

Reflections on Maternal Mortality in Nigeria – *The Fifth Okoronkwo Kesandu Ogan Memorial Oration*

V. Emeka Ekwuatu

Professor of Obstetrics and Gynaecology, Ebonyi State University, Abakaliki, Nigeria.

**Let us now praise famous men,
And our fathers that begat us.
Ecclesiasticus xlv, 1.**

I feel very honoured to have been invited to give this lecture in memory of Professor Okoronkwo Kesandu Ogan, a foundation member and the first President of this great Society of Gynaecology and Obstetrics of Nigeria. Professor Ogan was among the pioneers of modern Obstetrics and Gynaecology in West Africa, being the first Nigerian, and the second West African, to obtain the membership diploma of the Royal College of Obstetricians and Gynaecologists of England (MRCOG). In 1971, he became the first Nigerian Fellow of the College.

I knew of Professor Ogan long before I met him. On learning that I was a Nigerian, my teachers in Obstetrics and Gynaecology at the Guy's Hospital Medical School in London in the early 60s were always anxious for news of "Oki", as his friends and colleagues fondly referred to Professor Ogan. Happily for me, Dr. Agu Ogan, his junior brother who later became the foundation Professor of Biochemistry at the University of Nigeria, Nsukka, was also studying for a doctorate degree at Guy's Hospital at that time.

At the end of the Nigerian civil war a decade later, I made enquiries from Tanzania about the young Medical School of the University of Nigeria Nsukka, and was pleasantly surprised to receive a really warm letter from Professor Ogan, then the Head of the Department of Obstetrics and Gynaecology, encouraging me to return home. He subsequently welcomed me enthusiastically into the department, which he was building up at the time.

Although many problems were encountered during the immediate post-war period, the Department of Obstetrics and Gynaecology thrived. The teaching of medical students continued, as did the residency-training programme. Research into relevant subjects in our discipline was being conducted, and the community was being provided with good maternal care services. Undoubtedly, the most tragic, and certainly the most urgent, challenge to the department in those days was the appallingly high maternal mortality. I felt that a visitation to that

subject matter, in the context of current obstetric realities in Nigeria, would be a topic of which Professor Ogan would have approved, and I have chosen as title for this address "Reflections on Maternal Mortality in Nigeria".

The Early Years and After

Prior to obtaining the MRCOG, Professor Ogan had served at the Adeoyo Hospital in Ibadan (then under university administration), with such distinguished figures in Obstetrics and Gynaecology in Nigeria as Professors J B Lawson and Una Lister. In the 2 years 1953-55, the overall maternal mortality ratio (MMR) in their hospital was 13.89 per 1000 births: 5/1000 for women who had booked, as against 50/1000 for emergency cases admitted (Table 1). Their experiences and observations at Ibadan half a century ago¹, remain essentially true to this day.

They had noted that:

- The causes of maternal death at Ibadan (difficult labour, sepsis, haemorrhage, eclampsia, anaemia) were universal, and not specific to the tropics. Supporting these major causes was, of course, an enabling background of poverty, illiteracy, malnutrition, unregulated fertility, infection (viral, bacterial, parasitic), harmful birth practices and other adverse local cultural and social influences, and poor public health and maternal services.
- Almost all the maternal deaths could have been prevented by widely deployed good quality maternal services, good communication and transportation, and availability of stored blood for transfusion, and
- The training, which they had received in the United Kingdom, did not adequately prepare them for the peculiar features of obstetric practice in tropical Africa. They had, for instance, to learn to perform caesarean deliveries and difficult obstetric procedures on very ill and grossly anaemic patients, sometimes under local anaesthesia, and often without the luxury of blood transfusion.

The Fifth Professor Okoronkwo Kesandu Ogan Memorial Lecture was delivered at the 6th International Congress of the Society of Gynaecology and Obstetrics of Nigeria (SOGON) in Abuja, 21st November 2002.

