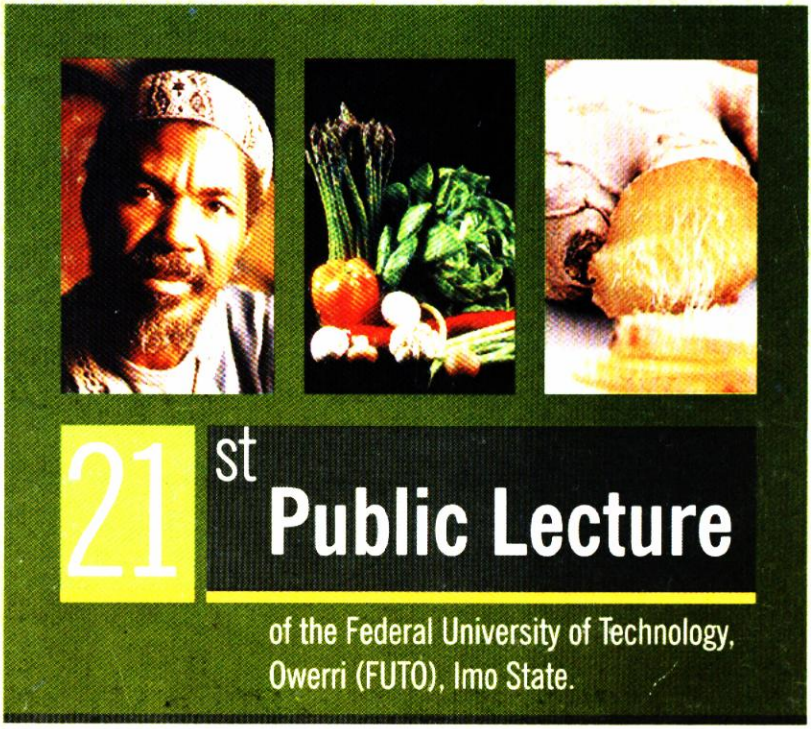
Ageing Challenges And Options In The 21st Century Developing Countries.



21st Public Lecture

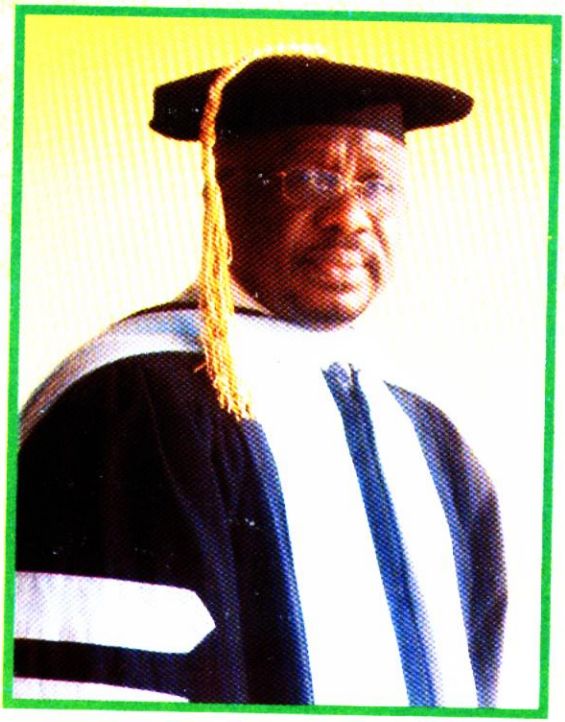
of the Federal University of Technology, Owerri (FUTO), Imo State.

Delivered on **Wednesday, 12th January, 2011**

By **NNAMDI JOHN IBEZIMAKOR OZIRI**

B.Sc., M.Sc. PhD.(Ohio, USA), L.C.S.W,(Indianapolis),
Phi Kapa Delta (Illinois)
Visiting NUC Lead Scholar,
Associate Professor, Department of Public Health Technology
School of Health Technology
Federal University of Technology, Owerri, (FUTO)
Imo State, Nigeria

21st PUBLIC LECTURER



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IBEZIMAKOR OZIRI

B.Sc., M.Sc. P.hD.(Ohio, USA),
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Imo State, Nigeria

Greetings!

May I use this golden opportunity to acknowledge with special honor and due respect to

The Chairman and Members of the Governing Council,

The Vice Chancellor of this great institution,

The Deputy Vice Chancellors,

Other Principal Officer of the University,

The Deans, Directors of various schools of the University,

Heads of Department and Coordinators of Department and Units,

Distinguished Professors and Lectures of our great institution,

My Lords Spiritual and Temporal,

Distinguished men and ladies of the press,

Special Invitees from various institutions and government officials,

Staff and Students of this great institution,

Representative of the print and electronic media,

Distinguished Ladies and Gentlemen.

PROLOGUE

It is both a special honor and privilege to have you as special guests and audience for this special lecture that is being organized by this great institution. The leadership of this institution under the Vice Chancellor, Professor C.O. E. Onwuliri has demonstrated what it takes to be a leaders of the great academia that reflect the Greek scholars of old who are renown for their respect to knowledge. I could borrow the word of Chamberlin from Westminster Abby when he visited the early west African kingdoms- what is being done in FUTO challenges what we have done in the western universities oversea in the form of brown bag lectures; the organization and

accolade given to knowledge in this Institution is worth emulation by the western institutions. Thank you so much for the encouragement and granting the necessary logistic that made this occasion possible.

I choose the topic of today's lecture "Ageing challenges and options for 21st Century developing countries" because of the social and economic impact these challenges will exact on us whether we accept its really or not. For the very fact that most of my listeners today are the very subjects of this topic or will have parents who will be affected by these challenges. It is then important to know what these challenges are and the alternative options to resolve the challenges by being prepared. I also believe that this lecture will no doubt create an awareness of these challenges and the necessary preventive measures and precautions against these problems. I believe that this would motive policy makers to rethink and design their policies on how they could ameliorate the social problems that would be triggered by this new age of the 60s and above years that will soon hit retirement age in this very century. Service providers and industrial goods producers could also benefit from the empirical facts about the needs of the boomer generation and could follow the examples of the developed countries of the world and start programs and design goods and services that would meet the huge need of the coming older population.

INTRODUCTION

In the global arena, the number of individuals who are 60 years or older is estimated to double in the 21st century. This estimate is also in line with the world population that is expected to more than triple in number over the next 50 years.

The United Nations Population Division estimated that this age

group represented ten percent of the world's population, or 600 million people, in 1999. They project that before the year 2050; this proportion will increase to 20% and will include more than 2 billion people. These changes will be most prevalent in the less developed countries, where the transition from a young to old age structure will be more compressed in time than it has been for developed countries. Currently, only Europe and Japan have populations with more than 20% of the population aged 60 years or older. By 2050, with the exception of most of Africa, almost all countries will have exceeded this proportion, United nations(1999).

Expected Health Challenges

Among the expected changes also are the changes in diet and declines in physical activity associated with social and economic changes. Diets from the recent studies are becoming higher in fats, animal products, and refined foods with lower fiber and the result is a rapidly increasing prevalence of obesity and type 2 diabetes around the world. The number of people with diabetes in developing countries is projected to almost triple by the year 2025. Hypertension and vascular disease are also rapidly becoming more prevalent. In addition, evidence that lower birth weights are associated with greater likelihood of adult obesity and chronic disease underscores the magnitude of risk in these countries. In spite, of these findings, programs or institutions that are designed to address the problems of this growing elderly population are rarely in existence in the developing countries. The social changes that accompany urbanization will also likely increase nutritional risk for this age cohort. Elderly population has higher requirements for several micronutrients, and this will make them vulnerable to deficiencies that will aggravate chronic conditions. The preceding situation about the plight of our elderly population

calls for urgent action that will be designed to address the inevitable burden of disease and disability of our aging population worldwide, United Nations (1999).

Result of Social of Economic Changes

This rapid shift of population from young to older age in the developing nations of the world, will also result to profound effects on their infrastructure, their economies, and their health care systems. In other words, the overall social and economic states of the developing countries of the world are under prepared to face these challenges in the 21st century. There is no doubt that the advance in the medical field has helped to prolong peoples' lives but where there is inadequate preparation for these aging population, aging will be seen as a burden rather than a blessing. The developed countries are currently bracing for these challenges and have established programs to carter for the needs of their aging population. Their systems of nursing homes, geriatric specialists, home care nurses, senior nutrition programs and senior centers are being developed to meet these needs, World Health Organization (2001). However, these kinds of preparation are rare if any in the programs and government agenda of the developing countries.

The Baby Boomer Generation.

In the United State of America for instance, the government is aware of these huge challenges that will be encountered as their special age cohort born in 1945 and 50 reaches the age of retirement in the 21st century . This is the special age group that they address as the "Baby Boomers Generation".

Government policies are making necessary provision for the retirement funds to be available for them. Healthcare policies are being fine-tuned to ensure that adequate funds are available for these elderly; health centers such as a nursing homes,

retirement communities and assisted living of all kinds are redesigned along with their programs to welcome the new "Baby boomers generation". The boomer generations according to the recent conference that I attended in Orlando Florida are the generation of babies born immediately after the World War 11 of 1945. This generation includes those born between 1945-1950. This arrival of the Baby-Boomer generation has created an unparalleled urgency for understanding and expanding global national geriatric medical service offerings. Another study confirmed that the next decade it is expected that our 60 plus population will more than quadruple, Census (2000).

