Final transitions to place of death: patients and families wishes

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ABSTRACT

Purpose This four-country study (Belgium, the Netherlands, Italy and Spain) examines prevalence and types of final transitions between care settings of cancer patients and the extent to which patient/family wishes are cited as a reason for the transition.

Methods Data were collected from the EUROSEN'TI-MELC study over a 2-year period. General practitioners within existing Sentinel Networks registered weekly all deaths of patients within practices using a standardized questionnaire. This registration included place of care in the final 3 months and wishes for the final transition to place of death. All non-sudden deaths due to cancer (+18 years) were included in the analyses.

Results We included 2048 non-sudden cancer deaths; 63% of patients had at least one transition between care settings in the final 3 months of life. ‘Hospital death from home’ (25–55%) and ‘home death from hospital’ (16–30%) were the most frequent types of final transitions in all countries. Patients’ or families’...
wishes were mentioned as a reason for a final transition in 5–27% \((P < 0.001)\) and 10–22\% \((P = 0.002)\) across countries.

**Conclusions** ‘Hospital deaths from home’ is the most prevalent final transition in three of four countries studied, in a significant minority of cases because of patient/family wishes.

**INTRODUCTION**
Cancer is a life-threatening disease and in spite of progress in its prevention and treatments, more than 8 million people died because of it in 2012,1 and the numbers are estimated to rise.2 Cancer care is costly, particularly in the year following diagnosis and the last year of life.3–5 In Europe, cancer costs were at an estimation of €126 billion in 2009.6 Reducing unnecessary terminal hospitalizations can help curb the mounting healthcare costs7 as well as improve the quality of end-of-life. Most people reside in their own homes in the last year of life,8 but the majority experienced at least one hospital transfer in the last months of life.9,10 Comparative European data will inform us how different countries are performing on cancer end-of-life care and the possible room for improvement.

Transitions between care settings at the end-of-life can be burdensome11,12 for patients and families, and a recent study from the USA showed that about one-tenth of cognitively impaired nursing home patients had a transition in the last 3 days of life.13 These final transitions could be against a patient’s wish to receive care at home until death.14 Late hospice enrolment and hospital admissions are considered as indicators of poor end-of-life care.15–17 Research in the USA found that 16\% of cancer patients were admitted into hospitals in the last 7 days of life15 and 11–36\% of cancer patients were enrolled in a hospice in the last 3 days before death.7 While these transitions are needed under some circumstances, such as responding to patients’ and families’ requests18 or unmet care needs at home,19 little is known about to what extent these transitions are according to patients’ or families’ wishes. A lot of research studied the place of death of cancer patients,9,11,14 but few inform us where patients were staying prior to death.

The current study was conducted to examine the prevalence and types of final transitions between care settings of terminally ill cancer patients and the extent to which patient and family wishes are cited by the family physician (FP) as a reason for the transition in four European countries via representative FP networks.

The research questions of the study were

1. What are the different types of final transitions to the place of death in Belgium, the Netherlands, Italy and Spain, how prevalent are the different types and are there differences between countries?
2. How often were patients’ and families’ wishes cited by general practitioners (GPs) as reasons for the final transition in the four countries?

**MATERIALS AND METHODS**

**Design**
Data were gathered from the European Sentinel Network for Monitoring End-of-Life Care (EURO SENTI-MELC) study conducted in four European countries (Belgium
[BE], the Netherlands [NL], Italy [IT] in 2009–2010 and Spain [ES] from 2010 to 2011). A retrospective mortality follow-back study design was adopted and representative GP networks were used for data collection. Except Italy, the other countries have established these networks for monitoring topics such as influenza and other acute or chronic conditions. A new network in Italy was set up for this study. Further details for the study have been published. These networks represented 0.8% (NL) to 4% (IT) of the patient population in the respective countries. Nursing home deaths in the Netherlands were excluded because GPs discontinue their care once a patient is transferred to a nursing home.

