

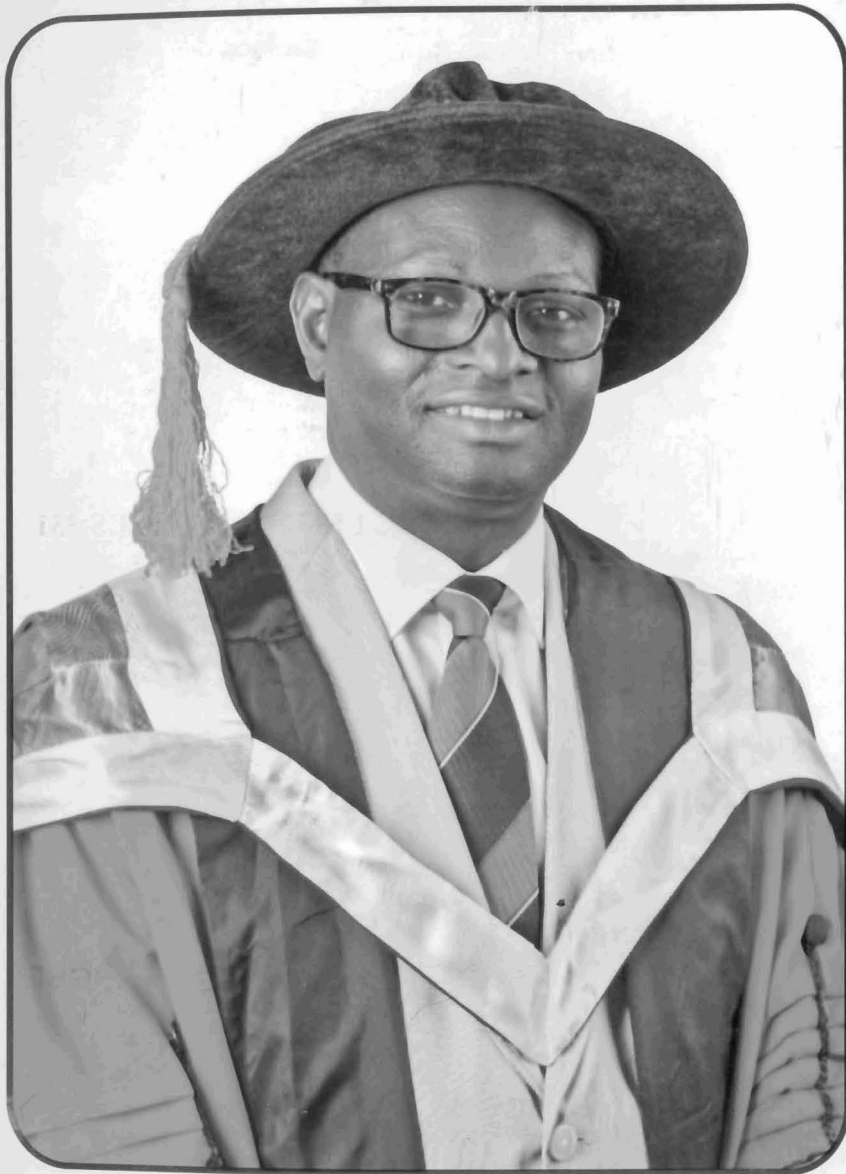
INAUGURAL LECTURE SERIES 331

**“THAT I MAY LIVE AND WALK:
FEASIBILITY OF THE IMPOSSIBLE”**

By

Olayinka Oladiran ADEGBEHINGBE
*Professor of Orthopaedic Surgery
and Traumatology*

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“THAT I MAY LIVE AND WALK: FEASIBILITY OF THE IMPOSSIBLE”

**An Inaugural lecture Delivered at Oduduwa Hall
Obafemi Awolowo University, Ile-Ife, Nigeria
On Tuesday 22nd January, 2019**

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“THAT I MAY LIVE AND WALK: FEASIBILITY OF THE IMPOSSIBLE”

INTRODUCTION

Mr. Vice Chancellor Sir, Principal officers, All academic and Non-Academic Staff of the University, Colleagues, Invited guests, Students, Gentlemen of the press, Ladies and Gentlemen. I stand before you all today with a very deep sense of total humility and adoration unto God Almighty for making this Inaugural lecture presentation a reality. This is the third from the Department of Orthopaedic Surgery & Traumatology in the College of Health Sciences, Obafemi Awolowo University. Professor L.M Oginni presented the first Inaugural lecture titled’ ‘Arise and Walk; Upright in Stance, Forthright in Swing” and the second was titled “Movement is Life; Life is Movement” delivered by Professor A.L Akinyoola.

My late mother, Madam Olanrewaju Celina Adegbehingbe was alone when she fell into my labor, took her own delivery and severed my umbilical cord alone at about 3am in a hurt at Laje village near Ondo. That I may live and Walk was from the beginning seemingly impossible with severe birth Asphyxia and speech impairment. The journey of life started on relative hard way with stammering and defective phonation in early school years. The choice of the medical profession was invisible to me before my late father, Chief Moses Olanrewaju Adegbehingbe made it feasible. At the end of secondary school my father asked me what were my choices of profession. I told him, Aeronautical Engineering, Electrical Electronics and Computer Engineering in order of preference. He kept quiet thereafter, but went ahead to collect the JAMB form and filled in Medicine as course of choice. He sent me the acknowledgement card one week to examination date. I give glory to God Almighty for the successful admission into the prestigious University of Ife (OAU) to read Medicine in 1981. Today, I look back to say thank you my dad and mum for making my academic and professional career feasible, far ahead when it was invisible to me. Ordinarily, the feasibility of my

admission that year looked impossible at onset, as my admission letter via the Nigeria Post Office from JAMB Lagos was in transit for 6months (11th June- 18th December), 1981. My admission became feasible as the University which ought to have resumed in September and ended the first semester in December was shut down due to an industrial crisis. My letter of admission was delivered to me on a Friday night, and 48 hours after on Sunday at 4.00pm, when Radio Nigeria Network news announced the resumption of all Universities, including Ife. I was a University of Ife Scholar and National Merit Award holder at the end of the first session. After the compulsory National Youth Service Corps, I immediately enrolled for the Postgraduate Residency Training in Orthopaedic Surgery and Traumatology under Prof Lawrence Magbagbeola Oginni courtesy of my darling wife and my present Dean, Prof Bernice O Adegbehingbe. I was privileged to be under tutelage of the Doyens of Orthopaedics, Dr Zacchaeus Okunade Alabi and Dr (Chief) Ekundayo Abayomi Bamgboye both of blessed memory.

Outside Ife, there were other great Orthopedics teachers who influenced me positively -Prof Temitope Alonge, Prof Segun Ogunlade, Prof Bade Omololu, Prof Oluwadiya KS, Prof Oluwatosin an erudite Emeritus Plastic Surgeon, Prof Oyelami Oyeku and Late Dr Babatunde Oladipo Onabowale. My journey to Professorial academic excellence was made possible by the conducive environment of the Obafemi Awolowo University and Ile Ife community. I was a Scholar of the American Academy of Orthopaedic Surgeons (AAOS, 2010), Japan International Cooperation Agency Scholar (JICA 2012), and Pediatric Orthopaedic Society of North American Scholar (POSNA-2013). My academic and professional career as a Fellow of the West African College of Surgeons (FWASC Orthop & Trauma) was strengthened through Trauma Fellowship at Mayo Clinic, University of Rochester, USA under Dr Joseph Cass (FACS), Musculoskeletal Oncology Fellowship at the National Cancer Center Hospital, Tokyo Japan under Dr Akira Kawai, PhD. I also had Pediatrics Orthopaedic Fellowship at University of Iowa Children Hospital, Iowa USA under Prof Jose Morcuende.

Nevertheless, my professorial chair was turbulent and seemed humanly impossible for 14 years. The Readership was endlessly processed for 7.5 years and Professorial chair for another 6.5 years, before Professor Eyitope Ogunbodede made it feasible on June 21st, 2018. I say Thank you Sir. I have come today to give account of my academic stewardship in the field of Orthopaedic Surgery and Traumatology before this most learned academic community and the public at large. The word Feasibility is defined as the degree to which something is possible. This is described on a scale from easy to impossible and its synonyms would be used interchangeably in this lecture. The lower limbs are primarily for standing and walking. Walking is movement on limbs. The desired mission of human being is to live a qualitative life and walk with good feet. Therefore, my inaugural lecture is focused on the feasibility of the three impossibilities that threatened achievability of the desired expectations which are Trauma, Cancer and Clubfoot. It would be concluded with my patented innovations- Bioifedyn from Bush to Bedside.

I. ORTHOPAEDIC TRAUMA THREAT TO LIFE: RESCUE BY HUMAN CARPENTER TO WALK.

The daily global yearnings of all human being are that I may live and walk while the whole life pursuit of an Orthopaedic surgeon is to make the possibility of such desire feasible. Orthopaedic Surgery is the branch of medical profession that treat swellings and bone deformities and prevents them; most often through surgical operation involving repair, reconstruction, resection, and or replacement of damaged musculoskeletal body parts. Many a time, non-operative methods could be utilized to correct the swellings and deformities. As an Orthopaedic surgeon, I work to restore musculoskeletal body functions which are often affected by various threats to human life to live and walk. The frame work for human movement are centered around muscles and bones. Trauma or injuries cause various levels of energy intensity transfer to muscles and bones making them to be deformed or brake as in bone fractures.

CONGENITAL MALFORMATIONS



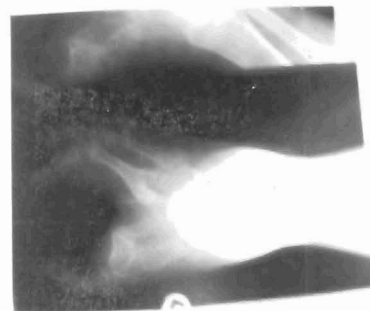
A. Congenital constriction band syndrome, B. Lobster feet, C: Proximal Femoral Focal Deficiency. E. Cleft Lip & Palate F. Syndactyly G. Congenital Lymphoedema H. Neglected Clubfoot.

INVISIBLE AND VISIBLE BIRTH TRAUMA.

From the time of conception in the womb, the threat to be born and unable to walk thereafter is invisible to the outside world until the time of delivery in the human race as we have in some lower animals. Between the 4th and 6th weeks of embryogenesis (i.e pregnancy), limb buds are formed and the embryo acquires a recognizable human form. The upper limbs (arm, forearm & hand) are fully formed by the 12th week and the lower limb (pelvic girdle, thigh, Leg & foot) by the 14th week. Simultaneously, during this same period, the muscles and the nerves which carry sensations are developing, thus by the 20th week of pregnancy, joint movement is possible and visibly present as seen on the ultrasound. Majority of the limb malformations that can limit or prevent walking in life which I call the “invisible birth trauma” do occur within the 4th -6th week of pregnancy.

