OBAFEMI AWOLOWO UNIVERSITY, ILE-IFE, NIGERIA.

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THAT WE ALL MAY PROSPER AND BE IN HEALTH:

The Primacy, Premises, and Promises of Adolescent and Reproductive Health

By

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Professor of Community Medicine and Public Health

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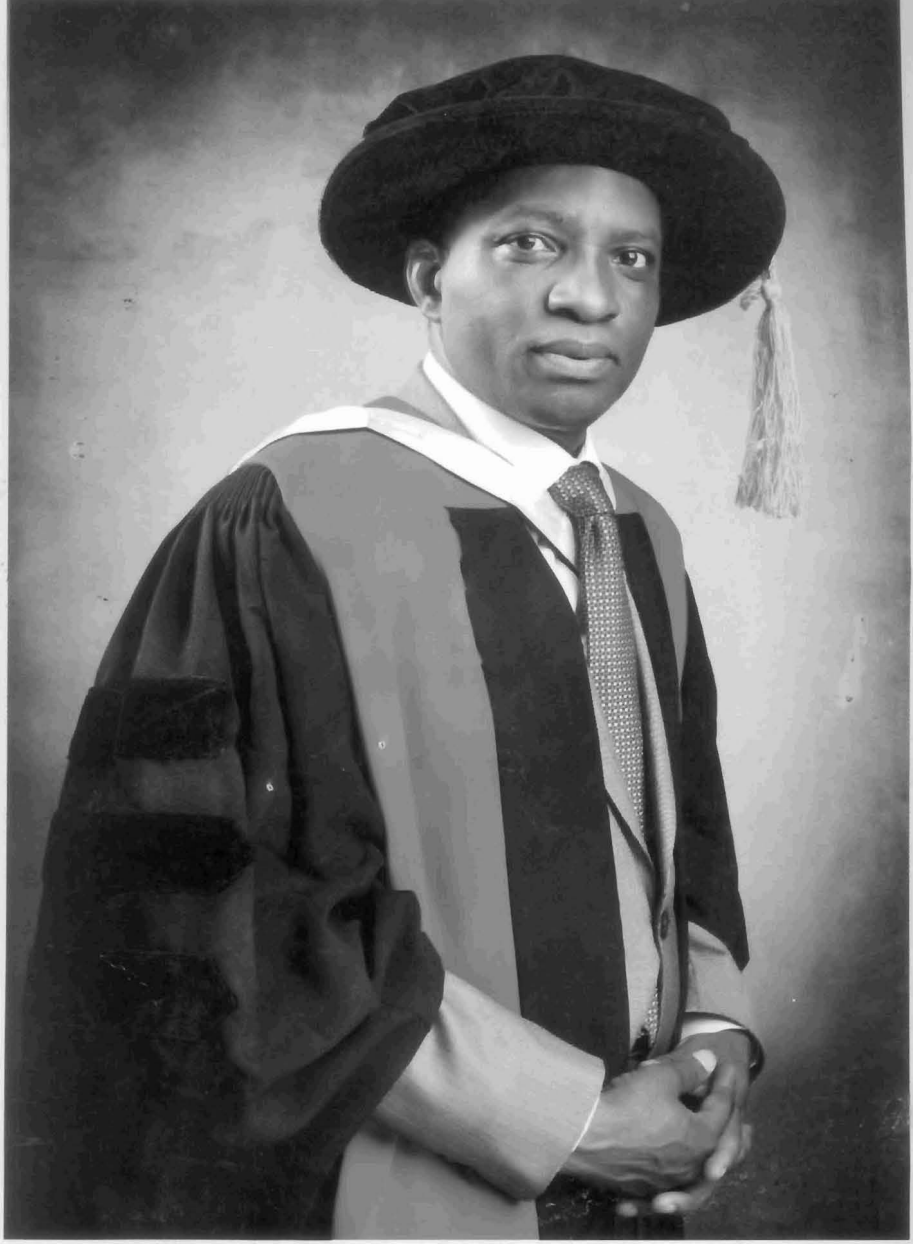

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An Inaugural Lecture Delivered at Oduduwa Hall
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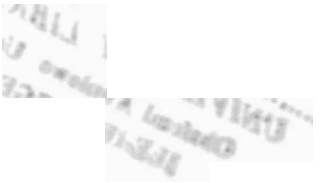

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INTRODUCTION

Mr. Vice-Chancellor, Sir, I feel privileged to stand before this august audience to present today's inaugural lecture. As I prepared this lecture, I could not but reflect on the steps that have brought me to this point in my life and career: from a carefree and adventurous teenager, who got admitted into the then University of Ife (now Obafemi Awolowo University) in 1980, to a professor and Provost of the College of Health Sciences today in the same university. My reflections are perhaps best captured by these words of King David: "Who am I, O Sovereign Lord, and what is my family, that you have brought me this far.... How great you are, O Sovereign Lord! There is no one like you" (2 Sam 7: 18,22).

Despite the fact that I had graduated with a distinction in Community Health and won the Lawrence Omole Prize for the Best Student in Community Health, I never dreamt of going into the field of Community Medicine as a specialty. But through a series of events, I finally got the conviction that this was God's plan for me and from then on, there was no looking back. Many of my colleagues and friends, as well as some of my old teachers, however, were understandably puzzled by my decision to venture into such an unpopular field. The result of a study carried out in the University of Ibadan among medical students of my generation clearly illustrates how unpopular Community Medicine was then. While only 3% of graduating medical students indicated an interest in specializing in Public Health/Community Medicine, no single medical student in the preclinical years indicated such interest.[1] Had that study been conducted then in Obafemi Awolowo University, the results would probably have been worse

University of Ibadan was, at that time, the base of most of the giants in the field of Public Health and Community Medicine in Nigeria, while Obafemi Awolowo University (OAU) and Obafemi Awolowo University Teaching Hospitals Complex (OAUTHC), Ile-Ife, had only two Community Physicians in its employment in 1987, and only one from 1988 to 1995 – Dr. Isaac O. Abayomi. My generation clearly

owes Dr. Abayomi, undisputedly the "Father of the Ife Community Health Residency Programme," a huge debt; without him, my cohort may not have had the opportunity of undergoing residency training programme in Community Health in Ife. Baba Abayomi, as we fondly call him, supervised my final fellowship research dissertation in 1995, with Professor M.C. Asuzu of the University College Hospital/University of Ibadan as co-supervisor.

As I journeyed through the training in the field of Public Health and Community Medicine, as if to encourage me and keep me focused, God blessed my endeavour with several success stories. In 1992, for example, I won the Federal Government "one year" abroad award for being the best candidate in the Part I examinations of the Faculty of Public Health of the National Postgraduate Medical College of Nigeria. In 1994, I got a scholarship for postgraduate studies at the renowned Braun School of Public Health and Community Medicine, Hebrew University-Hadassah, Jerusalem, Israel: I graduated from the International Master of Public Health degree programme with the highest academic honour (*summa cum laude*). Step by step, God led me on and showed His faithfulness.

Interestingly, while the field of Public Health has not enjoyed constant visibility and support in the history of our College of Health Sciences in OAU over time, it is one discipline that vividly captured the imaginations of our founding fathers as an area of distinct emphasis and as a platform for impacting the health of the population.[2] The "Ife Philosophy"[3] of training health professionals that was bequeathed to us by our illustrious founding fathers, under the leadership of Professor T. Adesanya Ige Grillo, is unrivalled in Nigeria, in terms of the richness of its community-based approach and the eclectic blending of science and services. Our university also has the distinction of having the first Professor of Public Health in sub-Saharan Africa – Late Professor Oladele Ajose – as our very first vice-chancellor. Unfortunately, this remarkable piece of history is lost to many, even in our academic environment, with the lecture theatre named after him located, with the best of intentions, but by an accident of history, near the Faculty of Agriculture.

At this juncture, I believe it is pertinent to remind this distinguished audience of the purpose of the inaugural lecture. As great scholars within and outside our university had indicated, including Professor Bamitale Omole,[4] in his inaugural lecture on 25th May 2010, the inaugural lecture presents the lecturer a platform to do three things primarily: to present a discourse on his/her discipline, discuss his/her works as a scholar, and define his scholarship agenda for the future. In that regard, my roadmap for this lecture is as follows:

1. My Discipline, My Call: where I will briefly describe the discipline of Public Health/Community Medicine and my primary fields of interest – Adolescent Health and Reproductive Health;

2. Stewardship of my Scholarship: whereby I will discuss some of my contributions to scholarship and the academia;

3. Defining the Future: where I will highlight some important emerging issues in my area of specialization, vis-à-vis my proposed research and related academic agenda for the future.

MY DISCIPLINE, MY CALL

Public Health: An Ancient and Modern Discipline

The concept of Public Health has existed since ancient times. The origin of modern Public Health, however, can be traced back to efforts to control epidemics of now uncommon infectious diseases, such as plague and leprosy.[5] Public Health is a dynamic discipline that has continued to grow in response to global and local health-related challenges. The definition given by C.E.A. Winslow in 1920, remains the classical definition of public health till date, although

there have been efforts to shorten it in recent times. [6,7i] Winslow defined Public Health as:

> *"the science and art of preventing disease, prolonging life and promoting physical health and efficiency through organized community efforts for the sanitation of the environment, the control of community infections, the education of the individual in principles of personal hygiene, the organisation of medical and nursing services for the early diagnosis and preventive treatment of disease, and the development of social machinery which will ensure to every individual in the community, a standard of living adequate for the maintenance of health."*[8]

Community Medicine and Community Health are two terms that are often used in discourses on the Public Health field. Not unusually, people often ask the question – are these terms/fields the same, or how are they connected? I will like to briefly explain these inter-related terms, particularly as the last inaugural lecture given by a Community Physician in our university was about 33 years ago, by Professor Taiwo Daramola.[9] Before Professor Daramola, Professor Ade Adeniyi-Jones, the foundation Head of our Department was the only other Community Physician who had given an inaugural lecture in this university (on 26 January 1978).[2] May I quickly add that two other great academics from our Department – Community Health – have also given inaugural lectures. These are Professors Ebenezer Ojofeitimi[10] and Delana Adelekan,[11] both of whom are outstanding public health nutritionists.

Public Health is the umbrella discipline that encompasses the wide group of professionals working in the promotion of the health of the public. Public Health is grounded in a broad array of sciences

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(including biological, social and management sciences), has its basis in social justice and philosophy, is linked with government and public policy, and focuses on prevention as a prime intervention strategy.[12] The field of Public Health also embraces efforts to address broad determinants of diseases such as inequity and strengthen health systems performance. Beyond being an art and a science, Public Health is also a movement dedicated to the equitable improvement of the health and the well-being of communities (with their full participation).[13]

Community Health is an aspect of Public Health that focuses on the total health of people in clearly defined geographical areas – preventive, promotive, curative and rehabilitative health care. As Sidney Kark puts it, "*Community healthcare involves activities toward the promotion of the health of the community, together with efforts to prevent disease, to treat and care for the sick, and contribute towards the rehabilitation of disabled people in the community.*"[14] The focus is on the health of the community as a whole, although the intervention can be at the individual and group levels.

Community Medicine, on the one hand, can be regarded as an aspect of Community Health that is the exclusive preserve of physicians, within the context of public health practice. On the other hand, it has been defined as "*a branch of medicine concerned with populations or groups rather than with individual patients, requiring special knowledge of epidemiology, organisation and evaluation of medical care, and the medical aspects of health service administration.*"[15] Thus, Community Medicine is nested within both the Public Health and Clinical Medicine domains, and can be rightly regarded as a vital bridge between the two. Community Medicine, by the way, is used interchangeably with "Public Health Medicine" – the practice of public health by physicians.[16] Community or Public Health Physicians are trained to provide clinical care, as well as engage in effective preventive interventions, including clinical prevention services and community-based services, health advocacy and health systems leadership.

My areas of primary interest within the discipline of Public Health and Community Medicine are Adolescent Health and Reproductive Health, with adolescent and young people's sexual and reproductive health constituting a critical link between these two focal areas. Interestingly, both Adolescent Health and Reproductive Health are relatively new to the Public Health domain. At the time I graduated from the medical school in 1987, none of these two fields was a distinct part of the medical curriculum in Nigeria and, indeed, most parts of the world. By the time I completed my specialist training (Fellowship of the West African College of Physicians [WACP] in Community Health) in April 1995, Reproductive Health had just emerged on the global agenda, but it was not yet a focus of most public health training programmes. As for Adolescent Health, it had not even made it into the curricula of our College of Health Sciences or even the specialist training of the Nigerian and West African Postgraduate Medical Colleges at the time I returned to full-time academic life in this University in September 2002.

Reproductive Health: The Primacy and Premises

The field of "Reproductive health" as a distinct entity in the form we know it today, originated at the International Conference on Population and Development (ICPD), which held in Cairo, Egypt, in September 1994. The Programme of Action of the ICPD, signed by the heads of governments of 179 countries, defines Reproductive Health as:

> *.... a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity, in all matter relating to the reproductive system and to its functions and processes."*[17]

The reproductive health approach targets the interrelated health service needs of people regarding their sexuality, sexual behaviour and reproduction at various stages of life (Figure 1). It aims to involve people in the design and evaluation of programmes, and provides quality care so that all individuals and couples can have safe and satisfying sex lives and freely decide if, when, and how often

to have children. Reproductive Health builds on the achievement of Maternal and Child Health/Family Planning and other relevant population programmes, and broadens the existing agenda to involve previously neglected groups, such as young people, men and refugees, as well as cover neglected issues such as gender-based violence. Reproductive Health also emphasizes a new way of working – an integrated, client-centred, rights-based, and gender-sensitive healthcare delivery service.

