

Place of death in a small island state

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ABSTRACT

Objectives

Low/middle-income countries, particularly Small Island Developing States, face many challenges including providing good palliative care and choice in place of care and death, but evidence of the circumstances of dying to inform policy is often lacking. This study explores where people die in Trinidad and Tobago and examines and describes the factors associated with place of death.

Methods

A population-level analysis of routinely collected death certificate and supplementary health data where the unit of analysis was the recorded death. We followed the Reporting of Studies Conducted Using Observational Routinely Collected Health Data reporting guidelines, an extension of Strengthening the Reporting of Observational Studies in Epidemiology, on a deidentified data set on decedents (n=10 221) extracted from International Statistical Classification of Diseases version 10 coded death records for the most recent available year, 2010.

Results

Of all deaths, 55.4% occurred in a government hospital and 29.7% in a private home; 65.3% occurred in people aged 60 years and older. Cardiovascular disease (23.6%), malignancies (15.5%) and diabetes mellitus (14.7%) accounted for over half of all deaths. Dying at home becomes more likely with increasing age (70-89 years [OR 1.91, CI 1.73 to 2.10] and 90-highest [OR 3.63, CI 3.08 to 4.27]), and less likely for people with malignancies (OR 0.85, CI 0.74 to 0.97), cerebrovascular disease (OR 0.61, CI 0.51 to 0.72) and respiratory disease (OR 0.74, CI 0.59 to 0.91).

Conclusion

Place of death is influenced by age, sex, race/ethnicity, underlying cause of death and urbanisation. There is inequality between ethnic groups regarding place of care and death; availability, affordability and access to end-of-life care in different settings requires attention.

BACKGROUND

An understanding of where people die is fundamental to policy planning and to improving care towards the end of life; it will provide insight into the different needs of diverse populations requiring care like older people or those with terminal cancer, and suggest how care can be made available, affordable and appropriate.¹ Enabling choice about place of care and death is one of the main aims of palliative care and has important implications for the dying process. If quality of care is not compromised, the home environment is often the preferred place of death (POD)^{2,3} since it is associated with a better quality of dying, that is, with dignity and autonomy⁴ and greater involvement of family and informal caregivers.⁵ However, hospital remains the most common place,^{1,6} which may be related to the limited access to and provision of home-based care, the burden on family caregivers and the convention that institutional care is better at addressing the complex needs of people at the end of life.⁷

POD at a population level is related to healthcare expenditure,⁸ end-of-life care policy,⁹ and palliative care development.¹⁰ Despite increasing concern about the high disease burden from HIV and AIDS,¹¹ cancer and chronic diseases¹² that can significantly contribute to palliative care needs,¹⁰ palliative care development in the developing world remains at dramatically low levels.¹³ The World Health Organisation acknowledges the existence of a palliative care needs gap in developing countries¹⁴ and, at the population level, the delivery of care with a focus on improving the circumstances and quality of death – specifically choice about POD³ – is now a major public health challenge.¹⁵

This challenge extends to English-speaking Caribbean, Small Island Developing States (SIDS), a unique group of developing countries with similar developmental constraints.¹⁶ They are relatively small with limited natural resources and small economies which leads to dependence on external finance, their small populations limits; their human resources, employment opportunities and social and healthcare services.¹⁷ The case for Trinidad and Tobago (T&T), a twin island republic located in the southern Caribbean (Table 1).¹⁸⁻²² In this context, T&T has gone from having mainly communicable to non-communicable disease, and now has among the highest morbidity and mortality rates for chronic non-communicable diseases (heart disease, stroke, diabetes and cancer) in the Caribbean.²³

Table 1. Fact sheet for Trinidad and Tobago

Feature	Value
Country size (sq. km)*	Total: 5128 Trinidad: 4828 Tobago: 300
Total Population (2011)*	1,328,019
Life expectancy (2013) by sex†	Female: 74 years Male: 66 years
Ethnic composition (2011, by %)*	East Indian – 35.4 African – 34.2 Mixed – 22.8 White – 0.6 Chinese – 0.3 Other – 6.7
Medical opioid consumption (2013) ‡	1–10 mg morphine equivalents/capita /year
Public expenditure on health care (2010)§	3.7 Billion TTD
Health expenditure as percentage of Gross Domestic Product (2010)¶	5.1%