Congenital Central Ray Deficiency

X-Ray of Lobster Claw Foot

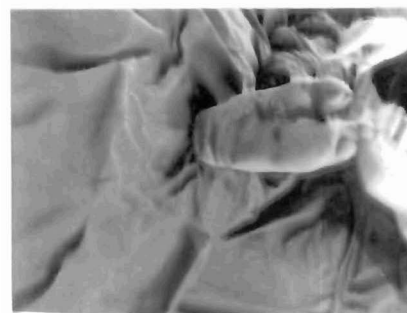


JIK Dispenser



Orthoreconstruction of Lobster foot

Plantar Surface



Dorsal Surface



Congenital Constriction Band Syndrome

Right Leg Constriction Band



Right Hand Syndactyl & 4th Finger Amputation



PROXIMAL FOCAL FEMUR DEFICIENCY

Child With PFFD



Plain X-ray of PFFD



Severe Thoracolumbar Scoliosis

The Congenital Lower Limb Bone Deficiencies included the Femur, Tibia, Fibular, Constriction band syndrome, Central ray Deficiency and Antley-Bixler Syndromes (ABS). The ABS is a rare congenital disorder characterized by multiple malformations of cartilage and bone, first reported in Nigeria and Africa at OAU Ife. (Adegbehingbe & Oginni, 2006). The involvement of humeroribs and acetabulofemoral synostosis is unique in the patient. The surgical excision of skeletal synostosis offers feasibility of walking.

Acetabulofemoral Synostosis



Left Humeral ulnar synostosis





Antley-Bixler Syndrome

Humeroribs & Thoracolumbar Scoliosis

Bilateral Humero-ribs Synostosis



Bilateral Humero-scapular Synostosis



Visible Birth Trauma:

Birth-related fractures of the long bones are common. It threatens the expectation of the baby to live and walk early in life. At the Wesley Guilds Hospital (WGH) Ilesa, from December, 2002 to December, 2005, 119 patients were seen with birth trauma, out of which 84 (70.6%) were Orthopaedic birth trauma (OBT) patients, representing 61.3% of neonatal orthopaedic hospital admission. Heavy birth weight and delivery outside hospitals predisposed neonates to bone fracture. Tables 1 and 2 show perinatal factors and OBT related to the place of delivery respectively. Orthopaedic Birth Trauma incidence is high in our region. While maternal and perinatal

mortality rates are established indices of perinatal care, it may be worthwhile to consider perinatal morbidity rates like orthopaedic birth trauma rate. It is a reflection of health and health-care situation of the region.

Orthopaedic Birth Trauma (OBT)

Right Femur Fracture: 20day old



Gallows' Traction To Rescue



VISBLE BIRTH TRAUMA

Depressed Skull Fracture : 1day old

Table 1: Predisposing Factors to Orthopaedic Birth Trauma

Predisposing factors	Nos of OBT	%
Assisted/instrumental delivery.	79	94.0
Fetal distress	44	52.4
Inexperience birth attendant	37	44.0
Parity	33	39.3
Abnormal fetal presentation	32	38.1
Preterm	20	23.8
Multiple pregnancy	15	17.8
Cephalo pelvic disproportion	11	13.1
Precious baby	9	10.7
Power outage	7	8.3
Congenital malformation	1	1.2
Big baby	1	1.2
Osteogenesis imperfecta	1	1.2

Post Forceps Delivery: 3day old



Eight months After



Osteoplastic Ifeostomy

Mr. Vice Chancellor Sir, by the end of skeletal growth, the knees are normally in 5-7 degrees of valgus, that is inward knee deviation. Deformity is said to be present whenever there is deviation from the normal range. The three common deformities are bow leg (genu varum), knock knee (genu valgus) and hyperextension (genu recurvatum). *Blount's disease* is a progressive bowl leg deformity associated with abnormal growth of the posteromedial part of the proximal tibia. Among Caucasians, the children are often early walkers, overweight/obese and its largely bilateral in 80% of cases. Blount's diseases are more common in the black race or Negroid children when compared to the Caucasians. The deformity when severe may include internal rotation of the tibia and is worse than in physiological bowl legs. The child walks with outward thrust of the knee with or without lateral instability/subluxation of the tibia and patellae.

The feasibility of walking normally in neglected or recurrent Blount disease is guaranteed by my unique operation technique I tagged "**Osteoplastic Ifeostomy**". It is a one-step orthopedic surgical procedure that corrects severe complex torsional limb deformity and significant limb shortening >5cm at the same sitting. It includes multiple combined open wedge osteotomy, dome osteotomy, z-plasty, multilevel derotation osteotomy, and osteoplasty. (Adegbehingbe et al, 2018 In press)

Neglected Complex Blount Disease with 8cm Shortening



Neglected Post Surgical Recurrent Complex Blount Disease



Post Osteoplastic Ifeostomy



Osteoplastic Ifeostomy : Neglected Complex Blount Disease

Plain X-Ray



OLD BED POSTURE

Plain X-Ray



NEW BED POSTURE



Feasibility of the Impossible

PRE OPERATION



FIVE YEAR AFTER OPERATION



Desire: That I May Live And Walk

270 Degree Turning



Bilateral Complete Turning



OLD BACK VIEW



OLD STORY



MERCY OF GOD NOW MY TURN

WHERE DO I GO ?



NEW LIFE BACK VIEW



NEW SONG



MERCY MY COMPANION



SEARCHING FOR THE DIVINE GIFTED HANDS TOURCH

ANY HOPE ?



DEFORMITY MUST END



Osteoplastic Ifeostomy: Guarantee New Life & Walk

FRONT VIEW



SIDE VIEW



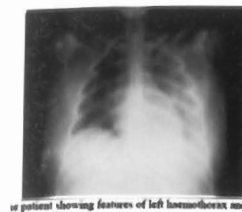
Road Traffic Accident: A Threat to Life and Possibility of Walking:
Mr. Vice Chancellor Sir, Road Traffic Accident occurs when a road vehicle collides with another vehicle, pedestrian, animal, road debris, or other geographical or architectural obstacle. In

developing countries, safety measures are not holistically enforced, thus road and household accidents are common. The possibilities of living and able to walk depend largely on non-involvement in major road traffic accident. About 135 persons are killed and between 2000 and 6000 persons are injured or disabled every hour Worldwide. Many of these deaths and injuries occurred in low to middle -income countries and to vulnerable road users. In Nigeria, the Minister of Health, Prof. Isaac Adewole in July 2017 at Abuja raised the alarm about the high rate of road accidents in the country, saying that it is now the 2nd highest source of violent death in the country, after Boko Haram insurgency. Nigeria is among countries with the highest rate of road accidents in the world, with 5,400 deaths in 12,077 road crashes in 2015. The 2015 World Health Organization report revealed that one in every four deaths from road crashes in Africa occurred in Nigeria, thus a higher death toll than malaria.

WHO further adjudged Nigeria as the country with the most unsafe roads in Africa.

In 2009 we published the report of a year prospective hospital based study that described the crash site characteristics of motorcycle crashes in southwest Nigeria. Table 1 shows the demographic characteristics and injury patterns of the accident victims. The lower limbs were the most commonly injured body region which occurred in 56.7% of the patients. Fractures and dislocations were the most common injury types accounting for 43.2% of all injuries (Table 2). Spinal cord injuries resulted in paralysis of all limbs and inability to walk. (Oluwadiya, et al 2010) Certain aspects of motorcycle trauma are peculiar to Nigeria: first, motorcyclists' road behaviors are unruly and unpredictable. Secondly, the uneven road surfaces are crowded by animals, pedestrians, roadside-vendors and abandoned vehicles on the edges of the roads. Thirdly, numerous traffic jams encourage the small motorcycles to maneuver in narrow spaces; and lastly, there is poor visibility at night due to lack of street lights. This admixture of traffic, human, animals and inanimate obstacles are responsible for some of the peculiarity of road crashes in Nigeria. (Oluwadiya et al 2016, Adeolu, et al 2013)

The treatment scenario of a 25year old lawyer who sustained seat belt syndrome is as shown.



chest X-ray showing features of left hemothorax and laceration of the left lung



magnetic resonance imaging showing features of spinal cord compression



intraoperative photograph following decompression and internal fixation of the spine



postoperative radiograph following decompression and internal fixation of the spine

Table 3. Comparison of some demographic and injury data between riders and co-riders of crashed motorcycles.

Attribute	Co-rider (%)	Rider (%)	Relative risk (95% CI)	P-value
Crash outcome (n = 181)				
Sustained injuries	73 (70.9)	53 (67.9)	1.04 (0.78–1.18)	0.67
Did not sustain injuries	30 (29.1)	25 (32.1)		
Injury severity (n = 126)				
Severe (ISS ≥ 16)	7 (9.6)	0	*	*
Mild/moderate (ISS ≤ 15)	66 (90.4)	53 (100)		
Outcome in A&E (n = 113)				
Admitted to wards	37 (56.1)	23 (48.9)	Not applicable	0.074
Discharged home	24 (36.4)	24 (51.1)		
Died	5 (7.6)	0		
Helmet use				
Yes	9 (9.4)	6 (9.1)	1.03 (0.39–2.76)	0.95
No	87 (90.6)	60 (90.9)		
Others				
Mean age	29.3	32.0		0.220
Mean ISS	9.5	4.3		0.006
Mean RTS	7.302	7.719		0.118

*RR is undefined as cell for severe injury in rider is 0. However, ARR is 0.096 (–0.002 to 0.096).

Table 4. Distribution of injuries according to the body regions among riders and co-riders.

Body region (N)	Rider (% within body region)	Co-rider (% within body region)	p-value
Head (N = 36)	11 (30.5)	25 (69.5)	0.098
Face (N = 34)	17 (50.0)	17 (50.0)	0.274
Chest (N = 8)	5 (62.5)	3 (37.5)	0.230
Abdomen (N = 2)	1 (50.0)	1 (50.0)	0.820
Extremities (N = 80)	25 (31.3)	55 (68.7)	0.001
External (N = 41)	22 (53.7)	19 (46.3)	0.051

Note: N = total number of patients with injuries to the body region.

What are the implications for control? Provision of alternative means of mass transit such as rails, buses and trams will eliminate most of the need for commercial motorcycles. Enforcement of traffic rules will need major social engineering to reduce corruption which is a cause of poor law enforcement. Design innovations aimed at helmets for warm climates could improve helmet use among motorcyclists (WHO 2009 & Oluwadiya, et al 2009).

