

## Pattern of Admission of Common Medical Diseases During the Year 2015 to Sulaimani Teaching Hospital

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### Abstract

**Background:** The main reasons for admission to the medical wards in high –income countries are non communicable diseases While communicable diseases are the main reasons for admission to the medical wards in low and middle income countries. However, the reasons for admission are changing from communicable diseases to non-communicable diseases in some low and middle income countries.

**Objective:** To assess the frequency and the pattern of medical diseases for patients admitted to the medical wards of Sulaimani Teaching Hospital during the year 2015.

**Patients and Methods:** A retrospective study was conducted in Sulaimani Teaching Hospital for 26700 medical records of the patients who were admitted to the medical wards during the year 2015 (started from 1st January to 31th December), All the patients that had been admitted to the medical wards of Sulaimani Teaching Hospital during the year 2015 were referred from medical emergency department and outpatient clinics in addition to the private clinics. The data were obtained from medical records of the patients in statistic unit of the hospital. The variables involved in the study included age of the patients, gender, residency and final diagnosis.

**Results:** This study included 26700 patients that have been admitted to Sulaimani Teaching Hospital, 14853 (55.62%) were females and 11847(44.38%) were males. Most admitted age groups were between 51- 60 years (18.16%) followed by 61-70 years (17.52%) ,71 years and more (16.58%) , 41-50 years (14.92%) ,21-30 years (13.36%) , 31-40 years (12.79%) while the least admitted age group was less than 20 years (6.67%), 62.85% of the patients were from urban areas and 37.15% were from rural areas. Gastroenteritis was the most common medical illness (6.45%), followed by CerebroVascular Accident CVA (6.27%),Chronic Obstructive Pulmonary Disease COPD (5.52%),Hypertension HT (4.25%),Diabetes Mellitus DM (4.23%),Bronchial Asthma (2.80%),Heart Failure HF (2.60%),Pneumonia (2.28%),Urinary Tract Infection UTI(1.92%),Anaemia (1.86%) ,Miscellaneous diseases(35.78%) and finally the diseases that not diagnosed (26.04%).The highest number of admissions were in Summer comprising (26.96%) of all admissions followed by in Autumn (25,10%) then in Spring (24,34%) and the lowest in Winter comprising (23.60%) of all admissions.The highest number of admission were in July comprising (9.42%) of all admissions followed by June(8.87%), October(8.72%),August(8.68%),May(8.43%),September(8.36% (December(8.30%),April(8.15%),November(8.02%),January(7.97%),March(7.76%) and the lowest in February(7.32%) of all admissions.

**Conclusion:** The commonest age group for admission is 51-60 year. Admission rate more common in females than in males and it is more common in Summer than in Winter. There is a seasonal variation in the hospital admission. The non-communicable diseases represent the main causes for medical admission than the communicable diseases.

**Keywords:** Patterns, Admission, Medical illness.

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## Introduction

The burden of diseases all over the world, due to medical disorders is enormous with wide geographical variation. Reviewing of morbidity and mortality data periodically could show new trends and may provide information for the planning and evaluation of country's health care services [1]. It is observed that the pattern of medical diseases in developed countries is different from that in the developing countries.

In studies performed in developed countries, medical admissions accounted for 22.2%, 33.0%, and 13.0% of total hospital admissions in U.S.A, Western Australia and Hong Kong, respectively [2,3]. Whereas, in a South African study admissions to the medical wards constituted 40% of the total hospital admissions [4]. In developed countries non-communicable diseases namely cardiovascular diseases are the major reasons for medical admissions, For instance, admissions to medical wards at a hospital in Hong Kong were most frequently associated with the cardiovascular system which made up 30.3% of all medical cases [4]. However in regions of developing countries, the increasing urbanization of the population is changing the morbidity pattern of diseases [5]. It is becoming widely observed that non-communicable or chronic diseases are also now the main causes of death and disability in low and middle income countries [6,7,8]. Chronic diseases such as cardiovascular primarily heart disease, stroke, cancer and diabetes are the main cause of health problem worldwide [9, 10]. However the developing countries are still suffering with the

communicable diseases. Due to lack of awareness of sanitation, lack of good water supply and environment, infectious diseases are still the major issues. Infectious diseases are commonly known as a cause of hospital admission in developing countries [11].

**Hospital records:** A specific focal point for disease-specific health promotion and education are usually Referral hospitals [12]. Though review of records of referral hospital admissions may not indicate the actual prevalence of diseases in the community; it will provide a cues about the varying pattern of diseases affecting the community [13].

