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THE LENGTH OF HOSPITAL STAY OF HOME CARE PATIENTS AT KING KHALID NATIONAL GUARD HOSPITAL, JEDDAH, 1999

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ABSTRACT

Objectives:
This study was initiated to identify diseases followed by Home Health Care (HHC) Team at King Khaled National Guard Hospital (KKNGH), and to compare the length of hospital stay, the number of outpatient and emergency room visits in patients receiving Home Health Care to those who do not get this service over a 6-month to one year period.

Design:
This is a cross sectional study to identifying diseases followed by Home Health Care Team and case control study for the follow up of patients.

Setting and Participants:
Home health care at King Khaled National Guard in Jeddah . All patients followed by the HHC team on February 2000 were included. The same numbers of patients with the most frequent diagnosis were admitted before 1997(non-HHC.

Measurements:
demographic data for HHC patients, and type of care patients needed . The second objective, total in-patients days, number of emergency ,and clinic visits for six month to one year for HHC patient ,and non-HHC patients.

Results:
There were148 patients, 83 (56.1%) male, And 65 (43.9%) female with mean age of 47.4-year rang 6 month- 99 years. There was 111 (75%) adult (above 18 years) with mean age of 61.2 years range between 20 years -99 years. 37 (25%) pediatrics patients found with mean age of 7.3 years range 6-month -18 years. Among the 148 patients 30 (20.3%) were found to have circulatory system disorder, mainly stroke (CVA (29). Twenty four patients (16.2%) diagnosed as having nepotistic disease, 13 (8.8%) patients

with injuries, 10.8% with endocrine disorders mainly diabetes and the rest were with other disorders . About 25.7% of these patients have one more diagnosis. Ninety-three (62.8%) of HHC patients needed continuous care (chronic care), 23 (15.5%) were for palliative care, 18 (12.2%) needed transient care i.e. health education and flow up, while 14 (9.5%) needed acute care after discharge from hospital. The mean hospital stay days were 14.9 days for HHC CVA cases at the first admission, while it was 10.6 days for hospital CVA cases who did not have HHC service (P value 0.226).The mean number readmission was lower for HHC patients than for non-HHC CVA (0.44 admission, 0.94 admission) respectively(P value 0.116). HHC patient means clinic visits during 6month to 1 year was 2, while it was 3.3 for hospital CVA patients. This difference has no statistical significance (p value 0.127).

The emergency means visits during 6month -1 year for HHC cases was 1, on the other hand it was 1.4 for the hospital patients. This also had no statistical difference (P value 0.325).

Conclusion:
Home health care at King Khaled National Guard in Jeddah is covering different age groups with a variety of diagnosis. The most common one was CVA. Some patients have more than one diagnosis, and have some complex medical and social condition, that needed more than one service (nursing, physiotherapy, social support, equipment,) these patients needed care for a longer period of time with frequent visits per week. HHC also provides palliative care for terminal illnesses and acute care for post hospital discharge.The hospital readmission's, clinic visits, and emergency visits were lower in HHC patients than non-HHC however this difference was not statistically significant.

Abbreviations:

HHC	Home Health Care.
KFNGH	King Fahad National Guard hospital.
KKNGH	King Khaled National Guard Hospital.
Non-HHC patients	Patients, who did not have HHC services.
CVA	Cerbrovascular Accident.
DM	Diabetes Maltese.
HPN	hypertension.

INTRODUCTION

Home Health Care (HHC) is a formal, regulated program of care delivered by variety of health care professionals in the patient home. [1] HHC services are provided by physicians, nurses, physio-therapists, occupational therapists, speech therapists, home care aids, social worker, and dieticians; as well as drug and equipment supply [2].
For the last fifty years home visits started to decline. Some of the major reasons were due to: the advancement of medical technology; a wide spread of the telephone and communication technology enabled the physician to give over the phone advice and to receive follow up information more readily [3]. Lack of practice and experience in caring

for patients at home, medical literature concerning HHC are very few to none; and the financial factor (since payment for HHC is considerably less than in clinics for the same amount of time [4].

On the other hand many reasons have helped home visits to start again and to be considered as one of the fastest growing Medicare sector. This change could be because the in-patient model of care may not be optimally serving the needs of the growing number of elderly and disabled people [2]. The comfortable home environment makes patients choose to receive care at home. It makes them feel a greater sense of well being which helps in improving their participation in the management of their care [5].

