

Nigerian Journal of Clinical Practice
Sept. 2008 Vol 11(3):185-192

THE PATTERN OF ADMISSIONS INTO THE MEDICAL WARDS OF THE UNIVERSITY OF NIGERIA TEACHING HOSPITAL, ENUGU (2)

S. O Ike

Department of Medicine, University of Nigeria Teaching Hospital (UNTH)
Enugu, Nigeria

ABSTRACT

Objective: To study the pattern of medical admissions at the University of Nigeria Teaching Hospital (UNTH), Enugu, with a view to determining the disease trend and providing a comparative analysis with the previous study conducted in the same centre in the preceding five-year period.

Method: A review of admissions into the medical wards of the UNTH, Enugu, over the five year period between December, 1998 and November, 2003, was done using the register of admissions and discharges; as well as a review of the case file where necessary.

Results: The patients admitted during the period numbered 7399, with age range of 15 to 102 years. There were 4324 (58.4%) males and 3075 (41.6%) females, with a male to female ratio of 1.4:1. Disorders of the cardiovascular system accounted for 1389 (18.8%) of the admissions, and those of the central nervous system 1178 (15.9%) while HIV-related disorders accounted for 501 (6.7%) respectively. Non-communicable diseases accounted for 4493 (60.3%) of the cases while communicable diseases accounted for 2906 (39.3%). There were more admissions in the wet season (April to September), with 56.8%, while the month of December cumulatively recorded the least admission rate. The mean hospital stay was 15.5 (± 15.4) days.

Conclusion: The study shows an increasing trend in medical admissions at the UNTH, Enugu, with non-communicable diseases and male gender preponderance, while 53% of those affected are in the 30-60 years range. Serious efforts at revamping the health sector services and facilities, and particularly, national and local strategies to combat non-communicable diseases, are emphasized.

KEY WORDS: Pattern, medical admissions, teaching hospital, Enugu.

(Accepted 4 June 2007)

INTRODUCTION

Over the past three decades the World Health Organization (WHO) has stridently advocated increasing access to health care facilities and medicines¹. Indeed WHO estimates that roughly 270 million people, nearly half the population in Africa, lack regular access to even the most essential basic healthcare attention^{2,3}. Accordingly, African governments have worked, to varying degrees, to ensure provision of affordable healthcare and medicines for their teeming and increasing populations with growing health needs⁴. Lack of access to adequate health care has been largely instrumental to millions of deaths and untold morbidity in Africa each year.

In many countries, including Nigeria, treatment for many illnesses is provided outside the formal health care sector, often by patent medicine dealers, shopkeepers and alternative medicine practitioners⁵. Particularly disheartening but glaringly factual is the fact that Africa, in all her subregions, is faced with

Gross unemployment, poor under-capacity performing industries, declining agricultural output and famines. Environmental insecurity, political instability, foreign debt burden, HIV/AIDS and deteriorating health care systems also fill the African landscape⁶. It is in this context that a study of the trend of medical admissions in an important regional tertiary health facility in Nigeria, which harbours a fifth of Africa's population⁷, over the intervening periods of 1998 to 2003, becomes quite relevant.

The University of Nigeria Teaching Hospital, Enugu, the study site, is a first generation Federal Teaching Hospital, established since 1920 then as a colonial hospital and subsequently upgraded to its present status. As the foremost and biggest hospital in the Eastern part of the country, it has a total bed complement of 702 and serves as a referral centre for at least 13 states (more than one third) of the country⁸. Our earlier study on the pattern of admissions into the medical wards of the University of Nigeria Teaching Hospital, Enugu, covered from November 1993 to November 1998⁹. This study is a follow-up in the subsequent five years of December 1998 to November 2003, to determine any changes in the

Correspondence: Dr S. O Ike
Email: sobiajuliuik@yahoo.com

Pattern of medical admissions into the same hospital, and provide a comparative analysis on the disease trend over the period, as a basis for guiding future research and necessary planning.

