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# **“CHILDREN: REDRESSING NATURE'S CONSTRUCTION”**

*BY*

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**70<sup>th</sup> Inaugural Lecture  
Olabisi Onabanjo University,  
Ago-Iwoye**

**Tuesday, 14 April, 2015**

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## **CHILDREN: REDRESSING NATURE'S CONSTRUCTION**

**The Vice Chancellor**

**Other Principal Officers of the University**

**Distinguished Members of the University Senate**

**My Colleagues; Academic Staff**

**The Indispensable Non-Teaching Staff**

**Our Royal Highnesses**

**My Lords Spiritual and Temporal**

**Gentlemen of the Press**

**Distinguished Ladies and Gentlemen**

**The Students of Olabisi Onabanjo University**

### **PREAMBLE**

I welcome you all to this Inaugural Lecture. I have devoted my life to serving children through the knowledge and skills God has endowed me with in the science and art of paediatric surgery. I am delighted at the assemblage of guests at this Inaugural Lecture and I sincerely hope each one of us will have a take home message; anything else just would not do. I would like to acknowledge the Academic Ceremonies Committee of the University for accepting my choice of date for this Inaugural Lecture to accommodate attendance particularly by members of my nuclear family.

My Inaugural Lecture is at least five years overdue. This was occasioned by my appointment as the sixth substantive Chief Medical Director (CMD), Olabisi Onabanjo University Teaching Hospital (OOUTH), Sagamu as well as clinical duties between June 2006 and my voluntary resignation, as CMD, OOUTH, in February, 2012. The heavy responsibilities of the office was an

enjoyable but equally challenging experience that I was unable to accommodate an Inaugural Lecture within a competing drive to optimally serve the community.

I ruminated over several topics such as “The Travails of a Paediatric Surgeon”, “Around The World of Paediatric Surgery”, “Children: The Challenges, The Great Expectations”, and some others, but finally settled for “Children: Redressing Nature's Construction” as the topic for my Inaugural Lecture. Indeed, the major concerns of the early surgeons were vividly captured by the statement of a renown French surgeon, Ambrose Pare;

***“To remove what is superfluous,  
to restore what has been dislocated,  
to separate what has grown together,  
to reunite what has been divided, and  
to redress the defects of nature.”***

This choice, I believe, was influenced by my experience as a Registrar in Neurosurgery Unit at the University College Hospital, Ibadan.

I recall the many babies with cranio-spinal malformations who underwent reconstructive surgical procedures and the comment, during one of our operating theatre sessions by an erudite scholar, my great teacher, Professor Adelola A. Adeloye

***“Shonubi, it is best to be born without  
defects, we are only trying to rectify  
the defects of nature.”***

The lesson I learnt from that statement is that, it is irrelevant whether you give birth to a male or female baby; thank God for the gift of a child with no defects of nature.

I was born on Monday, 19 March, 1951 at No 19 Kano Street, Ebute- Metta, Lagos to educated middle class parents of royal ancestry. My late father worked with the British Council as a Stenographer / Confidential Secretary and my late mother was a trained midwife who, in 1954, established the first government approved private maternity home, “Ifelodun Maternity Home”, fondly called “**Ward Segi**”, in Sagamu. The privilege of my birth as well as the opportunities provided by the environment of my childhood conferred some competitive advantage on me growing up. I had a straight career progression through the various levels of education. I went through Primary School at the Soyindo Wesley School, Sagamu and Yaba Methodist Primary School, Yaba, Lagos between 1957 and 1963. I secured admission into Secondary School from standard five; skipping standard six. Thus, I have no primary school leaving certificate!

I recall with delight that when I completed my secondary school education in 1968, at the Molusi College, Ijebu Igbo, I obtained the same credit score in Physics, Chemistry, Biology and Elementary Mathematics and my teenage mind was wide open to several profession as career options. Whilst my parents did not directly influence my choice of career, several close family friends encouraged me to pursue medicine as a career sighting my mother's success as a midwife and the attraction of inheriting and further developing her practice in future.

I believe my personal decision to offer Physics, Chemistry and Biology at Higher School in Igbobi College, Yaba, Lagos, and pursue a career in Medicine was a natural consequence of my growing up within an active private maternity home and certainly my choice of paediatric surgery as a specialty evolved out of my affection for babies from my childhood. My quest to acquire knowledge and skills, for the good of humanity, took me through great institutions within and outside Nigeria. These, inter-alia, include, University of Ibadan, University College Hospital Ibadan, the Specialist Hospital Yola, Old Gongola State, Korle Bu Teaching

Hospital Accra, Ghana, Alder Hey Children Hospital, Liverpool, Great Britain, Great Ormond Street Hospital for Sick Children, London, Great Britain, Queen Elizabeth II Hospital, Maseru, Kingdom of Lesotho, Pelonomi Hospital and The Universitas Hospital, Bloemfontein, Republic of South Africa and of course the Olabisi Onabanjo University Teaching Hospital, home town, Sagamu.

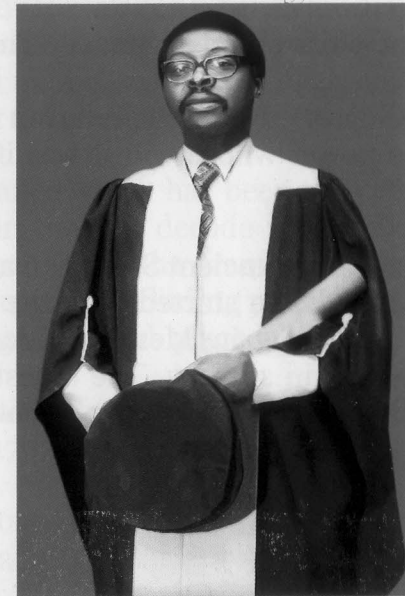
My unwavering commitment to serve my own people made me decline the offer of appointment on two occasions in Liverpool (1983) and Republic of South Africa (1999). Today, I am delivering my Inaugural Lecture as the pioneer Paediatric Surgeon and Chair, Paediatric Surgery, Olabisi Onabanjo University and Olabisi Onabanjo University Teaching Hospital, by choice, not involved in private practice.

I was initiated into research and publication by Professor Adelola A. Adeloye. As a Registrar in Neurosurgery, he assigned me a duty to collect a comprehensive data on all babies with spina bifica cystica lesion who had excision and repair done. The assignment was tedious but I did not fail to deliver because there was no choice other than deliver! I later appreciated the discipline of that particular assignment as I progressed on the residency training programme and savour the result of the publication, "Simultaneous cyst excision and Lumbo-peritoneal shunting in myelomeningocele", arising therefrom, in the Journal of Paediatric Neurosciences<sup>1</sup>.

In the event that I would not be able to get through my acknowledgment, I would at this juncture like to acknowledge one of my great teachers. In the words of Pliny the Elder:

***"Standing on the shoulders of a giant,  
the dwarf can see further than the  
giant himself".***

I indeed had a true giant, Mr. Neville Akinfela Akingbehin, FRCS (Ed.), of blessed memory. If I have any paediatric surgical skills at all, it is due to the tutelage of Mr. Akingbehin. He was a master of clinical diagnosis, patient care and surgical technique, emphasising gentle tissue handling and dissection. He was a very compassionate, patient and generous teacher. I owe him a huge debt of gratitude and, I remain infinitely grateful.



MR. NEVILLE AKINFELA AKINGBEHIN; FRCS (Ed.), FWACS  
21 February, 1941 - 13 August, 1997

Having practised paediatric surgery exclusively in the last 3 decades, and acquiring very wide and rich experience, I now know so much to be able to say so little within the one hour frame of this lecture.

I will in the course of this lecture address the evolution and advancement of surgical practice, the emergence of paediatric surgery, some peculiarities of paediatric patients in surgery, my odyssey in paediatric surgery including evolving new frontiers, the challenges, and proffer some solutions.

## THE EVOLUTION OF MEDICAL AND SURGICAL PRACTICE

The beginning of medicine invariably has several versions because we all rely on ancient stories and legends. The evolution of medicine, including surgery and anaesthesia, is inextricably linked with ancient religion. People believed in a life that was controlled by a divine power whose will it was if an individual suffered some ill<sup>2</sup>.

Archaeological evidence, from ancient Sumerian and Babylonian history, confirms that medicine started with the appearance of modern man. Some skeletons in Mesopotamian graves bore unmistakable marks of brain surgery. The oldest surgery, burr hole, dates back to the Inca civilization of Central and South America.

Fig. 1



Skull with Trephination

Forensic examination of trepanned Pre-Inca, Inca and Neolithic European skulls confirmed that the patients survived for long periods after the procedure, suggesting that the operation was successful<sup>3</sup>. It seems though that the main reason skulls were trepanned was to drive out demons, as opposed to the releasing intracranial pressure in the patients.

There is no dispute in the fact that huge advances were made in medicine during the ancient Greek and Roman era. This era constituted the Golden Age of Medicine as it witnessed the devolution of medicine from religion consequent on the recognition that not all diseases were due to evil spirits.

Clinical governance which has been the catch phrase within the health service in the last decade was indeed first used around 3,900 years ago. It is the framework through which all the components of quality including patient and public involvement are brought together and placed high on the agenda of each organization.

King Hammurabi of Babylon produced the first set of care precepts about 1700 BC which included

- Going rates for specific health care services.
- Fees payable according to a sliding scale based on ability to pay
- Objective outcome measurement standards to assure quality of care
- Outcome information management that included data collection and evaluation
- Consumer and patients' rights mandatorily publicized, fully explained and made known to all.

Hammurabi's code which contained about 250 laws, reacted to any surgical mishap by amputation of the surgeons' hands or in some cases death if it was proved that the surgeon was responsible



for the death of his patient. Draconian as the law seemed, it achieved two outstanding effects; first it stopped charlatans practicing surgery and secondly those who were left took more care. Several generations of physicians including Imhotep, Asclepius and Hippocrates later advanced Hammurabi's code.

Hippocrates, the Greek physician, generally referred to as the father of medicine established that the greatest of all healing forces was nature itself. He is best remembered by doctors for the theory of the four humors viz: blood, yellow bile, black bile and phlegm. Hippocrates encapsulated the standard of medical professional ethics in what is still in use today; "The Hippocratic Oath," notwithstanding the contemporary modifications.

The invention of microscope by Zacharias and Hens Jensen in Middleburg, The Netherlands in 1590 and the Great Renaissance in Europe between the 14<sup>th</sup> and 16<sup>th</sup> century constituted a critical mass in the detailed study and understanding of human anatomy and physiology as the scientific basis of medical practice. This facilitated early discoveries such as venous valves by Fabricius in 1603 and the circulation of blood by William Harvey in 1628 such that by the end of the 18<sup>th</sup> century the gross structure of the human anatomy was almost fully known.

The transition from believe in supernatural and faith healing to rational thinking by laymen brought about the birth of surgery. The word surgery is coined from the Latin word *Chirurgiae* which itself is derived from two Greek words *Cherros* (hand) and *Ergon* (work); literally translated "handwork". Surgery is that branch of medicine involved in the science and art of treatment of deformities, injuries and disorders by manual and instrumental manipulations rather than solely by drugs and diet<sup>3</sup>.

The early practitioners of surgery were known as "barber surgeon" who were more often invited by the physicians to be involved in the

management of their patients. Surgery not being part of the curriculum in medical education at that time allowed the physicians dictate the extent of intervention by the "barber surgeon" in the management of their patients. Whilst it is true that a lot of the "barber surgeons" were rough wielders of the knife, some were indeed very proficient and acquired enormous fame. The formal organization of the "barber surgeons", in London, into a guild about 1540 marked a significant watershed in the regulation of surgical practice by way of training and qualifications. The Guild of "barber surgeons" of London subsequently transmuted into the Royal College of Surgeons of England. The move in London was the catalyst to similar evolution across continental Europe such that by the beginning of the 19<sup>th</sup> century the teaching of surgery as a distinct discipline had been firmly entrenched in the curriculum of medical schools across Europe.

#### THE ADVANCEMENT OF SURGICAL PRACTICE

The early surgeons contended with a triad of challenge viz surgical site infection, pain management and shock due to excessive blood loss. Surgical site infection following apparently clean surgical procedure accounted for about 50% of surgical mortality in the period leading to the middle of the 19<sup>th</sup> century. The germ theory of infections proposed by Louis Pasteur about the middle of 19<sup>th</sup> century contributed immensely to the advancement in the practice of medicine and certainly surgery<sup>3, 4</sup>. In 1865, Joseph Lister, Professor of surgery at Glasgow University introduced the principles of antiseptis in surgical practice. Antiseptis is the removal of transient microorganisms from the skin and instruments by the use of chemical solutions. These progressed to aseptic techniques which are aimed at further minimizing infection by the use of sterilized instruments and gloves and also employing the no-touch technique. The discovery of penicillin by Alexander Fleming and Howard Florey, Sulphamide by Gerhard Doagk in the 20<sup>th</sup> century further accelerated the development of

modern surgery. The synergy of antiseptics, aseptic technique and administration of antibiotics subsequently reduced the menace of infection in surgical practice.

