INTERNSHIP TRAINING

AT

Healthcare At Home

BY

Dr. DEBANJANA MOITRA

PG/19/023

HOSPITAL MANAGEMENT

UNDER GUIDANCE OF Dr. NitishDogra

International Institute of Health Management Research New Delhi

Post-graduate Diploma in Hospital and Health Management

(2019-21)

International Institute of Health Management Research, New Delhi

(Completion of Dissertation from respective organization)

The certificate is awarded to

Dr.Debanjana Moitra

In recognition of having
successfully completed

Her Internship in the department
of Sales & Marketing

And has successfully completed
her Project on

Title: IsHome Healthcare effective in reducing financial burden?

Date:04/01/2021-03/07/2021

Organization: HealthCare AtHOME (HCAH)

She comes across as a committed, sincere & diligent person who has a strong drive & zeal for learning.

We wish her all the best for future endeavors.

Training & Development Human Resources	**Zonal Head-**
Mr. Laiquzzama Ansari	**Mr. Vikas Trivedi**
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TO WHOMSOEVER IT MAY CONCERN

This is to certify that **Dr.Debanjana Moitra** student of PGDM (Hospital &HealthManagement) from **International Institute of Health Management Research, New Delhi**has undergone internship training at**HealthCare At HOME** from **04/01/ 2021** to **03/07/2021.**

The Candidate has successfully carried out the study designated to him during internship training and her approach to the study has been sincere, scientific and analytical. The Internship is in fulfillment of the course requirements. . I wish her all success in all her future endeavors

Ms. Divya Aggarwal

Associate Dean, Academic and Student Affairs
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Dr.Nitish Dogra

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Certificate of Approval

The following dissertation titled **"Is Home Healthcare effective in reducing financial burden?"** at **"HealthCare At HOME"** is hereby approved as a certified study in management carried out and presented in a manner satisfactorily to warrant its acceptance as a prerequisite for the award of **PGDM(Hospital &Health Management)** for which it has been submitted. It is understood that by this approval the undersigned do not necessarily endorse or approve any statement made, opinion expressed or conclusion drawn therein but approve the dissertation only for the purpose it is submitted

Dissertation Examination Committee for evaluation of dissertation.

Name

Signature

Certificate from Dissertation Advisory Committee

This is to certify that **Dr.Debanjana Moitra,** a graduate student of the **PGDM (Hospital & Health Management)** has worked under our guidance and supervision. She is submitting this dissertation titled "Is Home Healthcare effective in reducing financial burden?" at "HealthCare At HOME" in partial fulfillment of the requirements for the award of the **PGDM (Hospital & Health Management).**

This dissertation has the requisite standard and to the best of our knowledge no part of it has been reproduced from any other dissertation, monograph, report or book.

Dr. Nitish Dogra **Mr. Laiquzzama Ansari**

Associate Professor, IIHMR New Delhi **Unit Head, HCAH (Delhi NCR)**

INTERNATIONAL INSTITUTE OF HEALTH MANAGEMENT RESEARCH, NEW DELHI

CERTIFICATE BY SCHOLAR

This is to certify that the dissertation titled "**Is Home Healthcare effective in reducing Financial Burden?"**and submitted by **Dr.Debanjana Moitra** Enrollment No. **PG/19/023**under the supervision of **Dr.Nitish Dogra** for award of **PGDM (Hospital & Health Management)** of the Institute carried out during the period from 2019 to 2021 embodies my original work and has not formed the basis for the award of any degree, diploma associate ship, fellowship, titles in this or any other Institute or other similar institution of higher learning.

Signature

FEEDBACK FORM

Name of the Student: Dr. Debanjana Moitra

Dissertation Organization: Healthcare At HOME

Area of Dissertation: Home HealthCare in reducing financial burden

Attendance: 100%

Objectives achieved: yes

Deliverables: achieved

Strengths: Hard working, discipline, ready to correct mistakes.

Suggestions for Improvement: More persistence, improvement in MS office skills

Suggestions for Institute (course curriculum, industry interaction, placement, alumni):

- Practical exposure must be considered as priority during course duration.
- Inculcation of more online courses related to healthcare marketing during course.
- Focus on individual attention towards all students.
- Proper attention during placements towards fit in the industry.

