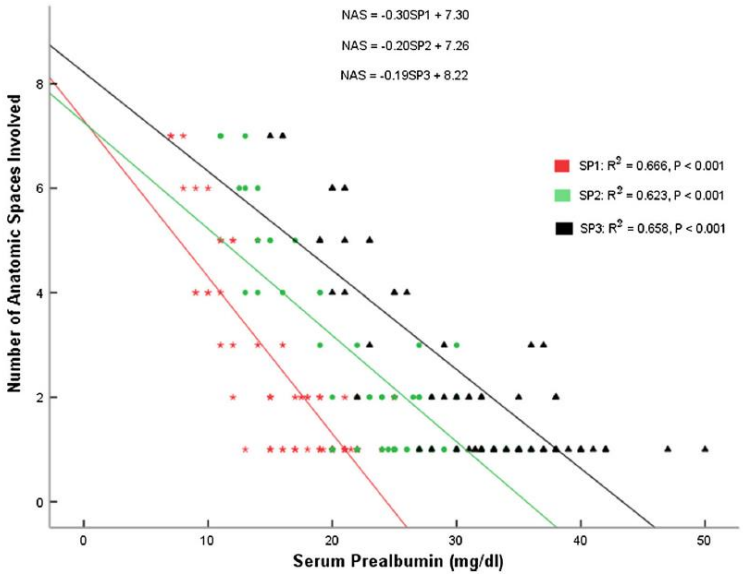

Figure 19. Relationship between Serum Prealbumin (SP) and Number of Anatomic Space Involved (NAS) at presentation (SP1and NAS), on Day 4 (SP2 and NAS), and on Day 8 (SP3 and NAS).

Source: Reference 51

Systemic diseases and orofacial infections

Systemic diseases, if poorly managed, often result in poor oral health. When they are well managed, the risk of oral health problems is less. We demonstrated in one of our studies that patients with controlled diabetes mellitus had a low rate of oral infection and an oral health status comparable to that of the "normal" population.[52] We have also conducted other studies demonstrating the inter-relationships between oral conditions and the major communicable diseases in Nigeria. One of these studies drew attention to the changing picture of oral lesions associated

with HIV/AIDS: for the first time in Nigeria, we demonstrated that bilateral parotid gland enlargement could be the presenting clinical manifestation of HIV/AIDS.[53] We also reported on the orofacial manifestation of tuberculosis – a diagnosis that was missed by health care providers for two years prior to the patient's contact with us. Figure 20 is the picture of a patient we managed for tuberculosis associated with oral soft tissue.[54]

Figure 20. Tuberculosis in the oral and maxillofacial region (before and after treatment).

We have also investigated the relationship between malaria and pericoronitis, an infectious disease that commonly affects the soft tissue covering of an erupting wisdom tooth.[55] Based on our findings, the use of malaria prophylaxis in individuals with pericoronitis was recommended to minimise the likelihood of the infection spreading to the fascial spaces. Our research publication in this respect is one of the earliest studies on the oral manifestation of malaria and has engendered further studies in the field. Malaria is now listed as a risk factor for spreading odontogenic infections.[47]

Orofacial infections are not only caused by bacterial or viral organisms but can also be caused by fungi, though rarely.[56] We managed a case of mucormycosis (also called zygomycosis), a very rare infection caused by organisms that belong to a group of

fungi called mucoromycotina. Mucormycosis most commonly affects the sinuses or lungs but skin infections can develop after the fungus enters through a break in the skin due to surgery, burns, or trauma.

These fungi are typically found in the soil and in association with decaying organic matter, so farmers are at greater risk of such infections. Figure 21 is a pre- and ongoing- management photograph of a patient with the lesion, who we managed at the Ife Hospital Unit, OAUTHC.

Figure 21. Mucormycosis infection (pre- and ongoing-treatment).

THE PRACTICE OF MAXILLOFACIAL SURGERY AND MY CLINICAL ENGAGEMENTS

In 1924, R.G. Keyworth posed some interesting questions that are still germane today: "Is dentistry a science or an art? If an art, to which does it belong— the mechanical or the aesthetic art?[57] In

support of their adoption of "The Art of Dentistry" as the theme for the 2006 London Dental Showcase, the organisers opined that:

> *Good dentistry involves a mix of dental professionals, dental skills, knowledge, techniques, dental equipment and materials to achieve the best results in much the same way as an artist requires skill, technique, and various tools and accessories to create a painting.*[58]

In a recently published online material titled, "How is Dentistry an Art? Prabes Gbimire reflected that the:

> *. . . dentist as a whole, takes care of your expressions, aesthetic and makes you appealing in front of the crowd… There is no piece of artwork that could be more rewarding than that… Dentists are surgeons…. (and) surgery is handwork. Handwork makes you an artist.*[59]

Indeed, "if surgery is handwork, and handwork makes you an artist", then I dare argue that the oral and maxillofacial surgeon is the imperial majesty of handwork and an artist par excellence! The facial region, which is the field of operation of the oral and maxillofacial surgeon, is not just another part of the body – it is the most prominent part of the human system and the first point of interaction with others. The multi-billion dollar global cosmetic industry is built largely around products that are targeted at making individuals more pleasing to look at.

Oral and maxillofacial surgery, as an art, entails the holistic approach to the care of patients — blend of the application of high level of clinical and surgical skills, compassionate care, empathetic communication, as well as responsiveness to related concerns of the patients and his/her family. In the words of the renowned

physician Paracelsus (1493-1541), credited as the Father of Toxicology,

> *Medicine is not only a science; it is also an art.*
>
> *It does not consist of compounding pills and plasters; it deals with the very processes of life, which must be understood before they may be guided.*[60]

The same is true of dentistry.