The excruciating pain experienced by patients consequent on trauma or procedures undertaken by surgeons significantly limited the scope and depth of surgical practice to amputations and superficial exploration of parieties. Thus, ameliorating pain had always been a major consideration by surgeons. The early approach was to shorten the duration of procedures by being very fast. This was the era in which the reputation of surgeons was determined by how fast they could accomplish a procedure. Furthermore, some patients had to be restrained by powerful assistants or tied down for a surgical procedure to be completed. At a later stage, patients were inebriated with either opium or alcohol to facilitate completion of the surgical procedure. The discovery and administration of ether by William Thomas Morton (1846) and chloroform by James Young Simpson (1847) as inhalational general anaesthetic agents marked the beginning of an expansive and more adventurous surgical practice. Consequently, hitherto impossible frontiers were opened for major surgical procedure.

Shock, the third major challenge of the early surgeons, accounted for about 50% of mortality in surgical practice. Its study naturally engaged the attention of early surgeons and scientists. The discovery of blood types by Karl Landsteiner, an Austrian biologist, and the subsequent practice of blood transfusion encouraged more daring major surgical procedures to be performed with diminishing risk of mortality from shock occasioned by excessive blood loss. Further research has shown that shock could be caused by other factors for which appropriate preventive measures and treatment options have evolved. Thus, by the early 20<sup>th</sup> century the surgeon became emancipated from the restrictive effects of infection, pain and shock.

Additional discoveries in the field of radiology by the German physicist Wilhelm Conrad Röntgen (1895) and other sciences have significantly improved diagnostic accuracy and precision thus making surgery infinitely safer. There is possibly no other field of human endeavour where the concept of team work is most appreciated than surgery.

The early surgeons treated all patients who presented in their practice. Thus, they were called general surgeons. It, however, became obvious that for best quality service and consistent excellent treatment outcome, surgeons needed to concentrate their attention on special field of practice. Thus, specialisation in various branches of surgery such as orthopaedics, ophthalmology, otorhinolaryngology, neurosurgery, cardiothoracic and obstetrics and gynaecology emerged for reasons of specialised anatomy or peculiarities of disease spectrum.

#### **THE EMERGENCE OF PAEDIATRIC SURGERY**

For almost two millennia, sick children received very little care from physicians whilst children of all ages were treated by the barber-surgeons during their era. Historical records revealed that up till the middle of the 20<sup>th</sup> century the surgical treatment of children were by general surgeons who devoted part of their time to the care of children. However, with increasing workload viz-a-viz population of children requiring surgery some general surgeons like Dennis Browne, Gross and Ladd committed their entire practice to the surgical care of children<sup>5</sup>. They studied and better understood the aetiology, pathology and pathophysiology of many of the conditions in their patients. This generation of self-taught paediatric surgeons facilitated the enrollment of younger surgeons into formal training as paediatric surgeons.

Further development resulted in the establishment of wholly children hospitals in America, Australia and Europe where all specialists skilled in the care of children assembled to practice. One of the major sites of innovation was Children's Hospital of Philadelphia where in the 1940s under the surgical leadership of Charles Everett Koop newer techniques for endotracheal anaesthesia of infants allowed surgical repair of previously untreatable birth defects. By the late 1970s, the infant death rate from several major congenital malformation syndromes had been reduced to near zero.

The Alder Hey Children's Hospital, Liverpool, founded in 1914 is one of the largest children's hospital in Europe. Miss Isabella Forshall pioneered the development of paediatric surgery in Liverpool in 1947. Peter P. Rickham, who joined her in 1952 established the first Neonatal Surgical Intensive Care Unit (SICU) in the world at Alder Hey in 1953. This unit became the benchmark for similar units around the world and immediately resulted in an improvement in the survival of new born infants undergoing surgery from an average of 22% to 74%. Rickham was succeeded by James Lister in 1974; he was subsequently appointed the second professor of paediatric surgery in England. I trained with James Lister in 1983/84 at the Alder Hey Children's Hospital, Liverpool, Great Britain.

There are few anecdotal records of early paediatric surgical procedures obviously not unconnected with limited resources and particularly anaesthetic services to support the practice. Whilst Hirschsprung wrote the first complete description of hypertrophic pyloric stenosis in 1888, Ramstedt in 1907 described the operative procedure to alleviate the condition. The sustained commitment of paediatric surgeons not just to the survival of their patients but to the quality of life has provided the necessary impetus in acquiring deeper understanding of the natural course of several childhood surgical problems viz-a-viz modifications of the

original surgical procedures for best treatment outcome.

Several concerted efforts at forging an identity for paediatric surgery as a distinct specialty met with equal challenges from general surgeons who felt that an independent paediatric surgery will significantly erode their sphere of practice and influence. However, a gradual awareness of childhood, and especially infants, as a unique developmental phase with surgical problems distinct from those in adults brought about the emergence of paediatric surgery in the middle of the 20<sup>th</sup> century. In effect, it became clear that paediatric surgery is neither the miniaturized form of adult surgery nor the practice of surgery on "small adults." Indeed, paediatric surgery is a specialty involving the totality of the science and art of surgery in special age groups; fetuses, infants and children usually up to thirteen years. Its successful practice requires more novel technique and resources than adult surgery.

The horizon of paediatric surgery was widened internationally through the formation of the British Association of Paediatric Surgeons (BAPS) in 1953. Right from its foundation, BAPS had a truly international outlook and even to this day has more overseas members than members from the United Kingdom. The motive of establishing BAPS was not to promote a monopoly of practice but as a vehicle for the advancement of the specialty by setting and maintaining best standards of surgical care of children. BAPS has successfully provided the necessary impetus for the development of paediatric surgery in other continents and countries such as America, Australia, China, Europe, Japan and South Africa.

The evolution of paediatric surgery in Nigeria has followed the pattern in other parts of the world. Up till 1960s the surgical needs of the Nigerian Children were provided by general surgeons who devoted part of their time to the care of children. The first fully trained Nigerian paediatric surgeon, Dr. Michael A. Bankole, was

appointed by Nigeria's premier teaching hospital, University College Hospital, Ibadan, in 1968. In 1972, he was appointed as the first professor of paediatric surgery, in Nigeria, by the then University of Ife; now Obafemi Awolowo University, Ile-Ife.

The first generation of Nigeria paediatric surgeons like Prof. Michael A. Bankole, late Prof. Paul Omo-dare, late Prof. Festus Nwako, Prof. 'Debo Adeyemi and late Mr. Neville Akinfela Akingbehin successfully trained several generations of paediatric surgeons. In the late 1980s, Prof. Michael A. Bankole proposed and initiated the formation of the Association of Paediatric Surgeons of Black Africa. Apart from holding an inaugural meeting in Ibadan during the Conference of West African College of Surgeons, the association did not take off.

I belong to the second generation of Nigeria paediatric surgeons, and was privileged to be a founding member of the Association of Paediatric Surgeons of Nigeria (APSON). I recall with a sense of fulfillment our several meetings in the old Board Room of the Lagos University Teaching Hospital (LUTH) under the leadership of Prof. 'Debo Adeyemi. I will like to appreciate the commitment and uncommon sacrifice of members of that precursor body particularly Prof. Christopher Bode. The Association of Paediatric Surgeons of Nigeria (APSON) was formally inaugurated in 2001. Thus, what started with less than 10 members at any meeting has now metamorphosed into a robust body with over sixty (60) registered, fully trained paediatric surgeons. APSON is affiliated with several similar international bodies with the prime objective of promoting excellence in the surgical care of children. It works in tandem with the Faculty of Surgery of the National Postgraduate Medical College of Nigeria (NPMCN) and the West African College of Surgeons in all aspects of the training of paediatric surgeons in Nigeria and the West African sub-region.

## PECULIARITIES OF PAEDIATRIC PATIENTS IN SURGERY

The peculiarities of paediatric patients in surgery include, inter alia,

- Age
  - Foetus to 13 years
- Spectrum of surgical pathology
  - Congenital malformations (60%)
  - Trauma (25%)
- Physiological adaptation
  - Intra-uterine dependence
  - Extra-uterine independence
- Drug administration
  - Specific dosing regimen: (per Kg body weight or per Metre square body surface area)
- Psycho-social
  - Adaptation to strange environment
  - Fright of hospital gadgets

A detailed review of the peculiarities of paediatric patients in surgery cannot be accommodated in the space of this lecture. However, three areas deserve mention viz thermoregulation, fluid and electrolyte balance, and metabolic response.

### THERMOREGULATION

The capacity of the new born to maintain steady body temperature is grossly limited and even more so for premature babies. This challenge is due to the fact that babies have larger heat-dissipating body surface area than adults relative to metabolically active body

mass. Thus, they are prone to losing a lot of heat by convection, conduction, radiation and evaporation. Furthermore, babies lack keratinized epidermis therefore they have increased transepithelia water passage resulting in significant evaporative heat loss.

An extremely low birth weight infant could have a heat dissipating area six times that of an adult. The smaller mass of an infant provides a smaller heat bank to store thermal reserves than the adult. Furthermore, newborn babies, particularly the premature and small for gestational age, have less insulating subcutaneous fat<sup>6</sup>.

**Table 1**

CRITICAL TEMPERATURE RANGE		
ADULT	26 - 28°C	LOW
NEW BORN FULL TERM	32 - 34°C	
PREMATURE	34 - 35°C	HIGH / NARROW

Babies unlike adults suffer several disadvantages when exposed to cold environment; the disadvantages are directly proportional with decreasing age of gestation and maturity. They are unable to generate heat by shivering as a result of their immature neuromuscular system. Thus, they resort to metabolizing brown fat to generate heat with limited capacity and high metabolic consequence.

Modern technology has provided a device of caring for these babies in a double-walled incubator with temperature

servocontrol device to produce a thermoneutral environment and appropriate humidity for the baby. In some other settings radiant warmers with or without plastic sheets are used to provide a thermoneutral environment with the advantage of open access and visibility.

### FLUID AND ELECTROLYTE

Body water is distributed into two major compartments, intracellular water (ICW) and extracellular water (ECW). The extracellular water is further divided into interstitial water and plasma volume. Maintenance of homeostasis could be quite precarious in the newborn and premature babies because of the immature physiological status of the kidneys. The changes in body water progress in an orderly manner in utero and after birth unless interrupted by premature birth or affected by retarded intrauterine growth.

At birth there is need for transitional water unloading and redistribution such that there is a decrease in TBW. Babies, particularly the premature, who are unable to satisfactorily accomplish the task are at high risk of serious complications such as patent ductus arteriosus, necrotizing enterocolitis and congestive heart failure. Renal tubular function in newborn babies is not physiologically optimum; the concentration and dilution capacity is even more precarious in the premature babies. This is due to relative insensitivity of the renal tubules to anti-diuretic hormone (ADH)<sup>7</sup>.

The challenge faced by the paediatric surgeon who must treat a variety of newborn surgical patients, is to determine an adequate urine output and an appropriate urine concentration for an individual patient. There is no ideal urine output, but we generally accept that both term and premature infants have a urine output of at least 2mls/kg/hour, an osmolality of 250 to 290 mOsm/kg and

a specific gravity of 1.010 to 1.013.

**Table 2**  
**RANGE OF URINE CONCENTRATION AND OUTPUT IN NEONATAL SURGICAL PATIENTS**

VARIABLE	RANGE	MEAN $\pm$ SD
Osmolality (mOsm/kg)	67 – 582	-
Specific gravity	1.002 – 1.040	-
Urine output (ml/kg/hour)	0.13 – 14.9	3.54 $\pm$ 1.97

\*Term Infants 500 – 600 mOsm/kg

\*Adult 1 2 0 0 m O s m / k g

### **METABOLIC CONSIDERATIONS**

Metabolic homeostasis in the foetus, neonate and young infants, in contrast to the older child and adult, is largely influenced by the rapid rate of cellular differentiation, maturation and growth as well as the increased basal energy requirements resulting from physical and increased insensible losses.