Motorcycle Converted Truck



Motorcycle Overloading



Driver Absent Mindedness



Driving : Phoning & SMS Texting



PRE-ACCIDENT



Cow Customized Accident



Deadly Impatient



POST ACCIDENT



Mr. Vice Chancellor Sir, "**Broken Bones are Broken Dreams**": Bone fractures is simply referred to as broken bones. At the early phase of my academic carrier, we reported 222 children who presented with 225 bone fractures at the Wesley Guild Hospital,

Ilesha, Nigeria between January and December 1990 (Oginni LM & Adegbehingbe OO,1994). Falls accounted for 75% of cases, most of which occurred around the home. Over 80% of the lower limb fractures affected the long bones which are needed for walking. These fractures are largely managed non-operatively, with casting during which time the patients cannot walk until healing.

Most households have had an encounter with trauma at one time, or the other. The first African study comparing weekend trauma in adult and children was conducted by Adegbehingbe, et al's to determine a year prevalence of paediatric orthopaedic weekend trauma in 2017. We concluded that preventive measures should be directed at source of paediatric trauma during the weekend to make children live and walk effectively in life. (Adegbehingbe, et al 2018).

Mr. Vice Chancellor Sir, Blast ocular injuries are not uncommon; its incidence is on the increase especially with improvised explosive devices. In 2010, we reported 22 cases (17males and 5 females) with blast ocular injuries managed at OAUTHC Ile Ife and Federal Medical Centre Ido Ekiti. Thirteen (52.2%) patients had severe visual impairment and 10 (38.5%) were blind at discharge. The feasibility of living and walking is by eliminating blindness associated with blast ocular injuries through preventing measures. (Adegbehingbe, et al 2010).

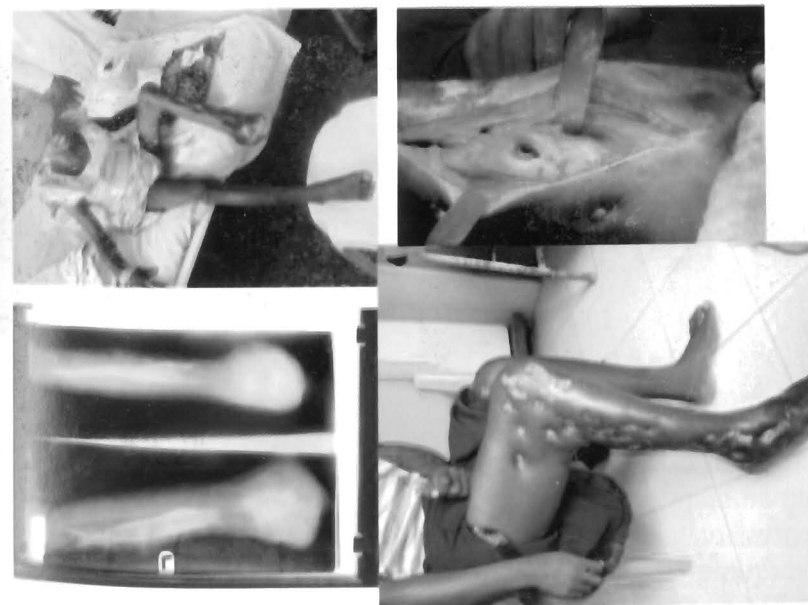
Traumatic Loss of Limbs

Amputation of a mangled extremity is repugnant to the patient and the surgeon. The main predictive factors for primary amputation in trauma are patient's age, sex, skeletal/soft tissue injuries, limb ischemia and gangrene. Other factors are the presence of shock, delay in presentation, and mangled extremity severity score (Adegbehingbe et al, 2005 & 2007; Ogundele et al 2016).

Anxiety and depressive symptoms were found to be high among amputees (64.3% and 59.5%, respectively), when compared to

other Orthopedic patients (14.3% and 12.0%, respectively). Hence, establishing the importance of social and emotional support needed by these patients. (Mosaku et al, 2008)

Osteomyelitis: Mr. Vice Chancellor Sir, In Osteomyelitis, 'Sickle or No Sickle: No antibiotics No Life'. The example of other cases managed and researched by myself and other colleagues in rescue operations in limb fracture include bone infection called Osteomyelitis. In acute septic phase, it does threatened life, and when chronic, could limit the possibility of walking. Orimolade et al's, 2010 have recommended effective antibiotics against Staphylococcus aureus and Gram-negative organism should be prescribed for Sickle cell patients. Also, the sinus track specimen culture should be confirmed by Intraoperative bone culture and or biopsy for the microbiologic diagnosis of chronic osteomyelitis. This is to ensure that as many of the infecting organisms as possible will be identified. The feasibility of impossible treatment failures in chronic osteomyelitis will then be optimized." (Akinyoola et al 2008,2009). The figures below illustrated features of osteomyelitis.



Ophthofall and Exposed Bone Syndrome: Implications on Quality of Life and Walking

Mr Vice Chancellor Sir, Ophthofall and Exposed Bone Syndrome are two new terminologies I have added to the medical encyclopaedia.

Ophthofall: I defined "Ophthofall as fall due to ocular pathology that impair vision". Advanced pterygium which was associated with high level fall fracture in the study by Adegbehingbe et al, 2006 has not been reported in the literature. A relatively high level of unawareness among orthopaedic surgeons about the relationship of poor vision and fall fracture could be the reason for not identifying the at-risk group of patients for ophthalmic care. We therefore recommend that simple eye test should be incorporated into the assessment of all patients requiring rehabilitation after sustaining fracture from a fall and for all individuals whose job involve climbing to prevent sustaining fracture from fall.

81yr old with Pterygium, Cataract & Clavicle fracture



54 yr old Bricklayer with Rt Cataract & Clavicle fracture



Exposed Bone Syndrome: When bone is exposed in a living human being, it often elicits highest level of anxiety, psychosocial depression and walking may become impossible. Exposed Bone Syndrome are of two types and the features are distinct. The problem of exposed bone is long standing, but no clear pattern has

been described. In three years (January 2004-December, 2006) at OAUTHC Ile Ife, we published the first classification and scoring system for exposed bone (Adegbehingbe et al, 2006. (Tables and Figures). The exposed bone severity scoring system called McLanre EBS Scoring system was named after both of my late parents. The McLanre Exposed Bone Scoring System (MEBSS) is simple to apply and provide quantification tools in assessing the severity of exposed long bone.

EXPOSED BONE SYNDROME
One major symptom and one major sign.
Two or more minor symptoms and
Two or more minor signs.
< 6 weeks (Type I=AEB)
>6 weeks (Type II=CEB)

Table 2: Summary of EBS diagnostic criteria





Figure 3: Exposed Fibula of type II EBS .



Figure 4: Exposed Radius of type II EBS



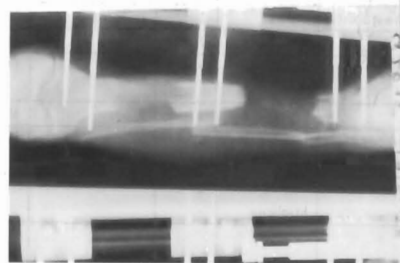
Figure 5: Exposed Tibia of type II EBS from Squamous cell carcinoma.

Limb Lengthening in Significant Bone Loss and limb Shortening.

When a patient is involved in traumatic accident complicated with lower limb bone loss or gap, the possibility of walking with equal leg length is infeasible. The options available to make walking feasible in major bone deficiency are partial amputation & prosthetic limb fitting, contralateral limb growth plate fusion (epiphysiodesis), limb lengthening using distraction osteogenesis, which I pioneered in Ife and Taylor Spatial Frame was brought and its use pioneered at OAUTHC Ife by Dr Esan Oluwadare, my colleague and great companion in limb lengthening and reconstruction surgery. (Adegbehingbe, et al 2012).

Symptoms	EB features	Score point value	Laboratory	EB features	score point value	Signs	EB features	Score point value
Mode of presentation	Non emergency	1	Haemogram (gm/dl)	>8.0	1	Exposed bone	Absent	0
	Emergency	2		<8.0	2		Present	3
Duration of EB	>6weeks	1	White Blood Cell	Normal	0	Tenderness	Absent	0
	< 6weeks	2		Leucocytosis	1		Present	1
Length of EB	<5cm	1	Erythrocyte Sedimentation Rate	Normal	0	Deformity	Absent	0
	>5cm	2		Elevated	1		Present	1
Number of EB	One	1	Microbiology	Bacteria	1	Sinus	Absent	0
	>One	2		Non bacteria	2		Present	1
Bone viability	Viable	1	Imaging	No fracture	0	Mobility	Not free	1
	Not viable	2		Fracture	1		Free	2
Pain	Absent	0		Fracture/Epiphysis	2	Joint	Not exposed	0
	Present	1	Biopsy	Normal	0		Exposed	2
Bleeding	No bleeding	0		Non specific	1	Putrefying odor	Absent	0
	Active bleeding	1		Specific	2		Present	1
						Exuberant hair growth	Absent	0
Discharge	Absent	0					Present	1
	Present	1				Puckered scar	Absent	0
Etiology	Non trauma	1					Present	1
	Trauma	2				Limb length discrepancy	Absent	0
Protruded bone	Absent	0					Present	1
	Present	3				Hypo pigmentation	Absent	0
							Present	1
						Hyper pigmentation	Absent	0
							Present	1

Table 3: McLanre Exposed Bone Scoring System.



Total Joint Replacement: Panacea to Impossibility of Joint Destruction.

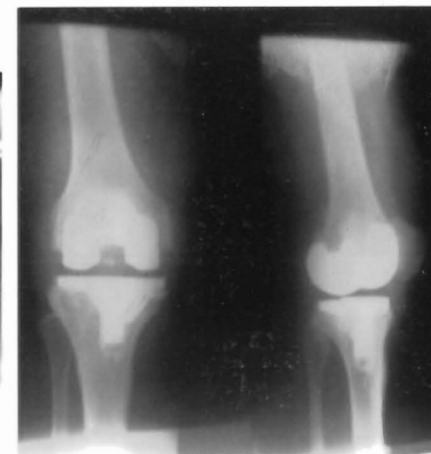
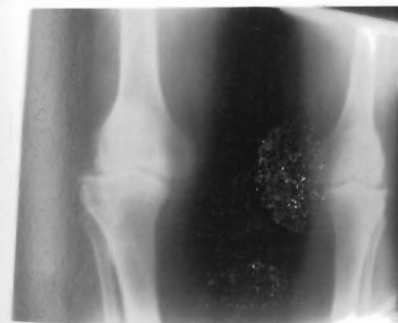
The cyclical human joint motion which propel normal walking is easily destroyed by severe trauma, infection, cancer and osteoarthritis. Joint Replacement, partial or total is a novel advancement in orthopedic practice and panacea to joint destruction. I was part of the three- member team -Dr L.M Oginni, Dr O.O. Adegbehingbe and Dr B.M Rufai that performed the first Total Hip Replacement in 1995 at the OAUTHC Ile Ife. (Table & Picture) I was also on the team that did the first Total Hip and Total Knee Replacement, 2007 at Ado Ekiti. In 2007, Johnson & Johnson company sponsored four of the OAU faculty staff -Prof LM Oginni, Prof A.L Akinyoola, Prof I.C Ikem and Prof O.O Adegbehingbe to Ghana for Total Joint Replacement workshop. As at today, Dr Esan Oluwadare our dependable companion in Orthoreconstruction is of the second-generation Ife Total Joint Replacement team and Dr A.A Abiodun is the doyen of spinal reconstruction. Routinely in our Department, Total Knee

Replacement and Total Hip Replacement, Spinal surgery and reconstruction are routinely performed. (Adegbehingbe et al,2017).