Table 1**Recorded Maternal Deaths at Three University Teaching Hospitals in Nigeria**

<i>Report (name & year)</i>	<i>Hospital</i>	<i>Overall MMR</i>	<i>MMR in the Booked Patients</i>	<i>MMR in Unbooked Patients</i>
		<i>{Maternal Mortality Ratio (MMR) per 100,000 Total Births}</i>		
Lawson ¹ ; 1953-1955	Adeoyo, Ibadan	1389	500	5000
Megafu ³ ; 1971-1972	UNTH, Enugu	1390	88	5350
Chukudebelu ⁴ ; 1976-85	UNTH, Enugu	270	86	4130
Okaro ⁵ ; 1991-2000	UNTH, Enugu	1406	271	12177
Briggs ⁶ ; 1983-1986	UNIPOINT, PH	970	350	1780
Uzoigwe; 1989-1998	UNIPOINT, PH	1097	280	14806

UNTH: University of Nigeria Teaching Hospital; PH: Port-Harcourt

This last observation was to generate much concern, and stimulate considerable debate and discussion. A meeting on this topic, supported by the Birthright Foundation, was held at the Royal College of Obstetricians and Gynaecologists in London in June 1989².

Professor Ogan rejoined the staff of the University College Hospital, Ibadan after obtaining the MRCOG in February 1958, and in October 1959 was appointed the first Nigerian University lecturer and Consultant in Obstetrics and Gynaecology. A month later however, he joined the service of the Federal Ministry of Health as Consultant (and later Senior Consultant) Obstetrician and Gynaecologist at the Lagos Island Maternity Hospital. Eight years later, in October 1966, he transferred to the Medical Service of the Eastern Region of Nigeria, and in March 1967, was appointed the first Head of Department of Obstetrics and Gynaecology of the new University of Nigeria Teaching Hospital (UNTH) at Enugu. In the two years 1971-1972, the MMR at the UNTH was 13.9 per 1000 total births (0.88/1000 for booked patients, and 53.5/1000 for emergency admissions). This study³ did not include deaths from abortions. By the time Professor Ogan left the UNTH in September 1975 to take up his appointment as Chairman of the Federal Civil Service Commission there was already a reassuring indication of a decrease in maternal deaths in the unit. A subsequent 10-year review (1976-1985) of maternal deaths at the UNTH⁴ confirmed this impression, and showed a MMR of 2.7/1000 total births (0.86/1000 for booked and 41.3/1000 for unbooked patients). There was a downward trend in the overall mortality rate from 5.46 in 1976 through 1.99 in 1985. A dramatic fall in the MMR from 3.47 in 1978 to 1.74 in 1979 coincided with an equally striking reduction in the number of unbooked cases. These studies demonstrated the

positive contribution of antenatal care to the prevention of maternal deaths. The authors of the second study attributed the fall in the MMR in the second half of the 70s partly to a gradual recovery from the damaging effects of the Nigerian civil war, and partly to improvement in the provision, and the utilisation, of maternal services made possible by the advent of the "Oil Boom".

The reduction in maternal deaths in the unit was, however, not to be sustained. On the contrary, there has been a marked deterioration in the delivery of maternal services in Nigeria over the last decade. This is shown by a persistently high MMR of over 1000/100,000 births, the current high perinatal and neonatal mortality rates of over 90/1000 and 42/1000 respectively, and the progressive increase in HIV seropositivity rate among antenatal clinic patients from 1.4% in 1991/92, to 4.5% in 1995/96 and 5.4% in 1999. At the UNTH, the MMR in the 10-year period (1991-2000) was 1406 per 100,000 births⁵; 271 per 100,000 for booked patients and 12,177 per 100,000 for emergency admissions. This unprecedented five-fold rise in the overall MMR (and 3-fold increase among the booked cases) from the 1975-1985 figures occurred in spite of the collective launching of the Safe Motherhood Initiative in Kenya in 1987, and subsequently in Nigeria in 1990. The Initiative had aimed at reducing the estimated yearly World Maternal Mortality figure of 600,000 by 50% by the year 2000. Reports from other parts of Nigeria also indicate increases in maternal deaths over this time interval. A 10-year review (1989-1998) at the University of Port-Harcourt Teaching Hospital, gave a total MMR of 1097.2/100,000 deliveries, 280 for the booked and 14,806 for the unbooked patients⁶. Corresponding figures at the same hospital for the 3 previous years 1983-1986 were 970, 350 and 1780 per 100,000 respectively⁷.

