

**UNIVERSITY OF PORT HARCOURT**

**BEAUTY AND NOURISHMENT FROM  
SYMMETRY AND PROPER ALIGNMENT**

**AN INAUGURAL LECTURE**

**By**

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**Designed, Printed and Bound by UPPL.**

## **DEDICATION**

This lecture is dedicated to my late father, Pa Goodluck Adeyemi Akinbami, a primary school teacher who took time to teach me in the final class of basic school and followed me closely to ensure my admission into the oldest secondary school in Nigeria, CMS Grammar School Bariga, Lagos.

## ACKNOWLEDGEMENT

My deep heartfelt appreciation goes to God my Father and Jesus Christ my Savior and Holy Spirit who has protected, guided and brought me to this level. His grace was more than enough, all glory belongs to him.

To my parents Mr. and Mrs. Akinbami, I am greatly indebted for your wonderful care and love.

I am indeed grateful to my lecturers in the College of Medicine, University of Lagos.

My gratitude also goes to my late mentor during my post-graduate/residency training, Prof. Vincent Ugboko and other mentors of mine in the Obafemi Awolowo University Teaching Hospital complex.

I thank Prof. Ambrose Obiechina for his supervision of my Part II Dissertation and for taking his time to go through this lecture and facilitating my appointment as Lecturer I under Prof. Frank Okoisor as pioneer Dean.

I thank Prof. Chukwudi Onyeaso for his beautiful contributions to my life and to this inaugural lecture.

I appreciate Dr. Abiodun Arigbede who accommodated me in my first month in Port Harcourt.

I also thank my colleague, co-researcher and friend, Dr. Oladimeji Akadiri with whom I have worked together a great length. I also thank my siblings and in-laws for their great love and respect. My children are also spectacular and highly contributive to my success

To my wife, your assistance and understanding have been enormous, I have so much peace with you that contributed to my optimal performance secularly.

Finally, I thank all that have pastored me and all that have prayed for me through my journey of life

## **ORDER OF PROCEEDINGS**

2:45pm. Guests are Seated

3:00pm. Academic Procession Begins

The procession shall enter the Ebitimi Banigo Auditorium, University Park, and the congregation shall stand as the procession enters the hall in the following order:

ACADEMIC OFFICER  
PROFESSORS  
DEANS OF FACULTIES/SCHOOLS  
DEAN, SCHOOL OF GRADUATE STUDIES  
PROVOST, COLLEGE OF HEALTH SCIENCES  
LECTURER  
REGISTRAR  
DEPUTY VICE-CHANCELLOR (ACADEMIC)  
DEPUTY VICE CHANCELLOR (ADMINISTRATION)  
VICE CHANCELLOR

After the Vice- Chancellor has ascended the dais, the congregation shall remain standing for the University of Port Harcourt Anthem. The congregation shall thereafter resume their seats.

### **THE VICE-CHANCELLOR'S OPENING REMARKS**

The Registrar shall rise, cap and invite the Vice-Chancellor to make the opening Remarks.

**THE VICE CHANCELLOR SHALL THEN RISE, CAP AND MAKE HIS OPENING REMARKS AND RESUME HIS SEAT.**

## **THE INAUGURAL LECTURE**

The Registrar shall rise, cap, invite the Vice-Chancellor to make his opening remarks and introduce the Lecturer.

The Lecturer shall remain standing during the Introduction. The Lecturer shall step on the rostrum, cap and deliver his Inaugural Lecture. After the lectures, he shall step towards the Vice-Chancellor, cap and deliver a copy of the Inaugural Lecture to the Vice-Chancellor and resume his seat. The Vice-Chancellor shall present the document to the Registrar.

## **CLOSING**

The Registrar shall rise, cap and invite the Vice-Chancellor to make his Closing Remarks.

## **THE VICE-CHANCELLOR'S CLOSING REMARKS.**

The Vice-Chancellor shall then rise, cap and make his Closing Remarks. The Congregation shall rise for the University of Port Harcourt Anthem and remain standing as the Academic [Honour] Procession retreats in the following order:

VICE CHANCELLOR  
DEPUTY VICE-CHANCELLOR [ADMINISTRATION]  
DEPUTY VICE-CHANCELLOR [ACADEMIC]  
REGISTRAR  
LECTURER  
PROVOST, COLLEGE OF HEALTH SCIENCES  
DEAN, SCHOOL OF GRADUATE STUDIES  
DEANS OF FACULTIES/SCHOOLS  
PROFESSORS  
ACADEMIC OFFICER

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## **1.0 Preamble**

Vice Chancellor Sir, it is a great privilege and honor for me to stand on this podium today to deliver the 156th inaugural lecture of this Unique University and the first from the department of Oral and Maxillofacial Surgery. I am grateful for this opportunity.

## **1.1 Anatomy of the Skull**

The face is the most conspicuous part of the body and everyone gives adequate attention to the care and protection of this area of the body which largely impacts on our socio-psychological status. The face which is divided into 3 (upper, middle and lower) levels comprises of layers of external soft tissues supported by highly complex bony skeleton. The bony skeleton of the second and third levels referred to as the jaws encloses the oral cavity and the tongue. The upper and lower set of teeth are firmly situated within the alveolar component of the jaws.

The tissues of the maxillofacial region are:

Soft tissues: (skin, subcutaneous tissue, superficial/ deep fascia, muscle, nerves, vessels and oral mucosa/submucosa, periosteum around bone), salivary glands, (major and minor), lymph nodes Soft tissues of the face contribute significantly to appearance and beauty, even when there is no developmental, congenital or acquired pathology affecting the face, the appearance can be improved by exercising and massaging the soft tissues which also help in remodelling, controlling and balancing the growth of facial bones.

Schmid et al 2006. There are 25 facial muscles and exercise improves blood flow to these muscles as well as the skin and subcutaneous tissue; such activities/exercises increase muscle tone/strength and tighten/smoothen the skin, these include;

- Smiling
- Chewing gum
- Chin and cheek lifting
- Tongue sticking out
- Lip pull ('O' shape exercise)
- Lip push (Fish face exercise)
- Face massaging
- Jaw clenching
- Blowing air exercise
- Mouthwash Move
- Exercise is recommended for 20 minutes daily six times a week

To further improve the smoothness of the skin and elimination of wrinkles, application and self-massages with external creams like Goji cream, and some Almond, Hyaluronic acid, as well as Silicone based creams have been found useful. <https://hendel-russia.ru/products>

Hard tissues of the Face:

These are teeth and bones

The bones involved are

Bones of the lower jaw which is comprised of

- Lower alveolus (upper part of mandible)
- Mandible

Bones of the Upper jaw which is comprised of

- Upper alveolus (lower part of maxilla)
- Maxilla
- Palatine (horizontal and vertical)
- Zygomatic bone
- Pterygoid plate

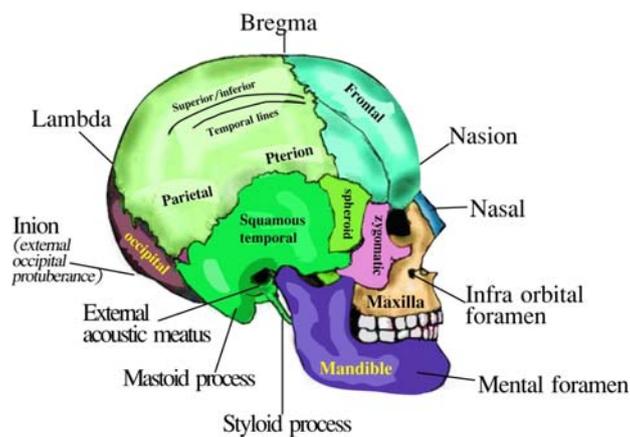
- Nasal bone
- Ethmoidal (perpendicular plate, lamina papyracea, ethmoidal bullae, uncinata process)

Bones of the Cranium

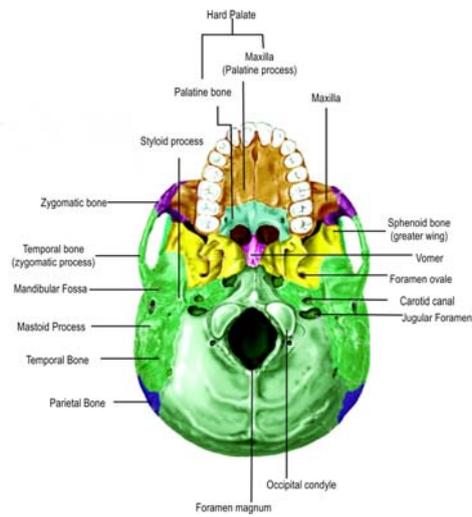
- Frontal bone
- Sphenoid bone
- Ethmoid
- Temporal