Signature of the Officer-in-Charge/ Organization Mentor (Dissertation)
Mr. Vikas Trivedi
(HR head, HCAH unit Delhi NCR)

Date and place:

1. ABSTRACT

Introduction: It is an in-home organization model, makes it possible for people receiving in-patient care, in the home under the supervision of a multidisciplinary healthcare team.

Aims and objectives: The **primary objective** was to assess whether or not the care in the home, it is effective in reducing the financial burden on the basis of the available literature. The secondary objective was to assess a reduction in the length of stay in hospital ; an improvement in the quality of life and safety of the patients in the early discharge from the hospital, and a reduction in the morbidity and all-cause mortality in comparison with the conventional hospital-based organization**.**

Method: Data collection was carried out with the help of search engines, database like PubMed search of original articles in the English language. Keywords, such as home healthcare, Hospital at home, the cost-effectiveness and cost-reduction were used. A period of 10 years was taken into account. After all these considerations and 8 original articles were selected.

Result: Most of the articles shows that there is a relatively high percentage of its cost-effectiveness, for many of the health services, are all available from the comfort of your own home.

Discussion: Many of the doctors and specialists are now recommending near-stable patients may be treated in the comfort of their homes and under their control, in the case of a qualified medical professional and well organized. This will reduce the burden on the health care system. The reduction of the cost is not that big, but it's too much**.**

Conclusion: This care home/ hospital-at-home model seems to be promising in the near future. Many countries, including the United States and the United Kingdom have been using it for decade's now. In India, due to large population and a lack of infrastructure, this model can be adapted at large under health policy**.**

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Debanjana Moitra

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6. LIST OF ABBREVIATIONS

- ✓ NCD – Non Communicable Diseases
- ✓ RTA- Road Traffic Accident
- ✓ HAI- Healthcare / hospital acquired infections
- ✓ NMD – Neuromuscular Disorder
- ✓ ICU- Intensive Care Unit
- ✓ IV- Intravenous
- ✓ HCAH- HealthCare At HOME
- ✓ LOS – Length of Stay
- ✓ PHS- Public Healthcare System
- ✓ HF-Heart Failure
- ✓ THCa- Tele HomeCare
- ✓ GDM – Gestational Diabetes Mellitus
- ✓ HV- Home Visit
- ✓ HAE-Hereditary angioedema
- ✓ COPD- Chronic Obstructive Pulmonary Disease
- ✓ QALY- Quality Adjusted Life Years

7. TEXT

7.1INTRODUCTION

Being a healthy person is more important than being a wealthy person as per the saying. The people who are healthy in all aspects are said to live and cherish their life more. Thus, we must look after ourselves as well as others unless affected by any unpredictable event in life. A diseased individual commonly exhibits signs or symptoms indicative of an abnormal state and that tend to reduce their number of life years. [1]

Now, talking about the global burden of disease we can say that they are the total, cumulative consequences of a defined disease or a range of harmful diseases concerning disabilities in a community. These consequences include health, social aspects, and costs to society. The gap between an ideal situation, where everyone lives free of disease and disability, and the cumulated current health status, is defined as the burden of disease. [2, 3]

The burden of disease in our country, India as reported last in 2017 was less as compared to previous data but the forecast stated inequality across states which were about a two-fold difference. The results show that NCDs and RTA's have overtaken other diseases in all the states but the variation is evident between poor states and comparatively developed ones.[4]Our healthcare system which is in the prime stage of progression with decreased maternal and infant mortality rates is now facing a new burden amidst the Covid -19 pandemic. This has highlighted the lack of adequate medical supplies plus the availability of trained manpower in the public and private healthcare sector to tackle a situation like Covid-19.[5]The healthcare industry is continuously evolving and changes occur drastically, hence being up-to-date with upcoming technologies and their knowledge and skills is an absolute necessity for any healthcare professional who wants to provide high-quality patient care. The advantages of investing in continuous education are effective as it confirms highly skilled staff, high staff retention, magnificent reputation, optimized financial performance, better patient outcomes, less medical malpractice lawsuits. The disadvantages are equally opposite and lead to time wastage, image loss, etc. more.[6]