Home Health Care in Saudi Arabia:

In the Kingdom of Saudi Arabia Home Health Care services was started by the Green Crescent Hospital in 1980, as a part of their emergency program. [6] King Faisal Specialist Hospital and Research Center implemented HHC service in 1991 under the supervision of a committee to oversee its ongoing planning and implementation, following a pilot study which indicated that patients and their families benefited from the nursing care and psychosocial support. The study demonstrated that such a program reduced the need for hospital admissions, clinic, as well as the number of emergency visits. [7]

King Fahad National Guard Hospital (KFNGH) in Riyadh started Home Health Care in spring 1995 [6]. It covers all patients referred from KFNGH according to their selection criteria. Home care services started on 1997 in the National Guard Hospital. H. H. R. Princess Hussa Bint Trad Al-Shaalan officially opened it on April 29th 1998 under the supervision of H. R. H. princes Adellah bent Abdullaa bin Abdulazeez. The service covers all patients who are eligible to be treated in National Guard Hospital who are home bound, need medical services, and are 50 kilometers away from the hospital. It provides nursing, social service, physiotherapy, respiratory therapy, dietary, psychotherapy, medications, and equipment supply according to the patients needs.

Home care and family medicine:

Primary care physicians developed a sustained partnership with their patients by providing an integrated, accessible health care service, practicing in the context of family and community, and addressing patient's health care needs (9). So Primary care is the comprehensive management of unselected patients with undifferentiated problems. (9)

The primary care doctor is responsible for the biopsychsocial model in managing his patients and need to evaluate the environmental conditions. One study found that home assessment of elderly patients with relatively good health status and function resulted in the detection of an average of four new medical problems and up to eight new intervention recommendations per patient. (10). The major problems detected included impotence, gait and balance problems, immunization deficits, and hypertension. Significantly, these problems had not been expected based on information obtained from outpatient clinic encounters (11). Specific home-based interventions, such as adjusting

the elderly patient's home environment to prevent falls, have also yielded health benefits. (12)

Home care is a way a family physician can conduct follow up visits with patients with chronic illnesses. It allows the physician to assess other factors not readily seen in hospital visits (like the home environment) which may have a big effect on the condition and treatment of the patient. This type of care can help bring a better understanding between patient and doctor and can lead to better cooperation and management of the patient.

Type of visits:
The following are the different types of home visits;

Illness home visits;
The illness home visit involves an assessment of the patient and the provision of care in the setting of acute or chronic illness, often in coordination with one or more home health agencies. Emergency illness visits are infrequent and impractical for the typical office-based physician.(12)

Dying patient home visits;
The dying patient home visit is made to provide care to the home-bound patient who has a terminal disease, usually in coordination with a hospice agency. The family physician can provide valuable medical and emotional support to family members before, during, and after the death of a patient in the home environment. (12)

Assessment home visits;
The assessment home visit can also be described as an investigational visit during which the physician evaluates the role of the home environment in the patient's health status. An assessment visit is often made when a patient is suspected of poor compliance or has been making excessive use of health care resources. Medication use can be evaluated in the patient who is taking many drugs (polypharmacy) because of multiple medical problems. Evaluation of the home environment of the "at-risk" patient can reveal evidence of abuse, neglect or social isolation. A joint assessment home visit facilitates coordination of the efforts of home health agencies and the physician. (12)

Hospitalization follow-up home visits;
Follow-up home visits after a patient has been hospitalized are very useful when significant life changes have occurred. For example, a home visit after the birth of a new baby provides an excellent opportunity to discuss wellness and prevention issues and to address parental concerns. A home visit after a major illness or surgery can be useful in evaluating the coping behaviors of the patient and family members, as well as the effectiveness of the home health care plan. (12)

Home care and clinical pathway:
Developing a clinical pathway is an important issue to evaluate and can give measurable out come (13). It also can help in following the patients with multiple medical problems.

So many pathway models are used to asses multiple and different issues. One of these models is the INHOME mnemonic, which was devised to help family physicians to remember the items to be assessed during home visits. This model is directed at a patient's functional status and living environment. This mnemonic can be expanded to "INHOMESSS," which incorporates investigations of safety issues, spiritual health and home health agencies (12).

