BOWEN UNIVERSITY

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16th INAUGURAL LECTURE

TOPIC:

"THE HAND THAT CARES":
THE SOJOURN OF A PRIMARY CARE PHYSICIAN IN A TERTIARY MISSION INSTITUTION.

by

PROF. A.D. OLAOLORUN
MBBS, MPH, MD, FMCGP
Chief Medical Director, BUTH
Professor of

RED HALL
COLLEGE OF HEALTH SCIENCES,
BOWEN UNIVERSITY, IWO

Date:

Time: 2:00pm

BOWEN UNIVERSITY, IWO

INAUGURAL LECTURE

PROF. A.D. OLAOLORUN
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On Tuesday, September 2024

"The Hand that Cares": The Sojourn of a Primary Care Physician in a Tertiary Mission Institution.

The Vice Chancellor
The Deputy Vice Chancellor
The Registrar
The Bursar
The University Librarian
The University Chaplain
The Provost, College of Health Sciences
Provost of other Colleges in the University
Professors and other members of Senate
The Dean, Faculty of Clinical Sciences
All other academic colleagues
My Lords, Spiritual and Temporal
Esteemed invited guests, friends and relatives
Great students of Bowen University
Gentlemen of the print and electronic media
Distinguished Ladies and Gentlemen

PREAMBLE:

Mr. Vice Chancellor sir, it is an honor and a privilege for me to be able to give this inaugural lecture today to the entirety of the esteemed members of our university. I glorify the Lord God Almighty, the creator and sustainer of all life, who set this day apart from the dawn of time
(Jeremiah 1.5 NIV) and has finally brought it to be. This is the inaugural lecture for the University, the third from the College of Health Sciences, the second from the Faculty of Clinical Sciences, and the first for the department of Family Medicine.

Mr. Vice Chancellor –I have come today with- "The Hand that Cares" and I am pleased to say that God has used this "Instrument" to see me through my sojourn as a Primary Care Physician.

Ecclesiastes 9 vs 10a says "Whatever your hand finds to do, do it with all your might" (NIV). The hand as a very important part of

the body can be used in touching, grasping, feeling, holding, manipulating, caressing and a lot more. I state authoritatively that if the hand is used positively it can bring healing to a broken body. Mr. Vice Chancellor, today, I am before you to give you an account of the works of my hands so far.

BAPTIST MEDICAL CENTRE, OGBOMOSO

This journey started at the erstwhile Baptist Medical Centre, Ogbomoso in 1983, where I arrived for NYSC after having completed the obligatory rotating housemanship in Zaria. I was young, fresh, green and ready to start learning how to be a physician. Baptist Medical Centre was a 180bed hospital at the time which operated as a general hospital or secondary care hospital offering care in the main areas of medicine of Internal Medicine, Surgery, Pediatrics and Obstetrics & Gynecology. My initial postings were to the departments of medicine and pediatrics but once I started training officially in Family Medicine, I began to rotate through all the units. At this point, I must mention for tribute and honor to his memory, the late Dr. William R. Norman, a missionary, very Senior Consultant Physician and one-time Medical Superintendent of the hospital who extended grace to me when I badly needed it, and ensured that I stayed long enough at the hospital for God to begin to do His work officially. We called him "Baba Norman" and he was that and more to us, teaching us, nurturing us, and protecting us. His memory is sweet and is a blessing (Proverbs 10:7 KJV). Others who extended themselves greatly to ensure that I stayed, trained and grew to become who I am today include my mentor, trainer, friend, sometime fatherfigure, Prof. John LTarpley, an emeritus professor of Surgery and Anesthesia, Vanderbilt University, Nashville, TN, USA (who continues to be active in Surgery training in diverse countries in Africa, even post-retirement [Psalms 92:14-15]) and the dearly beloved, funny and highly missed late Prof. Donald E. Meier, an emeritus professor of Pediatric Surgery, Texas Tech University Health Science Center, El Paso, TX, USA. I would not be here speaking to you but for these three giants, two of whom

have gone on to their eternal reward. I am immensely grateful to have been permitted to benefit from their love and to be a small part of their lives. After spending about three years as a medical officer, I commenced training in Family Medicine at the hospital.

Fig. 1: *Dr. & Mrs. William Norman*

Fig.2: *Prof. & Mrs. D. Meier*

Fig.3: *Prof. & Mrs. J. Tarpley*

FAMILY MEDICINE

The Vice Chancellor sir, please permit me to introduce my discipline, Family Medicine to the audience. Family Medicine can be said to be a "young" medical discipline especially in Nigeria as official structured training was introduced in Nigeria only in 1981 even though the World Health Organization (WHO) had been pushing for the exposure of undergraduates to the concepts of Family Medicine since 1960[1].

Family Medicine is a discipline that treats patients holistically based on certain overarching principles rather than merely on the treatment of certain body parts or the application of treatment using certain skills. These principles[2] include:

1. The provision of continuing and comprehensive health care for all members of any family regardless of their age, sex, or health condition in the context of the family and community (from the cradle to the grave.)
2. The practitioner assumes responsibility for the patients and their families from the point of first contact moving forwards as needed for chronic health problems. In other words, there is not an end to the relationship between the practitioner and the family.
3. The practitioner is trained in the early recognition, management and prevention of common health problems
4. The practitioner coordinates all the health problems of patients and their families in a cost-effective way.

Family physicians are members of the guild of primary care physicians, other members of which are community-based pediatricians, general internists, and geriatricians. These are said to be generalists who provide early and frontline care for conditions that patients present with, which are undifferentiated at the point of presentation. Despite the generalist nature of Family Medicine however, it has over the years grown to develop subspecialties of its own some of which are geriatric medicine, sports medicine, adolescent medicine, hospice and palliative medicine, pain medicine, sleep medicine, addiction medicine and

chronic care management. In the training offered to Family Physicians in Nigeria, the first two years plus offer opportunities to rotate through the main medical disciplines of Internal Medicine, Surgery, Obstetrics & Gynecology and Pediatrics, subspecialties such as Psychiatry, Ophthalmology, Ear, Nose and Throat Surgery, and Community Medicine. In the subsequent two years, the resident has a chance to go outside their training institution twice; firstly, to attach themselves to a private practitioner to learn the rudiments of setting up and managing a practice and then some time is spent in a rural hospital where the senior resident, with some independence is able to put into practice, what they had been learning for the previous two or more years, giving them a chance to hone their skills, diagnostic and treatment, human relations, surgical and other needed skills. The Family Physician, once qualified is thus a "value-dense" specialist, able to practice in various settings, diagnose and manage various conditions, and use various skills previously acquired to treat diverse patients of all age groups and of both sexes. Countries of various strata, particularly those of the lower and middle income countries would be getting value for money by investing in the training and recruitment of Family Physicians for their various health systems.

The Family Physician is focused on health of members of the family. The family is the smallest social unit but its effect in our lives is all encompassing. We are born into families and which family we come from, has overwhelming effect on our health across the life course. We are socialized in families, we are taught how to behave, what to eat, social habits and other fundamental things all of which affect our health. Mental health practitioners (psychiatrists, psychologists and social workers) tell us that when an individual is treated for a major mental illness such as psychosis (schizophrenia as an example), the prognosis (how well they do) depends, among other things on social support. That "social support" is really family support not only because the family is the smallest, most intimate and most committed social group that would give support, it is the most likely group that would start giving support and might

continue *ad infinitum* and unconditionally. One of the reasons for that is that the family, when supportive, ensures that the patient complies with his/her doctor's treatment recommendations. Treatment compliance of course almost always leads to a more positive treatment outcome. All other social groups, classmates, town mates, church mates *et cetera* would give up at some time in the future. It has been said that social relationships, when lacking, constitute a major health risk factor in the mode of cigarette smoking, high blood pressure, dyslipidemia, obesity and living a sedentary lifestyle[2]. The family is the surest way to ensure that we are involved in social relationships. Another way in which the family influences health is through shared characteristics: we have the same parents or grandparents and inherit similar biologic and genetic tendencies, including those that would predispose us to certain illnesses. We also influence each other as family members; we consume similar diet, similar amounts of salt, calories, fat and cholesterol. Health risks would run similarly among family members.

