Published in final edited form as:

Geriatr Nurs. 2018 ; 39(2): 225–229. doi:10.1016/j.gerinurse.2017.09.004.

Geriatric palliative care: Meeting the needs of a growing population

Rebecca M. Saracino, PhD^{a,*}, Mei Bai, PhD^b, Leslie Blatt, APRN^a, Larry Solomon, MD^a, and Ruth McCorkle, PhD^b

^aYale School of Medicine, New Haven, CT, USA

^bYale School of Nursing, Orange, CT, USA

Abstract

The implementation of effective geriatric palliative care (PC) services will be increasingly important as the number of patients ages 65 years continues to grow. However, literature characterizing the utilization of PC services by older adults remains scant. The objective of these analyses was to characterize the nature and outcomes of PC services for older adults. A retrospective analysis of records of inpatient PC consultations provided to patients 65 years at an academic hospital was performed (N = 743). Logistic regressions identified factors associated with goals of care discussions (GOC), end-of-life (EOL) coordination, and hospital readmission. Differences between older adult subgroups (i.e., 65–84 years and 85 years and older) were also examined. Discharge to home was associated with higher odds of readmission and discharge to hospice or having a GOC discussion was associated with lower odds of readmission. Those patients who were 85 years or older were significantly less likely to have cancer or to be referred for pain management, and more likely to be referred for GOC discussions and discharged to hospice. This study revealed dynamic factors associated with PC consultation for older adults. GOC discussions in initial PC consultations for older patients might reduce the odds of hospital readmission. Additionally, the needs of patients ages 85 and older appear distinct from the traditional PC cancer model.

Keywords

Geriatric; Palliative care; Older-old; End of life; Cancer; Service delivery

Introduction

As the number of older adults (i.e., 65 years or older) living with multiple chronic illnesses continues to increase, so too does the need to develop targeted screening and referral processes for managing these patients' often complicated symptom presentations.¹ Three out of 4 older Americans have multiple chronic medical conditions and over half report bothersome pain.^{2,3} However, many of these older adults are never engaged in goals of care (GOC) discussions in which they are able to make their preferences for care known to their

*Corresponding author. Yale School of Nursing, Room 20401, 400, West Campus Drive, Orange, CT, 06477, USA. rebecca.saracino@yale.edu.

treatment teams.⁴ One answer to this public health concern is the growth and development of geriatric palliative care.⁵ In fact, the number of hospitals with palliative care teams has steadily risen over the past two decades such that over 90% of hospitals with 300 beds or more now provide these services.⁶ The World Health Organization (WHO) defines palliative care as an approach that “improves the quality of life of patients [...] who are facing problems associated with life-threatening illness. It prevents and relieves suffering through the early identification, correct assessment, and treatment of pain and other problems, whether physical, psychosocial or spiritual.”⁷ Not only do these services significantly improve patients’ quality of life and satisfaction with care, but they also tend to reduce hospital readmissions and service utilization, thereby lowering total healthcare costs.⁸

Despite clear imperative and calls to action for prioritizing research in geriatric palliative care,⁵ the empirical literature characterizing the utilization of palliative care services by older adults remains scant. What is clear, however, is that older adults often receive inadequate palliative care at the end of life due to a number of provider and systems-level barriers.^{9,10} To date, only two retrospective chart reviews specifically examined the clinical presentations and consultation content of palliative care services for younger compared to older adults.^{11,12} Evers and colleagues¹¹ analyzed 1184 palliative care consultations from a large teaching hospital and concluded that the needs of older adults differ significantly from their younger counterparts. Specifically, patients aged 80 or older were less likely to have a cancer diagnosis but more likely to have dementia and in-capacity. These older patients were also more likely to have a DNR order present at the time of initial consultation, or to have one put into place upon consultation. There were also more recommendations to withhold life-sustaining treatments in this cohort. Olden et al.¹² later reviewed 2383 initial inpatient palliative care consultations in which they found that the majority of referrals were for patients older than 65 years. Additionally, those 85 and older were consulted for earlier on in the course of hospitalization and more often for end of life care compared to younger patients. Taken together, these findings indicate that the palliative care needs and referral patterns for older patients are indeed distinct from younger patients. However, more research is necessary to determine the consistency of the findings and how they shape patient outcomes.