During foetal development, glucose is the major source of energy and the sole source of carbohydrate. The foetus receives glucose by continuous transplacental delivery. At birth, this glucose supply is abruptly terminated and the newborn infant must evolve independent energy provision. Thus, hepatic glycogen-stores (glycogenolysis), gluconeogenesis and exogenous ingestion of other fuel substrates such as lipid (free fatty acids), ketone bodies and protein (amino acids) are the immediate sources of provision of this important energy substrates.

Their adequate use, however, depends on the development of many critical enzyme systems necessary for digestion and metabolism. Energy utilization also depends on the synthesis, secretion and target-organ sensitivity to such hormones as insulin, insulin-like growth factor 1, growth hormone and counter regulatory hormones. We know that brain mass is the primary determinant of glucose use in the healthy human foetus and neonates. Thus, the high glucose requirement in neonates compared with adults, is due to the large neonatal brain mass relative to body weight rather than to a high rate of cerebral glucose consumption. The percentage of average brain weight (335g) relative to average body weight (3.5kg) is five times greater in the neonate than in a 70-kg adult with a 1500-g brain.

The aggregate effect of these physiological peculiarities of the paediatric patients in surgery is that the clinical condition in babies will either improve or deteriorate at a rate six times that of an adult. The thorough understanding of these fundamental peculiarities with appropriate responses by trained paediatric surgeons has contributed to the significant decline in surgery-related mortality rate in neonates from greater than 60% to less than 10% over the last four decades<sup>6,7</sup>.

### **MY ODYSSEY IN PAEDIATRIC SURGERY**

***“The one real object of education is to leave a man in the condition of continually asking question.”-***

***Bishop Creighton***

I am grateful to many individuals for my education that recognizes the importance of asking questions that is the basis of research, itself a cornerstone of good surgical practice. The traditional scope of paediatric surgical service includes, inter alia, the management of congenital malformations, trauma, surgical infections and tumors. In the space of time permissible, I would be sharing with

you my contribution to the body of knowledge in paediatric surgery.

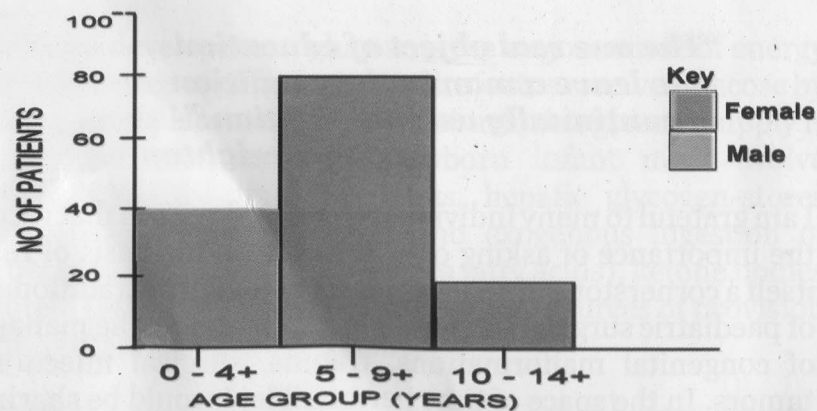
### ABDOMINAL PAIN IN CHILDREN

Abdominal pain, which can be acute or chronic, is a very common problem in children and a reason for parents to seek medical advice. An acute pain is usually of sudden onset whilst chronic pain is continuous, or intermittent, occurring at least once a week, for a minimum period of two months. Although most children with acute abdominal pain have self limiting conditions, the pain might herald a surgical or medical emergency.

Acute abdominal pain is very common in Nigerian children, yet very little had been written on the subject. This aroused our interest to study acute abdominal pain in children at the University College Hospital, Ibadan. Our study shows that the peak age of occurrence was 5 - 9 years (Fig. 2). The male:female ratio over the age of 10 years was 1:1 whereas the males predominated in the younger age groups when the male:female ratio was 1.6 : 1

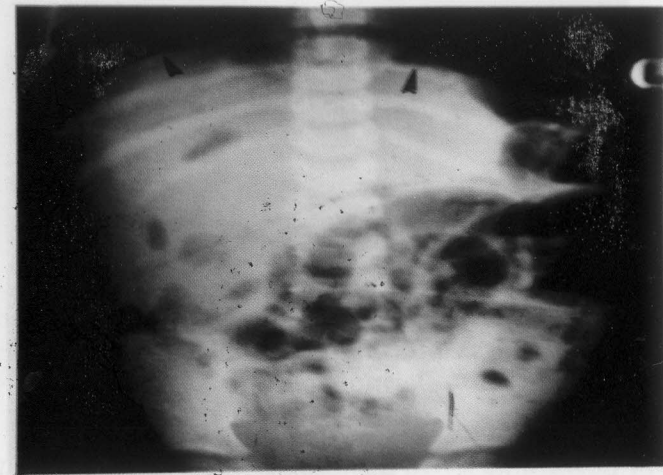
Fig. 2

#### AGE AND SEX DISTRIBUTION OF 143 PATIENTS WITH ABDOMINAL PAIN



The most common organic causes were intestinal obstruction (23.4%), acute appendicitis (21.0%), perforated typhoid ileitis (11.9%), sickle cell disease (9.8%) and ascariasis (8.4%). Examples of causes of abdominal pain are shown in radiographs in figures 3-5.

Fig. 3



Plain abdominal radiograph (erect) of an eight-year-old child with Perforated typhoid ileitis.

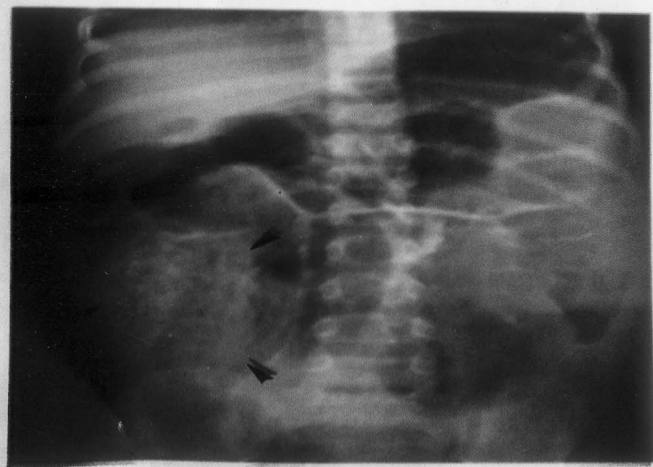
Note: (1) Multiple air-fluid levels  
(2) Free intra-peritoneal air under both hemidiaphragms (arrows)

**Fig. 4**



Plain abdominal radiograph of an eleven-year-old girl showing a central soft-tissue mass containing tooth-like structures (arrows)  
*Dermoid cyst*

**Fig. 5**



Plain abdominal radiograph (supine) of a four-year-old child with intestinal obstruction showing distended loops of small bowel and a "big ball" of tangled ascaris worms in the right iliac fossa (arrows)

**Fig. 6**



Resected portion of small intestine obstructed by mass of intertwined ascaris lumbricoides (same patient as in Fig. 5)

The single most common organic cause of acute abdominal pain in our study was appendicitis (21.0%); we also showed that appendicitis was less common in Nigerians than in Caucasians (31.59%) probably due to difference in diet.

Critical factors influencing the treatment and outcome were duration before presentation and availability of laboratory facility for investigations. Only 8.4% of our patients presented in hospital within 24 hours of onset of abdominal pain. While investigation assisted diagnosis in 14 of 21 patients, six other patients admitted with various diagnosis were finally discharged without confirmation of the diagnosis; a limit placed by absence of new diagnostic modalities.



**Table 3**  
**Admission Versus Final Dignosis**

	Not diagnosed On Admission	Diagnosed On Admission	
Diagnosis confirmed at discharge	14	0	14
Undiagnosed at discharge	7	6	13
	21	6	27

When abdominal pain exceeds 3 months duration, it is most likely functional, and should therefore not be a reason for absence from school. The child should be encouraged to have a good night's sleep, a healthy diet and reduce stress level. Cognitive behavioural therapy and family therapy could also be useful. The prognosis is good and the condition remits spontaneously. The outcome of this study was accepted by the National Postgraduate Medical College of Nigeria in partial fulfillment of the award of Fellowship in Paediatric Surgery<sup>8</sup>. Furthermore, a portion of the study was published in the Nigerian Journal of Paediatrics<sup>9</sup>.

### CONGENITAL MALFORMATIONS

A congenital malformation is an anatomical and/or structural defect existing at birth and often before birth, or that develops during the first month of life, regardless of causation. Congenital

malformations that are characterized by structural deformities are often referred to as congenital anomalies and involve defects in or damage to a developing foetus. The spectrum varies from the most innocuous such as naevus to the most grotesque like siamese twins or caudal regression syndrome.

A congenital malformation may result from abnormalities of the genes or chromosomes, errors of development of various body structures, the intrauterine environment, or infection.

***A congenital malformation does not, however, necessarily imply a genetic malformation.***

Most birth defects are caused by a complex mix of factors including genetics, environment and behaviours, though many birth defects have no known cause. Perhaps, this is where the "witches, wizards, ancestral curses, spiritual wickedness in high places," etcetera, etcetera are deemed to be at play!

### CONGENITAL UPPER ALIMENTARY TRACT MALFORMATIONS

In our practice, documentation of the pattern of congenital defects in the tropics was inadequate until about three decades ago. Simpkins and Lowe<sup>10</sup> were the first to document the incidence in the African newborn. Subsequently, other workers from Ibadan<sup>11</sup>, Kenya<sup>12</sup> and Zambia<sup>13</sup> did similar studies. Most of these workers laid emphasis on external malformations and their management were not discussed. Thus, there was paucity of information on the outcome of treatment of other types of congenital upper alimentary tract malformation.

Our study of congenital upper alimentary tract malformations show male to female ratio (M:F) 2:1.1, age at presentation ranging from one day to three years, five months, with 21.1% presenting within the first 24 hours of life; 52.6% had been seen by the age of one week and 84.2% at the end of the neonatal period. Multiple alimentary tract malformations were present in 0.5% of the patient. Associated, non-alimentary tract malformations were documented in 28.6% of babies with congenital hypertrophic pyloric stenosis, 100% of the babies with cleft lip and palate and 50% of the babies with oesophageal atresia with tracheo-oesophageal fistula. The incidence of associated non-alimentary tract malformations are shown in Table 4.

**Table 4**  
Associated malformations in 3 cases of CL + P

Malformation	No. of cases	% of total
<b>Cardiovascular:</b>		
Dextrocardia	1	12.5
VSD	1	12.5
ASD	1	12.5
PDA	1	12.5
Trilocularebiatrium	1	12.5
<b>Genito-urinary</b>		
Micropenis	1	12.5
<b>Others</b>		
Microcephaly	1	12.5
Low set ears	1	12.5
<b>Total</b>	<b>8</b>	<b>100.0</b>

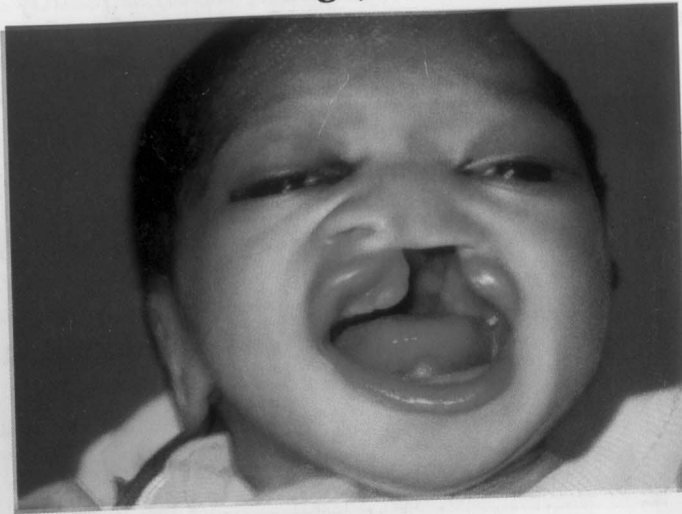
Our study showed that mortality rate was significantly affected by the severity of the malformation, presence of serious associated malformations, infection and prolonged starvation.