MATERIALS AND METHODS

A study of 7399 medical cases admitted into the wards over a five-year period, December 1998 to November 2003, at the University of Nigeria Teaching Hospital, Enugu, is reported. The register of admissions and discharges in the medical wards was used for the analysis. The data obtained from these records included the age, sex, diagnosis of the patient, dates of admission and discharge. The diagnoses were as recorded by the registrar, senior registrar or consultant of the admitting unit, as the case may be, as reviewed and admitted from the Casualty unit.

The body of information was obtained using a proforma. The data collation was done between March and July, 2004. If a patient was admitted more than once for the same diagnosis as checked out from the names, folder numbers, gender and diagnosis only the initial entry was used for the analysis.

The data were presented in frequencies and percentages.

Ethical approval was obtained from the University of Nigeria Teaching Hospital Ethics Committee.

RESULTS

A total of 7399 patients were admitted during the period. There were 4324 (58.4%) males and 3075 (41.6%) females, with a male preponderance in the ratio of 1.4:1. Figure 1 shows the age and sex distribution of the patients. The ages ranged from 15 to 102 years. The highest proportion of admissions was in the 51-60 years age group (18.8%), followed

by 41-50 years (18%) and 31-40 years (15.7%) age groups. There was a progressive increase in the number of admissions with each increasing age group, up to the 51-60 years age group, and a progressive decline thereafter. The least proportion of admissions was in those aged above 90 years with 22 cases (0.3%).

The distribution of all admitted patients is shown in Figure 2. Disorders of the cardiovascular system accounted for the highest incidence of admissions (1389; 18.8%). This was followed by those of the central nervous system (1178; 15.9%), gastrointestinal (1010; 13.7%) and renal (872; 11.8%) systems, respectively. Human Immunodeficiency Virus-related infections accounted for 501 (6.7%) of the cases. Overall, non-communicable diseases accounted for 4493 (60.7%) of the cases and communicable diseases for 2906 (39.3%).