Reconstructive surgery

Reconstructive surgery is used in patient care when loss of tissues is involved, or facial bones are damaged by disease or injury. In reconstructive surgery, the science meets the art –it is an art based on science—to paraphrase Sir William Osler in his essay, "Teacher and Student".[61] A line in the Biblical story of Jeremiah's visit to the Potter's house reminds me a lot about the calling of the oral and maxillofacial surgeon who practices reconstructive surgery:

> *. . . and the vessel that he made of clay was marred in the hands of the potter; so he made it again into another vessel, as it seemed good to the potter* (Jeremiah 18: 4).

When the circumstances of life appear to mar the work of God, the Master Potter, He seems to have assigned the task of remaking the face to the apprentice potter, the reconstructive surgeon.

The priority of the oral and maxillofacial surgeon in reconstructive surgery is to restore the human face to its original shape as much as possible, through the instrumentality of the surgical knife and ancillary treatment. I cut my teeth in reconstructive surgery and oral and maxillofacial practice under Professor Stephen Odusanya. My classmate and colleague, the late Professor Vincent Ugboko (May his soul rest in perfect peace), and I had the privilege of being the last set of resident doctors who completed

their residency training under Professor Odusanya before he retired from the university. The rigorous training and exemplary mentorship that I received provided me the solid platform upon which I had built my career as a reconstructive oral and maxillofacial surgeon.

Common indications for reconstructive surgery in our environment include tumours (both benign and malignant); trauma, especially gunshot injuries; and, odontogenic infections. Ablative tumour surgeries—which involve the removal of the jaw and associated soft tissues— due to tumours are the most common indications. Although the mandible and maxilla are in close proximity, the approach to their reconstruction differs considerably. When the mandible or maxilla is damaged for any reason, not only is the bone lost but also the teeth and some muscle. The neurovascular bundle may also be involved resulting in the loss of sensation/numbness in the region served by the affected nerve.

Materials used for reconstruction should replace every tissue that was lost in order to restore the aesthetic (personal appearance) and function. Autogenous bone (the bone that is obtained from another part of the body of the patient, such as the hip bone) is the 'gold standard' for tissue replacement. The donor sites for grafts are numerous. One of these is the cranial bone used for reconstruction of the middle and upper thirds of the face. Its quantity is insufficient for mandibular reconstruction. Bone for reconstruction can also be obtained from other individuals. However, the risk of transmitting an infectious disease has stimulated the search for bone substitutes such as synthetic grafts that replace both bone and soft tissue support. The materials are heterogeneous and include calcium phosphate, calcium carbonate, calcium sulphate, bioactive glasses, and polymers; and more recently, transport disc and distraction osteogenesis.[62]

Mandibular reconstruction

Reconstruction is indicated whenever a significant portion of the mandible is resected. Reconstruction may be optional in young patients because of the potential of spontaneous bone regeneration when the periosteum is intact. However, in cases of marginal resection (mandibular continuity is not disrupted), the mandible may need to be reinforced with a reconstruction plate, usually 2.4mm in thickness and tacked with appropriate screws. This will reduce the risk of post-operative fracture. Immediate reconstruction with reconstruction plate is usually done in cases of segmental resection but is rarely satisfactory for long-term use. Complications associated with the use of a reconstruction plate alone are exteriorization of the plate, secondary infection, loosening and mobility of screws and screw fracture as we had in the illustrations shown in Figure 22.

Figure 22. Some complications following the use of reconstruction plates.

Plate failure is more common in the anterior mandible with better long-term survival in the posterior region of the mandible due to the sufficient soft tissue (muscle) coverage in those areas. Many of

the patients, however, do not return for the definitive reconstruction. For those interested in definitive reconstruction, we are limited in our offer of treatment options due to lack of the required facilities.

Traditionally, non-vascularised bone graft was used for reconstruction. During my undergraduate training till the first few years of qualifying as a maxillofacial surgeon in the late 1990s, the only reconstruction material we offered our patients post-resection was the Kirschner wire: a simple insert comprised of sterilized, sharpened, smooth stainless steel pins. It is so thin that it can neither preserve the surgical bed nor restore the chin prominence. I still ask myself what purpose it served! Ironically, patients gladly accepted it because there was no other option. The wire is a foreign object and not an inert material so extrusion through the skin is very common. When the wire extrudes, it might require removal under general anaethesia. The patient in Figure 23 is one of my patients who had Kirschner wire inserted in 2004 and the extruded wire has not been removed till date due to the cost of surgery.

Extrusion of Kirschner wire

The same patient with discharging sinuses on the left side of the face

Figure 23. Extrusion of the Kirschner wire and the complication of discharging sinuses.

One of Nigeria's foremost oral and maxillofacial surgeons, the late Professor Emmanuel Adekeye of the Maxillofacial Unit, Ahmadu Bello University Teaching Hospital, Kaduna pioneered reconstruction with bone grafts in Nigeria.[63] A second Nigerian experience reported in 2003 by Professor Ambrose Obiechina and his team in Ibadan[64] was all we needed in Ife to venture into bone reconstruction. So the journey into the world of reconstruction with non-vascularised autogenous bone graft began in Ife in 2003. This pioneering, almost dare-devil work, was led by the late Professor Ugboko. Within 10 years, we carried out 25 immediate bone reconstruction cases using autogenous bone grafts: about two-thirds (68%) had a non-vascularised rib graft, while others had a non-vascularised iliac bone graft.[65] Figure 24 presents a picture of one of the patients. Our 10-year review showed a success rate of 88% (22 patients). The three failed grafts were rib grafts and the failure resulted from infection.