**Data collection and measurements**

GPs within the networks were asked to report all deaths of patients who are part of their practices weekly to minimize report biases. Basic information of the patient (age, gender, underlying disease, symptoms, longest place of residence in the last year and place of death) was registered by the GPs. They also reported the number of transitions and the respective reasons in the final 3 months of life. Questions were first developed in Dutch and subsequently translated into French and English, and from English to Italian and Spanish through forward–backward procedures. The question ‘Was death totally sudden and unexpected?(yes/no)’ was used to identify patients who potentially were able to benefit from end-of-life care. Deceased patients aged 18 years or older and with cancer as the underlying cause of death, place of death and second place of residence known and with reasons for transitions filled in were included in the analyses. GPs registered ‘the place of death and place(s) of residence of the patient during the last 3 months (=90 days) before death’. GPs filled in the place of death, and (maximum) three places of residence and the respective days of stay of the patient in the last 3 months of life. The pre-defined categories of place were ‘at home or living with family, care home/home for the elderly/nursing home, hospital, palliative care units (PCUs)/hospice and elsewhere’. If the patient was moved one or more times during the final 3 months of life, GPs were also asked ‘for what reason(s) was the patient moved to the place where he/she died?’ (More than one answer can be given). GPs could indicate if the move was the ‘wish of the patient’ or the ‘wish of the patient's family or significant other(s)’.

**Ethical approval**

In Belgium, the study protocol was approved by the Ethical Review Board of Brussels University Hospital (2004) and in Italy by the Local Ethical Committee ‘Comitato Etico della Azienda U.S.L. n. 9 di Grosseto’, Tuscany (2008). Ethical approval was not required in the Netherlands or Spain due to the posthumous collection of anonymous (to researchers) patient data.

**Statistical analysis**

Descriptive statistics were used to describe the prevalence, types and reasons of transitions between care settings among deceased cancer patients. Bivariate Pearson's chi-squared tests were used to identify cross-country differences ($P < 0.001$) on these items. All analyses were completed with SPSS22.0 (IBM Corp, Armonk, NY). For the analyses, we extracted the place of residence prior to death and the place of death to identify the types of final transition. For example, if a patient was living at home and died in hospital, it was labelled as a ‘hospital death from home’. Only transitions between care settings that occurred 10% or more in at least one of the countries were included in the multinomial and multivariate logistic regressions. Multinomial
logistic regressions (Table 2) compared the cross-country differences distribution for the four most frequent types of final transitions (with the most frequently occurring transition, i.e., hospital death from home, being the reference group), controlling for age, sex and types of malignancy. Multivariate logistic regressions (Tables 3 and 4) compared the cross-country differences on the wishes expressed when age, sex and the types of malignancy were controlled for. Because multiple responses were possible on this question, we needed to perform several binary regression analyses to evaluate country differences.

**RESULTS**

From the four countries over a 2-year period, 7411 patients were included and 2048 non-sudden cancer deaths were identified (Fig. 1). Among these, 1268 patients had their place of death and second place of residence known by their GPs and 1226 patients had their reasons for final transition recorded. More than half of all patients in all countries had one or more transition.

![Figure 1](image)

**Characteristics of deceased cancer patients (N = 2048)**

More often patients were male (54–68%) and aged between 65 and 85 years (56–60%) (Table 1). Lung, breast, colorectal and prostate were the four most common types of malignancy among the deceased cancer patients, with about one in four patients (except ES) died with lung cancer (24–27%). Sex and the type of malignancy differed between the four countries (P < 0.001).

![Table 1](image)

The distribution of place of death differed between the countries (P < 0.001). Home deaths were 33% in Belgium, 46% in Italy, 51% in Spain and 58% in the Netherlands. From 17% (NL) to 38% (IT) of patients died in hospitals in the four countries. The proportions of PCU/hospice deaths were 10% (ES) to 38% (IT), respectively, in the four countries. The numbers for a care home/residential home for older people were 5–6%. Home/family (92–96%) and care home/residential home for older people (3–7%) were the two places where cancer patients resided in their last year of life. For the 2048 cancer patients who did not die suddenly, 1179 (63%) patients had one or more transitions across the four countries.

**Types of final transitions to place of death**

The types of transitions to place of death are shown in Table 2 (N = 1226). There were 12 types of transitions found and 4 types were most prevalent, i.e. when occurred in more than 10% in at least one country (highlighted in grey). They were ‘hospital death from home, PCU/hospice death from home, PCU/hospice death from hospital and home death from hospital’. From 25% (NL), 45% (BE), 47% (ES) to 55% (IT) of cancer patients had a transition from home and died in hospitals. Eleven percent (IT) to 16% (NL) of patients moved from home to PCU/hospice. On the contrary, 4% (ES) to 18% (NL) of patients had a transfer from hospital to PCU/hospice. Finally, the proportions of patients who were transferred from hospital to home were 16% (BE) to 30% (NL). Multinomial logistic regressions showed that the cross-country differences between the three main types of final transition to place died.
of death were significant after controlling for age, gender and malignancy type (the latter not being significantly related to the transition types).