Bones of the Orbit

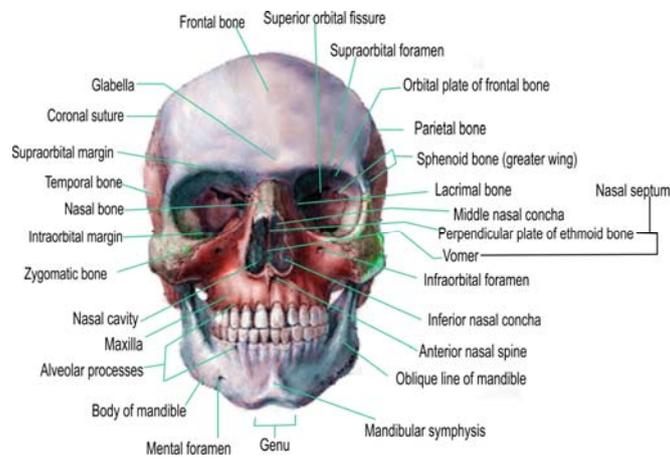
- Orbital bones are formed by (orbital surfaces of zygomatic, maxilla, frontal, greater and lesser wing of sphenoid, ethmoidal, lacrimal and palatine bones)



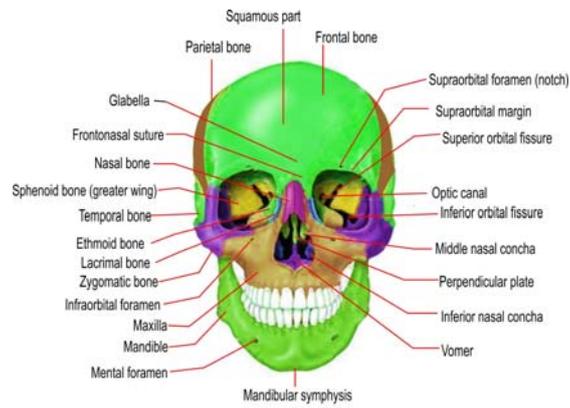
*Fig. 1: Lateral view of skull showing bones and other features*



**Fig. 2: Inferior View of the Skull showing the Palatine bone and bones that form the base of the skull**



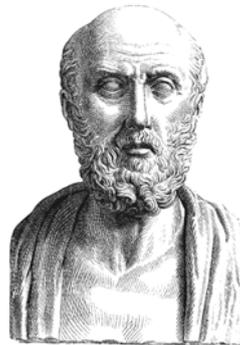
**Fig. 3: Anterior view of the Skull labelling the upper and lower (Alveolar) part of the Mandible and Maxilla bones enclosing the roots of the teeth respectively**



***Fig. 4: Anterior view of the Skull clearly outlining the bones of the Orbit and Nose***

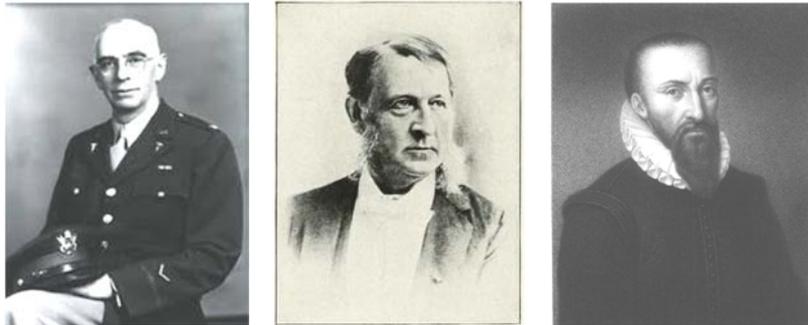
## **2.0 History of Oral and Maxillofacial Surgery (OMS or OMFS)**

Oral and Maxillofacial Surgery specializes in the management of diseases, injuries and defects in the head, neck, face, jaws. The specialty takes care of the hard and soft tissues of the oral (mouth) and maxillofacial (jaws and face) region. The history of oral surgery began from 460BC to 370BC. The famous Greek physician, Hippocrates, manually reduced dislocation of the mandible indicating the long history of the discipline.



**Hippocrates (460BC – 370BC)**

In 1575, Ambrose Pare, the father of early Modern Surgery, published Complete Works which had information on tooth extraction and jaw fractures. Oral and Maxillofacial surgery is an internationally recognized surgical specialty first established in the US in 1869 by James Edmund Garretson (1829-1895). Robert H. Ivy (1881-1974) described the Ivy loop for the treatment of jaw fractures.



Ambrose Paré (1509 – 1590) James E. Garretson (1829-1895)  
Robert H. Ivy (1881-1974)

### **3.0 Training of the Oral and Maxillofacial Surgeon**

He/she must undergo undergraduate training for 6 years to obtain the first degree which is either BDS (Bachelor of Dental Surgery), DMD (Doctor of Dental Medicine), or DDS (Doctor of Dental Surgery). In Nigeria, after completion of the housemanship and national youth service program for 2 years, postgraduate training is required in the National Postgraduate Medical College or the West Africa College of Surgeons for another 6 years to obtain the Fellowship degree in Oral and Maxillofacial Surgery under the Faculty of Dental Surgery, of either or both colleges.

#### **4.0 Surgical Procedures Performed by the Oral and Maxillofacial Surgeon**

Dentoalveolar Surgeries which include, various types of routine and surgical extractions

- Pre-prosthetic surgeries
- Oro-antral surgeries
- Implant surgeries

*Ablative, reconstructive surgeries and microsurgeries for Benign lesions (cysts, tumors, hamartomas) and Malignant lesions*

*Surgical repair and treatment of congenital malformations such as cleft lip and palate Cranial vault malformations (Distraction Osteogenesis and Cranioplasty for Craniosynostosis)*

- Management of Temporomandibular joint (TMJ) disorders
- Management of Orofacial Infections
- Orthognatic surgeries (corrective jaw surgery)
- Management of Chronic facial pain disorders
- Facial reanimation surgeries for facial nerve palsies
- Cosmetic and esthetic surgeries in the head and neck

*Face lifts, rhinoplasty, otoplasty, cheiloplasty, glossoplasty and orbital surgeries Facial feminization and rejuvenation surgeries*

*Facial transplantation*

- Management of Cranio-maxillofacial trauma (Soft and Hard Tissue injuries to the face, head and neck)

#### **5.0 Reason for the Topic**

##### **5.1 Genealogy**

Vice Chancellor Sir, every human being was created and made perfect by the Almighty God himself as the holy scripture says ‘*Let us create man in our own image*’, again the psalmist concluded that ‘*we are fearfully and wonderfully made*’. However, each person is

a product and a reflection of the interaction of the genome of his/her parent

## **5.2 Functions of the organs**

The functions of the face, cheeks, lips, tongue; and the jaws and teeth are aesthetics, mastication, speech, swallowing, sensitive touches and stimulations. Various diseases which include congenital anomalies, tumors, cysts, infections, trauma may affect these prominent parts of the body and patients with such diseases present to the Oral and Maxillofacial Surgeon for treatment, repair or recreation. These diseases may be limited to the soft tissues of the face or affect both hard and soft tissues. Vice Chancellor Sir, for 25 years of practice, I have been involved in the management of patients with these various diseases but for this lecture, I will focus on management of cranio-maxillofacial trauma and the effect on esthetics and mastication.

## **5.3 Effects of Maxillofacial Trauma**

Globally, trauma to the body and particularly the face, jaws and the teeth is very common because of the direct exposure of the Head and Neck region to the environment. These injuries alter the facial appearance at times, the teeth arrangement/aesthetics most times and, also disrupt the masticatory function of the jaws virtually all times, the alteration in the facial and dental aesthetics may have psychosocial impact on the patient. The difficulty in mastication because of jaws and teeth that are not well aligned prevents chewing of food and consequently insufficient nourishment of the body; hence I titled my inaugural lecture 'Beauty and nourishment from symmetry and proper alignment'.

## **5.4 Definition of Attractive facial features?**

Facial symmetry is one of the measures of body symmetry. Physical attractiveness and beauty are determined by symmetry of the face.

Facial symmetry is attractive but does not necessarily indicate health. Bilateral symmetry of the face is assessed by comparing differences in facial features of both sides of the face.