**Table 5**  
Outcome of surgery in 15 cases of CUATMAL

Malformation	No. of cases	Operative repair	Outcome	Cause of mortality
CHPS	6	Pyloromyotomy	Survived	-
CL + CP	1	Plastic repair	Survived	-
OA - TOF	3	Primary repair (2) Gastrostomy (1)	1 died, 1 survived Died	Pneumonia Aspiration pneumonia
OA - CHPS	1	Oesophagostomy +gastrostomy* Pyloromyotomy	Died	Prematurity + Purulent Peritonitis
Jejunal Atresia	2	Jejunoplasty	Died	Septicaemia (1) Non-functioning
Arthalasia	1	Modified Heller's	Survived	-
Annular pancreas	1	Duodeno-duodenostomy	Survived	-

Whilst we can neither influence the severity of the malformations nor the associated serious malformation we should be able to minimize infection and starvation. In advanced centres, the mortality rates in these cases of CUATMAL is very low (8-12%). This is because of the availability of safe total parenteral nutrition (TPN). In a developing country such as Nigeria, the specialized staff, instruments and laboratory support needed to achieve a safe TPN are considered too expensive. As at today, I am unaware of any centre in Nigeria where standard TPN is practiced at least on the paediatric patient. This is a sad reflection of the premium placed on the lives of our children. The outcome of management in this study also confirmed known facts that prematurity, birthweight and pulmonary complications significantly influence survival of this group of patients. Our study was published in the East Africa Medical Journal<sup>14</sup>. Examples of congenital alimentary tract malformations are shown in figures 7, 8, 9 and 10

**Fig. 7**



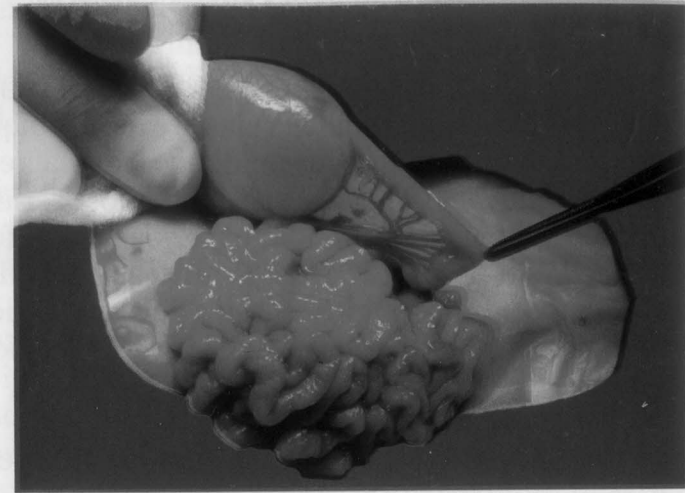
*Unilateral Left-sided Cleft Lip and Palate: note also the deformed left ala nasae*

**Fig. 8**



*Biliary atresia: note the absence of biliary duct apparatus and hypo-plastic gall bladder*

**Fig. 9**



*Operative findings in a baby with jejunal atresia: note the grossly distended proximal jejunum and disproportionately small distal jejunum*

**Fig. 10**



*Anorectal malformation in a newborn male: note the absence of an anal opening*

## ANTERIOR ABDOMINAL WALL MALFORMATIONS

### GROIN HERNIAS IN CHILDREN

Inguinal and femoral hernias are the two clinical variety of groin hernias in children. Whilst inguinal hernias are quite ubiquitous, femoral hernias are uncommon in childhood with a reported incidence of less than 1% of all groin hernia in most series.<sup>15, 16, 17</sup> Many paediatric surgeons have limited experience with femoral hernias in their clinical practice. Consequently, lack of familiarity with the clinical presentation may result in a delayed or incorrect diagnosis. Femoral hernias are most frequently misdiagnosed as inguinal hernias.

We carried out a retrospective review of groin hernia over a 15-year period; January, 1989 to December, 2003, to document our experience with femoral hernia in children. One thousand, two hundred and thirteen records were available; 1206 (99.42%) patients had herniotomy for inguinal hernia and seven (0.58%) patients had femoral hernia repair. The seven patients who had femoral hernia repair formed the subject of our study.

There were three males and four females giving a male to female ratio of 1:1.3. The age ranged from 3 to 9 years with a mean of  $5.6 \pm 2.3$  years. They all presented with recurrent episodes of lump in the groin. The duration of symptoms ranged from one to eight years with a mean of  $3.4 \pm 2.4$  years. Five (71%) were right sided and two (27%) left sided. No child had a bilateral femoral hernia. None of the patients was correctly diagnosed by the referring general practitioners or paediatricians until they were seen by the paediatric surgeon when 71% were correctly diagnosed preoperatively, and two were thought to be inguinal hernias. None of the patients had concomitant inguinal hernia and none presented with incarceration. There was empty peritoneal sac through the femoral ring in all the patients. The McVay hernia

repair technique utilizing the conjoint tendon and Cooper's ligament to close the femoral canal was performed in all cases. There were no immediate postoperative complications. No recurrence was documented within a twelve-month follow-up period.

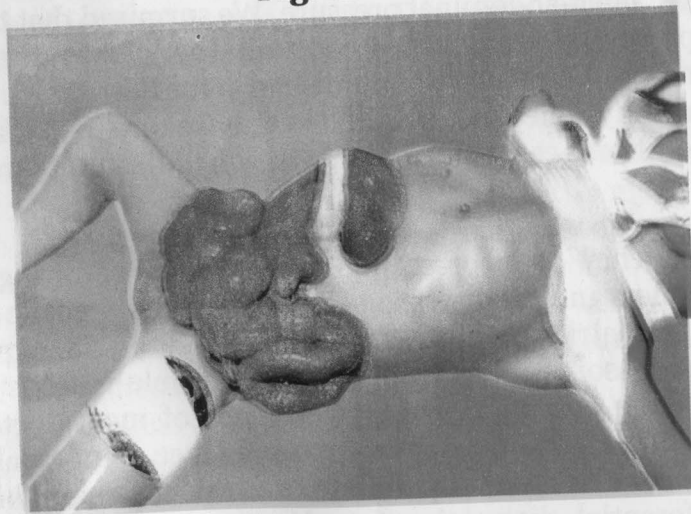
Femoral hernia in the paediatric age group was first described in two girls by Sir Ashley Cooper in 1827. Since then, its aetiology has remained a subject of discussion. Some workers have suggested increased intra-abdominal pressure as a possible aetiopathogenesis<sup>18</sup>. However, pathological conditions that could cause increased intra-abdominal pressure are rarely encountered in children. Thus, the more commonly accepted hypothesis is that propounded by McVay and Savage<sup>19</sup>, which postulates a congenital narrow posterior inguinal wall attachment onto Cooper ligament, resulting in enlarged femoral ring. All the patients in our study were younger than 10 years of age at presentation and had no underlying conditions related to increased intra-abdominal pressure. We surmised that the young age at presentation supports a congenital aetiology rather than an acquired one. Our study was published in the East African Medical Journal<sup>20</sup>. My colleague, Dr. Collins C. Nwokoro, and I have seen three additional cases of femoral hernia in the last 10 years.

The frequency of incorrect diagnosis by the referring general practitioners and paediatricians as well as the diagnostic accuracy by the paediatric surgeon, in our study, is similar to experiences reported in some other studies. The plausible reasons include; rarity of the condition and inexperience of most doctors with femoral hernia, the more frequent occurrence of inguinal hernias in the paediatric age group, failure to consider femoral hernias in the differential diagnosis of groin masses, improper clinical examination and failure of adequate exploration at surgery.

Although there is no known congenital femoral sac as in indirect inguinal hernia, we found a distinct peritoneal sac through the femoral ring in all of our patients. This is similar to the findings by Marshal<sup>21</sup>. Different techniques of repair have been proposed for the treatment of femoral hernia. These include simple dissection and ligation of the hernia sac, some complex plastic procedures and, recently laparoscopic femoral hernia repair. However, no surgeon has had enough experience with femoral hernia repair to prefer one particular technique over another but most agree that some form of repair procedure reduces the chances of recurrence compared with simple herniotomy. We employed McVay hernia repair.

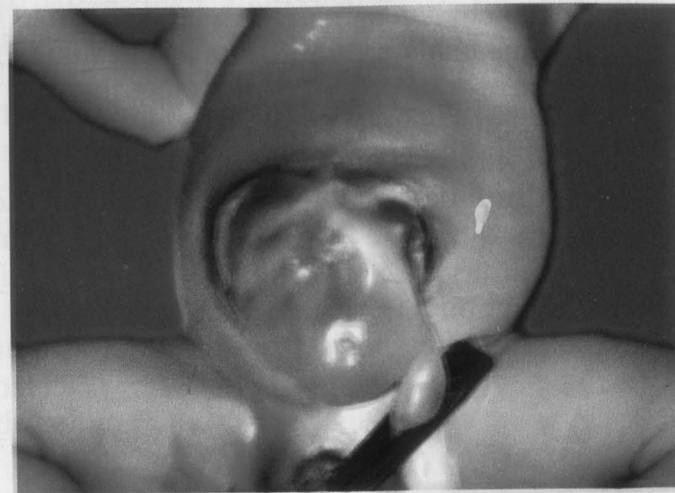
Examples of other malformations of the anterior abdominal wall are shown in figures 11, 12, 13.

**Fig. 11**



*Gastroschisis: note the eviscerated loops of bowel through a defect in the anterior abdominal wall to the right of a normally situated umbilicus*

**Fig. 12**



*Exomphalos with intact membrane in a newborn baby*

**Fig. 13**



*Low anterior abdominal mid-line defect syndrome: note umbilical hernia, exomphalos, ectopia vesica, hypospadias*

### SOME RARE CONGENITAL MALFORMATIONS

There can be no greater challenge than the management of babies with rare congenital malformations and, I have had a fair share of experience in this regard.

The entire process of embryogenesis is complex and any micro aberration could produce grotesque appearance in any of the body organ or system of the baby. The malformations may be induced by drugs, genetic profile, exposure to ionizing radiation, spontaneous mutation, environmental factors or some other unknown factors acting within the first three months of embryonic life. The first three months of embryonic life, also referred to as first trimester, is the period when cell division and organization into various body organs or systems is most active.

I will illustrate with three of such disorders which we have managed; sirenomelia, phocomelia and sacrococcygeal teratoma.

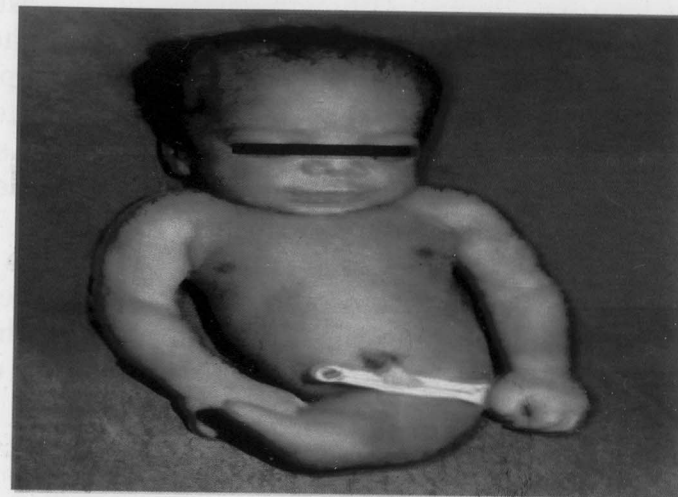
#### SIRENOMELIA

Sirenomelia, otherwise called Mermaid Syndrome, was first described, in 1961, by Duhamel<sup>22</sup>. It is a very rare and complex congenital malformation in which the legs are fused together resembling a mermaid tail. It occurs 1:100,000 live births making it as rare as siamese twins. The condition is almost uniformly fatal within 48 hours of birth as a result of mal-developed and dysfunctional kidney and urinary bladder. Thus, only a handful of patients have survived beyond birth and, there are only three notable survivors in world literature.

We reported the first case, in Nigeria, of sirenomelia affecting one of a set of mono chorionic twins born to apparently healthy parents, in the African Journal of Medicine and Medical Science<sup>23</sup>. The baby who lived for approximately 24 hours had associated severe multiple malformations; absent external genitalia and anal

opening. Detailed post-mortem examination revealed: high arched palate, high ano-rectal agenesis, vesical agenesis with bilateral agenesis of kidneys and ureters, bilateral undescended gonads, transversely lying heart with tricuspid valve atresia and hypertrophic right ventricle, huge superior vena cava, fibrotic ductus arteriosus and a single large umbilical artery originating from the aorta near the coeliac axis, absent cauda equina, deformed pelvic bone, single femur and rudimentary tibia.