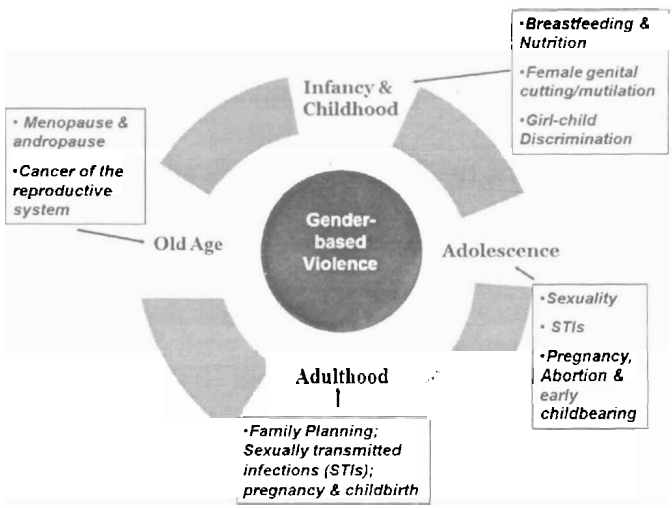

Figure 1. Reproductive health – A life-cycle approach.

The components of Reproductive Health include: Provision of family planning information and services; Safe motherhood; Control of the reproductive tract and sexually-transmitted infections (including HIV); Adolescent reproductive health; Prevention and management of the consequences of abortion; Prevention and appropriate management of infertility; Sexual dysfunction and non-infectious conditions of the reproductive tract (including cancers); and, Elimination of gender-based violence and other harmful practices against women and children. Overall, the reproductive health

concept is a paradigm shift within the health system and population field, and the ICPD Programme of Action (PoA) specifies goals to be achieved within a 20-year period. Principally, the ICPD PoA calls on all countries to "strive to make accessible through the primary health-care systems, reproductive health to all individuals of appropriate ages as soon as possible and no later than the year 2015" (ICPD PoA para 7.6). Many of the ICPD goals as set forth in the PoA are now part of the Millennium Development Goals (MDGs), including: significant reductions in infant, child and maternal mortality, broad-based measures to ensure gender equity and equality, the empowerment of women, and closing the "gender gap" in education.

Undoubtedly, ICPD also brought greater attention to adolescents and young people, particularly their reproductive health issues and challenges. Among others, the ICPD PoA specifically noted that "the reproductive health needs of adolescents have been largely ignored by the existing reproductive health services (para 7.41) and sets two objectives in response: (a) to address adolescent sexual and reproductive health issues, including unwanted pregnancy, unsafe abortion and sexually-transmitted diseases, including HIV/AIDS, through the promotion of responsible and healthy sexual and reproductive health behaviour, including voluntary abstinence, and the provision of appropriate services and counselling specifically suitable for that age group"; and (b) to substantially reduce all adolescent pregnancies" (para 7: 44). Furthermore, the PoA urged governments in collaborations with non-governmental organisations "to meet the special needs of all adolescents and to establish appropriate programmes to respond to those needs" (para 7.47).

Today, twenty years after the ICPD, the world and our nation, Nigeria, are still faced with the huge burden of sexual and reproductive health challenges. Sexual and reproductive health problems account for about a fifth (18%) of the total global burden of disease and a third (32%) of the burden among women of reproductive age[18]. An estimated 222 million women worldwide have an unmet need for modern contraceptives, with consequences

including 54 million unintended pregnancies[19]. Globally, more than one quarter of a million mothers (287,000) die in childbirth and from pregnancy-related complications annually, 99% of these deaths (284,000 maternal deaths) occurring in developing countries.[20] Although the HIV epidemic has been stabilized in most parts of the world, about 35 million people are living with the virus,[21] with sub-Saharan Africa having the highest burden. Available statistics also indicate that Nigeria's sexual and reproductive health indices are poor, with a high level of risky sexual behaviour, low contraceptive use, as well as a high level of unsafe abortion, maternal morbidity, and maternal mortality (Table 1).

Table 1. Selected key reproductive health statistics for Nigeria

Reproductive Health Indicator	Value	Source
Total fertility rate	5.5	National Population Commission (NPC) & ICF International, 2014.[22]
Median age at first marriage for women 25-49 years	18.1	NPC & ICF Intl., 2014.[22]
Contraceptive Prevalence Rate (Modern methods)	10%	NPC & ICF Intl, 2014.[22]
Unmet needs for family planning	16%	NPC & ICF Intl., 2014.[22]
Birth assisted by a skilled attendant	38%	NPC & ICF Intl., 2014.[22]
Birth delivered in health facility	36%	NPC & ICF Intl., 2014.[22]
Adolescent girls 15-19 years who are mothers or currently pregnant	23%	NPC & ICF Intl., 2014.[22]
HIV sero-prevalence (among pregnant women in sentinel sites)	4.1%	Federal Ministry of Health, 2010.[23]
HIV prevalence among the general population	**3.4%**	Federal Ministry of Health, 2013.[24]
Estimated number of people living with HIV	3.1 million	Federal Ministry of Health, 2010.[23]
Maternal mortality ratio	576 (95% C.I.=: 500-652/100,00 630 (95% C.I.= 370-1200/100,000	NPC & ICF Intl, 2014.[22] WHO, 2012.[20]

Adolescent Health: The Primacy and Premises

Adolescent Health is a multidisciplinary field of study dedicated to the promotion of the health and well-being of adolescents (and other young people) and the advancement of their overall development. Universally, adolescence is best defined as 'a period of transition', in which, although no longer considered a child, the individual is not considered an adult.[25] Adolescence involves phenomenal physical, biological, psychological, and social changes. It is a life stage where young people develop their adult identity, move toward physical and psychological maturity, and become increasingly economically independent.[26] Three features of adolescence are universal: onset of puberty, emergence of more advanced cognitive abilities, and the transition into new roles in society. The biological aspects of puberty mark the start of adolescence while key social-role transitions have historically marked the end.[27] Puberty, which is initiated in late childhood through a cascade of endocrine changes, leads to sexual maturation and reproductive capability. Puberty is linked to health and behavior in a complex way, and the timing of puberty is more associated with health-related behavioural changes and mental health states in adolescence than chronological age[28].

Adolescents constitute a very heterogenous group and defining them strictly in terms of age has several limitations, especially as the pace of individual development, circumstances of life, and the role definition by various societies vary widely. Yet, for practical programming purposes and health statistics undertakings, chronological definitions provide some useful frames. The United Nations' definition of adolescence as the second decade of life (i.e. 10-19 years) is the most widely accepted chronological framework in the health sector.[29][ii,iii] However, with the emerging pattern of delay in

[ii] Adolescents, within the framework of the WHO's chronological definition, can be divided into two groups: early adolescence (10-14 years) and late adolescence (15-19 years). On a more cognitive-related basis, adolescence can also be classified into three groups of early (10-13 years), middle (14-16 years), and late (17-19 years).

identity exploration and the assumption of some "conventional" adult roles such as marriage being witnessed in the 21st century, some developmental scientists have argued that ages 20 to 25 should be regarded as a period of "extended adolescence" or "emerging adulthood".[30] Overall, there is an intricate interplay of several factors – biological, socio-cultural, historical, demographic, behavioural markers and legal – which render adolescence (and youth) as a dynamic concept rather than just a chronological-defined phenomenon.[31]

The word "adolescence" actually has a Latin origin (*adolescere)* and did not exist in the English vocabulary before the 15th century.[32] Adolescence, as we know it today, is a fairly recent phenomenon. In pre-industrial societies, for example, girls were typically married soon after the first menstruation (menarche) or even before. As such, the period of transition from childhood to adulthood is either non-existent or extremely short. In many traditional African societies, pubertal rites were often carried out in early or mid-adolescence (typically between age 12 and 16 years). This rite of passage, which at best takes a few months, marked the transition of the child to an adult[33]. Adolescence as we have it today is a creation of important changes in the society, particularly education, industrialization, and urbanisation.[25] Early sexual maturity and later marriage also contribute to the emergence and acceptance of adolescence as a distinct phase of life.[34]

Historically, the work of G. Stanley Hall titled *Adolescence: Its Psychology and Its Relations to Physiology, Anthropology, Sociology, Sex, Crime, Religion, and Education* is acclaimed to have popularised the use of the term "adolescent".[35] The treatise heralded the recognition of adolescence in the industrialized world as a vulnerable group

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[iii] The World Health Organisation and other United Nations agencies also chronologically define the related terms of "youth" as "15-24 years", while "young people" refers to "10-24 years", encompassing both "adolescent" and youth".

deserving of special attention and laid the foundation for further research. Hall, among others, argued that the transition from childhood to adulthood marks the phylogeny of human race: *With growing maturity, we leave behind our animalistic childhood to embrace adolescent savagery on the route to civilized adulthood.*[35] A close examination of various ancient writings and cultures, however, leaves one in no doubt that the concept of "young people", which certainly includes the group we now describe as adolescents, has always been recognized in human societies.

Unfortunately, many ancient writings, as some surveys of literature[36,37] have shown, often paint young people in negative colours. The famous Greek poet, Homer, in his classic work, *Iliad* (800BC), stated that *Youth is quick in temper, but weak in judgement.* In another classic work, *The Republic*, Plato (427-347BC) remarked that:

> *The son feels equal to the father, he has no respect for his parents anymore... all he wants to be is free... students insult their teachers... and on top of this situation, in the name of liberty and equality, sex is everywhere.*

Aristotle (384 – 322BC) noted that:

> *The young are in character prone to desire and ready to carry any desire they have into action... in regard to sexual desire, they exercise no restraint"...* and *youth are heated by nature as drunken men by wine...*

The Greek Poet, Hesiod (70 BC) opined that:

> *I see no hope for the future of our people if they are dependent on the frivolous youth of today, for certainly all youth are reckless beyond words. When I was a boy, we were taught to be discreet and respectful of elders, but the present youth are exceedingly [disrespectful] and impatient of restraint.*

The great playwright, William Shakespeare (1564-1631 AD), in *Romeo and Juliet* painted the picture of romantic idealism and the passion of young people, while in *Winter's Tale* he wrote that:

> *I would that there were no age between ten and twenty three... for there is nothing in between but getting wenches with child, wronging the ancientry, stealing, fighting...*

Such negative statements, which tend "to pathologize and homogenize adolescence,"[38] are over-generalisations and are totally misleading regarding most young people. What my studies and work have clearly taught me is that adolescents are the greatest of all human population. As Stanley Hall noted: *adolescence is a new birth, for the higher and completely human traits are now born. These years are the best decade of life. No age is so responsive to all the best and wisest human endeavor.*[39]

Adolescence is, indeed, a time of great capacities, even though it is also accompanied with its own unique struggles and challenges. The following excerpts from a brilliant poem titled *Me, Myself and I,* written by a 15-year old female in our local environment, gives us a unique "insider's view" of the adolescent's struggle – which have "internal" (coping with pubertal changes) and "external" dimensions (changing nature and dynamics of relationships).

ME, MYSELF AND I[40]

A few years ago, I was a child
Played with everything and everyone
Except for boys, they just irritated me
I seemed to be the darling of the family
Life seemed to be so much fun...
My friends were "family" friends
No one ever judged me or them so harshly
I was "wrong" for every wrong
And I obeyed every instruction without a question
I saw the world as a "playground"
Where I was supposed to just live, work and have fun...
The world was such a lovely place
Very lovely I must say....

... Now that I am an adolescent
I relate with "my kind of people"
Not only do I get date invitations from guys,
Most of them are my very good friends
I seem to be deliberately picked on by my family
Life is so frustrating and annoying
Except when I'm with my pals and gals or on Facebook
I've got new friends now; like a clique
They get the judgement of all and sundry
I am "wrong" for every wrong
Even without explanation
I am blamed for everything

I act only according to my view of logicality
Because I am not a fool
And I know what is good for me
No one acts or trusts my words
They are just words, aren't they?
Love disappeared into thin air
The only time I hear it is when a guy says it.
The world, in my eyes, is a battlefield
Where everyone struggles for survival
Sociologists will say, it is the "survival of the fittest"
You either get something or you get nothing

It's still me, but are there two different mes?
I am myself, but has myself evolved?
I am who I am but am I who I am?

