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Hospital at home – palliative care / hospice care; cost-effective or not?

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SHORT COMMUNICATION

1 Introduction

Home care is a growing trend now and in the future in the field of social and health services. Finland's economic situation forces social and health providers to innovate new and more cost-effective solutions for the benefit of the patients, for the benefit of health care providers and for the future care. Hospital at home provides palliative care/hospice care for the patients in their own home with the help of patients' relatives. Palliative care improves the quality of life of the patients and their families preventing suffering, pain and other problems (WHO, Palliative care). Cost-effectiveness studies of palliative care/hospice care at home are lacking in numbers and there is an urgent need for this kind of research. Overall costs are formed by indirect and direct costs and usually overall costs are not calculated. Calculations are made from the point of view, which takes into account the hospital days, cost of ambulance transfers, the staff and other expenses but not the fact, how much the care provider at home loses time, income or the care takers employer loses productivity. WHO estimates there to be 30 000 people/year who are in the need of palliative care in the end of their life and the percentage of cancer patients is estimated to be 40 %, Other chronic conditions such as ALS, lung diseases, dementia, kidney and liver failures forms other 60% group of patients in the need of palliative care. In this paper hospital at home service is briefly introduced with the basic knowledge of costs. International studies are introduced due to the lack of Finnish ones which are not as easily transferred to Finnish health care system, but it gives insight to the subject (Gardiner, Ingleton, Ryan, Ward, Gott, M. 2017 p. 323-327).

2 Hospital at home – Palliative care and hospice care at home

Hospital at home takes hospital to patients´ homes. It is temporary and enhanced health care at home. First hospital at home unit was founded in France 1961 and in Finland 1995. Nowadays there are over 50 working units in Finland. Hospital at home is supervised by AVI – Regional State Administrative Agencies, Valvira – National Supervisory authority for Welfare and Health and THL – Finnish institute for health and welfare. THL collects statistics of the hospital at home care. Roughly calculating the major age group are the elderly people, about 2/3 of the patients. The infection patients form the biggest group with 2/3 and cancer patients in the need of palliative care 1/3. Hospital at home takes care of patients in the need of palliative care/hospice care (Pöyhiä, Güldogan, Vanhanen, Aalto, Schmidt, 2018 P. 10, 11, 13)

In the report made in Finland northern Ostrobothnia health care district, in the beginning of 2000, the cost per treatment day varied between 121 and 221€/day to the town or municipal. The costs to the patients varied between 6€ - 22€/day depending on the visits from the staff. Today the costs for the patients of hospital at home vary between 7€ -14€/visit or 17-27€/day depending on if a visit is made by a doctor, the nursing staff and by the number of the visits needed/day. The true costs of hospital at home is on an average 134€/day and it includes parenteral medication and supplies needed in the care. Cost efficiency can be increased by careful planning.

3 What about the costs?

Minimization of hospital care reduces the costs of the society. It has been pointed out that hospital care at home reduces the load of hospital wards and emergency rooms. Hospital infections are minimized, falls can be reduced in the unfamiliar surroundings and patients are less disoriented at home care. Hospital care at home is seen as life sustaining activity which promotes the patient's ability to function in their own surroundings. There haven't been comparison studies done about hospice care between home care and hospital care. More cost efficiency studies should be conducted in Finland. (Pöyhiä, Güldogan, Vanhanen, Aalto, Schmidt, 2018 P. 13, 39) The same observation has been made internationally. Gardiner, Ingelton, Ryan, Ward and Gott 2017 noted that economic research in palliative care is very limited and not much is known about the range and extent of the costs, which are involved in care provision. The study of full economic costs should be an urgent priority. The costs could be looked at from the different point of views, the state or government, insurers/third-party/not-for-profit organizations and family and/or society. The costs to the patient's family are significant and should be accounted as part of full economic cost in palliative care. Costs include direct and indirect costs. Indirect costs are harder to capture such as time lost from employment or other household work or leisure activities. The loss of productivity costs to employer are not usually mentioned but should be considered. The challenge of studies made in other countries is, that it is not easily transferred between countries economical systems. (Gardiner, Ingleton, Ryan, Ward, Gott, M. 2017 p. 323-327).
International studies about hospital at home services give results depending on what area of the service is studied. Infection patients care was 19% cheaper in the study made in USA. In Finland has been noted the safety and efficiency to be equal, patient satisfactory better than hospital care, but not more cost efficient. In the microeconomics level the direct costs to the organization can be seen as medication costs and staff costs, on the macroeconomic level the costs can be seen as costs to the

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society where the relative stays home to take care of the patient in the need. Treating serious infections is as safe and efficient, but what influences the cost effectiveness is the functioning of the care path and the local culture in treatment. One example could be how fast a patient is transferred to home care from hospital wards or from emergency rooms (Pöyhiä, Güldogan, Vanhanen, Aalto, Schmidt, 2018 P. 37).