#### **5.4.1 What are the attractive facial features?**

Facial symmetry has been considered attractive in both men and women, the attractive facial features that men look for are full lips with both vermilion borders showing clearly, high receding forehead, broad face, small chin, small nose, short narrow jaw, chiseled jawline, high prominent cheek bones, clear smooth skin, and wide-set eyes. Schmid et al. 2006.

#### **5.4.2 Who is attractive?**

Attraction is not only physical, although we can be physically attracted to someone, we are also attracted to their passion, personality and confidence, being attractive is more than appearance. No human has a perfectly symmetrical face, but we tend to be attracted to people with symmetrical facial features.

#### **5.4.3 How is beauty measured? The Beauty Equation**

Dr Kendra Schmid, (2006) a biostatician, divided the length of the face by the width and by this Golden ratio got a value of 1.6, therefore a beautiful face is about one and half times longer than the width.<sup>5</sup> Furthermore, she divided the face into 3 levels from hairline to the intercanthal level of the eyes, from intercanthal level to the base of the nose and from base of the nose to the base of the chin, she stated that the values must be equal for a person to be considered beautiful. She also looked into other features to determine symmetry and proportion and stated that the length of the ears must be equal to the length of the nose and the width of the eye must be equal to the distance between the eyes. On a scale of 1 to 10, most people scored between 4 and 6, and therefore none was perfectly beautiful.

Interestingly symmetry in the face does not necessarily equate to beauty, many faces perceived as beautiful are usually not close to being perfect in symmetry. Perfect symmetry tends to result in a face that appears unnatural, animated or robot-like, so if we are considering natural beauty rather than artificial beauty, then beauty may not exactly be about perfect symmetry. However, to the maxillofacial surgeon symmetry is more pleasant to the eye than asymmetry.

#### **5.4.4 Chewing and Nourishment and Beauty**

The physical process of chewing food helps to increase surface area by breaking down larger particles of food into smaller particles thereby making easier to be swallowed. By chewing properly, food is exposed to thorough digestion by salivary, stomach and intestinal enzymes. With proper digestion, nutrients are made available to the body cells for utilization and cell repair which further enhances good development and improved esthetics. Chewing food severally before swallowing also produce immediate satisfaction, reduces eating pace and calorie intake which can help to prevent excessive weight gain and produce long-term satisfaction. A study in BMJ Open discovered that people who eat slowly weigh less. Sweeting et al. 2016.

The goal of the Oral and Maxillofacial Surgeon, therefore, is not only to remove pain but to achieve almost symmetrical appearance of the face and to ensure satisfactory nourishment, by thoroughly aligning the face and the jaws. A few times, there may be satisfactory aesthetics judging from a seeming symmetry of both sides of the face but this does not mean that the alignment of the jaws is perfect, chewing is impossible when alignment of the jaws and teeth is not achieved and this prevents satisfactory nourishment because nourishment is not derived only from taste, quality or quantity of the diet but also on the processing of the food by jaws

and the teeth. When proper alignment is achieved, the edges of the palatal cusps of the five upper posterior teeth (1<sup>st</sup> and 2<sup>nd</sup> premolars, 1<sup>st</sup>, 2<sup>nd</sup> & 3<sup>rd</sup> molars) on both sides are occluding on the median groove of their lower counterpart. In addition, the upper set of anterior teeth (central, lateral incisors and canine) will be 2-3mm ahead (in front) of the lower set of anterior teeth while the upper set of posterior teeth will be 2-3mm behind the lower set of posterior teeth

## **6.0 My Contributions**

### **6.1 Etiology of Maxillofacial Trauma**

Globally, Maxillofacial injuries constitute about 7.3% of injuries to the whole body. In all our studies, road traffic accident has contributed the most to maxillofacial injuries in sharp contrast to studies from the UK, US and other parts of Europe where assaults, gunshots and sports are the leading causes; Udeabor, Akinbami, Yarhere and Obiechina (2014), Maladiere et al. (2001), Iida et al. (2001). I and my colleagues did several works on maxillofacial trauma and reported the pattern and management of these fractures in twenty (20) different local and International journals. I worked extensively on the serial management of various condylar fractures and this was reported in the Journal of Surgical Science, Akinbami and Akadiri (2013a).

Akinbami and Akadiri (2012a) also wrote a comprehensive book titled ‘‘Synopsis of Management of Craniomaxillofacial trauma’’ published by Rosedog publishers, Pittsburg, Pennsylvania, United States of America. This comprises 12 chapters with emphasis on the features and treatment of injuries to the various soft and hard tissues in the craniomaxillofacial region. Electronic version of the book is still available online with worldwide circulation.

In my article titled Pattern, severity and management of cranio-maxillofacial soft tissue injuries published in the Journal of Emergencies, Trauma and Shock, Akinbami et al. (2013), we found out that road traffic accident was the cause of injury in 57.1% of the 126 patients studied followed by assault, 17.6% and gunshots, 14.3%. In another related study titled, Maxillofacial fractures: Etiology, pattern of presentation and treatment in University of Port Harcourt Teaching Hospital, Port Harcourt, Nigeria, published in the Journal of Dental Surgery by Udeabor, Akinbami, Yarhere, and Obiechina (2014), we also found out that RTA constituted 46.5% and assault was 19.8%.

Following my visit to the Road Safety Headquarter office in Rivers State in 2013, to collect data, I evaluated the role of seat belt in the prevention of fatalities from road traffic accident in Rivers State. From my findings in the article published in Nigerian Health Journal, Akinbami (2014), I concluded that there was no statistically significant relationship between the use of seat belt or failure to use, and the outcomes of road traffic accident in Rivers State, although the results were not statistically significant, there were some benefits in terms of reduction of fatalities observed during the period of enforcement of seatbelt laws.

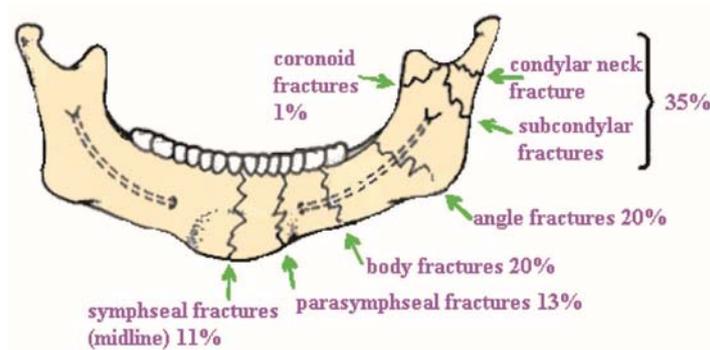
I went further to look into the pattern and severity of injury of patients with maxillofacial injuries due to specific causes like assault, and we found out that 7.5% of injuries to the whole body from causes such as assault were found on the maxillofacial region and many were domestic related. Akinbami(2015). Vice Chancellor Sir, what the Holy scriptures says is that "a man must leave his father and mother and cleave to his wife and two shall become one" and it further says that he that finds a wife find a good thing", the expectation is that you should hardly see anyone beating himself or herself neither should you see someone inflicting injuries on a good thing but the reverse is the story in many homes.

In addition to the facial injuries these patients presented with, 31.3% of these patients who had injuries from assault also sustained mild to moderate Head injuries. Assault constituted over 75% to maxillofacial region from studies in the US and Europe in sharp contrast to our studies. Tintinalli (2004), Simsek et al. (2007).

During the conduct of our study on the management of gun-shots to the maxillofacial region at University of Port Harcourt Teaching hospital by Akinbami and Udeabor (2013) published in the Nigerian Journal of Plastic Surgery, We observed that there was some underreporting of these injuries probably due to the fact that the victims knew that the doctors will insist on obtaining police report, however gunshots still remained the third leading cause of maxillofacial injuries in my studies and other studies from the West African sub-region in contrast to developed countries in which gunshot is the second leading cause of maxillofacial injuries after assault. To a very large extent, we were able to determine the type of ammunitions used based on the pattern of injuries seen on presentation. Generally, causes and their mean incidences of maxillofacial injuries in Black Africa are

- Road traffic accidents (RTA) – motor vehicle, motor cycle, tricycle, bicycle (64%)
- Boat crashes < 1%
- Rail crashes < 1%
- Plane crashes < 1%
- Falls (1%) - The highest cause of trauma in children worldwide is Fall.
- Assault (interpersonal and communal clashes) (19%)
- Animal attacks < 1%
- Gunshot injuries and Bomb blasts (15%)
- Domestic and industrial/occupational accidents < 1%
- Sport injuries < 1%

In all my studies and those from all other parts of the world, I found out that the Mandible is the commonest bone affected in cranio-facial skeletal injury (28.3%). This is followed by zygomatic bone fractures as the second commonest in Nigeria, Fasola et al. (2003), Adeyemo et al. (2005). In the US and Europe, mandible is followed by nasoethmoidal complex fractures. Potter et al. (2006). From my studies, the body and the angle of the mandible were more affected but in many other studies especially outside Nigeria, the condyle region was most affected. Anderson et al. (2007).