Many parents and adults readily believe that adolescents are puzzles and enigma! Interestingly, as David Bainbridge argued in his book, *Teenagers: A Natural History*, the very nature of adolescents is such that they "are always destined to change the world into something that becomes increasingly alien" to their parents and other adults.[41] Some of the behaviours that appear to define adolescence and have potentials to bring them into conflict with adults, including risk-taking and penchant for independence, as Biologists and Evolutionists have argued, may be important in positioning the

adolescent for successful adulthood and critical for our overall success as a human race.[41]

One of the contemporary issues in adolescent health is that of brain development in adolescence. Based on studies made possible by new technologies, we now know that brain development goes on till the adolescent year (and even early adulthood).[42] The adolescent brain experiences "synaptic pruning", whereby the neural connections that are not used in the individual and are thus deemed redundant, are removed and those that survive the pruning process become more adept at transmitting information through myelination. This "use-it-or-lose-it" process of synaptic pruning can be likened to the practice wise farmers engage in, whereby they cut off stems that are not productive to allow the productive ones to become more efficient still. The process of synaptic overproduction, pruning and myelination — the basic steps of neuromaturation — makes the brain more efficient and specialized. As neuromaturation takes place, the brain in adolescence is more susceptible to long-lasting damages from the effects of alcohol, hard drugs and negative experiences.[43]

One of the areas still developing or undergoing structural changes in adolescence is the prefrontal cortex – the part of the brain that coordinates higher-order cognitive processes and executive functioning, such as planning, organisation and modulation of moods.[44] Therefore, frontal lobe immaturity could imply, among others, poor judgment and difficulty thinking through consequences of behaviours, increased risk-taking, impulsive and emotional responses rather than logical and practical ones, and miscommunication with peers and adults as they miss subtle social cues, misinterpret expectations and misread facial expressions. On the other hand, the limbic system (the "reward centre" of the brain) is hypersensitive in adolescents. Thus, adolescents are prone to getting more excited with risk-taking than older people. Adolescents are also more susceptible to the influence of peers, and are likely to take more risks and engage in more adventurous stunts when their peers are present than when alone.

With a population of about 1.2 billion, the world currently has the largest cohort of adolescents ever, and nearly 90% of them are living in low- and middle-income countries (LMICs).[45] Adolescents and youths (age 10-24 years) account for 15.5% of the total global disability-adjusted life-years (DALY) burden.[46] Whereas childhood mortality rate has recorded historic, rapid and continuously decline since the mid-1990s, the mortality rate among adolescents and youth has improved only marginally and, in some cases, not at all.[47,48] An estimated 1.3 million adolescents died in 2012, mostly from preventable or treatable causes.[49] The risk of death among adolescents and youths is higher in Africa than in any other region, and is nearly seven times higher than in high-income countries.[50] Globally, the leading health challenges among young people are mental health problems, accidental and intentional injuries, sexual and reproductive health issues, substance use and abuse, and nutritional problems.[51] Overall, as my mentor, Professor Robert Blum of Johns Hopkins Bloomberg School of Public Health, has aptly noted, *Young people are not as healthy as they seem: painfully, what distinguishes the causes of death of young people is that most deaths have behavioural causes exacerbated by national policy or failure of health service delivery systems, or both.*[52]

Adolescent and Reproductive Health: The Promises

As the Report Card on Adolescents published by the United Nations Children's Fund (UNICEF) in 2012 noted, adolescence is not necessarily "a safe time".[53] The world had neglected adolescents in health and development agenda in the past. Strategic investments in adolescent health are now imperative to reduce the high level of preventable morbidity and mortality in the age group. Besides, without adequate attention to the health of adolescents, the past gains in child health would be wasted. As UNICEF has pointed out, investing in adolescent health is "the most effective way to consolidate the historic gains achieved for children in early (0–4 years) and middle (5–9 years) childhood since 1990," including the 33% reduction in the global under-five mortality rate and

considerable improvement in access to primary schooling and routine immunisations.[45]

Investment in adolescent health is, also, a key foundation for health in adult life, as two-thirds of premature deaths and one-third of the total disease burden in adults are associated with behaviours that often start during adolescence, including the use of alcohol, tobacco and other psychoactive drugs, lack of physical activity, and unprotected sex. [53,54] In addition, investment in adolescent health has been recognized as a critical mechanism to accelerate the achievement of goals related to equity, alleviation of poverty, and gender-based discrimination, as well as enhance global efforts "to address the great challenges of our times: climate change, economic turmoil, explosive urbanization and migration, HIV and AIDS, and humanitarian crises of increasing frequency and severity."[45] Adolescence has also been recognized as being "central to global health goals for physical, mental, sexual and reproductive health, reduction in injuries, incidence of HIV, and chronic substance use."[55] Therefore, investment in adolescent health will contribute substantially to achieving these goals.

As several experts have posited, investment in adolescent health will not only benefit adolescents[55,56] but also other population groups and the society as a whole, and such investment are strategic from both microeconomic and macroeconomic perspectives.[57] The World Bank has similarly argued that promoting the health of young people stimulates growth and reduces poverty and health care expenditures.[58] Investing in adolescent health and development also holds the potential for "demographic dividend" in LMICs. Demographic dividend refers to the opportunity for accelerated economic growth that results from changes in a country's age structure combined with favourable social and economic policies.[59]

With the demographic transition going on in many LMICs and the attendant reduction in family size, there will be a favourable dependency ratio. Today's huge population of adolescents can

become highly productive adults, if the appropriate investment is made in their health, education, employment opportunities and overall development. These adolescents can subsequently power the economies of the future successfully, resulting in improved economic productivity, personal incomes and national wealth. It needs to be noted that demographic dividend is neither an automatic nor a permanent feature of national economies and development platforms. It is a time-limited window of opportunity and will close over the next 10-20 years in most LMICs where fertility transitions are underway.[60]

According to the life-course approach, some of the determinants of health in adolescence (and even in adulthood) have their roots in pregnancy and also in the mothers' pre-conceptual state of health.[61,62] Indeed, health in the adolescent stage of life is the result of "interactions between prenatal and early childhood development, and the specific biological and social-role changes that accompany puberty, shaped by social determinants and risk, and protective factors that affect the uptake of health-related behaviours."[27] Thus, paying attention to Reproductive Health is complementary to the prioritisation of Adolescent Health in advancing the health, social well-being and economic development of the population and across generations. Appropriate investment in family planning, for example, will accentuate the potential for demographic dividend by facilitating fertility decline and will also yield other important population and public health dividends.

Globally, expanding family planning to reach all women who currently need it in LMICs would avert, among others, 21 million unplanned births, 26 million abortions, seven million miscarriages, 79,000 maternal deaths and 1.1 million infant deaths."[19] Appropriate investment in family planning on the national front will similarly yield great benefits in terms of a significant reduction in unwanted pregnancies, unsafe abortions, unplanned births, HIV incidence rate, maternal deaths and under-5 deaths, among others. For example, if all women with unmet needs for contraceptives between 2005 and

2015 have had their needs for family planning met, it is estimated that Nigeria would have averted 3.5 million unwanted pregnancies, 1.2 million abortions, one million under-5 deaths, and 18,849 maternal deaths.[63] Overall, the potential gains from investing in Adolescent Health and Reproductive Health at household, community, national and global levels greatly outstrip whatever may be the worth of the primary investment, and the more we invest, the greater our gains. It is an investment that pays off "big time"!

Adolescent Health and Reproductive Health: The Evolution of the Fields in Nigeria

At this juncture, Mr. Vice-Chancellor, Sir, and my distinguished audience, I will like to briefly reflect on the evolution and the development of the fields of Adolescent Health and Reproductive Health in Nigeria. I have been privileged to have taken active part in the "birth and nurturing" of these two fields in our country: this occasion, I believe, offers a platform as good as any to highlight some of the largely undocumented history regarding the development of the fields of Adolescent Health and Reproductive Health in Nigeria. As I had mentioned earlier, the ICPD, which was the platform for the emergence of Reproductive Health as a field, took place in 1994. The United Nations Population Fund (UNFPA), under the leadership of Dr. Nafis Sadik, was the secretariat for the ICPD and globally championed the agenda of its Programme of Action. My foray into Adolescent Health and Reproductive Health commenced with my fortuitous engagement with UNFPA as a Technical Adviser in its Nigerian programme from April 1996 to September 2001.

As many may recall, the period of 1993 to 1994 was one of considerable political turbulence in Nigeria, following President Ibrahim Badamasi Babangida's annulment of the June 12, 1993 presidential election, which was presumed to have been won by Bashorun Moshood Kashimawo Olawale Abiola (MKO). Subsequently, the United States decertified Nigeria, and withdrew its support for activities in the public sector. One of the most affected agenda in that respect was the Maternal and Child Health (MCH)

and Family Planning (FP) Programme, which was mostly dependent on the support of the United States Agency for International Development (USAID). Consequently, the public sector MCH/FP programme virtually collapsed overnight. Fortunately, UNFPA office in Nigeria at that time was headed by a dynamic professional with great vision, Dr. Andrew Arkutu. To address the crisis, UNFPA, in 1995, decided to build on some of the previous efforts of USAID, by establishing Maternal and Child Health/Family Planning Projects in five states to start with – Edo, Delta, Osun, Ogun, and Plateau.[64]

The United Nations Population Fund recruited a Technical Adviser for each state project, as well as a team of experts to provide technically support centrally. Each of the state projects was also encouraged to bring in additional Reproductive Health (RH) elements, such as adolescent reproductive health and male involvement in RH in line with the ICPD agenda. UNFPA's commitment was the lynchpin for the development of the field of RH and Adolescent Health and Development (AHD). From mid-1990s and for upward of a decade, UNFPA was, unarguably, Nigeria's greatest ally in the population and development field as the agency drove the RH agenda with focus and passion. I served as UNFPA Technical Adviser to the Delta State project from 1996 to 1999, and simultaneously served as the Adviser to Anambra State Project for about a year when UNFPA expanded to more states. In-between, I also served as the Acting National Programme Officer at UNFPA Nigeria Country Office, then in Lagos. Finally, I served as the Adviser to the National Reproductive Health Sub-programme at the national level.

The National Reproductive Health Sub-programme, which came into operation in April 2000, had the aims of "strengthening the capacity of the Federal Ministry of Health to operationalise sustainable RH programme, improving the quality of RH services, and institutionalising Population and Family Life Education (POP/FLE) at the Federal level".[65] One of the three component projects under the sub-programme was titled *Operationalising Sustainable*

Reproductive Health Programme in Nigeria and had the specific mandate "to establish a sustainable platform for reproductive health as a national priority and initiative in Nigeria."[iv] The then Department of Community Development and Population Activities of the Federal Ministry of Health was the operational base for the project implementation. I was fortunate to be appointed as the first Technical Adviser to this national sub-programme. What an exciting challenge that was! In the space of 18 months, our team worked in a frenzied manner towards actualising the mandate of building a strong foundation for Nigeria's RH agenda. Drawing from the rich disciplinary expertise that was available within the country, we built a team of RH champions, advocates and activists – popularly tagged the "RH Family" in those days. We also drew extensively on the expertise within the UNFPA Country Support Team (then in Addis Ababa, Ethiopia).

Under my leadership, the project developed Nigeria's first National Reproductive Health Policy in 2001.[66] We also established the National Reproductive Health Working Group (Appendix I) and developed the National Curriculum on Reproductive Health for Nurses (Appendix II). Those steps set Nigeria forth in the reproductive health arena. Between 2000 and 2001, our team also initiated new service packages, clinical protocols and resource materials to strengthen the implementation of Nigeria's RH programme. Two of the service packages we initiated were the Modified Life Saving Skills (MLSS) for Community Health Extension Workers and the Expanded Life Saving Scheme Initiative (ELSSI) while we also strengthened the Life Saving Skills (LSS) programme

[iv] The "Institutionalising Population and Family Life Education (POP/FLE) at the Federal level" component project provided support to the Nigerian Educational Research and Development Council to improve the Family Life Education curriculum and strengthen the capacity for curriculum delivery nationally. The "Improving the quality of RH Services" project provided support to AVSC International to improve the contraceptive mix in Nigeria by expanding the coverage of implant contraceptive services, and also promoted quality assurance processes in health facilities in the 12 UNFPA-supported states.

earlier initiated by USAID. The project also engaged in extensive human capacity development activities by training core national and state trainers. The "RH family" was one of the most dedicated set of professionals I have ever had the privilege to work with anywhere in the world.

Although Nigeria developed its first National Policy on Adolescent Health in 1995 (through the then Department of Primary Health Care and Disease Control of the Federal Ministry of Health), it was virtually unknown by most actors in the field and was hardly ever operationalised. That situation led concerned stakeholders, with Action Health Incorporated [AHI] (led by Mrs. Nike Esiet and Dr Uwem Esiet) as the catalyst, to mobilise for a change in the situation. That effort led to the organisation of the National Conference on Adolescent Reproductive Health in Nigeria held on 26-29 January, 1999 with the theme "Time for Action". UNFPA played a leading funding and technical role with respect to that watershed conference.

During that period, I was serving as the Acting National Programme Officer at UNFPA Nigeria Country Office, and the responsibility for the provision of UNFPA's support to the conference was part of my portfolio. The last night before the conference ended, I clearly remember the team from UNFPA and Federal Ministry of Health coming together in a room in Sheraton Hotel, Abuja – where the conference was taking place – and asking ourselves a question that goes in this manner: "Beyond all the presentations and speeches, what would be the main output of this conference that can move adolescent reproductive health agenda forward in Nigeria"? After some brainstorming, we decided that it would be best to develop a strategic framework that will catalyse the implementation of the reproductive health aspect of the National Policy on Adolescent Health.