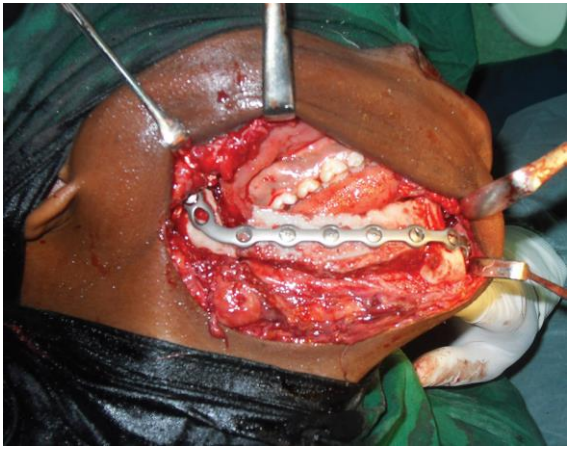

Figure 24. Mandibular reconstruction with autogenous iliac crest graft. Note the graft in place and immobilized with a 2.4 mm KLS Martins right angle reconstructive plate and screws.

Immediate bone reconstruction with autogenous graft through the intra-oral approach has a high failure rate because of intra-oral wound breakdown, wound contamination with saliva, or primary infection with oral contaminants.[66,67] For these reasons, reconstruction is more often a secondary procedure carried out 6-8 weeks after ablative tumour surgery. This period allows for intra-oral wound healing and increase in tensile strength of the soft tissues, self-decontamination of the surgical bed, and prevent scarring and fibrosis of the wound bed. At surgery, a temporary reconstruction using titanium reconstruction plate (2.4mm plate) is done followed later by definitive reconstruction from an extra-oral approach using autogenous bone graft. Efforts at secondary reconstruction are limited by cost and the span of surgical defects.

The reconstruction plates are very expensive since they are all imported. Depending on the span of the defect, the cost of a durable plate and screws alone sometimes exceed five hundred thousand Naira (₦500,000). The long span of the surgical defect in our patients, a consequence of late presentation, poses a challenge, as the use of avascular (lacking blood supply) grafts for long span defects predispose the patient to infection and the procedure is more susceptible to failure.[68] Mandibular defects greater than 9cm are better managed using vascularized bone grafts[69], which we are not able to do presently. I look forward to collaboration with plastic surgeons to start the procedure.

Maxillary reconstruction

Maxillary defects create a significant reconstructive challenge. The maxilla is really an aggregation of different bones into a single, functional and aesthetic unit. Maxillary reconstruction is a complex process that requires the collaboration of highly skilled medical and dental specialists who can restore missing skeletal

and soft tissues, place a vascularized graft bed, and reconstruct the dental and ocular structures (if involved). Wound and patient factors (defect size, type of missing tissue, ability to cope with prolonged surgery, and availability of donor tissue) are important in determining the most appropriate reconstruction technique. The cost of rehabilitation and prognosis are also important factors.

Unlike mandibular defects, flaps and grafts are not usually used for maxillary reconstruction although the use of a vascularised iliac crest with the internal oblique muscle for immediate reconstruction after maxillectomy has been advocated in some circumstances.[70] Reconstruction of the maxilla is accomplished using removable dental prostheses. A dental prosthesis known as the obturator is able to restore the facial symmetry of the maxilla. The obturator can be placed in a single procedure: it does not require multiple surgical revisions to achieve function and a pleasing aesthetic outcome. To enhance the stability and retention of the obturator, the surgical defect is lined with a split-thickness skin graft. We have been obtaining satisfactory results with the use of obturators in Ife till date and we owe this to our prosthodontists and dental technologists.

Cleft lip and palate

The surgical repair of cleft lip and palate is also a form of reconstructive surgery but requires a special skill set. A cleft lip/palate is a congenital deformity of the lip and palate in new born babies. I currently lead the Nigerian aspect of the multi-country project that builds capacity for the care of cleft patients in selected African countries. The project is named Partners in African Cleft Training (PACT), and it is coordinated by Seattle Children's Hospital, USA and partly funded by Transforming Faces, Canada. The countries included in the PACT project are Ethiopia, Ghana, and Nigeria. The PACT project supports the development and delivery of advanced training programmes for

in-country surgeons, paediatricians, orthodontists, anaesthetic nurses, speech therapists, and social workers. The two centres in Nigeria are OAUTHC and the University of Maiduguri Teaching Hospital. Through this project, we have continuously developed the capacity of the multidisciplinary team involved with cleft deformity management through an annual intensive skill-based Pan-African Cleft Training workshop.

I sincerely thank Professor Hector Oladapo Olasoji, the pioneer oral and maxillofacial surgeon at the University of Maiduguri, an alumnus of our great university and the first dental resident and oral and maxillofacial surgeon produced from OAUTHC. He brought me on board in 2013, and later relinquished the coordination of the project to me and the hosting of the project to Ife. Under my leadership, we have not only implemented the annual training in Ife but through our trainees who are now located in several centres in the country, we have been able to expand the reach and impact of our programme.

While PACT supports human capacity building, the Smile Train– an international children's charity, with its headquarters in New York, provides the fund for treating cleft palate and cleft lip cases – so all patients are treated free of charge. We have managed over 250 cleft cases over the last 12 years through the benevolence of the Smile Train (including the child in Figure 25). Through these partnerships, we at Ife have joined others to give patients with a cleft, a life-time gift of restoring their mouth structure and function, beautifying their faces and granting them and their parents an opportunity to smile broadly and laugh joyfully.

Figure 25: A child with a cleft lip and palate (before and after treatment)

Patients' health-seeking behaviour and patient-surgeon interaction

The practice of surgery in Nigeria is very challenging as our experience in Ife shows. The surgeon needs to manage issues relating not only to the health service delivery system but also that of patients and their families. Patients often present late to the medical facility for management for many reasons, including low health literacy and poor health seeking behaviour. A high proportion of Nigerians still subscribe to non-evidence based aetiologies of diseases such as witchcraft. As such, many Nigerians – even the educated ones – only resort to orthodox medical treatment after the care with the trado-medical practitioners has failed. The unregulated field of trado-medical practice in Nigeria coupled with the undiscerning attitude of the

population and the commercially-driven focus of our print and electronic media have continued to expose Nigerians to the practices of charlatans who call themselves "doctors", with their signboards announcing the ability to practically cure anything and everything. Figure 26 depicts two of such announcements.

