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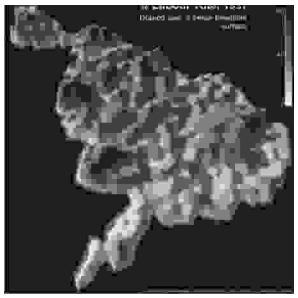


MORTALITY PATTERN
NISHTAR HOSPITAL MULTAN

DR. ATIF-UR-REHMAN, FCPS
Medical Officer,
Nishtar Hospital, Multan.

DR. MUHAMMAD SALEEM AKHTAR, FCPS
Medical Officer,
Nishtar Hospital, Multan.

DR. ABDUL HAMEED ANJUM, FCPS
Professor of Medicine,
Nishtar Medical College/Hospital, Multan.

ABSTRACT... Introduction: Health planning requires reliable information about rates, ages and causes of mortality in the different sections of society. Precise and reliable information of this nature is lacking in our country because of under reporting of births and deaths, poor recall of data and age at death and inability in determining the exact cause of death. **Objective:** To assess the frequency of mortality caused by different diseases in medical and allied units. **Setting:** Medical units and allied specialties wards of Nishtar Hospital, Multan. **Duration:** From 1st January 2001 to 31st December 2001. **Study Design:** A descriptive/Analytic study. **Materials & Methods:** 1017 patients who died in the year 2001 were included. **Results:** The male patients who died in one year were 648(63.7%) and female deaths that occurred in one year were 369(36.3%). Most of the deaths were caused by ischemic heart disease. It was responsible for 320 deaths (32%). Another important cause of death was cerebrovascular accident responsible for 204 deaths (20.05%). Chronic liver disease ranked on 3rd number causing 146 deaths (14.35%). Chronic renal failure on 4th number causing 87 deaths (8.5%). On 5th number malignancies causing 62(6.09%) deaths. Meningitis occupied 6th number causing 59(5.8%) deaths. On 7th number, pulmonary tuberculosis causing 31(3.04%) deaths. On 8th number acute renal failure causing 29(2.85%) deaths. Then cerebral malaria on 9th number causing 20(1.96%) deaths. COPD causing 17 deaths (1.67%). Septicemia causing 15 deaths (1.47%) and on 11th number. On 12th and 13th number, pneumonia causing 14 deaths (1.37%) and poisoning causing 13 deaths (1.27%) of total mortality respectively. **Conclusion:** It has been concluded that major killers in this area are ischemic heart diseases, cerebrovascular accidents, chronic liver diseases and chronic renal failure. So major part of health resources should be spent to decrease the mortality caused by these diseases.

Key words: Mortality, Ischemic heart disease, Chronic renal failure, Cerebrovascular accident, chronic liver diseases.

INTRODUCTION

Reliable information of causes of death is essential to the development of national and international health policies for prevention and control of disease and injury.

Medically certified information is available for less than 30% of the 50.5 million deaths that occur each year worldwide. However, other data sources can be used to develop cause of death estimate for populations. To be useful, estimates must be internally consistent, plausible and reflect epidemiological characteristics suggested by community level data.

In many developing countries including Pakistan, there is lack of vital registration system. When death certificates are completed, there is often inadequate clinical information.

Unfortunately in many developing countries, national data are incomplete and unreliable and the studies based on hospitals are of limited value because most deaths occur elsewhere[1,2].

Health planning requires reliable information about rates, ages and causes of mortality in the different sections of society. Precise and reliable information of this nature is lacking in our country because of under reporting of births and deaths, poor recall of data and age at death and inability in determining the exact cause of death[3].

In Pakistan, which is now among top 50 countries in the world with poverty level of 55.7% and has very little resources for health facilities, basic data for accurate planning of health care is not available as our hospital record keeping system is very poor. Due to this, the hospital management remains helpless in prior planning to overcome the burden of diseases. Similarly, government cannot take preventive measures to minimize the crises without authentic basic data[4,5]. Motor neurone disease (MND) is a rapidly fatal condition with survival of less than 4 years. Patients can deteriorate quickly in the preterminal stages resulting in inappropriate resuscitation or admission to intensive care unit[6].