The" INHOMESSS" Mnemonic stands for;
I = Immobility
N = Nutrition
H = Housing
O = Other people
M = Medications
E = Estimations
S = Services by Home Health Agencies
S = Spiritual Health
S = Safety

Immobility:
Evaluation of the patient's functional activities includes assessment of the activities of daily living (bathing, transfer, dressing, toiling, feeding, continence) and the instrumental activities of daily living (using the telephone, administering medications, paying bills, shopping for food, preparing meals, doing housework). The physician can ask the patient to demonstrate elements of the daily routine, such as getting out of bed, performing personal hygiene and leisure activities, and getting in and out of a car. (12)

Nutrition:
The physician should assess the patient's current state of nutrition, eating behaviors, and food preferences. Healthy food preparation techniques can also be reviewed with the patient. (12)

Home Environment:
The patient's home environment should allow for privacy, social interaction, spiritual and emotional comfort, and safety. A safe neighborhood within close proximity to services is important for many older patients. (12)

Other People:
Having the patient's social support system present at the home visit clarifies the roles and concerns of family members. During routine visits, the physician can assess the availability of emergency help for the patient from family members and friends and can clarify specific issues, such as who is to serve as surrogate for the patient in the event of incapacitation. Evaluation of the caregiver's needs and risk of burnout is critically important. (12)

Medications:
To remedy or avoid polypharmacy, the physician must evaluate the type, amount and frequency of medications, and the organization and methods of medication delivery. An inventory of the patient's medicine cabinet can provide clues to previously unidentified drug-drug or drug-food interactions. A home medication review can also allow a direct estimate of patient compliance. (4)

Examination:
The home visit should include a directed physical examination based on the needs of the patient and the physician's agenda. Practical, function-related examination. The physician can have the patient demonstrate proper technique for the self-monitoring of blood glucose levels. In addition, the physician can weigh the patient and obtain a blood pressure measurement. In-person correlations of home and office measures provide useful information for future telephone and clinic contacts. (12)

Safety:
The goal of the home safety assessment is to determine whether the patient's environment is comfortable and safe (no unreasonable risk of injury). To raise the subject, the physician should simply state the intention to identify and help modify potential safety hazards. (12)

Studies done on home health care:
Studies showed that a group of elderly under 24 hours home care demonstrated better instrumental activities of daily living, out door walking and significantly fewer diagnosis and drugs at 6 months. They used fewer in-patients and more out patient care than the control group. Also significant cost reduction was found in the home care group. (14)
Anther study on home health showed that nurses conducted 70% of all home visits. (15)

A study found that patients with hip fracture who were under HHC (after discharge from hospital) had lower hospital readmission for one year (16). It concludes that there is a relative effectiveness of post acute service and post discharge (16).

Another Study described the management of patients at home after prostatectomy is an excellent example in which patients who received home care had the same outcome and frequency of readmission as those discharged from hospital 2 or 3 days later. (17)
On the other hand Cochrane Library reviewed 11 RCS studies and concluded; that there is insufficient evidence to assess the effects of hospital-at-home on patient outcomes or the cost to the health service. Given the heterogeneity of what hospital-at-home encompasses and the uncertainty over its effects, future research should clearly specify the type of service being provided, both at home and at hospital, and the specific patient groups. Patient health outcomes, patient and carrier satisfaction, and costs should be measured, and studies should include a formal, planned economic analysis. Studies should be large enough to detect important differences and to ensure generalisability of the result (18).

RATIONALE

Home Health Care helps the physician to fully understand the social factors related to his patient. This understanding will assist the physician in patient management as well as strengthen the patient-doctor relationship.

From my knowledge very few studies were carried out locally on HHC [7] despite its importance, so this study may help in bridging this gap.

AIM

The aim of this study is to determine the effectiveness of the Home Health Care program at King Khalid National Guard Hospital (KKNGH).

OBJECTIVES

The objectives of this study are:

1. To identify the different diseases followed by the Home Health Care Team at KKNGH and to determine the most frequent diseases.
2. To compare the length of hospital stay, the number of outpatients and emergency room visits with Home Health Care services in the treatment of the same frequent diseases. This was to be done within a 6-month period or more depending on case of study.