Character of the Boomer Generation.

The Boomers Generation are both in the developed and developing countries of the world. One thing that is common with the Boomers Generation is that they are very enlightened and live a sophisticated life style which they carry along as they are aging. This life style could be observed by what they eat, their residence, their mobility and their leisure. The Boomers generation has changed the world in every ramification- ranging from the medical, engineering, and space, economic, social and political arena.

Boomers -- Great Achievers of the 20th Century

They have done so by overcoming the space, as they were the first humans to visit out-of space mission expedition through their rocket ships, they changed the tele- communication system by the discovery of the internet speed web, making and the telegram and Gram bell telephone obsolete. They discovered the cure of many diseases and even came up with cloning or replication animals' species and growing human organs for medical purposes. They have really demonstrated

that man is surely the offspring of God, in both intelligent and creativity, by adding beauty to Gods creation. They have shown the sanctity of life by even protecting the endangered species and fighting to save the eco system. Let us not forget that they made this first tube babies in Europe. They performed the first heart surgery and even constructed the first artificial heart for implanting; now they have advanced to tract some deadly diseases from their origin such as DNA and Gene therapy!
The resilient cancer disease is now the next enemy to conquered through this method! Even the very root of human emotion such is the brain has been conquered. Now we can trace the seat of every human emotion in the brain by pet-scan. They have also advanced and enhanced surgery by "Laser" making surgery and hospital visit a one day event. They have tried to prove the world that age is a mere phenomena that could be overcome, this was demonstrated by the first America Astronaut John Glenn of Ohio who once again shuttled round the world in space at the age of 80yrs! Do not forget that George Bush Sr. treated the world by skydiving on his 80th birthday so you can see that age was not a limitation.

That was the grand slam and a final touchdown by the Baby Boomer Generation. One thing that the baby boomers generation have in common is the "Yes we can" attitude! So if you are one of us remember to say "Yes we can" in any tough circumstance. Can the boomer generation say yes we can and pull the nation of Nigeria that is now 50 along with us? Yes we can. Can the boomers generation in the developing world move beyond consumer mentality and join their counterparts in the industrialized nations and become producers with their own raw material? Yes we can. If India can take the steps to develop their first cars and nuclear capability, what stops Africa and the rest of the developing countries from doing so.?Yes we can but

before we do, let us take cognizant of the challenges that have been found that will face our generation in the 21st Century.

Preparation in Developed Countries.

The effect of this demographic shift will place additional pressure on healthcare providers-it is noted that Geriatric Specialists are already in short supply in the developed countries. Utilization of healthcare services and their associated cost will not only increase as healthcare inflation outpaces overall inflation, but will disproportionately increase as seniors take advantage of an expanding array of new technologies for managing chronic illness and promoting active lifestyles.

In the Unites States for instance, provider reimbursement, changing Medicare and Medicaid regulations and uncertainty of their present Social Security and Healthcare funding add to the concern. This is why the recent Geriatric Working Group, that formed USA's Medical Technology Policy Committee, believes:

- Information technologies with enhanced communication capabilities need to be incorporated into patient care management;

- Remote sensing should be utilized to promote efficient and effective patient management between office visits and encourage adoption of home self-care management programs .

This changes were visibly advertized by vendors in the recent Florida Aging conferences that I attended. Various vendors and their boots were there to demonstrated the latest gargets such as hearing aids, medical alert wares, nutrition samples,

shower chair, massage chair, wheelchair, walk-in showers, geriatric beds and relaxers of all types.

As scientists, engineers and technologists, we believe that use of information technologies, combined with enhanced communication capabilities and use of remote biomedical monitoring can promote cost effective care management and improve patient safety.

Another one-day symposium in Washington, DC. discussed the important roles of computer, communication and other electronic technologies to improve the quality and cost-efficiency of geriatric care. The premise of this symposium was that the growth in the geriatric population, who qualify for Medicare by age or disability would threaten cost increases that it is feared the nation can ill afford. Information Technology, which includes both computer and communications technologies, were considered to offer the ability to improve patient outcomes while restraining overall healthcare cost increases.

Under-preparation of the Developing Countries: In developing countries of the world, their current policies seem not be preparing for these unforeseen burden of the health, social and economic needs of this growing elderly population. In developed countries, the case of nutritional status has been studied to have a major impact on disease and disability and offers great promise for minimizing this oncoming burden.

The current trend in developing countries is toward higher fat, more refined diets that contribute to increased risk of chronic disease, and the prevalence of chronic disease is already increasing rapidly. At the same time, social and demographic changes are placing elderly at even greater risk of food

insecurity and malnutrition.

Vascular disease and associated chronic conditions has been determined to be the leading cause of death among older people in the world, Murray. & Lopez, (1997) Nevertheless these could be prevented in a greater measure through healthy lifestyles that include physical activity, nutritious diets and avoidance of smoking or substance abuse.

These discoveries sound like music in deaf ears because along with a dramatic change in age structure, there is evidence of a negative characteristic sequence of changes in dietary behavior and physical activity patterns that lead to increased risk of chronic disease. This has been called the "nutrition transition",Popkin (1994), and it appears to be occurring rapidly and predictably in countries throughout the world.

Urbanization and associate health issues

The impact of civilization and the associate movement from traditional, rural communities to more population-dense would be a big challenge for this century. This is because urban environments is another major factor to the change in diet from one high in fiber and low in fat to one rich in animal fats, sugars and refined products that are low in fiber. Despite the fact that overall nutrient intake improves with an increasing variety of foods, there is more inclination toward more fats, sugars and refined foods. The consequence is the rapidly escalating rates of obesity and chronic disease. This transition, has been documented in several countries in relation to income and social status that now appears to be occurring at lower levels of the gross national product than it had previously, accelerated by high urbanization rates, Drewnowski & Popkin (1997).

Observed Dietary changes.

The patterns has been observed to be of increasing dietary

excess among higher income in Central and South American countries and most of the Caribbean, where intake of animal products and total fat has increased, while intake of fruits, vegetables, roots and tubers has declined, Popkin, (1994) and Sinha, (1997). In Brazil, where dietary changes have proceeded more slowly than in many other countries, obesity is becoming more prevalent among even the lowest income sector, Monteiro et al, (1995).

Analyses of the food supply in 21 Asian nations during 19751994 showed an overall decline in the availability of complex carbohydrates and an increase in total fats, Drewnowski and Popkin, (1997). In addition, hydrogenated fats increasingly replaced vegetable oils ,Vorster et al, (1999) . Similarly, data from the 1989 China Health and Nutrition Survey showed a marked shift in the structure of the diet toward greater proportions of fat intake from both animal and vegetable sources, Popkin et al, (1993) . In both urban and rural populations, fat consumption and use of animal products increased with per capita income. In India, large community-based surveys showed that high socioeconomic status (SES) groups consumed an average of 32% of energy from fat, relative to 17% of energy from fat in lower income groups, and that the prevalence of coronary heart disease was three to four times greater for these high versus lower SES groups, Gopalan (1992).

Urban Africans have also increased their consumption of refined foods and fats. Despite relatively low levels of economic development, dietary shifts have begun to appear, Popkin (1994). In South Africa, the transition to a Western diet is becoming evident in both rural and urban areas, Bourne et al., (1993) compared the diet composition of adults in 1990 with that in 1940, confirming a 14% reduction in carbohydrate intake and an increase of 63% in fat intake over this 50-years time span.

These dietary changes, combined with the rapid growth of the aging population, suggest that we can expect an **escalating epidemic of chronic diseases, particularly obesity, diabetes and heart disease**, in developing countries in the coming decades. Carefully designed nutrition interventions could have a major impact on future disease risk in these countries.

Factors that promote Obesity prevalence.

In parallel with dietary changes, there is a rapidly increasing prevalence of obesity worldwide. Factors specifically associated with obesity in developing countries were recently summarized by Caballero (2001) and these include urbanization, lower infant mortality and increased life expectancy, mechanization and lower energy expending labor, television and other sedentary activities, in addition to the growth of "fast food culture" with higher energy density diets. The role of biologic factors, including intrauterine exposures, metabolic programming and gene-mediated adaptation, is of great current research interest.

Obesity prevalence is particularly high in the developing nations of Latin America and the Caribbean. For instance in Chile from 1988 to 1997, the prevalence of obesity increased from 14 to 23% in women and from 6 to 16% in men, Vio and Albala,(2000) . A recent analysis of subsets of the population revealed that the Mapuche, the major aboriginal group in Chile, had a much higher prevalence of obesity15% of men and 32% of women in the rural areas, and 28% of men and 45% of women in the urban areas,Uauy and Kain(2001) . In the British Virgin Islands, >50% of adult females and 25% of adult males were obese (defined as weight for height > 120% ideal body weight) in 1984, Dinesh and McIntosh (1992). Although prevalence of obesity is lower in less developed Latin American countries like Brazil, a comparison of two national surveys showed an

increase in the proportion of obese adults (BMI > 30 kg/m^2) from 5.7% in 1974 to 9.6% in 1989. The greatest change was in the poorest 30% of women, from 3.6 to 9.7%, Montriro et al., (1995). More recently, data from the 1997 survey in Brazil show that obesity prevalence has continued to increase rapidly among the rural and low income urban populations. More optimistically, obesity prevalence declined from 12.8% in 1989 to 9.2% in 1997 among the upper income quartile of Brazilian urban women, Monteiro et al, (2000). Studies pointed that an intense mass media campaign since 1992 may be having a positive effect on this segment of the population.