As cause specific death rates are rarely available to guide health interventions for adults so purpose of this study is to assess the frequency of mortality caused by different diseases in medical and allied units of Nishtar Hospital, Multan. The catchment area of this hospital includes southern Punjab and adjacent backward areas of Baluchistan and Sind where literacy rate is very low and mortality from different diseases is very high. As this is a wide catchment area so results of this study can be used in making the provincial or national health policy for prevention and control of diseases or any intervention required. The results of this study can get the attention of higher authorities to concentrate on the major killers in this area and to take measures to prevent these diseases and reduce the mortality.

PURPOSE OF STUDY

To assess the frequency of mortality (number of deaths) caused by different diseases in medical and allied units of Nishtar Hospital, Multan.

MATERIAL AND METHODS

This study was conducted in medical units and allied specialties including oncology, cardiology, pulmonology, psychiatry and emergency wards of Nishtar Hospital, Multan from 1st January 2001 to 31st December 2001. It included all those patients who died in medical and allied wards in the respective year. It was a descriptive/Analytic study. 1017 patients who died in the year 2001 were included.

Sampling technique

No sampling was done because record of all patients who died in the respective period was included.

Data collection procedure

Proper permission was taken from the concerned authorities. Mortality charts were collected from respective wards and from mortality record room. Proforma was filled on the basis of these charts.

Data analysis

Descriptive statistics were applied because this was a descriptive study. No p value or inferential tests were applied. Descriptive statistics were calculated through SPSS version-8.

INCLUSION CRITERIA

- All male and female patients above the age of 12 years who died in medical and allied wards

were included.

- The mortality record properly signed by the duty doctor was accepted.
- Only those mortality charts were accepted in which the diagnosis was clear cut.

EXCLUSION CRITERIA

- All male and female patients below the age of 12 years who died in medical and allied wards were excluded.
- The mortality charts with no diagnosis or ambiguous diagnosis were also excluded.

RESULTS

The total deaths that occurred in one year were 1017. Total male patients who died in one year were 648(63.7%) and female deaths that occurred in one year were 369(36.3%) as shown in graph-I.

Most of the deaths were caused by IHD. It was responsible for 320 deaths (31.46%). Another important cause of death was cerebrovascular accident responsible for 204 deaths (20.05%). Chronic liver disease ranked on 3rd number causing 146 deaths (14.35%). The chronic renal failure on fourth number causing 87 deaths (8.5%). On 5th number, malignancies causing 62 deaths (6.09%). Meningitis on 6th number causing 59 deaths (5.80%). On 7th number, pulmonary tuberculosis 31 deaths (3.04% of total mortality). On 8th number, acute renal failure causing 29 deaths (2.85%). Then came cerebral malaria on 9th number causing 20 deaths (1.96%). Then COPD causing 17 deaths (1.67%) and was on 10th position. Septicemia causing 15 deaths (1.47%) and remained on 11th number, on 12th and 13th number, came pneumonia causing 14 deaths (1.37%) and poisoning causing 13 deaths (1.27%) respectively as is evident from table-I.

Total deaths occurring due to ischemic heart disease were 320 i.e. 31.46% of total mortality in which male deaths due to IHD were 217(21.33%) and female deaths were 103(10.12% of total mortality). The age group in males in which the maximum deaths occurred was 51-60 years. The age group in females in which the maximum deaths occurred was 51-60 years. Deaths due to IHD in different age groups are shown in graph-II.

Total deaths due to cerebrovascular accidents were 204(20.5%) of the total mortality. Total male deaths were 115(11.30%) and total female deaths were 89(8.75% of total mortality). The age group in males in which maximum deaths occurred was 51-60 years. While in females it was also 51-60 years. Deaths due to CVA in different age groups are shown in graph-III.

Total deaths due to chronic liver diseases were 146 (14.35% of the total mortality). Total male deaths were 93 (9.14%) and total female deaths were 53(5.21% of total mortality). The age group in males in which the maximum deaths occurred was 51-60 years while in females it was 41-50 years (Table-V).

Total deaths due to chronic renal failure were 87(8.5%) of total mortality. Total male deaths were 73(6.09%) and total female deaths were 25(2.45% of total mortality). The age group in males in which the maximum deaths occurred was 51-60 years. While that of female was 41-50 years as shown in table-VI.

Total deaths due to malignancies were 62(6.09%) of total mortality. Male deaths were 45(4.42% of total mortality) and female deaths were 17(1.67% of total mortality). The age group in males in which the maximum deaths occurred was 41-50 years, while in females it was also 41-50 years. Death due to malignancies in different age groups is shown in table-VII.