4 International studies about cost-effectiveness of palliative care/ hospice care at home

A cost effectiveness study 2016 researched palliative advanced home care with patients with heart failure. It was conducted in Sweden and can be quite easily transferred to western countries. In the study there was a group who had the "PREFER" intervention (palliative advanced home care and heart failure care) and a control group which received the same care that had been available. Savings were around 50,000€ and it improved the quality of life. The study concluded PREFER is person-centered and staff -intensive home care for these patients and it is cost-effective. (Sahlen, K., Boman, K. & Brännström, M. 2016 p. 296-302)
Another study of heart failure and home care was conducted Hong Kong. A research studied transitional palliative home-based care delivered by nurses and palliative multidisciplinary team in the end of stage heart failure patients n = 43 and comparison made with control group n = 41. Study group had lower numbers of hospital readmission, fewer emergency visits and shorter hospital stays which provided cost reduction to health care organization and it was cost-effective. The study concluded that home based palliative care program is more effective than customary palliative service (Wong, So, Ng, Lam, Ng, Ng, etc. Sham. 2018).
In Belgium 2019 conducted research about the impacts of palliative home care on the quality and costs evaluated the last 14 days of life. There were 8837 people who received palliative care in their home and 8837 people who did not receive palliative care. People who received palliative care at home received also more appropriate care and had lower medical cost than those who did not have the support of the palliative care. The total costs of home care were higher but in the last two weeks of life, costs were lowered by 1617€, less people were admitted to hospital or ICU and underwent blood transfusions, diagnostic testing and surgeries because they had a care plan. 56,2% of the people who had the palliative support died at home versus 13,8% of people who did not have the palliative support. (Maetens, Beernaert, De Schreye, Faes, Annemans, Pardon, K., etc. Cohen, J. 2019)
Research done in Singapore studied pediatric patients and palliative care outcomes, costs and evaluated home-based program. There were two groups which were compared - the home-based care and standard care. Control group (n = 67) patients and home-based palliative care group (n=71). The control group spent 52 days more in hospital in last year of life. The group of palliative care had two fewer hospital admission and had five times more likely to have a care plan. Medical costs were lower up to 87%. Costs were reduced for patients and as cost-savings and improved resource utilization for healthcare providers (Chong, De Castro Molina, Teo, Tan, 2018)
Cassel, Kerr, Mcclish, Skoro, Johnson, Wanke & Hoefer 2016 studied the effect of a home-based palliative care program on healthcare use and costs. The intervention group of transition participants (n=368) between yeas 2007-2014 received home -and clinic- based palliative care services provided by multidisciplinary team which included nurses, doctors, social workers and spiritual care provider if needed. The comparison group (n = 1075) within four disease groups which were cancer, obstructive pulmonary disease, heart failure and dementia. The intervention group had less hospital use and lower hospital and the costs maintained steady from month to month but the costs for comparison participants increased dramatically. The results are presented in Fig. 1. These four disease groups are also presented in Finnish death statistics in Table 1. It demonstrates the amount of the patients in the need of palliative care.