**[Table 2]**

**Wishes for final transition**
Table 3 shows the prevalence of wishes for the final transitions of terminally ill cancer patients regardless of the direction of the move ($N = 1226$). Cross-country differences were observed in terms of patients’ and families’ wishes about the final transition (except family wishes and family wishes only) ($P < 0.001$). Among patients who experienced at least one transition between care settings in their final 3 months of life, from 56% in the Netherlands, 62% in Belgium, to 73% in Italy to 86% in Spain, no wishes from patients or families had been registered by the GP as reason for the transition. In a minority of cases, wishes about the transition were indicated by 5% (ES) to 28% (NL) of patients. Family wishes about transitions were expressed in 10% (ES), 18% (NL and IT) and 22% (BE) of the cases. From 5% in Spain to 26% in the Netherlands, only patients’ own wishes were expressed about the transition. Finally, from 1% (ES) to 14% (BE) of patients, both wishes from patients and family were expressed concerning the final transition.

**[Table 3]**

**Wishes for transition per type of transition**
A further analysis is presented in Table 4 on the wishes expressed for the four most frequent (>10% in one of the columns) types of transitions. Hospital death from home was the most prevalent type of transition ($N = 573$). In 3% (ES) to 22% (BE) of cases, patient wishes were registered as a reason for the transition. Family wishes were registered in 6% (NL) to 18% (BE) of cases. Wishes expressed by both patients and families occurred in 1% (ES) to 11% (BE) of patients.

**[Table 4]**

Home death from hospitals ($N = 232$) was the second main type of final transition. More than half of the patients in Belgium ($N = 37, 60\%$) had this transition as wished by themselves. The figures were 48%, 19% and 11% in the Netherlands, Italy and Spain, respectively ($P < 0.001$). About one-third patients ($N = 16, 26\%$) from Belgium and 14% (NL) to 18% (IT) in other countries were transferred from hospital to home with family wishes registered as reason ($P = 0.009$). Among 8% (IT) to 23% (BE) of the transitions, patients and family wishes were both expressed ($P = 0.057$). PCU/hospice death from home occurred for 153 patients. Patients wishes were mentioned in 6–59% of the transitions ($P < 0.001$). From 2% (IT), 6% (ES), to 18% (BE) and 36% (NL) in the four countries, the transition took place following patient’s wishes ($P = 0.005$); 5% (IT) to 23% (NL) of patients were transferred following both patients and family wishes.
Lastly, 120 patients had a PCU/hospice death from hospitals. No significant cross-country differences were found with regard to the wishes expressed on the final transition. In 7% (IT) to 26% (BE) of patients, a wish from patients was indicated. Family wishes were expressed in 22% (ES) to 38% (IT) of the cases.
DISCUSSION

Main finding of this study
Our results showed that in all four countries, more than half of the deceased cancer patients had at least one transition between care settings in their final 3 months of life. Four main types of transitions were identified in this population and the most prevalent types were from home to hospital and from hospital to home across the different countries. Wishes from patients or families were indicated in less than half of patients in most countries as a reason for the final transition. From 4% to 33% of patients and 12% to 27% of families asked for a transition to a hospital from home in the final months of life. Countries differed considerably on the prevalence of patient and family wishes cited by the GPs as reasons for final transitions.

Strengths and limitations of this study
This is the first study describing and comparing final transitions and accompanying patient/family wishes in four EU countries. GPs in Europe play an important role in patient care and hence have a good view on where people are dying and why they are transferred at the end of life. The participating GPs in the networks are also representative in terms of age, gender and geographical distribution of GPs in the four countries. In terms of representation at the patients’ level, a previous publication showed that we could obtain samples of deaths representative for the GP populations in the participating countries. The weekly reporting helps to minimize memory biases. However, there are also some limitations of the study. No information was collected on how GPs discussed the final transition or on the patients/families’ perceived quality of care associated with each place of care. Also, GPs’ retrospective perception on the wishes could involve recall or memory bias.