Working practically through the night, the team comprising of Dr. Adenike Adeyemi (the head of Reproductive Health programme at the Federal Ministry of Health [FMOH]), Dr. Bolanle Oyeledun (the

Adolescent Health focal officer, FMOH), Dr. Sola Odujinrin (UNFPA Reproductive Health Adviser), Ms. Adjoa Amana (UNFPA Regional Adviser on Adolescent Reproductive Health) and myself had the draft of Nigeria's first National Strategic Framework on Adolescent Reproductive Health (ARH) ready by the morning! You could imagine our joy when the Conference gladly embraced and unequivocally approved the Framework. That Framework and the National Reproductive Health Policy (with ARH as a component) were both approved by the National Council of Health in May 2001.

A second event that deserves to be mentioned as part of the critical foundational event for Adolescent Health in Nigeria, was a stakeholders' meeting held in Ibadan in 2001, under the aegis of the same project – *Operationalising Sustainable Reproductive Health Programme in Nigeria*. As part of efforts to drive the operationalisation of the National Strategic Framework on Adolescent Reproductive Health, and expand towards broader adolescent health agenda, a team of experts led by Ms. Amana Adjoa (UNFPA Regional Adviser on ARH) and myself, travelled to various locations in the country on a "study tour" of some of the adolescent health services in operation, which were mostly by non-governmental organisations. The Expanded Life Planning Education (ELPE), which was initiated by the Association for Reproductive and Family Health (ARFH), led by Professor Oladipupo Ladipo and Mrs. Grace Delano – two of Nigeria's earliest and most committed RH champions – deserves specific mention for its outstanding design and coverage. "Its unique quality lies in the fact that it is an initiative conceptualized, designed, implemented and managed through a government and NGO partnership"[67]. The ELPE project, which was funded by United Kingdom Department for International Development (DfID), covered a total of 131 secondary schools and developed 40 youth-friendly services (in primary healthcare centres).[67]

The conclusion of our study tour dovetailed in the national stakeholders' meeting, where the report of the tour formed the basis for reaching consensus on the first set of *Minimum Standard for*

Adolescent/Youth-Friendly Health Services in Nigeria. We followed up with the development of the Clinical Protocol and Service Guidelines for Adolescent Health Services in Nigeria[68] (into which the Minimum Standard was incorporated) (Appendix III), as well as the development of the National Training Manual on Adolescent Health and Development (Appendix IV)[69]. We proceeded further with the training of national and state trainers in Adolescent Health. ARFH, Ibadan, and Women Health Organisation, Ijebu-Ode, (led then by Prof Peju Olukoya) served the critical role of training bases.

However, while my work with UNFPA introduced me to programming dynamics in Adolescent Health, it was really my experience as a Packard-Gates Fellow in Population Leadership at the University of Washington, Seattle, USA, between 2001 and 2002 that shaped my academic thoughts in Adolescent Health. My combined UNFPA-Seattle exposure and experience gave me the platform to build upon when I eventually returned to a university career.

Stewardship of My Scholarship

One of the greatest influences on my worldview of scholarship and academia is the late American educationist, Ernest Boyer, who posits in his highly influential work, *Scholarship reconsidered: Priorities of the Professoriate*, that academia is "an intellectual process facilitated but unbounded by the ivory tower."[70] He argued that while scholarship surely entails engaging in research, "the work of the scholar also means stepping back from one's investigation, looking for connections, building bridges between theory and practice, and communicating one's knowledge effectively to students." Furthermore, he highlighted that the work of the professoriate consists of four separate, yet overlapping, functions: scholarship of discovery; scholarship of integration; scholarship of application; and, scholarship of teaching. His perspective reinforces my long-held desire never to be a "theoretical" academic: indeed, I fully subscribe to the idea that a public health practitioner who is not actively involved in shaping public health policies and actions must be as rare as a surgeon who does not go to the theatre.

In line with that belief, I have been very active in the policy and programme arena nationally and internationally. Similarly, I have also been passionately committed to quality academic teaching and research activities. Today, by the grace of God, I have over 100 publications, with about 75 in peer-reviewed journals. According to the "Status of Research in Obafemi Awolowo University" published by the University Research Committee in 2011, the research team headed by me brought in the highest contribution to the university's external research fund for the 2006-2011 period (38.87%).[71] Interestingly, in terms of absolute value, what our research team generated between 2011 and 2014, by God's grace, is even more than what we generated in the said 2006-2011 period and we have continued to work towards greater heights. To highlight some of my specific contributions, I shall be using the "Boyer's Framework" that I have just described, and will focus my attention on two key areas of my work within the fields of RH and Adolescent Health: maternal health services, and adolescent sexual and reproductive health.

Scholarship of Discovery

Maternal Health Services

Maternal mortality is one of Nigeria's greatest health and development challenges and a major focus of the global community as evidenced from the 5th Millennium Development Goal. With an estimated figure of 40,000 maternal deaths annually, Nigeria ranks as the country with the second highest maternal death burden in the world. With a population of about 170 million, Nigeria contributes only about 2 percent of the global population, but about 14% of the global maternal deaths. Nigeria's maternal mortality ratio (MMR) is put between 576[22] and 630[20] maternal deaths per 100,000 live births[v] compared to the world average of 210/100,000 live births.[20]

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[v] Statistically, there is no significant difference between the WHO/UNICEF/UNFPA/World Bank MMR figure of 630/100,000 live births (95% Confidence interval [C.I]: 370-1,200/100,000) and the 2013 NDHS figure of 576 maternal deaths per 100,000 live births (95% C.I.: 500-652/100,000).

One key question is: "Why is our maternal death figure so high"? That is one of my main research foci—not from the angle of the individual patient (which is the clinician's approach — but from a population perspective as a public health practitioner. Most maternal deaths occur at about the time of birth and these deaths cannot be accurately predicted in advance; as such, what is critical is the capacity for rapid recognition and response to pregnancy-related complications. It is the difference in the ability of the health systems in different countries to do this effectively that largely accounts for the huge inter-country variations in maternal mortality ratios. Therefore, it is not enough to just get women to deliver in health facilities, but the facilities also need to have the capacity to offer the expected quality services. So, the question we need to be asking is not just "how many facilities do we have or have been recently built?"—which is a popular 'past time' of our politicians—but "How many facilities with the desired capacity do we have and how well are they being used by pregnant women?"

Globally, a system of classification of health facilities as to their ability to address pregnancy-related emergencies exists: facilities that have the required capacity are termed as essential or emergency obstetric care (EOC or EmOC)[72][vi] facilities. These facilities are of two broad groups – the "basic" and the "comprehensive" EOC/EmOC facilities. The difference between the two types is that in addition to the seven signal functions carried out by the basic EOC/EmOC, the comprehensive EOC/EmOC facilities have two additional capacities – ability to transfuse a woman with safe blood and to carry out relevant surgeries such as Caesarean section (Table 2).

[vi] Essential obstetric care (EOC) includes procedures for early detection and treatment to prevent the progression of problem pregnancies to the level of an emergency as well as the means to manage emergency complications when they happen. Emergency obstetric care (EmOC) is a subset of EOC and responds to unexpected pregnancy-related complications such as haemorrhage and obstructed labour with blood transfusion, anesthesia and surgery.

Table 2. Signal functions of basic and comprehensive emergency obstetric care facilities

Basic Emergency Obstetric Care Facility	Comprehensive Emergency Obstetric Care Facility
1. Administer parenteral antibiotics 2. Administer uterotonic drugs 3. Administer parenteral anticonvulsants for pre-eclampsia and eclampsia 4. Manually remove the placenta 5. Remove retained products 6. Perform assisted vaginal delivery 7. Perform basic neonatal resuscitation	Perform signal functions 1-7, plus: 8. Perform surgery (e.g. Caesarean section) 9. Perform blood transfusion
A basic emergency obstetric care facility: all functions 1 – 7 are performed A comprehensive emergency obstetric care facility: all functions 1 – 9 are performed	

The signal functions of EmOC facilities relate directly to those critical clinical interventions that must be instituted to avert death from the five leading causes of maternal death globally—bleeding problems (haemorrhage), hypertensive disorders in pregnancy (pre-eclampsia and eclampsia), infections (sepsis), obstructed labour and abortion. Thus, to reduce maternal deaths, it is important that these types of facilities exist in adequate number, that women in pregnancy can readily access them, and use them appropriately. This idea is also behind the classical three levels of delay associated with maternal deaths.[73,74] The first stage is delay at home, based largely on misconceptions and poor knowledge of maternal health. The second delay relates to challenges in getting to the health facilities. The third delay has to do with problems encountered within the health facility itself—which may be due to the health workers' availability, competence and attitude as well as availability of relevant equipment and infrastructure including water and electricity.

One of the key questions that had engaged my mind, alongside my research colleagues and collaborators, relates to the health facilities' capacity for maternal health services. In 2003, I had the privilege to serve as the Lead Consultant for the National Study on Essential

Obstetric Care Facilities.[75] In that study, we covered 4,503 health facilities across 12 states (two states per geo-political zone) consisting of 2,177 private facilities, 2,025 primary health care facilities, 287 secondary level facilities and 14 tertiary facilities. We also carried out focus group discussion with health workers and households across each of the senatorial zones of the 12 states to understand their perspectives regarding the quality of maternal health delivery and factors that influence the decision of mothers as to where they should deliver. This study, which was funded by UNFPA and carried out in 2003, is Nigeria's only national study on EOC/EmOC till date.

Our findings showed that only 4.2% of our government-owned health facilities and 32.8% of private facilities met the desired standard. Overall, less than a fifth (18.5%) of our health care facilities met the EOC criteria. Among the 12 states surveyed, only Lagos State met the standard of 4 Basic EOC (BEOC) facilities per 500,000 population with both the public and private sector facilities combined but the standard of 1 Comprehensive EOC (CEOC) per 500,000 population was met by most states (Figure 2). Ironically, most EOC facilities were located in the urban areas whereas a higher proportion of the population and the burden of maternal mortality are in the rural areas.

In another study focusing specifically on Ife South Local Government Area (LGA), led by Dr. Kayode Ijadunola, our team under the aegis of the "Prevention of Maternal Mortality" (PMM) Network, found only one private facility out of the 26 facilities assessed – 21 public and 5 private facilities – to have met the criteria for EOC! Almost half of all the facilities (46%) were manned by unskilled health attendants.[76]A more recent study focusing on Osun State in 2012-2013[77] still found that most facilities lack basic maternal care equipment.

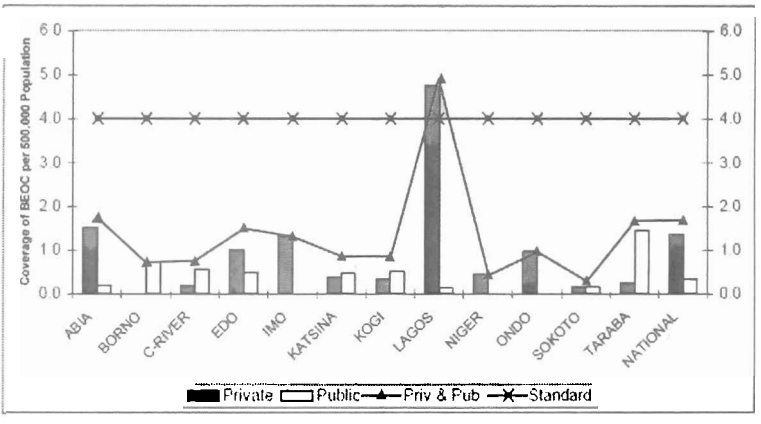

Figure 2. Coverage of basic essential obstetric care (BEOC) facilities by states according to facility ownership.
Source: Fatusi & Ijadunola[75]

One of the key challenges in maternal health service delivery in Nigeria is the dearth of nursing professionals in our health facilities, with most maternal health facilities manned by Community Health Extension Workers (CHEWs), who are technically not "skilled attendants."[vii][78] Caught between the ideal and the practical situation on ground, our team sought to find out if there was a practical way that the skills of the CHEWs involved in maternal health services could be improved to achieve better health outcomes. In this regard, we focused on the use of the partograph, which is a standardized process of charting the progress of a woman in labour to facilitate early detection of complications and institution of relevant actions, including prompt referral. Our result, obtained from the intervention study in government-owned Primary Health Care facilities in Ife Central LGA, showed that CHEWs could be effectively trained to use the partograph with satisfactory results,[79] and that resulted in positive impact on maternal and newborn health outcomes.[80]

[vii] Skilled attendant, as defined by the World Health Organisation, "refers exclusively to people with midwifery skills (for example midwives, doctors and nurses) who are trained to proficiency in skills necessary to manage normal deliveries and diagnose, manage or refer obstetric complications."

Beyond the "supply side" issues of human and material resourcing of our health facilities, Nigeria also faces considerable "demand side" issues regarding poor health seeking behaviour of the population as some of our studies have shown. In one of our works, *Determinants of use of maternal health services in Nigeria – looking beyond individual and household factors*, we assessed the individual, household, community, and policy-level factors associated with the use of antenatal care, skilled attendant at birth, and postnatal care – among a nationally representative sample of 2,148 mothers.[81] Whereas 60.3% of the women received antenatal care at least once, 43.5% delivered with skilled attendant, and 41.2% received postnatal care. Although most of the identified factors varied for the different types of maternal services, education was consistently a significant predictor of utilisation for each of the three types of maternal services.