Total deaths caused by meningitis were 59(5.80%) of total mortality. Male deaths were 35(3.44%) and female deaths were 24(2.35%) of total mortality. Total deaths caused by PTB were 31(3.04%) in which there were 21 male deaths i.e. 2.06% and 10 female deaths (0.9% of total mortality). Total deaths caused by acute renal failure were 29(2.85% of total mortality). Male deaths were 13(1.27%) and female deaths were 16(1.57%). Deaths caused by cerebral malaria were 20(1.96%). There were 14(1.37%) male deaths and 6(0.58%) female deaths of total mortality. Death caused by COPD was 17(1.67%).

Fig-1. Male and female deaths in one year (2001) n=1017

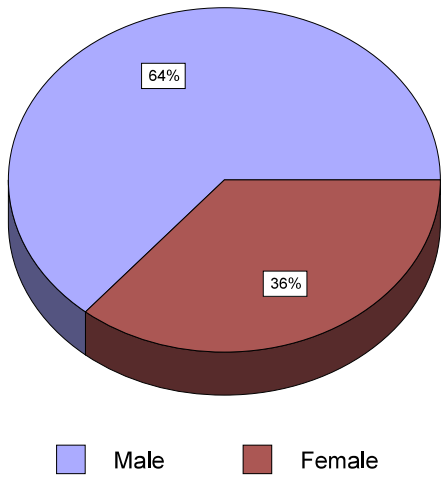
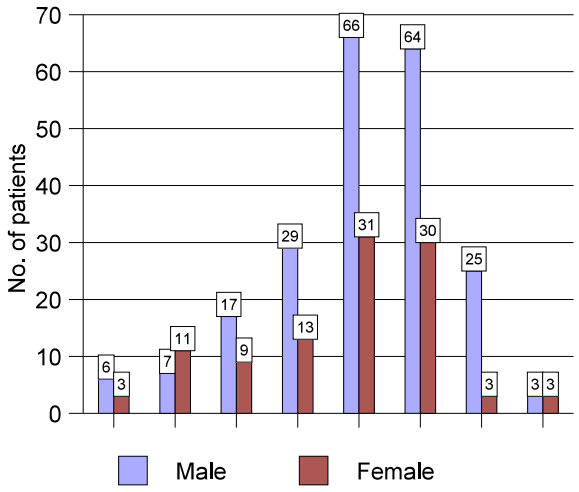


Fig-2. Male and female deaths in different age groups due to IHD (years) n=32



Male deaths were 11(1.08%) and female deaths were 6(0.58%). Total deaths caused by septicemia were 15 i.e. 1.47%. Male deaths were 7(0.68%) while female deaths were 8(0.78%). Total deaths caused by pneumonia were 14(1.37%). Male deaths were 8(0.78%) and female deaths were 6(0.58% of total mortality). Deaths caused by poisoning were 13(1.27%). Male deaths were 7(0.68%) and female deaths were 6(0.58% of total mortality) as shown in table-VIII.

Fig-3. Male and female deaths in different age grous due to CVA (n=204)

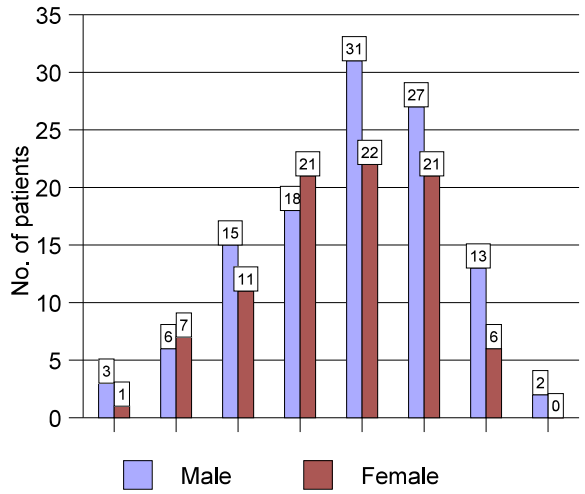
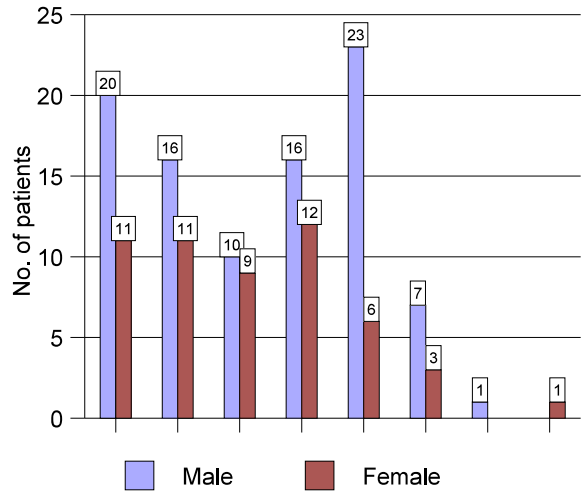