Given the paucity of literature characterizing the nature and outcomes of palliative care services for older adults despite growing public health significance, the current paper sought to expand upon the existing evidence base. Thus, the primary aims of the current paper are to: (1) describe the demographic and clinical characteristics, including reasons for referral, of older adult inpatients referred for palliative care consultation; (2) identify factors that are associated with being referred for a goals-of-care discussion or end-of-life care planning; and (3) determine the relationship between referral for a goals-of care discussion or for end-of-life care planning and hospital readmissions. Exploratory analyses also sought to identify any significant differences in personal and clinical characteristics between those patients aged 65 to 84 and those patients aged 85 and older. We hypothesized that occurrence of goals of care discussions and end of life care planning would be associated with fewer hospital re-admissions. We also expected those patients in the 85 and older group to be more likely to be referred for end of life care planning and to be discharged to hospice or an extended care facility (ECF) compared to those in the 65–84 year old group.

Method

A retrospective analysis of records of the inpatient palliative care consultation service at Yale New Haven Hospital was conducted with data recorded from September 29, 2007, through August 17, 2012. This retrospective study was exempted by the Human Investigation Committee at the Yale University School of Medicine.

Measures

Data on consultations provided—At the onset of the palliative care consultation service, the team developed a database in which they documented the care provided at each consultation. Data collection included patients' name, age, sex, diagnosis, and reasons for referral. Reasons for referral included pain management, symptom control, or other. The team also documented whether they conducted a goals-of-care discussion (GOC) or arranged for end-of-life (EOL) care; these were treated as reasons for referral. For the purposes of the current analyses, GOC was operationalized narrowly as discussions about transitions to comfort care and implementing DNI/DNR orders. Data was recorded at the end of each consult and entered into a database by the administrator after discharge. The administrator also recorded any subsequent admissions for patients who had previously been seen by the service.

For the following analyses, we extracted data from the team's database related to the initial consultation only, including: demographic and clinical characteristics (age, gender, primary diagnosis, admission date, consultation date(s), date of discharge, and date of death, if the patient died during hospitalization); reason for referral, discharge disposition (home, hospice, or extended care facility [ECF]); and hospital readmissions.

Data analysis

Data are described using frequencies, percentages, and measures of central tendency and dispersion. Only data for those patients aged 65 and older were analyzed. Median number of days from admission to consultation and length of stay (days from admission to discharge) for each admission were calculated. Logistic regressions were performed to predict whether age, sex, primary diagnosis, and days from admission to consultation were independently associated with odds of receiving a goals-of-care discussion (yes/no), end-of-life care planning (yes/no), or of being readmitted to the hospital (yes/no). Differences between the 65–84 and 85 years or older subgroups were also examined within these regression analyses and with chi-square statistics. Odds ratios (OR) and the 95% confidence intervals (CI) were calculated for each logistic regression. Data were analyzed with Statistical Analysis Software for Windows version 9.4 (SAS 9.4). The level of significance was set at an alpha of 0.05 with a two-tail test.

Results

Sample characteristics

The palliative care team completed initial consultations for 743 patients aged 65 or older over the data collection period (May 2007 to August 2012; Table 1). Mean age of the sample

was 77.5 (± 8.7) years old and it was roughly evenly split by gender. The most frequent primary diagnosis was cancer (62%); of those patients with a cancer diagnosis, gastrointestinal (GI) cancer was the most common (i.e., 16.7% of total sample). There were significant differences between the disease composition of the age subgroups (Table 1) such that patients in the 85 or older group were less likely to have cancer (i.e., 33% versus 72%, $p < 0.0001$) and more likely to have other non-cancer diseases (48% versus 13%, $p < 0.0001$). Additional sample characteristics are described in Table 1.