TABLE I. Distribution of Total Hip Replacement in Nigeria 1974-1999 (Africans-136; Asians-2)

Sex Distribution	NOH Dala Kano	NOH Igbobi Lagos	OAUTHC Ile-Ife	Total	%
Male	75	22	2	99	71.7
Female	28	11	-	39	28.3
Total	103	33	2	138	100

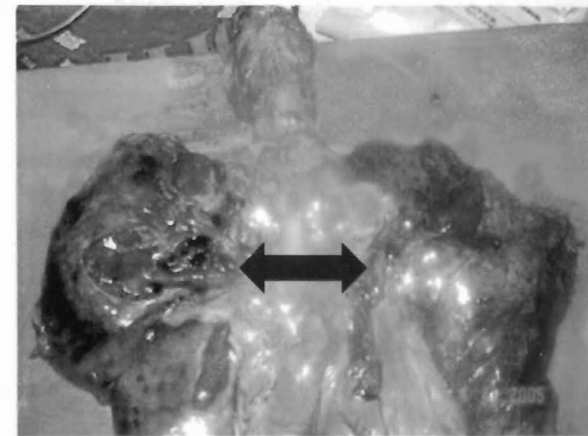
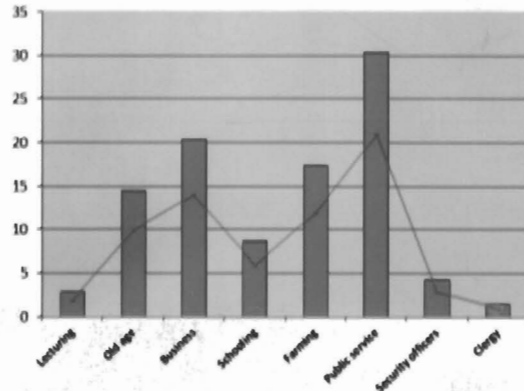
PRIMARY RIGHT TOTAL KNEE REPLACEMENT



Deep Vein Thrombosis and Pulmonary Embolism:

Mr. Vice Chancellor Sir, Deep venous thrombosis is the presence of blood clots within the lumen of veins. The most feared complication is the deadly presence of dislodged blood clots blocking the pulmonary vessels or trunk regarded to as Pulmonary Embolism. Twenty years ago, cancer and hypertensive heart disease were the commonest risks for Pulmonary embolism in Nigeria. However, the risk factor pattern for pulmonary embolism

in Nigeria has changed. The leading cause of pulmonary embolism is trauma. Obesity, oral contraceptives and occupation were emerging predisposing factors which must be recognized for pulmonary embolism prevention and control to guarantee life. (Adegbehingbe et al, 2013) .The figures below shows the occupation, surgical procedures associated with pulmonary embolism and the postmortem appearance in the lung respectively.



PULMONARY EMBOLISM

II. Musculoskeletal Oncology:

NATIONAL CANCER CENTRE, TOKYO JAPAN



Mr. Vice Chancellor Sir, Cancer is a universally dreaded disease and for a long time, thought to be a disease of industrialized

nations. The most effective ways to reduce cancer deaths is through preventive measures. This includes early screening programs and changes in lifestyle through health education. In the last three decades, there has been a remarkable improvement in the prognosis of cancer patients, especially in those with localized disease.

To unravel the etiology of cancers, which is shortening life of the rich & the poor in the community has been impossible. Immediately after my B.Sc. degree (1985), during clinical rotation and Pediatrics posting 34 years ago my interest in musculoskeletal cancer started. I observed that majority of the Ife Teaching Hospital patients with various forms of cancers were coming from particular communities. I had three burning questions: One, why do we have preponderance of rare congenital malformations, mycotic intraosseous infection and cancers in a certain community as compared to the other community; Two, why do we have large number of people having cancers from certain community than the others; Three, why do we see more people who are poor presenting with cancers and relatively fewer rich ones being diagnosed with cancer, even within the same community.

In 1986, I audited a 10 year mortality of Burkitt Lymphoma at the OAUTHC; the result showed the patients were coming from a forest Oncology belt that spanned from Ikire-Odeomu-Okemesi-Ijero-Aramoko-Idanre-Ondo-Okeigbo-Ileoluji-Ore-Okipupa-Ijebuode. The scientific explanation connecting the forests were the presence of Monkeys and Burkitt Lymphoma has been linked to Epstein Barr Virus as etiological /causative agent which is transmitted by monkeys. In 2014, a review of Professor M.A Durosinmi's documentation on over 300 Burkitt Lymphoma patients confirmed an aerial pattern within my observed Oncology Belt.

In Nigeria, musculoskeletal cancer patients often present late resulting in high rate of limb amputation. At the OAUTHC, Ile Ife, limb amputation has been the commonest mode of treatment prior

to our study between January 2001 and December 2007. We set at evaluating the use of orthopedic health education (OHE) to promote early presentation for limb salvage surgery where customized endoprosthesis were not available. I gave community health education talk on musculoskeletal cancer symptoms, signs and treatment options on electronic media (radio and television). Thirty-nine (67.2%) of the 58 patients with bone cancer enrolled had limb salvage surgery. The mean age was 41.9 \pm 18.4 years (range: 16-90 years) and mean duration of symptoms at presentation was 5.7 \pm 2.9 months. Early presentation was reportedly observed due to patients' and relatives' recognition of cancer features. This could explain the change from inoperability resulting in 100.0% limbs amputation three decades earlier reported by Akinyoola et al 2006, to the present 67.2% limb salvage procedures. (Prof J.B Olomo and Others on the research trip)





Table I: Pattern of Musculoskeletal Tumour with Limb Salvage.

MST pattern	Limb amputation N (%)	Limb salvage N (%)	Total N (%)
Osteosarcoma	11 (19.0)	24 (41.4)	35 (60.4)
Synovia sarcoma	3 (5.2)	0 (0.0)	3 (5.2)
Malignant leg Ulcer (Squamous cell carcinoma)	4 (6.9)	6 (10.4)	10 (17.3)
Giant cell tumour	0 (0.0)	4 (6.9)	4 (6.9)
Liposarcoma (subperiosteal)	0 (0.0)	1 (1.7)	1 (1.7)
Karposi sarcoma	1 (1.7)	1 (1.7)	2 (3.4)
Neurofibrosarcoma	0 (0.0)	1 (1.7)	1 (1.7)
Extraskeletal osteosarcoma	0 (0.0)	1 (1.7)	1 (1.7)
Multiple myeloma	0 (0.0)	1 (1.7)	1 (1.7)
Total	19 (32.8)	39 (67.2)	58 (100.0)

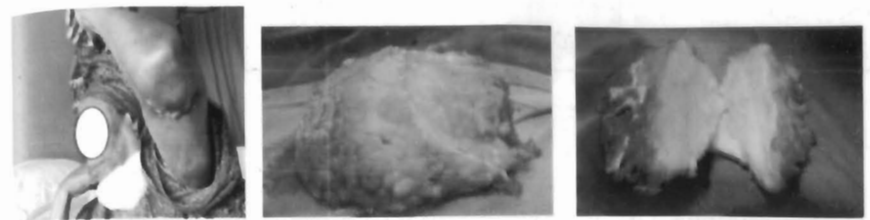


Figure 1: A 78-year old female with left ulna neurofibrosarcoma

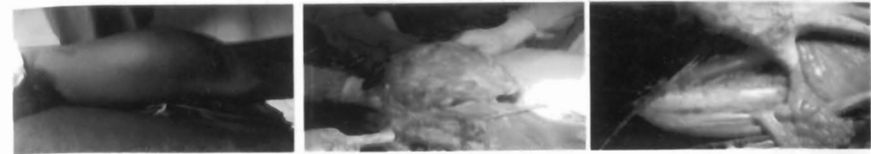


Figure 2: A 40-year male with left femur subperiosteal liposarcoma



Figure 3: A 32-year old female with left 4th metatarsal giant cell tumor



Figure 4: A 24-year old male with left femur osteosarcoma

The direct linkage between cancer awareness education, early presentation of musculoskeletal cancer patients and limb salvage surgery was presented at World Congress on Cancer as Oral presentation in Geneva UICC 2008 (Adegbehingbe et al, 2009).

The supportive care available to patients with cancers can be limited by a lack of funds. In Nigeria, musculoskeletal cancer patients often have difficulties accessing available treatment. In three years (January 2005 and December 2007), we evaluated

Direct integration of government funding and family support for musculoskeletal cancer care. Seventy-one (63.4%; 37 WGHFA; 34 WGHFB) of the 112 patients met the inclusion criteria. Results are detailed in Tables 1-3. Direct integration of the government and family into cancer care served as a link between the patient and the source of funds. It provided an effective psychosocial approach to improve patient outcome through enhanced treatment acceptability and completion, and so reduce morbidity and short-term mortality. (Adegbehingbe et al, 2009).

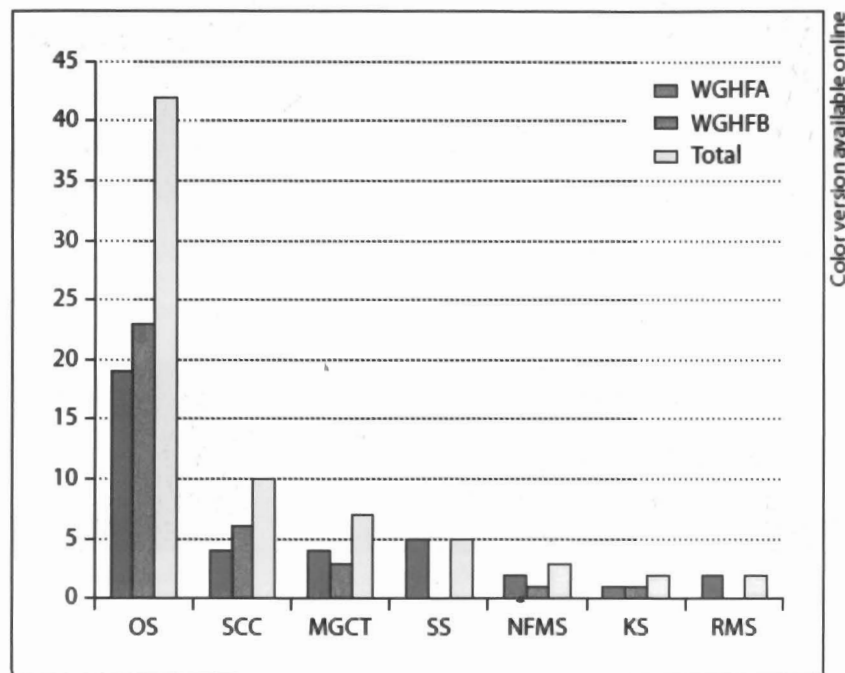


Fig. 2. Pattern of MMST evaluated for direct integration of government funding and family support. OS = Osteosarcoma; SCC = squamous cell sarcoma; MGCT = malignant giant cell tumor; SS = synovial sarcoma; NFMS = neurofibromyosarcoma; KS = Kaposi's sarcoma; RMS = rhabdomyosarcoma.