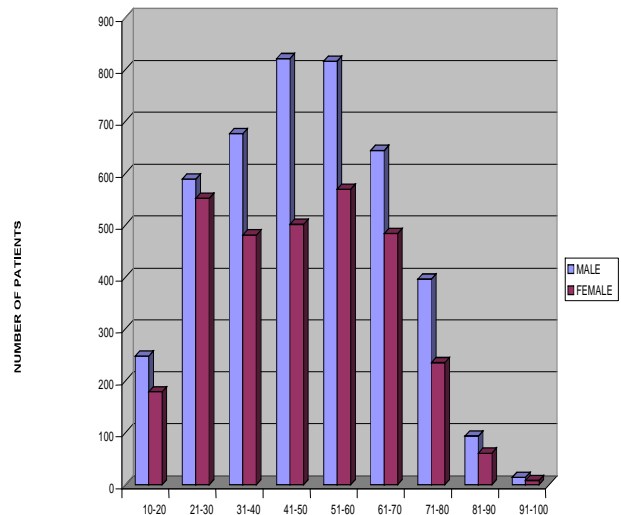


Fig. 1: Age and Sex Distribution

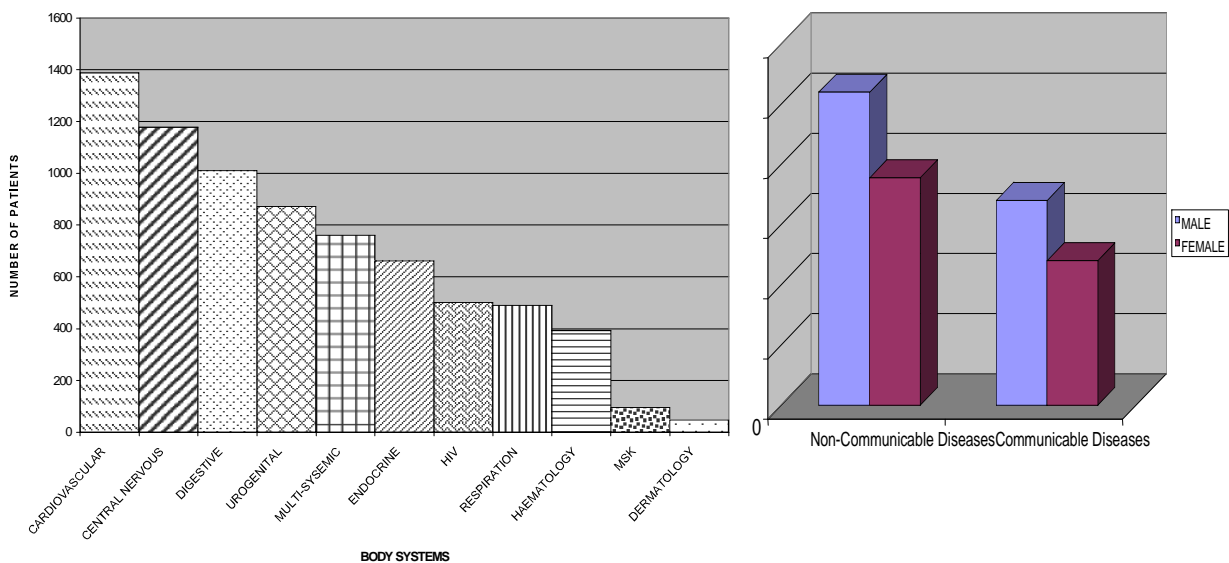


Fig. 2: Systemic Distribution of Medical Admissions

Table I: **Pattern of Admission by Age and Body Systems in Both Sexes**

AGE	CVS		CNS		Digestive		Renal		Multi-Systemic		Endocrine		HIV		Respiratory		Haematology		MSK		Dermatology		Of Male	Of Female	Of Total	
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F				
10-20	35	24	44	30	36	18	56	35	6	12	13	16	6	5	10	11	29	18	5	2	2	1	5.7	5.7	5.7	
21-30	60	47	54	54	136	87	104	101	27	39	24	26	63	86	47	49	59	45	5	8	1	4	13.7	18.0	15.5	
31-40	83	72	71	58	116	74	121	64	48	34	33	28	85	76	54	30	39	24	9	9	5	5	15.6	15.7	15.6	
41-50	170	97	104	65	113	73	96	49	78	54	72	50	80	38	44	32	40	25	6	8	5	6	19.0	16.4	17.9	
51-60	183	133	138	107	111	68	75	40	100	81	88	66	24	12	50	25	19	18	10	6	3	3	19.4	18.5	19.0	
61-70	149	109	129	115	57	43	47	27	91	47	76	71	13	3	42	27	24	22	8	4	-	7	14.9	15.7	15.3	
71-80	87	67	82	56	35	16	22	7	62	36	44	26	1	1	33	11	11	10	9	3	4	-	9.2	7.7	8.6	
81-90	19	18	19	15	7	9	11	-	16	7	6	7	-	-	12	1	1	2	-	2	1	-	2.2	2.0	2.1	
91-100	6	2	5	2	-	-	2	-	1	2	-	2	-	-	-	-	-	-	-	-	-	-	0.3	0.3	0.3	
Total	792	568	646	502	612	388	534	323	429	312	356	292	272	221	292	186	222	164	52	42	21	26	100	100	100	
% Of Male	18.7	15.3	14.5	12.6	10.2	8.4	9.7	6.4	7.3	6.1	5.3	5.4	1.2	0.5	100	100	100	100	100	100	100	100	100	100	100	100
% Of Female	18.8	16.6	12.8	10.7	10.3	9.7	7.3	6.1	5.4	1.4	0.9	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100