Previous Strategies for the Improvement of Reproductive Health

International donor agencies have been responsible for most of the previous efforts to promote reproductive health in Nigeria. Over the past four decades, the World Health Organization (WHO), the United Nations Children Fund (UNICEF), the United Nations Population Fund (UNFPA), the World Bank and other international donor agencies have invested heavily in establishing national integrated maternal and child health, and family planning programmes in Africa and other less developed regions of the world. Laudable strategies were established, and training programmes organised for different categories of health workers in the developing countries.

Most of these efforts have not yielded the expected dividends in Nigeria. The funding agencies, it must be admitted, have not always adopted policies appropriate to the economic and social environment of the recipient countries. The training of Traditional Birth Attendants in Nigeria, comparable in its absurdity only to the distribution of mosquito nets in the current "Roll Back Malaria" programme, is a case in point. The Safe Motherhood Initiative, referred to earlier, has also been clearly ineffectual in its objective. Rosenfield and Maine's hypothesis in 1985⁸, that access to emergency obstetric care services held the key to the reduction of maternal mortality, is sound in principle. This concept, which has its advocates in several sub-Saharan African countries, may however fail in Nigeria unless the commitment of Government to improved reproductive health is firm and unequivocal, basic health services are better organised, and discipline is instilled into the polity. There is now the realisation that all international assistance in the reproductive health programme, and indeed in all other areas, should be recipient-driven rather than donor-driven. Esoteric ideas, however attractive to the international community, must not be allowed to take precedence over policies that are appropriate to meeting the basic needs of the local community.

Causes of Increasing Maternal Mortality in Nigeria

Unsafe abortion, poor prenatal care and the twin evils of poverty and corruption are, to my mind, the main factors responsible for the worsening maternal mortality situation in Nigeria.

Unsafe Abortion: Induced abortion is a criminal offence in Nigeria. It is, however, imperative for all to acknowledge that the complications of illegal

abortion presently account for 30-40% of the 55,000 maternal deaths that occur in the country annually. Illicit abortion is, therefore, a major public health concern that no responsible government can continue to ignore. Nigeria's restrictive abortion law must, therefore, be revisited and policies and programmes developed to safeguard the lives and health of the women.

The rapid expansion in educational and employment opportunities in Nigeria, the speedy and unrestrained urbanisation of cities and the rural-urban drift have all contributed to the sudden liberation of young adults from parental influence and control. Traditional values, which previously governed community morality and behaviour, have been rapidly replaced by liberalised imported ideas, especially in the matter of sexuality. This new-found freedom has encouraged promiscuity among the young, and has exposed girls and young women to the dangers of unsafe abortion, sexually transmitted diseases including HIV/AIDS, pelvic infection, infertility and, sometimes, death. A new and worrying development is the apparent rise in teenage pregnancies in our rural communities. HIV/AIDS, currently the leading cause of maternal mortality in South Africa⁹, may yet impact negatively on the maternal death rate in Nigeria.

Prenatal Care at the Primary, Secondary and Tertiary Levels of the Nigerian Health Care System

Most reports on maternal deaths in Nigeria emphasise the strategic role played in its reduction by adequate, accessible prenatal care. And yet, less than 20% of the women receive satisfactory care during pregnancy.