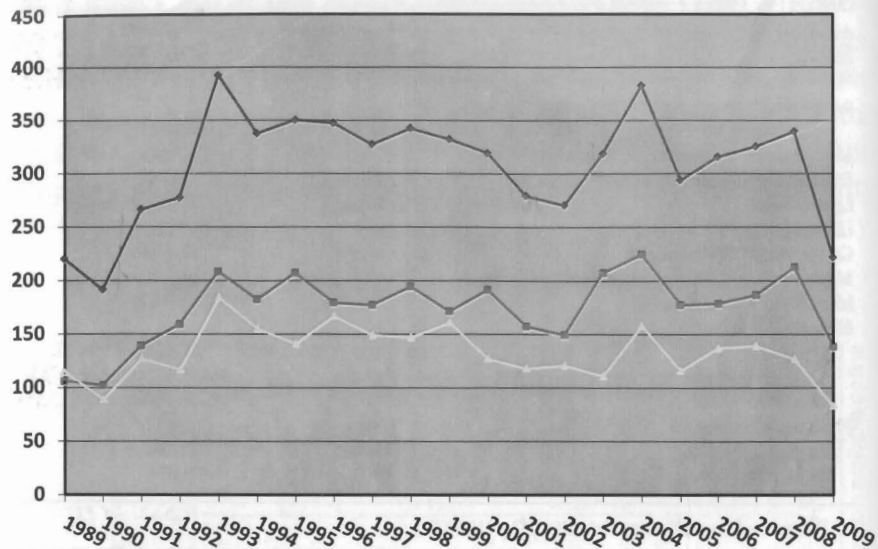
Table 2. Effects of direct integration of government funding and family support on musculoskeletal tumor care

Biodata	WGHFA (n = 37)	WGHFB (n = 34)
Accept the treatment plan (surgery, chemotherapy, radiotherapy, prosthesis)	7 (18.9)	32 (94.1)
Mean duration of hospital stay before surgery, days	34 (range 23–61)	11 (range 6–19)
Discharge against medical advice	26 (70.3%)	1 (2.9)
Limb salvage	2 (5.4%)	21 (61.7)
Limb amputation	3 (8.1%)	12 (32.3)
Completed the treatment plan	7 (18.9%)	33 (97.0)
Mean duration of hospital stay after surgery, days	39 (range 28–56)	23 (range: 21–29)
Mortality at 1-year follow-up	28 (75.6%)	13 (38.2)
Mean financial contribution, USD ¹		
Personal	838.9 (range 358–1,439)	97.5 (range 52–147)
Local government	0.0	48,083.8 (range 424–2,783)
State government	0.0	69,006.4 (range 1,102–5,554)
Psychosocial factors		
Anxiety	83.8%	14.7%
Depression	78.4%	11.8%

¹ Converted from Nigerian Naira (1 USD = 118 NGN).

Mr. Vice Chancellor Sir, after raising public awareness on musculoskeletal cancers and initiated limb salvage surgery to save limb from amputation as a major treatment, then instituted search for linkages between the cancer community and environment was done. I embarked on detailed analysis of Ife -Ijesa cancer registry data over 30years (1981-2011). As shown in the following Figures & Tables.

—●— cancer —■— female



CANCER FOCUS : 1989-1993

YEAR	1989	1990	1991	1992	1993
Breast	22	29	36	43	72
Liver	13	9	15	14	28
Gastric	9	4	7	12	22
Prostate	28	15	15	16	30
Thyroid	10	6	4	4	5
Osteosarcoma	4	3	4	5	8
Oesophagus	0	4	3	0	1
Cervix	14	8	18	19	19
Colorectal	3	3	9	6	25
Lung	1	0	1	0	2
TOTAL	220	191	266	277	392

MUSCULOSKELETAL CANCER (497;7.8%) :1989-2009

TYPE OF CANCER	FREQUENCY	PERCENTAGE (%)	NORMAL AGE RANGE (YEAR)	OBSERVED AGE RANGE (YEAR)
Rhabdomyosarcoma	141	2.2	15-55	3-85
Osteosarcoma	119	1.8	10-60	6-55
Multiple Myeloma	57	1.0	25-80	15-90
Malignant Fibrous Histiocytoma	42	0.6	35-50	4month-70yr
Synovia Sarcoma	50	0.8		21-86
Chondrosarcoma	41	0.7	40-60	12-80
Kaposi Sarcoma	25	0.4		9-83
Osteoclastoma	22	0.3	20-50	10-65



Searching for water

MDG Bore Hole

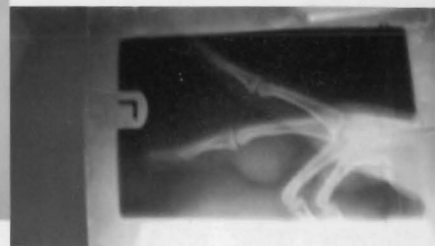
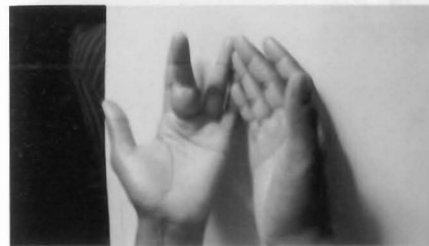
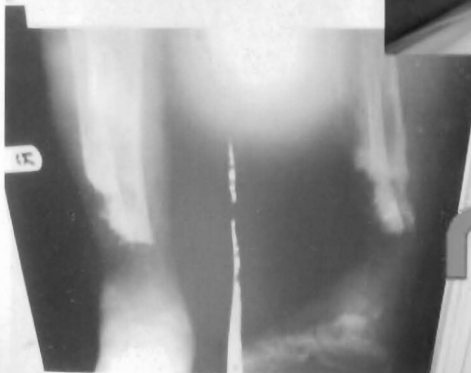
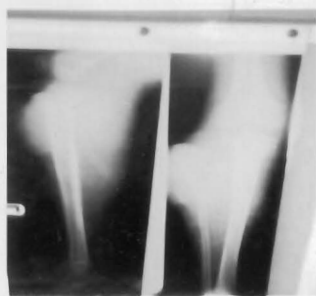


CANCER PICTURE PANORAMA



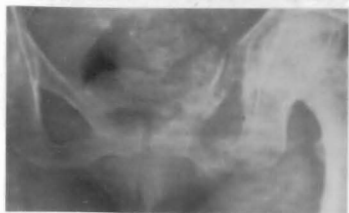
1. Angiosarcoma
2. Metastatic Thyroid carcinoma
3. Calcaneal Osteogenic sarcoma
4. Rhabdomyosarcoma







Follicular Thyroid Carcinoma



SEARCHING FOR THE CARCINOGEN Paulina M & Olayinka A: M.Sc field trip

- Pineapple plantation Efon Alaye

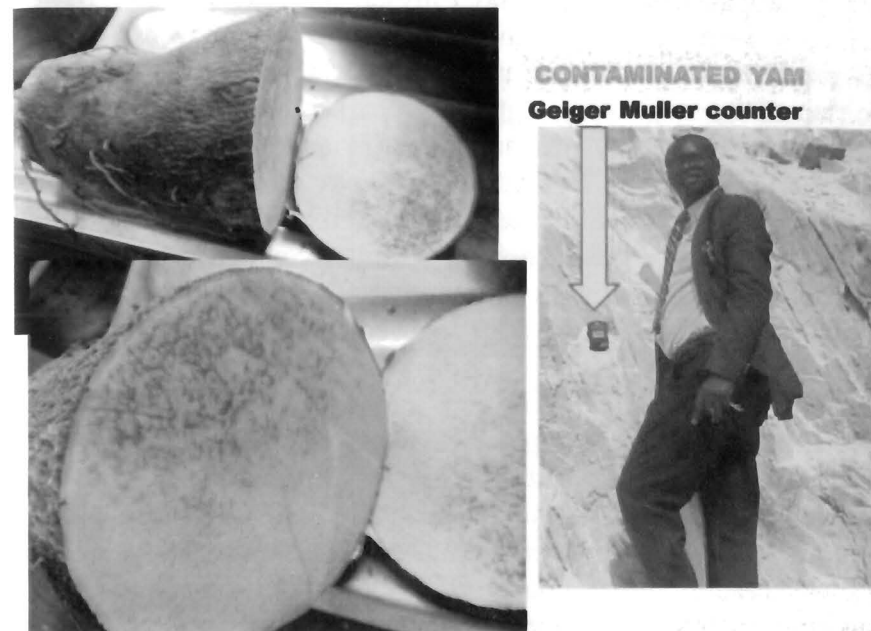


The data astonishingly revealed similar patterns of dynamic changes in both males and females irrespective of the cancer type, location in the body and the year. I shared these scientific data findings with my teachers and mentors including Prof James B Olomo, my next door neighbor, an erudite first Nigerian Professor of Nuclear Medical Physics, Prof M A Durosinmi, doyen of Hematology and Medical Oncologist, who facilitated my musculoskeletal oncology scholarship to Japan in 2011. Prof V A Olanrewaju a foremost OAU and global geologist, Prof B. J. Olasode, an erudite Neuropathologist, Prof Kayode Adelusola the unbeatable distinguished Immunohistopathologist, and Prof Emeritus Akinsola, the father of modern Nigeria Renal Transplant Physicians.

I was travelling along Ikoro Ekiti-Okemesi -Esa Oke road and bought giant sweet Banana home in July 2005. It was noted that the banana failed to ripe normally. It was with altered paled green, black patches and with very bitter taste. The fluid draining out drove away the yellow coloured sugar ants in the house. About two months after, at the mountainous Okemesi Ekiti mining site, the miners were excavating golden coloured sand identified as feldspar and kaolin which were raw material for the production of Bottles and Mist Magnesium Trisilicate (Antacids). One of my patient presented to me contaminated yam from Itawure as a token of appreciation unknown of the content.