In China, obesity has been clearly associated with higher income in both rural and urban regions, Du et al.,(2000) . However, a closer evaluation of the impact of income on dietary change suggests shifts that may lead to greater obesity among low income groups relative to those with higher income in the urban areas, Guo et al, (2000). A longitudinal study done in a small urban area of Southern Thailand revealed an unexpectedly large proportion of overweight people. Among 2,703 men and 792 women living in urban areas, 26% of men and 21% of women had BMI > 25.0 kg/m^2. Tamphaichitr et al., (1991).

Data on obesity in Africa are limited and, due to lower development, most African countries are behind other regions in terms of both the demographic and the nutrition transition. However, evidence of transition is appearing. However, the 1997 Demographic Health Surveys of maternal nutritional status reported that the prevalence of BMI >30 kg/m^2 among women aged 1549 y ranged from <1% in Burkina Faso and Malawi to 25% in Egypt. Recent reports on the Tunisian and Moroccan populations in Northern Africa showed that women were much

more likely to be obese than men. In Tunisia and Morocco, respectively, the prevalences of BMI >30 kg/m^2 were 23 and 18% for women and 7 and 6% for men Elati et al.,(2001). In South Africa, >44% of black females and 8% of males were recently reported to have BMI > 30 kg/m^2, Nube et al.,(1998) . There have been very few studies of older Africans. Obesity has been viewed as a contributory factor to risk of chronic disease. Until very recently, the health systems in most developing countries have not focused on obesity prevention or treatment, and few programs are in place to address this rapidly growing problem. The experience in Brazil suggests that media campaigns can be effective, at least in some segments of the population. It is very interesting to observe the effect of media campaign when one considers its effect in HIV awareness campaign in Nigeria as a powerful tool among the NGOs. Inspite of the fact that the prevalence of Obesity in Nigeria is not significant to attract public attention. The fast growing Urban lifestyle in Nigeria do raise a concern for this in the future.

The emergence of chronic disease : Over 50 million deaths worldwide in 1997, of this figure, 33% were due to infectious disease, 50% to vascular disease, and 12% to cancer, World Health Organization (1998). While deaths due to vascular disease declined from 51 to 46% of total deaths in developed countries from 1985 to 1997, they increased from 16 to 24% in developing countries. In other words, the developing countries gained what the developed countries lost. Cancer deaths increased from 6 to 9% of total deaths in developing countries during this period. At the same time, deaths from infectious and parasitic disease decreased from 5 to 1% of total deaths in the developed world and from 45 to 43% of total deaths in the

developing world, WHO (1998).

Diabetes a major challenge of the century:

One of major health problems that is challenging the century is Diabetes. A better understanding of this disease will be helpful. Diabetes (diabetes mellitus) is classed as a metabolism disorder. Metabolism refers to the way our bodies use digested food for energy and growth. Most of what we eat is broken down into glucose. Glucose is a form of sugar in the blood - it is the principal source of fuel for our bodies.

When our food is digested the glucose makes its way into our bloodstream. Our cells use the glucose for energy and growth. However, glucose cannot enter our cells without insulin being present - insulin makes it possible for our cells to take in the glucose.

Insulin is a hormone that is produced by the pancreas. After eating, the pancreas automatically releases an adequate quantity of insulin to move the glucose present in our blood into the cells, and lowers the blood sugar level.

A person with diabetes has a condition in which the quantity of glucose in the blood is too elevated (hyperglycemia). This is because the body either does not produce enough insulin, produces no insulin, or has cells that do not respond properly to the insulin the pancreas produces. This results in too much glucose building up in the blood. This excess blood glucose eventually passes out of the body in urine. So, even though the blood has plenty of glucose, the cells are not getting it for their essential energy and growth requirements.

Why is it called Diabetes Mellitus?

Diabetes comes from Greek, and it means a siphon. Aretus the Cappadocian, a Greek physician during the second century A.D., named the condition diabainein. He described patients who were passing too much water (polyuria) - like a siphon. The word became "diabetes" from the English adoption of the Medieval Latin diabetes.

In 1675 Thomas Willis added mellitus to the term, although it is commonly referred to simply as diabetes. Mel in Latin means honey; the urine and blood of people with diabetes has excess glucose, and glucose is sweet like honey. Diabetes mellitus could literally mean "siphoning off sweet water".

In ancient China people observed that ants would be attracted to some people's urine, because it was sweet. The term "Sweet Urine Disease" was coined.

Three main types of diabetes:

Diabetes Type 1 - You produce no insulin at all.
Diabetes Type 2 - You don't produce enough insulin, or your insulin is not working properly.

Gestational Diabetes - You develop diabetes just during your pregnancy.

Diabetes Types 1 & 2 are chronic medical conditions - this means that they are persistent and perpetual. Gestational Diabetes usually resolves itself after the birth of the child.

Treatment is effective and important

All types of diabetes are treatable, but Type 1 and Type 2 diabetes last a lifetime; there is no known cure. The patient

receives regular insulin, which became medically available in 1921. The treatment for a patient with Type 1 is mainly injected insulin, plus some dietary and exercise adherence.

Patients with Type 2 are usually treated with tablets, exercise and a special diet, but sometimes insulin injections are also required.

If diabetes is not adequately controlled the patient has a significantly higher risk of developing complications, such as hypoglycemia, ketoacidosis, and nonketotic hypersosmolar coma. Longer term complications could be cardiovascular disease, retinal damage, chronic kidney failure, nerve damage, poor healing of wounds, gangrene on the feet which may lead to amputation, and erectile dysfunction.

Diabetes being one of the clearest outcomes of the nutrition transition is the epidemic growth of type 2 diabetes. Prevalence of diabetes is currently higher in developed than in developing countries, but the majority of people affected already resides in developing countries, and prevalence is increasing at a much more rapid rate in the developing countries. The question one should rightly ask is what the reason for this; and the answer would not be far fetched if one considers how serious developed countries of the world take preventive measure as a matter of life and death. **Figure 2.** shows the projected numbers of people in developed and developing countries with diabetes in the years 1995 and 2025, King et al., (1998). In the developed countries, increases in prevalence during this period will average 27%, from 6 to 7.6%, thus increasing from 51 to 72 million people. In the developing countries, a 48% increase in prevalence, from 3.3 to- 4.9%, and a 170% increase in number, from 84 to 228 million, is projected. **Figure 3.** shows the relative prevalence projections for Latin America, India, China and Africa. Among the developing countries, the greatest

prevalence of diabetes will continue to be in Latin America. The greatest projected changes are for China and India, with expected increases in prevalence of 68 and 59%, respectively. The fewest cases will remain in the least developed regions of Africa, where this transition has not yet progressed, King et al., (1998).

In Latin America, the prevalence of diabetes is already at levels that make it of major public health concern. A 1996 study in Mexico showed a prevalence of diabetes of 21% in the population aged 6069years, Castro et al.,). For women and men older than 60 year, prevalence were 31 and 23%, respectively. Prevalence was greater in urban areas and was associated with high fat, low carbohydrate diets and with central adiposity, Lerman (1998). In Brazil, the age-adjusted prevalence of diabetes among adults was 7% in 19881989, was also higher among women than men, and was associated with age, obesity, family history of diabetes and lower educational level, Oliveira and Franco, (1996). Along with these increases in diabetes are rapid increases in vascular disease. The most frequent cause of death in Mexico in 1995 was cardiovascular disease, followed by malignant neoplasm, accidents and diabetes, Pan American Health Organization, (1998). In Chile, the cardiovascular death rate increased from 13% in 1909 to 30% of total deaths in 1999 World Health Organization, (1999).

Diabetes, hypertension and vascular disease have also been increasing rapidly in Asia, Gupta and Singhal, (1997). In China the prevalence of diabetes in adults aged 2564 y in 1994 (2.5%) was 300% greater than it had been in 1984, Pan et al (1997). Diabetes incidence was associated with age, income, family history, BMI and waist circumference, blood pressure and physical inactivity, Pan et al., (1997) . The prevalence of adult diabetes has also doubled in many other Asian communities over the past two decades, from 8 to 16% in Papua New Guinea,

from 2 to 5% in Hong Kong, and from 4 to -8% and 8 to 12% for adults in Singapore of Chinese and Asian Indian origins, respectively . Hypertension is also increasing rapidly in Asia. Stroke was the leading cause of death in China in 1986, Bloomgarden, (1998). A comparison of the prevalence of hypertension in 1960 and 1990 showed that increases from 23% to 1520% in several Asian countries, Asian Acute Stroke Advisory Panel (2000). This report also found that hypertension and stroke occurred at relatively younger ages and that hypertension was more prevalent at lower BMI in Asia compared with other regions. In Pakistan, the prevalence of hypertension in urban areas was nearly twice that of rural areas, and in India adults from higher SES groups were three to four times more likely to have coronary heart disease than those in lower SES groups, Asian Acute Stroke Advisory Panel (2000).