While maternal mortality has captured the imagination of the world, maternal morbidity has hitherto been a neglected issue in the global safe motherhood agenda.[82] Yet, for every maternal mortality recorded another 20-30 women suffer severe maternal morbidity, some of which have lifelong sequelae. As many as 15 million women are estimated to be affected by maternal morbidities worldwide.[83] Really, maternal morbidity constitutes the "base" of significant maternal health problems while maternal mortality is only the "tip of the iceberg".[84] Some of our recently published studies have contributed towards a better understanding of maternal morbidity issues. In the context of a prospective case-control study, we documented the direct causes of near misses[viii] in OAUTHC over a one-year period and the associated risk factors. Severe haemorrhage (41.3%) was the most common direct cause of near misses, followed by hypertensive disorders in pregnancy (37.3%), prolonged obstructed labour (23.0%) and septicaemia (18.6%) (14.6%) (Table 3).[85]

[viii] Near miss (also known as severe acute maternal morbidity [SAMM]) refers to a woman who nearly died but survived a complication that occurred during pregnancy, childbirth or within 42 days of termination of pregnancy.

Table 3. Distribution of near-miss cases by clinical conditions among women who experienced near-miss events at the Obafemi Awolowo University Teaching Hospitals complex between July 2006 and June 2007

Causes of near-miss	Near miss cases due to the specific conditions (n=75)	
	Frequency	%
Haemorrhage	34	45.3
Antepartum Haemorrhage	6	8.0
Postpartum Haemorrhage	28	37.3
Proportion in shock	23	30.7
Mean units of blood transfused	3(2-10)	
Hypertensive disorders of pregnancy	28	37.3
Severe pre-eclampsia		
Eclampsia	19	25.3
	9	12.0
Dystocia	18	23.0
Proportion with co-morbidities	10	13.3
Still birth		
Septicaemia/Septic shock	4	5.3
Ruptured uterus	4	5.3
	2	2.7
Septicaemia	14	18.6
Puerperal sepsis	11	14.6
Chorioamnionitis	3	4.0
Severe anaemia	11	14.5
Malaria	7	9.3
Others	4	5.2

Source: Adeoye, Onayade & Fatusi.[85]

In another publication, using a mixed method approach, we epidemiologically characterised women who attended OAUTHC for maternity-related services within a one-year period along the whole spectrum of maternal events – from normal (uncomplicated pregnancy) to acute maternal morbidity (complicated pregnancy)

and near misses (life-threatening cases).[86] Furthermore, we explored the issue of severe maternal morbidities through narrative interview of women who had near-miss experiences. Whereas a third of the women (34.7%) had normal pregnancy, 45.3% had acute maternal morbidities, while 20% had a near miss event. Organ dysfunction was documented in a quarter (25.0%) of the women who experienced near misses; acute pulmonary oedema and acute renal failure were the most common problems. Thus, we concluded that organ failure criteria are likely to document only a subset of women with life-threatening complications. We, therefore, posited that a disease-based approach may be better for identifying near miss cases, particularly in LMICs where resources are scarce rather than the organ failure criteria recommended by a WHO Working Group.

Adolescent Sexual and Reproductive Health

Five main factors account for the disease burden among young people: alcohol (7% of DALYs), unsafe sex (4%), iron deficiency (3%), lack of contraception (2%), and illicit drug use (2%).[46] Two of these factors directly fall within adolescent sexual and reproductive health domain – unsafe sex and lack of contraception – while the rest three also have substantial relationship with sexual development, sexual activities and its consequences. For example, the rate of iron deficiency anaemia is highest among adolescent girls as they start menstruating, and the risk for anaemia increases significantly in a teenager that gets pregnant.[87] Alcohol and substance use, on the other hand, have been associated with increased likelihood of engaging in risky sexual behaviour.[88] Indeed, engagement in one risk behaviour is also linked with the practice of other risk behaviours among adolescents and other young people.[89]

Although there are gaps in available data, there is a widespread consensus that the leading adolescent health challenges in Nigeria[90] and other sub-Saharan African countries[91] are sexual and reproductive health issues. These include early and unprotected sex, teenage pregnancy and childbirth, unsafe abortion, HIV and other sexually transmitted infections.[92] My research work with my national

and international collaborators has covered the spectrum of pubertal development, sexual practices and their associated factors, consequences of unsafe sex, and evaluation of relevant interventions.

In studying sexual behaviour and associated factors, the "4S Ecological Model", which I derived from studying the work of scholars such as Urie Bronfenbrenner[93] has served as my main conceptual framework. This framework is based on the understanding that adolescents are nested in social contexts which have elements that can either influence their behaviour and health positively (protective factors) or negatively (risk factors). The model categorises the social context of adolescents into four (Figure 3): self (individual factors); special relationships (especially friends/peers, siblings, parents, and parent-figures); social systems (especially the school system, health system, socioeconomic, political and religious system, and the media/information and communication technology); and the society (the immediate society such as the community as well as the larger national and global setting).

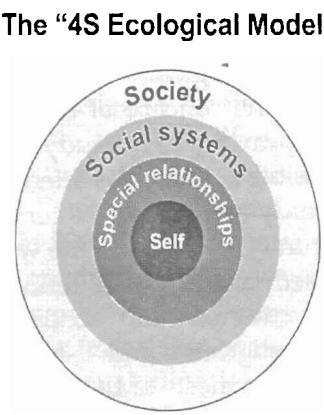

Figure 3. The 4S ecological model.

In one of our studies, we highlighted the predictors of early sexual initiation among adolescents in Nigeria, based on an analysis of a

nationally representative sample of 2,070 never-married adolescents aged 15–19 years who participated in the 2005 National HIV/AIDS and Reproductive Health Study (NARHS)[94]. Using Cox proportional hazards model, we assessed the association between age of sexual debut and demographic, psychosocial and community factors separately for male and female adolescents. We reported that about a fifth of never-married adolescents (18% of males and 22% of females) were sexually experienced. We found some similarities as well as differences between male and female adolescents as regard both risk and protective factors for early sexual initiation. For example, while personal attitude regarding sexual abstinence was a protective factor in both groups, religiosity was found to be protective in females but not in males. We also highlighted, by the way, that the context of adolescent sexual initiation in Nigeria differs between the North (largely intra-marital) and the South (largely pre-marital).

Religiosity and spirituality are issues that have been of great interest to many adolescent health workers, including myself. Religiosity, operationally-defined, is not a question of what "faith" or religious denomination ones belong to; rather, it relates more to our beliefs and practices vis-à-vis a "Supreme Being". A study that we carried out in Lagos among school-attending adolescents enabled us to pay further attention on the issue of religiosity and sexual behaviour of young people as we explored the concept of both internal religiosity (less visible acts such as praying and studying religious books) and external religiosity (visible acts such as attending religious services).[95] The context of that study and that of Nigeria's socio-cultural setting offered us the opportunity to build on the work of researchers based in highly industrialised countries, in refining their approaches to devise measures of internal and external religiosity that are applicable in multi-religious and significantly heterogeneous populations as found in most LMICs. Our findings showed an interesting gender dimension with regard to early adolescent sexual engagement: internal religiosity was more protective in females while external religiosity was more protective among males.

In general, literature has shown that religiosity and spirituality have great relevance for the health and well-being of young people;[96] the Nigerian environment offers us a rich opportunity to harness these potentials for the healthy development of our adolescents. However, as I have pointedly argued,[97] "the faith community has many assets and potentials that make it indispensable in the fight against AIDS and in the effort to meet the sexual health needs of young people in sub-Saharan Africa", but "the faith community has not utilised its full potential." In my opinion, the faith community not has potential and strategic advantages, but also the responsibility to respond effectively to the issue of adolescent sexuality in current times. I firmly believe that "armed with its strategic advantages – which include community credibility, resources, and missionary zeal – the faith community is one of Africa's best hopes for the deliverance of her young people from uncertain future in an age of HIV/AIDS".

The school system is a very important element in adolescent health and development. Although like other elements, specific factors within the school system can have either positive or negative influences (protective and risk factors respectively), the school offers a particularly strategic and cost-effective platform for mounting interventions to improve adolescents' health. Unfortunately, as we have found out in a series of studies that I have led, including two national studies[98,99] and the Nigeria component of a multi-country study,[100] school health services are generally very poor in the country and schools pay low attention to the health implications of their structures and operations. For example, many schools were deficient in terms of water and toilet facilities, and where they exist, they were not being operated in gender-sensitive ways and served as a discouraging factor to regular school attendance by adolescent females in some contexts. We found that some schools had structural and environmental challenges including leaking roofs, cracked walls and overcrowded classes that could have posed as threats to the health and lives of the young people.

Similarly, in instructional and programme terms, the school system has not been sufficiently responsive to the health-related needs of adolescents. For example, whereas it has been globally recognized that "School-based HIV and AIDS education can reach many children and young people with HIV information and equip them with the skills they need to protect themselves,"[101] we found only 16% of schools to be implementing the nationally approved Family Life and HIV (FLEH) curriculum in 2006. The poor coverage persists till date with only about 13% of students reportedly reached by mid-2014.[102] This low coverage may be contributing significantly to the current poor level of knowledge of adolescents on HIV: the 2013 NDHS reported only 22.4% of female adolescents (15-19 years) and 29.3% of their male counterparts as having comprehensive knowledge of HIV/AIDS (based on the UNAIDS indicator).

Although teachers are generally supportive of reproductive health education in schools as the experience of our study shows.[103] However, we recorded wide diversity in opinions regarding topics to be included in RH education. In addition, teachers demonstrated low willingness to engage in the counselling of students with sexual and RH challenges. The social environment and relationships within schools are also of great importance, with problems including bullying, sexting, and sexual abuse. For example, in a study carried out in six states spread across the six geo-political zones, we found, regrettably, that more than a tenth of sexually experienced female students in upper primary school (14.3%) and junior secondary schools (12.3%) reported male teachers as their first sexual partners.[99]

At the level of the society, one of the key issues that have emerged on the global agenda for health development in recent years is that of "social determinants of health" (SDH), which refer to "the conditions in which people are born, grow, live, work and age."[104] As Tarlov[105] has noted, five determinants of population health are generally recognized in the scientific literature: biology and genetics (e.g., sex); individual behavior (e.g., unprotected sex and substance use); social environment (e.g., income and educational level); physical

environment (e.g., overcrowding conditions and built environment such as buildings, spaces, and transportation systems); and health services (e.g., access to and quality of care). Whereas many public health efforts focus on individual behaviours, SDH relate to factors that are beyond the control of the individual – the complex, integrated, and overlapping social structures and economic systems that include social and physical environments and health services. SDH constitute the 'causes of the causes' of health outcomes. Unfortunately, the landmark report of WHO's Committee on SDH did not have sufficient focus on adolescents.[104]

However, at present, the crucial position of adolescence in the SDH agenda is increasingly being recognised: adolescence presents a second chance to address inequities.[106] Our team examined the role of SDH in adolescent health, using the WHO database. The results of our study,[107] published in Lancet, clearly supports the position that SDH are important to adolescent health. Our findings strongly suggest that many structural determinants, such as access to wealth and level of inequity, are associated with inter-country variations in adolescent health behaviour and outcomes. In a more recent study, based on the WHO framework (Figure 4), we examined available evidence regarding SDH of adolescent and young women's health and nutrition.[108] We concluded that "social determinants of health are critical to reducing inequities and improving health and well-being, particularly in adolescents." Thus, the social determinants of health need to be taken into account in the design and implementation of policies and programmes so as to reduce inequities, and improve health and well-being among adolescents.