ROLE OF THE FAMILY PHYSICIAN IN PREVENTIVE HEALTHCARE

There is a significant overlap between the discipline of Family Medicine and the sister discipline of Community Medicine or Community Health. This is why in some parts of the world, in their big University Teaching Hospitals, they run a combined department of Family and Community

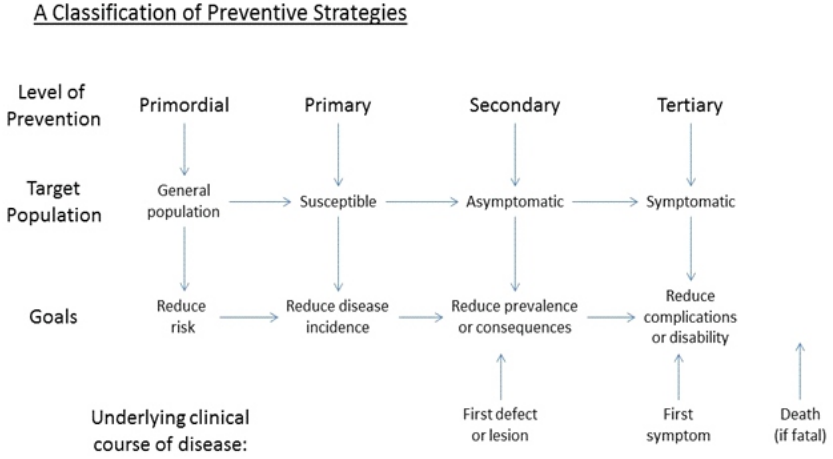
Medicine. Even though our Community Health colleagues' main focus is in the prevention of disease and health promotion, really all physicians must adopt and incorporate the principles in their thinking and practice.

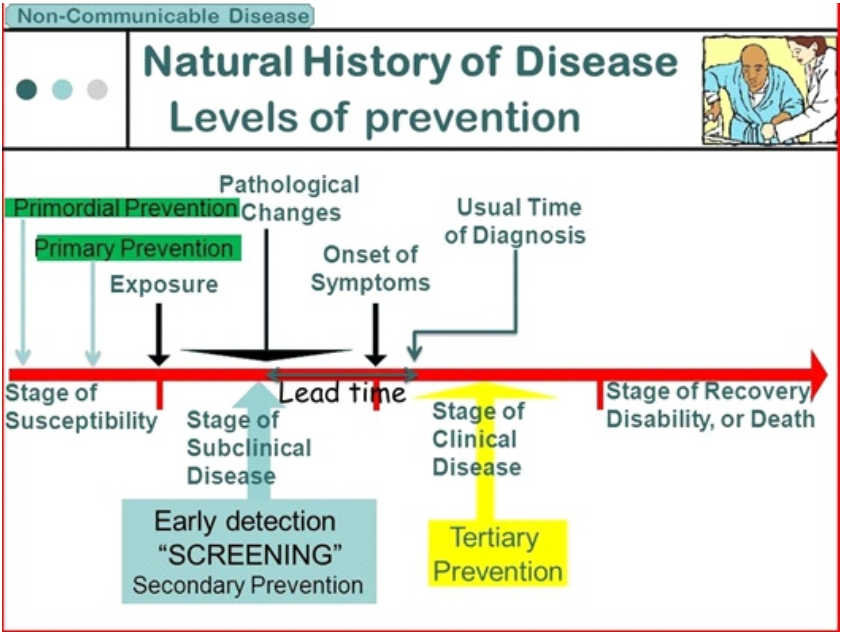
There is an increasing recognition that prevention is important not only from the population perspective (Public health prevention activities) but also from the individual (clinical care) perspective. The Family Physician is the bedrock of the provision of the clinical preventive healthcare to individuals and families. The goal of preventive healthcare is health maintenance, health promotion,

and disease prevention[3]. This is achieved through the reduction of risk factors for diseases, the early diagnosis of illnesses and when they occur, the prevention of complications and limitation of disability. Prevention is then divided into five different levels or strata namely, **primordial prevention** which concerns itself with the causes and social determinants of diseases in order to discourage the development of risk factors in the first place. This requires public policy advocacy on the part of Family Physicians, for example, in order to reduce the carnage on our roads, many of the results of which I have seen in my clinical practice over the years, laws need to be made and enforced about limiting speed, regarding the age and types of vehicles permissible on our roads, seatbelts in cars and other vehicles, use of helmets for motorcyclists, and the conditions of the roads themselves. P**rimary prevention** addresses the prevention of diseases before they occur primarily through interventions such as health education, promotion of healthy diets and physical activity and secondly, specific measures such as immunizations, use of personal protective measures when necessary and use of prophylactic medications as in malaria. **Secondary prevention** is the third level and it has to do with the early detection of diseases and prompt treatment to prevent the progression of disease. A very good example of this is seen in cancer screening activities recommended according to age and gender. Worldwide, it has been estimated that in their lifetimes, one in eight men and one in eleven women will die from/of cancer[4]. It has been said that in the year 2020, there were 124,815 new cases of cancer in Nigeria and 78,899 Nigerians died from cancer[5]. These numbers are projected to go up by as much as 85% in the next 15 years[6]. The five most common types of cancer in Nigeria are breast, prostate, cervical, colorectal and non-Hodgkin's lymphoma[5]. The culture of wellness checks and health checkups must be cultivated by Nigerians if we are to improve our survival rates. As you can see, by the time this level is reached, disease has already occurred but it can be mitigated or at least prevented from becoming much worse through early detection and prompt treatment. This is followed by

tertiary prevention which has to do with rehabilitation. This helps to limit disability and restore function quickly where possible. This is pertinent for patients after strokes or heart attacks for example. Clearly disease has occurred, the patient has survived or is surviving it and needs to be rehabilitated to be fully restored to his/her health. **Quaternary prevention** is designed to protect patients from harm possibly occasioned by intervention that might be unnecessary and overzealous, and what is called over-medicalization.

Fig.4. Source: https://www.dr-hempel-network.com /digital_preventive_healthcare/themespreventive-medicine-deeper-look/#google_vignette





A major part of primary prevention is the use of vaccines for immunizations. There are infectious diseases caused by bacteria or viruses which can be prevented by getting people vaccinated.
Indeed, some of these infectious agents can and do lead to cancers. A classic example is cervical cancer, the second most common cancer among Nigerian women. This disease is caused by a long-term infection with the high risk types of human papilloma virus (HPV), especially types 16 and 18. Prior vaccination against HPV prevents cervical cancer. These diseases as a group are known as vaccine preventable diseases[7]. It is known that Nigeria is plagued by several of these vaccine preventable diseases and because these diseases are largely preventable, it is always a tragedy when anyone loses their life to these infectious diseases. One of these that has been dominant in past decades is tetanus. Tetanus is a usually deadly bacterial infection caused by a bacterium called *Clostridium tetani*. This microorganism is an obligatory anaerobic, sporeforming bacillus[8] and it is present everywhere, but especially

in the soil. It usually gains access to the human body through wounds that are dirty, have foreign body and non-viable tissue in and around them. The effects of the infection on the human body result from the effects of two toxins that the bacteria produce known as tetanus toxins (*tetanospasmin & tetanolysin)*. Tetanolysin causes tissue necrosis, death of cells, reduction of oxygenation and worsening of the illness from the proliferation of the bacteria. Tetanospasmin on the other hand is a neurotoxin. It is responsible for the clinical signs and symptoms that victims exhibit. It is produced at the wound site, binds to the nerves and it transported to the spinal cord via the axons of the nerves. At the spinal cord level, it causes unopposed and abnormal excitation of the spinal neurons by preventing the release of glycine, an inhibitory neurotransmitter. This leads to severe muscle spasms which can lead to the death of the patient via laryngospasms, and spasms of the diaphragm and other respiratory muscles.

Fig.7: *Child experiencing opistotonus as a result of severe spasms in tetanus*
Courtesy: Prof. Tarpley

This deadly disease leads to almost assured death when contracted especially as most hospitals in the lower and middle income countries of the world lack the sophistication and resources that are needed to treat such desperately ill patients. It is therefore a lot more cost-effective to prevent diseases such as these. During my residency and even after qualifying as a Consultant, we were seeing a significant number of patients with tetanus, ranging from newborns to the elderly and consequently, we decided to conduct a 5-year review of all the 60 patients that we had treated with tetanus in order to see how well they did or otherwise, and hopefully, develop better management techniques for future patients[9]. Seventy-four percent of our patients were under 30, with a mean age of 26. This disease cut them down in the prime of their lives. Mortality rate was 44% in our series and predictors of death include young age, being a farmer, a short incubation period, and high degree of severity at presentation among others. Clearly, if we had more modern equipment such as ventilators with which to treat these patients, we might have sedated them completely, intubated them and waited for the effect of the toxins that had bound to the spinal neurons to wear out. Were this to have happened, more would have survived but ultimately, the best way to reduce the prevalence of tetanus and perhaps eliminate it entirely would be to ensure universal immunization and Nigeria is currently well on the way to doing that with younger members of our population. Obviously none of our patients who came down with tetanus was fully immunized. A natural consequence of this study was that in our hospital, as a practice we vaccinated everybody who came in contact with us, at every clinic contact, as long as they could not tell us for sure that they had completed their vaccinations for tetanus. This was a 0.5ml shot of tetanus toxoid which works by creating an immune response and producing antibodies that fight the bacteria. If ever this fully immunized individual comes across this bacterium, the antibodies are produced and ensure that the person is protected from ever coming down with the disease. Once we commenced the course in any patient, we ensured that they received the 5 complete shots

