Journal of Nursing

Revista de Enfermagem

UFPE On Line

ISSN: 1981-8963

ORIGINAL ARTICLE

COSTS AND QUALITY OF LIFE OF PATIENTS IN PALLIATIVE CARE

CUSTOS E QUALIDADE DE VIDA DE PACIENTES EM CUIDADOS PALIATIVOS

COSTOS Y CALIDAD DE VIDA DE PACIENTES EN CUIDADOS PALIATIVOS

Sarah Zayanne Rafael da Silva Ribeiro¹, Suely Arruda Vidal², Aline Gouveia de Oliveira³, Michelle Ingrid Cavalcante da Silva⁴, Cynthia Dantas Vicente⁵, Laryssa Grazielle Feitosa Lopes⁶

ABSTRACT

Objective: to compare the costs and quality of life of cancer patients in hospital and home palliative care. **Method:** quantitative, descriptive, cross-sectional study and economic evaluation in partial health performed with adults, being 46 patients in the hospital and 17 in the households. The average monthly cost for the group of patients and individually at the household and the average expenditure per capita of the payments to the hospital were evaluated. The EORTC QLQ C30, version 3.0, assessed the quality of life. Student's t-test, $p < 0.05$, was used in the STATA 13 program for analysis. **Results:** it was identified that the average monthly cost per patient at home was R \$ 843.60, with a global health / quality of life score of 57.14. **Conclusion:** in the hospital, the average monthly expenditure per capita was R \$ 724.30, but with a worse quality of life, 28.6. The quality of life in the hospital was lower even with slightly lower values. It is important to extend the provision of this care in order to ensure the best care at the end of life. **Descriptors:** Palliative Care; Costs and Cost Analysis; Quality Life; Neoplasms; Home Nursing; Home Care Services.

RESUMO

Objetivo: comparar os custos e a qualidade de vida de pacientes com câncer em cuidados paliativos no hospital e no domicílio. **Método:** estudo quantitativo, descritivo, transversal e de avaliação econômica em saúde parcial realizado com adultos, sendo 46 pacientes internos no hospital e 17, nos domicílios. Avaliaram-se o custo médio mensal para o conjunto de pacientes e individualmente no domicílio e o gasto médio *per capita* dos pagamentos ao hospital. O EORTC QLQ C30, versão 3.0, avaliou a qualidade de vida. Utilizou-se o test t de Student, $p < 0,05$, no programa STATA 13, para a análise. **Resultados:** identificou-se que o custo médio mensal por paciente em casa foi R\$ 843,60, com escore de saúde global/qualidade de vida de 57,14. **Conclusão:** no hospital, o gasto médio mensal *per capita* foi R\$ 724,30, porém, com pior qualidade de vida, 28,6. A qualidade de vida no hospital foi inferior mesmo com valores discretamente menores. É importante ampliar a oferta desses cuidados a fim de garantir a melhor assistência no fim de vida. **Descritores:** Cuidados Paliativos; Custos e Análise de Custo; Qualidade de Vida; Neoplasias; Assistência Domiciliar; Serviços de Assistência Domiciliar.

RESUMEN

Objetivo: comparar los costos y la calidad de vida de pacientes con cáncer en cuidados paliativos en el hospital y en el domicilio. **Método:** estudio cuantitativo, descriptivo, transversal y de evaluación económica en salud parcial realizado con adultos, siendo 46 pacientes internos en el hospital y 17, en los domicilios. Se evaluaron el costo promedio mensual para el conjunto de pacientes e individualmente en el domicilio y el gasto medio *per capita* de los pagos al hospital. El EORTC QLQ C30, versión 3.0, evaluó la calidad de vida. Se utilizó el test t de Student, $p < 0,05$, en el programa STATA 13, para el análisis. **Resultados:** se identificó que el costo promedio mensual por paciente en casa fue R\$ 843,60, con puntuación de salud global / calidad de vida de 57,14. **Conclusión:** en el hospital, el gasto medio mensual *per capita* fue R \$ 724,30, sin embargo, con peor calidad de vida, 28,6. La calidad de vida en el hospital fue inferior incluso con valores discretamente menores. Es importante ampliar la oferta de estos cuidados a fin de garantizar la mejor asistencia al final de la vida. **Descriptor:** Cuidados Paliativos; Costos y Análisis de Costo; Calidad de Vida; Neoplasias; Atención Domiciliar de Salud; Servicios de Atención de Salud a Domicilio.