Most maternal deaths in Nigeria occur in "unbooked" patients. In the 11-year period 1992-2001, there were 52 maternal deaths and 9663 births at the Nnamdi Azikiwe University Teaching Hospital, Nnewi, giving a MMR of 538 per 100,000. Fifteen (57.7%) of the 26 mortalities whose case notes could be analysed had been referred from peripheral "hospital & maternity" institutions, and 1 (3.8%) from a General Hospital (Table 2). Six (23.1%) women were admitted through the Accident and Emergency Department and 4 (15.4%) through the Hospital antenatal clinic. Surprisingly, no patients were referred from a private maternity home, a primary health care centre, a Traditional Birth Attendant or following unassisted home delivery. At the Ebonyi State University Teaching Hospital, Abakaliki on the contrary, 52.2% of all admissions came from this latter group of sources.

Table 2**Sources of Referral to the Maternity Units of Two University Teaching Hospitals in South-Eastern Nigeria**

Institution	NAUTH	EBSUTH
<i>Period Covered</i>	1992-2001	Jan. 2000-Oct '02
<i>Total Number of Deaths</i>	52	40
<i>Number Analysed</i>	26	23
<i>Sources of Referral [n (%)]</i>		
<i>Peripheral "Hospital & Maternity"</i>	15 (57.7)	7 (30.4)
<i>Accidents & Emergencies Unit</i>	6 (23.1)	2 (8.6)
<i>Antenatal Clinic</i>	4 (15.4)	1 (4.4)
<i>General Hospital</i>	--	1 (4.4)
<i>Primary Health Centre</i>	--	1 (4.4)
<i>Private Maternity Home</i>	--	4 (17.4)
<i>Home Delivery</i>	--	4 (17.4)
<i>Traditional Birth Attendants</i>	--	3 (13.0)
TOTAL	26 (100)	23 (100)

NAUTH: Nnamdi Azikiwe University Teaching Hospital, Nnewi, Anambra State, Nigeria

EBSUTH: Ebonyi State University Teaching Hospital, Abakaliki, Nigeria

The Primary Health Care Centres (PHC), which are situated in the rural areas where the majority of the women live, are grossly inadequate for maternity care. Healthcare facilities in the District and General hospitals may only be marginally better. Inexperienced nurses, Youth Corps doctors and other newly qualified personnel often assume the responsibilities of well-trained and experienced general duty medical officers and nurses. They work

Table 3**Effect of the Introduction of Free Maternity Care on Maternal Mortality at the Ebonyi State University Teaching Hospital (EBSUTH)**

Year	Number of Patients Booked for Antenatal Care	Number of Total Births	Number of Maternal Deaths	MMR (per 100,000 Births)
2000 (May-Dec)	395	342	14	4093.5
2001	1165	608	19	3125.0
2002 (Jan-Oct)	3449	1238	11	888.5

*Free Antenatal and Delivery Care Policy was introduced by the Ebonyi State Government in February 2001

in "Comprehensive Centres" and hospitals that are poorly equipped, and where routine drugs are rarely available. Consequently, such health providers become frustrated, establish their own (usually unregistered) private clinics, and are rarely to be found in the premises of the Government facilities where they are expected to work. Health services, where they exist, have poor communication facilities, are frequently difficult to reach, and transportation can be prohibitively expensive. It is no wonder then that the wheelbarrow has become a veritable mode of transportation in the villages for some women in labour! Many women deliver at home unattended, or under the care of a Traditional Birth Attendant. Others seek the help of doctors, midwives and pharmacists in unregistered clinics or patronise medical practitioners and midwives of questionable professional competence, in their "Hospital & Maternity" institutions and Maternity Homes.

Religion is not to be left out! The faithful of some non-orthodox religious bodies are being persuaded or compelled to deliver their babies under the supervision of the church. The exact number of women who have died at the Local Government PHCs, the secondary health facilities, the private "Hospital & Maternity" establishments, Maternity Homes, Pharmacies and in various church premises and other religious healing homes may never fully be known.