Hospitalization course and consult content

Median number of days from admission to consult was 4, as was median days from consult to death, while median length of stay was 9 days. Half of all consultations occurred within four days of hospital admission (51%, $n = 379$). Twenty-seven percent of patients died within the same hospitalization in which they were initially consulted, with no significant difference between age groups (i.e., 27.4% ($n = 152$) from the 65–84 year subgroup and 27.7% ($n = 52$) from the 85 and older subgroup). Among those patients who died, 57% died within four days of initial palliative care consultation ($n = 116$). Pain management was the primary symptom addressed in 73% ($n = 542$) of consultations. Significantly more patients in the 65–84 year old group were referred for pain management compared to those who were 85 years or older (i.e., 61.1%, $n = 321$ versus 46.1%, $n = 82$, $p = 0.0004$). Approximately one third of referrals (34.2%; $n = 254$) were for GOC discussions, while 9.7% ($n = 72$) were for EOL care planning.

Discharge disposition varied such that 27.2% ($n = 202$) were discharged to home, 25.2% ($n = 187$) to hospice, and 18.8% ($n = 140$) to an ECF. Compared to those aged 85 or older, those patients in the 65–84 year old subgroup were more likely to be discharged to home (i.e., 31.7% versus 13.8%, $p < 0.0001$) and less likely to be discharged to hospice (i.e., 22.9% versus 31.9%, $p = 0.014$) or an ECF (i.e., 16.9% versus 24.5%, $p = 0.022$; Table 1).

GOC and EOL care planning referrals

Logistic regressions (Table 2) indicated that referrals to palliative care for GOC were associated with a greater likelihood of having cardiovascular disease compared to lung cancer ($p = 0.007$; OR = 1.96, CI = 1.01–3.82). Earlier consultation in the course of the hospitalization (i.e., within 4 days of admission) was associated with a lower likelihood of having a GOC discussion ($p = 0.013$; OR = 0.66, CI = 0.48–0.92). Similarly, older adults less than 85 years old had a lower likelihood of having a GOC discussion compared to those who were 85 years or older ($p = 0.02$; OR 0.63, CI = 0.43–0.93). Those with respiratory disease were significantly more likely to be referred for EOL care planning compared to those with lung cancer ($p = 0.013$; OR = 3.22, CI = 1.06–9.83).

Readmission

Of the total sample, 9.6% ($n = 71$) were readmitted to the hospital subsequent to their initial palliative care consultation. Those patients who had GOC discussions with the palliative care team during their initial consults were less likely to be readmitted to the hospital ($p = 0.007$; OR = 0.41, CI = 0.20–0.80). However, patients who were discharged to home compared to those admitted to an ECF were more likely to be readmitted to the hospital ($p <$

0.001; OR = 1.60, CI = 0.78–3.29), while those discharged to hospice were less likely to be readmitted ($p < .001$; OR = 0.04, CI = 0.01–0.31). Finally, female gender was also associated with a lower likelihood of being readmitted to the hospital ($p = 0.015$; OR = 0.48, CI = 0.26–0.87).

Discussion

The majority of older patients seen by the service had cancer (62%) and were referred for pain management (73%). Of note, cancer was significantly less prevalent in patients aged 85 or older in this sample compared to the 65–84 year old subgroup. The higher prevalence of a variety of other diseases among the older subgroup reiterates that the palliative care needs of this age group may be different from those typically addressed in the traditional cancer model of palliative care.¹¹ These findings are consistent with previous research documenting that patients with non-malignant disease are up to 11 times less likely to receive palliative care.¹³ These discrepancies have been attributed to the less predictable course of non-malignant disease among older adults and the difficulty healthcare providers have in considering these patients appropriate for palliative care.^{13,14} Researchers have recently begun to examine the exact barriers to PC referrals in this context. Dalkin and colleagues¹³ conducted a mixed methods study in which they held focus groups with general practitioners about their experiences of referring patients non-cancer to PC. Participants reported that they found these referrals to be stressful due to the uncertainty of patient illness trajectories. They also reported having a difficult time viewing patients with non-malignant disease as appropriate for PC because they typically only associated the term with oncology and were therefore not confident about making these referrals. The implications for training and practice are clear: Education about the appropriateness of PC for non-cancer conditions should be more salient and integrated into training and practice.