* 2011 population and housing census demographic report ¹⁸

† Pan American Health Organisation, Health Situation in the Americas, Basic Indicators 2013 ¹⁹

‡ The Global Opioid Policy Initiative²⁰

§ Ministry of Health Statistical Report 2009 – 2011²¹

¶ World Health Organisation Global Health Observatory data repository, 2016 ²²

Abbreviations – TTD: Trinidad and Tobago dollar (1 U.S. dollar = 6.30TTD)

In 2015, 14.2% of the population was 60 years and older and is expected to increase to 20.2% and 28.2% by 2030 and 2050 respectively. Life expectancy is also projected to increase over this period.²⁴ However, the development of palliative care practice is not in line with these changes in population demographics. When described in comparison to a global categorization of countries, palliative care in T&T is 'Isolated Palliative Care Provision' – meaning that a national commitment to palliative care practice is absent and what exists is lacking in scope and focused governmental, social and financial support, for example, unreliable availability of morphine at the nation's health institutions and a small number of hospice and palliative care services in relation to population size. Other Caribbean countries included in this category are Barbados, Belize, Guyana, Jamaica and Saint Lucia.²⁵ In T&T there are three in-patient services – one government operated palliative care unit and two non-governmental hospice programmes, two community palliative care services including one in Tobago, an out-patient clinic at a government hospital and a consulting service provided by the government operated palliative care unit. For low-resourced countries like SIDS, with an absence of data on where people prefer to receive end-of-life care and where they wish to die, using routinely collected data - generated by administrative and clinical processes rather than specially for the purposes of research²⁶

– is useful and cost-effective for studying POD and circumstances of dying.^{27,28} This population-level study is aimed at exploring where people die in T&T and examining and describing the factors associated with their POD.

METHODS

Design

In 2017, we conducted a population-level analysis of routinely collected death certificate and supplementary health data; the unit of analysis was the recorded death in T&T. We followed the Reporting of Studies Conducted Using Observational Routinely Collected Health Data reporting guidelines²⁹ an extension of Strengthening the Reporting of Observational Studies in Epidemiology, on a deidentified data set on decedents (n = 10,221) extracted from International Statistical Classification of Diseases version 10 (ICD-10) coded death records for the most recent available year, 2010.

Setting and population

A dataset on all deaths, residents and visitors, (n = 10,221) that occurred in T&T in 2010, the most recent available year, was obtained from the T&T national death registry, the Central Statistical Office (CSO). The dataset contained deidentified death records extracted from 10 (ICD-10) coded death certificates. In T&T physicians complete the medical certificate of cause of death (Appendix 1) and the CSO processes the data into a registry. The CSO provided supplementary census data (community classification of urbanisation), and data on percent of the population living in an urban setting in 2010 (9.1) was obtained from the World Health Organisation.³⁰ The Ministry of Health provided health resource data, that is, the number of government hospital beds (n = 2,009) and the proportion of beds per Regional Health Authority (RHA). The five RHAs, North-West, North-Central, South-West, Eastern and Tobago, provide health services to the general public.

Measures

The dependent variable, POD, was categorised as: private home, government hospital, nursing home or non-government hospital and other (for example, public places, workplaces, roads and private geriatric homes). Independent variables included: age at death, sex, ICD-10 coded cause of death. We followed the CSO's usage of terms for race/ethnicity (East Indian, black, mixed, white and Chinese), level of urbanisation (categorised as urban and rural in Trinidad and semi-urban added in Tobago), and the number of government hospital beds available in 2010. Government 'hospital bed availability per 10 deaths' figures were derived from the latter variable and calculated according to the five RHAs

and linked to the municipality of residence of the deceased. The number of beds at the only psychiatric hospital located in the North-West RHA were excluded.

Statistical analysis

Distribution for POD was described using frequency analysis. Two multivariable binary logistic regression analyses were performed to determine the association between POD and various covariates known to be associated with it. Home vs other and government hospital vs other were used as dependent variables. Independent variables entered into the regression model are: age (0-17, 18-69, 70-89, 90-highest), cause of death, which was condensed into categories potentially requiring palliative care according to prior research (malignancies, diseases of the nervous system, diabetes mellitus, cardiovascular disease, cerebrovascular disease, and respiratory disease,³¹ and all other causes), RHA of residence and urbanicity of the municipality of residence. Covariates were considered significant if the P value was <0.05. The categories, nursing homes and non-government hospitals could not be differentiated from one another but were used in analyses along with 'other' POD. As 61.1% of data were missing for the variable race/ethnicity it was not included in the main regression analysis. However, a separate regression model was tested to evaluate whether any differences existed between ethnic groups and POD, taking into account the influence of confounding factors. A separate analysis was also performed with 'hospital beds per 10 deaths' as an independent variable instead of RHA of residence to evaluate the influence of hospital bed availability on POD. All statistical analyses were done using SPSS V.24.