¹Mestra, Instituto de Medicina Integral Prof. Fernando Figueira/IMIP. Recife (PE), Brasil. E-mail: sarahzayanne@hotmail.com ORCID Id: <https://orcid.org/0000-0002-0857-7846>; ²Doutora, Instituto de Medicina Integral Prof. Fernando Figueira/IMIP. Recife (PE), Brasil. E-mail: suely@imip.br ORCID id: <https://orcid.org/0000-0002-4268-520X>; ³Mestranda, Instituto Aggeu Magalhães/IAM. Recife (PE), Brasil. E-mail: aline.gouveia52@hotmail.com ORCID id: <https://orcid.org/0000-0002-5431-5984>; ⁴Mestranda, Instituto Aggeu Magalhães/IAM. Recife (PE), Brasil. E-mail: michelleenfermeira@hotmail.com ORCID id: <https://orcid.org/0000-0003-4130-3254>; ⁵Especialista, Secretaria de Saúde do Recife. Recife (PE), Brasil. E-mail: cynthiadantas@outlook.com ORCID id: <https://orcid.org/0000-0003-4130-3254>; ⁶0002-7099-1693;

INTRODUCTION

Increased life expectancy has gradually increased and by 2030, 17 million cancer deaths and 75 million people are expected to live with this disease, most of them in low- and medium-income countries.¹

It was estimated, for the biennium 2016-2017, that, in Brazil, there would be 600 thousand new cases of cancer. Pernambuco was the second state in the Northeast that had the highest number of cancer deaths in 2014, about 18.8%, with Recife and the metropolitan region accounting for 23.6% of all cancer deaths in the State.²

It stands out in front of this scenario, every year, the estimate that more than 20 million people need palliative care, and it is essential to offer these services. Through this assistance, it is possible to reduce unnecessary interventions, some with unpleasant side effects, worsening the quality of life.¹

It should be emphasized that health care in the last year of life is expensive and costs up to 30% of total annual expenses, driven by high rates of readmissions to treat acute problems, being higher in the last 30 days of life and consequently , potentially decreasing the quality of life of patients.³ Effective palliative care programs are believed to make a major difference in hospital financial performance, significantly reducing the use of an Intensive Care Unit (ICU), where concentrate about 20% of total hospital expenses, as well as improving emergency avoidance, promoting greater comfort and improvement of patients' symptoms.⁴

It is also observed that there is a reduction in hospitalization rates for patients in palliative care in home care programs. And cancer patients hospitalized or cared for by a palliative care facility for 60 days or more before death use less emergency services for acute symptoms compared to patients who do not use this service.⁵

The literature does not clarify the best place for palliative care considering the quality of life and costs of care. Thus, the importance of the best care for cancer patients in palliative care is highlighted, regardless of the location of their offer. It is known that knowledge of costs / expenses plays an important role in directing health actions.

OBJECTIVE

- To compare the costs and quality of life of cancer patients in hospital and home palliative care.

METHOD

Quantitative, descriptive, cross-sectional study and economic evaluation in partial health. All adult oncology patients hospitalized in the IMIP palliative care ward and in their homes, assisted by the Home Care Service (HCS), were included in the period from August to December 2015. Patients with communication difficulties and understanding of the questions.

The financial data were obtained from the IMIP Controllershship, which works using the partial absorption costing technique, calculating the average monthly cost per item of expenditure for all HCS patients and per capita.

The hospitalization expenses in the Medical Accounts sector were obtained from the Hospital Information System (mirror of the AIH), referring to the payments of the Unified Health System (UHS) of the patients involved in the study hospitalized in the IMIP palliative care ward . The calculation of the average expenditure of the total sample.

Quality of life was assessed by applying the European Organization for Research and Treatment for Cancer Core Quality of Life Questionnaire (EORTC QLQ C30, version 3.0), according to the domains according to the recommendations of the instrument itself.⁶ For the comparison of the means between the study sites, the Student's t test was applied, with a significance level of 5% in the STATA program ¹³.

The study was approved by the Research Ethics Committee (REC / IMIP) under No. 4928/2015 and data were collected after signing the Informed Consent Form (ICF).