There have been few studies on chronic diseases in Africa, but limited data suggest that the prevalence of diabetes is still <1% in most countries in Africa. However, it has increased to >58% in South Africa and 10% in Egypt, with up to 20% in urban areas. Many areas with low diabetes prevalence are showing evidence of impaired glucose tolerance, suggesting that increases in diabetes prevalence are likely to follow . In South Africa, coronary heart disease death rates in 1990 varied considerably by ethnicity. They were 165 and 101 per 100,000 population for whites and Asians, respectively, considerably higher than that for the mixed race group (55 per 100,000) or for black South Africans (5 per 100,000). In contrast, cerebra vascular disease was greatest among the mixed race group (74 per 100,000), followed by whites and Asians (63 per 100,000) and blacks (37 per 100,000), Singh et al (2000). Although Africa is currently behind in this transition, we can expect that changes in Africa will also occur rapidly in the coming years.

Nigeria case: Over the past 30 years, the prevalence of Diabetes has been increasing steadily. In 1971, a hospital survey by Osuntokun et al in Ibadan estimated a prevalence of 0.4%. In 1989, while screening for Diabetes during a World Diabetes Day (November 14) in Lagos metropolis, Ohwovoriole et al found a prevalence of undiscovered Diabetes of 1.6%.

A national survey in 1992 by the Non-communicable Disease Expert Committee of the FMOH recorded a prevalence of 2.2% (National)- Lowest 0.5% in Mangu, Plateau State and highest 7% in Lagos Island. A survey by Puepet 1994, in urban adults in Jos metropolis discovered a prevalence of undiscovered Diabetes to be 3.1%; by 2004, a second survey in Jos recorded a prevalence of 10.3%.

The progressive increase in the prevalence rates of Diabetes is associated with lifestyle changes; overweight and obesity, physical inactivity, alcohol consumption, dietary changes and cigarette smoking- factors that are potentially modifiable. So much attention is being given even recently to Communicable diseases like HIV, Tuberculosis and Malaria at the detriment of the emerging epidemic of Non-Communicable disease like Diabetes, hypertension and heart disease. Over 30% of our elite population including decision-makers are Diabetic.

More painfully so, the majority of the Nigerian Diabetic population cannot afford meaningful treatment; and over 80% of the healthy population are ignorant about Diabetes. In contrast to Diabetes, the prevalence of HIV is on the decline, probably because information and aid for HIV/AIDs abound. The Federal Ministry of Health data on HIV State prevalence rates of HIV infection as follows:- 1.8% in 1991, 4.5% in 1996, 5.4% in 1999 and 5.0% in 2003.

There are organized structures to arrest the scourge of HIV

infection and provide free treatment for patients with HIV and TB. There are no known such structures for Non-communicable disease. The average monthly cost of treatment for a person with Diabetes without complication is about N10,000.00 (Ten thousand naira) of the minimum wage. There is a great need for attention to be given to Diabetes.

Association of malnutrition with chronic disease

Observed associations between early nutrition and later chronic disease suggest that the less developed countries may expect particularly rapid growth in these diseases as their population ages. There has been considerable interest in early nutrition and coronary heart disease since the publication of the Barker hypothesis in 1987, Barker et al., (1987) . Barker proposed that under nutrition in uterus affects cells during critical periods of development, thereby influencing distribution of cell types, hormonal feedback mechanisms, metabolic activity and organ structure. This fetal programming of cells then leads to later insulin resistance and greater susceptibility to obesity, diabetes and heart disease, Barker et al., (1989).

Accumulating evidence supports the association between poor nutrition and growth in uterus or in early infancy and risk of type 2 diabetes and cardiovascular disease later in life, especially when weight gain in adulthood is added to early under nutrition Barker (1990) . It has been assumed that much of the difference in individual susceptibility to disease that cannot be explained by environmental factors is due to genetic causes. However, at least part of what has been regarded as the genetic contribution to ischemic heart disease may be the effect of the intrauterine or early postnatal environment. Barker, (1990) . Several studies have examined the relationship between birth weight and later development of hypertension, diabetes and/or cardiovascular disease, and results are remarkably consistent

in demonstrating a positive association between these conditions, McDermott (1998).

Another theory to explain these associations is that of the "thrifty genotype." In 1962, James Neel, an American geneticist, postulated the existence of the thrifty gene to explain the apparent paradox of the high prevalence of diabetes in populations where it clearly had an adverse effect on reproduction, Barker et al., (1990) . He suggested that in early life, a genotype predisposing to diabetes is " Barker thrifty," or efficient in the utilization of food. This genotype would have a survival advantage in times of food shortage. In th > nutrition transition, with change from relative food scarcity to food sufficiency, the thrifty genotype no longer confers a survival advantage, but makes individuals more susceptible to obesity and diabetes, Hattersley et al. (1990) and Barker et al.(1993) have also recently proposed that fetal genetics may explain the associations used to support the Barker hypothesis. Their fetal insulin hypothesis suggests that genetically determined insulin resistance may result in both low insulinmediated fetal growth in uterus and insulin resistance, and thus, susceptibility to diabetes and heart disease in later life.

It is possible that there is validity to each of these hypotheses. The observed associations are evident and further research should elucidate specific mechanisms. With the current rapidity of change in diet and lifestyle, the greater risk of obesity and chronic conditions in countries with poor intrauterine and infant nutrition means that a double burden of under nutrition and chronic disease will be increasingly faced simultaneously in those countries with the least resources to do so.

HIV/AIDS GLOBAL CRISIS OF THE CENTURY

HIV/AIDS is another challenge that would dare to eradicate

the mass of human population in the 21st century. Quite unlike diabetes which is a non communicable disease, AIDS/HIV is communicable disease that hocked on sexual contact as it medium of contraction and spread. It has become a challenge to human life and dignity with ability to erode social and economic development. According to Buve et al. (2002), HIV/AIDS is a major public health problem with great influence on stability, life expectancy and economic development globally. The United Nations 'Global Crisis Global Action' (2001) asserted that HIV has the potential of hindering the realization of national development goals, promoting poverty, and unleashing immense suffering on different countries and communities worldwide.

Across the world, nearly 35 million people are living with HIV. The disease is the primary cause of death in Africa and the fourth highest cause of death worldwide. A high percentage of people with HIV/AIDS live in the developing world, and the virus is most prevalent in communities that have already been weakened by severe poverty, widespread of illiteracy and the presence of many other diseases, Sagala (2008).

The epidemic continues to spread throughout the developing countries of the world despite recent advances in treatment and care available in most developed countries. Social and economic inequalities continue to fuel the epidemic, and HIV infection has increasingly been concentrated in the poorest, most marginalized sectors of the society in both developed and undeveloped countries, Christiaensen, Tollens, & Ezedinma (1995).

The HIV/AIDS epidemic has had a major impact on the countries of sub-Saharan Africa. According to the 2000 World Health Organization report, in 1999, about 68% of the 5.6 million

people throughout the world that were infected with HIV/AIDS come from sub-Saharan Africa.

Regional Perspectives

Sub-Saharan Africa is still viewed as the epicenter of global HIV/AIDS pandemic, Wood et al,(2000). A study by Olley, Seedat, Nei and Stein (2004) assessed patients recently diagnosed with HIV in Africa and found that 34.9% of their sample met diagnostic criteria for major depressive disorder.

Regionally, Nigeria is sandwiched between South Africa and Lesotho among the countries ranked as having the largest number of people living with HIV/AIDS in the world. According to a report submitted to the United Nations General Assembly Sessions on HIV/AIDS by South Africa's Minister of Health, Motsoaledi, (2009), , South Africa remains one of the countries most severely affected by the AIDS epidemic, and has the largest number of HIV infections in the world. According to the report, new HIV infections in the country showed steep rise from 1991, peaked at slightly over 600,000 of the population in 1999, declined slowly from then onwards to rest at just under 500,000 persons in 2009. AIDS deaths in 1999 was around 100,000 persons levelling out in 2009 at nearly 400,000 people, and that the numbers of projected AIDS deaths in the country may surpass projected non-AIDS deaths from all other causes.

With adult HIV prevalence rate of more than 15%, Lesotho, like South Africa, has also been classified into the hyper-endemic status. In 2007, the total number of children orphaned due to AIDS was estimated at 108,700, and the total number of people who have ever received an HIV test in was reported at 229,092 or 12% of the population, which is about 1.8 million. In

the year under review, there were an estimated 62 new HIV infections and about 50 deaths due to AIDS each day in the country. About 270,273 people were living with HIV in the country (UNGASS Report, (2008).

Despite being the largest oil producer in Africa and the 12th largest producer in the world (UNAIDS, (Udoh, Stammen, & Mantell, 2008), Nigeria has the second highest number of people living with HIV in the world after South Africa. In 2008, an estimated 2.98 million people (9%) among the 33.4 million living with HIV in the world reside in Nigeria (UNAIDS, 2009). According to Adeyi, et al. (2006), heterosexual sex remains the primary mode of transmission for HIV in the country and accounts for 80-95% of HIV infections with an estimated 3.1 percent of Nigerian adults between ages 15-49 living with HIV/AIDS in 2005.