Figure 26: Examples of the advertisement of trado-medical care practitioners.

I recall the case of an elderly woman who dislocated bilateral temporomandibular joints following a wide yawn. The temporomandibular joints are the two joints that connect the mandible to the temporal bone of the skull and located close to the ears. The first point of call for treatment by the woman and her family was a trado-medical practitioner who "prescribed" several yards of white cloth, many gallons of palm oil and many goats, among others. The patient finally found her way to our clinic after almost two months of discomfort and severe pain. The reduction would have taken less than five minutes if she had come immediately the incident happened. We now had to manage her for almost a month using slow traction to bring the dislocated

joints back into its place (i.e. the condylar heads back into the glenoid fossa).

Poor health-seeking behaviour is a factor that cuts across the entire Nigerian population – rich and poor, literate and non-literate, health professionals and lay people. In a study conducted among OAUTHC workers to assess the uptake of vaccine freely offered by the hospital management to prevent hepatitis B virus infection through occupational exposure, doctors and nurses had the lowest uptake rates among the sample of 2,548 employees, yet they had the highest risk of contracting the deadly infection.[71] A more recent study– conducted about 17 years after the first one – showed that a fifth of medical and dental students (20.1%) did not receive a complete dose of the hepatitis B vaccine.[72]

Prompt care-seeking and quick expert response could save the life of even seemingly hopeless patients as our experience has shown over the years. I will illustrate that point with just one example: the case of an elderly man who sustained multiple degloving facial injuries following a fall from a palm tree.[73] The patient's injuries included the stripping off of the soft tissue of the right lower eyelid with exposure of the floor of the right orbit, complete avulsion of the anterior nose, fracture of the nasal bone, gapping and partial avulsion of the right cheek, bilateral fracture of the body of the edentulous mandible (Figure 27). He also had fractures of the midface bones (Le Fort I type fracture), multiple tongue lacerations and a deep jagged laceration at the lower posterior part of the neck with a piece of wood in place. Yet, through the grace of God bestowed through the surgeons' hands and a dedicated team of care providers, we were able to restore function, though less than perfect aesthetics (Figure 28) and the man went home rejoicing!

Figure 27. A man with multiple degloving facial injuries at presentation to our team in OAUTHC

Figure 28. The man with multiple degloving facial injuries after management.

Another patient-related factor that negatively affects treatment outcomes is treatment default. Even when diagnosed early, the patients are likely to "disappear" only to reappear when all hope is almost lost and they have tried all kinds of alternative interventions, including the herbalist, chemist stores, and the

prophets or imam. A case of a 19-year-old young student who we managed a few years back is quite illustrative. The young man reported to our clinic with a swelling on the jaw, and we diagnosed a type of cancer (inflammatory myofibroblastic tumour). When we shared the diagnosis with his mother her reply was: "*no one in our family has ever had cancer*" They left the clinic not agreeing to commence treatment, which would have included reconstructive surgery. Months later, we saw the young man in the clinic with the entire face destroyed by the cancer. Worse still, the lesion had spread beyond the face. We could do very little for him at that stage, unfortunately.

This case, unfortunately, is not an isolated one – but sadly, a fair representation of what we encounter in the clinic regularly. I had one case that ended up making headlines in a national newspaper a few years back and titled the "*The death of Citizen X*" (although the newspaper story had significant distortion and misrepresentation of the facts). Citizen X was a young undergraduate who had visited our clinic with a history of toothache followed by an appreciable swelling in the lower jaw within two weeks of the toothache. We made the diagnosis of sarcoma (cancer of the bone) and recommended that he had a jaw resection to remove the part already affected by cancer and thereby limit the spread of the cancer to adjoining structures.

He initially agreed and was admitted for surgery but unfortunately, there was no oxygen on the day of surgery, so surgery was postponed by one week. We considered it necessary to discharge him home for the week to save him from the unnecessary hospital bill. Rather than return for admission on the rescheduled date, he came around to the hospital to notify us that he was no longer interested in the surgery. All efforts to convince him to reconsider his decision failed. He flatly refused, saying that he would rather die than have such an operation and trusted God

to heal him. He, indeed, told us very confidently, that he would return soon to the clinic to show us that he had been healed through the power of prayer.

Indeed, Citizen X returned to us in the clinic months later, unfortunately not in the form he predicted or boasted. When he came back, he could not even climb the staircase to our clinic. Only his parents came up. I had to go down to see him in the car that brought him– wasted, with no strength, and with a very huge disfiguring mass on his face. At that point in time, we could no longer go on with the option of surgical intervention as it was too late. Surgery would not do him any good at that stage as the cancer had spread to other parts of the mouth and face and their surrounding structures and even to other parts of the body. He went away and had an operation in a private centre—God knows how much the family would have paid. Not long after that, I read of his demise in the newspaper—with the family accusing us of not agreeing to operate him!

One of the lessons from the case of Citizen X is that many Nigerians treat prayer as a talisman and what they claim to be faith is nothing more than a huge presumption. I believe that it pleased God to give us the wisdom of modern care as a mechanism for healing—just as I know and deeply believe that God still heals without the doctor's intervention. While no doctor should play God, no patient should also assume the place of God: God is sovereign—God alone decides the way He chooses to heal an individual—by the hand of the physician or by direct miraculous intervention. No one can force God's hand in His healing prerogatives.