RESULTS

The mean age at death was 63.7 years (median 68). The majority of deaths (65.3%) occurred aged 60 and older; more males (57%) than females died, and cardiovascular disease (23.6%), malignancies (15.5%) and diabetes mellitus (14.7%) accounted for over half of all deaths (Table 2). Overall, the largest proportion of deaths (55.4%) occurred in a government hospital; 29.7% occurred at home and 5.9% in a nursing home/non-government hospital (Table 3). The younger the decedent group, the higher the proportion who died in government hospitals. POD of people categorised as ethnically white is different from every other race/ethnic group; about half (48.8%) died at home and 17.1% in a nursing home or non-government (private) hospital, more than any other ethnic group, whereas 29.3% died at a government hospital, the least of any other group. A higher proportion of those dying from diseases of the nervous system (43.4%) died at home, more than any other disease group.

Table 2. Demographic characteristics of all registered deaths in 2010 (N=10,221)

	Frequency	Percentage (%)
Deceased Age		
< 1	258	2.5
1 thru 17	126	1.2
18 thru 59	3145	30.8
60 thru 69	1856	18.2
70 thru 79	2085	20.4
80 thru 89	1961	19.2
90 thru highest	773	7.6
Decease Sex		
Male	5822	57
Female	4398	43
Cause of Death		
Malignancies	1579	15.5
Non-malignant neoplasms	71	0.7
Nervous system disease	248	2.5
Diabetes mellitus	1505	14.7
Cardiovascular disease	2409	23.6
Cerebrovascular disease	920	9.0
Respiratory diseases	502	4.9
Liver and kidney disease	245	2.4
Human immunodeficiency virus (HIV) disease	226	2.2
External cause of death	956	9.4
Suicide	160	1.6
Other cause of death	1400	13.7

The comparatively rural Eastern RHA registered the smallest proportion of deaths (10.6%) but the places of death approximated the other RHAs, whilst the South-West region registered the largest proportion (33.9%) (Appendix 2).

Table 3. Demographic, health resource and supplemental characteristics of all registered deaths in relation to the place of death (2010)

	Private Home n †(%)	Government Hospital n (%)	Nursing Home and Non-government Hospital n (%)	*Other n (%)
All deaths	3031 (29.7)	5662 (55.4)	606 (5.9)	921 (9.0)
Sex				
Male	1663 (28.6)	3192 (54.8)	300 (5.2)	667 (11.5)
Female	1368 (31.1)	2470 (56.2)	306 (7.0)	254 (5.8)
Age				
< 1	7 (2.7)	239 (92.6)	8 (3.1)	4 (1.6)
1 – 17	17 (13.5)	74 (58.7)	10 (7.9)	25 (19.8)
18 – 59	608 (19.3)	1889 (60.1)	123 (3.9)	525 (16.7)
60 – 69	515 (27.7)	1139 (61.4)	94 (5.1)	108 (5.8)
70 – 79	702 (33.7)	1172 (56.2)	128 (6.1)	83 (4.0)
80 – 89	791 (40.3)	915 (46.7)	154 (7.9)	101 (5.2)
> 90	390 (50.5)	228 (29.5)	89 (11.5)	66 (8.5)
‡Race/ethnicity				
East Indian	538 (31.0)	1046 (60.4)	77 (4.4)	72 (4.2)
Black	432 (24.9)	1152 (66.5)	72 (4.2)	77 (4.4)
Mixed	124 (30.0)	233 (56.4)	28 (6.8)	28 (6.8)
White	20 (48.8)	12 (29.3)	7 (17.1)	2 (4.9)
Chinese	14 (28.0)	27 (54.0)	5 (10.0)	4 (8.0)
Cause of death				
Malignancies	492 (31.2)	863 (54.7)	90 (5.7)	134 (8.5)
Diseases of the nervous system	98 (43.4)	85 (37.6)	25 (11.1)	18 (8.0)
Diabetes mellitus	523 (34.8)	834 (55.4)	100 (6.6)	48 (3.2)
Cardiovascular disease	920 (38.2)	1231 (51.1)	150 (6.2)	108 (4.5)
Cerebrovascular disease	264 (28.7)	547 (59.5)	79 (8.6)	30 (3.3)
Respiratory disease	157 (31.3)	283 (56.4)	40 (8.0)	22 (4.4)
Other	577 (24.0)	1819 (57.9)	122 (4.8)	561 (13.3)
Regional Health Authority				
North West	707 (26.1)	1507 (55.7)	176 (6.5)	316 (11.7)
North Central	746 (29.7)	1383 (55.0)	164 (6.5)	222 (8.8)
South West	1121 (32.7)	1911 (55.8)	187 (5.5)	206 (6.0)
Eastern	349 (32.5)	564 (52.5)	51 (4.7)	110 (10.2)
Tobago	100 (26.7)	227 (60.5)	19 (5.1)	29 (7.7)
Level of urbanisation				
Urban	1736 (27.2)	3630 (56.8)	430 (6.7)	597 (9.3)
§Semi-urban	34 (28.3)	71 (59.2)	4 (3.3)	11 (9.2)
Rural	1253 (35.0)	1891 (52.8)	163 (4.6)	275 (7.7)