Table II: Admission Pattern by Monthly Distribution

YEAR	MONTH												TOTAL	%	
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEPT	OCT	NOV	DEC			
1998													47	47	0.7
1999	15	60	6	64	147	154	160	162	151	160	134	142	1355	18.3	
2000	161	135	132	145	165	135	170	164	59	10	44	34	1354	18.3	
2001	166	110	140	132	134	76	143	161	182	161	98	52	1555	21.0	
2002	40	64	123	156	140	146	168	120	121	99	162	141	1480	20.0	
2003	191	141	133	107	162	151	150	130	145	155	143		1608	21.7	
TOTAL	573	510	534	604	748	662	791	737	658	585	581	416	7399	100	
% OF TOTAL	7.7	6.9	7.2	8.2	10.1	8.9	10.7	10.0	8.9	7.9	7.9	5.6	100		

In Table I, the pattern of admissions by age and systemic involvement for both males and females is shown. The same order of systemic involvement as in the total patient systemic admission pattern is shown separately by each gender. The incidence of admissions was highest in both male and female genders in the 51–60 years age group, as in the overall admission pattern.

Table II shows the admission pattern of the patients by monthly and yearly distribution. The predominantly dry season months in this part of the country, from October to March, recorded fewer admission (43.2%) for the half year, as compared to the rainy season half of April to September (56.8%). The month of December recorded the least number of admission over the five-year period (416; 5.6%) overall, though this was not the case in all the individual December months. The yearly admission patterns remained virtually consistent, between 18.3 to 21.7%.

The duration of hospital stay of the patients ranged from 1 to 330 days, with mean hospital stay of 15.5 (± 15.4) days. Fourteen patients (0.2%) stayed for more than 120 days (4 months) with an 84 year old CVA male being hospitalized for 330 days (11 months).

One thousand seven hundred and sixty five (1765) of the admitted patients died over this five-year period, giving a case fatality rate of 24%.

DISCUSSION

Increase in Admissions

This study has shown a significant increase in the total number of admissions in the five year period December 1998 to November 2003, when compared to the previous five-year period study of November 1993 to November 1998⁹, in the same centre. With total admission of 7399, this was a 34% increase on the 5538 total admission of the preceding study. This may signify increased morbidity pattern as demonstrated in all the systems especially those of non-communicable diseases, for example, CVS incidence went up to 1389, from 903, and CNS to 1178, from 942 of the previous study.

This view is corroborated by serious analytical reports and observations on the health challenges in Africa. The United Nations standing committee on Nutrition¹⁰ and Sanders et al¹¹, noted that the health situation in Africa is bleak, with little or no substantive progress since 1990. All key health indicators are at much worse levels than those in other part of the world's developing regions. The World Bank report¹² and Darkoh¹³ observed that Africa's socioeconomic and health conditions have continued to deteriorate since the 1970s. It is against this background that the WHO World Health Report of 2002¹⁴, covering the period of this index study, highlighted the rise in the incidence of

non-communicable chronic diseases, especially cardiovascular disease.

CVS as Highest Systemic Admission

The increase in the incidence of CVS admissions, from 16.3% in the previous study⁹ to 18.8% (1389), the highest systemic involvement in the current study, outstripping the CNS, previously 17% and now 15.9% (1178), is in agreement with the WHO report¹⁴. This trend is also in keeping with similar works in the local environment; at Abia State University Teaching Hospital, Aba, CVS cases accounted for 26.1% of the total medical admissions¹⁵; while the Nnamdi Azikiwe University Teaching Hospital study revealed CVS cases (both hypertension and congestive cardiac failure) as contributing 22.9%, the highest of all medical admission in the centre¹⁶. Similar studies at the Universities of Port Harcourt and Calabar Teaching Hospitals, respectively^{17,18} support the same trend.

The Gender Disparity in Admission Pattern

The index study has maintained a significant male preponderance in the admission pattern as in the previous study. While the previous, 1993 to 1998, study⁹ showed male:female ratio of 1.8:1 with males accounting for 63.7% and females 36.3%, there was a closing of the gap in the current study; with male:female ratio of 1.4:1 and percentage representations of 58.4% (males) and 41.6% (females). This gender preponderance of male admissions has been consistently maintained in similar studies at Ibadan¹⁹, Nnewi¹⁶ and Calabar¹⁸. The pattern at Aba¹⁵, however, shows a female preponderance.

