Journal of Integrative Nursing and Palliative Care (JINPC)

Volume 6 | Issue 2 | Page 254-260

Original Article

Improving Death Pronouncement Practices in Palliative Care Units: Insights from Bereaved Family Perspectives

Jinwoo Park[1]*, Minji Kim[1], Seung Lee[2]

[1]*Department of Nursing Science and Integrative Healthcare, Seoul National University, Seoul, South Korea.*
[2]*Department of Palliative Systems and Clinical Care, KAIST, Daejeon, South Korea.*

Abstract

Announcing a patient's death is a highly sensitive occasion that can leave a lasting imprint on how families cope with their loss; nevertheless, the exact ways physicians should adjust their approach during this moment are still not well defined. To determine if missing specific actions by the physician correlated with families' feeling that the death pronouncement process needed to be improved for patients with advanced cancer receiving care in palliative care units (PCUs). This research was a secondary examination of data from a large-scale, multicenter questionnaire study conducted in 2018. The original survey gathered responses from family members who had lost a loved one to cancer in PCUs. We applied univariate analysis to assess the demand for better physician conduct at the time of death pronouncement. Bivariate analysis was then used to examine associations among the desire for improvement, the physician involved (primary responsible physician, team member, or other physician), and nine distinct behaviors.

422 questionnaires (64.2%) were returned. After reviewing 356 of these replies, we found that 32.5% of respondents believed the death pronouncement required improvement. Omitting certain key actions during the pronouncement — above all, failing to describe the cause of death to the family clearly (odds ratio: 11.89, $P < 0.001$) — was strongly linked to this perceived need. Clear differences emerged depending on which type of physician performed the pronouncement (primary responsible physician vs. a member of the same team vs. another physician [15.1% vs. 42.6% vs. 45.7%, $P < 0.001$]). A notable positive association was identified between omitting certain physician behaviors during death pronouncement and the sense that improvement was necessary. The two most frequent shortcomings were not giving a direct explanation of the cause of death to family members and not speaking to the patient before beginning the physical check.

Keywords: Bereaved family, Death pronouncement, Palliative care units, End-of-life care communication

Introduction

Palliative care fundamentally seeks to ease suffering for both patients and those closest to them [1]. The death of a loved one ranks among life's most distressing events and can seriously affect the psychological well-being of surviving family members [2-4]. How bereavement unfolds, including the specific events surrounding it, plays a major role in its overall effect, and the formal pronouncement of death stands out as one of the most impactful moments. Shinjo *et al.* [5] showed that families' experiences at the moment of death pronouncement influenced their subsequent emotional distress levels.

Multiple clinical guidelines and expert consensus documents emphasize proper conduct when pronouncing death and list it as a core competency that every physician must master [6-10]. In one study, Kusakabe *et al.* [11] observed that several physician actions — such as not clearly confirming the exact time of death — were significantly associated with families' perception that the process needed improvement. However, their work

Corresponding author: Jinwoo Park
Address: Department of Nursing Science and Integrative Healthcare, Seoul National University, Seoul, South Korea.
E-mail: ✉ jinwoo.park@outlook.com

Received: 24 May 2025; **Accepted:** 05 October 2025; **Published:** 20 December 2025

How to Cite This Article: Park J, Kim M, Lee S. Improving Death Pronouncement Practices in Palliative Care Units: Insights from Bereaved Family Perspectives. J Integr Nurs Palliat Care. 2025;6(1):254-60. https://doi.org/10.51847/L3Xz4ngI9s

focused on home care settings. A notable drawback of that research was its restriction to home care, where the attending doctor almost always pronounces the diagnosis.

Hatano *et al*. [12] surveyed bereaved caregivers whose relatives had died in a palliative care unit (PCU) to gauge their opinions on how physicians behaved while confirming death. Caregivers reported markedly higher satisfaction when the primary responsible physician confirmed the death than when an unfamiliar doctor did so. Even so, 82% of participants indicated that it made little difference to them whether the primary physician or someone else performed the task. These results highlight the need for deeper exploration of what makes certain physician behaviors effective during death pronouncement, while also accounting for the doctor's role and familiarity.