In this situation the accurate statistics in developing countries are deficient, as in developing countries the data of hospital admission are still lacking [14]. Mortality and morbidity statistics are an essential resources for research in any country. Unfortunately in developing countries there is a deficiency of such data [15].

**Cost considerations:** The costs of treatment also supplying an essential information for providing a guide to the healthcare policy, and are usually under-reported in clinical research. Cost data are typically present on an individual-patient level, to give a total cost per patient. The distribution of costs is generally highly skewed, reflecting high costs expended by some patients because of type of complicated medical problem, prolonged hospital stay, and range of specific investigation and intervention. Healthcare planners need information on the total hospital budget, and the arithmetic mean is the required summary measure. Median cost

(often presented in cost research) can be explained as the cost for a typical patient, but does not provide information on total costs [16].

Seasonal pattern in chronic diseases occurrence: It has been hypothesized that the frequency of occurrence of chronic health conditions differs in relation to the seasonal variation, several studies have described a seasonal fluctuation in mortality and morbidity related to those health conditions, a wide array of medical conditions exhibits seasonal patterns in their occurrence.

### **Patients and Methods**

A retrospective study was conducted on 26700 patients that being admitted to the medical wards of Sulaimani Teaching Hospital from 1st January to 31th December 2015.

Sulaimani Teaching Hospital (Shahid Dr.Hemin hospital) is a general referral hospital in the Centre of Sulaimani city with a total capacity of 250 beds and it consists of two separate units for men and women admissions, it includes a department of internal medicine and two subspecialty departments (Neurology and Rheumatology departments).The hospital receives patients from inside and outside Sulaimani city. All the patients were referred from medical emergency department and outpatient clinics in addition to the private clinics. The data were obtained from the patients medical records in the statistic unit of the hospital.

All the cases that have been recorded on the year 2015 and their ages were from 14 years old and above were included in the

study. The variables involved in the study included age of the patients, sex, residency and final diagnosis, these variables were entered into a Microsoft Office Excel database programme.

Some of hospitalized patients have an associated co-morbidity (one, two or even more), so more than one diagnosis were present on the case sheet, therefore additional information were needed from the case sheets to determine the final diagnosis. It should be noted that patients with cardiac diseases, psychiatric diseases, hematological and malignant diseases were not recorded totally in statistic unit of Sulaimani General Teaching Hospital because patients with such diseases are usually admitted at the Cardiac Center, Psychiatric Center and Hiwa Hospital respectively, so most of such diseases were not included in the study.

### **Statistical analysis**

Descriptive statistics (numbers and percentage) had been calculated for all variables, as well as analytical statistics was done to find the relationship between variables. Chi-square was used for calculation of P value. A p-value < 0.05 was considered as significant.

### **Results**

Sixty patients were operated upon by The present study included 26700 patients whom were admitted to medical wards of Sulaimani Teaching Hospital during the year 2015. The most common age group that had been admitted in medical ward was between 51-60 years (18.16%), followed by 61-70 years (17.52%), while the least age group was

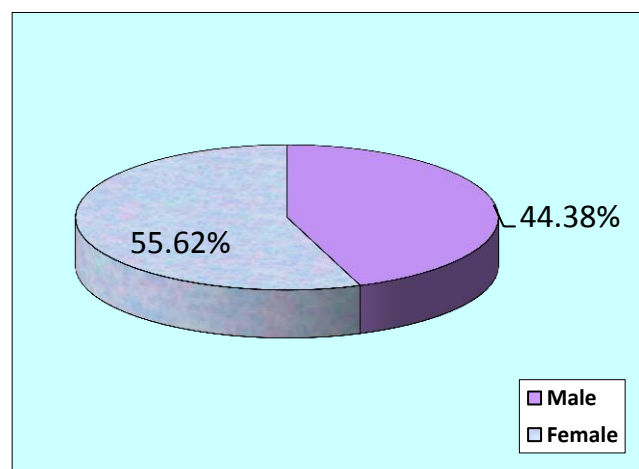
between 14-20 years (6.67%), this difference in age groups was statistically significant (p-value = 0.00). The mean age of the study population ( $M \pm SD$ ) was  $51.03 \pm 19.58$  years with a range of 14 - 120 years, as shown in Table(1).

**Table (1):** Summerization of hospitalized patients by age group.

Age group(year)	Number	Percentage(%)
≤20	1780	6.67
21-30	3568	13.36
31-40	3414	12.79
41-50	3984	14.92
51-60	4848	18.16
61-70	4678	17.52
≥71	4428	16.58
Total	26700	100

### Gender distribution of the cases

Of the 26700 patients, 11847 (44.38%) were males and 14853 (55.62%) were females with a significant difference in the number of males and females admitted to the medical ward (p-value=0.000) as shown in Figure (1).

