# THE PRINCIPAL CAUSES OF HOSPITALIZATION AMONGST THE ELDERLY OVER A FIVE YEAR PERIOD (2002-2006) IN A TERTIARY HEALTH FACILITY IN SOUTHERN NIGERIA.

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**ABSTRACT**

**BACKGROUND:** *Worldwide the population of the elderly is escalating hence their health need is also increasing but in a number of regions including Nigeria, little or no attention is given to the needs of the elderly.*

**AIM** *The study was done to identify the principal causes of hospitalization amongst the elderly population and the outcome of management.*

**METHODS:** *It is a retrospective study case series review of 1,046 elderly patients admitted in adult wards of the University of Port Harcourt Teaching Hospital.*

**RESULTS:** *The elderly accounted for 8.95% of the total admissions over the five year period. The principal causes of admissions were cerebro vascular disease(CVD), congestive cardiac failure (CCF), diabetes mellitus(DM) and its complications, hypertension with complications and cataracts. The male sex had a slight preponderance and disorders such as CVD, CCF, DM with its complications and malignancy were chief causes of mortality.*

**CONCLUSION:** *Physicians and care givers should be more alert to health needs of the older population. There is need for prompt diagnosis, medical care and rehabilitation to avoid worse outcomes in the elderly including preventable deaths.*

**RECOMMENDATION** *Research in management of common health problems of the elderly, establishing a geriatric department as well as nursing homes well equipped to carter for their needs and promote active aging.*

**KEY WORDS:** *Principal, Hospitalization, Elderly*

## Introduction

The definition of the elderly refers to persons aged sixty five years and above.[1, 2, 12] Elderly or aged persons are classified into three categories; - the young old (65-74), old old (75-84) and oldest old (>85 years).[3] Irrespective of this definition, in the African rural community where birth record services are not available, elderly persons are noticed by their physical appearance.

The aging of the population means an increase in the proportion of people aged 65 years and above not merely an increase in the number. In 1970, the number of elderly persons was estimated at 291 million or 8% of the population. In 2000, the number reached 585 million increasing the proportion to 9%.[4] The Chinese are noted to have the highest number of elderly persons and it estimated that the elderly will make about 11% of its population at the end of the century.[5]

Aging of an individual is based on changes beginning at conception and following a definite program throughout life. The theories which have been proposed to account for aging process include gradual cellular damage through gene mutation, programmed cell death and free radical formation, aging is universal and it doesn't cause break down in homeostasis unless the system is stressed.[6]

Unlike the developed countries of the United

Kingdom (UK) and the United States of America(USA) where the elderly have special considerations, geriatrics have not been given much consideration in Nigeria and very few studies have been carried out.

## Aim
The study aims to ascertain the principal causes of hospitalization. It also will determine the proportion of the elderly that make up hospital admissions, the social demography of the elderly, to determine outcome of admissions and propose measures at prevention of hospitalization.

## Methods
This is a retrospective study of documented records of elderly patients admitted to all the wards of health facility over the five year period 2002-2006. The exclusion criteria were patients that are less than 65 years old and those treated on outpatient basis. The extracted data were folder number, age, sex, date admitted, date discharged, address location, diagnosis and outcome of admissions.
Data was analyzed using SPSS.11.0 and Microsoft excel. Limitations included missing records and under reported records.

## Results
A total of 1,046 elderly patients were admitted into the adult wards over a five year period were analyzed. The elderly accounted for 8.95% of total admissions within the period which was 11,683. The eleven principal causes of hospitalization were CVD, CCF, prostate pathology, cataracts, chronic liver disease (CLD), septicemia, hernia, diabetic complications, other complications of hypertension apart from CVD and CCF, cervical cancer and fractures. The young old (65-74) age group had the highest frequency into the various wards. The sex distribution showed a slight male preponderance, in a ratio of 1.25:1. The average period of stay was noticed to be highest for fractures, a period of 68 days.
A total of 130 persons (12.4%), died in the course of the management, 21(2.4%) signed against medical advice and 895( 89.5%) were discharged home. The four leading causes of death were CVD complicating diabetes and hypertension(27.7%), malignancies(22.3%), CCF (7.7%), other complications of diabetes (7.7%); while the remaining deaths were 34.6%.The tables below illustrate the principal causes of hospitalization in the adult wards.