The current data also indicate that there is substantial room for improvement for more prompt PC consultation. Approximately half of all consultations in our sample occurred within four days of hospital admission, and 27% of these patients also died within four days of consultation. This pattern suggests that there were missed opportunities for PC consultation further upstream in the care continuum. Although we do not have data to specify for how long patients had been diagnosed with their primary illnesses, one could imagine that many of these patients had been managing these illnesses for some time. The close proximity to death for many of these patients underscores the fact that many providers still only consider PC consultation when a patient is imminently dying. As discussed, this has been the model of PC for some time. However, a “paradigm shift” is necessary in which more providers, including geriatricians, consult with PC for older patients with chronic illness more readily, not just concerning end of life planning. Increasing the timeliness of consultations for older patients in need should be a goal for all hospitals with palliative care teams. From a cost effectiveness perspective, a recent study found up to 32% lower costs for patients with advanced cancer and high multimorbidity who received a palliative care consultation within two days of hospital admission.⁸ Thus, earlier consultation translates to cost-savings for healthcare systems, reducing unnecessary financial burden on both patients and facilities.

In addition to shifting provider attitudes and beliefs about the relative benefits of palliative care for patients with non-malignant disease, the current findings also elucidate the potential benefits of identifying objective referral criteria among older non-cancer patients in order to facilitate earlier and more widespread referrals to palliative care for this growing age group. If practitioners are trained to look for specific indicators in older patients with non-malignant diseases that deem them “appropriate” for PC, they may be more prepared and efficient in making these referrals earlier on in the illness trajectory. Once these symptom profiles are determined, referral triggers can be built into the electronic medical record (EMR) in order to increase the likelihood of patients being referred to PC in a timely manner. One study successfully developed a screener for use in Emergency Medicine to determine which older patients would benefit from PC.¹⁵ Another embedded a clinical decision support tool in their EMR to identify older adults who were at high risk for mortality so that they could be targeted for goals of care discussions (the authors do not operationalize this term), but they found limitations in its ability to flag appropriate patients.¹⁶ Both of these preliminary studies demonstrate methods that are cost-effective and easily implemented into routine care. Clearly, additional research is needed to improve these programs in order to increase older patient flow to PC. In the interim, hospitals should consider embedding routine screening for PC issues into their regular visits with older adult patients.

Similarly, GOC discussions have consistently been shown to reduce the number of aggressive interventions, risk of death as an inpatient, and hospital re-admissions among terminally ill patients of any age group.¹⁷ The current data replicate these findings in an older adult sample, with significantly lower likelihood of being readmitted to the hospital when a GOC discussion occurred or when patients were discharged to hospice or an ECF versus home. However, patients in the 65–84 year old sub-group were significantly less likely to have a GOC discussion compared to those in the 85 years or older group. This trend may reflect providers’ increasing concerns about older-old patients’ declining cognitive ability to make informed medical decisions as well as more predictable rapidly declining health due to advancing age. This inference is also supported by the greater likelihood of patients in the 85 or older subgroup in this sample being discharged to hospice and ECFs compared to those aged 65–84. Our analyses operationalized GOC in a somewhat restricted way such that it reflected discussions about transitioning to comfort care only. However, more broadly, GOC discussions include elicitation of individual patient values and goals for how care is to be provided. Patients of all ages would be better served by having GOC discussions earlier on in the illness trajectory, as accurately anticipating patient preferences is not always straightforward. Even well-intentioned physicians and family members have been shown to mistakenly underestimate older patients’ preferences for receiving life-prolonging care.¹⁸ Thus, earlier delineation of specific patient preferences allows providers and family members to uphold patient wishes, thereby respecting autonomy even in the very last days of life.