My research thought was that the cumulative effect of these poorly biodegradable materials in the body over a long-term exposure might be irreversible, as they may find their way into the water and food content. I went to Ijero Ekiti mining site where kaolin, feldspar, tantalite, columbite, cassiterite etc were being mined. We already know about the Lead poison associated blood dyscrasia and renal failure. Equally, tantalite is abundant in Imesi Ile used in production of Gunpowder, tourmaline is used for ear rings and columbite seen in Itawure mining site used for the production of all ceramic tiles. All these minerals were being washed by rain and

gravity from the mountainous ridges into surface water sources and food (Figure -Contaminated Yam) of the affected communities.



A clinical scientific closer look into the data can be interpreted thus: The 1960-1970's period witnessed availability of Pipe borne water supply to the communities. As from early 1980's the water reservoirs and public water supply pipes were destroyed through road network constructions and poor maintenance culture. The communities were forced to depend on surface water (i.e. superficial/hand dug wells, water streams, rivers, rain water) for decades. It was between 2005 -2007 that pure water sachets and bottled water became popularized and MDG's Millennium Development Goals implementation began with sinking of Bore Holes by Federal and State governments. The process was heavily politicized with corruption. The consequences were short lived bore holes that suddenly became dry (Figure: Public water tap) and the communities were taken back to depend on surface water sources, potentially containing various cancer carcinogens. No

wonder the prevalence of cancers continues to rise in the community.

Mr. Vice Chancellor Sir, I asked myself the next question? Is it true there were cancer causing agents called carcinogens in our environments and being consumed largely more by the poor than the rich of the same community? I embarked on the feasibility of the impossible journey of finding the invisible carcinogens with Prof J B Olomo and Dr Pascal Tchokosa of OAU Faculty of Science. We went to Esa Oke, Okemesi, Ikoro Ekiti, Ijero Ekiti, Aramoko, Ikogosi Ekiti with Geiger Muller counter to access the radiation thresholds of the communities. We collected food stuffs, fruits, grains, tubers, cassava leaves, vegetables, fish pond water, streams water and samples of mining products. Another set of trips with Mr Olayinka. A Akinyemi and Miss Obaseki Paulinah Oyindamola whom I co-supervised for the M.Sc. projects at the Department of Physics and Engineering Physics were made to Ilejemeje, Efon Alaaye, Ido Osi and Ekiti West group of communities and Ero Water Dam. Research samples were taken and we measured the Radioactivity levels on forty-four food crops consisting of fruits, vegetables, grains, tubers and roots collected from four local governments areas in Ekiti State. We published our findings in the International Journal of Ecology on the dose and risk assessment due to natural radioactivity measurement on some food items commonly consumed in Ekiti State, Nigeria (Obaseki et al...2015). We documented the calculated radioactivity impact parameters, which are the absorbed dose rate, annual effective dose due to ingestion, radium equivalent activity and the radiation hazard indices were relatively high for both root and tuber crops but were lower than the safe limits set by UNSCEAR (2000). However, the excess life time cancer risks (ELCR) values obtained were higher than the recommended limit by UNSCEAR (2000). We then concluded that the populace living in the study areas, stand the risk of suffering serious health hazards (Obaseki et al 2015).

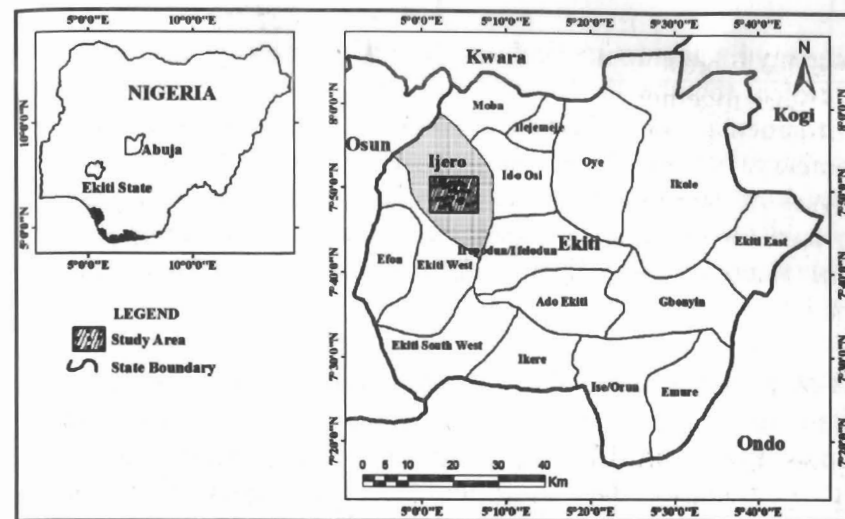


Figure 1.3: The map of Ekiti state showing the study area

Table 4.26: Chronic Daily Intake of Carcinogens (CDIM) and Cancer Risk (RI)

Chronic Daily Intake Of Carcinogens (CDIM)		
Elements	Children	Adults
As	0.0003	0.0018
Cd	0.0002	0.0009
Cr	0.0011	0.0051
Ni	0.0005	0.0022
Cancer Risk (RI)		
As	0.0004	0.0018
Cd	0.0009	0.0043
Cr	0.0475	0.2100
Ni	0.0004	0.0018

Mr. Vice Chancellor Sir, the next question was the medical geological profiling of Ijero Ekiti area in the Oncology Belt linkage to carcinogens. We know Bitumen is an established carcinogen which is deposited in large industrial quantity in Ondo, Edo, Ogun and Lagos axis . When I was in dilemma of how to go about the further research in Ijero Ekiti, Dr Adesiyun Taoheed Ph D walked into my office to discuss on this aspect of my cancer research interest for his Ph D Thesis at University of Benin. I

shared my interest in medical oncology and he accepted to work on the project together. He was able to secure the support of the Environmental and Nano Sciences Group, Department of Chemistry, University of The Western Cape, South Africa, for analyses of samples in the laboratories of the group. The group also paid for the other analyses' Dr Adesiyan carried out at Low Count Radiation of iThemba Laboratories, Cape Town, South Africa.

This study investigated the trace elements geochemistry of soil, stream sediment, plant (*Musa acuminata*) and surface water samples from Ijero-Ekiti area, southwestern Nigeria. The Ijero Ekiti community has basement geology with rare metal mineralization and current mining activities. The objective was to determine the distribution and abundance of toxic and carcinogenic metals in the samples, with a view to discovering whether there is any relationship between geology and the level of toxic /carcinogenic metal contamination which may negatively impact the health of residents in the area.

*The results of the investigation showed that the soils, stream sediment, plant (Musa acuminata (i.e. **Banana**) and water samples contained some toxic and carcinogenic elements such as Arsenic (As), Beryllium(Be), Cadmium (Cd), Chromium (Cr), Molybdenum (Mo), Niobium (Nb), and Lead(Pb) in elevated amounts above various recommended standards which include the Canadian Environmental Quality Guidelines (CCME, 1991)/ European Union Standards (EU, 2009) for agricultural soils, European Union (2006)/World Health Organization/Food and Agriculture Organization (WHO/FAO 2007) Standards for food, Codex (2015) International Food Standards and Nigerian Standards for Drinking Water Quality (NSDWQ, 2007)/ World Health Organization (WHO, 2008) Standards for drinking water quality. This implies that the toxic and cancer-causing carcinogenic elements which are probably results of both geogenic and anthropogenic contaminations in the soils and stream sediments have gotten into the food chain (i.e. water and Banana)*

and are thus capable of entering the body of residents of the study area.

Both adults and children in the area have risks of health problems due to ingestion of toxic elements through consumption of banana (*Musa acuminata*) grown in this area, with higher risk for adults, while both the adults and children have equal susceptibility to cancer risks as a result of ingestion of carcinogenic elements via consumption of the banana (*Musa acuminata*). The table below shows: Analysis of identified Carcinogens and Associated Cancers.

Carcinogenic Element	Associated Cancer	Adjunct factor
Arsenic (As)	Lung cancer Bladder cancer Skin Cancer (Non melanotic)	UV light radiation
Beryllium (Be)	Central Nervous System Cancer /Brain cancer Lung Cancer Oesophageal Cancer	
Cadmium (Cd)	Prostate Cancer Kidney /Renal Cancer Lung cancer (Squamous cell carcinoma)	Se, Zn, Cu, Cd, Vitamin E
Chromium (Cr)	Lung cancer	
Molybdenum (Mo)	Oesophageal cancer	Zinc (Zn)
Niobium (Nb)	Lung cancer	
Lead (Pb)	Brain cancer Stomach cancer Lung cancer Renal cancer	

With the above findings, it can be concluded that there is a link between the presence of toxic and carcinogenic elements in the *soils and stream sediments* in the study area, on the one hand and their presence in *water and banana* (*Musa acuminata*) in the study area of Nigeria Oncology Belt on the other hand. The water and banana are certainly metal pathways to human body, where they are capable of inducing cancer and other health problems in bodies of residents of the area, after accumulating in the body for a very long period or sometimes within a short period. Banana (*Musa acuminata*) is probably a heavy metal accumulator, since the Metal Transfer Factor (TF) for a number of the elements in the plant samples exceeded 1, with some as high as 1000.

Mr Vice Chancellor Sir, by this research we've been able to conclude the seemingly impossible discovery of causes of cancer in our environment. Our recommendations to the government and communities involved would go a long way to prevent cancer induced loss of human lives and guarantee the desires of human endeavours to live and walk. That I may live and walk, the feasibility of the impossible must be without consumption of carcinogens in the community.

III. "Community Orthopedics Beyond the Borders: Feasibility of the Impossible"

Mr. Vice Chancellor Sir, I have introduced and pioneered Public Health into the National landscape of Orthopaedic practice in Nigeria from September 2007 till date.

Traditional Bone Setter: The feasibility of eradicating traditional bone setter's loss of limbs through limb gangrene and other complications resulting in amputations is by banning them from unvented access to the use of the mass media. (Olasinde et al 2003).



TRADITIONAL BONE SETTER TREATMENT :

LEFT UPPER LIMB NEUROFIBROSARCOMA

Musculoskeletal Disorder in Schools: As regards musculoskeletal disorder in schools, we concluded, that treatable cases constitute a large proportion of musculoskeletal disorders among secondary school students, but treatment-seeking behaviour is generally poor. Parental socio-economic and health services factors appeared to be related to the health seeking behaviour. Strengthening of school health services and improved linkage with other services, community education and education of all cadres of health professionals are recommended. (Adegbehingbe et al 2009)

Rickets: Rickets is a disorder of calcium and phosphate metabolism in children resulting into insufficient mineralization of bones. (Tables and Figures) Increased and sustained public health programs are necessary for prevention, and we recommended that health policy makers should incorporate free surgical fees for children with established ricketsia knee deformity to encourage community participation in the management of this preventable condition. (Adegbehingbe et al 2009). The figures below shows features of Rickets.