The first place where a patient prefers to get treatment is at a hospital and more preferably a tertiary one with well-equipped facilities. Many doctors suggest that a reduction in the number of inpatient days helps in decreased risk of further infection, medication side effects, improvement in the quality of treatment, and more efficient bed management. Hence, many doctors suggest home healthcare for a

relatively stable patient under their supervision and rely on the nurses or nursing assistants for care taking and reporting the condition of the patient. The home health care environment influence patient safety and quality of outcomes: the high degree of patient autonomy in the home setting, interactions with family members creating a pleasant environment, and most importantly cost-effectiveness.[7]

Hospital at home or Home healthcare enables some patients who need acute-level care to receive care in their homes, rather than in a hospital. This care delivery model has been followed in various countries for few decades. In India, this model has been adopted by various home healthcare agencies like Healthcare at Home (HCAH), Portea, and Emoha, etc because it is ought to grow in the future and reduce some burden on the whole system where there are issues of bed occupancy, nurse: patient ratio, extended length of hospital stay. This has also been stated as a cost-effective solution by many researchers.[8]

Healthcare At Home (HCAH) provides a multi-array approach to homecare services like providing ICU at home set-up, Nursing services, Nursing assistant services, single visits for injections, equipment on purchase/sale, medicine delivery, tele-consultations, regular audits by the nursing supervisor for taking update on patient update, end-of-life care facility, etc. It was established about 8 years ago and now provides services to around 70+ cities in India. [9]