One limitation of the data is that in the context of a retrospective review, conclusions about the time course of symptoms and changes in consultation content and outcomes over time cannot be drawn. Additionally, important demographic data such as race, ethnicity, socioeconomic status, and other psychosocial variables were not recorded in the dataset. These

variables have clear relationships with patient and family engagement with the healthcare system and preferences for disease management and EOL care.¹⁹ Future research should longitudinally examine the relationships of these variables to consultation outcomes and changes in preferences in order to tailor practice guidelines accordingly.

Of note, these data were collected between 2007 and 2012 and therefore it is possible that with the expansion of PC services nationwide, the trends observed in the current study may not reflect more recent patient cohorts. However, as described, a careful review of the literature indicates that no data-driven research has been published on this specific population since Olden and colleagues in 2011.¹² Thus, the current results still represent a meaningful contribution to the literature. We also did not have access to a comparison group of older patients who did not receive PC services. A comparison group would have allowed us to draw conclusions regarding the symptom presentations or provider-level variables that tend to increase or decrease the likelihood of an older patient being referred for PC. Additionally, more research is needed to determine how to best apply palliative care to meet the specific needs of older patients with non-cancer illnesses with unclear prognosis. Our research team intends to take advantage of recently developed comprehensive electronic medical record systems in order to obtain more detailed and current data with which we can make these comparisons and render more robust conclusions. Finally, conducting qualitative research with patients, families, and providers in order to understand barriers to engaging in palliative care would elucidate avenues for facilitating earlier palliative care consultation and maximizing the benefits it can provide.

The current findings contribute to a small body of research characterizing palliative care consultation for older adults while underscoring the need for development of a workforce specialized in geriatric palliative care. Although there is substantial overlap between geriatrics and palliative medicine, a unique set of skills and training is required for the effective treatment of older adults at the end of life.^{1,5} WHO classifies palliative care as a human right.⁷ To limit access, even due to a lack of knowledge, therefore, creates a barrier to symptom control and alleviation of undue suffering for older adults. Therefore, it is imperative that researchers and clinicians alike recognize the implications of missed opportunities for engaging older patients in PC. Only with continued efforts will healthcare systems and providers be able to effectively meet the needs of this rapidly growing population of older adults.

Acknowledgements

This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

References

1. Kapo J, Morrison LJ, Liao S. Palliative care for the older adult. *J Palliat Med.* 2007;10:185–209. [PubMed: 17298269]
2. Gerteis J, Izrael D, Deitz D, et al. Multiple Chronic Conditions Chartbook (AHRQ Publications No, Q14–0038). Rockville, MD: Agency for Healthcare Research and Quality; 2014.
3. Abdulla A, Adams N, Bone M, et al. Guidance on the management of pain in older people. *Age Ageing.* 2013;42:i1–i57. [PubMed: 23420266]