*Public places, workplaces, roads etc. †Presented percentages are row percentages. ‡61.1% of data were missing for the variable race/ethnicity. §Semi-urban used only in Tobago

A stepwise logistic regression model controlling simultaneously for the effects of different covariates identified age, cause of death, urbanisation, sex and RHA as predictors of dying at home (vs elsewhere) and of dying in hospital (vs elsewhere) (Table 4).

Table 4. Logistic regression for deaths at home and government hospitals in relation to demographic and healthcare characteristics (2010)

Characteristics	home deaths vs elsewhere		government hospital deaths vs elsewhere	
	OR	CI (95%)	OR	CI (95%)
Sex				
Male	–	–	0.87	0.80 – 0.94
Female	1	1	1	1
Age				
0 – 17	0.30	0.20 – 0.46	2.67	2.03 – 3.50
18 – 69	1	1	1	1
70 – 89	1.91	1.73 – 2.10	0.66	0.60 – 0.72
90 – highest	3.63	3.08 – 4.27	0.25	0.21 – 0.30
Cause of death				
Malignancies	0.85	0.74 – 0.97	–	–
Diseases of the nervous system	1.44	1.08 – 1.93	0.49	0.37 – 0.66
Diabetes mellitus	1	1	1	1
Cardiovascular disease	0.61	0.51 – 0.72	1.46	1.25 – 1.71
Cerebrovascular disease	0.74	0.59 – 0.91	1.27	1.04 – 1.55
Respiratory disease	0.50	0.44 – 0.56	–	–
Other				
Regional Health Authority				
North West	1	1	1	1
North Central	1.17	1.03 – 1.34	–	–
South West	–	–	–	–
Eastern	–	–	–	–
Tobago	–	–	1.41	1.07 – 1.86
Urbanisation				
Urban	1	1	1	1
Semi-urban	–	–	–	–
Rural	1.51	1.35 – 1.70	0.77	0.69 – 0.86

Stepwise logistic regression controlling for sex, age, cause of death, regional health authority and urbanisation. 1 = reference variable

Dying at home becomes more likely with increasing age. Compared with those aged 18-69 it is more likely at age 70-89 (OR 1.91, CI 1.73 to 2.10) and age 90-highest (OR 3.63, CI 3.08 to 4.27). Home death was also more likely for those with diseases of the nervous system (OR 1.44, CI 1.08 to 1.93) compared

with the reference group, people dying from cardiovascular diseases, but less likely for people with malignancies (OR 0.85, CI 0.74 to 0.97) cerebrovascular disease (OR 0.61, CI 0.51 to 0.72) or respiratory disease (OR 0.74, CI 0.59 to 0.91) than the reference group. Dying from diseases of the nervous system (OR 0.49, CI 0.37 to 0.66) was associated with a lower chance of dying in hospital. Although the Eastern RHA covers the largest geographic area, it has the lowest population density in Trinidad, and between RHAs there is little difference in chances of dying at home or in hospital. Compared with the North-West RHA, there is a slightly higher likelihood of home death (OR 1.17, CI 1.03 to 1.34) in the North-Central RHA, and a slightly higher likelihood of hospital death (OR 1.41, CI 1.07 to 1.86) for those in the Tobago RHA. Living in a rural area is associated with a higher likelihood of dying at home (OR 1.51, CI 1.35 to 1.70) and a lower likelihood of dying in hospital (OR 0.77, CI 0.69 to 0.86).