(three regular shots four weeks apart, followed by two booster shots after 18 months and 10 years). Current WHO recommendations for a complete tetanus immunization to ensure lifelong protection is for an individual to receive 6 doses: 3 regular doses, starting as early as possible in life, perhaps at age of 6 weeks, subsequent doses given with an interval of 4 weeks and 3 booster doses, one during the second year of life, followed by one at 4-7 years of age and finally at between 9-15 years of age, with about 4 years between the booster doses[10]. It should be understood that in the process of caring for these patients acutely, we routinely would give them anti-tetanus serum (ATS) which is passive immunity containing antibodies which wear out shortly and also do nothing to the already produced and bound toxin that is responsible for the symptoms of the infection. A better antitoxin to give would be the human antitetanus immunoglobulin (TIG) as it is much less antigenic than the ATS, but of course that was unavailable at the time. The use of either is however known to be temporary, passive immunity. They would bind circulating toxins but probably do nothing for toxin that might be already bound to the nervous system and definitely would be worn off probably in a few weeks. Unfortunately, there is evidence[11] that in Nigeria, only about 52% of children between 12 and 23 months have received the full immunization according to the schedule of routine childhood immunizations. What this means is that a significant number of people would still be susceptible to tetanus infection in the future, as these children grow up into adulthood.

Current EPI Schedule in Nigeria

Minimum Target Age of Child	Type of Vaccine	Dosage	Route of administration	Site
At birth	BCG	0.05ml	Intra dermal	Left Upper Arm
	*OPV0	2 drops	Oral	Mouth
	**Hep B birth	0.5ml	Intra muscular	Antero-lateral aspect of Right thigh
6 weeks	Pentavalent (DPT, Hep B and Hib) 1	0.5ml	Intra muscular	Antero- lateral aspect of left thigh
	Pnemococcal Conjugate Vaccine 1	0.5ml	Intra muscular	Antero- lateral aspect of Right thigh
	OPV1	2 drops	Oral	Mouth
	Rota 1	1ml	Oral	Mouth
10 weeks	Pentavalent (DPT, Hep B and Hib) 2	0.5ml	Intra muscular	Antero-lateral aspect of left thigh
	Pnemococcal Conjugate Vaccine 2	0.5ml	Intra muscular	Antero- lateral aspect of Right thigh
	OPV2	2 drops	Oral	Mouth
	Rota 2	1ml	Oral	Mouth
14 weeks	Pentavalent 3 (DPT, Hep B and Hib)	0.5ml	Intramuscular	Antero-lateral aspect of left thigh
	Pnemococcal Conjugate Vaccine 3	0.5ml	intra muscular	Antero- lateral aspect of Right thigh
	OPV3	2 drops	Oral	Mouth
	IPV	0.5ml	Intramuscular	Antero- lateral aspect of Right thigh (2.5cm apart from PCV)
6 months	Vitamin A 1st dose	100,000 IU	Oral	Mouth
9months	Measles 1st dose	0.5ml	Subcutaneous	Left upper arm
	Yellow Fever	0.5ml	Subcutaneous	Right upper arm
	Meningitis Vaccine	0.5ml	Intramuscular	Antero- lateral aspect of Left thigh
15 months	Vitamin A 2nd dose	200,000 IU	Oral	Mouth
	Measles 2 dose (MCV2)	0.5ml	Subcutaneous	Left upper arm

Fig. 8: Source: https://www.publichealth.com.ng/wp-content/uploads/2020/06/Immunizationschedule-in-nigeria-1.jpg

Another work that we did that exemplifies the importance of preventive healthcare in our practice relates to umbilical hernia. We observed that umbilical hernia was very common in our environment, particularly in children. We also noticed that cursorily, despite the near ubiquity of umbilical hernia in our children, very few presented for surgical repairs, and those that came, were brought by their parents, requesting repair for cosmetic reasons rather than as an emergency. Umbilical hernias are defined as a defect of the abdominal fascia right over the umbilical stump. Some children are born with this defect which tends to close over time and usually, completely by the age of four, especially in many countries with majority Caucasian population. The risk inherent in umbilical hernias is that of a loop of small bowel getting into the hernia sac and getting obstructed or incarcerated and irreducible leading to bowel gangrene, sepsis and death. However, you cannot just willy-nilly operate on these people too, as that itself is not without risks, one of which is the potential future development of small bowel obstruction from scarring (adhesive bands). It has been said that there are three "holy" cavities in the human body; the cranial, thoracic and abdominal cavities and these three cavities are or can be unforgiving if breached. Whenever a surgeon opens up one of these cavities, the patient often pays a significant price in metabolic terms and future complications can presumably occur. You should have a defensible reason to go into any of these cavities surgically. Given the large numbers of people with this condition in our environment and the fact that, unlike in the aforementioned majority Caucasian countries, the hernia appears to persist beyond the generally accepted ages of 4-5, and the extremely low numbers of complications, we wondered whether these hernias warranted surgical repairs at all. To answer this question, we carried out a study of 4,052 subjects in Ogbomoso[12]. These subjects ranged in age from 1 month to adulthood. The diameter of the fascial defect was measured as well and the length of the protrusion when one was present. Study subjects were divided into three: Group 1; 1 month to 18 years old; Group 2; older than

18 years and group 3; pregnant women attending antenatal clinic. Protrusions were present in 92% of group 1, 49% of group 2 and 90% of group 3, while fascial defect measuring at least 10mm was present in 23% of group 1, 8% of group 2 and 15% of group 3. An analysis of the results showed that umbilical hernias in children here tend to close up the age of 14 years (way beyond the generally accepted 4 to 5 years of age). A concurrent review of our records revealed that in the prior 15 years, only 11 patients underwent emergency surgical repair of umbilical hernias and there were no mortalities. These results made it clear that prophylactic/preventive surgical repair of umbilical hernias in Nigeria is probably not needed or justifiable as the complications are extremely low, mortality is zero, and the defect appears to continue to close into the teenage years. The importance of this result can be seen from my previous reference to the fact that we must carefully and justifiably enter any and all of the three human cavities only if needed and necessary. Were our results to be different, our recommendations would be different.

Some of the conditions that I treated about three decades ago reflect serious and life-threatening complications that came about from the lack of simple and basic amenities such as potable water and basic hand-washing hygiene. The Family Physician and indeed all physicians must become advocates for the provision of basic amenities, the absence of which can cause disease to proliferate and kill people. We must combine primordial and primary preventive healthcare in tackling these issues. An example is gastric and duodenal ulcers. We were taught and used to think that these diseases of the proximal gastrointestinal tract came about from an imbalance between the natural acidity of the stomach (pH of 1.5 - 2) and the natural protective mechanisms of the mucous layer overlying the mucosa (innermost layer of the gastrointestinal tract) and the relative natural resistance to acidity especially of the duodenal mucosa because of the secretion of bile which is relatively alkaline thus diluting the gastric juice and increasing the pH to safer levels (pH of 7-8). We also blamed stress and the

consumption of spicy food. On the basis of this understanding of the pathophysiology of acid-peptic disease, these conditions were managed with drugs and dietary manipulations. Because of the inadequacy and possibly wrong treatment, many people developed complications.

Robert Koch, a microbiologist in 1884 postulated that four criteria or conditions must be fulfilled to establish a causative link between a micro-organism and a disease. They are known as Koch's postulates and they are as follows:

1. The microorganisms must be found in abundance in sufferers of the disease but must be absent in non-sufferers.
2. The microorganism must be isolated from a sufferer and grown in pure culture
3. The cultured microorganism should cause disease when introduced into a healthy individual
4. The microorganism must be re-isolated from the newly diseased individual and must be confirmed as being identical to the original causative agent.