Local Perspectives

The first two cases of HIV and AIDS in Nigeria were identified in 1985 and were reported at an international AIDS conference in 1986 and 1987. The Nigerian health sector established the National AIDS Advisory Committee, which was shortly followed by the establishment of the National Expert Advisory Committee on AIDS (NEACA).

As shown in Table 1, annual AIDS death in 2007 for male was 86,178, and for female, 105,822. While total AIDS orphans were recorded at 2,175,760, new HIV infection during the year under review was 149,095 for males and 187,284 for females. In that year, an estimated 2.98 million were living with HIV/AIDS in the country and the annual HIV positive birth was recorded at 56,681.

Table 1: NIGERIA HIV/AIDS STATUS AT A GLANCE (2007)

National Median HIV Prevalence	4.6%
Estimated Number of people living with HIV/AIDS	2.98 million
Annual HIV positive birth	56,681
Cumulative AIDS death	Male: 1.38 million Female: 1.61 million Total: 2.99 million
Annual AIDS Death	Male: 86,178 Female: 105,822
Number requiring Antiretroviral Therapy	Adults: 754,375 Children: 103,080
New HIV infection	Males: 149,095 Females: 187,284
Total AIDS orphans	2,175,760

Source: Federal Nigeria Ministry of Health (2008)

The outlook for HIV/AIDS prevalence rate in Nigeria is likely to increase in the coming years as more people will be put on HIV treatment and therefore live longer. It is also anticipated that the number of children orphaned due to AIDS in the region will decrease slightly in the coming years as improved treatment access leads to increased survival among parents.

With this grim outlook of the scary picture that the AIDS pendemic portrays for the future of adults survival in country like Nigeria, what is the hope for the Baby Boomers survival and enjoyment of their retirement age? Just like we have overcome many challenges of the previous 20th century, yes we can overcome the challenges that HIV/AIDS imposes for us only if we can heed the warning and adapt to a life style that is pure and healthy- hey it is about time to dust our bibles and go to church, yes we can enjoy our old age. Let us look at the financial imput that we have made against this monster of the 21st Century that is called AIDS

Financial Investments in HIV/AIDS Program

In November 2000, Bill and Melinda Gates Foundation authorized a fund in the sum of $25 million US dollars for a collaborative HIV prevention initiative between Nigerian governmental agencies, non-governmental agencies, and Nigeria universities in partnership with University of Harvard School of Public Health, and the Kennedy School of Government for the establishment of an HIV/AIDS prevention program in Nigeria.

The initiative under the title 'Aids Prevention Initiative in Nigeria' (APIN) created various committees, organized trainings and workshops, and set, as one of its immediate goal, the establishment of accurate and thorough surveillance of HIV infection rates in the country Nigeria AIDS Outlook, (2001).

In 2006, the government authorized the formation of a National AIDS Commission (NAC) and adopted the "National HIV & *AIDS Strategic Plan 2006-2011*", which was the foundation of the national response to the HIV/AIDS epidemic.

Beside the Bill and Melinda Gates Foundation contribution of $25,000 US dollars, Nigeria HIV/AIDS program has also benefited from other international governmental and non-governmental donors and partners. Prominent donors and partners in the HIV/AIDS Nigeria program include the President's Emergency Plan for AIDS Relief (PEPFAR), the UNAIDS, Millennium Challenge Corporation (MCC), the USAID, the DFID, the UNAIDS, the WHO, the World Bank, the Global Fund to Fight AIDS, TB, and Malaria, CSOs, the Harvard School of Public Health and the Kennedy School of Government.

In April 2001, the federal government of Nigeria committed to the investment of about US$3.7 million annually for procuring

antiretroviral drugs. In 2002, the World Bank loaned US$ 90.3 million to Nigeria to support a 5-year plan (Tan, Upshur, & Ford, 2003) and in 2005, the total federal government contribution to the national response to HIV/AIDS had escalated to around US$ 10.7 million.

In 2008 PEPFAR provided approximately US$448 million to Nigeria for HIV/AIDS prevention, treatment and care, which accounts for 39% or the third highest amount donated to PEPFAR's 15 focus countries (Federal Ministry of Health, 2005). By the end of 2008, the Global Fund had disbursed US$95 million in funds to the country for expansion of prevention, treatment, and care of mother-to-child transmission program. Other major expenditure, transfer of, and requests for funds for HIV/AIDS activities by the country included:

The submission, by Nigeria of another successful proposal to Round 5 of the Global Fund for a total of US$ 180.6 million to support scale-up of comprehensive HIV/AIDS treatment, care and support.

Nigeria is also part of the World Bank Multi-Country HIV/AIDS Program for Africa regional project which was approved for US$ 16.6 million in 2003 (Zolfo, Lynen, Dierckx, & Colebunders, 2006).

Nigeria is a beneficiary of the United States President's Emergency Plan for AIDS Relief. Under the Emergency Plan, Nigeria received more than US$ 70.9 million in 2004 to support a comprehensive HIV/AIDS prevention, treatment and care program.

The submission by Nigeria, of a successful Round 1 proposal to the Global Fund, with total funding of US$ 70.7 million. Global Fund financing will allow expansion of access to antiretroviral therapy and will reduce some

of the financial barriers to accessing treatment. The expansion covered laboratory testing for HIV/AIDS free of charge (Morrison, Kates, & Nieburg, 2005).
The commitment by the United State s in 2005, to an additional US$ 113.4 million to support Nigeria's fight against HIV/AIDS. Nigeria is a beneficiary of the World Bank Multi-Country WV/AIDS Program for Africa, with approved funding of US$ 90.3 million for 20022007.

Despite the fact that most of these funds will be utilized in the development of new HIV/AIDS awareness training programs, other supporters of Nigeria's HIV/AIDS efforts included the Canadian International Development Agency and the United Kingdom Department for International Development.(Piot & Coll Seck, 2001). With the influx of all these funds, Equjinetafrica (2010) reported a drop of over a billion-dollar in international aid for developing countries' HIV/AIDS programs over the past two years

Nutrition and food security

While the focus of attention of the nutrition transition has been its effect on shifts in macronutrient intake, obesity and chronic disease, there are additional concerns for the aging populations in developing countries. With rapid urbanization there are profound changes in social structures. Older family members are often left behind when families migrate to the city. Alternatively, they may find themselves isolated in a new urban environment. The increasing ratio of older dependents to fewer income earners puts pressure on traditional family support systems (Fall et al., 1995). With few formal retirement programs or pensions, many in the rapidly increasing population of elderly are likely to have difficulty securing nutritious diets. Foods supplying adequate energy but poor

nutrient quality may contribute to greater obesity in some food-insecure older populations. On the other hand, many elderly will likely suffer from inadequate energy and nutrient intakes and low BMI. Both obesity and under nutrition will contribute to disability among the aging population.

In most developing countries, few elder assistance programs currently exist. Elderly with declining functional ability will be at high risk for food insecurity, thereby placing them at even greater risk of progressing disease and disability. There are currently very few studies from which to understand the current and changing status of elderly in developing countries. As the size of this population grows, more documentation of the situation of elderly will be needed to formulate programs of prevention and emergency assistance.

Nutrient status and requirements with aging

Recent decades of research in elder populations in developed countries have documented the nutritional vulnerability of older individuals, even under relatively affluent circumstances. Although total energy intake declines with age, requirements for many nutrients go up to maintain organ systems with declining functionality (Frankel et al., 1996). It is therefore, more difficult for elderly to meet their nutrient requirements than for younger adults, and the selection of nutrient-dense foods becomes of even greater importance.

Recent research illustrates that protein adequacy is critical for maintaining functional status with age. Casteneda et al. (Martyn et al., 1996), found that older adults provided with diets containing 0.45 g protein · kg body wt^{-1} · d^{-1} for 9 wk had significant losses in lean tissue, immune response and muscle function. Recent studies suggest that protein requirements to retard loss of muscle mass and bone mass with aging (Stein et

al., 1996) in older individuals may be greater than previously thought. Short-term nitrogen balance results suggest that a safe recommended protein intake for older men and women should be 1.01.25 g high quality protein · kg^{-1} · d^{-1} (Leon et al., 1996).

Micronutrient inadequacies are common among elderly, even in the most developed countries, and they have increasingly been linked to risk of chronic disease. For example, vitamins B-6, B-12, and foliate are required to prevent the accumulation of homocysteine, an amino acid that has been consistently associated with risk of vascular disease (Neel, 1962), and recent studies have also shown associations between low concentrations of these B vitamins and cognitive decline (Hattersley and Tooke, 1999) . In addition, vitamin B-12 is needed to maintain neurological function (Martin and Kinsella, 1994) . Data from several studies suggest that inadequate blood concentrations of these B vitamins are prevalent in older populations. In the Netherlands, 1045% of adults aged 65 years and older were deficient in vitamin B-6, Russell (1992) . Older persons have greater difficulty absorbing vitamin B-12 because of atrophic gastritis, a degenerative stomach condition estimated to affect 2540% of U.S. elderly, Castaneda et al. (1995). Despite apparently adequate intakes of vitamin B-12, relative to recommendations, >16% of elders in the U.S. Framingham Study had low vitamin B-12 concentrations (Evans and Cyr-Campbell, 1997).

