

Hospital at Home – Are hospitals going home?

Balasuriya A¹

Journal of the Ceylon College of Physicians, 2019, **50**, 69-71

Abstract

Hospitals as institutions providing care for the sick have been in existence over the past 2500 years and are ever evolving. Global demographic trends in population ageing is posing unprecedented challenges to hospital care with increasing demands for hospital occupancy and escalating health care costs. Although hospital care has been reformed in the recent past with many technological advancements and improvements in patient care, overcrowding of hospitals is happening world over. Longevity with multi-morbidity makes elderly populations more susceptible to frequent hospital admissions and prolonged hospital stays which adds heavily to health care budgets. Caring for people in their own homes, the concept of “Hospital at Home” is becoming increasingly popular in many countries in the world. This article explores various Hospital at Home programs and their success and challenges.

Key words: hospital at home, elderly care

Introduction

In Sri Lanka, hospital care was established over 2000 years ago, according to available evidence as stated in the Mahavamsa¹. In fact, the history of hospitals runs back to over 2500 years ago as they evolved over time in ancient Greece and Rome². However, this concept is not without challenges. Apart from being institutions that provide care for the sick people, evidence is accumulating that these same institutions can be a source of misery and suffering to them³. The older people in particular when hospitalized for a medical condition, can contract hospital acquired infections and develop complications such as falls and

delirium. This gives rise to escalating costs both to the patient and the health care system and eventually, the quality of life of the patients and families declines.

Soaring hospital costs in private care institutions, overcrowding in the government hospitals and increased demand for elderly care services are some of the major challenges faced by societies with ageing populations. With global trends in demography and increasing longevity witnessed among nations in the developed as well as in the developing countries, hospital occupancy among older patients is on the rise as multi-morbidity is a common issue with ageing. As a solution to this vexing issue, one of the emerging solutions adopted by many countries in the world is caring at home termed “Hospital at Home” or “Hospital in the Home”. It is believed that in the next fifty years hospital system will undergo extensive revolutionary changes and most countries will switch to home-based health care delivery systems somewhat similar to those in the ancient times.

The aim of this article is to examine the various Hospital at Home programs currently in use and identify the challenges and future improvements.

Hospital at Home (HAH) concept

The concept of HAH was initially started in Bayonne and Paris around 1961⁴. This was mainly for patients with cancer needing palliative care. In 1995, Dr. Bruce Leff and his colleagues from Johns Hopkins School of Medicine further developed this concept and implemented it after a pilot study in Baltimore in 1999⁵.

HAH provides care that is similar to acute hospital care for patients at their own homes⁶. For elderly patients this scheme provides great relief as they prefer

¹ *Consultant Physician. Hemas Hospital, Wattala, Sri Lanka*

Correspondence: BA, e-mail: Balasuriya.ac@gmail.com



This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

to be in their familiar surroundings which definitely improves their mobility and sense of wellbeing. In this program, patient on entry to the emergency room is assessed by the HAH team with regard to the medical condition (acute pneumonia, acute gastroenteritis, uncomplicated heart failure, cellulitis etc.) and the suitability of home background. If found suitable for home care, the patient is registered under the program and sent home by an ambulance or patient's own transport. The medical team comprising of doctors, nurses and other relevant therapists visit the patient's home periodically and manage the medical conditions. Patients can receive intravenous fluids, antibiotics, other medications and oxygen at home. Basic laboratory testing is performed at home by the medical team with a mobile unit and sometimes x-rays and ultrasounds are done by mobile teams. For more sophisticated investigations that cannot be performed at home, patient is brought to the hospital by an ambulance. Patients are constantly monitored by the hospital team by technological means. HAH will also facilitate well planned early discharge to the homes supported by community nurses and doctors for continuity of care thereby reducing the average length of hospital stay.

Evidence for HAH

There are many countries like USA, United Kingdom, Australia, Spain, Israel, Canada and South Korea that adopt this system for health care. Over the past twenty years there have been many studies, including randomized controlled trials (RCT) and meta-analyses that have shown favourable outcomes with HAH, including lower rates of hospital acquired infections, shorter hospital stays, lower caregiver stress, improved patient satisfaction and lower costs⁷.

Global scenario

The Johns Hopkins program started in 1995 and spread over many parts of USA has shown 32% reduction in total hospital costs and 33% reduction in length of hospital stay with no difference in the frequency of subsequent hospital admissions with improved patient satisfaction during home-based care³. The Implementing of a Novel and Supportive Program of Individualized Care for Patients and Families Living with Respiratory Diseases (INSPIRED) which provides care for patients with late stage Chronic Obstructive Pulmonary Disease (COPD) demonstrated 64% reduction in hospital re-admissions and 52% reduction in emergency department visits among 200 patients with COPD⁸.

In Australia, Caplan et al performed a meta-analysis of 61 RCTs which showed that HAH reduces re-admission rates, mortality and cost when compared with in-patient care⁹. They further showed that HAH provides more patient and carer satisfaction. In another study in Queensland in Australia, it has been shown that among residential care facility patients, Hospital in the Nursing Home (HiNH) program, has been effective in reducing emergency department presentations and hospital admissions from residential aged care facilities (RACFs)¹⁰.

In the United Kingdom, the first HAH scheme was initiated in Peterborough in 1978. This program successfully treated patients of diverse groups, both elderly and pediatric age groups, including post-surgical patients in their own homes¹¹. Sheppard et al, in a combined study of Bristol, Kettering and Leicester reported that there was no difference in treatment costs between standard care and HAH in post knee and hip surgery, in elderly patients¹².