**Fig. 5: Mean Prevalence of fractures in the various sites of the Mandible**

## 6.2 Manifestations of Maxillofacial Trauma

### 6.2.1 For fractures of the Lower Jaw (Mandible)

Features reported by patients and documented in my studies were like those reported in other studies and these include;

Facial asymmetry which were either due to deviation of jaw, displacement of fracture segments, dislocation of condylar head, or external or internal swelling e.g., edema, hematoma, excess fibrous or bony callus

- Pain from the teeth or the jaw
- Pain when teeth come together

- Inability to open the mouth from trismus- due to inflammation or bleeding into or beneath the muscles
- Numbness- due to direct trauma, irritation or pressure on nerves
- Malocclusion (my teeth are scattered)- due to displacement
- Inability to chew- due to pain or deranged occlusion

Some features I found and documented on evaluation of my patients include -

Extra-oral

- Skin abrasion, and other soft tissue injuries
- Facial asymmetry due to swellings or displacements like overlap of segments or gap (bony discontinuity) along the outer and lower border of the symphysis, body, angle and, for condyle anterior to the ear canal.
- Pain and Tenderness

Intra-oral

- Sublingual ecchymosis
- Red bluish mucosa
- Step-deformity- step along occlusal surface due to displacement at the fracture site in vertical direction
- Loss or fracture of teeth, dentures, natural or artificial crowns, bridges

Malocclusion which could be from

- Spacing due to tooth loss
- Anterior open bite
- Posterior open bite
- Anterior deep bite
- Posterior deep bite
- Cross bite
- Scissors bite

Numbness or tingling sensations in the region of distribution of inferior alveolar and mental nerves

Mobility of fracture segments when moved against each other

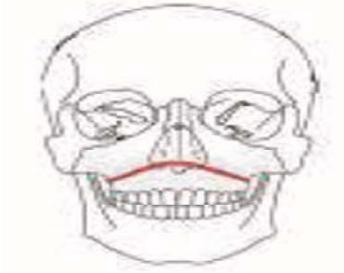
### **6.2.2 Mandibular condylar fractures**

The clinical features documented in my study and other similar studies include - Transient Loss of consciousness, pain, tenderness, facial or jaw asymmetry and restrictions of movement around the temporomandibular joint and subcondylar region. Bleeding from the ear which may be due to laceration of anterior wall of the external acoustic meatus or a concomitant base of skull fracture. With associated basal skull fracture, I observed bleeding and CSF leakage from the ear, and supramastoid swelling and hematoma (Battle's sign) Anterior open bite and posterior gagging for bilateral condylar fractures, Unilateral gagging on affected side with posterior open bite on opposite side for unilateral condylar fractures.

I reported maxillofacial trauma as a leading cause of dislocations and ankylosis of the temporomandibular joint (TMJ) in Head and Face Medicine Journal, Akinbami (2011b), in which I also classified dislocations of the TMJ into 3 broad categories. This article has received tremendous acceptance based on the number of citations, downloads and readership worldwide

René Le Fort (1869-1932) a French Army Surgeon in 1901, identified 3 clinical patterns/levels of fracture in the mid-face; Le fort I, Le-Fort II and Le-Fort III.

### 6.2.3 Fractures of the Midface (Le-Fort I Fractures)



**Fig. 6: Le-Fort I (Subnasale/Supraalveolar fractures)**

Le Fort I is a transverse fracture of the maxilla just above the teeth.

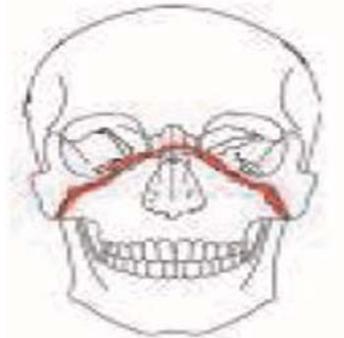
Physical findings include

- Facial edema and asymmetry
- Pain and tenderness

Mobility of the hard palate. This is evaluated by grasping the incisors and hard palate and gently pushing in and out.

This is below the level of the infraorbital nerve and thus does not cause hypoesthesia of the upper lip but nerve supply to the upper teeth can be affected.

### 6.2.4 Fractures of the Midface (Le-Fort II Fractures)



**Fig. 7: Le-Fort II (Subzygomatic fractures)**

These were the clinical features we reported for Le-Fort II:

- Marked facial edema and asymmetry
- Circum-orbital ecchymoses (Moon's face)
- Pain and tenderness
- Telecanthus- widening of intercanthal distance
- Bilateral subconjunctival hemorrhages
- Lengthening of the midface, cracked pot sign, mobility of the maxilla.
- Epistaxis
- CSF rhinorrhea may be noted
- Hypoesthesia (infraorbital nerve and its branches to the teeth)

#### ***6.2.5 Fractures of the Midface (Le-Fort III Fractures)***



***Fig. 8: Le-Fort III (Suprazygomatic Fracture)***

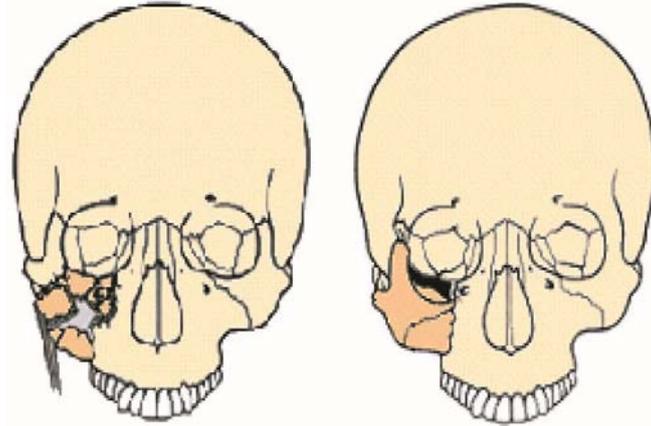
Le Fort III is a complete craniofacial disruption and involves fractures of the zygoma, infraorbital rims, and maxilla. This injury requires significant force. Findings included:

- Airway obstruction, loss of consciousness and loss of vision

- Massive swelling of the face and asymmetry after swelling subsides
- Pain and tenderness
- Circumorbital ecchymosis (moon face appearance)
- Subconjunctival hemorrhage
- Facial elongation and flattening (long and dish face deformity) after resolution of the oedema.
- Drooping of the eye globe if fracture extending into the lateral margin is above the Whitnall's tubercle (located slightly inferior to Fronto-Zygomatic suture) which anchors the suspensory ligament of Lockwood (lateral canthal ligament)
- This also causes drooping of the upper eyelid and altered horizontal visual axis
- Maxilla often is displaced posteriorly and downwards, causing an anterior cross bite
- Lengthening of the midface (long-face), concomitant flattening of the nasal bridge (dish face)
- Cracked pot sign
- CSF rhinorrhea is almost always present but may be obscured by epistaxis
- Hypoesthesia (infraorbital nerve and its branches to the teeth)

### 6.2.6 Fractures of the Midface (Zygomatic Fractures)

Zygomatic Fractures (Excerpt from [www.gla.ac.uk](http://www.gla.ac.uk) Figure 16)



*Fig. 9a: Comminuted fracture of the Zygoma Fig. 9b: Single fracture of the Zygoma*

Manifestations of zygomatic bone fractures can be categorized into oral, orbital and nasal features and these include -

- Pain
- Increasing swelling around the malar and cheek and facial asymmetry after swelling subsides
- Inability to open wide - restriction of mouth opening due to spasms of temporalis muscle(trismus)
- Inability to open if mouth was closed pre-injury due to impingement on coronoid process
- Inability to close if mouth was open pre-injury, due to encroachment of the subzygomatic space by the arch
- Numbness of the tissues around the cheek and upper lip
- Bleeding through the nose
- Redness and swelling of the eye
- Redness and swelling around the eyelids
- Double vision
- Gradual loss of vision

- Sudden loss of vision
- Physical findings within 24-72hrs include
- Depressed malar eminence suggesting zygomatic bone fracture.
- Enophthalmos
- Depression of the inferior orbital rim

### **6.3 Radiographic Assessment**

The best choice for simultaneous viewing of both jaws is Orthopantomograph (OPG).