Final transitions
The number of transitions of terminally ill cancer patients varied across the four countries. The proportion of zero transitions was the highest in the Netherlands, followed by Spain, Italy and Belgium. Studies showed that care capacity of the setting, acute medical situations, respiratory problems and digestive problems were common reasons for cancer patients to be hospitalized. Some of the transitions might have been appropriate to address the care needs of the patients and their families. However, terminal hospitalizations can be burdensome and costly, and patients and families should be well informed to decide on the appropriateness of the transition. In many countries in Europe, policymakers aim to have people stay in their own home as much and long as possible and prevent unnecessary transitions in particular for those who are at the end of their lives. Improving integrated care in the community is high on the agenda of policy makers and decision-makers who aim to reduce transitions between settings, to guarantee seamless and safe care between settings in case a transition is necessary, and advocate home death as much as possible. Data such as those provided by Sentinel GP Networks can be used to evaluate whether these initiatives are effective in reducing hospital deaths and late-stage transitions in the future.

Types of final transition to place of death
With the exception of the Netherlands, our results showed that among patients who had at least one transition in the last 3 months of life, almost half of them resided at home and were transitioned to hospitals where they died. In all countries, the most frequent types of final transitions were hospital death from home and home death
from hospital. For patients who died in a PCU or a hospice, they often resided at home or hospitals (the percentages were lower in Italy and Spain) prior to the final transfer. Patients moving from home to hospitals might reflect the care needs at the end of life, for instance uncontrolled symptoms\(^\text{18}\) or an acute medical condition.\(^\text{22}\) Patients leaving hospitals for home might be fulfilling a home death wish, which is desired by many terminal ill patients.\(^\text{23}\)

**Wishes for final transitions**

One interesting finding is the cross-national variations of wishes from patients or families on final transitions. Among patients experiencing a final transition in the final 3 months of life, the majority of GPs in all countries did not indicate this was based on a patient or family wish. This might also imply that for most cases GPs did also not elicit preferences for the transitions or that patients or families did not utter explicit wishes. It was also possible that the patients and families transferred this difficult decision to healthcare professionals. In some cases, final admissions to hospitals might also be performed in rather acute situations or circumstances, leaving little room for exploration of preferences. Advance care planning has been advocated in palliative care literature, but its use varied,\(^\text{24,25}\) and our results are consistent with this finding. The current literature emphasizes the importance of communication at the end of life,\(^\text{26–27}\) and it might help understand the results from our study. Sometimes communications concerning end-of-life issues occurred, but the rate of documentation remained low\(^\text{24}\) or the declared goals of care were not delivered because of changes in circumstances.\(^\text{25}\)

Patient wishes were more frequently indicated by GPs as a reason for a final transition in Belgium and the Netherlands, while family wishes were more often cited in Italy and Spain. This is consistent with previous research on end-of-life decision-making, showing that more patients were involved in end-of-life decisions in Belgium and the Netherlands, where there seems to be more emphasis on patients’ autonomy and early discussion of patient's end-of-life preferences,\(^\text{28–30}\) whereas in southern Europe, families might play a more dominant role in decision-making.\(^\text{31}\) Furthermore, the proportion of ‘both patients and family wishes’ was the lowest in Spain, followed by Italy, the Netherlands and highest in Belgium. The concept of shared decision-making might be relevant here. Shared decision-making had been said to be useful in end-of-life care communication where medical professionals, patients and families could give a voice in these decisions,\(^\text{32}\) but sometimes the two preferences may disagree.\(^\text{33}\) The higher proportions of ‘both patients and family wishes’ in Belgium and the Netherlands might mean that end-of-life care discussions more often involve both patients and families which is an example of shared decision-making. Nevertheless, we could not exclude the possibilities that in Italy and Spain, patients and family simply had different wishes or only wishes from either patients or family was known. These results encourage practitioners in cancer end-of-life care to understand better the interaction between patients’ autonomy, the role of families and healthcare professionals in decision-making.