Wind Swept Deformity



Left Leg

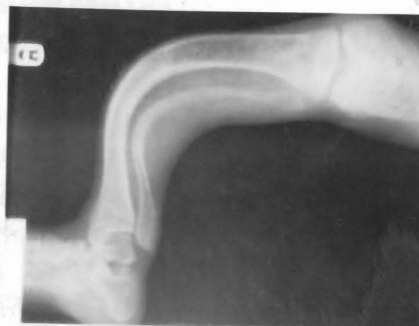
Swollen Wrists



Right Leg



Lateral View of the Lower Limbs



A-P view of the Lower limbs



Clubfoot: Unveiling Treatment Impossibility

Clubfoot (Congenital Talipes Equinovarus) deformity is the most common musculoskeletal congenital birth defect, affecting between 1 and 7 in every 1000 birth. (Orimolade et al 2012,

Adegbehingbe et al, 2017) If left untreated, the child grows up with difficulty in walking. In Nigeria, clubfoot patients often present late for treatment, with persistent deformity that is unlikely to yield to manipulation. Dr JJ Grange, Dr Yinusa W, and Prof Oginni LM have all done great work on clubfoot in Nigeria. Congenital clubfoot treatment continues to be controversial with poor outcomes.





Tohib @ 5yr



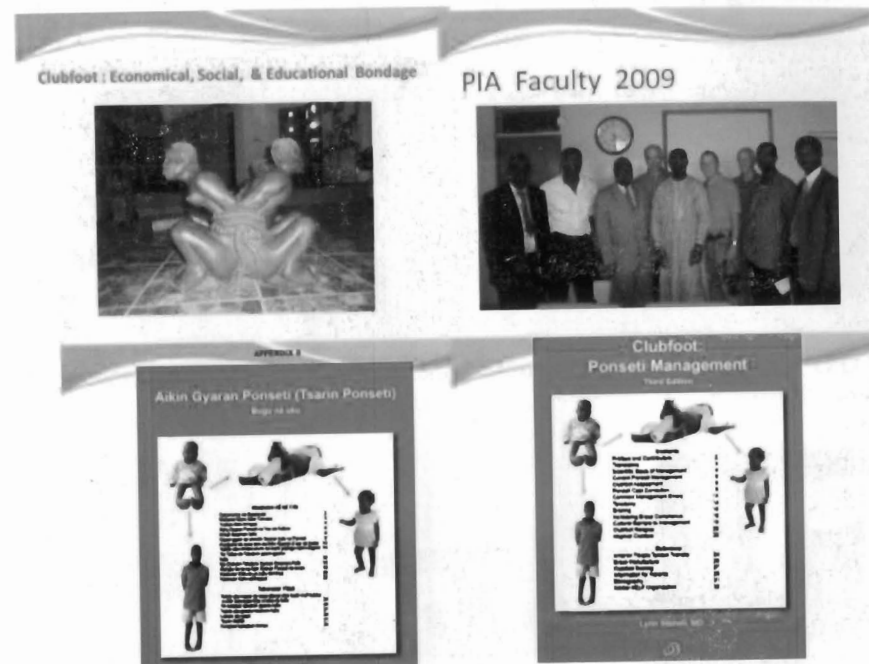
In September 2007, I pioneered a new approach to clubfoot treatment in Nigeria and the West African subregion. It's a simple and noninvasive technique described in 1948 by Emeritus Prof Ignacio V Ponseti with 70year follow up results at University of Iowa, USA. Prof Ponseti was 93yr old when he taught me his method and died two years later (Picture). The Ponseti method uses a combination of manipulations and casting to correct the deformity, and often involves a minimal, office-based procedure called Achilles tenotomy. After the casting period, the child wears a foot abduction brace day and night for the first three months before continuing only at night, until the age of four to prevent relapse. The Ponseti method has been shown to achieve complete correction in as little as 16 days in > 95% of patients. Additional surgical release is required for under 1% of patients. It is generally agreed that the initial treatment of clubfoot should be nonsurgical and start as soon as possible after birth. The first comparative evaluation of clubfoot surgery with Ponseti method was reported in 2010. (Adegbehingbe et al,2010). We achieved 96.4% correction using the Ponseti method. It was concluded that the Ponseti method has reduced (1) total care costs, (2) number of cast utilization, (3) frequency of major clubfoot surgery and has (4) changed the patterns of surgery performed for clubfoot in Nigeria. The oldest clubfoot patient treated with the Ponseti method at age 18 years is first in the World, as reported in this study.

After two years (2007-2009) of utilization of the Ponseti method and published our excellent results, I then decided to train more people on the method under the umbrella of the Nigeria Sustainable Childcare Clubfoot Program Initiative. It's very imperative to know that 70% of clubfoot patients are in the rural areas, while 30% reside in the urban cities. We organized and pioneered the first International Basic Clubfoot Workshop in West Africa held at OAU Conference Centre from 6-10 December, 2009. There were six International Faculty members from Netherland, Tanzania and USA. Dr Bill Whitmore led the group and scientific session was anchored by Prof John Fisk, Emeritus Prof Thomas Cook, Dr Mitchel Steinbeck, Dr Ngayomela and Prof

Ebenezer. Attendees were from West African countries, and among the 49 orthopaedic surgeons was the Chief Medical Director of Abia State University Teaching Hospital, Prof Onyebuchi Chukwu who became the Federal Minister for Health four months after the workshop. The President, Vice President and Treasurer of Nigeria Orthopaedic Association, Professors, Administrators were in attendance which illustrated the challenges of infeasible clubfoot deformity treatment. My profound gratitude to Prof Adejuyigbe Olusanya, Pillar of Pediatric Surgery, former Provost of the College of Health Sciences & CMD of OAUTHC, and Prof Adetiloye Victor, an indefatigable achiever CMD of OAUTHC, both of whom supported and gave us office complex to host the National Secretariat of the Nigerian Sustainable Childcare Clubfoot Program and African Clubfoot Development Program. The participants returned to their bases to establish Ponseti Clubfoot Clinics thus laying the Public Health phase of unveiling impossibility of clubfoot deformity treatment. The discovery of a child's deformity may diminish the joy of childbirth with attendant emotional reactions. Esan et al, (2017), assessed the levels of emotional distress and parenting stress among parents of children with clubfoot in Nigeria. Now, we are able to say "yes" to the question always being asked by mothers/family members at delivery of a clubfoot baby about whether the child will live and be able to walk normally.

In order to entrench Ponseti clubfoot clinics nationwide, I was fortunate to have highly successful six Orthopaedic surgeons passionately committed as champions that coordinated each of the geopolitical zones in Nigeria. Dr Esan Oluwadare – Southwest, Dr Lasebikan Omolade-South East, Dr Orlando Uwguogbule-South South, Dr David Sondgen -North Central, Dr Habila Umaru- North East and Dr Adetiloye Adeoye James- North West. We developed and distributed Public Health awareness educational posters and leaflets. We have conducted Eleven Basic Ponseti Clubfoot workshops and trained over 600 practitioners directly across various geopolitical zones in Nigeria. The training centers include-Ile Ife (2009 &2012), Abuja (2013), Enugu (2014), Lagos (2014 &

2017), Kaduna (2015 &2016), Umuahia (2017), Kano (2017) and Yola (2017). We have Ponseti clubfoot clinics located in 33 States and the Federal Capital Territory, Abuja in Nigeria and still counting. In order to make this method accessible to parents and health workers of all cadres, I spare headed translation of a textbook on clubfoot treatment into Yoruba, Igbo and Hausa.





Dr O.O Adegbehingbe completed Mugabe's clubfoot treatment, Monrovia Liberia, 2012.



(Prof Onyebuchi Chukwu , Honorable Minister for Health appreciating Dr OO Adegbehingbe, Abuja 2013.)

The Clubfoot care was strengthened in Nigeria, Peru and Pakistan by the Ponseti International Association through USAID grant between 2012-2014. We hosted the first World Clubfoot Day in Abuja, Nigeria on the 3rd June, 2012. The Memorandum of Understanding with the Federal government of Nigeria & Federal Ministry of Health (FMOH) was secured. We conducted two Advanced International Clubfoot Courses in Lagos (2014 & 2017), anchored by Seven International Faculty members from Canada and USA. They are Prof Jose Morcuende - PIA President, Prof Thomas Cook, PIA Global Operation Officer, Prof Shafique Pirani Chairman Medical Advisory Committee of PIA, Dr Joseph Dwyer, Prof Edith Parker-CEO, Management of Science for Health, Ms. Tomeka Petersen and Mrs. Cathy Williams. (The clubfoot leaders in Nigeria and Africa together with trainings are shown as follows.)



Physician Ponseti Practitioners





1ST WORLD CLUBFOOT DAY ABUJA 2013

**FOUR SERVING FEDERAL
MINISTERS ANCHOR PROGRAM HIGH TABLE AT CHELSEA HOTEL**



From Right: Dr. Fatai Mohammed, Prof. Ndlovu, Maj. Gen. T.O. Umar, Dr. Ryan Josephine Anselmi, Dr. O.O. Adigunbakin, Dr. Adenuga Olanrewaju, Prof. C.O. Oyeleke, Chibwe (Honorable Minister of Health), Dr. Sarah Ilihi, Dr. A. J. Adeniyi, Van Mwanishi, Dr. Oluwatomi Oluwalade (Medical Director National Orthopaedic Hospital Igbolu Lagos) and President Nigerian Orthopaedic Association and other participants at 2013 World Clubfoot Day, Abuja Nigeria



CLUBFOOT EDUCATIONAL POSTERS



1ST INTERNATIONAL ADVANCED CLUBFOOT COURSE, LAGOS, 2014

FACULTY MEMBERS

CLUBFOOT PROGRAM LEADERS



The fight against clubfoot in a developing country such as Nigeria has to be on three fronts: 1) early identification; 2) timely and affordable intervention; and 3) dissemination of the Ponseti method to patients and recruitment of more providers. (Adegbehingbe et al, 2015).

Asuquo et al's (2016) epidemiological study revealed that young maternal age, male gender and firstborn are predisposing factors in the etiology of clubfoot. Familial clubfoot is about 4-6% in Nigeria and Somalia, 44. 3%. Over 74.6% of clubfoot baby will occur in first and second born of the mother, irrespective of monogamy or polygamy (Adegbehingbe et, 2018, In Press).

We were the first to evaluate prospectively above knee cast and below knee cast after percutaneous tenotomy. Early results of below knee cast were comparable to the classical above knee cast after tenotomy in Ponseti treatment protocol for clubfoot. There was also reduction in cost of treatment in the modified Ponseti compared to the classical Ponseti. (Mejabi et al, 2017). And the odds of requiring a tenotomy increased by more than fourfold for every unit increase in Pirani score. (Badmus et al, 2017). We emphasized clinical indication for repeat tenotomy should be based on the equinus, and not on the feeling of an empty heel, and families can be advised that the heel pad in clubfoot has a tendency to remodel over time to a normal shape in our proposed modify Pirani Scoring System. (Adegbehingbe et al, 2015)

I have a dream.....