- Right and left lateral oblique views of the mandible and postero-anterior views of jaws/skull can be obtained for the lower jaw.
- Fractures of the condyle of the mandible may require, reverse Towne's view which is 30 degrees PA
- For Upper jaw, recommended radiographs and images include:
- Occipito-mental 0-15 degrees (Standard) for Le Fort fractures, 20 degrees (Cadwell) for the cribriform plate and anterior cranial fossa, 30 degrees for the floor of frontal sinus and 37-45 degrees (Waters) for the floor of orbit and superior part of maxillary sinus.
- Lateral views of the skull are requested in combination with occipito-mental view
- Submentovertex view for zygomatic arch fractures and base of the skull fractures
- Intraoral views like occlusal and periapical views are also useful for dentoalveolar, crown and root fractures.
- 3D and conventional CT scans

#### **6.4 Clinical Data**

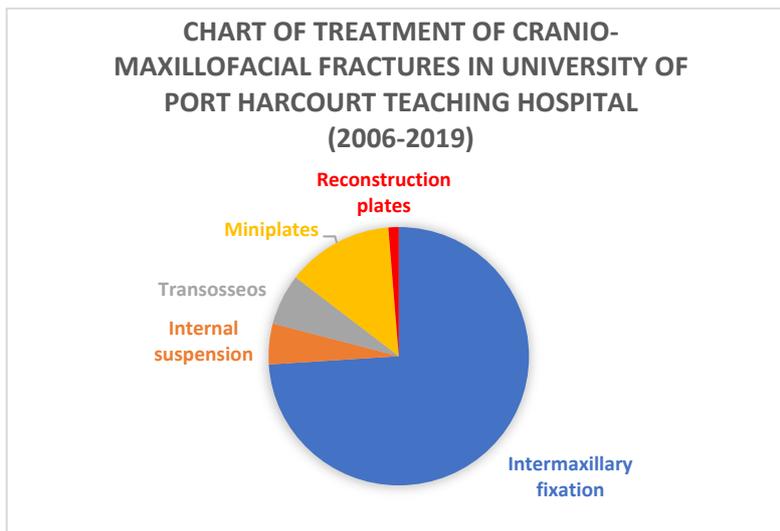
Vice Chancellor Sir, I have managed 360 patients with craniomaxillofacial trauma as follows:

- 228 patients with only lower third (mandible) fractures, 66 patients with upper and middle third fractures without lower jaw involvement
- 48 patients with isolated upper or lower dentoalveolar fractures
- 2 Isolated cases of upper third fractures
- 16 patients with panfacial fractures (lower jaw, upper jaw and cranium).
- There seem to be an underreporting of cases with Le-Fort III compared to Le-Fort I and II fractures probably due to death at accident sites.

**Table 1: Distribution of the Sites of Cranio-Maxillofacial Fractures in UPTH**

Mandible (224)		Middle third and Upper third (44)		Isolated Upper third (2)		Panfacial (16)	Dento-alveolar (48)	
Symphysis	31	Le-Fort I	8	Frontal	2	16	Upper	29
Parasymphysis	26	Le-Fort II	10				Lower	19
Body	53	Le-Fort III	2					
Angle	15	Zygomatic	23					
Ramus	2	Zygomatic complex	2					
Coronoid	0	Nasal	3					
Condyle	28	NOE complex	4					
2 sites	52	Isolated Orbital	2					
Multiple sites	21	Multiple	12					
<b>Total</b>	<b>228</b>		<b>66</b>	<b>2</b>		<b>16</b>	<b>48</b>	<b>360</b>

A total of 290 Intermaxillary fixations with arch bars or direct wiring techniques have been done, 82 open reduction and internal fixations (transosseous 25, miniplates 52, reconstruction plates 5), and 20 internal suspensions.



***Fig. 10: Chart of Treatment of Cranio-Maxillofacial Fractures in University of Port Harcourt Teaching Hospital (2006-2019)***

After stabilizing the patients and restoring the hemodynamic status of the patients, we proceed to definitive management which starts with patient preparation and anesthesia. Vice Chancellor Sir, before we can talk of restoring beauty and nourishment, the patient must first be alive. Mortality and Morbidity figures from our studies and many other published studies have been very low, we have not recorded any case of mortality of cases brought to the hospital because of prompt response and also because a few Le-Fort III with severe displacements of the entire maxilla and severe bleeding into the airway probably did not make it to the hospital. Our morbidity figure is also less than 0.5% and this is similar to other studies.

Mortality (Death) from-

1. Airway obstruction due to

- Displacement of tongue posteriorly in bilateral fractures of the body of the mandible
- Displacement of soft palate posteriorly in Le-Fort I,II and III

- Severe bleeding into the airway
2. Loss of consciousness due to
- direct impact on the Head- Head Injury and intracranial bleeding
  - Indirect impact from facial segments- Condyle and Le-Fort III
3. Multiple organ and limb injuries
- Morbidity from-
1. Sudden blindness due to
- Optic nerve compression by fractured bones-Need for optic canal decompression ± Steroids ± Federov Restoration therapy
2. Gradual blindness due to
- Bleeding and spasm of central retinal artery- Need for intraorbital decompression ± Steroids ± Federov Restoration Therapy

### **6.5 Anesthesia**

Before the discovery of ether by William T. G. Morton a famous Dental Surgeon in 1846, pain had been very difficult problem to control and most earlier surgeons had carried procedures under unimaginable stress.

Local Anesthesia (LA) or rather Local Analgesia basically takes care of the pain sensation, while other sensations of pressure, vibration, touch as well as reflexes are not affected, and this makes this procedure grossly inadequate for most intermediate, major and supra-major surgical procedures.

Local Anesthesia (LA) could be useful for simple unilateral or bilateral fractures of the mandible as well as upper and lower dento-alveolar fractures. We have used LA in about 45% of such fractures

where patients pain threshold is very high or do not have the financial resources or refuse to go under general anesthesia.

However, general anesthesia which has been very useful for maxillofacial procedures have occasional attendant complications of difficult airway/intubation and inability to ventilate as well as laryngospasms and cardiorespiratory failure.

#### **6.6 Treatment: Principles of Reduction and Fixation**

The following are the various treatment procedures documented in our articles and we based them on the principles of reduction and fixation of fracture bone segments-

1. Closed Reduction and Intermaxillary fixation(IMF)
2. Closed Reduction and External fixation
3. Closed Reduction and Internal suspension
4. Open Reduction and Internal fixation

##### **Closed reduction**

- Manual- with the digits
- Instrument- when there is overlap of segments

##### **Intermaxillary fixation**

For adults with complete or sufficient dentition, IMF can be achieved with any of these

- Arch bars and ligature wires
- Eyelet wiring
- Ernst wiring
- Essig wiring

For children

- acrylic cap splints
- metal cap splints

For Edentulous or atrophic jaws

- Gunning's type splint

### **Closed reduction and External fixation**

- This can be achieved with any of these
- Haloframes- rods engages bone (Cranio-Mandibular)
- Boxframes- rods inserted into bone(Cranio-Mandibular)
- Le-vant frames- rods inserted into bone (Cranio-Maxillary)
- Mandibular Bi-phasic pins
- Plaster of Paris

### **Closed reduction and Internal suspension**

Any of these may be used

- Frontomaxillary internal suspension
- Frontomandibular internal suspension
- Circumzygomatic-maxillary internal suspension
- Circumzygomatico-mandibular internal suspension
- Circum-mandibular wiring
- Per-alveolar wiring

### **Open Reduction and Internal Fixation (ORIF)**

Open reduction- we raise flaps and align segments into pre-morbid anatomical positions

Internal fixation- is the process of holding and keeping the aligned segments in that normal position in order to avoid a shift while healing of the bone takes place for at least 6 weeks to 3 months in adults and 2weeks to 6weeks in children.

### **Reasons why we did Open Reduction and Internal fixation**

Not all fractures must be treated with open reduction and internal fixation. Those that must be treated with open reduction and internal fixation are:

- Fractures that are grossly or moderately displaced
- Panfacial fractures
- Fractures in which much bone has been lost
- Fractures unstable after closed reduction and intermaxillary fixation or external reduction

## **6.7 Approaches**

For esthetic purposes, we hid incisions within skin creases, and also ensure close approximation with minimal sutures and mildly tight knots. Closures without tension are very essential to avoid breakdown of wounds. Choice of incisions are based on proximity, adequate access and esthetics. The following approaches have been used for various fracture sites.