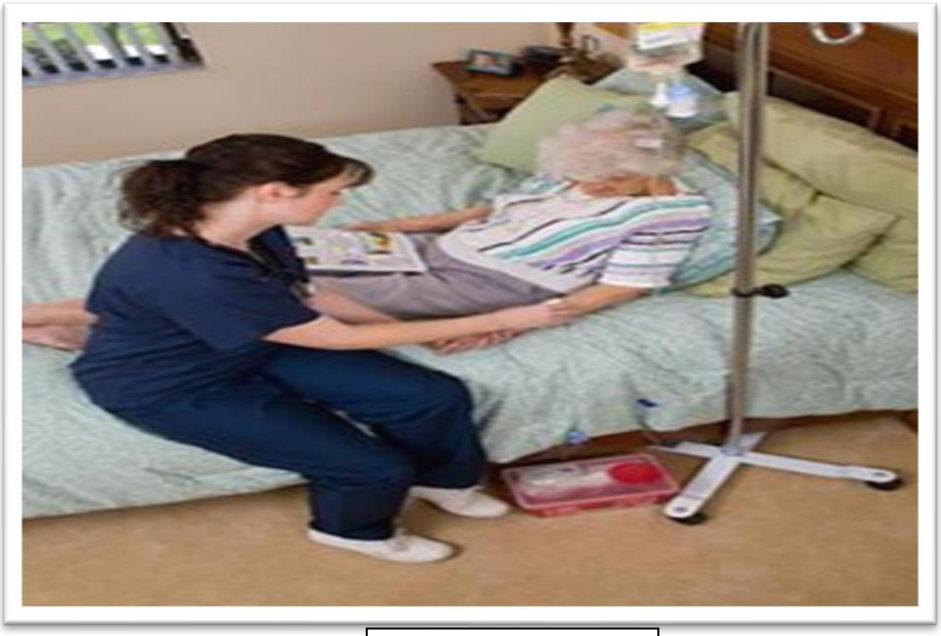


Fig.1: IV infusion at home

Fig 2: ICU at home set up

Fig 3: Home based remote monitoring of patients

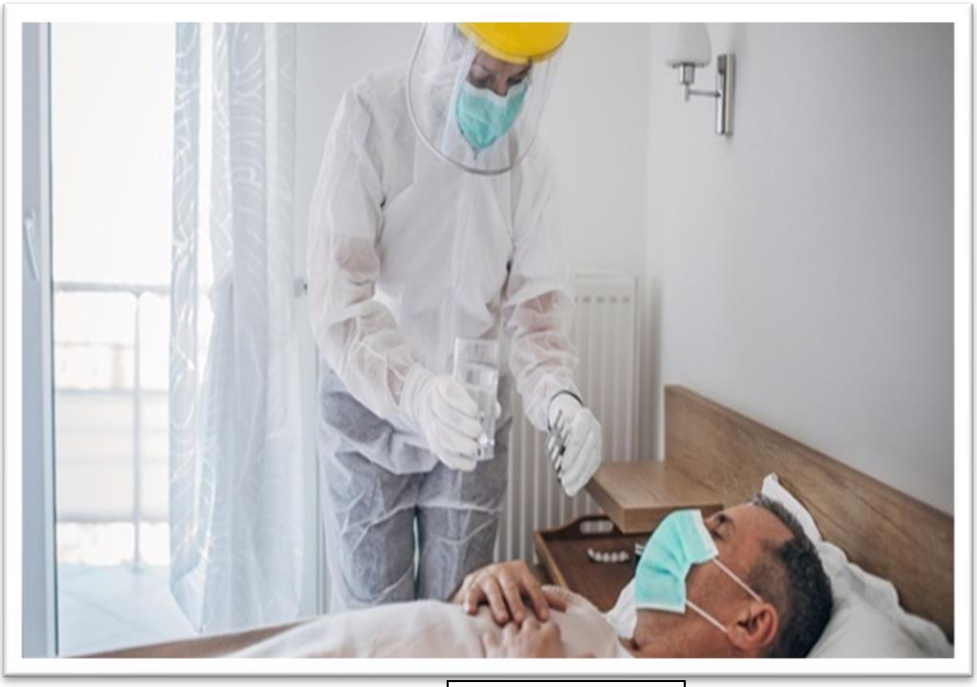


Fig4: Covid-19 treatment at home

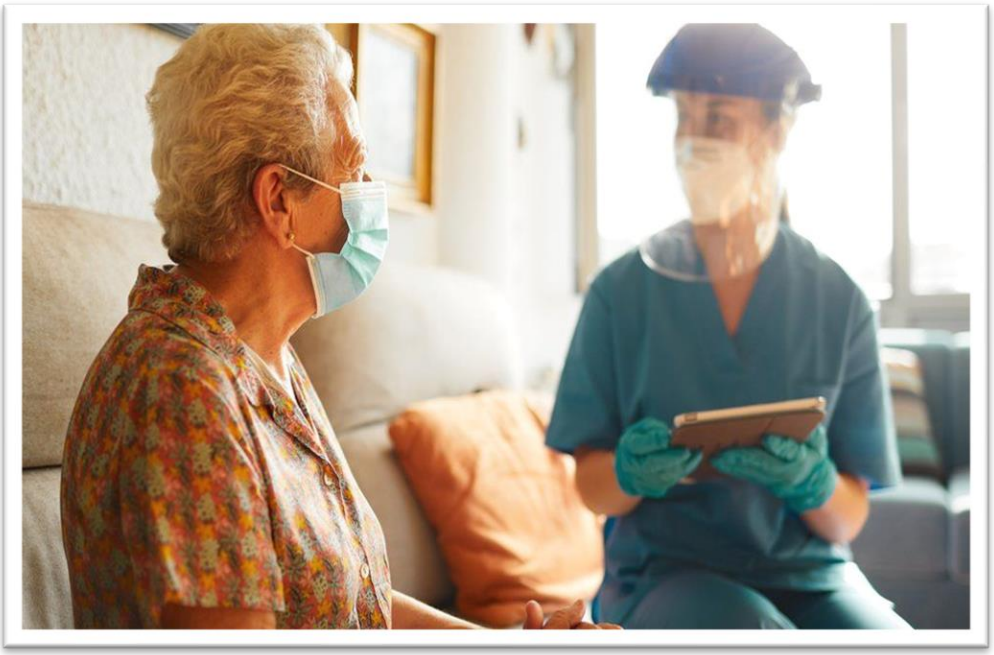


Fig 5: Covid-19 treatment at home

During the pandemic, many patients got well only by home isolation and following strict COVID protocols. For patients severely affected by COVID, hospital care was the only way but for moderate to mild cases, it was suggested that after stabilization in condition, patients can avail of home healthcare services. This is where home healthcare services come into play and provide trained healthcare staff to patients. HealthCare At Home is one such home healthcare organization that catered more than 3 lakhs patients at home since the advent of the pandemic.