**Wishes and types of transitions**

Concerning the types of final transitions between care settings based on patient wishes, from one-tenth to almost two-thirds of patients in the four countries had a wish to be transferred from hospital to home and eventually died there, which is in accordance to the common view that patients wish to die at home.\(^\text{34}\) However, with
the exception of Spain, on average about one-tenth of patients had a known wish to be transferred from home to hospital and died there. This seems contradictory to the literature concerning wishes for place of death indicating most people would prefer dying at home. To understand these results fully, we would need to understand why these patients wished to be transferred to hospitals, for example, whether patients and families knew that the patient was dying or whether they believed hospitals were the best place to receive further care without being aware of possibly also dying there. In addition, quite a few patients in Belgium and the Netherlands wished for a transfer from home/hospital to PCU/hospice in their final months of life, which are also institutionalized settings often linked to hospitals. The role and position of hospitals in the society has historically grown considerably, together with a clear medicalization of death and dying in most western countries. While people are living longer because medicine has become more effective in treating diseases, informal care structures have changed. Also, over the past centuries, medical knowledge and care have increasingly become consolidated in hospitals; hence, many patients and families might consider hospitals the best place to be in time of need. Further study is needed to fully understand the wishes of patients and families when decisions about place of care need to be made at the end of life.

**CONCLUSION**

‘Hospital deaths from home’ is the most prevalent type of transition between care settings in three out of four countries studied (the second most prevalent type in the Netherlands). In a minority of cases, wishes from patients or families were indicated by GPs as a reason for the final transitions between care settings. When wishes were a reason for the transition, patients’ wishes was the most cited reason for a hospital death from home in Belgium and the Netherlands, while in Italy and Spain, it was family wishes. Future research could focus on better understanding the reasons for patients and families’ wishes for a hospital transfer.

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**Conflict of interest**

None declared.
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*Collaborators EURO IMPACT

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Fig. 1. Flow chart excluded cases. (*Place of death/second place of residence 'not answered', 'unknown' or 'nursing home' in the Netherlands.)
Table 1 Characteristics of the sample (N = 2048)

<table>
<thead>
<tr>
<th>Characteristics/Country</th>
<th>Belgium (N = 595)</th>
<th>The Netherlands (N = 346)</th>
<th>Italy (N = 830)</th>
<th>Spain (N = 277)</th>
<th>P-value</th>
</tr>
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<tbody>
<tr>
<td></td>
<td>N (%)</td>
<td>N (%)</td>
<td>N (%)</td>
<td>N (%)</td>
<td></td>
</tr>
<tr>
<td>Sex</td>
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<td>Male</td>
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<td>448 (54)</td>
<td>186 (68)</td>
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</tr>
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<td>93 (27)</td>
<td>195 (24)</td>
<td>59 (21)</td>
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<td>207 (60)</td>
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<td>86 or above</td>
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<td>46 (13)</td>
<td>138 (17)</td>
<td>53 (19)</td>
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</tr>
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<td></td>
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<td>Lung</td>
<td>148 (25)</td>
<td>80 (24)</td>
<td>182 (27)</td>
<td>53 (20)</td>
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</tr>
<tr>
<td>Breast</td>
<td>51 (9)</td>
<td>34 (10)</td>
<td>57 (8)</td>
<td>11 (4)</td>
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<tr>
<td>Colorectal</td>
<td>69 (12)</td>
<td>40 (12)</td>
<td>102 (15)</td>
<td>49 (18)</td>
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<td>Prostate</td>
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<td>24 (7)</td>
<td>35 (5)</td>
<td>29 (11)</td>
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<tr>
<td>Other</td>
<td>302 (51)</td>
<td>152 (46)</td>
<td>312 (45)</td>
<td>126 (47)</td>
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<td>Place of death</td>
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<td>Home</td>
<td>196 (33)</td>
<td>194 (58)</td>
<td>377 (46)</td>
<td>139 (51)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Care home/residential home for older people</td>
<td>71 (12)</td>
<td>28 (8)</td>
<td>41 (5)</td>
<td>11 (4)</td>
<td></td>
</tr>
<tr>
<td>Hospital</td>
<td>201 (34)</td>
<td>58 (17)</td>
<td>312 (38)</td>
<td>96 (35)</td>
<td></td>
</tr>
<tr>
<td>PCU/Hospice</td>
<td>122 (21)</td>
<td>54 (16)</td>
<td>94 (11)</td>
<td>26 (10)</td>
<td></td>
</tr>
<tr>
<td>Elsewhere</td>
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</tr>
<tr>
<td>Longest place of residence last year</td>
<td>516 (87)</td>
<td>309 (90)</td>
<td>799 (97)</td>
<td>258 (95)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Home/family</td>
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<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Care home/residential home for older people</td>
<td>65 (11)</td>
<td>30 (9)</td>
<td>21 (3)</td>
<td>10 (4)</td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td>11 (2)</td>
<td>1 (0)</td>
<td>8 (1)</td>
<td>3 (1)</td>
<td></td>
</tr>
<tr>
<td>Patients with at least one transition</td>
<td>408 (69)</td>
<td>181 (53)</td>
<td>584 (64)</td>
<td>156 (57)</td>
<td>&lt;0.001</td>
</tr>
</tbody>
</table>