Fig. 14



*Baby with fused lower limbs resembling a mermaid tail*

The exact cause of sirenomelia is still unknown. Our findings on detailed dissection, particularly of a single large umbilical artery are strongly in support of the "vascular steal" theory resulting in the diversion of blood flow away from pelvic structures during the critical period of development as the most likely explanation of the wide spectrum of malformations seen in our patient. A gene mutation as well as mechanical stress is most unlikely in our index patient in view of the fact that the first of the set of twins was

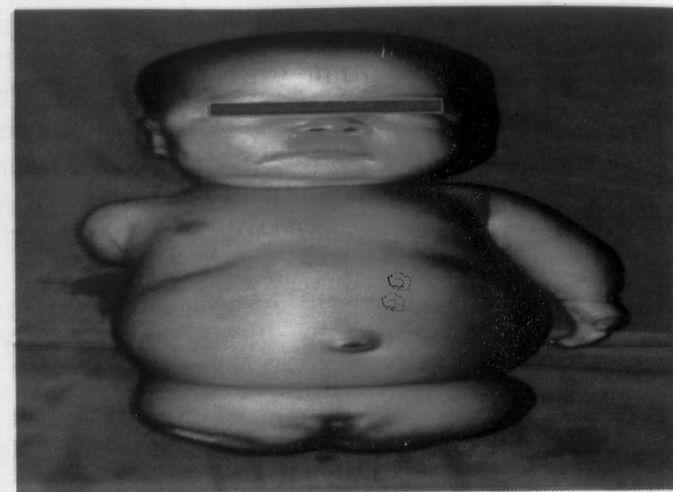
normal. If the theory of gene mutation were to be applicable, both twins in a monochorionic situation would probably have manifested varying degrees of malformation. Indeed, to date, there is no direct evidence of a genetic basis for sirenomelia. However, in accepting the "vascular steal" theory, the inducing factors remain unexplained. Certainly, more detailed studies in future based on appropriate experimental models could address this issue.

### PHOCOMELIA

Phocomelia is an extremely rare congenital disorder involving malformation of the limbs. Although various factors can cause phocomelia, the condition was strongly associated with the use of the drug thalidomide and genetic inheritance. Babies exposed to thalidomide in utero manifested limb deficiencies in a pattern that the long limbs were either not developed or presented as stumps. Other effects of thalidomide included blindness, deafness, deformed hearts, eyes, alimentary and urinary tracts.

We reported the case of a Mosotho baby, seen at the Queen Elizabeth II Hospital, Maseru, Kingdom of Lesotho with Asymmetrical Tetrachomelia (Fig. 15 & 16) in the *Annals of Saudi Medicine*<sup>24</sup>.

**Fig. 15**



*Figure 1: General view of the baby with asymmetrical tetrachomelia*

**Fig. 16**



*Figure 2: Close up view of same patient; note the tubercles representing the amelic lower limbs, phocomelia of the left upper limb with oligodactyly and "elbow" fixed in extension.*

Babies with phocomelia could be fitted with prosthesis; a synthetic alternative for missing limbs, teeth and various body parts. Advances in synthetic prosthetic limbs during the twentieth century have facilitated the use of modern plastics, complex procedures and better pigments to create very light weight and more realistic looking artificial limbs. Further advancement has resulted in the use of myoelectric limb that can detect electric signals from the nervous system and muscles. Babies at the age of 6 months are recommended to have a prosthetic mitten fitted; to enable them get used to the prosthesis. A hook could be added at the age of 2 years before the child eventually receives a myoelectric prosthetic limb.

Our index patient never came back after the initial extensive discussion and counseling. We are not in a position to confirm if she had been a victim of infanticide! I ask, what could we have done within the limits of available resources.

### **SACROCCYGEAL TERATOMA (SCT)**

Teratomas are tumours that are composed of multiple tissues containing at least two germ layer derivatives foreign to the part of the body in which they arise. Sacrococcygeal teratoma (SCT) accounts for nearly 40% of all cases of teratomas seen in children. In spite of this, SCT is rare, with an incidence of 1 in 35,000 to 40,000 live births and a male:female ratio of about 1:4. Thus most reported series are small. SCTs are believed to arise from totipotent somatic cells that originate from the primitive knot. They are attached to the coccyx and vary considerably in size. They may be predominantly cystic, solid or both. Though, the majority of SCT occur sporadically, a familial occurrence has been reported in association with autosomal dominant mode of transmission<sup>25</sup>. SCT are usually not accompanied by chromosomal or other physical abnormalities and regardless of their large size, are rarely malignant. Only about eleven percent (11%) recur after resection. The size of the tumour does not correlate with the likelihood of

recurrence or poor outcome, but the age at diagnosis and treatment, as well as histological evaluation and age at the time of resection are important prognostic factors. Modern ultrasound allows prenatal detection of SCT from the second trimester. Prenatally detected SCT has a survival rate of about fifty percent (50%) when associated with complications. In the absence of complications, babies with prenatally detected SCT have a survival rate of about 80%, only a little lower than the postnatal SCT survival rate of about 95%.

The commonly occurring prenatal complications are related to the location and mass effect of the tumour; these include obstruction of the ureters or urethra resulting in uropathy, hydronephrosis and oligohydramnios. Others are hydramnios and placentomegaly (excessively large placenta) resulting in pre-term labour. The most serious complication is high-output cardiac failure which results in hydrops and respiratory insufficiency. In view of the severe complications generally associated with SCT diagnosed early in pregnancy, attention is currently being focused on foetal surgery; the procedure of choice when the diagnosis is made early in gestation<sup>26</sup>.

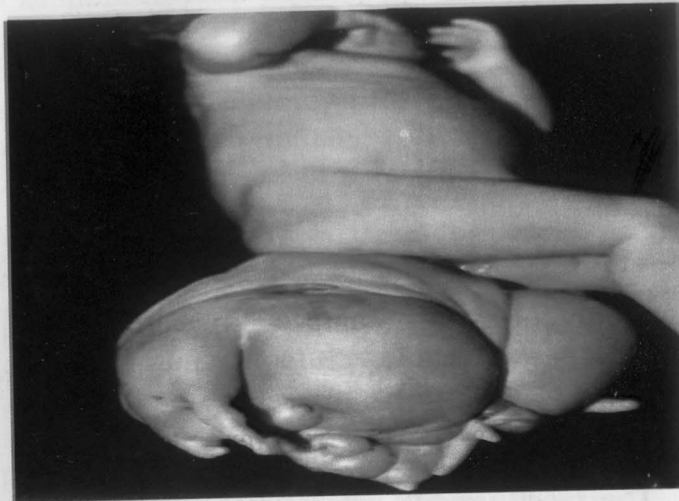
Complete excision is the primary therapy for all SCT and it is adequate if the tumour is benign. In cases of malignancy, however, recurrence can occur after excision and is associated with a high mortality. Chemotherapy and radiotherapy are therefore also indicated in such cases. During surgical resection, the importance of removing the coccyx cannot be overemphasized. A high recurrence rate of up to 37% has been reported where the coccyx had not been excised during the initial procedure.

We reported, in the West African Journal of Medicine<sup>27</sup>, a rare case of a huge, mature SCT with well developed limb buds (Fig. 17, 18), in a healthy three-day old female baby safely delivered at home to a



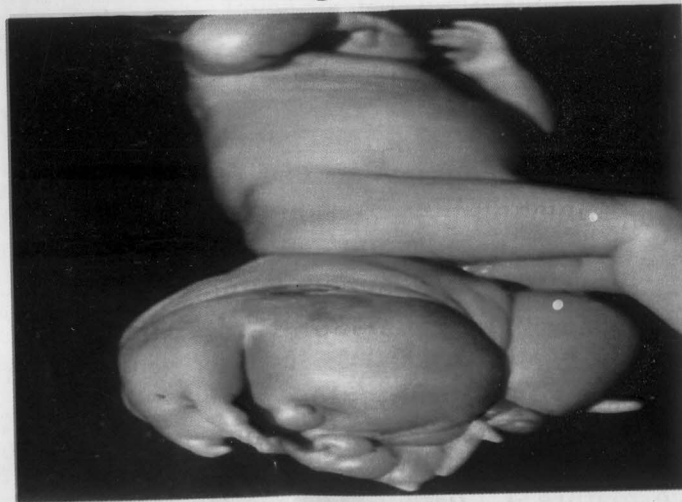
Mosotho woman in the Kingdom of Lesotho!!! The baby had no other anomalies.

**Fig. 17**



Sacrococcygealteratoma with well-developed limb buds: note the relative proportion of the SCT to the trunk of the baby

**Fig. 18**



Close-up view of same patient

She had complete surgical excision including the coccyx and primary repair with good results. Histopathology of the excised tumour confirmed SCT with representative elements of the three germ layers; no malignant features were seen. Subsequent follow-up showed normal growth and development by the child. She was continent of faeces and urine. A two-year follow-up, though short, utilizing serial alpha-fetoprotein assay and Computer Tomography Scan (CT-Scan) revealed no evidence of tumour recurrence. Although no chromosomal studies were done on the patient, we surmised that the tumour in this female child developed spontaneously in view of the absence of other congenital malformations in the baby and other members of her family.

#### TRAUMA IN CHILDREN

Trauma, undoubtedly, is the most common cause of death and disability in children in the developed countries; it is also steadily becoming a major health concern in the developing countries.

#### BURNS INJURIES

Burns injuries account for about 17% of hospital admissions and about 12% of death following accidents in young children in Britain<sup>28, 29</sup>. Thermal injuries occur predominantly in the first three years of life and carry much higher morbidity and mortality than in the older children. It is known that children below 4 years of age with burns affecting more than 30% of the body surface have a mortality rate that is more than double that of older children with similar injuries<sup>30, 31</sup>.

My colleagues and I carried out a review of under four year old children with scald and burn resulting from thermal injuries. In the five-year study, May, 1997 to April, 2002 inclusive, 127 children aged under fourteen years, with burns injuries, were admitted to the paediatric surgical ward of the Queen Elizabeth II

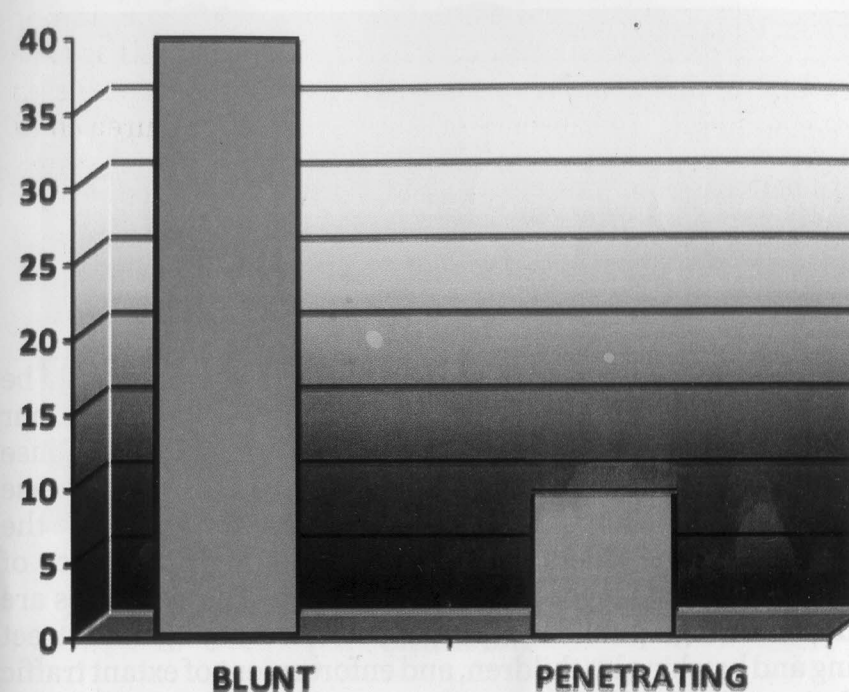
Hospital, Maseru, Kingdom of Lesotho. Ninety-eight (77%) of the children aged less than 4 years formed the subjects of the study. All injuries occurred as domestic accidents. Unlike the male preponderance in other studies, the male to female ratio in our study was 1:1. We are of the opinion that both sexes at this age are equally active and inquisitive hence they are equally prone to domestic accident. The absence of non-accidentally injured child in our study is perhaps due to the fact that such children are often not brought to the hospital, in our environment, because the injury might have been purposefully inflicted. Septicaemia, fluid and electrolyte disturbance in association with renal complications, and respiratory complications contributed to 9% mortality in our patients. This study was published in the African Journal of Medicine and Medical Sciences<sup>32</sup>.

### ABDOMINAL TRAUMA

Like Odysseus (Ulysses), I started at the abdomen with pain, I am returning to the abdomen with injuries!

Our prospective study of abdominal injuries in children, at the Olabisi Onabanjo University Teaching Hospital, Sagamu, shows victims' age ranging from 8 months to 14 years (mean  $8.84 \pm 3.057$ ) with a male to female ratio of 3.5:1. Blunt trauma accounted for 81.6% of presentation whilst 18.4% had penetrating injuries.