RESULTS

From the data collection, the sociodemographic characteristics of all the patients studied were identified in table 1. Of the 63 patients who were the study sample, 46 were admitted to the hospital and 17, at home.

Table 1. Distribution of sociodemographic variables of patients in palliative care of the Nursing in Palliative Care and SAD. IMIP, Recife (PE), Brazil, 2015.

Variables	Nursing ward n	SAD %
Age Group		
Medium	62 (± 13.06)	70 (± 11.87)
Minimum maximum	33/84	46/90
Sex		
Male	16 (34.8%)	09 (52.9%)
Female	30 (65.2%)	08 (47.1%)
Ethnicities		
Whites	08 (17.4%)	09 (52.9%)
Blacks / Brown	38 (82.6%)	08 (47.1%)
Conjugal Situation		
With partner	24 (52.2%)	10 (58.8%)
Without partner	22 (47.8%)	07 (41.2%)
Years of study		
<4	20 (43.5%)	08 (47.1%)
4-8	15 (32.6%)	03 (17.6%)
> 8	11 (23.9%)	06 (35.3%)
Previous Occupation		
Self Employed	06 (13%)	02 (11.8%)
Unemployed	04 (8.7%)	-
House wife	06 (13%)	04 (23.5%)
Formal Employee	26 (56.5%)	10 (58.8%)
Rural worker	04 (8.7%)	01 (5.9%)
Current Occupation		
Retired	24 (52.2%)	15 (88.2%)
Health Leave	14 (30.4%)	01 (5.9%)
Others	08 (17.4%)	01 (5.9%)
Family Income, minimum wage *		
<1	09 (19.6%)	03 (17.6%)
1-3	25 (54.3%)	07 (41.2%)
> 3	12 (26.1%)	07 (41.2%)
Number of Residents at home		
Average	3.5	3.7
Minimum maximum	1/8	2/6
From		
Recife	18 (39.1%)	14(100%)
Metropolitan region**	13 (28.3%)	-
Interior of Pernambuco	13 (28.3%)	-
Other states	02(4.3%)	-

Note: * Minimum salary in force in 2015 (R \$ 860.00); ** Cities in the Metropolitan Region, except Recife: Jaboatão dos Guararapes, Olinda, Paulista, Igarassu, Abreu and Lima, Camaragibe, Cabo de Santo Agostinho, São Lourenço da Mata, Araçoiaba, Itamaracá Island, Ipojuca, Moreno and Itapissuma.

Table 2 shows the clinical characteristics of the patients studied.

Table 2. Clinical characteristics of patients in palliative care in the Palliative Care Ward and the HCS. IMIP, Recife (PE), Brazil, 2015.

Variables	Nursing ward n	SAD N=17
Oncology Diagnosis		
Uterine cervix	06 (13%)	Mama 05 (29.4%)
Mama	05 (10.9%)	Próstata 03 (17.6%)
Bile ducts	04 (8.7%)	Pulmão 02 (11.8%)
Stomach	04 (8.7%)	Reto 02 (11.8%)
Bladder	04 (8.7%)	Outros 05 (29.4%)
Others	23 (50%)	
Diagnostic Time (months)		
Medium	12	24
Minimum/maximum	1/108	6/132
Stay		
II + III	04 (8.7%)	01 (5.9%)
IV	35 (76.1%)	11 (64.7%)
No Information	07(15.2%)	05 (29.4%)
Previous Treatment *		
Surgery	26 (56.5%)	11 (64.7%)
Chemotherapy	30 (65.2%)	09 (52.9%)
Radiotherapy	15 (32.6%)	05 (29.4%)
Pain control	14 (30.4%)	07 (41.2%)
Current Treatment *		
Chemotherapy	06 (13%)	1 (5.9%)
Radiotherapy	01 (2.2%)	-
Pain Treatment	45 (97.8%)	17 (100%)
Length of stay (days)		
Medium	9	166
Minimum/maximum	3/31	20/656
Comorbidity **		
Yes	23 (50%)	06 (40%)
No	23 (50%)	09 (60%)

Note: * Sum greater than the total, since the interviewee may have had more than one treatment; ** Diabetes Mellitus; Systemic Arterial Hypertension.

Table 3 shows the average quality of life according to each range domain.

Table 3. Average quality of life, according to each domain of the EORTC QLQ C-30 scale, in cancer patients undergoing internal palliative care in HCS and in the Palliative Care / IMIP Nursing. Recife (PE), Brazil, 2015.