### **6.7.1 Lower jaw**

Approaches for the lower jaw are;

- Through the lacerations
- Intraoral
- Extraoral
- Combined intraoral and extraoral

### **6.7.2 Le Fort Fractures**

Approaches for Le-Fort Fractures are

- Through lacerations
- Intraoral
- Extraoral
- Combined intraoral and extraoral

### **6.7.3 Zygomatic complex and Zygomatic arch fractures**

For Closed reduction

- Extraoral- Gillie's temporal approach
- Intraoral- Keen intraoral approach

For Open reduction

The approaches are:

- Through the lacerations
- Preauricular incision
- Infraorbital incision
- Lower and mid-tarsal incisions
- Posterior sulcus incision/Keen intraoral approach

### **6.7.4 Orbital fractures**

Surgical approaches are:

- Lateral eyebrow
- Upper tarsal incision
- Mid-tarsal incision
- Lower tarsal incision
- Subciliary incision
- Transconjunctival Incision(pre-septal and retro-septal incision)

#### **6.7.5 Nasal fractures**

Types of approaches are:

- Through laceration
- H- incision
- W- incision
- Z- incision
- Trans-nasal
- Endonasal

#### **6.7.6 Nasoethmoidal complex fractures**

Types of approaches are:

- Through laceration
- Bicoronal incision
- Lynche(Sewall) incision
- Gullwing incision
- Open sky incision
- Butterfly incision
- Transcaruncular
- Upper medial blepharoplasty

#### **6.7.7 Frontal and Temporal Bone Fractures**

Types of approaches are:

- Through the laceration
- Bicoronal incision

#### **6.8 Techniques**

Internal fixation can be classified as rigid, semi-rigid and non-rigid and it can achieve osteosynthesis using compressive or non-compressive plating system/principles. Rigidity of internal fixation

is determined by both the stability of the plate and the stability of the fixation of the fracture segments

1. Compressive osteosynthesis – usually offers rigid fixation and interfragmental compression, the following are used  
Dynamic compression plates with sliding spherical holes-  
Limited contact compression dynamic plates (LC-DCP)  
Luhr's bicortical plates with eccentric holes and round holes  
Locking compression plates (LCP)  
Lag's or Eckelt screws-Rigid
2. Non-compressive osteosynthesis  
*Semi-Rigid*  
Micro and miniplates are used  
*Rigid- the following are used:*  
Eccentric dynamic compression plates (EDCP)  
Reconstruction plates for grossly comminuted fractures, atrophic jaws, avulsed bone  
Strained optimized plates (SOP)  
Pencil bone plates (PBP)
3. Non-rigid osteosynthesis- achieved with transosseous wiring

Principles of Osteosynthesis- means achieving stable bony union at the fracture sites with very minimal fibrous callus. This is best achieved by rigid internal fixation using non-compressive plating systems/principles because micromovements of about 1000 to 4900 microstrains are desirable at the healing fracture sites to maintain the biomechanical properties of the jaw bones.

## 6.9 Clinical Cases

### *Patient no. 1: Preoperative Photograph*



*Fig. 11: A 39 year-year-old male patient who sustained fracture of the right parasymphiseal region of the mandible due to RTA, picture shows gross anterior open bite and right posterior open bite and fracture of the upper anterior teeth and loss of lower canine*



*Fig. 12: Anterior view- Immediate postoperative photograph of patient no.1 following Intermaxillary fixation (IMF) with Erich arch bars, fractured upper central and lateral incisors have been extracted.*



***Fig. 13: Left view- Immediate postoperative photograph patient no.1 following Intermaxillary fixation (IMF) showing contact of the upper and lower posterior teeth on the left side.***



***Fig. 14: Right view- Immediate postoperative photograph patient no.1 following Intermaxillary fixation (IMF) showing contact of the upper and lower posterior teeth on the right side.***

**Patient No. 2**



*Fig. 15: Intraoperative photograph of patient no. 2 showing open reduction and internal fixation with 2 types of six holes mini-plates (Conventional miniplate above and Tension banding miniplate below)*

**Patient no. 3**



*Fig. 16a&b: Facial profile photograph and PA radiograph of patient no. 3 who sustained fracture of the left condyle of the mandible from RTA; face appears symmetrical because the fracture is just mildly displaced.*



*Fig. 17: Preoperative occlusal photograph of patient no.3 who sustained fracture of the left condyle of the mandible showing mild posterior open bite on the right side, the mild displacement of the fracture segments caused the mal-alignment of the jaws*



*Fig. 18: Photograph of the right side of patient no.3 still showing mild posterior open bite on that side*



*Fig. 19: Photograph of the left side of patient no. 3 showing edge to edge contact of the upper and lower posterior teeth on that side. Note: the open bite between the upper incisors/canine and lower lateral incisors is not due to the fracture*





*Fig. 20a&b: Photograph of the left side of patient no. 3 showing normal contact on that side following IMF with Eyelet wires. Immediate post-operative photograph of third patient.*



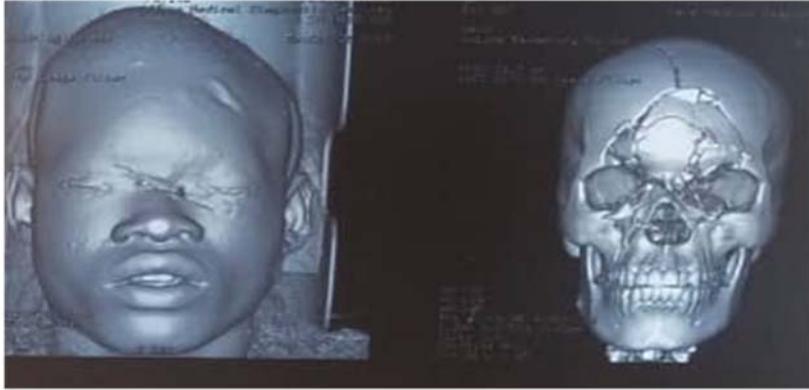


*Fig. 21a&b: Immediate and final post-operative photographs of the right side of patient no. 3 showing normal contact on that side following IMF with Eyelet wires*



*Fig. 22a&b: Immediate and final post-operative photographs of the front view of the patient no. 3 showing normal anterior bite following IMF with Eyelet wires*

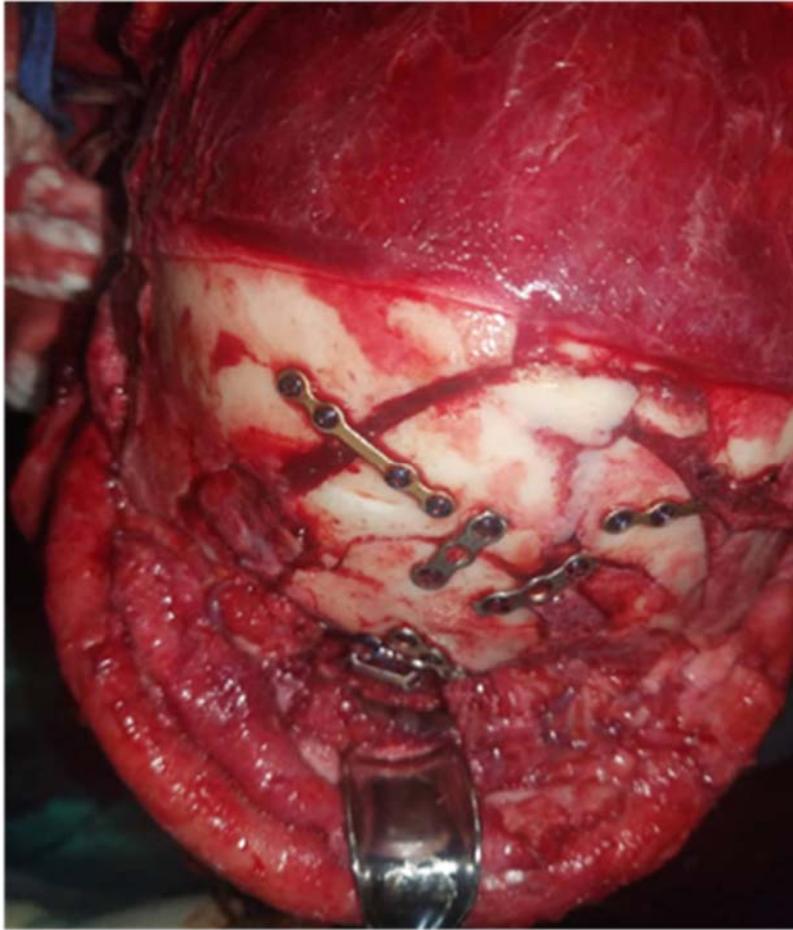
***Patient no. 4***



***Fig. 23a&b: Preoperative photograph and 3D CT scan of patient no. 4 showing fractures of the frontal bone, orbital bone and nasoethmoidal complex fractures due to RTA***