Earlier, we ran a video-vignette experiment to pinpoint which elements of a physician's demeanor most strongly shaped how compassionate they appeared to viewers [13]. Four specific elements — informing the family that the on-call doctor had been summoned, conducting a respectful examination, checking the time of death with a wristwatch, and assuring the family that the patient had not been in pain — led to noticeably higher ratings of compassion. By comparison, simply "waiting for family members to calm down" did not register as a compassionate act [13]. Because that earlier work relied on simulated scenarios, confirming the findings with data from real clinical situations is essential.

The current study, therefore, aimed to clarify whether the absence of selected physician behaviors, along with the type of physician performing the task, was connected to families' perceived need for better death pronouncement procedures for advanced cancer patients in PCUs. We also intended to explore any links between the category of physician involved and the later development of major depressive disorder or complicated grief in the bereaved families.

Materials and Methods

This investigation represented a follow-up examination of data drawn from a broad nationwide multicenter questionnaire-based survey aimed at bereaved relatives of cancer patients who had passed away in palliative care units (PCUs), ordinary hospital wards, or at home. The purpose was to assess standards of end-of-life care across Japan (Japan Hospice and Palliative Care Evaluation Study 4: J-HOPE 4). Eligible individuals were drawn from 187 PCUs, 14 general hospitals, and 14 home-care services affiliated with Hospice Palliative Care Japan as of January 31, 2018—only family members who had lost their loved one at least 3 months previously were eligible to participate.

Participants and procedures

In 2018, an anonymous cross-sectional self-completion questionnaire was administered. Each PCU was requested to compile a list of no more than 80 bereaved family members corresponding to patients who had died before January 31, 2018. Key inclusion requirements specified that the deceased had to be at least 20 years old and to have succumbed to cancer. The chief exclusion criterion was any candidate who showed signs of serious emotional strain, as evaluated by the attending physician and nursing team [14]. Survey forms were dispatched to the selected bereaved relatives, accompanied by a clear description of the research. Submission of a filled-out form to the central study office at Tohoku University within one month was interpreted as agreement to join the project. A follow-up reminder was mailed to those who had not replied after one month. Individuals who chose not to take part were invited to tick the "no participation" option and return the unfinished form. Ethical clearance for the entire protocol was granted by the Institutional Review Board of Tohoku University (2017-2-236-1) and by the review boards of each involved PCU.

Participant characteristics

The physicians primarily responsible for each patient's treatment extracted basic background details (age, gender, primary cancer site, and length of inpatient stay) directly from medical records. Separately, the responding family members supplied information on their own age, gender, connection to the deceased, level of education, and whether they had been physically present when the death was officially pronounced.

Measurements

Adopting the format of earlier investigations, we posed the following query: "To what extent do you feel improvement is required in the way the physician handled the death pronouncement?" [5, 11, 15, 16]. Answers were given on a 6-point scale running from 1 (substantial improvement needed) to 6 (absolutely no improvement required). To uncover elements that might drive families' sense that changes were necessary, we inquired about nine concrete physician actions performed at the moment of death pronouncement. These were derived from our earlier randomized scripted video-vignette experiment and additional published work, and were answered with simple yes/no choices (I think so / I do not think so) [11-13].

We further requested that families specify the role of the doctor who pronounced the patient in one of three categories: the primary responsible physician, a colleague from the same care team, or a different physician altogether.

Statistical analysis

Basic sociodemographic features of both the deceased patients and their grieving families were presented through standard descriptive statistics. The 6-point rating of required improvement in death pronouncement was recoded into two categories: responses ranging from 1 (much improvement needed) to 4 (slight improvement needed) formed the "improvement needed" group, whereas scores of 5 (little improvement needed) and 6 (no improvement needed at all) formed the "no improvement needed" group.

The Japanese version of the Patient Health Questionnaire-9 has been validated [17]. This instrument served to gauge depressive symptoms in the sample. Individual items are scored from 0 to 3, yielding an overall score of 0 to 27. A cumulative score reaching ≥ 10 points is indicative of a probable diagnosis of major depressive disorder [18].