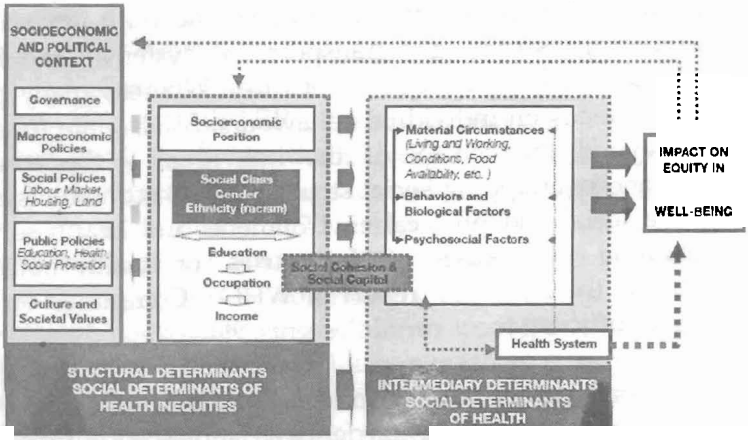

Figure 4. The committee on social determinants of health (SDH) conceptual framework.
Source: WHO (2010).[104]

Health behaviour patterns, including both health-risky behaviours as well as health-seeking behaviour, is central to adolescent health issues, globally and nationally. On the one hand, we have reported a fairly high level of early sexual engagements among young people, as well as low level of condom use.[109,110] Consequently, the issues of unwanted pregnancy and sexually transmitted infections – both the curable (such as gonorrhea and syphilis) and non-curable (such as HIV) types – constitute important challenges for adolescent health in Nigeria (Figure 5). In a study involving a nationally representative sample of 1,278 young males aged 15-24, 6.8% of them self-reported STI symptoms, with early sexual debut and multiple sexual partners as key risk factors.[111] This figure (6.8%) is higher than WHO's figure of 5% for prevalence of curable STIs among adolescents.[112] On the other hand, we recorded poor treatment-seeking behaviour among adolescents with symptoms of sexually transmitted infections and with a distinct gender pattern.[113] Whereas a greater proportion of males compared to females had sought treatment for their STIs (64% vs 48%), the majority of females (60%) that sought treatment had gone to formal sources (most commonly a government clinic) but the

majority of males who sought treatment (54%) went to informal sources (most commonly a traditional healer). In addition, we have also reported poor health seeking behaviour among pregnant adolescents with regards to low use of antenatal care and skilled attendants at birth[114]. Furthermore, we have highlighted the huge challenge of unsafe abortions among adolescent girls who experience unwanted pregnancy, with the attendant high level of morbidity and mortality.[115]

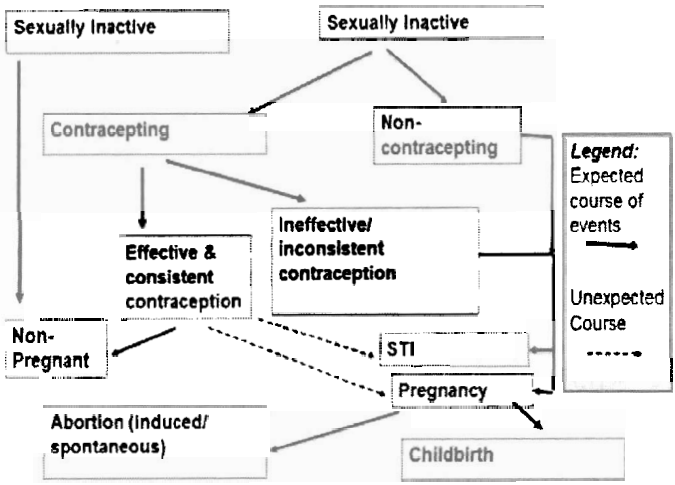

Figure 5. Conceptual Model of Adolescent Sexual Behaviour and Consequences

Clearly, effective interventions are needed to address the high burden of sexual and reproductive health challenges among adolescents. In this respect, in the context of a commissioned work, we had reviewed the adolescent sexual and reproductive health situation in Nigeria and presented "recommendations for strengthening existing programmes and for future efforts to fill programme gaps, all based on global best practices."[116] In another commissioned research – Evaluation Practices in Young People's

Reproductive Health funded by The John D. and Catherine T. MacArthur Foundation, Chicago, USA – with Dr. Michelle Hindin of Johns Hopkins Bloomberg School of Public Health and myself as co-Principal Investigators, we recently documented effective programmes and key intervention characteristics for addressing early marriage and motherhood among adolescents in LMICs. [117]

In addition, some of my research works have focused on rigorous evaluation of specific interventional approaches or programmes. For example, we used the highly recommended and advanced statistical approach of propensity score method[118] to evaluate the effect of "Zip-up" campaign.[119] "Zip-up" was a national multimedia campaign that sought to promote sexual abstinence and communication about it as a norm among young people in Nigeria. Compared to the group that was not exposed to the Zip-up campaign, we found that the exposed group was significantly more likely to engage others in interpersonal communication about abstinence (with an adjusted increase of 10.9%). In another study, we found media exposure to be associated with decrease in stigmatizing attitude towards people with HIV.[120]

Scholarship of Application and Scholarship of Integration

In terms of scholarship of application and scholarship of integration, I will briefly highlight some of my key activities in policy development, public health leadership, and healthcare programming. These activities have afforded me the opportunity to reflect on my research activities and build a strong linkage between theory and practice.

Policy Development and Public Health Leadership

My earliest policy development was in the context of providing technical leadership for the development of the first *National Reproductive Health Policy* in 2000/2001.[66ix] Shortly after that

[ix] Dr. Sylvia Adebajo served as the consultant who undertook the initial drafting of the first National Reproductive Health Policy, while I developed it into the final form approved subsequently by the National Council of Health.

experience, I served as the RH expert on the three-man team that finalized the *National Policy on Population for Sustainable Development*,[121] which was launched in 2004 and is still in use today. My involvement in the National Policy on Population for Sustainable Development left an indelible mark on my life and career, as it brought me into personal contact with one of Ife's academic giants and a global authority in the field of population studies – Professor Alfred Adeagbo Adewuyi, who led the policy development process. The great privilege of having mentors like Professor Adewuyi, Professor Ebenezer Ojofeitimi, and Dr. Olusola Odujinrin afforded me the opportunity to have the shoulders of giants to climb upon in my academic and professional career. Since those early days, I have been involved in several policy-related assignments and initiatives. Among others, I served as a member of the Ministerial Committee that produced the Health Sector Reform Agenda in 2004 and have also been privileged to serve as the lead consultant for at least 10 other national policies and policy documents (Table 4).

Table 4. My involvement in the development of national-level policy development

Policy-Related Assignment	Role	Date
National HIV/AIDS Behaviour Change Communication Strategy 2004 – 2008	Co-Consultant	2003/4
National Policy for the Health and Development of Adolescents and Young People in Nigeria	Consultant (Sole)	2006
National Strategic Framework for Promoting the Health and Development of Adolescents and Young People in Nigeria	Lead Consultant	2006
National HIV/AIDS Strategic Framework & Plan 2010-2015	Co-Lead Consultant	2009
Revised National HIV/AIDS Policy (2010-15)	Lead Consultant	2009
Revised National Reproductive Health Policy	Consultant (Sole)	2009/10
National HIV/AIDS Prevention Plan 2010-2012	Consultant (Sole)	2010
National HIV/AIDS Research Policy	Lead Consultant	2010
National Research Agenda on HIV and AIDS in Nigeria 2010-2012	Lead consultant	2010
Nigeria Ministry of Defence/Walter Reeds Programme -Nigeria: HIV & AIDS Strategic Plan 2013-2017	Lead Consultant	2012

On the international scene, I was a member of the inaugural Task Force on HIV/AIDS in African Universities, established by the Association of African Universities in 2006. I have also been serving on the Strategic Plan Implementation Committee of the West African College of Physicians since 2009. I have been privileged to serve as a temporary adviser to the headquarters of World Health Organisation in Geneva on a number of occasions with respect to adolescent health issues, including adolescent pregnancy, development of ethical guidelines for adolescent research, and defining priorities for adolescent sexual and reproductive health research priorities in LMICs. In addition, I have served on the International Steering Committee for leading global conferences in my field, including the International Conference on Young People's Health and Development (2008), International Conference on Family Planning (2009), and the 10th World Congress International Association of Adolescent Health (2013).

Currently, I am privileged to be one of the members of the 27-person Lancet Commission on Adolescent Health and Wellbeing[122], which was established in 2013 to consider strategies to advance adolescent health. The Commission, which brings together experts from various disciplines including public health, education, medicine, economics, political and social science, behavioural science, and neuroscience, and involving experts at both the science and policy interface as well as young people, is expected to submit its report in 2015. If the tradition of the few commissions ever set up by Lancet is anything to go by, the report of our Commission will be expected to shape the future of adolescent health agenda globally.

One of my greatest privileges in public health leadership in Nigeria is helping to birth the Society for Public Health Professionals of Nigeria (SPHPN) in 2012.[x] SPHPN is an umbrella organisation for public

[x] SPHPN was first named Public Health Association of Nigeria (PHAN) but the name was changed on the advice of the Corporate Affairs Commission of Nigeria.

health professionals that cuts across various disciplines. Prior to 2012, efforts to get disciplinary public health groups together under an umbrella had been fruitless, with the result that Nigeria had no recognition within the World Federation of Public Health Associations as the Federation only admits multidisciplinary public health bodies as affiliates. With the encouragement of some elders in the field, particularly Professor Obehi Okojie of the University of Benin, who was then the Chairman of the Association of Public Health Physicians of Nigeria (APHPN), the Institute of Public Health in partnership with the Population and Reproductive Health Programme (PRHP) took on the challenge of organising a meeting to host leading disciplinary groups with internally-generated funds on the 9th and 10th of February, 2012. That occasion marked the birth of SPHPN, with the Institute of Public Health designated as the Secretariat, and I had the privilege of serving as the foundation Secretary General of the body. Today, SPHPN is fully registered and is an official affiliate of the African Public Health Association and the World Federation of Public Health Associations.

Healthcare Programming

Just as I have been active in the policy arena, I have also been very active on the national programme scene across the spectrum of planning, implementation and evaluation. In the area of maternal health, the programmes with which I have been involved in a technical capacity include the WHO-supported initiative on maternal mortality reduction, "Making Pregnancy Safer" (MPS),[123] and the UNICEF-supported "Women and Children Friendly Health Facilities" initiative. I also served, among others, as Consultant for the development of the "*Road Map for Accelerating the Attainment of the Millennium Development Goals related to Maternal and Newborn Health in Nigeria*"[124]. In more recent times, I have played key roles in the development of national maternal audit instruments for the National Primary Health Care Development Agency and the Ogun State maternal death review guidelines.

In the area of adolescent health, with all modesty, I have been at the forefront of national programming efforts in Nigeria for more than a decade. Among others, I have been the Chair of the National Technical Working Group on Adolescent Health and Development – Nigeria's highest technical body on adolescent health agenda – since 2006 and I have led the development of most of the national training and technical materials in the field (Table 5). I coordinated the National Consultative Forum for Advancing Young People's Health & Development in Nigeria, 31st May – 2nd June 2010 Abuja, Nigeria with the theme, "Healthy Young People, Nigeria's Greatest Assets", which resulted in the "Abuja Declaration on Advancing the Health and Development of Young People in Nigeria."

While I have been busy on national and international scenes, my greatest moments and fulfilment in the adolescent health field really comes from my local engagement with young people and their significant others. Such engagements in secondary schools, campuses of higher education, faith communities and other locations offer me the privilege to touch the lives of young people directly and the opportunity to be impacted upon by them. Indeed, for me, Adolescent Health and Development is not just an academic discipline – it is far more than that. It is something I regard as a life passion and a divine calling.

Table 5. Examples of my involvement in the development of national-level programme documents

National Programme Document	Role	Date
National Training Manual on Adolescent Health and Development	Lead Technical Resource Person	2001
National Clinical Service Protocol and Standards of Practice for Adolescent Health and Development	Lead Technical Resource Person	2001
National Action Plan for Advancing the Health & Development of Young People in Nigeria	Consultant (sole)	2010
Revised National Training Manual on Adolescent Health and Development	Lead Technical Resource Person	2011/12
Revised National Clinical Service Protocol for Adolescent Health and Development	Lead Technical Resource Person	2011/12
National Guidelines for the Integration of Youth Friendly Services into Primary Health Care facilities in Nigeria	Consultant (sole)	2013
National Guidelines on Promoting the Access of Young people to Adolescent- and Youth-Friendly Services in Primary Health Care Facilities in Nigeria	Consultant (sole)	2013
National Standards and Minimum Service Package for Adolescent and Youth-Friendly Health Services in Nigeria	Lead Consultant	2013
Monitoring & Evaluation Plan and Tools for Adolescent Health & Development Programme in Nigeria	Co-Consultant	2013/14

One of the greatest privileges I have had in our campus environment is the establishment of Campus Health and Rights Initiative (CHRI) in OAU with the goal of "impacting the health and well-being of campus-based youth". While several programmes and organisations exist to address the sexual and reproductive health (SRH) issues of adolescents in secondary schools in many parts of Nigeria albeit they are inadequate in number, very little attention has so far been given to young people in higher institutions[125]. Yet, these campuses belong to the category of "high-risk institutions for the transmission of HIV".[126] In establishing CHRI in 2004, our aim was to contribute towards addressing that programming gap and, among other things, create a model in Obafemi Awolowo University that can become a

catalyst for youth-related sexual and reproductive health programmes in Nigeria's academic environment. Through CHRI, we created a platform for promoting positive youth development (PYD)[127,128] and provide young people with opportunities to experience and develop the 5Cs of PYD[129] – character, confidence, competence, connections, and caring (Table 6).

Table 6. The 5Cs of positive youth development

Asset	Definition	How to foster it
Competence	Perception that one has abilities and skills	Provide training and practice in specific skills, including academics and hands-on activities
Confidence	Internal sense of self-efficacy and positive self-worth	Provide opportunities for young people to experience success when trying something new
Connection	Positive bonds with people and institutions	Build relationships between youth and peers, teachers, parents and other parent figures
Character	A sense of right and wrong (morality), integrity, and respect for standards of correct behaviour	Provide opportunities to practice increasing self-control ad development of spirituality
Caring	A sense of sympathy and empathy for others	Care for young people

Source: Adapted from McNeely and Blanchard, 2009[130]

Our strategy, however, was not to create an organisation to be run by adult and/or experts, rather, our agenda was to establish an organisation of young people for young people, with selected adults serving as mentors and advisors.[xi] We simply and strongly believe that provided with the opportunity and support, young people can

[xi] The Mentors and Advisors of CHRI since its formation include Dr. Titilayo Abiona, Dr. Boladale Mapayi, Prof Uche Onwudiegwu, Prof Sola Akinrinade, Prof. Bukola Ojo and Prof Sola Ajayi.

rise to the occasion of addressing the needs of their generation. Over the last 10 years, young people have proved us right and have sustained the CHRI vision with high level of commitment and passion from session to session. On a personal note, CHRI has continuously offered me the opportunity to work with some of the most talented, brilliant, committed and socially responsible young people (undergraduates) on our campus and a platform to mentor as well as learn from generations of young people.