Area profile:

The city of Jeddah is located in the western region of Saudi Arabia and borders the eastern coast of the Red Sea. Jeddah is nearly 580 square kilometres, and it population is around 2 million. [8] The Ministry of Health, Military, National Guard, Private hospitals and Primary Health Care Centres cover the medical services in the city. The research in this study will be carried out in the Home Health Care Centre, at King abdulazeez medical city .Um Al Salam area, Jeddah.

METHODOLOGY

Preparatory phase

Following a considerable review of the literature, the researcher prepared a preliminary checklist. After the research proposal was formally accepted, the preset checklist was tested on a sample of records. The checklist was modified, following this small pilot study.

Type of the study:

This is a cross sectional study for the first objective, and case control study for the second objective.

Patients and data collection

Data was collected for All patients followed by the HHC team on February 2000. All

these patients were eligible for treatment in the National Guard Hospital. All were Saudi patients (the first check list was used for that). Patient name, mrn, age, sex, referring department, type of care i.e. (transitional -for limited time-, acute for evaluation, palliative for advanced cancer and terminal illness and chronic for those who need long time flow up), and services provided i.e. (nursing, social, equipment, physiotherapy, respiratory therapy, dietary, and psychotherapy). Data entered into the computer for analysis was done using the SPSS program.

The same numbers of patients with the most frequent disease were admitted before 1997(non-HHC). Data was taken from the hospital records for comparing the length of stay during the first admission, the number of subsequent admissions and number of both emergency and clinic visits for 6 month to one-year time.

Tools of the study:
Two checklists used (appendixes 1, 2). The first list included the following variables; patient name, MRN, age, gender, diagnosis, and the type of care given for HHC patients. The second list included; patient name, age, gender, diagnosis, and total in-patients days, and number of emergency and clinic visits for one year to six months. A Copy of both lists will be submitted in the appendix.

Case Selection Criteria:
All Saudi patients, male and female with the most frequent diagnosis for flow up and under the care of the HHC department at KKNG Hospital during February 2000 have been included in this study. They were followed for at least a period of 6 months.

Control Selection Criteria:
The following are the selection criteria for the control (non-HHC patients) who were included in the study:

- must be Saudi patient
- they must have the same diagnosis as the case patient
- never had HHC service
- They were treated at KKNG hospital before 1997(before the implementation of HHC).
- The numbers of control were equal to the number of cases.

Data Analysis:
The researcher entered all data to the SPSS program on a personal computer. Statistical analysis was done using the SPSS program. Chiseqare, T. test, anova and other tests were used for data analysis. A p-value of 0.05 or less was taken as statistically significant in the final data analysis and confidence interval of 95%. To insure correct data entry, all entered records were rechecked.

Ethical Consideration:

- Letter from the main supervisor of the Joint Program of the Family and Community Medicine for KKNG Health Affairs.
- All information in the file will be kept confidential.

RESULTS

Sample size

The total number of patients under HHC during February 2000 was 148 patients. The most frequent diagnosis was cerbrovascular accident (CVA) 30 patients (20.3%). Sixteen patients who had follow up for more than 6 month were compared with 16 non-HHC CVA patients.

Age & gender

There were 83 (56.1%) male. And 65 (43.9%) female with mean age of 47.4-year rang 6 month- 99 years. Among the 148 patients there was 111 (75%) adult (above 18 years) with mean age of 61.2 years range between 20 years -99 years. 37 (25%) pediatrics patients found with mean age of 7.3 years range 6-month -18 years.

Table 1. *Distribution of sex by age-group*

AGE GROUPS	SEX		TOTAL
	Male (%)	Female (%)	
0 - 4	8 (5%)	5 (3.4%)	13 (8.8%)
5 - 14	10 (6.8%)	10 (6.8%)	20 (13.6%)
15 - 40	14 (9.5%)	9 (6.1%)	23 (15.6%)
41 - 65	18 (12.2%)	21 (14.2%)	39 (26.4%)
> 65	33 (22.3%)	20 (13.5%)	53 (35.8%)
Total	83 (56.1%)	65 (43.9%)	148 (100%)