Is HAH a feasible concept for Sri Lanka?

HAH has been piloted and successfully implemented in many developed countries but is not a common practice in the developing world. However, the HAH concept can be put to practice in low income settings with few modifications and different approaches. Developing a dedicated team with proper training and development of mobile laboratory services are the key conceptual changes that are needed to implement HAH in our setting. Implementation of HAH for acute care may not be practical in our setting at the moment as it certainly requires more specific resources such as development of acute care teams in addition to mobile laboratory facilities. However, we can lessen our bed occupancy and health care costs due to hospitalization by introducing HAH in certain circumstances as exemplified below.

- For patients requiring prolonged antibiotic therapy as in osteomyelitis, endocarditis, spinal tuberculosis etc. home treatment with monitoring by the health care team can be cost-effective.
- In post-operative patients, hospital care can be extended to be given at home by trained nursing staff/community nursing or allied health staff with coordinated home care visits that will reduce acute hospital bed occupancy.

- In cancer and palliative care, HAH approach may provide great relief to families as they can look after their loved ones at their own home. In addition, overcrowding of existing cancer treatment care facilities can be minimized.
- Elderly patients following falls, stroke or minor infections like cellulitis or uncomplicated pneumonias can be managed at home by a visiting trained health care team.

Challenges and future planning

HAH has been in existence in an active manner over the last 25 years. Despite the considerable popularity of the concept, one has to note that there are two recently published Cochrane systematic reviews that suggest this concept needs further evaluation in terms of clinical impact and economic implications^{13,14}.

For those of us living in the developing world, the system poses many formidable challenges despite the promising outlook. Adopting a novel program to the existing health systems needs robust evidence, governmental commitment, technical and technological support and above all, trained personnel with dedication and sufficient knowledge. Hospitals will have to develop special teams trained for this scheme comprising of human and laboratory resources. On the other hand, this system will bring down unnecessary hospital admissions and therefore will reduce the bed occupancy saving hospital beds for more deserving patients.

Conclusion

Population growth, increase in geriatric population, increasing health care costs, limited capacity of hospitals, hospital acquired adverse effects and the availability of mobile technology are compelling reasons for most countries to adopt HAH system. The experience so far in countries where HAH had been already in existence over the years, shows that this scheme provides effective solution to overcrowding of hospitals, hospital acquired infections and complications in elderly patients while improving patient satisfaction. Although HAH is shown to be an efficient way of providing healthcare, we need more profound and robust evidence regarding the cost effectiveness, before undertaking policy decisions to implement this in the developing world.

References

1. Arjuna Aluvihare, "Rohal Kramaya Lovata Dhayadha Kale Sri Lankikayo" *Vidhusara Science Magazine*, Nov. 1993.
2. Smith Virginia, Clean: A History of Personal Hygiene and Purity. Oxford University Press, USA. 2007.
3. Klein S. "Hospital at home" Programs Improve Outcomes Lower Costs but Face resistance from Providers and Payers. The Commonwealth Fund. (Available from <https://www.commonwealthfund.org/publications/newsletter-article/hospital-home-programs-improve-outcomes-lower-costs-face-resistance>) Accessed 12th January 2020.
4. Morris DE. Sante Sevice Bayonne: A French approach to home care. *Age and Ageing* 1983; **12**: 323-8.
5. Leff B, Burton L, Guido S, Greenough WB, Steinwachs D, Burton JR. *Journal of the American Geriatrics Society* 1999; **47**: 697-702.
6. Leff B, Montalto M. Home hospital-toward a tighter definition. *Journal of the American Geriatrics Society* 2004; **52**(12): 2141. doi: 10.1111/j.1532-5415.2004.52579
7. Shepperd S, Doll H, Angus RM, et al. Avoiding hospital admission through provision of hospital care at home: a systematic review and meta-analysis of individual patient data. *Canadian Medical Association Journal* 2009; **180**(2):175-82. doi: 10.1503/cmaj.081491.
8. Mclao A, Canadian INSPIRED Program Improves COPD Home Base Care, Reduces Hospital Use. (Available at <https://copdnewstoday.com/xmlrpc.php>). Accessed on 12th January 2020.
9. Caplan GA, Sulaiman N S, Mangin DA, Ricauda NA, Wilson AD, Barclay L. Meta-analysis of Hospital in the Home. *Medical Journal of Australia* 2012; **197**(9): 512-19.
10. Fan L, Hou X, Zhao J, et al. Hospital in the Nursing Home program reduces emergency department presentations and hospital admissions from residential aged care facilities in Queensland, Australia: a quasi-experimental study. *BMC Health Services Research* 2015; **16**: 46 doi:10.1186/s12913-016-1275-z
11. Mowat IG, Morgan RT, Peterborough Hospital at Home Scheme. *British Medical Journal*. 1982; **284**: 641-3.
12. Shepperd S, Harwood D, Jenkinson C, Gray A, Vessey M, Morgan P. Randomized Control Trial comparing Hospital at home care with inpatient hospital care. three month follow up of health outcomes *British Medical Journal* 1998; **316**: 1786-91.
13. Gonçalves-Bradley DC, Iliffe S, Doll HA, et al. Early discharge hospital at home. *Cochrane Database Systematic Reviews* 2017; **26**(6): CD000356. doi: 10.1002/14651858.CD000356.pub4.
14. Shepperd S, Iliffe S, Doll HA, et al. Admission avoidance hospital at home. *Cochrane Database Systematic Reviews* 2016; **9**: CD007491. doi: 10.1002/14651858. CD007491.pub2.