Several reasons have been given for this male-admission predominance, especially in Sub-Saharan Africa. The low priority accorded to girls' and women's wellbeing throughout their life span in many African societies is contributory. Low levels of education and literacy, limited access to and control over resources, and limited autonomy within the family and community are said to limit women's ability to use healthcare services^{20,21}. Our socio-cultural values in Nigeria¹⁶ seems to place a higher premium on the male gender, with every effort made to attend to the male folk and ensure their survival, including admission, unlike in the advanced countries. These work to the relative disadvantage of the female gender, and support the tendency towards male admissions preponderance.

Age as a Factor

More than two-thirds (67.9%) of the total admissions were between 20 and 60 years of age. This shows the same trend with the 70% incidence within the same age range of the previous study⁹. This still indicate the same socioeconomic implication, where the most productive workforce group in the society is affected.

The cost of this to developing countries, like Nigeria, amount to billions of dollars/Naira in lost man-hours, with the statistics of hungry people in sub-Saharan Africa rising to 203 million, by 2002, a third of the population²².

The situation is even more alarming when the HIV scenario is considered. Though the incidence of HIV-related admissions in this study is 6.8%, down from the 7.4% of the previous study, the fact that 94% of these admissions in the index study are in the 20 to 60 years age range, with 87% of them within the 20 to 50 years age range, is depressing. This aptly amplifies the observation that the vast majority of people living with HIV/AIDS in Africa are in the prime of their working lives, with a major effect on Africa's economic development^{23,24}.

A total of 808 patients (10.9%) who were above 70 years of age were admitted within this five year period of study. This is a rise from the 7.2% (398 patients) of the 1993-1998 study⁹, and compares reasonably with the 10-13.4% of Finland²⁵ and 15% of Canada²⁶, both in the developed world. Eleven patients in this index study were aged 95 years and above, with the oldest being 102 years old.

The Burden of Chronic Non-Communicable Diseases

As earlier pointed out, in this index study, the non-communicable diseases far outstrip the communicable disorders in incidence of admissions, with the CVS and CNS cases alone, already making up more than a third (34.7%) of the total admissions. Adding up the renal and endocrine systems cases, which rank the 4th and 6th, respectively, in the total order of presentation, these non-communicable diseases already account for 55.5% of the total admissions. This same trend is corroborated by the studies in Nnewi¹⁶, with the top 47% indications for admissions accounted for by non-communicable diseases and in Port Harcourt¹⁷, with the non-communicable diseases contributing 63.8% of the medical admissions over a comparable four year period of June 2000 to June 2004. This index study has revealed that the longest staying patient, for 330 days, was a patient with CVA disorder, most of the patients with disorders of CCF stayed between 30-60 days, the patients with disorders of the haematology system an average of 40-50 days and the patients with diabetic complications stayed for average of 80-150 days in the hospital. All these point to the degree of chronicity of the non-communicable diseases. Kadiri²⁷ had deposed that social integration and inequality, compounded by the dwindling economy in many countries in sub-Saharan Africa, have seriously hindered the response to these non-communicable diseases, hence their ascendancy.

Pattern of Admissions by Monthly Distribution

This study furthermore showed the prevalence of admissions to be higher during the rainy season months (57%). Several reasons could be advanced for this finding. One of these could be that the dry season months were also the harvest and festive seasons when many people would be to seek proper health care services; they would rather patronize the patent medicine dealers that are easy to come by, only going to the hospital as the last resort. This is borne out by the fact that the month of December recorded the lowest admission rate.