Table 1. BLR to predicting need for tenotomy from TPS.

Variables in the equation	OR	SE	z	95% CI		p Value
				LL	UL	
TPS	4.402	1.624	4.020	2.136	9.071	<0.001
Age						
>52 weeks ^a	I					
27-52 weeks	1.729	1.706	0.550	0.25	11.958	0.579
26 weeks and below	0.244	0.192	-1.800	0.052	1.138	0.073
Foot affected						
Left foot ^a	I					
Right foot	0.991	0.546	-0.020	0.337	2.916	0.986
Sex						
Female ^a	I					
Male	1.259	0.734	0.390	0.401	3.947	0.693
Constant	0.001	0.003	-3.400	0.000	0.061	0.001

OR: odds ratio; SE: standard error; z: standard score; CI: confidence interval; BLR: binary logistic regression; TPS: total Pirani score; UL = Upper limit; LL = Lower limit.

^aReference category.

(Prof Adetiloye VA on day of resumption as the CMD of OAUTHC received Prof Thomas Cook, Prof Edith Parker, USA together with the management staff)



Celebrations at Ile Ife, Ilesha, Abuja, and Enugu with Dr Lasebikan O



Dr Bill Whitmore : Sponsored Six International Faculty members to Nigeria 2009

(Celebrating 14yr old corrected neglected clubfoot in Mogadishu Somalia, 2017, and Engr Wasiu's family from Zaria with daughter's clubfoot corrected)



1st World Clubfoot Day celebration in Mogadishu, Somalia June 3rd, 2018.



FEASIBILITY OF THE IMPOSSIBLE NEGLECTED CLUBFOOT

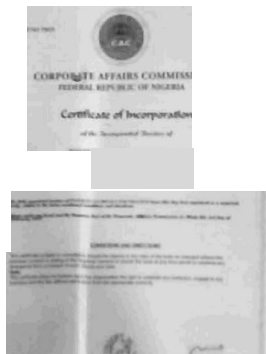
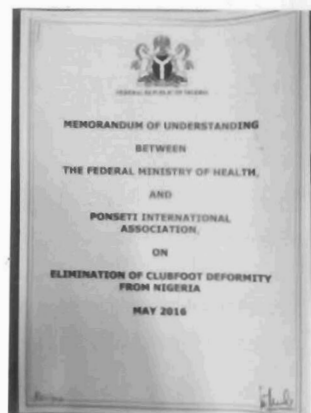


Neglected clubfoot is a bondage causing significant physical, psychological and financial burden to the child and the family. Adults with untreated clubfoot may experience significant pain and disability, unable to walk, and have difficulty performing daily activities of living. Adegbehingbe et al's, 2017 published the current largest data worldwide on Neglected clubfoot in World Orthopaedic Journal on 328 clubfeet (225patients) using the International Clubfoot Registry from 12 different Ponseti clubfoot treatment centers. A painless plantigrade foot was obtained in 255 feet (78%) without the need for extensive soft tissue release and/or bony procedures. We concluded that the Ponseti method is a safe, effective and low-cost treatment for initial correction of neglected idiopathic clubfoot presenting after walking age.





MOU WITH FGN & PONSETI CLUBFOOT FOUNDATION



....Glowing The World With Good Feet.



Clinical Guideline for Clubfoot Treatment: I discover that there was no national guideline for clubfoot treatment. I went ahead to write up a national guideline with adequate input from a Public Health Physician- Dr Mrs. Oluwaseun Esan. This document formed the nucleus of PIA/USAID for the best practice protocol for clubfoot. In the course of advocacy and efforts to obtain Federal Government Policy backing, I was involved in multiple hazardous journeys to FMOH Abuja and the National Councils on Health at Uyo, 2015 & Umuahia, 2017. My special appreciation and gratitude to my wife and children for their prayers, concern, love and the unparallel support I enjoyed throughout my trips round the globe. Finally, we got the Clinical Guidelines for Clubfoot Treatment adopted and for implementation in Nigeria. My gratitude goes to Prof Onyebuchi Chukwu, Prof Adewole Folorunso both Federal Ministers of Health, Dr Mrs. Momoh Folasade, former Director Public Health HHSS, FCT Abuja, Iyom Josephine Anenih, former Minister of Women Affairs and Dr Adetiloye James Adeoye my great Orthopaedic surgeon, companion and government impossibility Rader crusher. By these efforts, Nigeria became the first country worldwide to have a National Guideline for Clubfoot Treatment.

(Dr. O.O Adegbehingbe at the International World Clubfoot Congress, USA)



Mr. Vice Chancellor Sir, my efforts to eradicate neglected clubfoot in Africa drove me further to establish Pediatric Orthopaedic Society of Nigeria (POSON), which is the first official subspecialty branch of Nigeria Orthopaedic Association. Thanks to Prof LM Oginni, Prof IC Ikem, Prof Ogirima MV, Dr. Olurotimi Odunubi and Dr Enwani Ugochukwu for their support.

The passion of ‘Community Orthopedics Beyond the Borders: Feasibility of the Impossible’ has helped me on invitation to develop National Clubfoot Program for Sierra Leone (2010), Liberia (2012), Guinea (2013- Mercy Ship), Cameroon (2012 & 2014), Gambia (2017) and Somalia (2017). Already founded and incorporated Ponseti Clubfoot Foundation, I have succeeded unequivocally to unveil the impossibility of clubfoot deformity treatment and confidently has become feasible nationally and continentally, with Public Health approach.

Patented Innovations & Contribution to Knowledge:

Mr. Vice Chancellor Sir, I have added to the Medical Encyclopedia two terminologies- Ophthofall & Exposed Bone Syndrome. I have described McLanre Exposed Bone Severity Scoring System, Ife-kissing Technique for Peripheral Nerve Injury, One-hole Vicryl Operation for Hallux Valgus, and Osteoplastic Ifeostomy for Complex Neglected Blount’s disease. In Fifteen years (2004-2019) of the Seven Phased researches on the Garcinia kola (Bitter Kola), I have been able to established clinically that Bitter kola has its (Adegbehingbe OO, et al 2008), onset of symptomatic pain relief was about one hour, 69.13 ± 13.12 (range: 43.20-86.30) minutes. The mean duration (minutes) of therapeutic effect is 8hours, 454.09 ± 55.49 (range: 428.83-479.35). After cessation, mean weight reduction period was two weeks, 13.6 ± 8.3 days (range: 5-22 days). I got the Patency for Bioifedyn (aka Garci- K) medication and is produced by CTC Bio America, USA. Bioifedyn is clinically effective at lowering blood pressure, enhancing weight reduction, ameliorating pain (also aborted uncontrollable monthly menstrual pain), promoting relaxation of joint stiffness and improving walking distance in Knee Osteoarthritis. *Bioifedyn* is new from the bush through translation basic research into bedside capsule. The lunching of *Bioifedyn* capsule as a global dietary supplement based on advantages is timely because it is Fast Acting, has Low dosage, Low cost, Positive side effects -increased libido and dependable against NSAID long term use. Ultimately, this reduction in Pain, Obesity and Hypertension (Glaucoma) and improvement in walking distance by G. kola could prolong a person’s life. The impossibility of the Yoruba folks’ expression “*Orogbo loun gboni saye*”, which means that regular consumption of *Garci-K* leads to longevity has been Orthodoxically feasible (Adefule et al, 2012 & Adegbehingbe et al, 2008).

LIST OF ATTENDEES

The First Annual CTC BIO Functional Foods Summit is a conference being held at the CTC BIO Institute of Technology and Research in Hwasung-Si, South Korea to discuss the current and merging products and ingredients in the functional foods marketplace. This summit invites key international members of CTC BIO to gather and discuss the developments in both international and local country markets from which they represent. For this first summit we have invited guest speaker Dr. Olayinka Adebehingbe to speak on the herbal ingredient marketplace as well as discuss the new and ongoing discoveries in herbal medicine research.

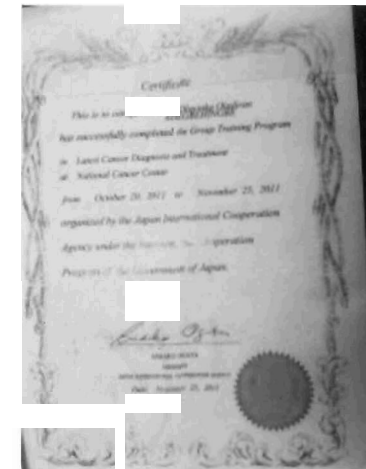
The following list details all persons invited to attend the 2015 First Annual CTC BIO Functional Foods Summit:

NAME	TITLE	NATIONALITY	CONTACT
1. Dr. Olayinka Adebehingbe	Osteopathic Surgeon	NIGERIA	olayinkaadebehingbe@yahoo.co.uk
2. Yoon-mo Kang	Director of Func. Foods	KOREA	kangym@ctcbio.com
3. Kim Sae-young	Chief Scientist	KOREA	ksy25@ctcbio.com
4. Tom Chol	Business Dev. Manager	U.S.A	tomchol@ctcbio.com
5. Shin Go-eun	Scientist	KOREA	sge0617@ctcbio.com
6. Kim Gyung-eun	Marketing Manager	KOREA	kke1122@ctcbio.com
7. Joshua Lee	Business Dev. Associate	U.S.A,	joshualee@ctcbio.com

Awards for Innovation



American Academy of Orthopaedic Surgeon (AAOS) & Japan Certificate of Achievement



Bioifedyn Capsule & Patent Certificate



31st December, 2003



Mr. Vice Chancellor Sir, I will like to affirm that Emeritus

Professor Sir David Ijalaye and Chief Mrs. Eunice Adejoke Ijalaye, Prof & Mrs. EO Ogunbodede, Prof & Mrs. JA Owa, Prof & Mrs. Yinka Otuyemi, Prof Mrs Adefule (foremost Ophthalmologist), the great Adegbehingbe and Bayodes families from Ondo and Owo support have been tremendous and I say thank you sincerely. Mr vice Chancellor Sir, I have in the last one hour made feasible the impossibility of Trauma, Causes of Cancers, Clubfoot Deformity Treatment and added Patented Bioifedyn from the bush to bedside.

Thank you all for listening.

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 - i. YORUBA Language = Ese Akan : Itoju- Ponseti (Appendix I)
 - ii. IGBO Language =Ukwu ncheihu n'elu : Nlekota n'usoro Ponseti (Appendix II)
 - iii. HAUSA Language=Aikin Gyaran Ponseti : Tsarin Ponseti (Appendix III):
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