*Fig. 24a&b: Photograph of patient no. 4 showing sloped Bicoronal incision outline for open reduction and Internal fixation for fractures of the frontal bone, orbital bone and nasoethmoidal complex fractures*



*Fig. 25: Intra-operative photograph of patient no. 4 showing open reduction and Internal fixation with miniplates for multiple frontal bone fractures. In the right orbit, canthopexy anchored through miniplate was done. In the left orbit, transnasal canthopexy anchored through miniplate and secured to a centrally placed frontal screw was also done. A bone graft was taken from the iliac crest to augment the saddled nose.*



*Fig. 26a,b&c: Postoperative photographs and Plain PA radiograph of patient no. 4 showing multiple miniplates on the frontal bone and orbit*



***Fig. 27a&b: Postoperative photographs of patient no. 4 showing occlusion of the posterior teeth on both sides***

**Patient no. 5**



*Fig. 28a&b: Preoperative and photograph and PA radiograph show anterior and posterior open bite in patient no. 5 who is a 26 year old male that sustained commuted fractures to the left angle of the mandible due to gun shot injuries*



***Fig. 29a&b: Preoperative and Postoperative photographs show patient no.5 with chest injuries due to Gun shots***



**Fig. 30a&b:** Immediate and Final Post-operative photographs of patient. 5 still showing mild anterior open bite following Intermaxillary fixation (IMF)



**Fig. 31a&b:** Immediate and Final Post-operative photographs patient. No.5 showing contact of the upper and lower canine and first premolar, the last four lower posterior teeth on the left side were lost to the injury

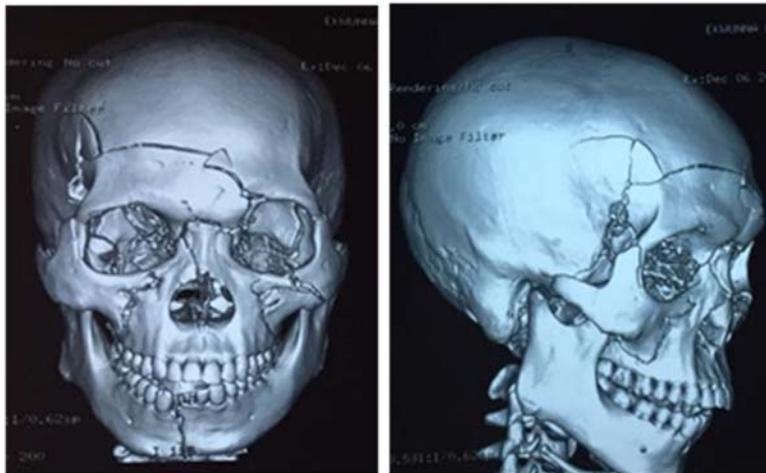


*Fig. 32a&b: Immediate and Final Post-operative photographs of patient no.5 showing contact of the posterior teeth on the right side*



**Patient no. 6**

*Fig. 33a&b:Pre-operative photograph of patient no. 6 shows a 34 -year-old bus driver who was involved in RTA with history of loss of consciousness which lasted for 2 days, vomiting, bleeding from both ears and nostrils and right corneal laceration. Diagnoses were Panfacial fracture, cranial base fracture with mild Head injury and loss of vision on the right eye . Fig. shows the upper and lower teeth of the patient can not come together because of the mandibular fracture*



**Fig. 34a&b:** Sagittal and A-P views of 3D- CT scan pictures of patient no. 6 showing multiple craniofacial fractures which include frontal, temporal, ethmoidal, sphenoidal, nasal, zygomatic, maxillary, and mandibular bones

**Patient no. 7**



**Fig 35a&b:** Photograph A: Facial profile of patient no. 7 who is 45 year-year-old man that sustained zygomatic complex and inferior orbital blow out fractures 2months before presentation to the clinic. There was Enophthalmos due to blow out fracture. Photograph B shows malocclusion.

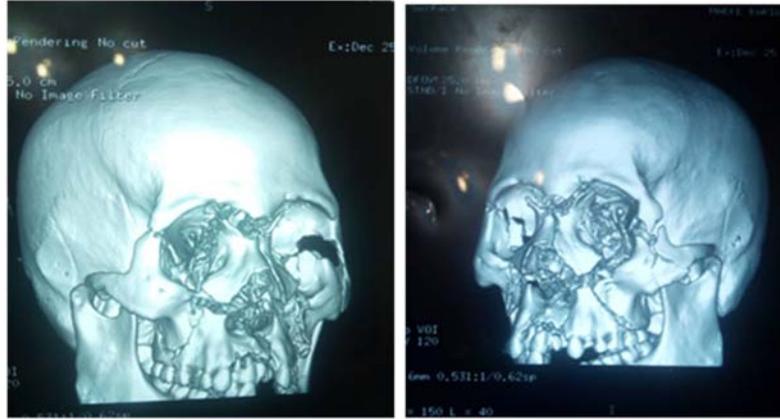


***Fig. 36a&b: 3D-CT and conventional CT Images show zygomatic complex and inferior orbital blow out fractures of patient no. 7. The conventional CT Image also shows reduced volume of the right maxillary antrum compared to the left due to the zygomatic bone depression and herniation of the infraorbital tissues***



*Fig. 37: Oblique Lateral radiograph of patient no. 7 showing multiple miniplates*

**Patient no. 8**



***Fig 38a&b: 3D-CT Images of patient no. 8 with Pan-facial fractures showing-  
Le-Fort II Fracture  
Le-Fort III fracture  
Midline nasal bone fracture  
Left unilateral palatine fracture,  
Left zygomatic complex,  
Right zygomatic bone fracture involving the zygomatico-maxillary (ZM) and  
zygomatico-sphenoid(ZS) sutures.  
Right Greater wing of sphenoid bone  
Bilateral inferior orbital blow out fractures***



*Fig. 39: shows intraoperative photograph of No. 8 patient with anterior cross-bite due to posterior displacement of the anterior wall of Maxilla following Le-fort II and III Fractures*



*Fig. 40: shows Intraoperative picture of patient no.8 with improved occlusion after reduction*



*Fig. 41a & b: show intraoperative picture of patient no.8 with a meshplate in the floor of left orbit and post operative PA radiograph of the patient with multiple miniplates and Erich arch bars for IMF*

*Patient no. 9*



*Figs.42a&b: Preoperative and postoperative photographs of the patient with anterior and posterior table frontal bone injuries due to road traffic accident? (suspected case of Assault from sharp machete). Bone grafting of avulsed left anterior table was done with fragmented bone from the posterior table, the bone graft was secured with transosseous wires. Cranialization and frontal sinus obliteration were first achieved on the left side.*

**Patient no. 10**



*Figs. 43a&b show pre-operative and immediate post-operative photographs of patient no. 10 with severe soft tissue injuries and bone fractures (upper and lower dentoalveolar, mandible, maxilla, palatine, zygomatic, nasal, and infraorbital) sustained from the impact of metallic wheel rim which suddenly separated from exploded vehicle tire*

**Patient no. 11**



*Figs. 44a & b: Pre and Post-operative photographs of patient no.11 with multiple soft tissue lacerations and right Zygomatic bone fractures*

## 7.0 Challenges

### Patient factor

A good number of patients can not afford the treatment fees and some of them will fail to show up again in the hospital because of funds. I have a few times paid for treatment charges.