In 1984, the Australian physician and Nobel laureate, Barry James Marshall, working with Robin Warren at the University of Western Australia showed that the bacterium *Helicobacter pylori* was a causative organism for gastritis. Today, we know that even gastric cancer has a causative link with this micro-organism. It is an interesting story because Barry Marshall used himself as a "guinea pig" to prove causation between this organism and gastritis. In fulfilment of the well-known Koch's postulate, he underwent a baseline endoscopy which revealed a normal stomach lining, subsequently drank a broth containing the organisms, developed symptoms of nausea, halitosis and vomiting within a week and on day 8, underwent the second endoscopy which revealed the presence of massive inflammation of his gastric mucosa, he got a biopsy done from which the organism was cultured. He took antibiotic treatment and on day 14, a third endoscopy was done. On the basis of the work of Barry Marshall and his colleague, we now know for sure that gastric and duodenal ulcers are infectious diseases and evidence continues to mount that even gastric

cancers might be causally related to *Helicobacter pylori* as well. It is actually considered as a class 1 carcinogen by some. (As a reminder, there are 5 classes of carcinogens as follows:

Class 1 carcinogens – carcinogenic to humans

Class 2A carcinogens – probably carcinogenic to humans

Class 2B carcinogens – possibly carcinogenic to humans

Class 3 carcinogens – not classifiable as to their carcinogenicity to humans

Class 4 carcinogens – probably not carcinogenic to humans

Risk factors for this group of diseases is poor hygiene and the lack of potable water as simple as those might appear to be, and hopefully can be improved through the aforementioned primordial as well as primary preventive healthcare (advocacy for public health policies, and health education). The complications of chronic peptic ulcer disease include hemorrhage, obstruction of the gastric outlet due to scarring/stricture, duodenal or gastric perforation and treatment intractability. For us in Ogbomoso, the most commonly seen complication of the four was gastric outlet obstruction. Gastric outlet obstruction left untreated leads to slow starvation and a slow and painful death. We treated 43 patients with this condition over an eight-year period, six of which were due to cancer of the stomach[13]. We used a novel technique at the time called "highly selective vagotomy" and drainage which had been designed to minimize gastric atony, a very common and troublesome complication of both the disease and its surgical treatment, especially common when the complete vagus nerve was transected. Despite this, a few of them experienced both early and late complications. There were no deaths. Having to surgically treat the complications of a disease that is preventable by the provision of clean drinking water and the adoption of simple measures like frequent handwashing seems like a gross waste of resources by a society that can ill-afford it. It would be much cheaper and safer to prevent the disease in the first place.

THE ROLE OF THE FAMILY PHYSICIAN IN CLINICAL CARE

PRIMARY CARE SURGERY

Over the past two decades, there has been an increasing awareness of the importance of surgery and anesthesia as elements of global health or some even say primary healthcare. This has led to the formation of the multinational and multispecialty group, the Alliance for Surgery and Anesthesia Presence (ASAP) in 2008[14]. This arose when people started becoming aware of the inadequacies of the personnel and infrastructure to tackle emergency surgical and obstetric conditions particularly in the low and middle income countries of the world. Prior to the setting up of the ASAP, the World Health Organization (WHO) established the Global Initiative for Emergency and Essential Surgical Care (GIEESC) in 2005[15]. This group consisted of health professionals, public health experts and health authorities, the aim of which was to reduce the disability and death from conditions amenable to surgical treatment, particularly in poorer parts of the world. Another aim of this initiative is to ensure that Emergency and Essential Surgical Care in integrated into the Universal Health Coverage (UHC). Universal health coverage means that everyone has access to any and all health services that they might need, when and where they need them and without financial hardship. One of the constituent member organizations of the ASAP is the G4 Alliance. The G4 alliance is the global alliance for surgical, obstetric, trauma and anesthesia care. Their purpose for being is to increase awareness, shape policies and mobilize resources to improve access to emergency and essential surgical, obstetric, trauma and anesthesia care. In the early period of my career as a family physician, the G4 alliance goals, ASAP goals and the WHO-inspired GIEESC's goals were goals we adopted for ourselves as well. This was especially important regarding surgical and obstetrical emergencies. When patients present to the hospital with a surgical emergency, an

example being ruptured appendix or a perforated small intestine due to complicated typhoid infection, much needs to be done to salvage that patient. The Nigerian patient has usually been receiving some form of care, and has lost time. They would be septic and need fluid resuscitation and close monitoring of the vital signs. When they come in and are hypovolemic (low blood volume and pressure) they present a very high anesthetic risk and are not ready for the surgical operation which they so desperately need. That operation is designed to deal with the source of sepsis, and place them on the path to survival and healing. Usually, the patient has about 4 hours or less for fluid resuscitation to make them safe for anesthesia and it is a race for time because the longer they remain in the septic state with continuing and progressive contamination of the abdominal cavity with faeces, the more likely that they would not survive. The obstetric emergencies would usually be either emergency Caesarean section or emergency laparotomy for ruptured ectopic pregnancy, for both of which care needs to be given in a timely fashion to save the patients' lives. In the midst of all these we ensured that pre-registration house officers and resident doctors were exposed to the principles of managing these patients pre- and post-operatively, and in addition, we ensured that they acquired the surgical skills that they would need to become competent in the total management of patients with these conditions. It was always a hands-on experience for these younger doctors. I consider this, one of my major contributions to medical education at the postgraduate level, quite apart from my supervision of part II residents' dissertations as part of the requirements toward their becoming Consultant Physicians after the acquisition of their fellowship qualifications.

Fig.10: *Courtesy: Prof. Tarpley*

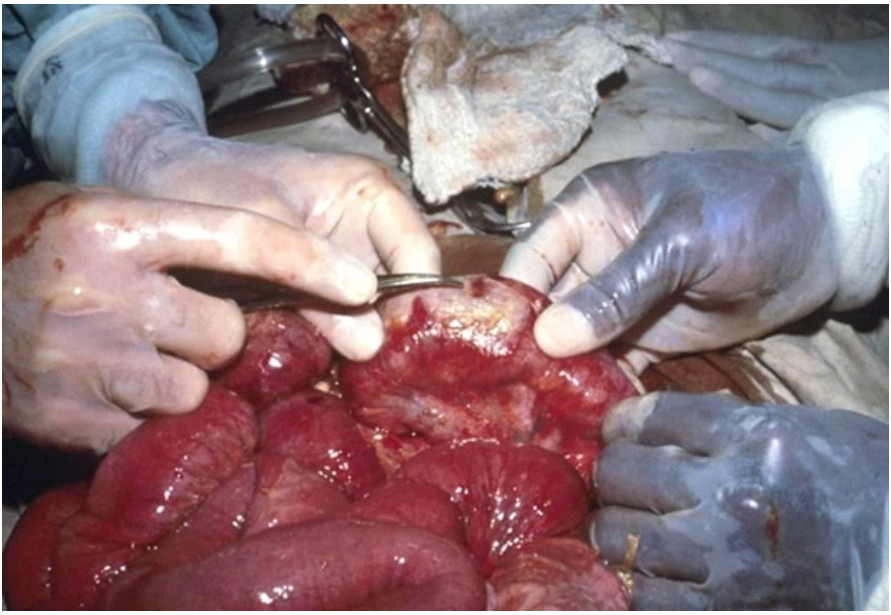


Fig.11: *Typhoid perforation of the small intestine antimesenteric border. Courtesy: Prof. Meier*

ANESTHESIA

As is obvious, surgeries cannot be performed without anesthesia, otherwise it becomes torture. Anesthesia itself is potentially dangerous to administer by an untrained individual and certainly without due diligence. This is because of the profound effect of the anesthetics on the cardiovascular and respiratory systems of the body principally, but also on the central nervous systems such as vasodilation, depression of the respiratory drive leading to depression in respiration, potential for carbon dioxide narcosis from hypercarbia, hypoxia, and hypotension. Because of these, it is imperative to have trained people giving general anesthesia. Anesthesia can be divided into three, namely, local anesthesia, regional anesthesia (spinal anesthesia, nerve blocks & Bier blocks) and general anesthesia, each with advantages and disadvantages. On the whole, local anesthesia is the safest of the three because of

the minimal effect that it tends to have on the body's systems as outlined above. The WHO recommends that safety checks be performed before the induction of anesthesia to minimize related medical errors. The following steps are in the checklist[16]:

1. Is this the correct patient, has consent been obtained, is proposed site of operation correct?
2. Is the operation site marked?
3. Is the anesthesia machine and medication check complete? This follows the mnemonic ABCDE – **A**irway equipment, **B**reathing systems including oxygen and other inhalational agents, su**C**tion, **D**rugs and devices, **E**mergency medications, equipment and assistance
4. Is a pulse oximeter connected to the patient and is it functioning?
5. Does the patient have a known allergy?
6. Does the patient have an aspiration risk due to a potentially difficult airway?
7. Is the operation likely to lead to the loss of greater than 500ml of blood?

Because of the foregoing, in my early days, we had anesthetists come from the USA yearly to train and certify and retrain our nurses who were interested in becoming nurseanesthetists. I need to pay tribute to the late Dr. Lonnie Funderburg, Dr. Robert Warriner and Agnes Brooker, CRNA. These people came repeatedly to Ogbomoso to train and equip the institution for safe anesthesia. They introduced new techniques such as the use of air compressors and oxygen concentrators which were used to vaporize and carry the halothane and other gases, thus saving us hundreds of thousands of naira and the logistical nightmare involved in purchasing oxygen from Lagos at that point in time. The oxygen concentrator provided oxygen for enrichment of the gases going into the lungs, saving us from buying it in cylinders.