**MALE SURGICAL WARD**

| Cases | Absolute frequency | Relative frequency% | Cumulative frequency |
|---|---|---|---|
| Fracture | 21 | 44.68 | 44.68 |
| Gangrene | 7 | 14.89 | 59.57 |
| Osteoarthritis | 4 | 8.51 | 68.08 |
| Lumber spondylosis | 6 | 12.77 | 80.85 |
| Malunion/nonunion | 4 | 8.51 | 89.36 |
| Others | 5 | 10.46 | 100 |
| Total | 47 | 100 | |

**EMALE SURGICAL WARD (2002-2003 not included)**

| Cases | Absolute frequency | Relative frequency% | Cumulative frequency |
|---|---|---|---|
| Breast cancer | 13 | 11.60 | 11.60 |
| Hernia | 23 | 20.54 | 32.14 |
| Goiter | 10 | 8.93 | 41.17 |
| GIT pathology | 38 | 33.93 | 75.00 |
| Others | 28 | 25.00 | 100 |
| Total | 112 | 100 | |

**OPHTHALMOLOGY**

| Cases | Absolute frequency | Relative frequency% | Cumulative frequency |
|---|---|---|---|
| Cataract | 80 | 78.43 | 78-43 |
| Ruptured globe | 6 | 5.88 | 84.31 |
| Panopthalmitis | 5 | 4.90 | 89.21 |
| Glaucoma | 5 | 4.90 | 94.11 |
| Keratitis | 2 | 1.96 | 96.07 |
| Endophthalnitis | 1 | 0.98 | 97.05 |
| Others | 3 | 2.94 | 99.99 |
| Total | 102 | 100 | |

**ORTHOPAEDIC WARD**

| Cases | Absolute frequency | Relative frequency% | Cumulative frequency |
|---|---|---|---|
| Fracture | 21 | 44.68 | 44.68 |
| Gangrene | 7 | 14.89 | 59.57 |
| Osteoarthritis | 4 | 8.51 | 68.08 |
| Lumber spondylosis | 6 | 12.77 | 80.85 |
| Malunion/nonunion | 4 | 8.51 | 89.36 |
| Others | 5 | 10.46 | 100 |
| Total | 47 | 100 | |

**MALE MEDICAL WARD**

| Cases | Absolute frequency | Relative frequency% | Cumulative frequency |
|---|---|---|---|
| CVD | 75 | 25.08 | 25.08 |
| CCF | 44 | 14.72 | 39.80 |
| Liver pathology | 27 | 9.03 | 48.83 |
| Septicemia | 14 | 4.68 | 53.51 |
| GIT pathology | 5 | 1.67 | 67.88 |
| DM complications | 38 | 12.70 | 76.91 |
| Hypertension and other complication. | 27 | 9.03 | 83.93 |
| Respiratory path. | 21 | 7.02 | 86.93 |
| Renal failure | 9 | 3.01 | 86.94 |
| Others | 39 | 13.04 | 100 |
| Total | 299 | 100 | |

**FEMALE MEDICAL WARD**

| Cases | Absolute frequency | Relative frequency% | Cumulative frequency |
|---|---|---|---|
| CVD | 64 | 32 | 32.0 |
| CCF | 23 | 11.5 | 43.5 |
| Liver pathology | 11 | 5.5 | 49.0 |
| Hypertension and other complications | 11 | 9.5 | 58.5 |
| DM complications | 38 | 19 | 77.5 |
| Respiratory path. | 18 | 9.0 | 86.5 |
| Renal failure | 5 | 2.5 | 89.0 |
| Others | 22 | 11.0 | 100 |
| Total | 200 | 100 | |

**EAR, NOSE AND THROAT WARD**

| Cases | Absolute frequency | Relative frequency | Cumulative frequency |
|---|---|---|---|
| Parotid tumour | 4 | 30.77 | 30.77 |
| Tongue malignancy | 1 | 7.69 | 38.46 |
| Others | 8 | 61.54 | 100 |
| Total | 13 | 100 | |

**OBSTETRICS AND GYNAECOLOGY**

| Cases | Absolute frequency | Relative frequency | Cumulative frequency |
|---|---|---|---|
| Cervical cancer | 21 | 38.89 | 38.89 |
| Endometrial cancer | 12 | 22.22 | 61.11 |
| Ovarian tumors | 5 | 9.26 | 70.37 |
| Uterovaginal/ genital prolapse | 6 | 11.10 | 81.48 |
| Post menopausal bleeding | 3 | 5.55 | 87.03 |
| Vulva cancer/dystrophy | 3 | 5.55 | 92.58 |
| Others | 4 | 7.41 | 99.99 |
| Total | 54 | 100 | |

**Discussion**

The study assessed the principal causes of hospitalization amongst the elderly in UPTH. Over the a five year period. The elderly amounting to 1,046 represent 8.95% of the total admissions into the adult wards of the centre within this period. The principal causes of hospitalization within this age group showed CVD accounting for 21.4 %, CCF- 10.3%, prostatic disease- 19.6%, cataract -12.3%, liver disease- 5.8% septicemia- 2.2%, hernia-3.7%, other complication of DM-11.7%, hypertension and other complications 6.8%, fractures 3.2% and cervical cancer3.2%.