**TABLE 2: Shows average cost of Open reduction and Internal fixation using 2 Mini-plates**

Cost	Nigeria	Kenya	South Africa
Medication/Consumables	130,000.00	120000	2409
Operation	45,000. 00	156000	20000
Anaesthesia	60,000. 00	55000	20000
Diagnostic tests	45,000.00	22000	6000
Admission	24,000.00	70000	12000
Total	₦304000 (843\$)	K423000 (4067\$)	R60409 (4647\$)

### **Hospital factors**

- Inadequate theater rooms for operation
- Inadequate staff- nurses, hurdleys and surgeons
- Insufficient gowns and drapes, I have on some occasions provided money to purchase these materials outside the hospital.
- Unavailability or fluctuating power supply
- Non functional airconditioners
- Occasional broken down equipment

### **Staff factor**

Poor attitude to work of a few staff

### **8.0 Recommendations**

1. Considering the physical, psychological and emotional distresses that accompany these road traffic injuries, it is important for our government to enforce traffic rules and strengthen road safety measures.
2. Adequate control of the human, mechanical and environmental factors causing RTA must be ensured:
  - *Human-* Drunk driven, inadequate driving skills, fatigue, failure to comply to traffic rules, speed, impatience, Health condition of the driver e.g., status of the eyes, ears, legs, heart, thorough checks for evidence of adequate training including driving licenses.
  - *Vehicle/cycle-* Absence of indicator lights, brake failure, absence of wipers, nonfunctional wind screens, absent side and center mirrors
  - Use of protective devices: helmet, safety belts, air bags, children safety chairs, children door locks
  - *Environment-* Bad roads, zebra crossings, cameras, presence/absence of traffic wardens, absent or nonfunctional street lights, speed control device like Bumps
  - *Combination*

3. There is need for our government to create more awareness and improve on the existing Health Insurance Scheme so that all low socio-economic citizens can participate.
4. It is important to also implement and consolidate poverty alleviation programs.
5. There is need for a secure environment for the marketing, distribution and availability of bone plates and other necessary materials that are imported.
6. There is need to provide state of the art facilities, increase staff strength and improve on regular training of all specialists involved in trauma management including anesthetists to successfully carry out general anesthesia for maxillofacial procedures.
7. Acquisition of bougies, combi tubes, fiberoptic and video laryngoscopes are very essential components of maxillofacial anesthesia to minimize intraoperative and postoperative mortalities from maxillofacial surgical procedures.
8. Establishment of a Cranio-maxillofacial Center where facilities for some complex and highly technical procedures will be provided, such procedures like Dacryocystorhinostomy which include stenting of the nasolacrimal duct drainage system and other intraorbital surgeries will be done. Others are Optic canal decompression, Facial transplant, Facial Feminization, Cranioplasty and surgeries of the base of Skull. This center will incorporate all Head and Neck Surgeons as well as the already existing SmileTrain/Cleft team.

## 9.0 Conclusion

The occurrence and fatality of vehicular accidents is multifactorial, and all necessary orientation, legislation and checks must be done to prevent or minimize this menace. Adequate documentation of accidents and effects is needed in Nigeria for monitoring and evaluation especially after multiple interventions and strategies. These should include traffic calming (defined as physical measures that reduce negative effects of vehicle usage, changes driver behavior and improve conditions for all road users) as well as road constructions and specific road profiling/policing.

A wholistic and comprehensive approach is necessary to achieve an accident free nation, on the human aspect, defensive (anticipatory, pre-emptive, indicative) driving need be emphasized and all drivers and cyclists must be properly trained, orientated and retrained to imbibe the rules and regulations guiding safety driving.

Vice Chancellor Sir, without any attempt to boast, I must say with all sense of humility that for me and my colleagues in the department of Oral and Maxillofacial Surgery, University of Port Harcourt and the Teaching Hospital, it has been enormous work and serious commitment to the service of humanity for the past 13 years, but we have not done it alone. Regardless of the various surgical plates, techniques and surgical procedures that is used, the ultimate purpose of the Oral and Maxillofacial Surgeon is to achieve acceptable esthetics and to restore the chewing ability of the patient, however the work on the patient may not be complete until the Consultant Prosthodontist/Restorative Dentist is invited to fabricate the teeth and mimic/camouflage the alveolar or facial tissues that were lost or damaged in the event of the trauma, therefore, the restoration of the original state of such patients is the outcome of a team work of multiple specialists and professionals in the field of Dentistry and what we all aim to achieve is summarily quoted in the lyrics of Solomon who said *'My beloved is white and ruddy, the chiefest among ten thousand, his head is as the most fine gold, his eyes are as the eyes of doves by the rivers of water, washed by milk and fitly set, his cheeks are as a bed of spices, as sweet flowers and his lips like lilies, dropping sweet smelling myrrh'*.

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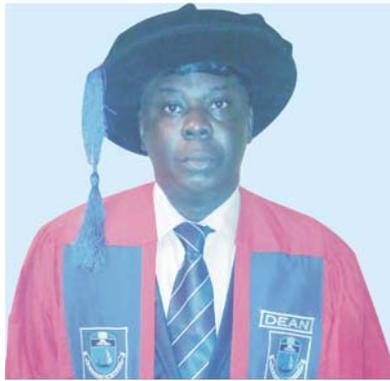
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**PROF. BABATUNDE OLAYEMI AKINBAMI**  
*BDS (LAGOS), FWACS, M.Sc (UPH), FAOCMF, MCOI*

Ladies and gentlemen,

It is my pleasure and honour to tell the story of this special and wonderful man, Prof. Babatunde Olayemi Akinbami, Professor of Oral and Maxillofacial Surgery.

His life started in Ilaje-Ese Odo, Ondo State on 10<sup>th</sup> of May, 1971 in the christian household of late Prince Goodluck Adeyemi Akinbami and his amiable wife Mrs Janet Akinbami. Babatunde is the first child out of eight children and has a modest christian upbringing. Prince Adeyemi Akinbami looked up to this Favouable day but passed on in October 2016 just a month before his professorship.

The educational journey of Prof. Akinbami started at Jehovah Jireh Primary School, Surulere, Lagos in 1975 and after the completion of his primary school education, he proceeded to C.M.S Grammar School, Bariga, Lagos and Baptist Academy, Obanikoro, Lagos for his ordinary and advanced level secondary school education and finished in 1985 and 1987 respectively.

From 1987 to 1993, he was admitted into the University of Lagos to study Dentistry and obtained a Bachelor of Dental Surgery (BDS) with distinctions in Anatomy, Biochemistry and Clinical psychology, he was also the overall best student in first MB, overall 2<sup>nd</sup> best student in second MB and 2<sup>nd</sup> prize winner in Neuro-Anatomy.

He served at the Federal Medical Centre, Makurdi, Benue State and worked as a dental officer after at the General Hospital, Ile-Ife, Osun State for a year. At the Obafemi Awolowo University Teaching Hospital, Ile Ife, he trained and worked as a resident doctor from 1998-2005. He also worked at the Ringroad State Hospital, Ibadan as an Hospital Consultant for a year. After that, he started work as a lecturer and honorary consultant in the University of Port Harcourt from 2006 till date. In 2010, because of his love for Anatomy, He registered for the postgraduate program and obtained a Master of science degree of the University of Port Harcourt in Human Anatomy.

He teaches and has been teaching undergraduates and postgraduates from 1998 till date. The courses he taught are Oral and Maxillofacial Surgery, Neuro-Anatomy, Head and Neck Anatomy and Embryology. Babatunde has had various administrative experiences like being Head of Department for 5 years, acting Dean, Faculty of Dentistry, University of Port Harcourt from January 2017 - March 2017, Hon. Director, Dental clinical services, UPTH and Dean of Faculty of Dentistry, College of Health Sciences, University of Port Harcourt from 2017-2019. He has served as external examiner for the undergraduate degree examinations of the University of Lagos and observer in the West African College of Surgeons examination.

He has attended many training programs and conferences both national and International like the 45<sup>th</sup> West African College

conference held in Cotonou, Benin Republic, the AOCMF Clinical Fellowship training Programme in University clinic, Freiburg, Germany in 2012; the 20<sup>th</sup> International Conference of Oral and Maxillofacial Surgeons in Santiago, Chile, the 4<sup>th</sup> conference of the Pan African Association of Cleft Lip and Palate held in Kumasi, Ghana and the 57<sup>th</sup> West African College of Surgeons Annual Conference held in Ouagadougou, Burkina Faso, just to mention a few.

Babatunde also attended the AO Foundation Research Fellowship Program in Davos and Zurich, Switzerland in 2015, where he became the first West African clinical research fellow of the AO Craniomaxillofacial Surgery organisation (AOCMF). Apart from being editor and editorial member of several journals, he has also reviewed a lot of articles for journals and supervised both the undergraduate (anatomy) and postgraduate (Oral and Maxillofacial Surgery). He has participated in a lot of activities within and outside the university like being the chairman of committee on resolution of graduate school students cases, chairman of committee on 4<sup>th</sup> Dentistry Day of Faculty of Dentistry, Uniport, member of the college committee on 40<sup>th</sup> Anniversary of Uniport, member college committee on Telemedicine and lots more.

Further more, he has won awards from Fortune Publications in 2008 and Platinum Trust Publications in 2009. He has published over 60 articles, book and chapters in local and International journals.

He is happily married to Mrs Bernice Akinbami and their union is blessed with three children, two of which are boys and one a girl. He is a good and faithful Christian, district secretary of Foursquare Gospel Church in Nigeria, Port Harcourt District and presently pastor one of the branches of Foursquare Gospel Church, Port Harcourt district.