The difficulties encountered in putting adult patients to sleep are multiplied when the patient is a child. Ketamine is a tranquilizer that is used extensively in veterinary practice but is assumed to be

safe, cheap, and effective and is known to be widely available. We therefore decided to prospectively investigate its efficacy and safety objectively. This study was of 131 children under the age of 16 and who were undergoing elective operations[17]. Thoracotomy, laparotomy and craniotomy were excluded. We measured and observed for adequacy of anesthesia, serial arterial hemoglobin saturation (SpO_2), pulse rate, amount of ketamine used and postoperative complications. The SpO_2 dropped significantly in 40 children (19%) and 33 (85%) of them responded to airway manipulation, with only 7 requiring face mask O_2. None needed intubation, and apart from one other child with transient laryngospasm, there were no other complications and no deaths. We proved that ketamine is a safe anesthetic for use in children. The significance of this study and its findings is that there are vast areas in Nigeria were emergency surgeries would be needed to save lives, especially lives of children and the anesthesia facilities are rudimentary at best. In such situations, ketamine would prove to be a safe and effective anesthetic to enable the needed operation to be done to save the life or lives.

Fig.12: *Dr. Lonnie Funderburg and his anesthesia colleagues*

Fig.13: *Oxygen concentrator and an air compressor*

Fig.14: *Prof.Meier and anesthetists with an air compressor*

Fig.15: *A baby awaiting cleft lip repair with a pulse oximeter on her toe*

TRAUMA

Traumatic injuries were seen frequently in my practice in decades past. One of the reasons for this is the particular location of Ogbomoso on what is called a "Trunk A" road. The Federal Ministry of Works has designated some roads as being "Trunk A" roads. These are roads that connect economic and political centers within the country. They are also very busy roads, often in significant states of disrepair, and traveled by reckless drivers. The net result is a fairly steady flow of road traffic crash victims into our hospital with various injuries; fractured long bones, head injuries, ruptured internal
organs such as the spleen and the liver, fracture of the spine and spinal cord injuries, pelvis fractures and others. Other trauma that we saw occurred inside of town, either from an accidental placing of a finger or the whole hand into a cassava grinding machine, or fall off a motor cycle, often without the use of a protective helmet, or fall off a tree in nearby villages and farms. During the dry season, bush burning, often done to drive out rodents to be killed and eaten, sometimes gets out of hand, destroying houses and burning people. The occasional child was brought in with scald injuries usually involving their chest and abdomen areas, sustained from tipping over boiling water or a stove. Several studies were carried out during this period, to document the epidemiology of these injuries and their sequelae. Family physicians and others who take care of trauma patients must be engaged in both primordial preventive healthcare where they try to influence public health policy as relates to roads, transportation, drivers and motorcycle riders, as well as in tertiary preventive care where they actively rehabilitate their patients after treatment to ensure the best possible outcome and prevent or mitigate disability.

Fig.16: No seatbelts, no strappings!

Fig.16: Dangerous riding!

Fig.17: Easily impaled if in a crash

Fig.18:
Subluxation of C2 vertebral bone on C3 vertebral bone after a road traffic crash Courtesy: Prof. Tarpley

It is generally known that the causes of road traffic crashes can be grouped into three: human factors, mechanical/vehicular factors and environmental factors. The human being in control of the vehicle or motorcycle has to be trained, competent and safe, and be in complete control of his/her faculties when operating the vehicle. Unsafe driving habits and drunk driving are contributors to road crashes. Lasebikan[18] in his study of 422 drivers established the lifetime alcohol use of 91.5%, current use of 76.8%, lifetime prevalence of driving under the influence of alcohol/drug (DUI) of 51%. We on our own studied 280 drivers and motorcycle riders who presented to our accident and emergency department for any reason [19]. We found out that 38.9% of them consumed alcohol and the motor park was the most common place of the consumption of alcohol. The reason they gave for drinking was for the reduction of stress. We also carried out another study[20] in which 300 subjects were recruited. These were all road traffic crash victims. Of the 300, 124 were drivers or riders. All of them were tested for alcohol in their breath with a breathalyzer. The results were that 44% of the 300 traffic crash victims had positive alcohol breath test results. But of the drivers alone, the percentage was 73.4%. None of these drivers or riders had been tested for alcohol by the police or the Federal Road Safety Corps. So, it is fair to conclude that many of the road crashes, the consequences of which we deal, with are attributable to drinking and driving or riding motorcycles. These crash victims are often multiply injured (polytrauma) with injuries of the head, chest, solid organs of the abdomen, spine and long bones. The most devastating and usually irreversible injuries are those of the spine leading to spinal cord injuries and either paraplegia, the permanent loss of the use of the lower limbs or even quadriplegia, the paralysis of everything from the neck downwards. Head injuries are also often very serious and many times lead to death if very severe. The limb injuries are generally more amenable to treatment. We looked at the pattern of limb injuries among those of them who were motorcycle road traffic crash victims in a cross-sectional hospital-based study of 156 subjects, 76% of

which were males, unsurprisingly. The most commonly fractured limb bones were the tibia, the radius and the ulna in that order of frequency. These fractures are treatable without having to hospitalize the patient but when it is the femur or pelvis, the victims usually need to be hospitalized, no matter how briefly. These days, the orthopedists have adopted the practice of operating on everyone and getting them out of bed as soon as possible, and they usually have a superior outcome with this approach. It is however more personnel intensive and more expensive. In the event that there is no trained orthopedist, that might not be possible and the age old techniques of reducing the fracture and holding it in traction like we used to do might need to be employed in the treatment of these people.

Fig.19: *Non-operative treatment of femoral and humeral fractures*

OTHER TRAUMATIC INJURIES

One of the most destructive injuries that we saw fairly frequently was the cassava grinding machine injury to the hand. It has been discovered that the area that controls the hands and mouth are much larger than other areas in the brain because of the amount of brain that is needed for fine movements that the hands and mouths need to make in the course of their functions. The hand is extremely sensitive to injuries and infections and it responds to such assault by the formation of scar tissue and that is the absolute worst response because it freezes up and loses function. For the purposes of this discussion, the hand is the area between the wrists and the tips of the fingers. It is a "high value real estate". Because it is not customary, and because of a lack of knowledge and certainly enforcement, most people who grind pepper, tomatoes and especially cassava do not use any personal protective equipment and sometimes, inadvertently, they insert their hands, usually the right hand into these machines and usually the machines expectedly chew up the hands. These injuries are fairly common in Nigeria[21,22,23].

Fig.20: *Grinding machine injury to the Right Hand before operation (Courtesy of Prof. Tarpley)* These are usually severe injuries that threaten the loss of the hand if not properly and aggressively managed. The principle of acute care of these injuries are:

1. Stop bleeding as soon, and as practicable as possible
2. Wash the wounds copiously with clean water to remove all foreign body, sand, cassava and all non-viable tissue. Since this is the hand, if in doubt as to viability, please save as much tissue as you can save on the first day or in the first go-around

3. Use broad-spectrum antibiotics
4. Cover with sterile dressings,
5. Admit for elevation of the hand.

The wound needs to be addressed without fail within the first 24 hours of admission for further removal of non-viable tissue and then it must be covered with a vascularized flap to provide blood supply, to prevent desiccation of the friable and poorly vascularized tissues such as tendons and nerve to reduce the chances of infection, and to reduce pain so that physical therapy can begin within a few days in order to minimize the chance of a frozen hand at the end of the process. To achieve these objectives, an abdominal flap[24] has been described and used to great success and it really is a technique that all non-plastic surgeons and all family physicians who treat these patients need to master in order to ensure superior outcome for their patients.