7.2OBJECTIVE

The primary objective of this study was to evaluate whether home health care service is effective in reducing financial burden on the individual patient as well as on society.

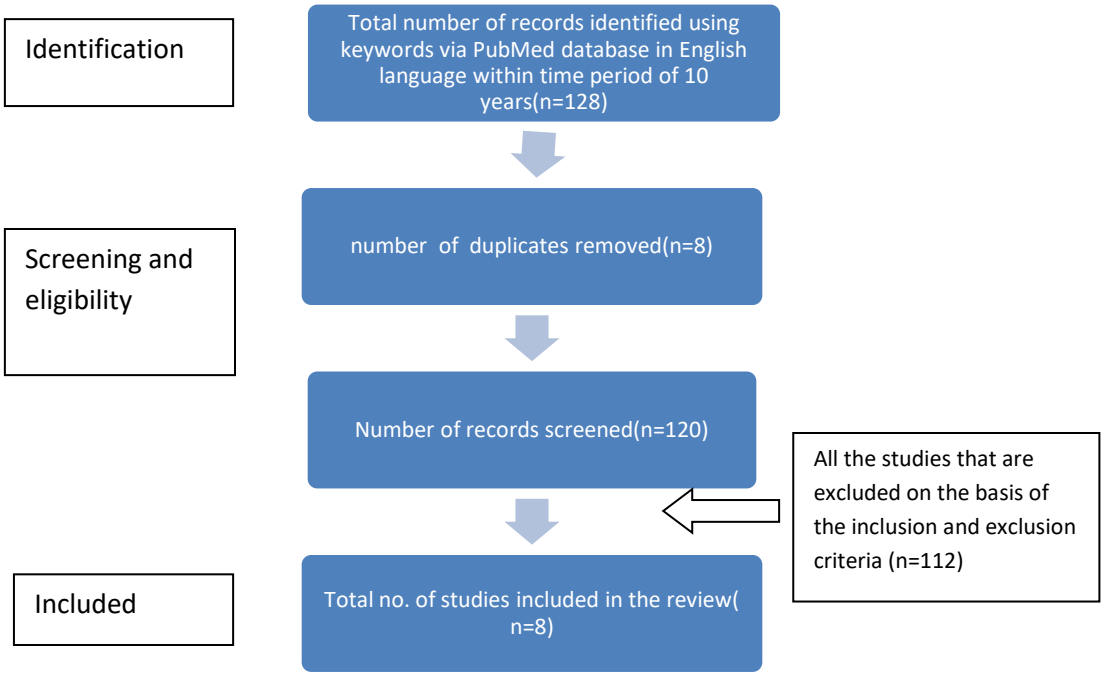
The secondary objective of this study was to evaluate whether home health care service:

- ✓ Decrease in the **length of hospital stay(LOS**),
- ✓ **Increase** in Quality of life and patient safety with early discharge from hospital,
- ✓ **Decrease** in morbidity and mortality rate as compared to conventional hospital setup.

7.3 METHODOLOGY

- **Study type**: Secondary Literature review
- **Sample size** :8 published literature
- **Study involved** : electronic data base like PubMed Advanced Search
- **Inclusion Criteria**- Published literature in the English language, in any part of the world, in relation to cost-effectiveness and cost-reduction through home health care/hospital in the home. The Studies based on one randomized controlled trial were included
- **Exclusion Criteria**: Published Literature in any other language than English is not considered. Duplicate articles were removed. Studies including clinical trials, review literature, systematic review and books & documents were eliminated. Studies that don't talk about home based healthcare services were excluded.
- **Period**: 2011-2021

PRISMA FLOWCHART



7.4 RESULTS

As mentioned the 8 studies are discussed in tabular format to evaluate the effect of home healthcare in reducing financial burden.