A multivariable logistic regression model where the 'number of hospital beds per 10 deaths' within an RHA was entered as a continuous variable instead of the RHA variable itself, controlling for sex, age, cause of death and urbanisation, did not reveal a significant association between the number of hospital beds and the chance of dying in hospital versus home (Supplemental 2). A regression model with the variable race/ethnicity (61.1% of data were missing) as an independent variable, controlling for age, sex and cause of death, confirmed a significantly lower chance of dying at home for black (OR 0.51, CI 0.27 to 0.98) than for ethnically white people and a larger chance of dying in hospital for East Indian (OR 2.32, CI 1.14 to 4.71) and black (OR 3.33, CI 1.64 to 6.74) compared with ethnically white people (Supplemental 3).

DISCUSSION

Main findings

This study provides a population distribution for POD in T&T in 2010. More than half - 55.4% - of deaths occurred in a government hospital and less than a third - 29.7% - in a private home. Dying at home was associated with increasing age; hospital deaths were more associated with cerebrovascular and respiratory diseases as underlying cause of death. Of all deaths, two thirds were in an urban setting and approximately one third - 33.9% - occurred in the South-West RHA. However, there were no significant differences between RHAs and POD. Individuals dying of conditions associated with the need for palliative care – chronic disease and cancer – conditions that can be an indicator of palliative care performance, were less likely to die at home. An important finding for policy and practice.

Strengths & Limitations

This study demonstrates that even in low-resourced environments like SIDS, it may be possible to use death certificate and supplementary health data to study POD. Completed death certificates are a useful tool to assess national mortality as patterns are described within the whole population.³² Data from death certificates are widely used as information sources for epidemiologic studies, and generally, routinely collected data - death certificate and health resource - can be an available secondary and low-cost source for researchers, although they too have their limitations. There are inaccuracies in recording cause of death²⁷ and issues regarding completeness, for example, race/ethnicity in death certificates.³³ On the T&T death certificate, options for selecting POD are restricted to four categories, and groups together very diverse places, that is, nursing homes, private hospitals, hospices and geriatric homes. Moreover, in many countries where POD is registered, demographic data like marital status, income bracket or educational level are considered as relevant determinants,²⁷ but this information is not collected in T&T. And the inability to link sociodemographic data from a national census to death certificates can limit the depth of this kind of research.³⁴

INTERPRETATION

To date, no large-scale robust palliative care studies have been done in T&T and literature is lacking. Our analysis of 2010 data is relevant as a starting point to enable exploration of POD and its associated factors. A possible explanation for the most common POD, government hospitals, could be a reliance on institutionalised care, since T&T has a public healthcare system that is free of charge at the point of delivery. The high prevalence of non-communicable diseases and related morbidity, along with the convention that institutional professional care is better at coping with the complex range of symptoms and needs, as opposed to the availability of primary care alternatives offered by general practitioners,¹² might further explain the high number of hospital deaths. More importantly, hospital deaths may reflect the slow development of palliative care policy and services at home.²⁵ The lack of alternatives like home-based, community or hospice care may be driving people into government hospitals. This is more obvious in Tobago, which has a greater proportion of hospital deaths than Trinidad, which suggests fewer alternatives for place of care and death than Trinidad.

The proportion of home deaths found in T&T is substantially lower than in developed countries such as Italy and the Netherlands but is in line with that found in other countries such as England and Wales (2008) and Belgium (2005-07) which have invested in the availability of quality end-of-life care outside the home¹ and in enabling a death at home if people prefer.^{4,27,28} It could be that home deaths in T&T are due to Caribbean cultural traditions, family expectations and religious beliefs about caring at home

for older people, the differently abled or terminally ill³⁵ as opposed to people choosing to die at home or receiving palliative care at home. This potential cultural influence is corroborated by the finding that older people are more likely to die at home but without government services like medical and nursing care or pain relief, as well as without financial and social support, including training for informal home care providers.^{35,36}

Interestingly, similarities with dying at home are apparent between T&T and countries such as France, Italy, Spain, England, New Zealand, the USA and Mexico, where home deaths are more likely among women and those living in rural areas.² In T&T, it could be that women are less inclined to receiving aggressive treatment at the end of life and more likely to remain and die in their usual place of residence.³⁷ Those living in rural areas may choose to be cared for and die at home because of longer distances and travel time to hospitals or specialised end-of-life care settings like hospices;²⁸ impeded not by impassable mountain ranges but by poorly maintained and congested secondary roads and a lack of reliable transport services.