Grief was evaluated using the Brief Grief Questionnaire (BGQ), which consists of 5 statements rated on a 3-point Likert scale; higher scores indicate stronger grief responses [19]. A total reaching ≥8 signals a heightened likelihood of complicated grief. Earlier research has established the reliability of the Japanese version of the BGQ among the wider Japanese population [20].

A univariate analysis using the Kruskal–Wallis test was conducted to examine links between physician characteristics and behaviors during death pronouncement. Bivariate analysis was performed to scrutinize the perceived need for improvement in relation to the physician's role (primary responsible physician, team member, or other physician) and each of the nine individual behaviors. Beyond this, multivariate logistic regression models were fitted to investigate associations with major depressive disorder and complicated grief in the bereaved families. Variable inclusion for the bivariate logistic models was guided by prior studies and team discussion [11, 12], incorporating the physician attribution category and all nine behaviors. A threshold of $P < 0.05$ defined statistical significance. Every computation was performed using SPSS-J (version 28.0; IBM, Tokyo, Japan).

Results and Discussion

Of the 657 family members who qualified for the study, 422 (64.2%) returned the questionnaire. Sixty-six of these declined to participate further, resulting in 356 usable responses (84.4%) for final analysis. Key features of the study sample appear in **Table 1**. The deceased cancer patients had an average age of 72.2 ± 12.2 years, and 53.7% were male. The leading cancer site was the lung, followed by hepatobiliary and pancreatic sites, then stomach and esophagus. The mean hospital stay lasted 27.1 ± 28.6 days. The responding bereaved relatives averaged 61.8 ± 12.5 years old, with 34.6% being male. Most often, the respondent was the patient's spouse, followed by their adult child. The average interval from death to survey completion reached 407.5 ± 101.9 days. In total, 324 family members (91.0%) indicated they had been present when death was pronounced **(Table 1)**.

Table 1. Backgrounds

	%	**Overall (n = 356)**
Patients		
Age (mean ± standard deviation)		72.2 ± 12.2
Sex		
Male	53.7	191
Female	46.3	165
Primary tumor location		
Lung	18.3	65
Liver, biliary tract, pancreas	15.4	55
Stomach, esophagus	15.4	55
Colon, rectum	10.7	38
Head and neck, brain	8.1	29
Prostate, kidney, bladder	6.7	24
Breast	6.7	24
Uterus, ovary	6.7	24
Hematologic malignancies	3.1	11
Other sites	8.7	31
Duration of hospitalization or home care (days)		27.1 ± 28.6
Bereaved family members		
Age (mean ± standard deviation)		61.8 ± 12.5
Sex		
Male	34.6	123

Female	64.0	228
Relationship to the patient		
Spouse	49.4	176
Child	36.8	131
Son- or daughter-in-law	2.8	10
Parent	3.1	11
Sibling	5.1	18
Other	1.7	6
Education level		
Below high school	9.0	32
High school completed	41.3	147
Beyond high school	47.2	168
Caregiver's physical condition at final admission		
Good	26.7	95
Moderate	54.8	195
Poor	14.3	51
Very poor	3.7	13
Caregiver's psychological condition during final admission		
Good	13.5	48
Moderate	44.4	158
Poor	30.1	107
Very poor	10.1	36
Length of bereavement (mean ± standard deviation, days)		407.5 ± 101.9
Present at the time of death pronouncement	91.0	324
Type of physician conducting the death pronouncement		
Primary attending physician	42.7	152
Another member of the same team	13.2	47
Different physician	32.6	116

Among all participating families, 32.5% expressed a desire for better handling of death pronouncements (rated from 1: much improvement needed to 4: slight improvement needed). When broken down by the physician's role, clear differences surfaced across the three categories (primary responsible physician, a member of the same team, another physician [15.1% vs. 42.6% vs. 45.7%, $P < 0.001$]).

Table 2 displays how the physician's role relates to the actual behaviors carried out at the time of death pronouncement. Approximately 80% of physicians introduced themselves beforehand and tested pupil reactions to light. Most behaviors showed notable variation depending on whether the physician was the primary doctor, a team colleague, or someone else; the sole exception was the pupil light response check, which remained consistent across groups.