AUTHOR	YEAR	STUDY DESIGN	OBJECTIVE	SAMPLE DESCRIPTION	OUTCOMES	DISCUSSION
1) Shalika Bohingamu Mudiyanselage et al. [10]	2019	randomized controlled trial combined with an economic analysis	to assess the impact of home-based telehealth monitoring on health outcomes, quality of life and costs over 12 months for patients with diabetes and/or chronic obstructive pulmonary disease (COPD) who were identified as being at high risk of readmission to hospital.	n=177 Intervention group (n=86)- receiving remote patient monitoring Control group (n=91) receiving usual care	the costs of the tele-health intervention were included in addition to the costs of hospitalization, there was no statistically significant difference in the mean total cost between groups (intervention: AUD$12,796 versus control: AUD$12,081 the mean cost of acute hospitalization (AUD$4651 versus	The telehealth monitoring intervention improved patient's health outcomes and quality of life at no additional cost.

					AUD$11,271; MD AUD$6553; 95% CI: _11528, _1712) in favour of the intervention group there was a statistically significant difference in mean acute hospital LOS over 12 months (4.6 versus 8.7 days; 95% CI: _8.6, _0.4) and	
2)Klas-GöranSahlen et al. [11]	2016	randomized controlled trial	To assess the cost-effectiveness of a new concept of care called person-centered integrated heart failure and palliative home care	Patients with chronic and severe heart failure were randomly assigned to an intervention (*n* = 36) or control (*n* = 36) group. The intervention group received the Palliative Advanced Home Care and Heart Failure Care intervention over 6 months. The control group received the same care that is usually provided by a primary health care center or heart failure clinic at the hospital	The intervention resulted in a gain of 0.25 quality-adjusted life years, and cost analysis showed a significant cost reduction with the Palliative Advanced Home Care and Heart Failure Care intervention.	The Palliative Advanced Home Care and Heart Failure Care working mode saves financial resources and should be regarded as very cost-effective
3)Karen Brasil et al. [12]	2018	Cost-effectiveness study within a randomized trial.	Estimate the cost-effectiveness of a nurse-led home visit (HV) intervention as compared with the standard HF management,	N=252 adults with left ventricular systolic dysfunction who were admitted because of acute decompensate heart failure to two mixed university hospital . After hospital discharge, patients were randomly allocated to receive specialist nurse-led HVs and telephone calls (123	Within the PHS framework, the ICER was R$585 per hospital readmission prevented over 24 weeks. Within the private healthcare system, the study intervention was dominant (cost saving).	The results of the decision analysis model used herein showed that the study intervention (HVs with telephone reinforcement) was associated with a favorable ICER within the scenario of the Brazilian PHS.

				patients) or usual care (return to the outpatient clinic) (129 patients) over 6 months.		
4)Annie Lemelin et al [13]	2020	Randomized Control Trial	to evaluate the cost-effectiveness of TeleHomeCare(THCa) by assessing the direct costs, including the related reduction in medical visits. Secondary outcomes were to evaluate the impact of THCa on diabetes control, GDM-related complications, and patient satisfaction.	A total of 161 women were assigned to either an intervention group provided with a THCa system for transmission and online analysis of capillary glucose data (n = 80) or a control group receiving usual care in the clinic (n = 81).	Direct cost analysis revealed savings of 16% in patients followed by THCa compared with the control group	.THCa monitoring significantly decreases medical visits and direct costs in GDM women without compromising pregnancy outcomes, quality of care, or patient satisfaction. THCa was shown to be cost-effective despite placing an additional burden on nursing time.
5)EshaghBarfar et al. [14]	2017	a parallel group randomized controlled trial	to test the cost-effectiveness of an Aftercare Service when compared with Treatment-As-Usual for patients with severe mental disorders in Iran.	. A total of 160 post-discharge eligible patients were randomized into two equal patient groups, Aftercare Service (that includes either Home Visiting Care, or Telephone Follow-up for outpatient treatment) vs Treatment-As-Usual, using stratified balanced block randomization method. All patients were followed for 12 months after discharge.	There was no significant difference in effectiveness measures between the two groups. The Aftercare Service arm was about 66,000 US$ cheaper than Treatment-As-Usual arm. The average total cost per patient in the Treatment-As-Usual group was about 4651 USD, while it was reduced to 3823 US$ in the Aftercare Service group; equivalent to a cost reduction of about 800 USD per patient per year.	Given that there was no significant difference in effectiveness measures between the two groups (slightly in favor of the intervention), the Aftercare Service was cost-effective
6)Shoko Maru et al. [15]	2018	A trial-based analysis was conducted alongside a pragmatic, single-centre, open-label, randomized controlled trial	to assess the cost-effectiveness of a long-term, nurse-led, multidisciplinary programme of home/clinic visits in preventing progressive cardiac dysfunction in patients at risk of developing de novo chronic heart failure (CHF)	n=611 A nurse-led home and clinic-based programme (NIL-CHF intervention, n = 301) was compared with standard care (n=310) in terms of life-years, quality-adjusted life-years (QALYs) and healthcare costs	During a median follow-up of 4.2 years, The NIL-CHF group had slightly lower all-cause hospitalization costs (AUD$2943 per person; p=0.219), cardiovascular-related hospitalization costs (AUD$1142; p=0.592) and a more pronounced reduction in emergency/unplanned hospitalization costs (AUD$4194 per	Compared with standard care, the NIL-CHF intervention was not a cost-effective strategy as life-years and QALYs were slightly lower in the NIL-CHF group. However, it was associated with modest reductions in emergency/unplanned readmission costs.