Considering that the majority of people who die with serious health-related suffering associated with a need for palliative care and pain relief live in developing countries,¹³ there may be a need in T&T to encourage different place of care and POD trajectories than what was observed in the data. For example, initiating palliative care upon a diagnosis of a life-threatening illness may substantively direct where care is provided and allow choice for the place of death. The discrepancy between ethnic groups in POD is noticeable, although the data must be interpreted with caution as information on race/ethnicity was often missing. The largest difference was found between ethnically white people, who have the highest chances of dying at home, and ethnically black people, who have the lowest. Lower income is considered a determinant of hospital death.³⁸ If we consider socioeconomics as a proxy between these groups, with ethnically black people generally having a lower disposable income than ethnically white people,³⁹ and less access to scarce home care services or care outside government hospitals, then this observation supports the conclusion that people with higher incomes were more likely not to die in a government hospital.

It cannot be excluded, of course, that cultural preferences and expectations differ between ethnic groups.⁴⁰ This inequality in end-of-life care and POD requires further attention from national policy and healthcare planners. For example, if ethnic group disparities are due to geographical clustering then geographical planning of services may address this issue. And, if disparities are due to a difference in culture between ethnic groups, then policy can focus on public education campaigns that emphasise

dispelling myths and misconceptions about disease processes, available treatment options and access to alternatives to hospital care like home or community-based care.³⁶ This study provides a clear analysis model for POD in low-resourced contexts like SIDS, and POD patterns allow for projections of public health policy by identifying which care settings require attention and how best to provide appropriate care.² A major challenge for T&T, with an aging population afflicted with cancer and chronic disease, is how to identify people who can benefit from palliative care and how to improve coverage and necessary programmes to a growing target population.⁴¹ The numbers apparently seeking care at the end of life and subsequently dying in government hospitals may prompt policy makers to debate a need to increase the number of hospital beds to meet increasing demand.

A small country like T&T may not be able to sustain the economic burden this can pose. Of course, much more research is required to explore these issues to get a better understanding of palliative care need and how best to address this need, for example, exploratory studies about what triggers hospitalization in T&T and what quality of end-of-life care people receive. To decrease hospital expenditure, many European countries have adopted policies and strategies to reduce the number of people dying in hospitals,³² beyond just a reduction in the number of hospital beds. Our findings corroborate those from previous studies showing that fewer hospital beds does not necessarily translate into fewer people dying in hospital.^{42,43} A Swedish study found that older individuals living in areas with a lower number of hospital and nursing home beds were more likely to die in hospitals or nursing homes compared with those in regions with higher numbers of beds.⁴² It appears that the availability of alternatives to hospitals, like home care and geriatric homes, and how care is integrated, plays a much more important role than the availability of hospital beds in influencing POD patterns.⁴³

CONCLUSION

In T&T, POD is influenced by age, sex, race/ethnicity, underlying cause of death and urbanisation. The number of government hospital beds within and between RHAs have little influence on deaths in government hospitals versus private homes. For POD, the most common places to die are government hospitals and a majority of these deaths are indicative of palliative care need. Home death is more common for older people, but the chances of home death are particularly lower for younger people or people in Tobago. An obvious difference in POD between race/ethnic groups suggests potential inequality regarding availability, affordability, and access to end-of life care across all care settings. Preference for POD is unknown, and if home care is not a culturally or financially viable option then policy can focus on developing palliative care units in each hospital or on other alternatives like

community care. A better understanding is needed of the socio-demographics of the POD, and services should focus on offering options and choice for place of care and death.

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Data management and sharing

The data of this study are with the first author and are available upon request.

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Competing Interest

None declared.

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Research ethics and patient consent

We used an anonymised dataset and routinely collected data, therefore no ethical approval was necessary.

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