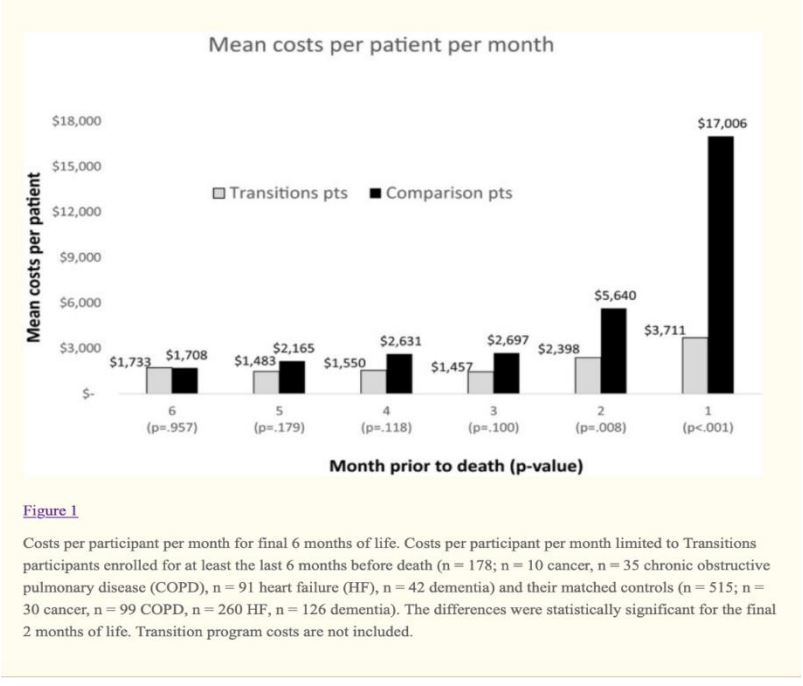

Figure 1

Costs per participant per month for final 6 months of life. Costs per participant per month limited to Transitions participants enrolled for at least the last 6 months before death (n = 178; n = 10 cancer, n = 35 chronic obstructive pulmonary disease (COPD), n = 91 heart failure (HF), n = 42 dementia) and their matched controls (n = 515; n = 30 cancer, n = 99 COPD, n = 260 HF, n = 126 dementia). The differences were statistically significant for the final 2 months of life. Transition program costs are not included.

Figure 1. Cassel, Kerr, Mcclish, Skoro, Johnson, Wanke & Hoefer (2016).

Table 1. Causes of death 2017, Source Official Statistics of Finland (OSF): Causes of death [e-publication].

54-group time series classification	Total	Males	Females	Total	Males	Females	Age-standardized mortality rate	
	Number	Number	Number	%	%	%	Change 2016–2017, %	Change 2007–2017, %
Deaths total	53670	26859	26811	100	100	100	–2,8	–13,9
Diseases of the circulatory system	19 077	9 553	9 524	36	36	36	–5,5	–27,9
Neoplasms	12 949	6 905	6 044	24	26	23	–1,2	–5,4
Dementia, Alzheimer's disease	9 390	3 059	6 331	17	11	24	–0,6	41,9
Disease of the respiratory system	2 084	1 263	821	4	5	3	–5,0	–29,4

A Large Canadian study was conducted in three different provinces due to the fact that homecare was lacking comparisons and cost analysis. Study included 58,022 cancer patients who collectively used 1,573,453 palliative nursing hours. The hypothesis was, the total costs would be lower because of lowered hospitalization costs for those who received more palliative nursing. The hospital costs were 757 million in true hospital costs during the last 6 months of life. The final result showed, the palliative homecare nursing was associated with reduced costs but only in the last month of life (Seow, Pataky, Lawson, O'Leary, Sutradhar, Fassbender, etc. Hoch 2016).

Finnish research reveals the fact that healthcare centers and hospitals are the most common place to die, although dying in the enhanced assisted living facilities has increased. Elderly people transfer between home and care facilities many times in the last months of their lives. According to the research of elderly care, in 24/7 assisted living care facilities 76% of the municipalities have made a plan for providing palliative and hospice care. In homecare the percentage is 66%. Frequent emergency room visits and hospitalization increase if the palliative plan is not taken care of and there is not enough knowledge of hospice care (Hammar, Leppäaho, Toikka, Kylänen, Heikkilä, 2018, 3).

5 Epilogue

In the light of these studies it would be safe to say, the palliative care and hospice care at home is cost-effective, at least in the last weeks of life. The money put into the palliative and hospice care at home reduces hospitalizations, emergency room visits and leads to better patient satisfactory optimizing the care facilities for patient groups. QALYS – Quality – Adjusted life years was mentioned in two studies. In both of them QALYs was increased with the patient who were at home care compared to the control groups. The changes were small, but significant (Sahlen, K., Boman, K. & Brännström, M. 2016 p. 296-302, Wong, So, Ng, Lam, Ng, Ng, etc. Sham 2018) when calculating the cost-effectiveness of palliative care, the care takers indirect costs should be taken into account so the true costs of home care would be revealed.

Overall, Palliative care plan ensures appropriate treatment and decreases unnecessary transfers in the end of life. It seems greatly important that care plans are made for the palliative care and hospice care in the municipalities of Finland to support the national economics now and in the future.

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