Fig-4. Male and female deaths in different age groups due to chronic liver disease (n=146)



DISCUSSION

This was one-year mortality pattern study done in medical and allied wards of Nishtar Hospital, Multan. The

catchment area of Nishtar Hospital, Multan is very wide. It drains southern Punjab, adjacent backward areas of Baluchistan and Sindh.

Table-I. Causes of deaths in one year (2001) mortality record (n=1017)

Ranking	Causes of death	Total deaths	Percentage
1st	IHD	320	31.46
2nd	CVA	204	20.05
3rd	CLD	146	14.35
4th	CRF	87	8.5
5th	Malignancies	62	6.09
6th	Meningitis	59	5.8
7th	PTB	31	3.04
8th	ARF	29	2.85
9th	Cerebral malaria	20	1.96
10th	COPD	17	1.67
11th	Septicemia	15	1.47
12th	Pneumonia	14	1.37
13th	Poisoning	13	1.27

Table-II. Male and female deaths due to different causes (n=198)

Causes of death	Male deaths	Female deaths
Meningitis	35 (3.44%)	24 (2.35%)
PTB	21 (2.06%)	10 (0.9%)
ARF	13 (1.27%)	16 (1.57%)
Cerebral malaria	14 (1.37%)	06 (0.58%)
COPD	11 (1.08%)	06 (0.58%)
Septicemia	07 (0.68%)	08 (0.78%)
Pneumonia	08 (0.78%)	06 (0.58%)
Poisoning	07 (0.68%)	06 (0.58%)

So these results reflect the mortality pattern of a large community and even these results can be beneficial in the formation of health policies. When we compare these results with an international study done in Tokyo with the name of vital statistics in which the mortality pattern from 1983 to year 2000 are shown, the major causes of deaths were malignancies at top, then heart diseases, cerebrovascular diseases, pneumonia and bronchitis, accidents, suicide, death from old age, renal failure, diseases of liver and chronic obstructive pulmonary diseases as is shown in table-III[7]. While in our study the top most cause of death is ischemia heart disease. The probable reason for it is that most of the population is unaware of the risk factors causing ischemic heart disease such as hypertension, diabetes, smoking and hypercholesterolemia. There is no concept of regular visits to the general practitioners. There is no concept of dietary restrictions. There is no campaign against smoking in this area and there is no media coverage about this major killer of the population. Once the disease is developed, it is not diagnosed in its early course. There are lack of facilities in basic health units and Tehsil Headquarters. General practitioners are not well trained about basic life support and advanced cardiac life support. Mobile coronary care units are not available. So these are some factors, which render most of population to high-risk group for IHD victims. In international study, malignancies stand at the top while in our study it occupies the 5th position. The main reason behind this is: most causalities due to malignancies occur at home. When the patients are told about the disease, they prefer to go home and so record is not available properly. Secondly the cost of treatment (chemotherapy or radiotherapy) is so high that most of the population cannot afford so they prefer to go home without treatment. Another important thing in comparison is that renal failure and diseases of liver occupy late positions in international study while in our setup, they are near about at the top. The reason is lack of awareness, late diagnosis and poor facilities for treatment.

Another international study was conducted by Murray et al in which the major causes of death were IHD (6.3 million deaths), cerebrovascular accidents (4.4 million deaths), liver diseases and respiratory infections (4.3

million), diarrheal diseases (2.9 million), perinatal disorders (2.4 million), chronic obstructive pulmonary disease (2.2 million), tuberculosis (2 million), measles (1.1 million), road traffic accidents (1 million) and lung cancer (0.9 million). This study was conducted in 1990 mainly in China and India[8].