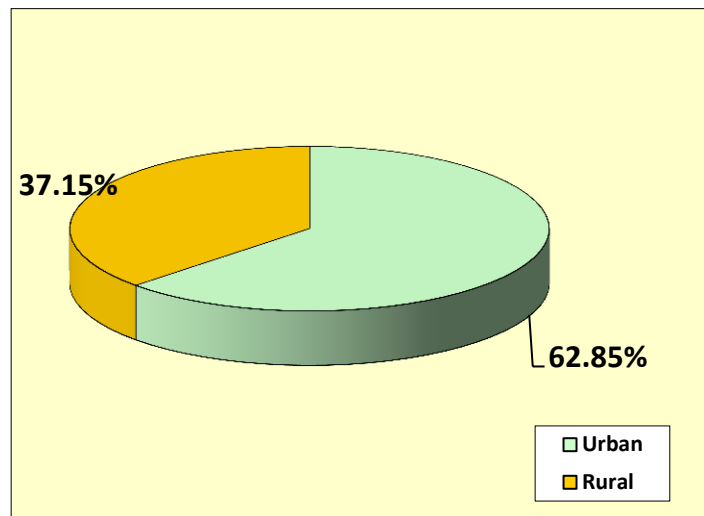


**Figure (1):** Distribution of hospitalized patients by Gender.

### Residency

The results revealed 16782 (62.85%) of the patients were from the urban areas, whereas 9918 (37.15%) were from the rural

areas and this difference is statistically significant (p-value =0.000) as shown in Figure( 2).



**Figure (2):** Distribution of hospitalized patients by Residency.

The most common patients that had been admitted to the medical wards had Gastroenteritis (6.45%) followed by CVA (6.27%) and COPD (5.52%), while (26.04%) of cases were not diagnosed (either they were discharged on their responsibility or there is

no diagnosis on the case sheets). The results also revealed that there is a statistically significant difference in the frequency of disease occurrence among the males and females patients (p-value = 0.000) as shown in Table(2).

**Table (2):** Frequency distribution of the most common diseases.

Diagnosis	Male No. (%)	Female No. (%)	Total No. (%)
Gastroenteritis	627 (2.35)	1094 (4.10)	1721 (6.45)
CVA	882 (3.30)	793 (2.97)	1675 (6.27)
COPD	672 (2.52)	801 (3)	1473 (5.52)
HT	372 (1.39)	764 (2.86)	1136 (4.25)
DM	380 (1.41)	752 (2.82)	1132 (4.23)
Bronchial asthma	213 (0.80)	535 (2)	748 (2.80)
Heart failure	367 (1.37)	329 (1.23)	696 (2.60)
Pneumonia	279 (1.05)	329 (1.23)	608 (2.28)
UTI	168 (0.63)	344 (1.29)	512 (1.92)
Anemia	179 (0.67)	317 (1.19)	496 (1.86)
Miscellaneous diseases	4212 (15.79)	5339 (19.99)	9551 (35.78)
No diagnosis	3496 (13.10)	3456 (12.94)	6952 (26.04)
Total	11847 (44.38)	14853 (55.62)	26700 (100)

The results of the study illustrate that the communicable diseases comprised (27.86%) for the common medical diseases that had been admitted to the medicals wards

compared to the non-communicable diseases comprising (72.14%) for common medical diseases, and this is statistically significant (p-value=0.00) as shown in Table(3).

**Table (3):** Percentage of the communicable and non-communicable diseases among the most common medical diseases.

Diseases	Number	Percentage (%)
Communicable	2841	27.86
Non-communicable	7356	72.14
Total	10197	100

### Pattern of admission according to the months of the year

The results demonstrated that the admissions also varied by months and seasons, the highest number of admissions was in July, comprising (9.42%) of all admissions compared to the lowest in February which comprised (7.32%) of all admissions, and this is statistically significant

(p-value =0.000) as shown in table (4). In relation to seasons, the highest admissions were in Summer (June, July and August) comprising (26.96%) of all admissions compared to the lowest in Winter (December ,January and February) comprising (23.60%) of all admissions, with (p-value=0.00) as shown inTable(5).