4. Lum HD, Sudore RL, Bekelman DB. Advance care planning in the elderly. *Med Clin N Am*. 2015;99:391–403. [PubMed: 25700590]
5. Morrison SR. Research priorities in geriatric palliative care: an introduction to a new series. *J Palliat Med*. 2013;16:726–729. 10.1089/jpm.2013.9499. [PubMed: 23721426]
6. Dumanovsky T, Augustin R, Rogers M, et al. The growth of palliative care in US hospitals: a status report. *J Palliat Med*. 2016;19:8–15. [PubMed: 26417923]
7. World Health Organization. Palliative Care [Fact Sheet]. Retrieved from, <http://who.int/mediacentre/factsheets/fs402/en/>; 2017.
8. May P, Garrido MM, Cassel JB, et al. Palliative care teams' cost-saving effect is larger for cancer patients with higher numbers of comorbidities. *Health Aff*. 2016;35:44–53.
9. Burt J, Raine R. The effect of age on referral to and use of specialist palliative care services in adult cancer patients: a systematic review. *Age Ageing*. 2006;35:469–476. [PubMed: 16751635]
10. Gardiner C, Cobb M, Gott M, Ingleton C. Barriers to providing palliative care for older people in acute hospitals. *Age Ageing*. 2011;40:233–238. [PubMed: 21257618]
11. Evers MM, Meier DE, Morrison RS. Assessing differences in care needs and service utilization in geriatric palliative care patients. *J Pain Symptom Manag*. 2002;23:424–432.
12. Olden AM, Holloway R, Ladwig S, Quill TE, van Wijngaarden E. Palliative care needs and symptom patterns of hospitalized elders referred for consultation. *J Pain Symptom Manag*. 2011;42:410–418.
13. Dalkin SM, Lhussier M, Philipson P, Jones D, Cunningham W. Reducing inequalities in care for patients with non-malignant diseases: insights from a realist evaluation of an integrated palliative care pathway. *Palliat Med*. 2016;30:690–697. [PubMed: 26819327]
14. Coventry PA, Grande GE, Richards DA, Todd CJ. Prediction or appropriate timing of palliative care for older adults with non-malignant life-threatening disease: a systematic review. *Age Ageing*. 2005;34:218–227. 10.1093/ageing/afi054. [PubMed: 15863407]
15. Ouchi K, Block SD, Schonberg MA, et al. Feasibility testing of an emergency department screening tool to identify older adults appropriate for palliative care consultation. *J Palliat Med*. 2017;20:69–73. [PubMed: 27632230]
16. Hocker JD, Khan A, Singh M, et al. Can the electronic health record identify vulnerable older adults in need of a palliative care assessment in the hospital setting? *J Am Geriatrics Soc*. 2015;63:1479–1481.
17. Gieniusz M, Nunes R, Saha V, et al. Earlier goals of care discussions in hospitalized terminally ill patients and the quality of end-of-life care: a retrospective study. *Am J Hospice Palliat Med*; 2016;1–7. 10.1177/1049909116682470.
18. Hamel MB, Teno JM, Goldman L, et al. Patient age and decisions to withhold life-sustaining treatments from seriously ill, hospitalized adults. *Ann Intern Med*. 1999;130:116–125. [PubMed: 10068357]
19. Garrido MM, Harrington ST, Prigerson HG. End-of-life treatment preferences: a key to reducing ethnic/racial disparities in advance care planning? *Cancer*. 2014;120:3981–3986. [PubMed: 25145489]

Table 1

Inpatient palliative care older adult patient characteristics (N = 743).

	Total Sample		Age 65–84 (n = 555)		Age 85 (n = 188)		p
	n	(%)	n	(%)	n	(%)	
Gender							
Male	358	(48.2)	290	(52.3)	68	(36.2)	0.0001
Female	385	(51.8)	265	(47.7)	120	(63.8)	
Diagnosis							
Overall cancer	459	(61.8)	397	(71.5)	62	(33.0)	<0.0001
Gastrointestinal cancer	124	(16.7)	113	(20.4)	11	(5.9)	<0.0001
Lung cancer	101	(13.6)	93	(16.8)	8	(4.3)	<0.0001
Breast cancer	22	(3.0)	18	(3.2)	4	(2.1)	0.4354
Gynecological cancer	29	(3.9)	26	(4.7)	3	(1.6)	0.0587
Urinary cancer	55	(7.4)	42	(7.6)	13	(6.9)	0.7677
Other solid cancer	100	(13.5)	83	(15.0)	17	(9.0)	0.0401
Hematological cancer	28	(3.8)	22	(4.0)	6	(3.2)	0.6307
Cardiovascular diseases	62	(8.3)	44	(7.9)	18	(9.6)	0.4805
Respiratory diseases	36	(4.8)	29	(5.2)	7	(3.7)	0.4072
Other non-cancer Diseases	161	(21.7)	71	(12.8)	90	(47.9)	<0.0001
Multisystem Organ Failure (MSOF)	25	(3.4)	14	(2.5)	11	(5.9)	0.0287
Nature of support during consult^a							
Pain management	403	(54.2)	321	(61.1)	82	(46.1)	0.0004
Pain/symptom/other support	300	(40.4)	204	(38.9)	96	(53.9)	
Discharge destination^b							
Home	202	(27.2)	176	(44.3)	26	(19.7)	<0.0001
Hospice	187	(25.2)	127	(32.0)	60	(45.5)	0.0051
Extended care facility	140	(18.8)	94	(23.7)	46	(34.8)	0.0117

^aUnspecified: n = 40.^bDeath: n = 203, unspecified: n = 11

Table 2

Logistic regressions predicting GOC, EOL referrals and Re-admissions (N = 743).