**Fig. 19**  
**TYPES OF ABDOMINAL INJURIES IN 49 CHILDREN**



Road traffic crash (69.4%) was the most common aetiological factor; vehicular crash constituting 76.5%, motorcycle crash 23.5%, 61.8% were pedestrians and 38.2% were passengers. Other aetiological factors are fall from heights (14.3%), gunshot (6.1%), blow/kick (6.1%) and stab wound 4.1%. There was no case of child abuse. The mortality rate was 6.1%.

**Table 6**  
**AETIOLOGY OF ABDOMINAL INJURIES IN 49 CHILDREN**

Aetiological Agents	Number	Percentage
Road traffic crash	34	69.4%
Fall from heights	7	14.3%
Gunshot	3	6.1%
Kick/Blow	3	6.1%
Stab wound	2	4.1%

We surmised that the absence of child abuse in our study could be related to the definition of what constitutes child abuse in our cultural setting as well as the fact that genuine cases of child abuse are hardly reported in our experience. The astronomical increase in the population of commercial motorcycle viz-a-viz the recklessness of the riders contributed to the high incidence of pedestrian and passenger injuries in children. These injuries are avoidable through public enlightenment, advocacy against street trading and hawking by children, and enforcement of extant traffic regulations. Our preliminary study was published in the Nigerian Medical Practitioner<sup>33</sup>.

This photograph clearly depicts one of the scenarios predisposing children to abdominal injuries from road crash.

**Fig. 19**



***Motorcycle rider with seven (7) passengers, all children.***

#### **THE SEXUALLY ASSAULTED CHILD**

An emerging horrifying trauma, in children, that we are increasingly seeing is the sexually abused girl child. This heinous act is often perpetuated by people who are expected to protect such children. The perpetrators in 95% of cases of sexual abuse of children and young persons are people known to them. People they are comfortable with; fathers, uncles, stepfathers, brothers, cousins, neighbours, drivers, teachers, family friends, pastors and imams. An analysis of 155 cases documented by Project Alert in 2012 / 2013 revealed that 70% of victims of sexual abuse in Nigeria today are children and young persons below the age of 18 years<sup>34</sup>. Arising from the grossly disproportionate anatomic size, these

children suffer very extensive perineal injury with complete laceration and disruption of the vagina, anal canal and the sphincter mechanism. These children often require several staged surgical procedure to restore the perineal anatomy. In this circumstance, the huge financial drain on the family pales into insignificance compared with the attendant risk of sexually transmitted infection, psychosocial maladjustment as well as potential obstetric and gynaecological problems in adolescent life.

**Fig. 20**



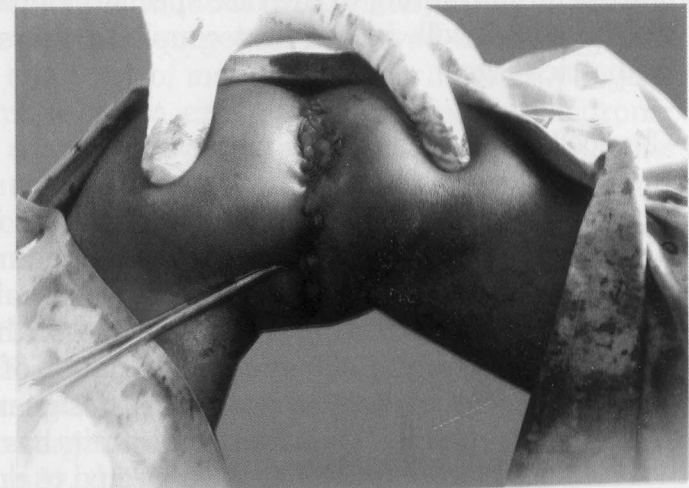
*Pre-operative photograph of a 5-year old girl; sexually assaulted at the age of six months by a 25-year old male.*

**Fig. 21**



*Pre-operative photograph: same patient as in Figure 20*

**Fig. 22**



*Immediate post-operative photograph: same patient in Fig. 20 & 21*

I am sure, individuals within the distinguished audience will immediately recall some cases including a 2 year old girl that was sexually assaulted by a Nigerian police officer in Abuja and of course our "Chibok girls" for whom strangers have been imposed as sexual partners! I have come to know that apart from the criminal disposition, the act is perpetrated in Nigeria in the mistaken believe that it cures hydrocoele and inguino-scrotal hernia (Ipa!) and in the kingdom of Lesotho, as cure for HIV/AIDS. I, in-loco-parentis to the girl child, strongly believe that perpetrators of such crime against innocent children should in addition to severe jail term be castrated.

Mr Vice-Chancellor sir, I have contributed to high level health human capacity development through the successful training of several resident doctors within our facilities. Some of them are academic and consultant members of staff in this university and the teaching hospital.

I consider it a modest but satisfying achievement that my colleagues and I successfully guided Dr. Collins Chigbundu Nwokoro through the training in the rare specialty of paediatric surgery. Collins and I will, in the next couple of years deliver another paediatric surgeon.

Mr Vice-Chancellor sir, I cannot conclude this lecture without some comments on an evolving new frontier in paediatric surgery; prenatal screening and pre-natal diagnosis viz-a-viz in-utero surgery. Our experience, if any, is still largely rudimentary. Prenatal screening and prenatal diagnosis are tests aimed at detecting various types of defects in a foetus before birth. Foetal screening has also been employed in the determination of specific characteristics in the foetus with attendant rise of designer babies. The rising trend in parental selection for specific traits has raised a host of bioethical and legal issues that are expected to dominate reproductive rights debates in the 21<sup>st</sup> century. The main benefits of prenatal diagnosis are that it:

- (i) Facilitates timely medical or surgical treatment of some conditions in-utero or immediately after birth
- (ii) Provides the parents with a chance of termination of the index pregnancy
- (iii) Provides the parents the choice to prepare psychologically, socially, financially and medically for a baby with a health challenge or the possibility of a stillbirth

Often, a child's quality of life is a product of societies' response to his/her challenge. Thus, in core traditional societies, prenatal testing is a veritable means to prevent the birth of individuals who would otherwise be denied full personhood in life. It is equally an antidote to infanticide in our society.

Paediatric surgeons today owe tremendous debt to all those who led the way in developing the field of neonatal surgery. Major challenges yet remain, with some surgical pathological conditions in the newborn and research into the best management of such babies receiving continuous high priority. Thus, further challenge awaits the neonatal surgeons. Improved technology now allows antenatal diagnosis of many lesions such as oesophageal atresia, diaphragmatic hernia, exomphalos, gastrochisis, hydronephrosis, posterior urethral valves, spina bifida cystica and others. This raises an expectation that the neonatal surgeon of today may indeed become the perinatal (intra-uterine) surgeon of the future.

### **THE CHALLENGES OF PAEDIATRIC SURGICAL SERVICE**

Upon assumption of full duty as pioneer lecturer and consultant paediatric surgeon in the university and the teaching hospital in January, 1987, the first personal assignment I performed was a tour of all government health establishments in Ogun State. This was to serve dual purpose. First was to announce my presence and

establish a one-on-one relationship with existing health care givers on ground. Second was to acquaint myself with a knowledge of the location and facilities of the various health establishment in relation to the teaching hospital. My findings were not different from the experience in other developing countries.

The United Nations classified countries into "least developed", "developing", "transitional-economy" and "developed" based on measures of economic activity, education, health and worker productivity, all of which are closely related.

**Table 7**  
COUNTRY DEVELOPMENT CLASSIFICATION AS DEFINED BY THE UNITED NATIONS\*

LEAST DEVELOPED	DEVELOPING (Excluding Least Developed)	TRANSITIONAL	DEVELOPED
Afghanistan	Argentina	Albania	Australia
Benin	Brazil	Bulgaria	Belgium
Ethiopia	Egypt	Hungary	Sweden
Lesotho	Ghana	Lithuania	United Kingdom
Malawi	Nigeria	Russian Federation	United States

\*Culled from *The World Health Report 1998: Life in the 21<sup>st</sup> Century - A Vision for All*. Geneva World Health

The abysmal state of our health services was painfully highlighted in a study of the health system of the Kingdom of Lesotho; "Health For All in A Least Developed Country" conducted by my colleagues and I, the result of which was published in the Journal of the National Medical Association<sup>35</sup>. In spite of its lean resources, the Kingdom of Lesotho is rated above many sub-Saharan African countries, including Nigeria, in terms of human development indicators (HDI).

**Table 8**  
Human Development Indicators I

		YEAR	LESOTHO	NIGERIA	GHANA	S/A
Access to safe drinking		2012	81%	64%	87%	95%
Adult Literacy		2013	78%	51.1%	71.5%	76.5%
Life Expectancy at birth	Male	2013	50%	52%	60.79%	53%
	Female	2013	48%	52%	66%	54%

The health and social welfare of the Kingdom of Lesotho though portends a low level of development is still better than that of Nigeria.

**Table 9**  
**Human Development Indicators II**

2013	LESOTHO	NIGERIA
Annual population growth rate	2.54%	3%
Fertility rate	5.2%	5.5%
Crude death rate	15/1.000	11/1.000
Crude birth rate	28/1.000	42/1.000
Neonatal mortality rate	44/1.000	37/1.000
Infant mortality rate	72/1.000	74/1.000
Perinatal mortality rate	54/1.000	124/1.000
Maternal mortality rate	400/1.000	560/1.000
Doctor/Population ratio	5:100.000	1:6400

The reasons are not farfetched. The Kingdom of Lesotho is one of the few countries in Africa that has enjoyed an uninterrupted, stable and democratic governance. Furthermore, the government demonstrated strong political will by faithfully implementing the principles and objectives of the WHO Global Health For All (HFA) through an act of its parliament with the primary healthcare as an approach to implementing such.

Mr Vice Chancellor sir, you cannot fatten a malnourished child in one day, not even by total parenteral nutrition. I believe, however, that knowing where we are and where we should be heading will enable us chart a purposeful course going forward.

Two-thirds of the world's 7 billion people live in countries defined as developing by the World Health Organisation (WHO), and approximately half of the world's population lacks access to adequate primary healthcare. Access to healthcare is a global concern, especially in developing countries where it is bedeviled by myriad challenges. In the developing countries, access relate to

fundamental issues such as policy, improper planning, inadequate funding, physical facilities, availability of equipment, trained personnel and infrastructure on the part of the government. On the part of the citizenry, ignorance, inadequate knowledge and faith believe in respect of their health and disease that may affect them constitute a major challenge. Other factors are inadequacy and inaccessibility of health facilities to the poor and underserved. The challenges of paediatric surgery in Nigeria, as in any other developing country, can be grouped as those of definition, policy and delivery.

**DEFINITION:**

I have demonstrated earlier that children have distinct surgical conditions, present unique anaesthetic challenges, have special perioperative needs, and that the consequences of paediatric surgical conditions may be life long since they affect children at critical times during development. In spite of this knowledge, the role of paediatric surgery in Nigeria remains poorly defined as a consequence of the prevailing social and economic conditions.

The fact that children are special cannot be overemphasized, so children's medicine should be too. I believe every child should be cared for by professionals who have been duly trained and have devoted their career exclusively to children medicine. It is my expectation that occasional paediatric surgery practice would ultimately be a thing of the past.

***“The aim of paediatric surgery is to set a standard, not to create a monopoly”***

**Denis Browne.**

In the interim, if surgeons and anaesthetists are to maintain a paediatric practice in a non-specialist centre, they have a duty to train appropriately, maintain a paediatric practice in line with global best practices, and ensure that other members of the multidisciplinary team do the same.

#### **POLICY:**

Paediatric surgery is generally excluded from most child health programmes in the developing countries including Nigeria. Thus many congenital anomalies go unreported and children die of easily correctable surgical conditions. It is quite unfortunate that healthcare policy in developing countries does not recognise the surgical needs of children because paediatric surgery is still largely viewed as non-essential service!

We need a national policy that defines access to healthcare by children so as to ensure quality irrespective of socio-economic status or where the child is resident. Such a policy should prescribe standards that assure the quality and safety of care provided by various health institutions. It is my expectation that professionals who care for our children will have the courage and credibility to help create, on behalf of the children, workable community norms and public policies. The Association of Paediatric Surgeons of Nigeria (APSON) and Paediatric Association of Nigeria (PAN) should work in synergy and provide the much needed advocacy in prioritizing children's health on our national policy agenda. This is the role played by similar associations in the more developed nations. If we are able to generate sufficient data, demonstrating that childhood surgical conditions are a significant public healthcare challenge then we are likely to significantly change healthcare policy and ensure adequate resources for paediatric surgical care. It is equally my expectation that appropriate laws would be enacted and faithfully applied to protect the health and well-being of children.