Quality of life	Nursing ward n=46	SAD n=17	Statistic test p value
Global Health	29.7	58.8	0.0000
Functional Scale	22.0	41.8	0.0000
• Physical Performance	11.7	28.2	0.0000
• Functional Performance	6.2	35.3	0.0000
• Emotional Performance	33.2	57.4	0.0000
• Cognitive Performance	42.0	63.7	0.0004
• Social Performance	19.9	34.3	0.0000
Scale of Symptoms	64.6	37.0	0.0000
• Fatigue	83.6	56.2	0.0000
• Nausea and vomiting	50.7	11.8	0.0000
	74.6	41.2	0.0000
• Dyspnoea	37.7	6.7	0.0052
• Insomnia	60.0	40.0	0.0551
• Loss of appetite	76.7	30.0	0.0000
	73.3	23.3	0.0000
• Diarrhea	10.0	6.7	0.6886
	60.0	66.7	0.5081

Note: Student's t-test with significance level of p <0.05.

Table 4 presents the mean cost results of the two research sites compared to global health / quality of life.

Table 4. Demonstrative of the average per capita cost and quality of life of cancer patients hospitalized in HCS / IMIP and Hospital / IMIP. Recife (PE), Brazil, 2015.

Assistance location	Cost per capita/month	Quality of life/ Global health
Palliative Care Nursing / IMIP	R\$ 724.30/mês	28.6
Home Care Service SAD / Recife	R\$ 848.63/mês	57.1

DISCUSSION

Quality of life was explored by showing that patients in home palliative care have a higher overall health than hospitalized patients and that the costs associated with such care in cancer patients are slightly higher. The results show that, in addition to the clinical conditions and the place of care, the social peculiarities interfere in the quality of life and costs for the system and the families.

In Brazil, the highest rates of cancer mortality by 2030 were recorded in the less developed regions, affecting the population's quality of life.¹ One way to improve the quality of life of these patients is to provide palliative care and early as the best alternative associated with home care.⁴⁻⁵

In this study, home-based palliative care patients were older in age and had a longer survival, corroborating other findings, with patients with terminal cancer who were taken earlier and who spend a longer period in palliative care services.⁷

In addition to age, low family income, poor schooling and skin color also restrict access to adequate diagnosis and treatment leading to poorer prognosis, shorter survival after diagnosis, and death risk up to 7.4 times higher among illiterates⁸ and 25% higher among blacks, especially in potentially curable types of cancer, coinciding with the sample profile of this study.⁹ In addition to these factors, the place of residence also influences access to palliative care services. This study verified a large number of patients from Recife and Metropolitan Region and little participation of hospitalized patients from the interior, which is worse when they reside in the rural area. A survey identified less expense with residents of this area not because of lack of need, but because of difficulties in reaching such services.¹⁰

It should be noted that among the various problems arising from lack of access is the delay of oncological diagnoses, performed when they are already present in advanced stages, with no possibility of curative or control treatment, as demonstrated in a study conducted in 89 hospitals and seven isolated

services of Brazilian chemotherapy or radiotherapy where 45.5% of the women had cervical and uterine cancer and stage III or IV breast cancer at the time of diagnosis, in accordance with the results found in this study.¹¹

It is emphasized that in this cascade of failures in timely capture, from primary care, these patients are submitted to aggressive care near the end of life.¹² These findings reinforce the importance of providing palliative care at the beginning of any threatening disease of the life, resulting in good responses, even if initiated after cessation of chemotherapy, and may offer survival benefits.^{1,4,5}

Associated with palliative care in the care of patients in these health conditions is the home care that results in greater satisfaction, improvement of quality of life, reduction of invasive treatments and procedures, significant reduction of costs and greater probability of dying at home.¹²

In this perspective, it is observed that some countries have invested in the politics of death at home with the justification that this alternative can even double the chance of death in the place of patients' choice and reduce the costs to the public health system. In several European countries, more than 9,000 people were interviewed about choosing the place of death and most preferred it to be in the home (51% to 84%). This study emphasized that this offer should be made by specialized teams.¹³

Household care also increases survival in up to 15% of patients,¹⁴ reduce the risk of admission to the Intensive Care Unit (ICU), multiple hospitalizations close to death, as well as the use of chemotherapy, as well as providing the opportunity to receive more visits.¹⁵