Parameter	Odds Ratio (95% CI)	p	Odds Ratio (95% CI)	p	Odds Ratio (95% CI)	p
Early consult^a						
4 days (n = 379)	0.66 (0.48, 0.92)	0.0131	0.60 (0.35, 1.02)	0.0577	0.83 (0.49, 1.40)	0.4733
4 days (n = 364)	Reference		Reference		Reference	
Gender						
Female (n = 385)	1.10 (0.78, 1.53)	0.5904	1.37 (0.81, 2.32)	0.2432	0.48 (0.26, 0.87)	0.0148
Male (n = 358)	Reference		Reference		Reference	
Age						
65–84 (n = 555)	0.63 (0.43, 0.93)	0.0195	0.92 (0.50, 1.68)	0.7811	2.07 (0.83, 5.15)	0.1196
85+ years (n = 188)	Reference		Reference		Reference	
Diagnosis						
Breast cancer (n = 22)	0.32 (0.09, 1.19)	0.0539	0.55 (0.06, 4.78)	0.4391	0.39 (0.05, 3.23)	0.9758
GI (n = 124)	0.81 (0.45, 1.45)	0.3491	1.44 (0.54, 3.82)	0.5033	0.86 (0.40, 1.85)	0.9479
GYN (n = 29)	0.72 (0.27, 1.90)	0.4528	0.93 (0.18, 4.82)	0.7604	3.43 (1.17, 10.01)	0.8996
Hematological (n = 28)	1.27 (0.52, 3.08)	0.5070	1.11 (0.22, 5.70)	0.9570	0.79 (0.21, 3.06)	0.9506
Urinary cancer (n = 55)	1.23 (0.60, 2.51)	0.4337	0.27 (0.03, 2.29)	0.1239	0.63 (0.22, 1.77)	0.9590
Other solid cancer (n = 100)	0.81 (0.44, 1.49)	0.3880	0.72 (0.22, 2.36)	0.3091	0.90 (0.40, 2.02)	0.9462
Cardiovascular diseases (n = 62)	1.96 (1.01, 3.82)	0.0073	1.89 (0.64, 5.59)	0.2093	0.11 (0.01, 0.84)	0.9791
Respiratory diseases (n = 36)	0.83 (0.36, 1.91)	0.6126	3.22 (1.06, 9.83)	0.0125	0.19 (0.02, 1.53)	0.9994
Other non-cancer diseases (n = 161)	1.23 (0.70, 2.17)	0.2467	1.71 (0.66, 4.43)	0.1885	0.29 (0.10, 0.89)	0.9853
MSOF (n = 25)	1.81 (0.72, 4.53)	0.1163	2.77 (0.76, 10.05)	0.0802	<0.001 (<0.001, >999.99)	0.9628
Lung cancer (n = 101)	Reference		Reference		Reference	
GOC						
Yes (n = 254)		-	-	-	0.41 (0.20, 0.80)	0.0070
No (n = 489)					Reference	
EOL						
Yes (n = 72)		-	-	-	0.63 (0.21, 1.86)	0.4072
No (n = 671)					Reference	
Destination						

Parameter	Odds Ratio (95% CI)	p	Odds Ratio (95% CI)	p	Odds Ratio (95% CI)	p
Discharged to home (n = 202)		-	-	-	1.60 (0.78, 3.29)	0.0002
Discharged to hospice (n = 187)		-	-	-	0.04 (0.01,0.31)	0.0007
Discharged to ECF (n = 140)					Reference	

ECF, Extended Care Facilities; EOL, End of Life; GI, gastrointestinal; GOC, Goal of Care; GYN, gynecological; MSOF, Multisystem Organ Failure.

^a Cut-off of 4 days used median value of the time from admission to consultation for all the 743 elder participants during years 2007–2012; “Reference” indicates that for these analyses, this was the reference group used.