An investigative study by Johnson et al²⁸ concluded that, even in the advanced economies, for every health care dollar spent on purchasing medications, an additional dollar is spent to deal with misuse of medications. Other plausible reasons for the drop in admissions include the fact that the stress associated with the planting period of the rainy season predisposes to more health-seeking behaviour. Moreso, these dry season months also coincide with the beginning of the year, to some extent, when many are cash-strapped. This limits their tendency to seek adequate health care service in the hospital. This is borne out by the World Bank Group study²⁹ that poverty lies at the heart of the poor state of health in Africa.

The case fatality rate from this study is 24%. This is the focus of a subsequent work emanating from this centre.

CONCLUSION

This study has shown an increasing trend in medical admissions at the UNTH, Enugu, with non-communicable diseases and male gender preponderance. The most productive workforce group, aged 20 to 50 years, are primarily involved.

As Nigeria attempts to achieve the Millennium Development Goals (MDGs) many critical challenges confront the health care system in the country³⁰, as shown by this study. The health authorities in Nigeria, as in the rest of Africa, need to pay more attention to broad based balanced strengthening of health infrastructure, improvement of health sector facilities as outlined in the MDG, as well as empowering of the population, especially the women folk, financially, to benefit from adequate health care, by appropriate health seeking behaviour. The current efforts at overhauling the critical health care facilities in the Federal Teaching Hospitals, through VAMED, by the Federal Government of Nigeria, is one of such welcome steps.

ACKNOWLEDGMENTS

The author wishes to thank Drs. N. Iloabachie, E. Osuala, G. Anigbo and C. Umeokonkwo, all of whom were House officers during the period, for their immense help in collating the data.

REFERENCES

1. World Health Organization. WHO medicines strategy: countries at the core 2004-2007. [Http://whqlibdoc.who.int/hq/2004/WHO_EDM_2004.5.pdf](http://whqlibdoc.who.int/hq/2004/WHO_EDM_2004.5.pdf).
2. **Quick JD, Boohene N, Rankin J, Mbwasij RJ.** Medicines supply in Africa. *BMJ West Africa Edition*. 2005; 8 (4): 167-169.
3. WHO. The world medicines situation. Geneva: World Health Organization, 2004. www.eldis.org/static/DOC17161.htm.
4. UN Millennium Project, Prescription for healthy development: increasing access to medicines. Sterling VA: Earthscan, 2005.
5. **Marsh VM, Mutemi WM, Willetts A, Bayah K, Were S, Ross A, et al.** Improving malaria home treatment by training drug retailers in rural Kenya. *Trop Med Int Health*. 2004; 9: 451-60.
6. **Sachs J.** The end of poverty: economic possibilities for our time. New York: Penguin Press: 2005.
7. **Ssemakula JK.** The brain drain in Africa. Africafest 02. University of Pennsylvania. April 2002. Medlinkz.org/features/Articles/brain/htm.
8. Information Booklet. Compiled by the Accreditation Committee of the Department of Medicine. Presented to the Accreditation Panel of the West African College of Physicians for reaccreditation of the University of Nigeria Teaching Hospital (UNTH) Enugu for residency programme in Medicine. Sept 2002; 1-17.
9. **Onwubere BJC, Ike SO.** Review of admissions into the medical wards of the University of Nigeria Teaching Hospital, Enugu. *Nig J Int Med*. 1999; 2 (2): 59-62.
10. UN System Standing Committee on Nutrition (SCN). Fifth report on the world nutrition situation. Nutrition for improved development outcomes. 2004. [Www.unsystem.org/scn/publications/AnnualMeeting/SCN31/SCN5Report.pdf](http://www.unsystem.org/scn/publications/AnnualMeeting/SCN31/SCN5Report.pdf).
11. **Sanders D, Dovlo D, Meeus W, Lehmann U.** Public health in Africa. In: Beaglehole R, ed. *Global public health: a new era*. Oxford. Oxford University Press. 2003; 135-55.
12. World Bank. Sub-Saharan Africa: from crisis to sustainable growth. Washington DC. World Bank, 1989.
13. **Darkoh MBK.** Sub-Saharan Africa in crisis and the need for a new domestic order. In: Yeung Y, ed. *Global change and the commonwealth*, Hong Kong, Hong Kong Institute of Asia Pacific Studies, Chinese University of Hong Kong. 1996; 45-65.
14. World Health Organization. World health report 2002. Reducing risks, promoting healthy life. Geneva: WHO, 2002. [Www.who.int/whr/2002/en/index/html](http://www.who.int/whr/2002/en/index/html).
15. **Ezenwoke MN, Mba OA, Onuma EU, Ubani-Ukoma RNA.** Review of cardiovascular admissions into the medical wards of the Abia State University Teaching Hospital, Aba (1995-1997). Proceedings of the scientific conference of the Nigerian Cardiac Society held in Aba, December 2-4, 1999.
16. **Osuafor TO, Ele PU.** The pattern of admissions in the medical wards of Nnamdi Azikiwe Teaching Hospital (NAUTH) Nnewi. *Orient Journal of Medicine*. 2004; 16(1): 11-15.
17. **Agomuoh DI, Unachukwu CN, Wokoma IS, Madubuikie C.** Pattern of medical admissions at the University of Port Harcourt Teaching Hospital. Proceedings of the Scientific Conference of the Nigerian Hypertension Society held in Port Harcourt, May 26-27, 2005.
18. **Odigwe CO, Esin A.** Analysis of cardiovascular admissions to the University of Calabar Teaching Hospital, Calabar: A five (5) Year Retrospective Study. Proceedings of the Meeting of the Nigerian Cardiac Society held in Benin City, April 18-19, 1991.
19. **Lauckner JR, Rankin AM, Adi FC.** Analysis of medical admission to University College Hospital. *WAMJ*. 1961; 3-29.
20. **Barnett B, Stein J.** Women's voices, women's lives: the impact of family planning. Family Health International, 1998: [Www.fhi.org/en/RH/Pubs/wsp/synthesis/index.htm](http://www.fhi.org/en/RH/Pubs/wsp/synthesis/index.htm).