Furthermore, with age, there is decreased ability to form previtamin D-3- in skin few studies on B vitamins in elderly in Latin America (Hannan et al., 2000), found prevalence of foliate deficiency of 51% in men and 33% in women and prevalence of vitamin B-12 deficiency of 51% in men and 31% in women. On the other hand, in a small sample of elderly in Bangkok, Thailand, foliate deficiency was found for 21% and vitamin B-12

deficiency was found for only 7% of cases (Baugartner et al., 1995). More information is needed about the B vitamin status of elderly in developing countries, where deficiency is likely to be common.

Calcium and vitamin D are also nutrients of particular concern for elderly populations. With age, declining renal function leads to malabsorption of calcium and accelerated bone loss (Baumgartma, 2000); requirements for vitamin D also increase with aging. Despite the greater availability of sunlight in most developing countries, relative to most developed countries, older individuals often have less exposure than younger with UV light exposure (Selhub et al., 1995). The low calcium and vitamin D in the diets of many developing countries, together with the dietary and physical activity changes associated with the nutrition transition, **suggest that osteoporosis will become an increasingly major problem as these populations age.**

Antioxidant vitamins, including vitamin C, vitamin E, and a variety of phytochemicals, are important in maintaining effective antioxidant defenses against oxidant stressrelated diseases, including cancer, cataract and Alzheimer's disease. Vitamin E has also been shown to be effective in promoting immune function to fight infection (Selhub et al.,1996) . Very few studies of antioxidant status in developing countries are available. With the nutrition transition toward higher fat, lower fiber diets, attention to maintaining and increasing intakes of traditional fruits, vegetables and whole grains is of considerable importance in helping to control the worldwide increases in incidence of chronic disease, developing countries in the tropical regions such as Nigeria would benefit from the abundance of fruit and green vegetable if our people would form the habit of changing and feeding with the right fruit and vegetables.

Interestingly, the nutrients that have received the most attention for maternal and child nutritioniron and vitamin Aare required in lower amounts by elderly than by younger adults. There is decreased clearance of vitamin A by hepatic and other peripheral tissues with age (Stampfer et al., 1992). Similarly, iron stores accumulate with age, and high serum ferritin has been associated with greater risk of coronary heart disease (Rigts et al., 1996). Consequently, micronutrient fortification programs should consider the possible effects on the growing elderly segment of their populations.

Nutrition policy for aging populations in developing countries

At this time, few developing countries have placed elder nutrition on their list of priorities. However, the demographic pressures are becoming apparent. In 1992 at the International Conference on Nutrition, a formal recommendation was made that "... each country should make a firm commitment to promoting the nutritional well-being of its people, with priority given to the most nutritionally vulnerable groups." It was noted that older people are such a group, and it was further recommended "... that governments, in collaboration with other concerned parties, should promote caring for older persons" (World Health Organization, 2001).

This recommendation was followed with a joint consultation of the World Health Organization with the Jean Mayer USDA Human Nutrition Research Center on Aging at Tufts University in 1998, where these issues were discussed in detail. An effort to utilize the growing knowledge about aging in developed countries lead to a list of priority concerns, for which more data are needed in developing countries. Prominent on this list are the need to document the nutritional status of

elderly, to better determine nutrient requirements, and to identify factors affecting dietary intake and nutrient absorption in differing cultural and environmental settings. It was also recognized that international dietary guidelines for older individuals are lacking, and that these are needed to guide community awareness and support of nutrition for elderly and for the development of community-based interventions.

Cancer.

Cancer is the last frontier battle between the 20 st and 21st Century. This is the class of diseases characterized by out-of-control cell growth. There are over 100 different types of cancer, and each is classified by the type of cell that is initially affected.

Cancer harms the body when damaged cells divide uncontrollably to form lumps or masses of tissue called tumors (except in the case of leukemia where cancer prohibits and interfere with the digestive, nervous, and circulatory systems, and they can release hormones that alter body function. Tumors that stay in one spot and demonstrate limited growth are generally considered to be benign.

More dangerous, or malignant, tumors form when two things occur:

1. a cancerous cell manages to move throughout the body using the blood or lymph systems, destroying healthy tissue in a process called invasion
2. that cell manages to divide and grow, making new blood vessels to feed itself in a process called angiogenesis.

When a tumor successfully spreads to other parts of the body and grows, invading and destroying other healthy tissues, it is

said to have metastasized. This process itself is called metastasis, and the result is a serious condition that is very difficult to treat.

In 2007, cancer claimed the lives of about 7.6 million people in the world. Physicians and researchers who specialize in the study, diagnosis, treatment, and prevention of cancer are called oncologists.

Cause of Cancer

Cancer is ultimately the result of cells that uncontrollably grow and do not die. Normal cells in the body follow an orderly path of growth, division, and death. Programmed cell death is called apoptosis, and when this process breaks down, cancer begins to form. Unlike regular cells, cancer cells do not experience programmatic death and instead continue to grow and divide. This leads to a mass of abnormal cells that grows out of control.

Genes - the DNA type

Cells can experience uncontrolled growth if there are damages or mutations to DNA, and therefore, damage to the genes involved in cell division. Four key types of gene are responsible for the cell division process: ontogenesis tell cells when to divide, tumor suppressor genes tell cells when not to divide, suicide genes control apoptosis and tell the cell to kill itself if something goes wrong, and DNA-repair genes instruct a cell to repair damaged DNA.

Cancer occurs when a cell's gene mutations make the cell unable to correct DNA damage and unable to commit suicide. Similarly, cancer is a result of mutations that inhibit oncogene and tumor suppressor gene function, leading to uncontrollable cell growth.

Carcinogens

Carcinogens are a class of substances that are directly responsible for damaging DNA, promoting or aiding cancer. Tobacco, asbestos, arsenic, radiation such as gamma and x-rays, the sun, and compounds in car exhaust fumes are all examples of carcinogens. When our bodies are exposed to carcinogens, free radicals are formed that try to steal electrons from other molecules in the body. Theses free radicals damage cells and affect their ability to function normally.

Genes - the family type

Cancer can be the result of a genetic predisposition that is inherited from family members. It is possible to be born with certain genetic mutations or a fault in a gene that makes one statistically more likely to develop cancer later in life.

Aging and other medical factors

As we age, there is an increase in the number of possible cancer-causing mutations in our DNA. This makes age an important risk factor for cancer. Several viruses have also been linked to cancer such as: human papilloma virus (a cause of cervical cancer), hepatitis B and C (causes of liver cancer), and Epstein-Barr virus (a cause of some childhood cancers). Human immunodeficiency virus (HIV) - and anything else that suppresses or weakens the immune system - inhibits the body's ability to fight infections and increases the chance of developing cancer.

What are the symptoms of cancer?

Cancer symptoms are quite varied and depend on where the

cancer is located, where it has spread, and how big the tumor is. Some cancers can be felt or seen through the skin - a lump on the breast or testicle can be an indicator of cancer in those locations. Skin cancer (melanoma) is often noted by a change in a wart or mole on the skin. Some oral cancers present white patches inside the mouth or white spots on the tongue.

Other cancers have symptoms that are less physically apparent. Some brain tumors tend to present symptoms early in the disease as they affect important cognitive functions. Pancreas cancers are usually too small to cause symptoms until they cause pain by pushing against nearby nerves or interfere with liver function to cause a yellowing of the skin and eyes called jaundice. Symptoms also can be created as a tumor grows and pushes against organs and blood vessels. For example, colon cancers lead to symptoms such as constipation, diarrhea, and changes in stool size. Bladder or prostate cancers cause changes in bladder function such as more frequent or infrequent urination.

As cancer cells use the body's energy and interfere with normal hormone function, it is possible to present symptoms such as fever, fatigue, excessive sweating, anemia, and unexplained weight loss. However, these symptoms are common in several other maladies as well. For example, coughing and hoarseness can point to lung or throat cancer as well as several other conditions.

When cancer spreads, or metastasizes, additional symptoms can present themselves in the newly affected area. Swollen or enlarged lymph nodes are common and likely to be present early. If cancer spreads to the brain, patients may experience vertigo, headaches, or seizures. Spreading to the lungs may cause coughing and shortness of breath. In addition, the liver may become enlarged and cause jaundice and bones can become

painful, brittle, and break easily. Symptoms of metastasis ultimately depend on the location to which the cancer has spread.

Classification of Cancer

There are five broad groups that are used to classify cancer.

1. Carcinomas are characterized by cells that cover internal and external parts of the body such as lung, breast, and colon cancer.
2. Sarcomas are characterized by cells that are located in bone, cartilage, fat, connective tissue, muscle, and other supportive tissues.
3. Lymphomas are cancers that begin in the lymph nodes and immune system tissues.
4. Leukemias are cancers that begin in the bone marrow and often accumulate in the bloodstream.
5. Adenomas are cancers that arise in the thyroid, the pituitary gland, the adrenal gland, and other glandular tissues.