Diagnosis

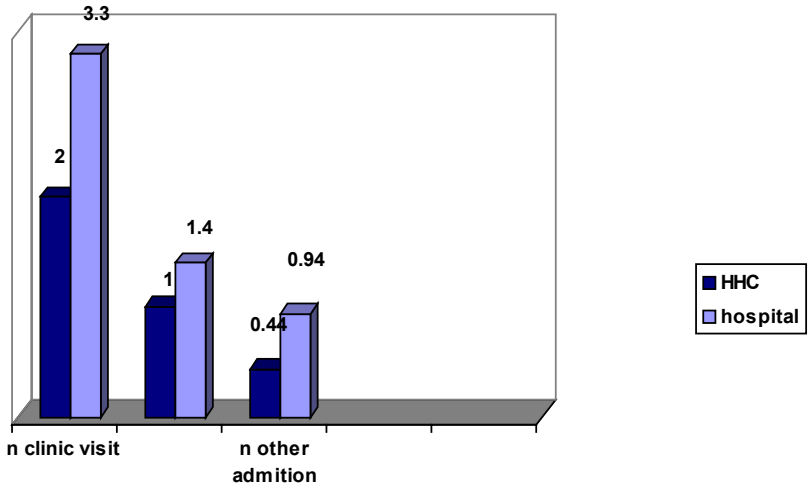


Fig 6 HHC & Non-HHC patients

Among the 148 patients 30 (20.3%) were found to have circulatory system disorder, mainly stroke (CVA (29). Twenty four patients (16.2%) diagnosed as having nepotistic

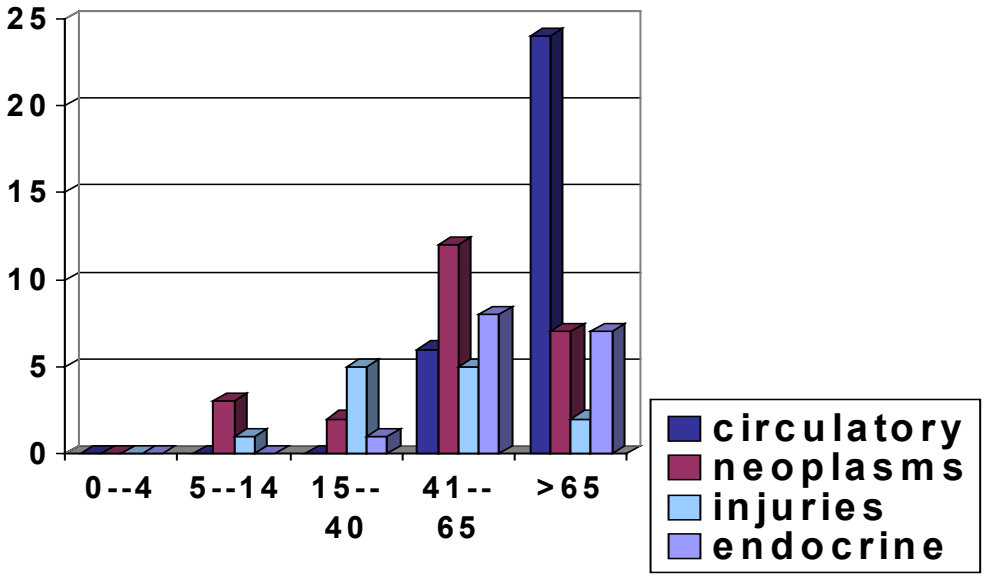
disease, 13 (8.8%) patients with injuries, 10.8% with endocrine disorders mainly diabetes and the rest were with other disorders like central nerves system disorders, dermatological, genitourinary, and bone diseases (Table 2). About 23 (15.5%) of patients were pediatric, suffering from mental retardation and other syndromes. About 25.7% of these patients have one more diagnosis i.e. diabetes or hypertension.
Nine point five percent have two or more other diagnoses.

Table 2 *Distribution of HHC patients' diagnosis by gender*

Diagnosis Category	Sex		Total
	Male	Female	
Circulatory disorder	20 (66.7%)	10 (33.3%)	30 (20.3%)
Neoplasm's	11 (45.8%)	13 (54.2%)	24 (16.2%)
Injuries	11 (84.6%)	2 (15.4%)	13 (8.8%)
Endocrine disorder	8 (50%)	8 (50%)	16 (10.8%)
Pediatric diseases	14 (60.9%)	9 (39.1%)	23 (15.5%)
Others	19 (45.2%)	23 (54.8%)	42 (28.4%)
Total	83 (56.1%)	65 (43.9%)	148 (100%

Age & diagnosis:
Out of the 30 cases that have circulatory system disorders 24(80%) were in the age group of more than 65 years. Neoplasms were more common in the age group from 41-65 years 12 (50%). Injuries were found to be more common in the age groups 15-65 years Fig 2.