One great challenge that oral and maxillofacial surgeons and their team face is convincing patients and their family members of the need for surgery when they are seen in the early stages of the disease. Certainly, many Nigerians are afraid of the surgeon's

knife and the anaesthetist's gas, but maybe more of the anaesthetist's gas. It is not unusual even in 2019 to hear a highly educated Nigerian pastor or imam praying for a couple during their marriage that the wife would not be delivered through Caesarean section. While the health and cultural nuances of such prayers can be understood and appreciated, the patient who, in an attempt to avoid a needed surgery, engages the alternative means of traditional healer/spiritualist may end up experiencing severe complications, more difficult hospital procedures, higher medical expenditure, longer hospital stay, and an increased risk of disability and death.

Surgeons are not professionals who take undue delight in using the 'knife' on the human body. Rather they do so when such intervention holds the promise of improved health when there is no other promising non-surgical alternative. Certainly, for the oral and maxillofacial surgeon, the surgeon's hand on the human face is meant for good and not for evil—to bring relief from pain, foster deliverance from diseases and untimely death, and to ensure health and well-being. No more and no less!

An underlying factor for many cases of late presentation and discharge against medical advice is poverty.[22,74,75] Poverty affects both access to, and effective utilization of available services. Most of the patients seen in our practice are from the low socio-economic class and a high proportion can barely afford the cost of transportation to the health facilities—a challenging situation because patients often need to make multiple hospital visits. This is compounded by the cost of drugs and hospital fees. Unfortunately, the National Health Insurance Scheme that should have provided the needed succour and enhance access of the poor to health care has significantly underperformed so far. The scheme has focussed mainly on formal sector government workers, leaving out the poorer informal sector and rural-based

people who constitute the largest proportion of the Nigerian population.

Nigeria's health system and oral and maxillofacial surgical practice

The state of our public sector healthcare facilities—even the teaching hospitals that are designed to be the apex centres for care—is worrisome. Surgical infrastructure and key equipment are often lacking, and the support system for service delivery is also weak. The situation is worsened by the poor attitude of the average Nigerian to work. There is also the challenge of misdiagnosis particularly in cases presenting in atypical ways. For example, misdiagnosing an orofacial cancer as a simple tooth problem can lead to serious post-extraction complications as we had witnessed.[36]

There is also an urgent need to considerably strengthen the human resource base for oral health, make services more accessible across the country, and ensure appropriate referral links across the levels of health care. As Table 3[76] shows, Nigeria has a very low density of dentists – only 0.2 dentists per 10,000 population compared to Egypt's 4.2 dentists/10,000 population and an average of 1.2 dentists/10,000 population for lower middle-income countries. Nigeria currently has less than 70 practising oral and maxillofacial surgeons, serving her huge population of about 200 million people!

Table 3: Health expenditure as a percentage of GDP and PPP and dentists' density (per 10,000 population) in selected lower middle-income countries

Country	% of GDP, 2011	Per Capita PPP (× 100), 2011	Dentists per 10,000 Population[a]
Lower middle income			
Cameroon[b]	5.4	1.20	<0.05
Cape Verde	4.0	1.65	0.1
Congo[b]	2.5	1.07	—[c]
Côte d'Ivoire	6.8	1.26	0.1
Djibouti	8.7	2.18	1.2
Egypt	4.9	3.08	4.2
Ghana[b]	5.3	0.99	0.1
Lesotho	11.7	2.19	—[c]
Mauritania[b,d]	5.9	1.07	0.3
Morocco	6.3	3.21	0.8
Nigeria	5.7	1.43	0.2
Sao Tome and Principe	7.6	1.43	—[c]
Senegal	5.0	0.94	0.1
South Sudan[e]	1.7	0.35	—[c]
Sudan[b]	6.7	1.64	0.2
Syrian Arab Republic[b]	3.4	—[c]	7.9
Swaziland[b]	8.3	4.36	0.4
Zambia	6.2	0.99	0.2
WHO AFRO	6.2	0.32	0.5
WHO EMRO	4.2	0.07	1.9
All lower middle income—globally	4.4	0.82	1.2

AFRO, African Region; EMRO, Eastern Mediterranean Region; GDP, gross domestic product; PPP, purchasing power parity; WHO, World Health Organization.

Source: Reference 76

The gross inadequacy of oral health services at the primary and secondary health care levels has led to a situation whereby many Nigerians seeking basic oral health care services troop to tertiary health care centres that should otherwise be for only specialised

care. Our review of 1866 children who used the specialist dental care service in OAUTHC over a four-year period showed that only 5% of them really need that level of service.[77] This situation results in an unnecessary burden for the tertiary health care system and may distract from providing optimal and timely attention to the patients who are really in need of high-level care. To address this problem, oral health care must be effectively integrated into primary health care with appropriate dental-related staff recruited. Primary health care workers and primary care physicians also need to be knowledgeable about oral health problems so they can screen and provide basic care prior to referral for appropriate dental health care. We need to note that "*There is no health without oral health.*"

BEYOND MAXILLOFACIAL SURGERY: ACADEMIC PRACTICE AND LEADERSHIP

Practicing as a university-based surgeon who has to combine surgical sessions (some of which take 6 hours or more), clinical consultations, ward rounds, patients care and hospital management with the rigours of teaching, research and administrative responsibilities is a herculean task. The expectations of a university-based surgeon have been well espoused by the late Professor Michael Bankole[3], one of the founding fathers of the College of Health Sciences of this great university. The expectation embraces the careful combination of the "university" elements (the core academic role of research and teaching, and relevant academic leadership and administrative services) and the surgeon elements (clinical expertise and high level surgical skills) — all performed with a focus on excellence.

I dare say that this highly desirable and ideal model is currently under threat! Yet, this model of a university surgeon is one that

we must continue to uphold, carefully nurture, encourage and reward to avoid creating "theoretical or paper-based surgeons"— individuals who become professors through research publications but have diminishing and inadequate clinical and surgical skills largely because of a lack of regular clinical and surgical engagements. The reality today is that we are faced with the danger of creating a new species of surgeons in the university setting – individuals with sub-optimal and declining clinical and surgical skills and who give very low priority to clinical and theatre engagements as those elements hardly count in university promotion where the paradigm is "publish or perish". Really, to be pronounced a professor of surgery and be lacking in up-to-date skills as well as show a low level of interest in regular theatre-based surgical sessions is nothing but an absurdity! I very much cherish the God given grace and privilege to be able to diligently hold my clinical and surgical sessions regularly along with my teaching, research, and administrative responsibilities, as well as my responsibility as a wife, a mother, and a Christian worker.