The ultimate goal of the national policy would be to address most, if not all, of the challenges being faced in the delivery of paediatric surgical services. These include bridging the funding gap, development in clinical practice, surgical training and increasing sub-specialisation.

#### **DELIVERY OF PAEDIATRIC SURGICAL SERVICES:**

Only a small fraction of children in developing countries have access to basic paediatric surgical care as a result of limited facilities, equipment and human resources. Our primary and secondary health care facilities are functionally moribund such that there is an enormous workload on the tertiary health facilities thereby adversely affecting clinical services, research and training. The 2006 World Health Report by the World Health Organisation (WHO) succinctly captures the situation thus:

*“The WHO Region of the Americas with 10% of the global burden of disease, has 37% of the world's health workers spending more than 50% of the world's health financing, whereas the African Region with 24% of the burden but only 3% of health workers commanding less than 1% of world's health expenditure. The exodus of skilled professionals in the midst of so much unmet health needs places Africa at the epicenter of the global health workforce crisis.”*



**Table 10**  
**World Health Organization: 2006 Report**

REGION	GLOBAL BURDEN OF DISEASE (%)	WORLD HEALTH WORKERS (%)	WORLD HEALTH FINANCING (%)
AMERICAN	10	37	>50
AFRICAN	24	3	<1

Inadequate funding limits the scope of the healthcare that could be provided as well as the remuneration of health care givers. It is also the root cause of recurrent work stoppages, a refined phrase for strike action, by different professional groups in the health service system. This encourages emigration of skilled health care givers to the more-developed countries.

The 2014 Declaration at the Presidential Summit on Universal Health Coverage (UHC) in Abuja, Nigeria, was in tandem with the WHO report:

*“RECOGNIZING that the key challenge for achieving UHC are related to sub-optimal health system characterized by budgetary constraints, inadequate financial protection for the poor, shortage and mal-distribution of human resources for health, uneven quality of healthcare services, challenges in the provision of health commodities, poor coordination, and weak referral system and the uneven utilization of health services”.*

About 80 million (47.9%) of the 167 million Nigerians are children, and there are currently about 60 trained, actively practising paediatric surgeons in Nigeria. Thus, each paediatric surgeon is saddled with the responsibility of providing care for about 1.3 million Nigerian children. Furthermore, 80% of these paediatric surgeons are based in the highly urban cities and practice in the tertiary health institutions. It is, therefore, obvious that there is a dearth and mal-distribution of trained paediatric surgeons such that general surgeons, general medical practitioners, medical officers of health and in some settings people in profession allied to medicine still attend to the surgical needs of children.

On my assumption of duty, in January 1987, at the then Ogun State University Teaching Hospital, I requested from the hospital management the provision of minimum basic need for paediatric surgical service. This included, inter alia, dedicated paediatric outpatient clinic, paediatric surgery ward, paediatric nurses, operating theatre space for an all children only operation list. I managed to secure a six-bedded ward. This modest paediatric surgery ward attracted commendation from a professor of paediatric surgery during the accreditation exercise of the teaching hospital in 1989. Whilst the ward was tolerable for take off, in 1987, it is today grossly inadequate for optimal paediatric surgery services in the hospital.

It is my great expectation that paediatric surgical services, in Nigeria, would be organized into a “Hub-Spoke” delivery system. The hub being purpose built regional specialist paediatric centres and the spoke the government general hospitals. It is at the hub that the whole range of auxiliary services viz anaesthesia, intensive care, paediatric nurses, radiology, pathology and the full complement of allied surgical and medical services would be concentrated all working together to improve the outcome for the child. However, the hub and spoke must share a common aim, and

understand that their skills are complimentary.

The benefits of centralization include concentration of expertise, more appropriate consultant on call commitment, development of support services, junior doctor training and other health human capacity development. The disadvantages include children and their families having to travel long distances for care, and the loss of expertise at the local level. With the provision of effective communication device and emergency transportation services the benefits of specialized centres far outweigh the adverse effects. This is the Lesotho experience, from our study<sup>35</sup>, that ensures every child irrespective of the socio-economic class, place of residence or disease condition has equal opportunity to access healthcare services. The hub-spoke arrangement should be complimented by the provision of proper accommodation for families while their children are being treated in the hospital. As Chief Medical Director, OOUTH, my colleagues and I attracted a benefactor to construct the "ALAANU HOUSE" which is serving such a purpose in our teaching hospital in Sagamu.

### **QUO VADIS**

Finally, Mr Vice-Chancellor sir, I would like to leverage on the freedom in the Ivory Tower to offer some suggestions based on my appraisal of paediatric surgery service in Nigeria viz-a-viz our healthcare system.

### **OLABISI ONABANJO UNIVERSITY AND OLABISI ONABANJO UNIVERSITY TEACHING HOSPITAL**

These two institutions, by law, are autonomous but functionally complimentary. It is expedient that the management of the siamese institutions consider and give positive effect to the creation of a Department of Paediatric Surgery with full complement of trained staff to promote human capacity development, drive research activities and cater for the surgical needs of our children. In addition, it is imperative that the

teaching hospital provides dedicated and adequate facilities for the optimum care of paediatric surgical patients. Such facilities ought not to be an afterthought; rather it should be an integral component of a master plan ab-initio.

The Vice-Chancellor, this request is altruistic. It is genuinely based on global best practices in the interest of our children. It is indeed the same set of reasons that justify the existence of the Department of Paediatrics that equally and eloquently justify an autonomous Department of Paediatric Surgery. It would be a humble beginning towards achieving the ideal; a wholly Children's Hospital.

### **GOVERNMENT AT ALL LEVELS**

Health is neither on the concurrent nor the exclusive list of the 1999 constitution (as amended) of the Federal Republic of Nigeria. This amorphous constitutional state of health has provided government at all levels a leeway to treat the health needs of Nigerians, especially of children as "everybody's business and thus nobody's business." The backlash is that government at all levels conveniently make paltry annual budgetary allocation to health and gloat in politics of free health.

Granted that government alone cannot wholly fund health, I believe it should face up to its responsibility of providing a comprehensive health policy that all stakeholders could buy into. Enough of politics with our children's life!!!

The federal government has a responsibility to improve national healthcare by providing the broad policy guidelines on the health of the nation. It should provide resources that will remain available at the location and within the culture, enlist greater private sector participation and funding, and encourage a well-managed medical and health insurance scheme for the good of all citizens.

The state government should provide appropriate, easy-to-maintain technology for effective transportation, communication and effective healthcare delivery. It should encourage full community participation at the primary care level and integrate traditional birth attendant practices into primary healthcare until such a time their services can be dispensed with. Individuals should be encouraged to accept responsibility as custodians of their medical history. The government of Ondo State has proved that it can be done by achieving significant positive result with the "Abiye Programme".

Education is the most effective means of providing a sustainable solution to our health challenges. This will improve perception of health challenges and disease prevention. It will also enhance the development of the much needed human resource.

It is imperative that governments at all levels should have the political will and moral courage to give positive effect to all International Declarations, which they freely signed, regarding our children's right to education and health. By so doing, we can be truly assured of a secured future of properly educated and healthy generation.

The Vice-Chancellor sir, in the words of Bernard Shaw:

***"If you don't blow your trumpet, nobody will blow it for you..."***

I have, this day, blown the trumpet of paediatric surgery. I dare say let those that have ears and have heard the sound of paediatric surgery trumpet arise, do the needful that our children may live a truly healthy life and accomplish the great expectations.

## ACKNOWLEDGEMENT

I have enjoyed the benevolence of God and the goodwill of numerous people. Thus, I will like to seek the understanding of those individuals whose names could not be mentioned in the course of my acknowledgement, due to space and time constraint.

God is pre-eminent in my order of acknowledgement. He has ever been present at every turn, meeting my needs according to His riches in glory; I say thank you Almighty Father.

I am infinitely grateful to my late parents, Prince Edmundson Mosunmola Olabinjo Shonubi and Princess Victoria Segilola Shonubi, for being the vehicle through whom I had life. I acknowledge the rich blend of affection, love, discipline, dignity, honour, integrity and other virtues they painstakingly embedded in my being.

I recognise and thank all my siblings represented by Mrs. 'Yemisi Olukoya, Mrs. Folashade Irene Adesina and Mrs. Bolanle Olubukunola Peters for the individual and collective role you played in shaping my life. May the favour, mercies, peace, joy and grace of God continually abound in your life. I acknowledge the unwavering support of my uncles, aunties, and cousins; Otunba 'Lanre Awoyemi-Shonubi, Late Mrs. Christianah Ademola-Oresanya, Otunba 'Tunji Lawal-Solarin, Alhaja Simisola Odumesi, Alhaja Yoriola Akinyele, Alhaja Dolapo Dele and Mrs. Iyabo Omolara Green. I thank you most sincerely for your best wishes and encouragement at all times.

I recognise and appreciate my in-laws: Mr. Thomas Adeyeri, Chief (Mrs.) 'Funmilayo Alonge, Mrs. Patience Fehintola Benson, Mr. Ojo Adeyeri, Mrs. Monisola Oretuyi and all other members of the Adeyeri dynasty, for a seamless union. I thank you for the extraordinary relationship; may the bond be ever stronger.

My teachers, through the ages, occupy a special place in my heart Mrs. Stella Ope-Ewe, Mr. A. O. Adenaiya, Mr. Ojo Agboola, Prof. Olukayode Dada, Prof. (Mrs.) Olaitan Soyawo, Prof. (Mrs.) A. O. Ogunseinde, Prof. L. A. Salako, Prof. O Ladipo, Prof. W. I. Aderele, Prof. Ayo Folami, Prof. Ope Adekunle, Prof. Michael A. Bankole, Prof. Olajide Olaolu Ajayi and Prof. Adelola A. Adeloye. Your individual and cumulative contributions are eminently instrumental to my attainment in learning and character. I will remain eternally indebted to you for the opportunity, honour and privilege of being a part of your rich curriculum vitae!

I sincerely express my heartfelt gratitude to many colleagues, some are substantially senior, and friends Prof. Afolabi Soyode, Prof. Yinusa Olatunji Oyeneeye, Prof. (Mrs.) Yetunde Aken'Ova, Prof. Lekan Adetoro, Dr. B. G. K. Ajayi, Dr. (Mrs.) Oluwatoyin Ogunkunle, Dr. Oluyombo Awojobi, Prof. 'Kunle Sobande, Prof. Bankole and Prof. (Mrs.) Gbemisola Oke, Prof. 'Biodun Ogundaini, Prof. Philip Olatunji, Prof. 'Yinka Adegboye, Prof. 'Ayo Oluwatosin, Prof. 'Layi Shittu, Prof. 'Segun Ogunlade, Dr. 'Ladi and Dr. (Mrs.) 'Toun Sotimehin, Dr. 'Segun George, Prof. Rajiv Erasmus and Late Mr. Sunday Oyedele Oyebisi. You played, and continue to play prominent role and made significant contributions to my life. I thank you for the good deed at the nick of time. May the good Lord reward you several times over.

I solemnly acknowledge my two generations of patients and their loving parents who have been the precious jewel that constitute the building blocks for the attainment of this Inaugural Lecture. I sincerely thank you and remain eternally grateful to you all.

I am fully lifted in my spirit by the presence of my spiritual fathers Pastor 'Lanre Adenekan, Pastor Julius Adetunji, Pastor Bukky Jeminusi and Pastor 'Seun Kehinde. The Holy Bible says "the effectual fervent prayer of the righteous availeth much". I thank you for being there always. May the El-Shaddai God continually

renew your strength and His anointing upon you and the ministry into which He has called you.

I appreciate, most affectionately, Miss Susan Jesugbemi Awosoga, my daughter, for her uncommon sacrifice, commitment, dedication and diligence in offering the secretarial support in the preparation of the manuscript; even at the expense of her leisure outside the official hours including weekends and public holidays. May the good Lord reward your labour of love bountifully.

I, being pure "blue blood", know that the biggest masquerade is the last in the groove! I, therefore, recognise and acknowledge our Royal Highnesses: Oba (Dr.) Michael Adeniyi Sonariwo, the Akarigbo and Paramount Ruler of RemoLand; Oba Adewale Olumuyiwa Osiberu, the Elepe of Epeland, Sagamu; Oba Timothy Oyesola Akinsanya, the Ewusi of Makun, Sagamu; Oba Adesola Sikiru Bello, the Legunsen of Ilupeju Sagamu; Oba 'Gbenga Sonuga, the Fadesewa of Simawa, Sagamu; and Oba (Engr.) Isiaka Olajide Ajede, the Ogirimadagbo of Ilodo Ijebu.