Table 2. Association between attributes of physicians and physician behavior toward the death pronouncement

Item	Different physician (n = 116)	%	p*	Same team member (n = 47)	%	Primary attending physician (n = 152)	%	Overall (n = 324)	%
Assessed pupillary reaction to light	94	81.0	0.078	37	78.7	130	85.5	267	82.4
Introduced themselves before the pronouncement	80	69.0	< 0.001	40	85.1	134	88.2	260	80.2
Verified the relationships of individuals present before the pronouncement	47	40.5	< 0.001	32	68.1	128	84.2	212	65.4
Ensured that all key family members were present before the pronouncement	43	37.1	< 0.001	28	59.6	110	72.4	186	57.4
Auscultated heart and lung sounds using a stethoscope	56	48.3	0.031	26	55.3	98	64.5	183	56.5
Addressed the patient verbally before starting the examination	45	38.8	< 0.001	27	57.4	102	67.1	176	54.3
Demonstrated empathy toward family members	19	16.4	< 0.001	25	53.2	93	61.2	140	43.2
Reviewed the death certificate together with the family	30	25.9	< 0.001	22	46.8	73	48.0	129	39.8

Clearly explained the cause of death to family members	17	14.7	< 0.001	17	36.2	87	57.2	126	38.9

*Kruskal–Wallis test.

Table 3 summarizes the bivariate logistic regression results linking physician attribution to the perceived need for improvement in death pronouncement. Several missing behaviors were strongly tied to families wanting changes in the process. The two most prominent gaps involved not clearly informing families about the cause of death and failing to speak to the patient before beginning the examination. Additional multivariate logistic models examining major depressive disorder and complicated grief found no meaningful connection with the type of physician who had pronounced the death.

Table 3. Bivariate logistic analysis for the need for improvement in death pronouncement

	Nagelkerke R^2	P-value	95% CI	Odds ratio
Failure to introduce oneself before conducting the death pronouncement	0.208	< 0.001	1.98–10.72	4.61
Failure to verify the relationships of individuals present before the death pronouncement	0.233	< 0.001	2.20–8.96	4.44
Failure to ensure that all key family members were present before the death pronouncement	0.255	< 0.001	2.32–8.15	4.35
Not addressing the patient verbally before initiating the examination	0.387	< 0.001	4.67–18.68	9.34
Not assessing pupillary response to light	0.188	0.069	0.92–9.97	3.03
Not auscultating heart and lung sounds with a stethoscope	0.277	0.004	1.37–5.55	2.76
Not clearly explaining the cause of death to family members	0.397	< 0.001	5.25–26.92	11.89
Not demonstrating empathy toward family members	0.370	< 0.001	3.84–16.15	7.87
Not reviewing the death certificate together with the family	0.294	< 0.001	2.26–8.05	4.27

Abbreviation: CI = confidence interval.

This research sheds light on key elements linked to how bereaved families view the need for better practices in death pronouncement. These elements include the category of physician involved and the concrete actions taken during the process. One notable advantage of this work is its larger patient sample compared with earlier comparable research [11, 12].

The central discovery was that omitting specific actions during death pronouncement — particularly failing to describe the cause of death to family members clearly—was strongly tied to a greater perceived need for improvement, and this pattern held across all three physician categories. This finding partly aligns with our earlier video vignette experiment, which showed that "waiting until family members had calmed down" and "conducting a respectful examination" were associated with markedly higher ratings of physician compassion [13]. In contrast, the present results differ from those of Kusakabe *et al.* [11]. In the home care context, univariate analysis found no significant link between family-perceived need for improvement and behaviors such as identifying people present, ensuring all key relatives were there, explicitly explaining the cause of death, or showing empathy [6]. One likely explanation for this discrepancy is that Kusakabe *et al.* [11] did not account for the physician's role or familiarity. In home care, death pronouncement is typically handled by the primary responsible physician or a familiar doctor, making it difficult to examine physician attributes. Consequently, our findings have particular value in hospital environments, where unfamiliar physicians frequently confirm death; however, they may be harder to translate directly into home care settings. While certain physician actions appear important, some — such as openly explaining the cause of death or conveying empathy — may be more challenging for a physician who is not the usual caregiver. Additional research is required to clarify which behaviors are truly essential depending on the physician's level of involvement.