Fig-5. Male and female deaths in different age groups due to chronic renal failure (n=87)

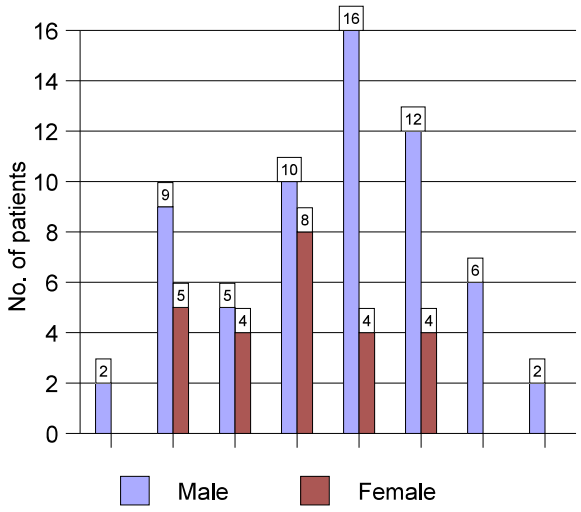
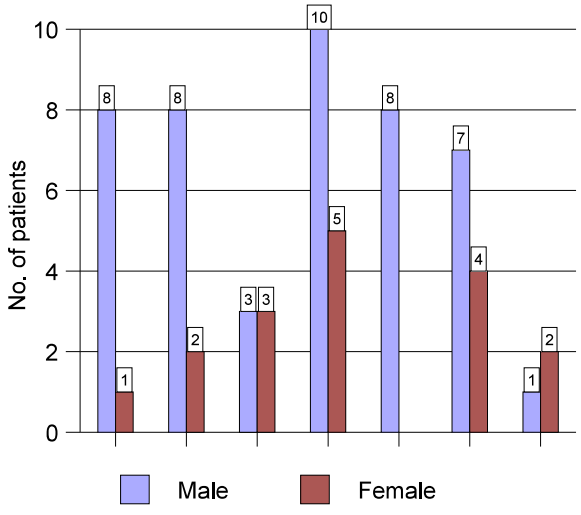


Fig-6. Male and female deaths in different age groups due to malignancies (n=62)



A similar study was conducted at Karachi Civil hospital by Masood Rao et al. According to this study, the top most cause of death was liver diseases (32.1%), then CVA, respiratory diseases, tuberculosis, cardiac diseases, infections and diabetes. GIT diseases, meningitis and miscellaneous[9.10] as shown in Table-IV. Another study conducted at in Rawalpindi showd that chronic liver disease (CLD) is the major cause of death accounting for 18.9% followed by cardiac disease (14.2%) and COPD & CVA (11.1%)[11]. The major difference between this study and my study is that cardiac diseases occupy the fifth position. The main reason behind this is: better cardiac facilities are available in Karachi. Independent cardiac centers are there and most important the literacy rate is high while here we lack all these. Another major difference is the liver diseases, which are at top in study done at Civil Hospital, Karachi while they occupy the 3rd position in our study.

Another study done at Peshawar with the name of causes of child and adult mortality (verbal autopsy) in a rural community of Peshawar, Pakistan. The main causes were cardiac 19.5%, asthma/ARI 13.55%, PUO and various febrile illness (12.5%)[12]. The causes are shown in table-V. The major differences between study conducted at Peshawar and present study are the respiratory diseases that occupied the 2nd position in causing mortality. The main reason is that it was a rural community, some environmental factors were involved and also there was lack of facilities. The various febrile illnesses also caused a high mortality in rural community and possibly it would be due to lack of diagnosis.

Another study was conducted at District Headquarter Faisalabad with the name of disease pattern and fatality among patients treated at DHQ hospital, Faisalabad. In this study, the maximum deaths were due to injuries[13]. A study conduced in West Medical Ward, Mayo Hospital, Lahore to identify the major causes of morbidity and mortality in patients admitted in a medical unit of a tertiary care hospital and to highlight the importance of primary prevention. It is evident that chronic liver disease, ischemic heart disease and cardiovascular accidents are the diseases putting maximum burden on our health

resources and disabling our productive population. This highlights the fact that all these three groups of diseases can be prevented and thus obviates the need of primary prevention of these major killers[14].