It is recommended that free maternity care be provided for all Nigerian women. The Government of Ebonyi State should be congratulated for taking the lead in this direction. Since the introduction of free antenatal and delivery care in the State in February 2001, the number of antenatal patients attending the Ebonyi State University Teaching Hospital has tripled, and MMR has decreased from 4093.5 per 100,000 births in the year 2000 through 3125 per 100,000 in 2001, to 888.5 per 100,000 in the 10-month period up until October 2002 (Table 3)

I have no doubt that Local Government Primary Health Centres, the General Hospitals and other secondary-level health facilities could be made to provide acceptable maternity services, if only they are adequately funded, well organised, properly equipped and regularly monitored. Health personnel, drugs and equipment, and other facilities at these centres must be regularly audited and upgraded. It is satisfying to note that the Akwa Ibom State Government recently revoked the licenses of all private hospitals and clinics operating in the State, as part of measures to sanitise the health sector. The move, it was hoped, would enable the State government carry out a reassessment of the facilities at such hospitals, and the professionalism of the practitioners, so as to ensure the maintenance of certified health standards in the State. Applications for the issuance of fresh licenses to such institutions would, thereafter, be subjected to serious scrutiny by government. The Akwa Ibom State government also barred doctors from the training and employment of auxiliary nurses in place of trained nurses, as the auxiliary nurses posed a great danger to public health. These are moves in the right direction, and the State government ought to be congratulated.

It is noteworthy and encouraging that the Nigerian Bar Association, in an effort to sanitise the legal profession, has adopted policies such as making the licensing of all lawyers compulsory before they can practice in the country, and has mandated that NBA's seal be affixed on all documents before they could get official recognition. In a similar vein, it is suggested that lectures, seminars and workshops be organised at local, state and national levels, to update the obstetric knowledge and skills of the district doctors and midwives, and their counterparts in private practice. Close interaction between reproductive health workers in the primary, secondary and tertiary health institutions and those in private medical practice should be fostered in order to boost morale and encourage the sharing of knowledge and information. Where reliable communication facilities permit, it should be possible to take maternity services to very ill patients, or those living in remote or inaccessible parts of the country. Such policies have worked very well, to my knowledge, in the Republic of Tanzania and the Kingdom of Saudi Arabia. They ought to be affordable in Nigeria.

What treatment awaits very ill pregnant women at the tertiary level - Nigeria's Teaching Hospitals and specialist healthcare facilities? Is there a delay in the institution of effective intervention at such health

facilities - the third arm of the classical model of the three levels of delay? Are there well equipped, experienced and adequately drilled emergency 'First Eleven' teams to give the women prompt and optimal attention? Or are the teams being fielded inexperienced, incompetent, unsupervised, casual 'third elevens' with 'fifth eleven' implements? Are the blood banks well stocked with safe blood, functional and easily accessible? Are poor, frightened and distraught relatives required to first pay for the emergency services before the patients are properly attended to, or, in the alternative, watch agonisingly as the women suffer and die? Are there functional, well-manned and efficient Intensive Care Units that are supported by reliable and emergency-conscious laboratory services? Is the teaching structured to produce the required skilled manpower with the appropriate ethical values inculcated? I suspect that we all know the answers to all of these important questions.

Poverty and Corruption

According to the United Nation's Common Country Assessment published in March 2001¹⁰, the poverty rate in Nigeria increased significantly in the 1990s, from 42.7% of the population in 1992 to 65.6% in 1996, when over 67 million Nigerians fell below the poverty line. In absolute terms, the population of poor Nigerians increased **four-fold** between 1980 and 1996. In effect, although Nigeria is the seventh largest oil producer in the world, about 70% of its population did not earn enough in 1996 to meet basic human needs. And in spite of government's efforts to create more jobs, the composite rate of unemployment has hovered around 25% in the past 10 years. The Gross Domestic Product (GDP) per capita of US\$260 was the same in 1995 (when Nigeria was ranked the world's 19th poorest nation) as it was in 1972. Furthermore, the latest Human Development Index (HDI) rating placed Nigeria 151st out of 174 nations. Clearly therefore, Nigeria's performance in the socio-economic field over the past decade has been generally poor and below expectation, and maternal mortality has been one of the visible indicators. Funding for the health sector has been meagre, and this has placed an extra strain on the poor in terms of access to health needs.