Research ethics

Beyond dentistry and surgery, two other areas of academic practice have also attracted my attention—research ethics and gender and leadership development. Ethics is fundamental to good research and medical practice. However, the teaching of health research ethics is a relatively new area of professional endeavour in Nigeria. The attention paid to health research ethics is still rudimentary though we have made some progress over the last couple of years. I was privileged to obtain a scholarship to participate in the South African Research Ethics Training Initiative (SARETI) programme. The SARETI programme is a comprehensive, multi-disciplinary, Africa-based education and training programme in health research ethics at the University of KwaZulu-Natal. I first participated in a one-week workshop in 2005, and I later returned to South Africa for a 6- month full-time SARETI certificate course in 2006. I have since then participated in

other capacity building programmes, including the Intensive Bioethics Course at Georgetown University, Washington D.C., in 2013.

Since my participation in the SARETI training, I became heavily engaged with promoting research ethics within the dental profession and the larger health field. I have participated actively in the design of training curriculum, served as a trainer, and engaged in research and publications in the field of health ethics.[78,79,80] Outside dentistry, I have taught ethics in the following programmes in our university: the Master of Public Health programme run by the Department of Community Health; the International Monitoring and Evaluation of Public Health programme certificate course of the Institute of Public Health, and the Adolescent in sub-Saharan Africa short course (conducted by OAU in partnership with WHO and the United Nations Population Fund). I have served in the non-remunerative position of the vice-chair of the Health Research Ethics Committee of the Institute of Public Health since its inauguration in 2012. The ethics committee currently serves the teeming needs of the university. I took over as the chair of the ethics committee in 2018, following the voluntary disengagement of the pioneer chair, Professor Oluwagbemiga Adeodu, who served meritoriously in that position for six years.

Beyond the academic environment, I have also been involved in the civil society sector. In my work with a leading civil society organization, I have had the privilege of being part of the team that developed the first training curriculum for lay persons on the ethics committee in Nigeria. I have also been engaged in training activities as well as in advocacy and awareness-creation programmes.

Gender and leadership development

As a female professional in a male-dominated field, I understand the importance of mentoring women. A special issue on "*Women in Science, Medicine and Global Health*"[81] published by the Lancet in February 2019 highlighted the significant gender-related and distinct systemic challenges women face in moving up the ladder of the medical profession and academia. Among others, young female professionals face a constant and significant struggle of balancing their personal and family responsibilities with career development.

I am passionate about the development of the girl-child and the holistic development of young women to excel in all that God commits to their hands. That passion had brought me to serve in various capacities, including being a past president of the Medical Women's Association of Osun State. I have also served on the Carnegie-sponsored Scholarship and Fellowship Award Committee of the Centre for Gender Studies and Social Policy (CGSSP) for the award of fellowships to deserving female undergraduates from 2005 till the end of the project in 2013. I also served as CGSSP's Gender Focal Person for the College of Health Sciences from March 2005.

My participation in the Master of Public Administration programme of this great university—from where I graduated with the *Odumosu prize for the best all round student in the Master of Public Administration* in 2000, and through which I became a full member of the Chartered Institute of Personnel Management—grounded me in management issues, and enhanced my performance in the various leadership positions I have held within and beyond the OAU.

My capacity in the area of gender and leadership development was particularly enhanced by my participation in the one-year International Women's Forum (IWF) Leadership Foundation's Fellowship Programme. I was privileged to be selected as one of the 35 emerging global female leaders for the 2015-2016 fellowship. The training broadened my leadership horizon with exposure to programme activities at the Harvard University, USA and INSEAD, France. The IWF with its uncommon dedication to cultivating leadership for a changing future has strongly reinforced my belief that leadership is not about holding office but about service and making an impact.

Service to the university and academia

I have had the opportunity to serve as the head, Department of Oral/Maxillofacial Surgery and Oral Pathology from 2001 to 2004. I also served as acting dean from 2006 to 2008, and as substantive dean from 2012 to 2016. I have been the only female to have served in this position since the establishment of the Faculty of Dentistry in 1975. I have also served as an elected member of Senate to the University Appointment and Promotion Committee from 2011 to 2014, and as chair of the board for the Centre for Gender Studies and Social Policy in 2016/2017 session. I served and still serve as a member or chair of a number of panels and committees in the university. I thank the university leadership – past and present – for the opportunity provided to give back in many ways to my *alma mata*.

Nationally, I have served on several accreditation committees of the National Universities Commission, the National Postgraduate Medical College of Nigeria, and the West African College of Surgeons, among others. I also served as chairperson of the Accreditation Panel of the National Postgraduate Medical College of Nigeria to Aminu Kano University Teaching Hospital, Kano, in 2013; the chair of the National Universities Commission

Accreditation Panel to the University of Maiduguri in 2018 and as a board member of the Faculty of Dental Surgery, National and West African Postgraduate Medical Colleges. I have been a resource person at the colleges' update courses and served as an examiner for over a decade. I have also been privileged to serve as an external examiner to the universities of Benin, Ibadan, and Lagos at various times; as well as an assessor for professorial grade promotions.

Service through engagement with professional networks

Despite my heavy schedule as an actively practicing university surgeon, I have sustained my interest in the development of my professional associations and groups over the years. I had the honour and privilege of being the pioneer secretary of the Nigerian section of the International Association for Dental Research (IADR) when it was inaugurated in June 2002. I served in this role until 2005. I had the privilege of working with the current Vice-Chancellor, Professor Eyitope Ogunbodede, who served as the association's president. I later served as the president-elect of the Nigerian Division (after Nigeria's status was upgraded from 'section' to 'division') in 2009 and the president from 2010 to 2013. I also served as councillor representing the Nigerian Division in IADR at the international level.