Fig 2 *Age & diagnosis*



Type of care:
Ninety-three (62.8%) of HHC patients needed continuous care (chronic care), 23 (15.5%) were for palliative care, 18 (12.2%) needed transient care i.e. health education and flow up, while 14 (9.5%) needed acute care after discharge from hospital. (Table 3 Type of care with diagnosis).

Table 3 *Diagnosis & type of care*

Type of Care					
Diagnosis	Acute	Chronic	Palliative	Transient	Total
Circulatory	2	24		4	30
Neoplasm	1	1	18	4	24
Injuries		10	1	2	13
Endocrine	3	12	1		16
Pediatric	2	18	1	2	23
Others	6	28	2	6	42
Total	14 (19.5%)	93 (62.8%)	23 (15.5%)	18 (12/2%)	148 (100%)

Referring department
Eighty-eight patients (59.5%) referred from medical departments, 31 patients (20.5%) surgical referrals, 26 patients (17.6%) from pediatrics departments, and 3 patients (2%) from other departments. Thus showed that there was significant difference between medical department and other referring departments. There was no statistical difference among surgical patients and medical department patients by age (T test .99, df 117, P value 0.32). Also there were no statistical differences by the number of services provided to patients and the referring departments (F test 2.2, P value of 0.1). Fig 3

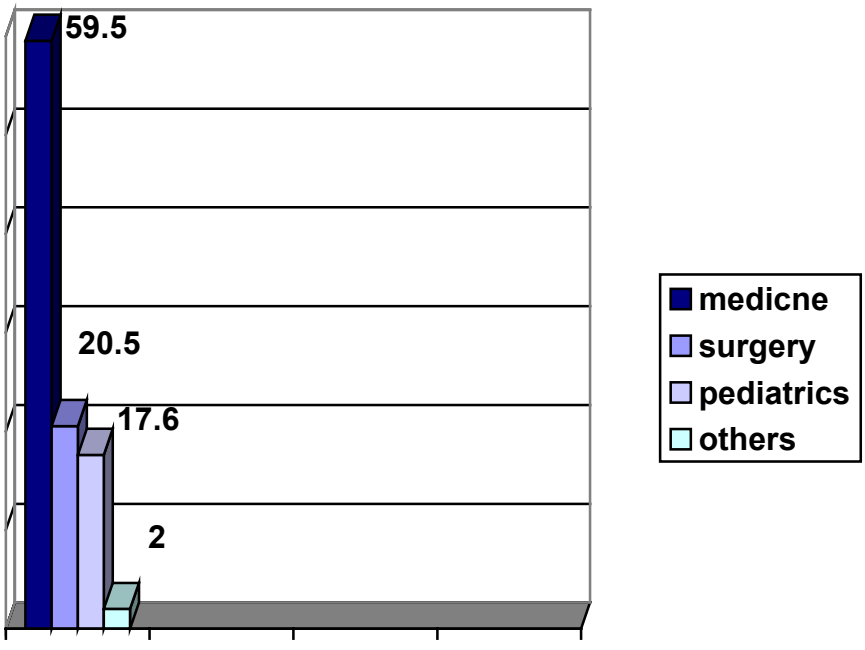


Fig 3 referring department

Service given

Out of 148 patients, 137 (92%) needed nursing care. This was the most frequent type of service provided to the HHC cases. About 68 (45.9%) of the patients needed physiotherapy. Social support, and evaluation given to 43 (29%) of the patients. About 25 (17%) patients needed equipment. Nutritional advice and supplements provided for 33 (22.3%) patient's, 10 (6.8%) patients needed respiratory therapy, 8 (5.4 %) patients were given occupational therapy to help them to restore their normal daily function, and only 4 (2.7%) patients needed psychotherapy. Table 4. Sixty-seven percent of the patients needed one, or two services. The rest 33% needed more than 2 services. There was no statistical difference between age.