**Table (4):** Frequency of hospitalized patients according to the months of the year.

Month	Number	Percentage (%)
January	2128	7.97
February	1956	7.32
March	2073	7.76
April	2176	8.15
May	2251	8.43
June	2367	8.87
July	2516	9.42
August	2317	8.68
September	2231	8.36
October	2327	8.72
November	2142	8.02
December	2216	8.30
Total	26700	100

**Table (5):** Frequency of admissions according to the seasons.

Season	Number	Percentage (%)
Spring	6500	24.34
Summer	7200	26.96
Autumn	6700	25.10
Winter	6300	23.60
Total	26700	100

### Seasonal variations of the most common diseases

The results also shows that there is a seasonal variation among the medical diseases admitted to the medical wards, Gastroenteritis is more common in Summer

season while CVA is more common in Winter season, also COPD, HT and DM showed a higher frequency of occurrence in winter season (p- value =0.00) as shown in Table (6).

**Table (6):** Seasonal variations of the most common medical diseases.

Diseases	Spring No. (%)	Summer No. (%)	Autumn No. (%)	Winter No. (%)
Gastro- enteritis	348 (20.32)	614 (35.70)	442 (25.68)	315 (18.30)
CVA	406 (24.24)	386 (23.04)	441 (26.33)	442 (26.39)
COPD	391 (26.54)	341 (23.15)	313 (21.25)	428 (29.06)
HT	294 (25.88)	240 (21.13)	295 (25.97)	307 (27.02)
DM	268 (23.68)	284 (25.09)	256 (22.61)	324 (28.62)

### Discussion

This study information about the admissions was taken from the medical records of the patients in the statistic unit of the hospital. The most common age groups being admitted to the hospital were between (51-60 years and 61-70 years), these findings are agree with findings in a study that had been done in Nepal [17]. However these findings are disagree with findings of a study in Southwest Ethiopia which showed that the most frequent age of admission were between 21 to 30years [18] ,this could be identified by the variability in the population constitution of these countries.

The study also shows that the numbers of admissions were more common in females than in males and this is in agreement with a

study in Kurdistan region/ Iraq, this could be explained by either the fact that mortality is more common in males [19], or morbidity is more common in females as the two main causes for death are cardiovascular disease and stroke are more common in males leading to increased death rate in males while the less fatal conditions are usually found in females with increased frequency of admission to the hospitals and consequently more number of admission to the hospitals, also it could be explained by the fact that the females have a health care seeking behavior more than the males. This study the results of admissions from urban areas were more than that in the rural areas, it could be the presence of other general hospitals in the



rural areas resulting in reduction of the number of referral cases admitted to the Sulaimani General Teaching Hospital.

The results have illustrated that chronic non-communicable diseases such as cerebrovascular accidents, hypertension and diabetes mellitus accounted for a significant portion of the medical admission profile and this is in agreement with similar studies in Nigeria which have also documented the emergence of non-communicable diseases over the last decade [20-24].

This study highlights the fact that communicable diseases are still represent a significant reason for admission to the medical wards at Sulaimani Teaching Hospital and this is similar to study done in medical wards of Kathmandu University Hospital, Nepal [25], this might be due to poor hygiene and poor sanitation, low socio economic condition in addition to increased amount of tobacco consumption and air pollution.

This study showed a variation in the number of admissions according to the seasons, the highest number were in Summer and the lowest number were in Winter, the cause of this may be actual difference in the pattern of diseases admitted to the medical wards. The results in this study revealed that there is a seasonal variation regarding the frequency of admission for the diseases to the medical wards, gastroenteritis cases were more common in summer and it could be that the causative agents to the gastroenteritis disease are in favoring the hot weather. CVA diseases were more common in the winter

season [26], COPD is also more common in winter season and it could be due to a more frequent chest infection leading to more frequent admissions. The complicated hypertension is more common in winter and it could be due to its more frequent sequel like CVA and cardiac diseases which are more common in the winter season than in other seasons.

### Conclusion

- 1- The most common age group for medical admission were at 51-60 year.
- 2- The frequency of admission were more common in females than in males. T
- 3- he admission rate is more common in summer than in winter.
- 4- There is a seasonal variation in the occurrence of diseases.
- 5- The non-communicable diseases represent the main causes for medical admission than the communicable diseases.

### Recommendations

- 1- Paying more attention to disease documentation and their diagnosis and depending on international classification of diseases (ICD) in writing of diagnosis.
- 2- Promotion of preventive programmes for both communicable and non-communicable diseases.
- 3- Further studies are needed for studying the pattern of disease admission in other specialized hospitals to get more comprehensive pictures about the diseases in the community necessary for planning and resource allocation.

4- There is a need for appropriate geriatric care for the population as high numbers of patients are in the old age group.

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