Corruption is entrenched and widespread in Nigeria, and has, so far, successfully resisted all the anti-corruption strategies instituted by Government. In a study by Transparency International published in September 2000, Nigeria emerged as the most corrupt of the 90 countries surveyed. Bribery and corruption occur at all levels of society and in all the

professions, sapping the strength of the nation by rewarding and encouraging inefficiency, and thereby impeding socio-economic development. Is it not corruption when colleagues sign and approve that private facilities, which have never been visited or assessed, are adequate for the provision of maternal health care? It is an imperative that we all challenge the evil of corruption at whatsoever level we are privileged to serve.

The Way Forward

This respected Society, which at its inception in 1965 had a membership of 50 Nigerian Obstetricians and Gynaecologists, now has 470 full members and 28 honorary members on its register as at November 2001. It must be admitted that SOGON's influence on the subject of the reduction of maternal deaths in Nigeria has been insignificant. Ironically, maternal mortality has worsened with the rise in the membership of the Society—a grave indictment indeed on every member. SOGON can, and indeed must, do much more. It must win the ear of Government, and get close to the formulators of Nigeria's National Reproductive Health Policy and Strategy. Happily at long last, SOGON appears to have woken up to its responsibilities, and a dim light may now be perceived at the end of this dreadful tunnel. Professor Linus Ajobor, SOGON's current energetic and resourceful President, only last month released a 10-year strategic plan, which hopefully, will influence Government's policies on reproductive health, and actualise SOGON's vision of a reduction in the number of maternal deaths in Nigeria by 50% by the year 2010. Professor Ajobor, SOGON and its Committee on Policy in Reproductive Health are to be complimented on this worthwhile and overdue effort.

The plan must, however, not be allowed to follow in the mold of government organised programmes which are usually very long on declarations, principles, philosophies, goals, objectives and targets, but extremely short on organisation, implementation, monitoring and evaluation. SOGON should urgently persuade the Federal government to introduce the machinery for the establishment of a regular nationally integrated *Confidential Enquiry into Maternal Deaths in Nigeria*. This most important measure will serve a dual purpose. It will provide accurate information concerning maternal deaths in this country. More importantly, it will introduce professional self-auditing and accountability into the system, and eliminate the levity with which the tragedy of maternal death is currently treated in Nigeria. No longer will maternal death be attributed solely to the

will of God. In-house sanitization of our maternal services is long overdue, and it is in the interest of Obstetricians and Gynaecologists to spearhead the process before others, including the legal profession, elect to do it for us. In Igbo parlance, it is wise to look for a black goat in the daytime, well before darkness falls!

It is most reassuring to note that the Government of Edo State has recently enacted a law making maternal death a reportable event, and thereby creating an opportunity for the establishment of maternal care monitoring committees in that State. This trail-blazing move by the Government of Edo State constitutes a vital plus in the battle to reduce maternal deaths in Nigeria, and is worthy of emulation and adoption by the Federal and all State governments. SOGON is most certainly indebted to Professor Eugene Okpere, a member of this honourable Society, through whose influence and persistence this most important law has been passed in Edo State.