During my tenure as the president of the Nigerian division, I organized the 3rd African and Middle East Region (AMER) conference of the IADR in September 2011 in Abuja, Nigeria. A past president of IADR (Professor Maria Fidela de Lima Navarro) and the executive director of IADR (Dr. Christopher Fox) participated in the 2011 conference. The success of the AMER led the IADR Board to appoint me as a member of the International Scientific Committee of the 10th World Congress on Preventive Dentistry, which took place in Budapest, Hungary in October 2013. I was a plenary speaker and also the chair of a highly

successful plenary session on 'Population Approaches to Prevention of Oral Diseases.' In addition, I was appointed a member of the IADR Unilever Social Entrepreneur Approach to Change Oral Health Behavior Research Award in 2014. At the 93rd IADR General Session in Boston, USA, in March 2015, I was elected as the secretary of the African and Middle East Region of IADR. I have also served as a member of the IADR/Heraeus Travel Award Committee from 2014 to 2016, and as chair of the committee from 2016 to 2017. I am the current chair of IADR Ethics in Dental Research Committee and a member of the Review Committee for the IADR Centennial Emerging Leaders Award.

CONCLUSIONS AND RECOMMENDATIONS

Oral and maxillofacial surgery training and practice in Ife: This dry bone needs to live

As illustrated in this lecture, my life history has been closely intertwined with that of this institution for the best part of my adult life. From 1980 when I gained admission into this prestigious university to this moment, I have stayed connected to this university and its sister institution, the OAUTHC. This is almost 40 years. While I am grateful to the two institutions for the opportunity given me to fruitfully engage in teaching, research, and services, I wish I could refer to all my 40 years as glorious years. Sincerely, they were not. In 1985, the Dental School lost her accreditation, following which the university made a considerable investment into the dental training facilities. Consequently, by 1988 when I was serving as a house officer, Obafemi Awolowo University Dental School had become the best in West Africa with up-to-date equipment and facilities. One of our external examiners in 1989 remarked that 'he thought he was in Glasgow' (where he trained).

Today, the story of lost accreditation is with us again! The recent loss of our accreditation in 2018 is due to years of neglect and lack of sustenance of the investments made then in 1988. Our equipment has deteriorated to the point that they are no longer good enough or sufficient to adequately train students. The loss of our accreditation has relegated Ife to the background in the community of dental training programmes, not because we lack capable hands in terms of teachers, not because we lack brilliant and diligent students, but because the 'system' failed us. Our training programme systematically suffered chronic neglect from both the university and the teaching hospital over the last 30 years!

While featuring on the American Dental Educators' Association (ADEA) Women Leaders' Voices in 2014, the programme organisers introduced me with the following words, among others:

> *'As Dean of the Obafemi Awolowo University Dental School, Dr. Fatusi is responsible for managing the third oldest continuously operating dental school in Nigeria. She leads a highly dedicated staff of experts who train dental students with the competencies required to meet the oral health needs of the public throughout the 21st century'.*

That is the status the Dental School in Ife is acclaimed to have. That status no longer holds true: at present, our facilities cannot even meet the basic minimum standard required for quality training in the Nigerian context. The Faculty of Dentistry of this great institution was renowned for its very high standard. The faculty was known to produce house officers who function efficiently and were well sought after. Our students were outstanding when competing with their peers internationally.

I want to acknowledge the efforts that have started towards the regaining of our lost accreditation by the concerned authorities, and dental alumni. I wish to specially recognize, with thanks, the efforts of Alumnus (Dr.) Alaba Fawole and the coordinating efforts of Alumna (Dr.) Feyi Atinuke-Tayo. I will sincerely plead with the leadership of both the university and the teaching hospital to double their efforts, work together and commit to investing regularly in maintaining and upgrading the dental facilities to ensure that our dental school regains and continuously maintains her pride of place as a leading training centre in the West African sub-region. It will be a lot to wish that it gains a place as a lead in sub-Saharan Africa, though this is not impossible. It is time to say 'never again' to the periodic loss of the accreditation status of the Faculty of Dentistry of this great institution. It is time to regain our lost glory and move even unto a higher ground than ever.

I acknowledge the efforts of the founding fathers of the Faculty of Dentistry in laying down a solid foundation for us. The question for me is 'What's next'? My cue of what is next is taken from my school song (St. Anne's School, Ibadan), which says, in part:

> *'Here in this place, a new generation*
>
> *We too are building for good or for ill*
>
> *What shall we hand on to those who come after us,*
> *Treasures of beauty, of thought and of skill'*

The song challenges all students to constantly ask themselves what they plan to hand over to the next generation. The Lord has helped me this far as a lecturer and clinician and I know He will help me to leave a legacy that will outlive me in the Faculty of Dentistry. My goal remains to continue working with my undergraduate and postgraduate students, to guide and support them towards the desired future of becoming people of excellence

in character, learning and professional practice. I intend to continue to passionately serve as a mentor for their professional development in every way that I can. My generation has been able to go a step above what our teachers handed over to us. I believe that with God's help, the younger generation will also take the practice of oral and maxillofacial surgery to a higher level.

Recommendations

As I round up this lecture, I want to make a few recommendations towards strengthening oral and maxillofacial surgery education and training in OAU as well as services in our country, Nigeria.

A. Training and academia-related recommendations

1. *Improve training infrastructure and ensure constant upgrading and adequate maintenance*: Undergraduate education provides a critical foundation for specialist training in oral maxillofacial surgery and other specialties in dentistry. The university and the teaching hospital must boldly face the current challenges to ensure that Ife has well-equipped dental training and service centre. Beyond the efforts currently being undertaken, the two institutions must jointly establish a plan for maintaining and upgrading the facilities to ensure its high performance on a continuous basis.