Cancers are often referred to by terms that contain a prefix related to the cell type in which the cancer originated and a suffix such as -sarcoma, -carcinoma, or just -oma.

How is cancer diagnosed and staged?

Early detection of cancer can greatly improve the odds of successful treatment and survival. Physicians use information from symptoms and several other procedures to diagnose cancer. Imaging techniques such as X-rays, CT scans, MRI scans, PET scans, and ultrasound scans are used regularly in

order to detect where a tumor is located and what organs may be affected by it. Doctors may also conduct an endoscopy, which is a procedure that uses a thin tube with a camera and light at one end, to look for abnormalities inside the body.

Extracting cancer cells and looking at them under a microscope is the only absolute way to diagnose cancer. This procedure is called a biopsy. Other types of molecular diagnostic tests are frequently employed as well. Physicians will analyze your body's sugars, fats, proteins, and DNA at the molecular level. For example, cancerous prostate cells release a higher level of a chemical called PSA (prostate-specific antigen) into the bloodstream that can be detected by a blood test. Molecular diagnostics, biopsies, and imaging techniques are all used together to diagnose cancer.

After a diagnosis is made, doctors find out how far the cancer has spread and determine the stage of the cancer. The stage determines which choices will be available for treatment and informs prognoses. The most common cancer staging method is called the TNM system. T (1-4) indicates the size and direct extent of the primary tumor, N (0-3) indicates the degree to which the cancer has spread to nearby lymph nodes, and M (0-1) indicates whether the cancer has metastasized to other organs in the body. A small tumor that has not spread to lymph nodes or distant organs may be staged as (T1, N0, M0), for example.

TNM descriptions then lead to a simpler categorization of stages, from 0 to 4, where lower numbers indicate that the cancer has spread less. While most Stage 1 tumors are curable, most Stage 4 tumors are inoperable or untreatable.

How is cancer treated?

Cancer treatment depends on the type of cancer, the stage of the

cancer (how much it has spread), age, health status, and additional personal characteristics. There is no single treatment for cancer, and patients often receive a combination of therapies and palliative care. Treatments usually fall into one of the following categories: surgery, radiation, chemotherapy, immunotherapy, hormone therapy, or gene therapy.

Surgery

Surgery is the oldest known treatment for cancer. If a cancer has not metastasized, it is possible to completely cure a patient by surgically removing the cancer from the body. This is often seen in the removal of the prostate or a breast or testicle. After the disease has spread, however, it is nearly impossible to remove all of the cancer cells. Surgery may also be instrumental in helping to control symptoms such as bowel obstruction or spinal cord compression.

Radiation

Radiation treatment, also known as radiotherapy, destroys cancer by focusing high-energy rays on the cancer cells. This causes damage to the molecules that make up the cancer cells and leads them to commit suicide. Radiotherapy utilizes high-energy gamma-rays that are emitted from metals such as radium or high-energy x-rays that are created in a special machine. Early radiation treatments caused severe side-effects because the energy beams would damage normal, healthy tissue, but technologies have improved so that beams can be more accurately targeted. Radiotherapy is used as a standalone treatment to shrink a tumor or destroy cancer cells (including those associated with leukemia and lymphoma), and it is also used in combination with other cancer treatments.

Chemotherapy

Chemotherapy utilizes chemicals that interfere with the cell division process - damaging proteins or DNA - so that cancer cells will commit suicide. These treatments target any rapidly dividing cells (not necessarily just cancer cells), but normal cells usually can recover from any chemical-induced damage while cancer cells cannot. Chemotherapy is generally used to treat cancer that has spread or metastasized because the medicines travel throughout the entire body. It is a necessary treatment for some forms of leukemia and lymphoma. Chemotherapy treatment occurs in cycles so the body has time to heal between doses. However, there are still common side effects such as hair loss, nausea, fatigue, and vomiting. Combination therapies often include multiple types of chemotherapy or chemotherapy combined with other treatment options.

Immunotherapy

Immunotherapy aims to get the body's immune system to fight the tumor. Local immunotherapy injects a treatment into an affected area, for example, to cause inflammation that causes a tumor to shrink. Systemic immunotherapy treats the whole body by administering an agent such as the protein interferon alpha that can shrink tumors. Immunotherapy can also be considered non-specific if it improves cancer-fighting abilities by stimulating the entire immune system, and it can be considered targeted if the treatment specifically tells the immune system to destroy cancer cells. These therapies are relatively young, but researchers have had success with treatments that introduce antibodies to the body that inhibit the growth of breast cancer cells. Bone marrow transplantation (hematopoetic stem cell transplantation) can also be considered immunotherapy because the donor's immune cells will often

attack the tumor or cancer cells that are present in the host.

Hormone therapy

Several cancers have been linked to some types of hormones, most notably breast and prostate cancer. Hormone therapy is designed to alter hormone production in the body so that cancer cells stop growing or are killed completely. Breast cancer hormone therapies often focus on reducing estrogen levels (a common drug for this is tamoxifen) and prostate cancer hormone therapies often focus on reducing testosterone levels. In addition, some leukemia and lymphoma cases can be treated with the hormone cortisone.

Gene therapy

The goal of gene therapy is to replace damaged genes with ones that work to address a root cause of cancer: damage to DNA. For example, researchers are trying to replace the damaged gene that signals cells to stop dividing (the p53 gene) with a copy of a working gene. Other gene-based therapies focus on further damaging cancer cell DNA to the point where the cell commits suicide. Gene therapy is a very young field and has not yet resulted in any successful treatments.

Prevention of Cancer

Just like I have emphasized in some of classroom lecture on heath promotion, Cancers that are closely linked to certain behaviors are the easiest to prevent. For example, choosing not to smoke tobacco or drink alcohol significantly lower the risk of several types of cancer - most notably lung, throat, mouth, and liver cancer. Even if you are a current tobacco user, quitting can

still greatly reduce your chances of getting cancer.

Skin cancer can be prevented by staying in the shade, protecting yourself with a hat and shirt when in the sun, and using sunscreen. Diet is also an important part of cancer prevention since what we eat has been linked to the disease. Physicians recommend diets that are low in fat and rich in fresh fruits and vegetables and whole grains.

Certain vaccinations have been associated with the prevention of some cancers. For example, many women receive a vaccination for the human papillomavirus because of the virus's relationship with cervical cancer. Hepatitis B vaccines prevent the hepatitis B virus, which can cause liver cancer.

Some cancer prevention is based on systematic screening in order to detect small irregularities or tumors as early as possible even if there are no clear symptoms present. Breast self-examination, mammograms, testicular self-examination, and Pap smears are common screening methods for various cancers.

Most of the health challenges of the century could be prevented by a change in lifestyle as we have a mind set that aging is a mental phenomena. Even though we age physically we do not age mentally. You are still the same person whom you are from birth. We are born for a purpose and continue to live on after we have existed from this part of the universe. Would that surprise any one when the best Teacher, Jesus Christ admonished that any one who believes and does his teaching will not die but have an everlasting life? Most advance cultures and civilization of the world believed that life is a transition from one life to another. Here we are privileged to make the best of life and leave a legacy for others to emulate. As we obey the principle of healthy leaving that is physically, emotionally and spiritually sound, we

would age happily before transition to the next world. Friends remember that nature has established rules to a happy life in everything we do, so be well and have a good old age.

ACKNOWLEDGEMENT

I would like to use this moment to acknowledge God who has been with me in all my life journey, especially giving me the grace and resources to study and accomplish in the whiteman's land. I want to thank Him especial for keeping me focused, inspite of all the distractions of the western world.

To my late mother, Ezinne Nwayiba, who believed in me and gave me those possive encouragement and rewards, knowing that I will became what I am today.

To my late father, Sir Odionydema, who walked very hard to keep to the vision he hard for all this children. To my uncle, the late, Justice Egejuru who saw the special talent in me when he return from London in 1964.

To the Adokis family who vowed that they will see this fire that God put in me bloom and even took me and protected this jewel that God placed on me.

To my late brother, Aaron, who took the mantle of leadership to support my education when our late father went on to be with Lord.

To my teachers at St Cypril primary school, who never stopped talking of the brightness they saw in me and encouraged me.

To my brothers in Christ, Bishop Alexander Ekewuba and Dr. Bishop Chima Amadi he became my mentors of faith in Christ immediately after the civil war.

I would like to express a profound appreciation to the Nigeria University Council for the federal Linkage Program that they created to attract the Nigeria professionals in Diaspora back home. I would not have be here today but for the Lead Program and the determination of our able visionary and Vice Chancelor,

Professor C.O.E. Onwuliri to bring me home to my home institution.

I would like to all give a special gratitude to my able Dean, Profesor, A.C. Abanobi for welcoming me and gave me the right hand of fellowship in the School of Health Technology. I would not stop to thank and appreciate all my colleagues in the department of Public Health Technology. They really were friendly and made me feel welcomed home. What can I say about the great Futoites, the Senate, the students and the entire academic environment which is very friendly and welcoming. Thank you and God bless you wonderful people.