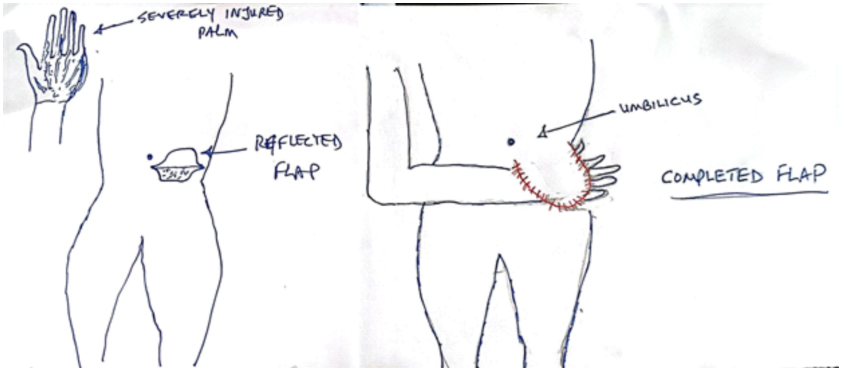


Fig.21: **ABDOMINAL FASCIOCUTANEOUS FLAP**

NON-COMMUNICABLE DISEASES

The WHO defines non-communicable diseases (NCD), also called chronic diseases as consisting of cardiovascular diseases, cancers, chronic respiratory diseases and diabetes, including kidney disease deaths caused by diabetes[25]. Worldwide, each year, it is estimated that 41 million people die from NCDs. Of these deaths, 77% occur

in the low- and middle-income countries[25]. Cardiovascular diseases are said to be responsible for about 17.9 million deaths globally annually, cancers for 9.3 million, chronic respiratory diseases, 4.1million and diabetes for 2 million deaths. The risk factors for NCDs are generally known and can be classified in various ways but the easiest is to consider them as modifiable and non-modifiable risk factors. Known risk factors for chronic diseases include inactivity or inadequate physical activity, poor and unhealthy diet, tobacco use, alcohol consumption and air pollution, all of which are modifiable. The process of ageing and genetics also contribute to these conditions and these risk factors are not modifiable. The influence of overweight and obesity on hypertension and type 2 diabetes mellitus was another research interest of mine, especially investigating some of the complications that the subjects experienced.

FAMILY HISTORY/GENETIC CONTRIBUTION TO NCDs

DIABETES MELLITUS

There is often a strong family history of diabetes in subjects who develop the condition, but it is also known that the presence of a hereditary predisposition does not always lead to an emergence of the condition. Apparently, a strong environmental trigger is needed as well. What this mean is that "genetics is not destiny" and it also means that, if the environmental factors that contribute to its emergence are known, disease occurrence can be modified positively. Obesity, a sedentary lifestyle and stress are some environmental factors that are known to contribute to the emergence of type 2 diabetes specifically. Type 1 diabetes is thought to be an autoimmune disease that leads to the destruction of pancreatic cells producing insulin[26]. Henceforth, for the purposes of this lecture, "diabetes mellitus" (DM) refers to type 2 DM.

HYPERTENSION

A positive family history of hypertension doubles one's risk of having it too. Again, like DM, merely having family members with hypertension does not mean that any individual will develop the disease. Eating healthy food, exercising, losing weight, reducing the amount of salt consumed, reducing or eliminating alcohol consumption entirely and reducing or stopping smoking are factors that interfere with the development of hypertension based solely on one's genes[27].

Hypertension is often without any symptoms, thus unless screened for, it can go undetected for a long time. Unfortunately, the fact of non-detection does not protect patients from its complications. As a cardiovascular disease, it is a risk factor for coronary artery disease, cardiac death, congestive cardiac failure, cerebrovascular disease, dementia, chronic kidney disease, retinopathy and blindness. As a disease condition, as earlier discussed it is commonly present in low and middle income countries, and Nigeria is no exception. Seeing as important as it is to know one's status as to whether the disease is present or not, we carried out a study of healthcare workers in our hospital[28]. The purpose was to find out how many hospital workers were aware of their blood pressure status. A total of 324 health workers were enrolled for the study with ages ranging from 20 to 65 years, and 59.9% were females. Mean age was 41.1 ± 10.1 years. Of the 324 subjects, 65 (20.1%) were hypertensive. Thus this was the prevalence of hypertension among this study population. Of these 65 people, 42 (64.7%) were aware of their status. That is actually a discouraging result because one would expect upwards of 90% of health workers to be aware of their blood pressure status. This particular study shows the importance of healthcare workers setting good examples by knowing their status and taking care of their health and it also highlights the importance of health education for our patients, many of whom might not know their hypertension status and what if anything to do about it. This condition is so commonly present in our environment that everyone over the age of 18 years, that is, all adult Nigerians must

know their blood pressures and what to do to keep the numbers normal.

OBESITY

The links between being overweight/obese and the conditions of hypertension and diabetes mellitus are well documented[29,30,31,32]. This relationship is so strong that some refer to this as the "Obesity, Hypertension and Diabetes Syndrome". The pathophysiology is described as follows: obesity gives rise to insulin resistance, which in turn leads to the development of risk factors such as hypertension, dyslipidemia, and type 2 diabetes. In this milieu, microvascular and macro vascular diseases occur together leading patients to have vascular diseases such as coronary heart disease, cerebrovascular disease, peripheral vascular disease, nephropathy and retinopathy[29]. Simplistically enough, treatment of this syndrome begins with physical exercise and weight reduction, both of which lead to increased insulin sensitivity and the beginning of the reversal of the pathology.

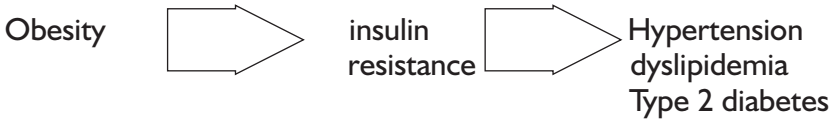


Fig. 22: Obesity-Hypertension-Diabetes Sydrome

We decided to establish the prevalence of hypertension and obesity in Ogbomoso[33], and describe the relationship between them. Four hundred subjects aged 18 years and above were recruited for this study, of which 221 were women and the mean age was 48.7±16.6 years. Waist circumference was chosen as a measure of obesity rather than Body Mass Index because it appears to be a better predictor for cardiovascular disease and it is a better predictor of death risk[34].Obesity was measured by the waist circumference and the overall prevalence was 33.8% (in men it was 8.9%, whereas in women it was 53.8%). The overall prevalence of hypertension in this group was 50.5% and in this

case, there was no significant difference between men and women (52% vs 49.3%). In the obese subset however, the prevalence of hypertension was 60%. This study revealed that obesity was commoner among women and the prevalence of hypertension among the obese was higher than the non-obese.

Five years after the first study, we decided to investigate the pattern of abdominal adiposity and what relationships it might have with prediabetes and hypertension[35]. One hundred and twentyone subjects were recruited for this study. Waist circumference was measured, as was the blood pressure and the fasting blood glucose and a 2hr post-prandial glucose level. Just like in the previous study, women had a prevalence of abdominal obesity of 54% while among males, it was 5.9%. Among those who had abdominal obesity, the prevalence of prediabetes was 16.3% while it was 8.5% among subjects who were not obese. The prevalence of hypertension among those who were obese was 55.1% while among the non-obese, it was 21.3%. Clearly, obesity was associated with both glucose intolerance and hypertension and this study proved the existence of the said syndrome. (Medically, syndrome simply means a set of symptoms or conditions that occur together and suggest the presence of a certain disease or the risk of developing the disease). Clearly, it appears like in this cohort, compared to the previous one, obesity was more prevalent.

COMPLICATIONS OF CHRONIC TYPE 2 DIABETES MELLITUS

As previously noted, patients with type 2 DM who have the syndrome of obesity, hypertension and dyslipidemia tend to develop microvascular and macrovascular disease. Whereas microvascular disease leads to complications involving the eyes and kidneys leading to retinopathy and blindness as well as chronic kidney disease, the macrovascular disease leads to coronary artery disease, angina, myocardial death, cerebrovascular disease, strokes and peripheral vascular disease or peripheral arterial disease and ultimately limb loss. The vascular disease in these diabetics is such that when arteriograms are done, the vessels

proximal to the knees appear clean and devoid of atherosclerotic changes, however, the vessels below the knees usually show severe disease and an obvious picture of interference with the blood supply to the lower extremity. We decided to investigate the prevalence of peripheral arterial disease in the diabetic subjects that we were monitoring in the clinic[36]. We recruited 219 subjects with diabetes and attending our clinics and screened them for the presence of peripheral arterial disease. Some of these patients had symptoms and others were symptom-free. An ankle-brachial index of < 0.9 was considered indicative of the presence of peripheral arterial disease. The overall prevalence was 52.5%; in the symptomatic subjects, prevalence was 28.7%, whilst in those who exhibited no symptoms, 71.3% of them had peripheral arterial disease. Clearly in the management of these patients, whether or not they have symptoms, a regular ankle-brachial index monitoring is called for as a screening tool.