The slogan of CHRI is "adding value to campus-based lives". This is operationalised, among others, by building the capacity of members to be peer educators and to reach out to young people in challenging situations with passion and compassion. As a result, the cases of many students have either been addressed by CHRI members directly or referred to appropriate experts, including mentors/advisors. Let me illustrate with just one case, what the partnership of resourceful and committed young people with supportive adults, which CHRI typifies, can achieve in campus environments. The case of a young female undergraduate who was going through depression and thinking of commiting suicide was brought to my attention on a Friday afternoon through a CHRI member. Together with one of the CHRI female executive members and a mental health expert on our team of mentors, we intervened. Throughout that weekend, the CHRI member – a female medical student – voluntarily harboured the troubled student and kept her company. She continued to provide her a shoulder to lean on and vital friendship that helped the student negotiate through the turbulent period she was passing through. With our support and that of her committed Head of Department, among others, that young lady overcame her challenges and graduated from our university with first class honours. She was in my office a few months back alongside her fiancée with the news of enrolling in a Masters degree programme!

One great lesson from our work in CHRI is that young people are great assets and there is the need for more supportive adults in our

university environment and beyond, to help nurture their potentials to fruition. We must never underrate the potentials of young people, and we must never give up on them, come what may. They may make mistakes – for they are young – but we must never write them off on account of their mistakes nor let their mistakes ruin them for life.

Scholarship of Teaching

The classroom offers the teacher unique opportunities to touch and impact lives; it is a great privilege and trust that all of us who are teachers must continue to cherish. It is a unique opportunity that I truly enjoy and treasure; the classroom is a crucible for bringing my research and field application experiences together – to explore theories, explain facts, examine issues and engage with young people in intellectual and life-related discourse. In addition, however, I am impassioned with the idea of "public health capacity-building without walls", which finds expression in creating educational/training opportunities for individuals who cannot take full-time courses. As such, I started working on the idea of an Executive Masters of Public Health programme shortly after I resumed in OAU in 2002. Professor Patrick Aina, the then OAU Director of Distance Learning (now Vice-Chancellor of Ekiti State University) greatly encouraged me on that pathway. He provided a "listening ear" and wise counsel as I approached him with one model after the other as to how we could have a viable and reputable programme. My desire was to create a highly reputable programme that could attract busy professionals from various kinds of health-related agencies, including international agencies, and structured in a way to accommodate people from places as far away as Abuja.

Interestingly, the time I returned to academic life in Ife coincided with efforts towards preparing a proposal for submission to the Bill and Melinda Gates Institute for Population and Reproductive Health, Johns Hopkins Bloomberg School of Public Health, Baltimore, USA (JHSPH) for funding of an initiative for strengthening graduate education in Population and Reproductive Health (PRH). I was

privileged to join the team and played a lead role in the development of the proposal that won a five-year grant from JHSPH in 2003. With that, our multidisciplinary team headed by Professor Ebenezer Ojofeitimi,[xii] developed the first Masters of Public Health programme in Nigeria that has Population and Reproductive Health as a distinct track.[xiii] Riding on the success of our new MPH full-time curriculum, the idea of the Executive MPH finally came into fruition in 2005 with the great support and cooperation of other members of our department and the OAU-JHSPH partnership. Our team excelled in the project implementation and among others, had the highest number of research publications among the initial six Gates partners institution in Africa.[131] Furthermore, JHSPH funded us for another 5-year phase of the project, and extended that support for two more years. In the implementation of our various activities, our team received great cooperation and encouragement from the JHSPH team, particularly from the then Director of the Gates Institute, Professor Amy Tsui, and the Training Coordinator, Professor Gbolahan Oni. I must also mention the great personal support and academic nurturing that I received from two renowned adolescent health experts in JHSPH: Professors Robert Blum and Laurie Zabin.

Under my leadership as Director, both the Institute of Public Health and the Population and Reproductive Health Programme (PRHP)[xiv] also vigorously pursued the agenda of building public health capacity through short-term courses. We also created a platform for mentoring of young public health practitioners through a programme

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[xii] The core leadership of our team – the OAU-JHSPH Partnership – for 2003-2008 period consisted of: Professor Ebenezer Ojofeitimi (Programme Director), Professor Alfred Adewuyi (Chair, Curriculum Development), Dr. Adesegun Fatusi (Programme Coordinator), Dr. Kayode Ijadunola (Assistant Coordinator).

[xiii] The MPH programme has five tracts (or areas of specialization): Epidemiology, Health Management, Health Promotion, Nutrition, and, Population and Reproductive Health

[xiv] The OAU-JHSPH Partnership Programme transformed to Population & Reproductive Health Programme (PRHP) in 2009 during my tenure as Director and Dr. Kayode Ijadunola as Programme Coordinator

of 3-6 months internship. By 2013, IPH/PRHP was running about a dozen short professional courses annually, including seven regular courses.[132] The College of Health Sciences, within the last 15 months is also moving in a similar direction. Under our new College Research and Partnership Advancement (CoRPA) initiative, among others, the College has embarked on regularly-scheduled short-term training for skills development in research and teaching for its academic staff (free-of-charge) as well initiated a formal mentoring programme. The College has also recently secured the partnership and funding support of USAID/Management Sciences for Health (MSH), which enabled us to become the pioneer institutional platform for the PEPFAR Health Professional Fellowship Programme (focusing on health systems leadership). The first set of Fellows concluded their programme on 7th November, 2014.

Table 7. Regular short courses initiated by PRHP and IPH during my tenure as director

Course	Supporting Partnership
International Workshop on Monitoring and Evaluation of Public Health Programmes	Run twice a year. Initiated as a partnership between PRHP and MEASURE Evaluation
Adolescent Health in Sub-Saharan Africa	Initiated as a partnership between PRHP and London School of Hygiene and Tropical Medicine, WHO, and UNFPA
Biomedical Research Ethics	Initiated in partnership with New HIV Vaccine and Microbicide Advocacy Society
Short Course on Use of Stata Statistical Package	
Medical Education Certificate Course	
Short Course in Qualitative Research Analysis	
Skills building for Research Protocol Development and Grants Writing	Initiated in partnership with Clinical Epidemiologic Network
Logistic Management	Initiated in partnership with John Snow Inc.

Since the time I returned to academics, I have played a major role in spearheading the inclusion of Adolescent Health and Development in our undergraduate medical training in Community Health and in our specialist (Fellowship) training programme in the West African College of Physicians. Our Center in Ife is, unarguably, the lead centre in Adolescent Health in Nigeria presently. One of our major contributions to advancing adolescent health in Nigeria is the provision of technical support to the Federal Ministry of Health in the development of the new National Training Manual and Clinical Service Protocols and the training of State AHD Coordinators.

Our Centre is also becoming a leading focal point for Adolescent Health in sub-Saharan Africa. Today, among others, Ife is one of the three global centres hosting the Annual Short Certificate Course in Adolescent Health initiated by the WHO headquarters, with the London School of Hygiene and Tropical Medicine and the Public Health Foundation of India as the other two centres. We are also one of the 10 participating centres in the multi-country, longitudinal "Global Early Adolescent Study", which commenced recently and is co-funded by WHO headquarters and a number of other development agencies.

Defining the Future

A meeting of experts convened by the World Health Organisation in Geneva in 2013, of which I was a participant, had identified the issue of pregnancy in adolescents among the seven areas of adolescent sexual and reproductive health research priorities for Low and Middle Income Countries.[133] With Nigeria as one of the countries with the highest burden of adolescent pregnancy, this is an issue on which I hope to focus more research efforts in the coming years by God's grace. In addition to issues relating to the prevention of adolescent pregnancy and ensuring good maternal and newborn health outcomes among pregnant adolescents, should I be able to get the needed funding, I hope to expand my work in this area in the future to developing interventions to offer pregnant adolescents a second chance for educational and livelihood development.

Secondly, as the Principal Investigator of our Centre's participation in the landmark Global Early Adolescent Study, the issue of the health and development of Very Young Adolescents (age 10-14 years) is of increasing interest to me. Through this study, I hope that we can also stimulate government agencies, funding organisations, researchers and other stakeholders in Nigeria to give greater research, policy and programming attention to this age group that has so far received the least attention in the adolescent health agenda globally.

Thirdly, the issue of information and communication technologies (ICT) and young people is an intriguing one and an area that needs further work. Our team has recently completed a research initiative on the use of ICT and the sexual behaviours of young people. I hope to continue to work on this area in the coming years, looking at the impact of ICT on other adolescent health-related behaviours and adolescent development, the use of ICT in relevant interventions, as well as the application of ICT to improve research activities. In one of the studies we are about to conclude, we are examining the impact of the use of telephone messaging to improve antenatal care attendance and delivery in health facilities. We are also exploring opportunities to obtain grants for using ICT to improve the uptake of other SRH services such as cancer screening.

One of my greatest delights, academically and professionally, is that of being able to mentor junior colleagues in both academic and non-academic settings across the country in the field of Adolescent Health as well as Reproductive Health. I plan to concentrate efforts, more than ever before, in mentoring junior colleagues across relevant disciplines in adolescent and reproductive health. I particularly hope that with my relevant colleagues, we can institutionalise the Society for Adolescent Research and Services (SOARS) in our university and considerably strengthen the Society for Adolescent & Young People's Health in Nigeria (SAYPHIN) as platforms for building greater capacity and promoting more promising adolescent health research and effective services. Finally, with my team, I hope to work towards obtaining new grants, building new partnerships and initiating new

dimensions of activities that will make us a Regional Centre of Excellence in Adolescent Health in sub-Saharan Africa, such that we can not only nurture individual capacity, but also mentor centres and institutions.

Conclusion

Mr. Vice-Chancellor, Sir, the health of adolescents is a key element for the social, economic and political progress of our country and our world. Definitely, our future, individually and collectively, depends largely on a healthy, educated and economically productive population. The journey to that future starts today with the right investment in the lives of our young people. As Resnick and colleagues have duly emphasised, investment in adolescent health "will become investments not only in economic productivity and effective social functioning, but also in worldwide population health. Our young people, AND ALL OF US (emphasis mine), will benefit."[55] While my focus in this lecture has primarily been on health, the investment needed to enable young people to actualize their potentials and transit to productive adulthood is a holistic package that would facilitate healthy development, access to good quality health services, and opportunities for decent employment. To that must be added government-related initiatives and macroeconomic agenda that will reduce inequities, poverty and corruption. The issue of rising youth unemployment is, for example, a ticking time bomb that will blow in our faces with unimaginable devastating impact if not addressed.

The world would, indeed, be an unsafe place for all of us if the teeming masses of angry, unemployed and frustrated young people were to unleash their pent-up fury. As recent events of our time, such as the Arab Spring, the Niger Delta uprising, and even the Boko Haram, menace have clearly shown us, we neglect the development of adolescents and youths only to our own peril! As Franklin D. Roosevelt (1885-1945) once said, "We cannot always build the future for our youth, but we can build our youth for the future." I dare argue that in building our youth for the future, we are not only

building the future for them, but we are also building our own future. As Professor Babatunde Osotimehin, the Executive Director of UNFPA, noted on 18 November 2014 at the launch of the *State of World Population 2014*, titled *The Power of 1.8 Billion: Adolescents, Youth and the Transformation of the Future*, "How we meet the needs and aspirations of young people and enable them to enjoy their rights will define our common future."[134]

Sexual and reproductive health is directly related to the survival of our race and it is not a matter to play the ostrich with. We need to address the pertinent and ever present SRH challenges as a matter of possessing the future. Family planning is particularly crucial as it holds a central place in SRH and human development agenda – enabling a balance between family size, population growth rate and available resources, preventing early and unwanted pregnancy, reducing the burden of maternal mortality and morbidity, among others[135]. Family planning is a win-win situation for all members of the family, our social institutions, communities and government. Conceptually, we should view Adolescent Health and Reproductive Health like the two wings of a bird, just as no bird will soar high without two powerful wings. Optimal development and prosperity of the human race is impossible without good reproductive and adolescent health status. Thus, if we all are to be in health and prosper, then we must give priority attention to both Adolescent Health and Reproductive Health. We all have a role to play in this and the gain will be for us all.

Closing Reflections

Mr. Vice Chancellor, Sir, I want to thank this great institution for nurturing me academically and professionally, and for giving me a platform and an opportunity for a fulfilling academic life. I am also grateful to the institution and its leadership for the support I have received in my various projects and for the confidence reposed in me in playing some leadership roles. I resumed in OAU during the era of Prof Roger Makanjuola, and was thoroughly stunned when I received a letter to serve as the Acting Head of Department in less

than two years of being employed! Prof. Michael Faborode signed my first letter as Acting Director of the Institute of Public Health, while our current vice chancellor, Professor Bamitale Omole, signed my letter of appointment as substantive Director. In my current position as Provost of the College of Health Sciences, I have continuously received tremendous personal and official support and encouragement from the Vice-Chancellor, other Principal Officers, past Provosts of our College of Health Sciences, Deans across various faculties as well as other colleagues. While I am not sure of what the future holds, I am glad that I know the God who holds the future, and His faithfulness in the past encourages me to leave tomorrow in His hand and focus on simply accomplishing today's task. I hold the following words penned by John Newton in the song, "Amazing Grace" (1773), to be true: *"The Lord has promised good to me, His words my hope secures; He will my shield and portion be as long as life endures"*.