Another factor that may contribute to the call for better death pronouncement is insufficient training for physicians and medical students on this procedure. The nine behaviors examined here could fit within the recently suggested set of competencies and entrustable professional activities for residents performing death pronouncement [21]. Therefore, the current results could help shape training programs to improve how medical students and practicing doctors handle death pronouncements.

The second major observation concerned the clear variations in how often specific physician behaviors occurred during death pronouncement, depending on the physician's role. These results align with an earlier study by Hatano *et al.* [12], which found that caregivers were less satisfied when an unfamiliar doctor delivered the death pronouncement than when the primary responsible physician did so. Our bivariate logistic regression findings indicate that the lower satisfaction reported by Hatano *et al.* [12] likely stemmed not only from the involvement of a different physician but also from that physician's insufficient attention to the family's emotional needs.

Although both our study and that of Hatano *et al.* [12] used cross-sectional questionnaire surveys of bereaved caregivers whose family member had died in a PCU, the aims differed: one examined overall caregiver satisfaction. At the same time, ours focused on the perceived need for improvement in the death pronouncement. Consequently, the measurement scales and selected variables were not the same.

Furthermore, while both investigations considered physician attribution, our analysis divided the physicians into three distinct categories, whereas Hatano *et al.* [12] used only two. This three-category approach better mirrors actual hospital practice, and we consider the findings more readily applicable to day-to-day clinical settings. Overall, the present study offers a fresh insight into death pronouncement practices: when doctors who are not regularly involved in a patient's care perform the pronouncement, they should deliberately take targeted actions — such as clearly explaining the cause of death to the family and conveying empathy.

Several limitations should be acknowledged. First, the retrospective nature of the design leaves room for recall bias. That said, multiple prior studies conducted between 3 and 12 months after the death have indicated that this timeframe strikes a reasonable balance between minimizing recall issues and respecting the grieving period [22-25]. Second, the measurement tool was developed from a review of existing literature and expert input. Its validity and reliability were not formally tested statistically, although portions of the instrument have appeared in other published studies. Additional unmeasured variables may also influence families' views on needed improvements in physician behavior. Third, the sample was limited to families of patients with advanced cancer who died in PCUs, so the results may not generalize to other groups, such as those with non-cancer illnesses. More work is needed to explore death pronouncement practices in settings caring for non-cancer patients. Fourth, families experiencing significant psychological distress might have been less likely to respond, even though the overall response rate exceeded that of a previous similar study [26]. This could mean that rates of depressive symptoms and complicated grief among PCU bereaved families were somewhat underestimated.

Conclusion

A clear positive relationship existed between the absence of particular behaviors during death pronouncement and families' sense that improvement was required. The two most common shortcomings were failing to explicitly explain the cause of death to family members and failing to address the patient directly before starting the examination. These findings highlight that physicians should carefully consider their conduct when pronouncing death and actively adopt behaviors likely to support the well-being of bereaved families.

Acknowledgments: This study was conducted as a specific project of the J-HOPE4 study funded by the Japan Hospice Palliative Care Foundation. The authors wish to thank all participants and participating institutions for their contributions to this study.

Conflict of interest: None

Financial support: This work was supported by JSPS KAKENHI Grant Number 22H03305. The funder had no role in the design and conduct of the study; the collection, management, analysis, and interpretation of data; the preparation, review, and approval of the manuscript; or the decision to submit the manuscript for publication.

Ethics statement: This study was conducted under the ethical standards of the Declaration of Helsinki and the Ethical Guidelines for Epidemiological Research issued by the Ministry of Health, Labour, and Welfare of Japan. The Institutional Review Board of Tohoku University (2017-2-236-1) and those of all participating PCUs approved the protocol of this study.

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