Guidelines for NCD prevention activities in Family Medicine

Risk Factor	**Target Group**	**Frequency**
Smoking Status	All patients 10+ years	At every consultation
Nutrition No of fruit and vegetable portions/day Types of fat eaten	All patients	Every 2 years
Body build BMI Waist circumference, WHR	All who appear overweight	Every 2 years
Alcohol, quantity & frequency	All patients 15+ years	Every 3-4 years
Physical activity Current level and frequency	All patients	Every 2 years
Absolute cardiovascular risk assessment	All patients 45-74 years	Every 2 years at least

Table 1: *Source: Recommendations of the RACGP guidelines for preventive activities in general practice*

Guidelines for screening for NCDs in Family Medicine

Chronic condition	Target group	Screening method	Frequency
Cervical cancer	Reproductive age females	Pap smears	3 yearly
Breast Cancer	All females 18+, All females 50-70	Clinical breast exam Mammogram	Yearly Every 2 years
Bowel cancer	All patients 50+ years	Fecal occult blood Endoscopy	Every 2 years Every 5 years
Prostate cancer	Men with suggestive features	Prostate specific antigen	Subject to clinical judgement
Hypertension	All patients 15+ years	BP measurement	Every 2 years; 6-12 monthly if increased risk
Type 2 diabetes	All patients 40+ years	Fasting blood sugar	Every 3 years
Abnormal blood lipids	All patients 45+ years	Fasting blood lipids	Every 5 years; 1-2 yearly if increased risk
Overweight and obesity	All patients 15+ years	BMI determination	Every 2 years

Table 2: *Source:* Source: Adapted from the RACGP Guidelines for Preventive Activities in General Practice

S/N	Duties
1.	Exercise daily (including walks)
2.	Know blood pressure from age 30 and above (annually/six monthly)
3.	Know blood sugar from age 40 years
4	Know sickle cell genotype of all family
5	Monthly breast self-examination by females from age 17
6	Know presence of hepatitis B surface antigen in blood of family members
7	Know prostate specific antigen (PSA) blood level (men 50 years)
8	Women screen for cervical cancer (PAP) every 2-3 years
9	Know blood cholesterol by obese or overweight people from age 40 years
10	Know body mass index (BMI) weight (kg)/height^2 in meters

Table 3: *Courtesy: NCD expert committee on non-communicable diseases*

ANTENATAL CARE (ANC)

Antenatal care or prenatal care is another area of research interest for me. Maternal mortality ratio in Nigeria remains intolerably high at 1047 deaths per 100,000 live births[38]. The WHO defines maternal mortality ratio as "the number of annual female deaths from any cause related to, or aggravated by pregnancy or its management (excluding accidental or incidental causes) during pregnancy and childbirth or within 42 days of termination of pregnancy, irrespective of the duration and site of the pregnancy per hundred thousand live births"[38]. Perinatal mortality is the death of a fetus between 28 weeks of gestation and first week after delivery[39]. It is one of the metrics used to assess maternal and child health in any country. For Nigeria, the perinatal mortality rate in health facility births ranges from 60-130 per 1000 live births[39]. If we are to begin to change these highly negative figures, we must investigate the factors that are contributing to the bad statistics for Nigeria.

Antenatal or prenatal care is the care that a woman receives from skilled healthcare providers namely, midwives, nurses, physicians during the 40 weeks of pregnancy. This care is designed to monitor the progress of pregnancy, give opportunity to the healthcare provider to institute primary preventive strategies against potential complications such as anemia-in-pregnancy, diseases of the newborn such as neonatal tetanus and malaria, spine deformities of the newborn (spina bifida), and secondary preventive steps such as screening for hypertensive disorders of pregnancies, fluid retention, anemia, monitoring the growth and development of the fetus, and planning for a safe delivery. It is believed that antenatal care reduces the potential risks surrounding pregnancy and delivery and leads to a better outcome when the process is over. Pregnancy is not a disease process but it is fraught with danger particularly for women who are too young, too old, have too many births already, or women who are too short or too poor or who have pre-pregnancy illnesses. The goal of the healthcare provider is to ensure a safe delivery. Whereas we know that maternal mortality is driven by factors such as severe bleeding during and

after delivery, postpartum infections, hypertensive disorders of pregnancy (pre-eclampsia & eclampsia), delivery complications and abortions that are not safe, perinatal mortality is promoted by premature delivery, small-for-gestational age, maternal anemia, pre-eclampsia, eclampsia, congenital deformities and severe infections. Some of these factors can be mitigated or treated during antenatal care especially one that has been received fastidiously by the woman.

In 2002, the concept of Focused Antenatal Care (FANC) was adopted. This consists of four visits throughout the pregnancy period and thus should be easy for any pregnant woman to be faithful in keeping. These visits occur at weeks 12, 26, 32 and between weeks 36 and 38. In 2016, the WHO increased the minimum number of visits to eight: weeks 12, 20, 26, 30, 34, 36, 38 and 40. The current WHO recommendations remain the eight visit antenatal care although some in Nigeria continue to practice the 4-visit model when they do anything at all.

Some of the research work that we have done on this subject matter involve examining the pattern of antenatal care utilization, and the influence of family type on the gestational age at booking. We have also examined more closely anemia-in-pregnancy from two different studies, one looking at the sociodemographic factors associated with that state, and the other study was done to determine the impact of maternal hematocrit at booking on the fetal birth weight

[40,41,42,43].

In the first study, we enrolled 442 pregnant women as subjects for the study. The aim was to study and document antenatal care utilization in Ogbomoso by investigating what factors were driving it among the attendees of our antenatal clinics [40]. The subjects ranged in age from 13 to 48 and most were either nulliparous or primiparous, 82% were from monogamous homes and 95% had formal education. Only 48 (11%) booked early for ANC, by the end of the first semester. The factors that had a positive association with ANC use were: having university education, being a civil servant and belonging to the class 1 social status. People who were

not well educated, not well informed and not socioeconomically comfortable did not attend ANC in our findings for this study. For the second study on the influence of family on the gestational age at which women go to book for ANC[41], we recruited 345 pregnant women whose ages ranged from 16 to 48. It should be remembered that the WHO recommends that the first of a minimum of four antenatal visits should be in the first trimester of pregnancy (first 12 weeks after the monthly periods are missed) and this is called the booking visit. The mean age of the subjects was 29.47 ± 5.41 years. Nearly all were married and from monogamous homes but only 114 (33%) had at least a secondary school education. One-third of the subjects was nulliparous (never had a birth before), The majority of the women booked for ANC during the second and even third trimester, regardless of their parity, marital status or type of family. The only factors that affected whether they booked during the second or third trimesters was their level of education and occupation. Those who had post-secondary education mostly booked earlier than those who did not and those who were civil servants booked earlier than artisans. Only 17 of the 345 subjects booked appropriately in the first trimester. Clearly, our patients were largely booking for ANC later than recommended and thus did not give their healthcare providers opportunity to intervene were things to be going awry.

Another area of ANC research that we chose to focus on was anemia-in-pregnancy with respect to the prevalence and its effect on pregnancy outcome, using fetal birth weight as the outcome of interest.

For the prevalence study[42], we recruited 350 pregnant women from our antenatal clinic. We collected information from them as to the sociodemographic data and they were subsequently stratified into upper, middle and lower socio-economic groups. Anemia was defined as a hemoglobin level of less than 11g/dl. Findings were that 58% of them had anemia-in-pregnancy by definition and as expected, it was significantly higher among the middle and lower socioeconomic classes. The majority (80%) of those who could be classified as being severely anemic were from the lower social class.

This information is clearly of interest to all skilled workers taking care of pregnant women. Look out for women who might be in the lower socioeconomic class as they could be anemic or severely anemic. It can be assumed that these women would have worse pregnancy outcomes in terms of fetal birth weight or even fetal survival.

The second anemia-related study was then carried out to determine the impact of maternal Packed Cell Volume (hemoglobin) at booking on fetal birth weight, one measure of pregnancy outcome[43]. We recruited 207 pregnant women with singleton pregnancies (not multiple). Sociodemographic data (maternal age, parity, BMI, gestational age in weeks, marital status, birth interval, and maternal education) was obtained as well as maternal PCV at booking, and infant birth weight. Apart from estimated gestational age, no other factor showed association with birth weight. The median PCV of women who delivered babies with low birth weight was 31%, whereas the median PCV of those who delivered babies with normal weight was 32%. It did not appear, at all, from our findings, that PCV at booking affected the newborn baby's birth weight.

Finally, we researched to determine if an association existed between focused antenatal care (FANC) during which a pregnant woman visits the antenatal clinic at least four times [44] and adverse pregnancy outcomes defined as stillbirth, miscarriage or abortion. The 2013 Nigeria Demographic and Health Survey (NDHS) was processed and analyzed. In this secondary dataset, 11,777 women were included in the analysis. This nationally-representative data had been collected using the women's questionnaire in the 2013 NDHS. Findings were as follows:

1. Women who attended FANC less than four times had greater odds of adverse pregnancy outcome compared to those who attended four or more times.
2. There was a 14% decreased odds of adverse outcome when first FANC visit occurred in the 2nd trimester compared with the 1st and 3rd trimesters.
3. Receiving care from a doctor, nurse or midwife compared

to non-skilled providers was associated with a slight increase in the odds of an adverse outcome.