The other issues worthy of being championed by SOGON include:

- Free prenatal care for all Nigerian women.
- A review of Nigeria's abortion law
- Possible introduction of a mandatory Diploma course in Obstetrics in the curriculum of the Nigerian Post-graduate Medical College, for private medical practitioners who wish to offer maternal care services in their hospitals. Only doctors who obtain this extra qualification may operate a "Hospital & Maternity" facility.
- The involvement of SOGON in the accreditation, and periodic monitoring and evaluation of all private maternity homes supervised by midwives, and the maternity section of all the "Hospital & Maternity" establishments run by private medical practitioners. Licenses that are issued to institutions for the provision of maternity care, should be renewed at 5-yearly intervals, subject to the satisfactory evaluation of the quality of services available at the institutions.
- The organization of lectures, workshops, conferences and seminars to be sponsored by the Society, government, international agencies, non-governmental organisations (NGOs), the corporate private sector and other interested bodies, for reproductive health workers in the Local government health centres, secondary and tertiary health facilities, maternity homes and the "Hospital & Maternity" institutions.
- The setting up of comprehensive data banks at the Federal Ministry of Health and the SOGON Secretariat for assembling information on various

reproductive health issues.

- Organisation of adequate and effective blood bank facilities for obstetric use at government hospitals at all levels of health care, for the collection and storage of safe blood for transfusion

Finally, Mr. President, were Professor Ogan to be here today, he would definitely ask what the Nigerian Government, SOGON, the Nigerian Medical Association and the Medical and Dental Council of Nigeria have done to remove this tragic national disgrace. And he would surely be amazed to discover that our Federal, State and Local governments, religious leaders, traditional rulers and women's Societies and organisations are content to observe the catastrophe of maternal death in apparent splendid isolation, and with manifest cynical unconcern. It is my prayer that the investments of this great SOGON, the considerable

endowments of the international donor agencies in reproductive health, and the contributions of the NGOs and all the other concerned institutions working to improve women's health in Nigeria will yield good interest. For, otherwise, Professor Ogan might reasonably judge SOGON's 10-year strategic plan and all the strategies, seminars, workshops and conferences on the health of Nigerian women, through the immortal lines of the Rubaiyat of the great Persian poet Omar Khayyam:

*"Myself when young did eagerly frequent
Doctor and Saint, and heard great
Argument
About it and about; but evermore
Came out by the same Door as in I went"*

Thank you.

References

1. Lawson JB. The Bight of Benin and beyond: reflections on obstetrics in the developing world. *Int J Gynecol Obstet*, 1990; 34: 101-105
2. Bullough CHW, Lennox CE, Lawson JB (eds) *Maternity Care in Developing Countries*. London, Royal College of Obstetricians and Gynaecologists. 1990.
3. Megafu U. Causes of maternal death at the University of Nigeria Teaching Hospital, Enugu, 1971-1972. *West Afr Med J*, 1975; 23: 87-91.
4. Chukudebelu WO, Ozumba BC. Maternal mortality at the University of Nigeria Teaching Hospital, Enugu. a 10-year survey. *Trop J Obstet Gynaecol*, 1988; (*Special Edition*): 1: 23-26.
5. Okaro JM, Umezulike AC, Onah HE, Chukwuali LI, Ezeugwu OF, Nweke PC. Maternal mortality at the University of Nigeria Teaching Hospital, Enugu, before and after Kenya. *Afr J Reprod Health*, 2001; 5: 90-97.
6. Osuigwe SA, John CT. A ten-year review of maternal mortality at Port Harcourt, Nigeria. *Nig J Clin Pract*, 2000; 3: 80-84.
7. Briggs ND. Maternal Death in booked and unbooked patients: University of Port Harcourt Teaching Hospital experience. *Trop J Obstet Gynaecol*, 1988; (*Special Edition*) 1: 26-29.
8. Rosenfield A, Maine D. Maternal mortality – a neglected tragedy. Where is the M in MCH? *Lancet* 1985; ii: 83-85.
9. McIntyre J, Gray G. What can we do to reduce mother-to-child transmission of HIV? *BMJ* 2002; 324: 218-221.
10. United Nations System in Nigeria. *Nigeria: Common Country Assessment*. March 2001. United Nations.