A similar study conducted at the same centre medical wards among the elderly showed; CVD- 7.8%, CCF-

15% and DM and its complications- 14.6%.[7]

This result despite the difference in study parameter and period has the same case prevalence probably it because it was done in the same area. A number of demographic factors including age and sex of patients were noticed to determine the distribution of the disease condition afore mentioned.

Of the three major groups of the elderly; the young old (65-74) was noticed to have the highest frequency of admission into various wards. Other studies done on the role of age in determining the distribution of admission showed different age range for specific diseases as seen in a study done in USA which recorded the highest frequency of hospitalization of asthmatic West Virginians in age group greater than 75 years and dementia in the ages greater than 90 years.[8]

Although age as a determinant of disease distribution differs depending on the type and region of occurrence of diseases, the young old with highest frequency as seen in our study is possibly related to our young population pyramid unique to developing countries like Nigeria. The life expectancy of Nigerians is put at 43 years for males and 47 years for females by the United Nations Development Program Report of 2006 explaining the relative small proportion of the elderly in Nigeria.

With regards to gender distribution, male preponderance was observed in the five consecutive years of the study in a male: female ratio of 1.25:1. This figure is quite similar to a study conducted in the same which had a male: female ratio of 1.21:1.[7] The similarity in result could be attributed to same study area, the larger male population in Nigeria and socio- economic imbalance between both sexes.

The average period of hospital stay for all geriatric cases is 21 days. This is quite low when compared to 85 days and 87 days in studies carried out in USA.[9] This discrepancy is possible due to few bed spaces and ineffective rehabilitation services in our centre, hence patients are discharge home to continue on outpatient basis after the acute phase of management. Period of stay was noticed to be highest for fractures with an average of 68 days.

This is not peculiar to the elderly since bone healing is prolonged in adults and elderly patients are prone to osteoporosis On the outcome of hospitalization we observed that majority of patients 85.6% were discharged home, 2.1% signed against medical advice and 10.4% died in the cause of management. Previous study conducted in the same centre showed 75.38% of discharged cases, 2.45% signed against medical advice and 27.34% died in the cause of care.

Whereas our study cuts across all the departments of the hospital, the previous study concentrated on just the medical department of the hospital hence the difference in outcome

A total of 130 deaths of the elderly population were recorded over the 5 years period. CVD complicating DM and hypertension, malignancies, other complications of DM and CCF accounted for the majority of death; that is 60.3% of the mortality in the hospitalized elderly.

These causes were inclusive in 1987 study in USA which attributed 86.3% of all dead to seven major conditions including diseases of the heart, neoplasm, CVD, diabetes and renal pathology.

In England and Wales as at 1970, diseases of the circulatory system and neoplasm were recorded as the main causes of death.[10] A slight deviant of these findings conducted in Switzerland attributed 42.9% of deaths to bronchopneumonia and 47.7% of death to neoplasm and diseases of the circulatory system.[10]

Neoplasm and circulatory system disease are constant features in all regions as a common cause of death among the elderly. This probably due to the transitional epidemiological pattern of disease ( parasitic and infections still prevalent but non communicable diseases associated with modern life style and aging population is increasing). Differences are also observed and this is due to underreporting and misdiagnosis.

## Conclusion

The older population constitutes 8% of the general population worldwide, while in Nigeria it is estimated that about 0.2% are 78 years and above.[11] In the study the elderly made 8.95% of the total admissions, this percentage of admitted elderly patients is bound to increase hence there is need to re-evaluate the health care and social services available at present for the elderly.

More studies in geriatrics in our environment and provision of nursing homes for the elderly as well as promotion of active aging will boost the future of the elderly.

## Recommendation

Based on the results of the study it is important Geriatrics should be established as a medical specialty incorporating a multi disciplinary approach. Education

and training of general practitioners and physicians specializing in Internal Medicine as well as other health care workers particularly nurses should have a review of geriatric concepts.

In terms of planning and organization more bed spaces should be provided for the elderly and possibly creation of special wards. Environmental design studies should be encouraged to facilitate the adaption of the elderly to changes in their capabilities and surroundings especially in hospitals and nursing care homes.

There should be health awareness and sensitization in the community focusing on the senior citizens and their care givers of the common causes of hospitalization in the elderly and how to prevent morbidity and mortality as well as promotion of active aging.

The medical community should be encouraged to carry out more research on the elderly population with adequate funding.

## Acknowledgement

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