Kabiyesis,  
Alase, Ekeji Orisa,  
Iku, Baba, Yeye,  
Ade a pe l'ori  
Bata a pe l'ese  
Irukere a di abere  
Ase a pe l'enu kanrinkese  
Esin oba a je oko pe  
Ogbo, ato o

May your reign continue to be peaceful and prosperous.

The immortal, invisible, and Most High God endowed me with a gracious family. My two precious daughters Mrs. Adenike Opemipo Adewusi, Dr. (Mrs.) Magbagbeooreoluwa Shonubi-

Sadiku and wonderful son Reverend Olorunnisola Daniel Shonubi have been marvelous gifts from God. I appreciate and thank you as well as my grandchildren Iyanuoluwakiitan and Iyeainipekun for personally knowing and understanding me. May the good Lord continue to enlarge your coast.

I searched eternity for a wife; there is none other than Titilola Olubunmi Abeniade Shonubi; the daughter of SAO of Ikere-Ekiti. Titi, you were divinely created for me. I genuinely appreciate you; there can be no other glorious day than today to publicly acknowledge your uncommon understanding, painstaking endurance, unflinching support and unconditional constant love. You are an epitome of a virtuous wife. Certainly, THANK YOU is inadequate. Silver and gold have I none, but that which God has freely endowed me with, LOVE, I pledge to continue to share with you in generous measure.

Mr Vice-Chancellor sir, distinguished ladies and gentlemen I thank you most sincerely for your presence, patience and attention. God bless you all.

## REFERENCES

1. Adeloje A, **Shonubi AMO** and Oyewole A: Simultaneous cyst excision and lumbo-peritoneal shunting in myelomeningocele. A preliminary report. *J. Paediatric Neurosciences* 1988; 4: 179-185
2. Jan Va der Crabben. *Ancient History Encyclopaedia*. [www.ancient.eu/medicine/](http://www.ancient.eu/medicine/) 05 August 2011
3. History of Surgery Wikipedia, the free online encyclopaedi [En.m.wikipedia.org/wiki/History\\_of\\_surgery](http://en.m.wikipedia.org/wiki/History_of_surgery)
4. Tim Lambert. A brief history of Surgery. [www.localhistories.org/surgery.html](http://www.localhistories.org/surgery.html)
5. Paediatric Surgery Wikipedia, the free online encyclopaedia [en.wikipedia.org/wiki/Paediatric\\_surgery](http://en.wikipedia.org/wiki/Paediatric_surgery)
6. Michael R. Harrison. Newborn as a Surgical Patient. In: *Paediatric Surgery* . James A. O'Neill, Marc I. Rowe, Eric W. Fonkalsrud, Arnol G. Coran (Eds) Mosby Year Book Inc. 1998 pp 33 - 63
7. Newton MW, Benieghbal B, Lakhoo K. Fluids and Elctrolyte Therapy in The Paediatric Surgical Patient. In: *Paediatric Surgery: A Comprehensive Test for Africa* Ameh EA, Bickler SW, Lakhoo K, Nwomeh BC, Poenaru D (Eds) Global Help Organisation 2012 pp. 23- 29
8. **Shonubi AMO**. Dissertation on Acute abdominal pain in Nigerian children; in part fulfillment of the Fellowship of the National Medical College of Nigeria in Surgery; 1986

9. Ogunseyinde AO, **Shonubi AMO** and Akingbehin NA: Intestinal Obstruction by massive Ascariasis simulating Intussusception. Nig. J. of Paediat 1987; 14 : 31-34
10. Simpkins MM and Lowe A. Congenital abnormalities in the African newborn. Arch. Dis. Child. 1961; 36 : 404-406
11. Gupta B. Incidence of Congenital Malformations in Nigerian Children. W. Afr. Med. J. 1969; 18: 22 - 27
12. Khan AA. Congenital Malformations in African Neonates in Nairobi. J. Trop. Med. Hyg. 1965; 68: 2772-2774
13. Khan AA and Ivanor I. congenital malformations in Zambian neonates. East Afr. Med. J. 1977; 54: 631-636
14. Falade AG and **Shonubi AMO**: Pattern of Congenital alimentary tract malformation in Ibadan Nigeria. East Afr. Med. J. 1997; 74 : 385-388
15. De Caluwe D, Chertin B and Puri P. Childhood femoral hernia: a commonly misdiagnosed condition. Paediatr. Surg. Int. 2003; 19 : 608-609
16. Nayeem N. Femoral hernia in children. Brit. J. Clin. Pract. 1990; 44 : 383
17. Fosburg RG and Mahin HP. Femoral hernia in children. Amer. J. Surg. 1965; 109 : 470-475
18. Ollero Fresno JC, Alvarez M, Sanchez M et al. Femoral hernia in childhood : review of 38 caes. Paediatr. Surg. Inter. 1997 ; 12 : 520-521
19. Mc Vay CB and Savage LE. Aetiology of femoral hernia. Ann. Surg. 1961; 154 : 25-32 Ogunseyinde AO, **Shonubi AMO** and Akingbehin NA: Intestinal Obstruction by massive Ascariasis simulating Intussusception. Nig. J. of Paediat 1987; 14 : 31-34
20. **Shonubi AMO**, Musa AA, Salami BA, Musa AA, Sotimehin SA and Sule GA. Femoral Hernias in children at the Olabisi Onabanjo University Teaching Hospital, Sagamu, Nigeria: A 15- year review. East. Afr. Med. J. 2004 ; 81 : 447-449
21. Marshall DG. Femoral hernias in children. J. Paediatr. Surg. 1983; 18 : 160-162
22. Duhamel B. From the mermaid to anal imperforation: the syndrome of caudal regression. Arch. Dis. Child. 1961; 36 : 152-155
23. **Shonubi AMO**, Salami BA, Falade AG and Ejiwunmi Sirenomelia in one of Nigerian Monochorionic Twins. Afr. J. Med. med. Sci. 2002; 31: 377-379
24. **Shonubi AMO**, Akiode O, Salami BA, Musa AA, Sotimehin SA and Sule GA. Asymmetrical tetraphocomelia: A case report and review of the Literature. Ann Saudi. Med. 2006: 26: 318-320
25. Match M, Arya NC. Sacrococcygeal Teratoma: Two case reports and a review. Obstetrics and Gynaecological Communications. 2000; 2: 34-36

26. Flake AW, Harrison MR, Adzick NS, et al. Foetal Sacro-coccygeal teratoma. *J. Paediatr. Surg.* 1986; 21 : 563-566
27. **Shonubi AMO**, Musa AA, Akiode O, Salami BA, Kingu HJC and Adnan SM. Mature Sacro-coccygeal teratoma : A case report and literature review. *West Afr. Med. J.* 2004; 23 : 176-179
28. Raine PAM and Azmy A. A Review of Thermal Injuries in Young Children. *J. Paediatr. Surg.* 1983; 18 : 21-26
29. Durtschi MB, Kohler TR, Finley A and Heimbach DM. Burn injury in infants and young children. *Surg. Gynaecol. Obstet.* 1980; 150 : 651-656
30. Morrow SE, Smith DL, Cairns BA, Howell PD, Nakayama DK, and Peterson HD. Aetiology and Outcome of paediatric burns. *J. Paediatr. Surg.* 1996; 31 : 329-333
31. Linares HA. A report of 115 consecutive autopsies in burned children 1966-1980. *Burns* 1982; 8 : 263-270
32. **Shonubi AMO**, Akiode O, Musa AA, Salami BA, Kingu HA and Mohaleroe P. Thermal injuries in under 4 year old children : The Lesotho experience. *Afri. J. Med. med. Sci.* 2005; 34 : 77-80
33. Nwokoro CC, Fatungase OM, Salami BA, Tade AO, **Shonubi AMO**, Ayoade BA. Aetiology of Abdominal Injuries in Children at Olabisi Onabanjo University Teaching Hospital, Sagamu: A Preliminary Study. *Nig. Med. Pract.* 2014; 66: 7-9

34. Victims of sexual abuse in Nigeria. Project Alert [www.projectalert.org/thenews.html](http://www.projectalert.org/thenews.html)
35. **Shonubi AMO**, Odusan O, Oloruntoba DO, Agbahowe SA and Siddique MA "Health for All" in a least developed country. *J. Natl. Med. Assoc.* 2005; 97 : 1020-1026

## BIODATA OF PROFESSOR ADERIBIGBE MODUPE OLUSOLA SHONUBI

Aderibigbe Modupe Olusola Shonubi was born on Monday, 19 March, 1951 in Ebute-Metta, Lagos to Prince Edmundson Mosunmola Olabinjo Shonubi and Princess Victoria Segilola Shonubi of the Lufaya-Oke and Liyangu-Lubajo-Abejoye Royal families respectively; lineage to the throne of Akarigbo of Remoland.

Olusola had his primary education at the Wesley School, Soyindo, Sagamu and Yaba Methodist School, Lagos. He attended the famous Molusi College, Ijebu Igbo, Ogun State from 1964 to 1968 and Igbobi College, Yaba from 1969 to 1970 for his secondary and higher school education respectively. He was admitted, in 1971, to the University of Ibadan and graduated in 1976 with MB.BS degree. He had his one-year rotatory housemanship at the University College Hospital (UCH) in 1976/77 before undertaking the one-year compulsory National Youth Service Corp in Ogidi, Idemili Local Government Area, Old Anambra State in 1977/78.

Between 1978 and 1986, he had his residency training at the University College Hospital (UCH), Ibadan. Within the period he had a one-year, 1983/84, overseas clinical attachment at the Alder Hey Children's Hospital, Liverpool, Great Britain and obtained a Certificate in Paediatric Surgery from the University of Liverpool. He became a Fellow, National Post-Graduate Medical College in Paediatric Surgery in 1986; Fellow, West African College of Surgeons in 1990, and Fellow, International College of Surgeons in 2005.

Olusola has over thirty-eight years of very rich professional, academic and administrative experience. He has worked at the University College Hospital, Ibadan; the Idemili Local Government, Old Anambra State; Yola Specialist Hospital, Adamawa State (formerly Gongola State); Alder Hey Children

Hospital, Liverpool, Great Britain; Queen Elizabeth II Hospital, Maseru, Kingdom of Lesotho and, Olabisi Onabanjo University Teaching Hospital, Ogun State.

Olusola has creditably held several administrative positions of responsibilities which include Sub-Dean, Faculty of Clinical Sciences; Member, Faculty Board of Clinical Sciences; Member, Faculty Board of Annual appraisal and promotion of Academic Staff; Examination Officer, Faculty of Clinical Sciences; Chairman, Students' Welfare Committee; and Head, Department of Surgery, Olabisi Onabanjo University, Ago-Iwoye. He climaxed the numerous appointments as the Chief Medical Director and Member of the Board of Management, Olabisi Onabanjo University Teaching Hospital, Sagamu from June 2006 to February 2012. He is a Member of Senate Olabisi Onabanjo University, Ago-Iwoye.

Olusola won the Western State of Nigeria scholarship for post graduate study in surgery. He was also a beneficiary of the International Federation of Surgical Colleges Travel Grant and Ethicon Travel Grant of the West African College of Surgeons. He belongs to several revered learned National and International organizations.

He is a member of Nigerian Medical Association; Member, Paediatric Association of Nigeria; and Member, Association of Paediatric Surgeons of Nigeria; Fellow, National Postgraduate Medical College of Nigeria; Fellow, West African College of Surgeons; Fellow, International College of Surgeons; Fellow, Nigerian Institute of Management.

Professor Shonubi has several publications and honours in peer-reviewed national and international journals; including citation in books. He has attended numerous conferences and training workshops locally and internationally with conference abstracts



and paper presentations. His research interests are focused on congenital malformations, abdominal pain in childhood and infections in new born babies particularly HIV/AIDS. He is a reviewer for several learned journals nationally and internationally. He has been external examiner in surgery to several universities; University of Ibadan, Ibadan; University of Ilorin, Ilorin; University of Lagos, Akoka, Ladoke Akintola University, Ogbomosho; Lagos State University, Ikeja, and Ebonyi State University, Abakaliki. He is also an examiner at the National Postgraduate Medical College, Nigeria.

Professor Shonubi is a Rotarian, a Paul Harris Fellow and the incoming President, Rotary Club of Sagamu Central. He is actively engaged in the Nigerian Institute of Management. He is the immediate past Chairman, Remo Chapter and Chairman, Ogun State branch of the Nigerian Institute of Management.

Olusola is widely travelled; he has visited four of the five continents in the world. He is married to Titilola Olubunmi Abeniade Shonubi, certified accountant, the daughter of late High Chief SAO of Ikere Ekiti. Their marriage is blessed with three wonderful children and lovely grandchildren