21. **Lule E, Ramana GNV, Ooman N, Epp J, Huntington D, Rosen JE.** Achieving the millennium development goal of improving maternal health: determinants, interventions and challenges. New York. World Bank, 2005. [Http://siteresources.worldbank.org/HealthNutritionandPopulation/Resources](http://siteresources.worldbank.org/HealthNutritionandPopulation/Resources).
22. Food and Agriculture Organization. The State of food insecurity in the world. Rome, FAO. 2004. [Www.fao.org/documents/show_cdr.asp?url_file](http://www.fao.org/documents/show_cdr.asp?url_file).
23. HIV and AIDS in Africa, statistics, origin and the three tests. [Www.rebirth.co.za/AIDs_in_Africa_1.htm](http://www.rebirth.co.za/AIDs_in_Africa_1.htm).
24. Global data on HIV/AIDS, TB and malaria. [Www.globalhealthfacts.org/country_pf.jsp](http://www.globalhealthfacts.org/country_pf.jsp).
25. **Vilkman S, Keistinen T, Tuuponen T, Kivela SL.** Seasonal variation in hospital admissions for chronic obstructive pulmonary disease in Finland. *Articles of Medicine Research*. 1996; 55:182-186.
26. **Eagle DJ, Rideout E, Prince P, McCann C, Wonnacott E.** Misuse of the emergency department by the elderly population: myth or reality? *Journal of Emergency Nursing* 1993; 19:212-218.
27. **Kadiri S.** Tackling cardiovascular disease in Africa. *BMJ West Africa Edition*. 2005; 8 (4): 172-173.
28. **Johnson JA, Bootman JL.** Drug-related morbidity and mortality: a cost-of-illness model. *Arch Int Med*. 1995; 155:1949-1956.
29. World Bank Group. Millennium development goals. [Http://ddp-ext.worldbank.org/ext/MDG/home.do](http://ddp-ext.worldbank.org/ext/MDG/home.do).
30. United Nations Development Program. Millennium Development Goals in Human Development Program. New York: UNDP. 2003.