Indeed, I owe all I am and any accomplishment that I may have made to God and His grace. A commissioned painting in my office is a constant reminder in that respect. It has the picture of a tortoise on top of a wall, with the inscription, "I couldn't have found myself here: The 'G' factor." Really, the tortoise for all its fabled wisdom in Yoruba mythology could not have climbed to the top of a wall. Someone must have placed it there. For me, distinguished audience, it is the hands of the Jehovah – the all-able and all gracious God. The "G" factor stands for "God", and also for the "Grace" He has manifested to me through the great people that He has so wonderfully planted in my life and across my pathway. The timeless wording of a hymn by Thomas O. Chisholm in 1923, says it all:

Great is thy faithfulness, O God my Father
There is no shadow of turning with Thee;
Thou changest not, Thy compassions, they fail not;
As thou hast been Thou forever wilt be.

In keeping with the classic tradition of the inaugural lecture, I will not be listing the names of my benefactors and destiny helpers, without whose contributions I would not probably be standing here

today. At any rate, it is safer for me to keep to the tradition – as I owe so much to so many people in life that such a list itself would probably amount to another inaugural lecture. But I would be remiss if I do not mention a few. I am deeply grateful to my family. Indeed, I have been blessed with the wonderful gift of a loving and most supportive nuclear and extended family with whom I am connected by blood, marriage, adoption and socialisation. I hereby specially salute the wonderful women in my life – my wife (Professor Olawunmi Adedoyin Fatusi), my daughter (Oluwadamiloju MoyinOluwa Fatusi) and my mother (Madam Mary Adunni Fatusi). With a grateful heart, I readily acknowledge the efforts of the man who was my greatest motivator and mentor in life– my late father, Rev. Akinyemi Akanbi Oduntan Fatusi. I also have the privilege of belonging to a highly inspiring and encouraging spiritual family, particularly in the fold of the Chapel of Grace, OAUTHC, under the committed leadership of Pastor Mathew Oyelami.

I have been privileged to have great mentors, wonderful friends, exciting colleagues, productive collaborators and fantastic mentees in and out of the academic circle, within Nigeria and beyond – all of whom have contributed to my life in various ways. I particularly want to single out some groups of collaborators: Gates Institute, JHSPH, partners in the Adolescent Health in Low and Middle Income Countries course, the Federal Ministry of Health, UNFPA, WHO, PRHP, and members of my department.

Mr. Vice Chancellor, Sir, it has been a great honour, pleasure and privilege being a student and then a lecturer in Nigeria's number 1 higher instution of learning – Obafemi Awolowo University. My family and I are eternally grateful to God for the opportunity to be part of this great academic community. My Vice Chancellor, sir, my priceless and wonderful family members, dear friends, esteemed colleagues, distinguished ladies and gentlemen, I am sincerely grateful for your kind presence and attention at this occasion. **May we all continue to prosper and be in good health - spirit, soul, and body**. Thank you and God bless.

Appendix 1

List of participants: 1st Quarter 2001 National Reproductive Health Working Group (NRHWG) meeting

Name	Position/Organisation
Adenusi, Peju (Dr)	Family Planning Unit, Reproductive Health section, Federal Ministry of Health, Harvey Road, Yaba
Adeyemi Adenike A. (Dr.)	Deputy Director, Reproductive Health, Department of Community Development and Population Activities (CDPA), FMOH, Abuja
Akinso, Stella (Mrs)	Association for Reproductive and Family Health (ARFH), Ibadan
Asoka, Tarry (Dr.)	United Kingdom Department for International Development (DfID)
Bello, Mairo V (Mrs)	Adolescent Health and Information Project (AHIP), Kano
Bernard, Imoh (Ms)	Girls' Power Initiative (GPI), Calabar
Derex-Briggs, I. (Dr)	National HIV/AIDS and STD Control Programme, Federal Ministry of Health, Federal Secretariat, Abuja
Eluaka, B. N. Mrs.	Nutrition Unit, Federal Ministry of Health, Abuja.
Etta, Adenike (Mrs.)	Reproductive Health, Federal Ministry of Health, Abuja.
Ezeilo, Joy (Mrs.)	Faculty of Law, University of Nigeria, Enugu Campus/Women's Aid Collective (WACOL) Nigeria
Fatusi, Adesegun (Dr.)	UNFPA, 11, Oyinkan Abayomi Drive, Ikoyi, Lagos
Kolo, Salma A. (Dr.)	National HIV/AIDS and Sexually Transmitted Diseases Control Programme (NASCP), Federal Ministry of Health, Abuja
Mamu, Zainab G. (Mrs)	Department of Hospital Services (Nursing Services), Federal Ministry of Health, Abuja
Menakaya, Uche (Dr)	Women Health and Action Research Centre, Benin
Odeku M. A (Dr)	Safe Motherhood Programme, RH Section Federal Ministry of Health, Yaba, Lagos

Name	Position/Organisation
Odujinrin, Olusola (Dr.)	World Health Organisation, Lagos
Ojengbede, Oladosu (Prof.)	O & G Dept., UCH Ibadan/Family, Health, Population and Environmental Development Initiative (FAHPED)
Ojofeitimi, Ebenezer O. Prof	Institute of Public Health, College of Health Sciences, Obafemi Awolowo University, Ile-Ife
Oritseweyimi, Oge Dr.	National Primary Health Care Development Agency, Abuja
Osinubi, Peju Dr	Dept. of Hospital Services, Reproductive Health Unit, Federal Ministry of Health, 1004 Maintenance Building, Victoria Island, Lagos
Osubor, Martin K. (Dr)	Pathfinder International, 248 Muri Okunola Street, Victoria Island, Lagos
Oyeledun, Bolanle (Dr.)	Johns Hopkins University/Centre for Communication Programs (JHU/CCP), Ikoyi, Lagos
Oyeleke D. S. Mr	Health Education Branch, Federal Ministry of Health, Onikan, Lagos
Oyemakinde, Akin (Dr)	Department of Health Planning and Research, Federal Ministry of Health, Abuja
Segun, Babatunde (Dr.)	Adolescent Reproductive Health Focal Officer, Reproductive Health Unit, Federal Ministry of Health
Smith, Toyin (Dr)	Assistant Director, Department of Hospital Services, Reproductive Health Unit, Federal Ministry of Health

Appendix II

List of individuals who participated in the development of the National Curriculum on Reproductive Health for Nurses/Midwives

Federal Ministry of Health
Adenusi, Olapeju (Dr.)
Adeyemi, Adenike (Dr.)
Adegoke, O. F. (Mrs)
Anas Kolo, Salma (Dr.)
Amaeshi M. S (Dr)
Odeku, Moji (Dr)
Segun, Babatunde (Dr.)
Osunaike, K. (Mrs)
Gabriel, R. E. (Mrs.)
Oyemakinde, Akin (Dr)
Soretire, F (Dr)

International Development Organisations (National Officers)
Agbede, Kemi (Mrs). – UNFPA
Dosumu, Bunmi (Mrs) – USAID
Idaomi-Bolodeoku, Tyna (Ms) – UNFPA
Idoko Lucy (Dr.) – UNFPA
Fatusi, Adesegun (Dr) – UNFPA
Odujinrin, Sola (Dr.) – WHO
Osubor, Martin (Dr) – Pathfinder Intl.

UNFPA Country Support Team, Addis Ababa, Ethiopia
Diallo, Bocar (Dr.)
Monoja, Luka (Dr.)
Mrisho, Fatma (Dr.)
Thuo, Margaret (Ms).

National Experts
Abedi, H. O. (Dr.)
Abibu, O. B. (Dr.)
Adewale, M. E. (Mrs)
Ajagbe, Wunmi (Mrs)
Akinso, Stella (Mrs.)
Are-shodeinde, A. A. (Mrs)
Arowojolu, A. (Dr.)
Bamgbala, Bisola (Dr.)
Binchan, R. (Mrs.)
Chiemeka, O. (Mrs)
Fajemilehin R. B (Dr.)
Gomwalk, A. (Mrs)
Kila, A. (Mrs)

Lana, Bola (Mrs.)
Mahmoud, H. S. (Mrs)
Ofi, Bola (Dr.)
Ojengbede, O. A. (Prof.)
Olisa, M. N. (Mrs.)
Onyeabor, G. N. (Mrs)
Oyeledun, Bolanle (Dr.)

Appendix III:

List of individuals who participated in the development of the Clinical Protocol and Service Guidelines for Adolescent Health Services in Nigeria in 2001

Name	Organisation
Federal Ministry of Health	
Adeyemi, Adenike (Dr.)	Federal Ministry of Health
Akinkunmi Yemisi (Mrs)	Federal Ministry of Health
Odeku, Moji (Dr.)	Federal Ministry of Health
Segun, Babatunde (Dr.)	Federal Ministry of Health
UNFPA	
Adjoa, Amana (Ms.)	UNFPA (CST, Addis Ababa, Ethiopia)
Mrs. Bolodeoku Tyna (Ms)	UNFPA
Fatusi, Adesegun (Dr)	UNFPA
Okonkwo, Prosper (Dr.)	UNFPA
Oyeyipo, Biodun (Dr.)	UNFPA
World Health Organisation	
Odujinrin, Olusola (Dr).	WHO
Other Experts	
Adeyemi, Adekunle (Prof)	Department of O & G, UCH, Ibadan
Aina (Dr)	Department of Psychiatry, LUTH
Aina (Prof)	Department of Nutrition, UCH, Ibadan
Akinboboye (Dr)	University Health Centre, FUT, Akure
Akinso Stella (Mrs.)	Association of Reproductive & Family Health (ARFH)
Araoye, Margaret (Dr.)	Department of Comm. Health, University of Ilorin
Are-Shodeinde (Mrs)	Association of Reproductive & Family Health (ARFH)
Atinmo, Tola (Prof.)	Department of Nutrition, UCH, Ibadan
Esiet, Nike (Mrs.)	Action health Incorporated
Mutihir (Dr)	Planned Parenthood Federation of Nigeria
Odejide (Prof)	Department of Psychiatry, UCH,

Name	Organisation
	Ibadan
Ogun (Dr)	Psychiatric Hospital, Yaba, Lagos
Ojengbede, Oladosu (Prof.)	Department of O & G, UCH, Ibadan
Ojofeitimi E. O. (Prof)	Institute of Public Health, OAU, Ile-Ife
Omigbodun, Yinka (Dr.)	Department of Psychiatric, UCH, Ibadan
Onwudiegwu Uche (Prof.)	Department of O & G, OAU, Ile-Ife
Osubor Martin (Dr)	Pathfinder International
Sheget, Hassana (Mrs.)	Ministry of Health, Gombe State
Usen G. B. (Mrs.)	Sapele Local Government, Delta State
Wonodi, Chizoba (Dr)	Ministry of Health, Rivers State
Secretariat Support	
Ajiroba Lola (Mrs.)	UNFPA
Iyantan Abiodun (Mrs.)	Federal Ministry of Health

Appendix IV:

List of individuals who participated in the development of the National Training Manual for Adolescent Health & Development in 2001

Federal Ministry of Health
Adenusi, Olapeju (Dr.)
Adeyemi, Adenike (Dr.)
Ayoola, Yemisi (Mrs.)
Mamudu, Rhakiyat (Mrs.)
Odeku, Moji (Dr.)
Segun, Babatunde (Dr.)

United Nations Population Fund
Adjoa, Amana (Ms.) (UNFPA Country Support Team, Addis Ababa, Ethopia)
Dakum, Patrick (Dr.)
Fatusi, Adesegun (Dr)
Idoko Lucy (Dr.)
Okonkwo, Prosper (Dr.)
Oyeyipo, Biodun (Dr.)
Odutolu, Bola (Mrs)

World Health Organisation
Odujinrin, Olusola (Dr.)

Secretariat Support
Ajiroba Lola (Mrs.)
Iyantan Abiodun (Mrs.)
Dopemu Sade (Mrs.)

Other Experts
Ajayi (Prof.)
Aken'ova, Dorothy (Mrs.)
Akinso, Stella (Mrs.)
Akinsola, Esther (Prof.)
Bello, Bahijatu (Miss)
Bwarika, Cyrilla (Mrs.)
Daramola, Wole (Mr.)
Doherty, Funmi (Mrs.)
Effiong, Edem (Miss)

Ekoh, Pat (Mrs.)
Etim, Emmanuel (Mr.)
Fowowe, Feyi (Miss)
Lana, Bola (Mrs.)
Laniyan, Christy (Mrs.)
Odejide, (Prof.)
Odutolu, Wole (Dr.)
Ogun, Yemi (Dr.)
Ojofeitimi E.O. (Prof.)
Olateju M. A.(Mrs.)
Olujimi, Seyi (Mr.)
Olukoya, Toyin (Mrs.)
Oluwatoye, Grace (Mrs.)
Omigbodun, Yinka (Dr.)
Osakwe, Grace (Mrs.)
Oyeledun, Bola (Dr.)
Richie-Adewusi, Fola (Mrs.)
Tajo, Halima (Ms.)
Ujomu, Peter (Mr.)

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