Table 4 *services given to patients*

Service	Patients (%)	Service	Patients (%)
Nursing	137 (92)	Nutritional	33 (22.3)
Physiotherapy	68 (45.9)	Respiratory	10 (6.8)
Social	43 (29)	Occupation	8 (5.4)
Equipment	25 (17)	Psychotherapy	4 (2.7)

Age & number of other diagnosis:

Age was correlated to the number of diagnosis other than the main diagnosis for which the patients were being followed. One or more diagnosis found in 19 (48.7%) of cases from 41-65 years, also it was 31 (58.5%) of patients more than 65years. There was an association between age group and the presence of other diagnosis. As the patients age increased patients had one or more other diagnosis (chi- square 39.6, df 4, P value 0.01. HHC and non-HHC patients:

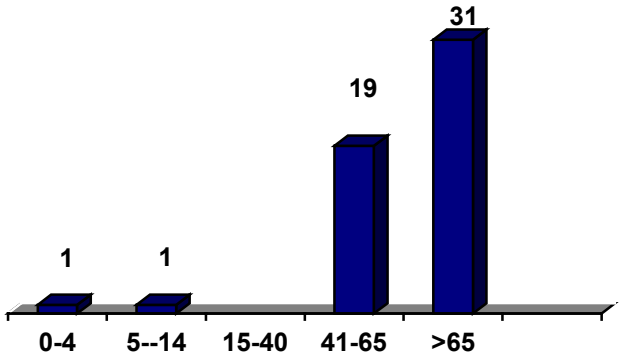


Fig 4 Age & Other Diagnosis

Sixteen patients of HHC clients with CVA who were followed for more than 6 months were selected for comparing the length of hospital stay, other admission days, clinic visits, and emergency visit numbers with 16 non-HHC CVA patients. Among HHC CVA cases there were 11 males and 5 females with mean age of 79.9 years Std +, - 11.9. The non-HHC cases were 16 patients who had CVA before 1997 (8 males and 8 females) with mean age 76.2 Std +, - 5.3. There was no statistical difference in age of both HHC & non-HHC patients (T test 1.6, df 30, P value 0.13), and in sex (Chi-square 1.1, df 1, P

value 0.28). There was also no statistical difference in the number of other diagnosis in both groups (Chi-square 1.1,df 1, P value 0.28). Table 5.

Table 5 *comparison of HHC & Non-HHC CVA cases*

HHC & non-HHC CVA	Statistical test	P value
Age	T test = 1.6	0.13
Gender	Chi-sq. = 1.1	0.28
Other diagnoses Number	Chi-sq. = 2.7	0.43

Hospital stays & number of readmission:
The mean hospital stay days were 14.9 days for HHC CVA cases at the first admission, while it was 10.6 days for hospital CVA cases who did not have HHC service. But there was no statistical significance (T test 1.2, df 30, P value 0.226). The mean number readmission was lower for HHC patients than for non-HHC CVA (0.44 admission, 0.94 admission) respectively. This difference was not of statistical significance (T test 1.6, df 30, P value 0.116). There was no statistical difference in the total of other admissions days (T test 1.09, df 30, P value 0.282).

Number of clinic & emergency visits:
HHC patient means clinic visits during 6month to 1 year was 2, while it was 3.3 for hospital CVA patients. This difference showed no statistical significance (T test 1.57, df 30, p value 0.127). The emergency means visits during 6month -1 year for HHC cases was 1, on the other hand it was 1.4 for the hospital patients. This also had no statistical difference (T test 1, df 30, P value 0.325). Figure5.

DISCUSSION

Home care is an important health service, which deals with patients in their home environment, and the sharing in their management. It has many advantages for both the patients and health services. The Ages in this study ranged from 6 months to 99 years,