*Missing: sex-N = 4, age group-N = 5, type of malignancy-N = 167, place of death-N = 25 (nursing homes in the Netherlands-N = 11), longest place of residence last year-N = 17 (nursing homes in the Netherlands-N = 2), patients with at least one transition-N = 17.

Table 2 Types of final transitions to place of death among cancer patients (N = 1226)

<table>
<thead>
<tr>
<th>Place of transition/Country</th>
<th>Belgium (N = 394)</th>
<th>The Netherlands (N = 142)</th>
<th>Italy (N = 530)</th>
<th>Spain (N = 153)</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N (%)</td>
<td>N (%)</td>
<td>N (%)</td>
<td>N (%)</td>
<td></td>
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<tr>
<td>Hospital death</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>From home</td>
<td>176 (45)</td>
<td>36 (25)</td>
<td>289 (55)</td>
<td>72 (47)</td>
<td>Ref</td>
</tr>
<tr>
<td>From care home</td>
<td>10 (3)</td>
<td>2 (1)</td>
<td>10 (2)</td>
<td>4 (2)</td>
<td></td>
</tr>
<tr>
<td>From PCU/Hospice</td>
<td>1 (0)</td>
<td>0 (0)</td>
<td>2 (0)</td>
<td>0 (0)</td>
<td></td>
</tr>
<tr>
<td>PCU/Hospice death</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>From home</td>
<td>57 (14)</td>
<td>22 (16)</td>
<td>56 (11)</td>
<td>18 (12)</td>
<td>&lt;0.05</td>
</tr>
<tr>
<td>From care home</td>
<td>5 (1)</td>
<td>2 (1)</td>
<td>2 (0)</td>
<td>0 (0)</td>
<td></td>
</tr>
<tr>
<td>From hospital</td>
<td>58 (15)</td>
<td>25 (18)</td>
<td>31 (6)</td>
<td>6 (4)</td>
<td>&lt;0.05</td>
</tr>
<tr>
<td>Home death</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>From care home</td>
<td>1 (0)</td>
<td>4 (3)</td>
<td>11 (2)</td>
<td>7 (5)</td>
<td></td>
</tr>
<tr>
<td>From hospital</td>
<td>62 (16)</td>
<td>42 (30)</td>
<td>91 (17)</td>
<td>37 (24)</td>
<td>0.748</td>
</tr>
<tr>
<td>From PCU/Hospice</td>
<td>4 (1)</td>
<td>1 (1)</td>
<td>4 (1)</td>
<td>4 (3)</td>
<td></td>
</tr>
<tr>
<td>Hospital death</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>From care home</td>
<td>3 (1)</td>
<td>2 (1)</td>
<td>21 (4)</td>
<td>4 (3)</td>
<td></td>
</tr>
<tr>
<td>From hospital</td>
<td>17 (4)</td>
<td>6 (4)</td>
<td>12 (2)</td>
<td>1 (1)</td>
<td></td>
</tr>
<tr>
<td>From PCU/Hospice</td>
<td>0 (0)</td>
<td>0 (0)</td>
<td>1 (0)</td>
<td>0 (0)</td>
<td></td>
</tr>
</tbody>
</table>

*Transitions to or from elsewhere excluded (n = 7).