Table-III. Mortality patterns from 1983-2000	
1983-2000 Position	**Causes of death**
1st (235.2)	Malignancies
2nd (116.8)	Heart diseases
3rd (105.5)	Cerebrovascular disease
4th (69.2)	Pneumonia
5th (31.4)	Accidents
6th (24.1)	Suicide
7th (16.9)	Deaths from old age
8th (13.7)	Renal failure
9th (12.8)	Disease of liver
10th (10.2)	Chronic obs. Pulmonary disease

Mortality rates per 100,000 population.

Summary of vital statistics. Statistical and Information Department, Minister's Secretariat, Ministry of Health, Labour and Welfare (June 20, 2001) Tokyo.

Table-IV. Causes of death at Civil Hospital Karachi.		
Major causes of death	**No. Of deaths**	**Percentage**
Liver disease	34	32.1
CVA	17	16.0
Respiratory	11	10.4
TB	10	09.4
Cardiac	08	07.6
Infection	05	04.7
Diabetes	04	03.8
GIT disease	03	02.8
Meningitis	03	02.8
Miscellaneous	11	10.4

Table-V. Causes of death in a rural community of district Peshawar (n=106)		
Major causes of death	**No. of deaths**	**Percentage**
Cardiac	50	19.5
Asthma/ARI	34	13.5
PUO	32	12.5
Cancer	28	10.9
TB lung	21	8.2
Paralysis	19	7.4
Misc/accidents	16	6.3
Murder	12	4.7
Diarrhea	10	3.9
Hypertension	9	3.5
Mental	7	2.7
Maternal	5	2
Drug toxicity	4	1.6
Jaundice	3	1.2
Undiagnosed	6	2.3

CONCLUSIONS

It has been concluded that IHD is a major killer in this hospital. So preferences should be made to decrease the mortality caused by IHD. Major part of the resources should be spent for media advertisement of risk factors prevention like smoking, hypertension, hyperlipidemia, diabetes, lack of exercise.

REFERENCES

1. Marsh D, Kadir M, Musein K, Luby S, Siddique R, Khalid S. **Adult mortality in slums of Karachi,** Pakistan.

2. Bhurgi A, Bhurgi Y, Khan Y, Sharih U, Naqvi F, Soomro IB. **Mortality statistics in South Karachi.** J Pak Med Assoc 2001; 51(12): 446-9.

3. Alam I Khan A. **Maternal mortality in Kothiala, cause and prevention.** J Ayub Med Coll Abbottabad; 1999; 11(12): 37-41.

4. Dewwod MA, Spores J, Notske R. **Prevalence of total coronary occlusion during the early hours of transmural myocardial infarction.** N Eng J Med 1990; 330: 897-902.

5. McGloin H, Adam SK, Singer M. **Unexpected deaths and referrals to intensive care of patients on general wards. Are some cases potentially avoidable?** J R Coll Physicians Lond 1999; 33(3): 255-9.

6. Chaudri MB, Kinnear WJ, Jefferson D. **Patterns of mortality in patients with motor neurone disease.** Acta Neurol Scand 2003; 107(1): 50-3.

7. **Statistics and Information Department.** Summary of vital statistics. Tokyo; 2001: 100-8916.

8. Murray CJL, Lopez AD. **Mortality by cause for eight regions of the world: Global burden of disease study.** Lancet 1997; 349: 126876.

9. Rao MH, Soomro IB. **Disease pattern, seasonal variation and major causes of death in indoor patients at medical units of Civil Hospital, Karachi.** PJMR 2001; 40: 56-60.

10. Manzoor SA, Malik IA, Tariq WZ, Butt SA, Luqman M, Ahmad N. **Hepatitis-B related chronic liver disease in Rawalpindi, Islamabad area.** J Coll Physician Surg Pakistan 1997; 7: 43-46.

11. Mehmood Z, Umar M, Baqai HZ, Shah NH, Raja S, Ahmed M et al. **Mortality audit in Medical Unit of Holy Family Hospital, Rawalpindi (Year 199).** J Rawl Med Coll 1999; 3(1): 37-9.

12. Memon AR, Hussain T, Asfar S. **Mortality rate in a general Medical Unit.** Med Channel 2005; 11(2): 49-51.

13. Qadir A, Nadeem MA, Munit A, Khan ZU. **An audit of indoor morbidity and mortality in a medical ward at a tertiary care hospital.** Ann King Edward Med Coll 2005; 11(1): 42-4.

Look after the oppressed;
You will be the boss.

Shuja Tahir