These results are clearly mixed and there are definite explanations for some of the surprising results. For example, women who were treated by doctors performed more poorly than otherwise perhaps because it was the high risk women or those already demonstrating complications or potential complications who were referred for care by the physician in the first place. Clearly we need to continue to advocate for economic improvement nationwide, women's economic empowerment and expansion of opportunities for the education of the girl-child if gains that we have on the reduction of maternal mortality and perinatal mortality are to be sustained going forward.

MENTAL ILLNESS IN FAMILY MEDICINE

The Vice Chancellor sir, the WHO defines health as "a state of complete physical, mental and social wellbeing, and not merely the absence of disease or infirmity"[45] The WHO further defines mental health as follows: "a state of mental well-being that enables people to cope with the stresses of life, realize their abilities, learn well and work well, and contribute to their community"[46]. What this means is that any state of mental being that negates the definition above can be said to a state of mental illness. It has been estimated that one out of every four Nigerians has mental illness[47]. Currently we have only about 200 psychiatrists and about 1000 psychiatric nurses in Nigeria, and our population is estimated to be over 200 million. The standard practice should be about one psychiatric doctor to care for 10,000 patients. If the statistics are to be believed, that are approximately 50 million people in Nigeria who suffer mental illness and need to be cared for.

In Family Medicine, we see patients with undifferentiated illnesses as a primary care discipline, and we treat people throughout their life cycle, from birth to death, and this includes people that we eventually diagnose as having some form of mental illness or another. There is no way to sit in a Family Medicine or General Practice clinic in Nigeria and not daily come across people who are

exhibiting symptoms and sometimes signs of mental illness. The reason for this is not farfetched. Mental health is often co-morbid with many health conditions; for example, the stresses of coping with the treatment of chronic illnesses might precipitate some form of mental illness and unless that is given attention, the individual will never be well. Taking care of mentally ill people in primary care such as the Family physician offers has some advantages.:

1. Better outcomes can be expected because the family physician tends to treat people holistically, whether it be physical problems or emotional problems
2. The family medicine/general practice clinic is often near people's homes where they are able to access social/family support which they need to get better. It is cheaper because they do not have to travel long distances to see their caregiver
3. Because general practice clinics are not associated with any particular illness, there is little to no stigma attached to visits to these clinics. In Nigeria, mental illness is one of those illnesses that can be severely stigmatized.

The two most common mental health conditions that are seen in a typical Family Medicine clinic in Nigeria, as elsewhere are anxiety and depression. These conditions are often missed unfortunately if the physician is not on the lookout as they masquerade as something else. Another condition that is commonly seen here is what is known as somatoform disorders. This is where patients present with symptoms that suggest the presence of a physical disorder and there are no organic findings but there may be pointers to the presence of psychological conflicts[48]. In our clinics, patients would present with such complaints in Yoruba as: “Ori mi nse jain”, “inu mi ngbona”, “ara mi nwa so so”, “onse kulu kulu lara mi”and such others. These patients keep coming back and never get better unless and until their underlying psychological issues are addressed. It requires a primary care physician with an

understanding of these symptoms, complaints and what they might mean to begin to unravel what might be the problem for each patient.

In Nigeria, children are highly desired and highly sought after. Women who experience infertility, whether primary or secondary often are stigmatized and this leads to psychological burden which affects the quality of their lives. Primary infertility refers to a situation in which pregnancy has never been achieved and secondary infertility is when the woman has been pregnant at least once before but is unable to get pregnant again despite current efforts. Given this known fact, we decided to study a cohort of women presenting to our gynecology clinic with infertility[49]. The aim of this study was to determine the prevalence of depression among infertile women attendees of our clinic, and the factors associated with this depression. We enrolled 110 women with infertility and administered the Patient Health Questionnaire-9 (PHQ-9), a 9-item tool for screening, diagnosing and measuring the severity of depression, and also to check for their social functioning. We found a depression prevalence of 52.7% among our study population. There were no associations between depression and the following; age group, level of education, years since marriage, type of infertility, number of living children, or sex of the children. Clearly, this is a clinical condition that must be borne in mind when taking care of women who are experiencing infertility. The clinician must realize that there could be a significant number of these women who are psychologically distressed and who might need treatment for that as well.

We subsequently decided to study a general outpatient population for the prevalence of anxiety and depression in that group[50, 51]. The characteristics of this cohort is different from a group of women experiencing infertility. We recruited 222 subjects into the study and obtained data on their sociodemographic characteristics, monthly income, and personal history of hypertension and diabetes. The Generalized Anxiety Disorder Scale (GADS) and Patient Health

Questionnaire (PHQ) were used to assess anxiety, depression and

their severity. The age group 40-60 years were the largest group and females were preponderant. Most were married, unskilled workers with monthly incomes of less than N50,000. Only one-third had a history of hypertension or diabetes. Findings were that the prevalence of anxiety was 35.1% and depression was 45.9%. There was no significant association between the various sociodemographic variables and anxiety or depression. It is to be remembered that these subjects were not symptomatic of anxiety or depression. This means that physicians must screen for these conditions or their patients would remain psychologically distressed thus affecting their quality of life, and this might influence compliance with treatment. As it is known that not only are anxiety and depression the most commonly seen mental illnesses in the family medicine/general practice clinics, they are often co-morbid, occurring together in the same individual. When this occurs, it increases the severity and chronicity, and adversely affects the quality of lives of such patients. We also checked for the presence of co-morbidity of anxiety and depression among these patients. We found a co-morbid rate of 27.5% among the study participants. Those that tended to demonstrate co-morbidity were males older than 75 years of age, married people, skilled workers, those who earned higher and those with diabetes.

CONCLUSION

Mr. Vice Chancellor sir, in the course of my lecture, I have tried to highlight some of my contributions to knowledge through my research in some of the domains of Family Medicine.

For specific mention;

- We have demonstrated the efficacy and safety of ketamine as a cheap, safe and readily available anesthetic that can be used in children in Ogbomoso. This is particularly important against the backdrop of the severe downturn in our economy
- We have shown that the mere presence of an umbilical hernia in Nigerians does not warrant surgical repair which is potentially fraught with complications like infection and

eventually repeated bowel obstruction once the "sacred" peritoneal cavity has been breached needlessly

- We have shown that there is indeed an obesity-hypertension-diabetes syndrome. We have shown that there are complications that are life-changing and potentially life-threatening with sufferers of this syndrome. It is critical for us to focus on primordial prevention in

order to tackle this syndrome especially into the future for our children and grandchildren as it threatens to grow

- We have revealed that depression is a real co-morbidity among women who suffer from the condition of infertility in our environment where children are so desired and valued. It behooves obstetricians and family physicians who take care of them to always screen for depression in order to improve possible compliance with treatment and also their quality of life even as they wait for God to bless their families with children.
- In the field of antenatal care, we have demonstrated that the number of clinic visits correlates very strongly with outcome, with those who were more compliant having better pregnancy outcome. This is of great importance especially to women who have had a bad obstetric history and who need very close monitoring because they are yet to attain their desired family size. It is also evident that, of the skilled caregivers, the physician does not always have a better outcome for their patients than nurses or midwives or even non-skilled caregivers such as CHEWs. This information should be very helpful to health policy makers and implementers who wish to improve on human resources especially as regards those who will service rural and remote outposts. Employing nurses and midwives and maybe CHEWs for work in rural areas is an excellent public health investment as regards antenatal care.

FUTURE PLANS/RECOMMENDATIONS

It is now time to "put our money where our mouth is" as the idiom goes with respect to noncommunicable diseases. A cohort of young people between the ages of 14 and 18 whose parents/guardians give consent should be recruited for a longitudinal study. These research subjects should be subjected to both primordial and primary preventive measures as regards chronic non-communicable diseases. They should be followed up for the next 15 to 20 years during which data are carefully gathered and after which the data can be analyzed. This will prove in a scientifically incontrovertible way whether our current recommendations are valid or not. The primordial part of the preventive measures will have to do with advocacy for public health policy generally and will ultimately improve public health as a whole in Nigeria.

Also, in the near future, I would be looking at the influence of previously undiagnosed mental illnesses such as anxiety, depression and somatoform disorders on treatment compliance among patients with the obesity-hypertension-diabetes syndrome.

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Mr. Vice Chancellor, distinguished ladies and gentlemen, you have heard my story. Permit me to close with Deuteronomy 30 vs 9a. "Then the Lord your God will make you most prosperous in all the works of your hand". THIS IS WHAT GOD HAS DONE THROUGH ME. I thank you for listening!

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