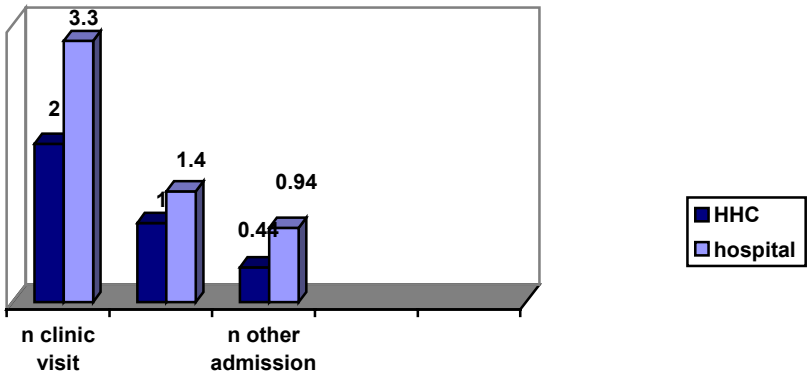


Fig 5 HHC & Non-HHC Patients

with a mean of 47 years and a median of 56.5 years. This is lower than what was reported

in studies done in Nebraska, New Jersey, and Wisconsin. In these studies the age of HHC patients ranged from birth to 104 years with a median of 68.6 years. (18) This difference maybe due to longer life expectancy in the western community and larger number of elderly. Male gender was 56.1%, which is higher than that reported as 42% in the Nebraska study (18).

Among KKNG HHC patients circulatory system disorders mainly stroke (CVA), were the most frequent diagnosis (20.3%), this goes along with the American study, which showed 23.8% of the cases being circulatory system disorders. The high prevalence of circulatory disorders are related to multiple risk factors i.e. DM, HPN, smoking ...etc.

About 16.2% of the patients studied were diagnosed to have neoplastic disease similar to 16.9 % reported in the American study (18). However, in endocrine disorders it was mainly diabetes at (10.8%). This was higher than what was reported in the American study, which showed 9.5% of cases being endocrine disorders (18). Maybe this can be explained by the higher prevalence of diabetes we have in the Kingdom of Saudi Arabia. The American study reported 10.8% of injuries in HHC cases while the current study showed only 8.8%. The lower percentage rates maybe a result of the geographical location of the National Guard Hospital. It is relatively far away and most RTA and injuries cases referred to other hospitals (i.e. King Fahad General Hospital). There were no significant differences found in comparing central system disorders, dermatological, genitourinary, and bone diseases from those presented by the American study (18).

The most commons disorders for HHC clients were the same in both studies (circulatory disorders and neoplasm's). These results are consistent with the most common causes of morbidity and moralities. So more efforts need to be done in the prevention and control of their risk factors. (i.e. screening for diabetes, hypertension, hyperlipidemia, and treatment at early stages has to be started). Injuries were seen more frequently in the age range from 15 years -65 years. More commonly males are more vulnerable to injuries than females because they are more active, out doors and plus they are driving. That is why it is very important that more education about safety measures during driving and other out door activities has to be directed to these groups.

For the patients in this study there was 52 (35%) that had other diagnosis's like DM, IHD, and HPN. These cases were more complex and needed more services for follow up. This study showed no significant difference in the length of hospital stay between HHC patients who were diagnosed to have CVA and those with CVA and who did not have the home care services. (14.9 days, 10.6 days for HHC and hospital cases respectively). The mean numbers of hospital admissions for HHC patients were lower (0.44) than non-HHC case (0.94) for hospital CVA patients. This difference has no statistical significance. This may be due to a small sample size. On the other hand meta-analysis that reviewed 13 studies showed reduction of initial hospital stay by 1.7 days and significantly reduced the total number of hospital days for one year by 2.6 days per patient with different diagnosis's. (5)

The mean for HHC clinic visits during 6 months to 1 year was 2 visits. This was lower than non-HHC cases which mean was 3.3 visits. This difference showed no statistical significant. However, there was a reduction by approximately 3 visits per patient in other study. (5) The results of the current study maybe due to a shorter duration of follow up or cases of CVA needed more care and had more complex problems. The means for emergency visits in HHC cases were lower than non-HHC patients (1 visit, 1.4 visits respectively). But this has no statistical difference, because the same result was found in other studies previously mentioned. (5) These results could be affected by small sample size, diagnosis (CVA) with other complex conditions and by the method of follow up (patients might be registered in more than one hospital). On the other hand HHC patient may stick to KKNGH because of its HHC service. Other studies done on HHC CVA cases showed interesting sides of the issue that have not been studied in the current study. Thus Two studies done on CVA patients who are receiving home care showed an increase in the patient and carer satisfaction. (20) Also anther study showed that adverse outcome was less in CVA patients receiving home therapy. (20)

ACKNOWLEDGEMENTS

I am grateful to HHC team. And medical records in KKNGH.

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