P-value of cross-country difference with multinomial logistic regressions comparing the main types of transitions between care settings (highlighted in grey) (with hospital deaths from home as the reference category and controlling for age, sex and types of malignancy at P < 0.05).
Table 3: Final transition and patients’/families’ wishes (N = 1226)\textsuperscript{a}

<table>
<thead>
<tr>
<th></th>
<th>Belgium (N = 394)</th>
<th>The Netherlands (N = 142)</th>
<th>Italy (N = 530)</th>
<th>Spain (N = 153)</th>
<th>P-value\textsuperscript{d}</th>
</tr>
</thead>
<tbody>
<tr>
<td>No wish from patients or families</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>243 (62)</td>
<td>80 (56)</td>
<td>386 (73)</td>
<td>131 (85)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Wishes from patients or families</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Patients wishes\textsuperscript{b}</td>
<td>108 (27)</td>
<td>40 (28)</td>
<td>68 (13)</td>
<td>5 (5)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Family wishes\textsuperscript{b}</td>
<td>87 (22)</td>
<td>25 (18)</td>
<td>97 (18)</td>
<td>15 (10)</td>
<td>0.002</td>
</tr>
<tr>
<td>Patients wishes only</td>
<td>64 (16)</td>
<td>37 (26)</td>
<td>47 (9)</td>
<td>7 (5)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Family wishes only</td>
<td>33 (8)</td>
<td>12 (8)</td>
<td>76 (14)</td>
<td>14 (9)</td>
<td>0.019</td>
</tr>
<tr>
<td>Both patients and family wishes</td>
<td>54 (14)</td>
<td>13 (8)</td>
<td>21 (4)</td>
<td>1 (1)</td>
<td>&lt;0.001</td>
</tr>
</tbody>
</table>

\textsuperscript{a}Transitions to or from elsewhere excluded (n = 7).

\textsuperscript{b}For the patients/family wishes of final transitions, the category patient wishes was a sum of patients wishes only and patients and family wishes. Likewise, the category family wishes was a sum of family wishes only and patients and family wishes.

\textsuperscript{c}Binary logistic regression analyses on the cross-country differences on the wishes expressed on final transition, controlling for age, sex and types of malignancy at P < 0.001.

\textsuperscript{d}Multiple responses allowed.

\textsuperscript{e}Column percentages do not add up to 100 due to rounding off.

Table 4: Wishes and final transition, per type of transition (N = 1078)\textsuperscript{a}

<table>
<thead>
<tr>
<th>Final transition\textsuperscript{a}</th>
<th>Hospital death from home (N = 573)</th>
<th>PCU/hospice death from home (N = 153)</th>
<th>PCU/hospice death from hospital (N = 129)</th>
<th>Home death from hospital (N = 232)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>BE (N = 176)</td>
<td>NL (N = 36)</td>
<td>IT (N = 259)</td>
<td>ES (N = 72)</td>
</tr>
<tr>
<td>Patients wishes\textsuperscript{b}</td>
<td>36 (22)</td>
<td>3 (8)</td>
<td>31 (11)</td>
<td>2 (3)</td>
</tr>
<tr>
<td>P-value\textsuperscript{b}</td>
<td>0.004</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Family wishes\textsuperscript{b}</td>
<td>31 (19)</td>
<td>2 (6)</td>
<td>43 (15)</td>
<td>5 (7)</td>
</tr>
<tr>
<td>P-value\textsuperscript{b}</td>
<td>0.143</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Patients wishes only\textsuperscript{b}</td>
<td>19 (11)</td>
<td>3 (6)</td>
<td>22 (8)</td>
<td>1 (1)</td>
</tr>
<tr>
<td>P-value\textsuperscript{b}</td>
<td>0.754</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Family wishes only\textsuperscript{b}</td>
<td>12 (7)</td>
<td>2 (6)</td>
<td>34 (12)</td>
<td>4 (6)</td>
</tr>
<tr>
<td>P-value\textsuperscript{b}</td>
<td>0.395</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Both patients and family wishes\textsuperscript{b}</td>
<td>19 (11)</td>
<td>0 (0)</td>
<td>9 (3)</td>
<td>1 (1)</td>
</tr>
<tr>
<td>P-value\textsuperscript{b}</td>
<td>0.047</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

\textsuperscript{a}Only transitions between care settings that occurred 10% or more in at least one of the countries in Table 2 were included here.

\textsuperscript{b}Percentages are column percentages; binary logistic regressions on cross-country differences on reasons for transitions with respect to various final transitions (controlling for age, sex and types of malignancy).

\textsuperscript{c}Multiple responses allowed.

\textsuperscript{d}Column percentages do not add up to 100 due to rounding off.

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