How can I forget where, I hail from, the great Ajala villeage of the ancient Kingdom of Avu. You can see that without them, a son like me will not be among you. How can I forget the royal highness of Orlu, Ihioagwa who were there to receive me an Avu illustrious son in the 100 year anniversary of the kingdom, the Eze Okere, Eze Muraoku, and Eze Ebubudike One.

I must appreciate my Lord spiritual in the person of the Bishop of Anglican Church who gave me a special reception and even reminded me of our blessed heritage of the Anglican faith right from Port Harcourt to the present Owerri Dioceses.

As the saying goes, behind a successful woman is a man and behind a successful man is woman, how can I not tell the world that my wife, Dr. Mrs. Adaeze Egole-Oziri and my entire family were behind my success today. I would not fail to remember the fiftieth birthday bash they lavished on me, one of it kinds in Queens city of Ohio. It has been a long journey home and how I thank God for an understanding wife who made every sacrifice for her husband's success. May the God Lord keep you to reap the fruit of all your labor for our family.

Finally I would appreciate all and sundry who are a part of this day and pray the good Lord to make you a success in your life journey. Thank you and God bless you all.

BIOGRAPHY

Nnamdi John Ibezimako Oziri is the son of Mr. and Mrs. Peter Odionyema and Christiana Nwayimba Oziri of Umuagaegbe, Umuajala Avu in Owerri West Local Government. Nnamdi had his primary education at St Peter and St Cyprian Primary Port Harcourt where he passed with distinction for first leaving school certificate in 1964.
In 1965, Nnamdi gained entrance to school at Government comprehensive secondary school in Port Harcourt. As a result of the civil war he returned home to Avu and finished his secondary school at Emmanuel College Owerri after the civil.

On graduating from high school he gained entry to work at Shell Petroleum Company in the production department. In 1983, he gained admission with scholarship to study overseas in high institution in the United State of America. After his four year at Gods Bible College he graduate with honors for his B.Sc. (caum laude). He proceeded to do a his masters and got another scholar 1987 at the University of Cincinnati, this he also graduated with honors and got another scholar to do his PhD also at the University of Cincinnati.

After teaching from 1992 to 1997 at his first University, the Indiana University, he became a visiting associate professor for his Alma Matter and also Miami University Ohio. In 2004 he headed south and became the head of Depart for the social and behavioral school at Edward Water College at Jacksonville Florida. After many frequent flying from the south and Midwest he choose to start another fulltime lecturing at the first black university in the United State, William Wilberforce University. It was from there he accepted the Linkage Program of Nigeria University Council and returned home to serve as a Lead Scholar at the Federal

University of Technology, Owerri.

Dr. Oziri is blessed with his wife Dr.(Mrs.) Adaeze Egole-Oziri and their nine beautiful children. His daughters, Nnenna and Uzoamaka are well off in the professional world as auditor and engineers. His sons, Onyekachi, Ikenna and Nnamdi Jr. are also in the professional preparation in the State. His other daughters Ifunnaya and Chiaka are also in the school doing medicine and business respectively. His last two boys Uche and Udo are still doing their primary level education. Nnamdi is very thankful to God who has blessed him like Jacob of Old because of his resounding faith in our Lord Jesus. Today I thankful for the opportunity God has given me to return home to help build our nation. God bless Nigeria, God bless the United State of America and God bless the great FUTOlites.

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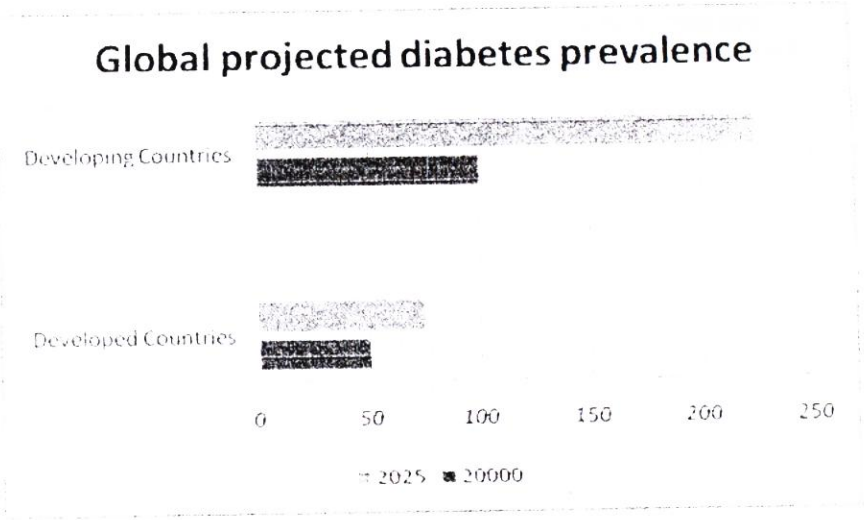
Global projected diabetes prevalence
Developing Countries
Developed Countries
0
50
100
150
200
250
2025
2000

Fig. 2

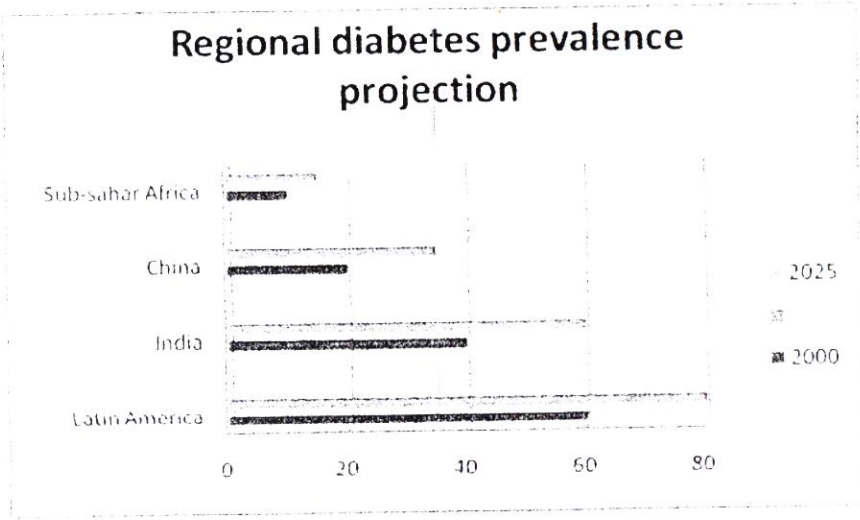
Regional diabetes prevalence projection
Sub-sahar Africa
China
India
Latin America
0
20
40
60
80
2025
2000

Fig. 3

FEDERAL UNIVERSITY OF TECHNOLOGY, OWERRI
LIST OF PREVIOUS PUBLIC LECTURES AND LECTURERS

S/NO	LECTURER	DATE	TITLE
1	Prof. Umaru D. Gomwalk	Jan. 19, 1985	"University of Technology in Modern Nigeria Society: An outlook for the future".
2	Alhaji Shehu Musa Mckaman Nupe	Dec. 2, 1988	"Nigeria my vision for 21st century".
3	Dr. C. N. Ogbu	March 1, 1989	"Sexually Transmitted Disease and the Aids Scourge".
4	Prof. S. A. Okecha	May 31, 1995	"Environmental Pollution: The Scourge of Life kind".
5	Prof J.I. Ejimanya	Oct. 3, 2005	"Expanding human sensing capabilities: a multi-disciplinary challenge".
6	Prof. S. O. Ogwude	Nov. 26, 2003	"On the Woman question".
7	Prof. A. I. Onuchukwu	Aug. 12, 2004	"Preventing kerosene explosion in our homes".
8	Prof. G. Oyibo	Dec. 2, 2004	"Mathematics and Physics interfacing with human development".
9	Prof. E. Okeroafor	June 16, 2005	"Essence and Relevance of Strategic Planning in the University System".
10	E.I. Oyia	Dec. 8, 2005	"Liquefied Natural Gas (LNG) and the Nigerian Economy".
11	Prof. (Mrs) E. Onyejekwe	April 3, 2008	"The Digital Promise and Health Informatics".
12.	Dr. Goddy Chuma Okoye	Aug. 30, 2008	"Biomedical Technology and Human Life".
13.	Engr. Prof. P.B.U. Achi	Sept. 18, 2008	"Problem-based Learning: The really effective education Pedagogy for Africa".
14.	Prof. Christopher Okoro	Feb. 12, 2009	"Universities as Effective Centres for Science and Technology Development".
15.	Dr. Ndubuisi Ekekwe	May 22, 2009	"Neuromorphs and versatile bio-acquisition system".

16.	Dr. (Mrs) Doris Iro	Jan. 14, 2010	"The role of Physiotherapy in the concept of Public Health".
17.	Prof. (Mrs) B. Ngozi Anyanwu	June 23,2010	"Instilling Moral Ethics in the University Community: A *sine qua non* for National Growth ad Development".
18.	Prof. Kas M. Ibe	July 7,2010	"Hydrogeoenvironmental risk Assessment: The Challenges and Promises".
19.	Dr. I.I. Onyeche	Aug. 5,2010	"Focus on GIS training and its applications".
20.	Mr. Charles O. Omeire	Dec. 15,2010	"Town and Gown Dialectics: A Healthy Partnership or a Marriage of Convenience?