					person; p=0.024). When the cost of intervention was added to all-cause, cardiovascular and emergency-related readmissions, the reductions in the NIL-CHF group were AUD$2742 (p=0.313), AUD$941 (p=0.719) and AUD$3993 (p=0.046), respectively	
7)Frances KamYuet Wong et al. [16)]	2015	cost-effectiveness analysis conducted alongside a randomised controlled trial (RCT)	to examine the differential economic benefits of home visits with telephone calls and telephone calls only in transitional discharge support.	patients discharged from medical units randomly assigned to control (control, N = 210), home visits with calls (home, N = 196) and calls only (call, N = 204)	the home arm was less costly but less effective at 28 days and was dominating (less costly and more effective) at 84 days. The call arm was dominating at both 28 and 84 days. The incremental QALY for the home arm was -0.0002/0.0008 (28/84 days), and the call arm was 0.0022/0.0104 (28/84 days). When the three groups were compared, the call arm had a higher probability being cost-effective at 84 days but not at 28 days (home: 53%, call: 35% (28 days) versus home: 22%, call: 73% (84 days)) measuring against the NICE threshold of £20,000	The original RCT showed that the bundled intervention involving home visits and calls was more effective than calls only in the reduction of hospital readmissions. This study adds a cost perspective to inform policymakers that both home visits and calls only are cost-effective for transitional care support, but calls only have a higher chance of being cost-effective for a sustained period after intervention.
8)Kristen De San Miguel et al [17}]	2013	A randomized controlled trial	To determine if self-monitoring via home-based tele -health equipment could, when combined with ongoing remote monitoring by a nurse, reduce the incidence of hospitalizations and emergency department (ED) presentations for people with chronic obstructive pulmonary disease (COPD).	to compare the outcomes for participants receiving the tele health equipment and monitoring with those for participants in an information-only control group, over a period of 6 months. Participants receiving the telehealth intervention were taught to measure and	The telehealth group had fewer ED presentations and hospital admissions and a reduced length of stay in comparison with the control group. These results were not statistically significant. However, the reduction in health service use was large enough to result in significant cost savings, with the annual cost savings of the telehealth group compared with the	Tele health monitoring of patient vital signs reduced health service utilization for individuals with COPD and resulted in significant cost savings. In terms of individual health benefits, improvements in participants' self-management behaviors and control over their condition was evident

				record their vital signs (blood pressure, weight, temperature, pulse, and oxygen saturation levels) on a daily basis. These were then transmitted automatically via telephone to a secure Web site where they were monitored each day by the telehealth	control group being $2,931 per person	