2. *Expand training opportunities for dental health workers*: Nigeria is grossly deficient in terms of the number of dentists and oral and maxillofacial surgeons. Efforts should be directed towards increasing the number of dental health workers produced annually and opportunities created for their gainful employment. To increase the population of oral and maxillofacial surgeons in Nigeria, the hospital authority needs to significantly increase the space and opportunity for residency in oral and maxillofacial

surgery as well as improve the facilities for the training of resident doctors.

B. Recommendations for strengthening the academic surgeon agenda

3. *Continuouly nurture the ideals of academically-and-clinically competent "university surgeons"*: The university needs to continuously nurture and promote the ideals of the university surgeon as a clinically competent and academically sound professional. Specific attention should be given to the contextual framing of the 'service' element in the university promotion criteria as an avenue for promoting excellence in clinical services alongside research and teaching. In that regard, the university needs to establish an objectively verifiable mechanism for assessing clinical services offered by academic staff and use that as part of the 'service' component for promotion.

C. Service-related recommendations

4. *Improve access to and quality of oral health care at all levels*: Oral health should be given due attention at every level to improve both access and quality of oral health services nationwide. Efforts should be devoted to the effective implementation of the National Oral Health Policy to achieve its mission of "improving the level of oral health of Nigerians through the development and promotion of accessible, effective, efficient, and sustainable oral health system based on prevention, early detection and prompt treatment of oral diseases, using evidence-based interventions".[82]

5. *Increase the coverage and improve the performance of the National Health Insurance Scheme*: The coverage and performance of the National Health Insurance scheme should be significantly, rapidly

and strategically improved to enhance health access and equity, particularly for the most economically disadvantaged population.

MY REFLECTIONS

As I round off this lecture, it is beyond important to appreciate my support system—those who have given me the strength, time and courage to stand where I am today. If a man runs with men, it is called a RACE, but when he runs with God, it is called GRACE. Grace has kept me from Disgrace. Grace has been sufficient for me and I know that GRACE will keep me till the end. I have seen God's mighty hands in my clinical endeavours. But for God, what would 'Olawunmi' have said? To you, Jehovah be all the glory, honour and adoration.

My husband and friend, Professor Adesegun Fatusi. I have known nothing but your support, inspiration and help in my becoming who I am today. Thank you for continually encouraging me to break systemic and career boundaries, and to have walked this journey, both personally and career-wise, with you. My dear daughter, Oluwadamiloju MoyinOluwa Fatusi. Thank you for bravely bearing my many long hours away from home especially during residency training. It was particularly tough when I had to combine my full work load with a full-time course in public administration. You took it all in your stride and were unusually strong for your age. I appreciate your support and encouragement. May you daily grow in God's grace and favour.

The most significant influences on my person are my parents (Mr. Festus Idowu Buluro and Mrs. Victoria Adesola Buluro). Through their commitment and sacrifice, I received the best educational, developmental, moral and mental experiences. You taught me the

will to sacrifice for set goals. This lesson has helped me make personal sacrifices for the achievement of collective goals; goals that might otherwise have failed. I am eternally indebted to the Almighty that you are both alive to witness this day. I say a huge and big thank you to my siblings for their love, care, and support. Adesoji, Ernest, Bukola, Toromoluwa, Simisola, Adedotun, Busola, Temitope, 'You are everything'. I am particularly grateful to the one who remains a testimony of God's faithfulness to us as a family and to the blessings God has enriched our family with— the children. God is our rock and fortress and we are confident that He will neither fail us nor forsake us. I am more than convinced of the hand of God upon your life and He will make you much bigger than we could ever be.

To the Faculty of Dentistry, the Department of Oral/Maxillofacial Surgery and Oral Pathology, the resident doctors especially those in Oral and Maxillofacial Surgery with whom I have had the pleasure to contribute several times to patient care; and to my colleagues in the College of Health Sciences—it is a privilege to work with you as we train younger health professionals and labour to improve the health education system together. May the Lord restore the better yesterdays of our profession. To all the lecturers who contributed to my academic journey too many to list, I doff my cap. The word '*Oga*' in Faculty of Dentistry refers to only one person – the late Professor Oluniyi Olusile. In life and in death, I celebrate you, Sir! The late Professor Olusegun Fagade is also appreciated for his quiet mien and humble disposition. I also remember and appreciate my late colleague, Professor Vincent Ugboko, with whom I started my residency training.

Thanks to my church family, the Chapel of Grace, under the leadership of Pastor (Dr) M.A. Oyelami, and every other spiritual family I belong to. The late Evangelist Bola Sanni was a father and a friend. We planned towards this inaugural lecture together, but

it pleased your maker to call you home before the day. To all my friends, family (biological and by marriage), *egbons*, many *aburos,* parents by adoption and professional colleagues in other institutions, thank you for making my journey sweeter and a little less stressful. I am sincerely grateful.

To my patients, you are one of the reasons for today and I thank you all. Without you, I would not have been able to contribute to knowledge, demonstrate my abilities or be called a 'Professor'. On one of the Monday mornings, a close associate saw me and asked if I had another 'swollen mouth' for that day. The response was "Yes." Then came the comment: "*if all the jaws you have removed since you started practicing should come together, they would be more than enough to form a mighty army, strong enough to fight you*." Little did my associate know that I am equally a beneficiary of them as they are beneficiaries of mine. The quality of life of the patients may not be the best, but it is definitely better than what it was the day they stepped into our clinic. I am grateful and humbled to have had the privilege to make their health and lives better while improving my knowledge and professional development.

To everyone who came here to honour me and listen to this lecture in spite of your tight schedules, thank you so much. May you always receive honour.

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