There is evidence that palliative care at home can reduce the burden of symptoms, reduce symptomatic complaints in relation to patients in the ward, significant decrease in pain, and significant improvement in sleep quality,¹⁶ as found in this study. Another study reports that problems such as nausea / vomiting, constipation, insomnia, dyspnea, anxiety and depression also improved

significantly after a few days of home care demonstrating the effective control of these symptoms.¹⁷

The literature shows that approximately 20% of the total cancer patients will require professional support for depression/anxiety. Psychosocial and emotional stress can reach up to half of those with cancer, worsening quality of life, and even more intense in families with greater financial difficulty, for which an estimated 25% will require social assistance.¹⁸ In this study, there was no difference between the groups, since both belonged to the same socioeconomic category.

Across the world, high health care costs in the last year of life have become a major concern as in the United States, where they spend 27 to 30 percent of the total health budget,¹⁹ and also in Canada, where the number of terminally ill patients is greater in the last five months, mainly due to the greater number of hospitalizations,²⁰ which account for up to 70% of costs for patients in palliative care.²¹ These costs may increase even more for countries developing countries such as Brazil.

Depending on type of cancer and place at time of death, costs range from \$36,119 in chronic care facilities such as hospices to \$ 15,866 for in-home death,²² hospital costs if death occurs in ICUs where 20% of deaths occur in the United States.²³ Hospice practice is widespread in Canada where 75% of deaths occur in this type of facility.²⁴

It is estimated that for every dollar spent on home care in Canada, up to nine million dollars could be saved in health care costs.²⁵

In contrast, palliative care, even in the hospital, reduces expenditures by up to 40% in the last month of life and by 17% in the last six months when compared to usual care.²⁶ This reduction is attributed, mainly, to the reduction of diagnostic exams and interventional procedures, as well as the use of advance directives.²⁷

A review study covering Spain, Israel, Italy and the United Kingdom states that home consultation with a multi-professional palliative care team can reduce health costs.²⁸ In Spain, when home care is carried out, there is a 71% of costs compared to usual hospital care.³⁰

CONCLUSION

It was verified that the home palliative care teams offer a better quality of life for the patient when compared to palliative care

in the hospital, even though it is discretely more economical.

In view of the results, more investment in this type of care is required, especially in the training of health teams at all levels of care, with an emphasis on early capture, increasing access for more patients and family members to benefit, as well as disclosure of benefits to the population. It is necessary to invest in the comfort of the patients and their families prioritizing the establishment of the symptoms for a dignified death.

REFERENCES

1. World Health Organization. Globocan 2012: estimated cancer incidence mortality and prevalence worldwide in 2012 [Internet]. Geneva: WHO, 2013 [cited 2015 Oct 02]. Available from: <http://globocan.iarc.fr/Default.aspx>
2. Ministério da Saúde (BR), Instituto Nacional do Câncer José Alencar Gomes da Silva. Estimativa 2016: incidências de câncer no Brasil [Internet]. Rio de Janeiro: INCA; 2015 [cited 2017 July 24]. Available from: <http://www.inca.gov.br/estimativa/2016/estimativa-2016-v11.pdf>
3. Zhang B, Wright AA, Huskamp HA, Nilsson ME, Maciejewski ML, Earle CC, et al. Health care costs in the last week of life: associations with end-of-life conversations. Arch Intern Med. 2009 Mar;169(5):480-8. Doi: [10.1001/archinternmed.2008.587](https://doi.org/10.1001/archinternmed.2008.587)
4. Penrod JD, Deb P, Dellenbaugh C, Burgess JF Jr, Zhu CW, Christiansen CL, et al. Hospital-based palliative care consultation: effects on hospital cost. J Palliat Med. 2010 Aug;13 (8):973-9. Doi: [10.1089/jpm.2010.0038](https://doi.org/10.1089/jpm.2010.0038)
5. Back AL, Li YF, Sales AE. Impact of palliative care case management on resource use by patients dying of cancer at a veterans affairs medical center. J Palliat Med. 2005 Feb;8 (1):26-35. Doi: [10.1089/jpm.2005.8.26](https://doi.org/10.1089/jpm.2005.8.26)
6. Aaronson NK, Ahmedzai S, Bergman B, Bullinger M, Cull A, Duez NJ, et al. The European Organization for research and treatment of cancer QLQ C30: a quality-of-life instrument for use in international clinical trials in oncology. J Natl Cancer Inst. 1993 Mar; 85(5):365-76. PMID: 8433390
7. Sharma N, Sharma AM, Wojtowycz MA, Wang D, Gajra A. Utilization of palliative care and acute care services in older adults with advanced cancer. J Geriatr Oncol. 2016 Jan; 7 (1) :39-46. Doi: [10.1016/j.jgo.2015.12.004](https://doi.org/10.1016/j.jgo.2015.12.004)
8. D'Orsi E, Schneider IJC. Five-year survival and prognostic factors in women with breast cancer in Santa Catarina State, Brazil. Cad Saúde Pública. 2009; 25 (6): 1285-96. Doi:

<http://dx.doi.org/10.1590/S0102-311X2009000600011>.

9. Wagner SE, Hurley DM, Hébert JR, McNamara C, Bayakly AR, Vena JE. Cancer mortality-to-incidence ratios in Georgia: describing racial cancer disparities and potential geographical determinants. *Cancer*. 2012 Aug;118(16): 4032-45. Doi: [10.1002/cncr.26728](https://doi.org/10.1002/cncr.26728)

10. Wang H, Qiu F, Boilesen E, Nayar P, Lander L, Watkins K, et al. Rural-urban differences in Costs of End-of-Life Care for Elderly Cancer Patients in the United States. *J Rural Health*. 2015; 32(4):353-62. Doi: [10.1111/jrh.12160](https://doi.org/10.1111/jrh.12160)

11. Gírianelli VR, Gamarra CJ, Silva GA. Disparities in cervical and breast cancer mortality in Brazil. *Rev Saúde Pública*. 2014;48(3):459-67. Doi: [10.1590/S0034-8910.2014048005214](https://doi.org/10.1590/S0034-8910.2014048005214)

12. Fripp JC. Internação domiciliar e cuidados paliativos para pacientes oncológicos no município de Pelotas/RS [dissertation] [Internet]. Pelotas: UFPEL; 2009 [cited 2018 Jan 02]. Available from: <http://www.epidemioufpel.org.br/uploads/teses/dissert%20fripp.pdf>

13. Gomes B, Higginson IJ, Calanzani N, Cohen J, Deliens L, Daveson BA, et al. Preferences for place of death if faced with advanced cancer: a population survey in England, Flanders, Germany, Italy, the Netherlands, Portugal and Spain. *Ann Oncology*. 2012 Aug; 23(8):2006-15. Doi: [10.1093/annonc/mdr602](https://doi.org/10.1093/annonc/mdr602)

14. Bakitas MA, Tosteson TD, Li Z, Lyons KD, Hull JG, Li Z, et al. Early Versus Delayed Initiation of Concurrent Palliative Oncology Care: Patient Outcomes in the ENABLE III Randomized Controlled Trial. *J Clin Oncol*. 2015 May; 33(13):1438-45. Doi: [10.1200/JCO.2014.58.6362](https://doi.org/10.1200/JCO.2014.58.6362)

15. Jang RW, Kryzanowska MK, Zimmermann C, Taback N, Alibhai SMH. Palliative care and the aggressiveness of end-of-life care in patients with advanced pancreatic cancer. *J Natl Cancer Inst*. 2015 Jan;107 (3): pii: dju424. Doi: [10.1093/jnci/dju424](https://doi.org/10.1093/jnci/dju424)

16. Higginson IJ, McCrone P, Hart SR, Burman R, Silber E, Edmonds PM. Is short-term palliative care cost-effective in multiple sclerosis? A randomized phase II trial. *J Pain Symptom Manage*. 2009 Dec;38 (6):816-26. Doi: [10.1016/j.jpainsymman.2009.07.002](https://doi.org/10.1016/j.jpainsymman.2009.07.002)

17. Gómez-Batiste X, Porta-Sales J, Espinosa-Rojas J, Pascual-Lopez A, Tuca A, Rodriguez J. Effectiveness of palliative care services in symptom control of patients with advanced

terminal cancer: a spanish, multicenter, prospective, quasi-experimental, pre-post study. *J Pain Symptom Manage*. 2010 Nov; 40(5): 652-60. Doi:

[10.1016/j.jpainsymman.2010.02.026](https://doi.org/10.1016/j.jpainsymman.2010.02.026)

18. Carlson LE, Bultz BD. Benefits of psychosocial oncology care: Improved quality of life and medical cost offset. *Health Qual Life Outcomes*. 2003 Apr;1:8. Doi: [10.1186/1477-7525-1-8](https://doi.org/10.1186/1477-7525-1-8)

19. Davis M, Walsh D, LeGrand SB, Lagman RL, Harrison B, Rybicki L. The financial benefits of acute inpatient palliative medicine, an inter-institutional comparative analysis by All Patient Refined-Diagnosis Related Group and Case Mix Index. *J Support Oncol*. 2005 July/Aug;3 (4):313-6. PMID:16092604

20. Dumont S, Jacobs P, Turcotte V, Anderson D, Harel F. The trajectory of palliative care costs over the last 5 months of life: a Canadian longitudinal study. *Palliat Med*. 2010;24 (6):630-4. Doi: [10.1177/0269216310368453](https://doi.org/10.1177/0269216310368453)

21. Fassbender K, Fainsinger RL, Carson M, Finegan BA. Cost trajectories at the end of life: the Canadian experience. *J Pain Symptom Manage*. 2009 July;38(1):75-80. Doi: [10.1016/j.jpainsymman.2009.04.007](https://doi.org/10.1016/j.jpainsymman.2009.04.007)

22. Walker H, Anderson M, Farahati F, Howell D, Librach SL, Husain A, et al. Resource use and costs of end-of-life/palliative care: Ontario adult cancer patients dying during 2002 and 2003. *J Palliat Care*. 2011;27(2):79-88. PMID: 21805942

23. National Institutes of Health. End-of-Life [Internet]. Bethesda: NIH; 2010 [cited 2018 02 Jan]. Available from: <https://report.nih.gov/NIHfactsheets/ViewFactSheet.aspx?csid=40>.

24. Canadian Hospice Palliative Care Association. Fact Sheet: Hospice Palliative Care in Canada [Internet]. Ottawa: CHPCA; 2012 [cited 2018 02 Jan]. Available from: http://www.chpca.net/media/330558/Fact_Sheet_HPC_in_Canada%20Spring%202014%20Final.pdf

25. The Ontario Association of Community Care Access Centres, The Ontario Federation of Community Mental Health and Addiction Programs, The Ontario Hospital Association. Ideas and Opportunities for Bending the Health Care Cost Curve. Advice for the Government of Ontario [Internet]. Ontario: OHA; 2010 [cited 2018 02 Jan]. Available from:

[http://hssontario.ca/Policy/Documents/papers%20and%20reports/Bending%20the%20Health%](http://hssontario.ca/Policy/Documents/papers%20and%20reports/Bending%20the%20Health%20)

[20Care%20Cost%20Curve%20%28Final%20Report%20-%20April%2013%2C%202010%29.pdf](#)

26. Adler ED, Goldfinger JZ, Kalman J, Park ME, Meier DE. Palliative care in the treatment of advanced heart failure. *Circulation*. 2009 Dec;120(25):2597-606. Doi: <https://doi.org/10.1161/CIRCULATIONAHA.109.869123>

27. Elsayem A, Swint K, Fisch MJ, Palmer JL, Reddy S, Walker P, et al. Palliative care inpatient service in a comprehensive cancer center: clinical and financial outcomes. *J Clin Oncol*. 2004 May;22(10):2008-14.

28. Simoens S, Kutten B, Keirse E. Costs of terminal patients who receive palliative care or usual care in different hospital wards. *J Palliat Med*. 2010 Nov;13(11):1365-9. Doi: [10.1089/jpm.2010.0212](https://doi.org/10.1089/jpm.2010.0212)

29. Serra-Prat M, Gallo P, Picaza JM. Home palliative care as a cost-saving alternative: evidence from Catalonia. *Palliat Med*. 2001 July;15(4):271-8. Doi: [10.1191/026921601678320250](https://doi.org/10.1191/026921601678320250)

Submission: 2017/02/16

Accepted: 2018/05/05

Publishing: 2018/06/01

Corresponding Address

Sarah Zayanne Rafael da Silva Ribeiro
Avenida João Soares de Lira, 1828
Bairro Divinópolis
CEP: 55010-630 - Caruaru (PE), Brazil