Table 2: Based on other information from relevant sources

Jithendra Kumar[18]	2020	Home care is gaining its' peak during the community transmission phase of COVID 19. A strict regime defined by healthcare experts needs to be followed at home. It'll also lessen the financial burden to the family and therefore the government, as 85% of the infected people don't need active treatment at hospitals. The evidence says a majority of the people is asymptomatic or has mild symptoms that will not require hospitalization.[22] It will also be an honest move to permit non-healthcare personnel with mild symptoms to be treated at their own home. 85% of the patients will have mild symptoms that are easily managed at home with little assistance remotely. The necessity of the hour is to assist the asymptomatic and mildly symptomatic patients through proper consultation, counselling, and support. This will be facilitated by good medical care at home and connected devices through remote monitoring platforms. Based on the severity, the patients can be mobilized and triaged to higher centres that have facilities to support them
Seyed Sajad Razaviet al.[29]	2016	Patients who are in end of life care stage may benefit from discharge to home and continuum of care at home. The resultant delay in ICU discharge not only artificially increases ICU occupancy rates, costs for the patient, and healthcare system but can also impede the admission of latest ICU patients, potentially increases the danger of acquiring nosocomial infections, and would postpone the initiation of rehabilitative treatments.[23]
Navalesi P et al.[20]	2014	They suggested that ICU like care at home comes with various advantages like better environment, sleeping patterns, easy access to own belongings such as books, TV, music player etc. For this kind of care a well trained ICU nurse along with a multidisciplinary team is required.[24]

Steve Kennedy[21]	2012	He stated that home infusion at home setup has been found to be clinically appropriate for people with broad range of acute and chronic conditions. This also provides services at a time in which the patient is most comfortable along with better outcomes, patient safety and cost effectiveness. [25]
Jansonn et al.[22]	2012	Authors reported those that required nutrition through an intravenous catheter may safely begin their therapy at home when it's carefully managed.[26]
Stout et al.[23]	2012	During the study they found more than one-third of patients who receive nutrition through a tube into their stomach, were ready for successful return to eating solid foods within 16 months with a proper home care setup.[27]
Souayahet al.[24]	2011	A study conducted on Intravenous (IV) and subcutaneous (SubQ) immunoglobulin (IG) home care therapy on more than 4,000 consecutive infusions in 420 home infusion patients over 12 months and found that 99% of study participants experienced no or only mild adverse reactions (such as headache) and none experienced serious adverse reactions.[28]
Taitel et al.[25]	2012	They reported that many cardiac patients who received a home infusion of inotropic medications preferred to spend their last days at home rather than a hospital or other medical facility.[29]
Toscani &Reidl[26]	2011	Their study showed that a rare, life-threatening genetic immune system disorder Hereditary angioedema (HAE) is significantly less expensive than emergency room delivery if it's taken at home as home visit costs $150 compared to an emergency room visit $2,603.[30]

7.5 DISCUSSION

In many countries like India chronic and non-communicable diseases constitute an enormous a part of healthcare problems. A reason for developing healthcare at-home services is to assist those that are affected by such diseases with less cost at the comfort of their home. **Johns Hopkins University School of Medicine[27]**suggested a hospital at home model in 2009 which stated key features like eligibility of patients, continuous supervision by physicians via regular home visits, and updates from the nurse. Recent evidence of cost-effectiveness alongside increased patient satisfaction for home-based chemotherapy has been stated by NHS commissioners in the United Kingdom.[28] Although in contrast, a

study that says that there's no significant difference in cost when traveling is included for single visit infusion.

IGNOU (Indira Gandhi National Open University), Delhi features a certification course based on Home-based Healthcare referred to as CHBHC. The duration of the course varies from 6mo- 2 years. There is no age bar but the minimum qualification before joining is 10^{th} pass.[29]

7.6 LIMITATIONS:

- The scope of cost reduction in-home healthcare depends on the patient's condition.
- Only comparatively stable patients are often catered to home healthcare.
- Lack of proper primary research.

7.7CONCLUSION:

- Cost management and affordability are important if this model has got to be incorporated within the future.
- The introduction of policies and insurance plans associated to this model are thought to be beneficial for which idea can be taken from other countries like the US where Medicaid, Now Insurance are the famous ones.
- Cost-cutting thanks to reduction re-admissions.
- Cost reduction thanks to early discharge from hospital.
- The future of Home healthcare seems bright in India by 2025 as suggested by a study recently.

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