

Attitudes and Other Factors Influencing End-of-Life Discussion by Physicians, Nurses, and Care Staff: A Nationwide Survey in Japan

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6 1 Attitudes and other factors influencing end-of-life discussion by physicians, nurses, and
7 2 care staff: A nationwide survey in Japan
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10 4 **Abstract**

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12 5 **Context**

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15 6 Better understanding about the attitudes of healthcare providers toward end-of-life
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18 7 discussion would facilitate the development of systematic strategies for improving for
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21 8 end-of-life care.

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24 9 **Objective**

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27 10 To clarify attitudes toward end-of-life discussion with patients near death and explore
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30 11 the factors influencing these attitudes among physicians, nurses, and care staff.
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33 12 **Methods**

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36 13 This study was part of a nationwide cross-sectional anonymous survey of the public
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39 14 attitudes toward end-of-life medical care performed in December 2017. The participants
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42 15 were physicians, nurses and care staff from randomly selected facilities, including
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45 16 hospitals, clinics, home-visit nursing offices, nursing homes, and long-term care
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48 17 facilities throughout Japan. The questionnaire was sent to 4,500 physicians, 6,000
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51 18 nurses, and 2,000 care staff. We assessed attitudes about end-of-life discussion with
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54 19 patients near death, identification of the proxy decision maker, and sharing documented
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57 20 information on end-of-life discussion with the multidisciplinary team.
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1 **Results**

2 We analyzed responses from 1,012 physicians, 1,824 nurses, and 749 care staff. The
3 number of responders who considered they had adequate end-of-life discussion with
4 patients near death was 281 (27.8%), 324 (17.8%), and 139 (18.6%) respectively.
5 Participation in a nationwide education program and caring for at least one dying patient
6 per month were factors that showed a significant association with adequate end-of-life
7 discussion and identification of the proxy decision maker.

8 **Conclusions**

9 The percentages of physicians, nurses, and care staff involved in adequate in end-of-life
10 discussion with patients near death were not high. Participation in a structured education
11 program might have a positive influence on end-of-life discussion with patients.

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14 **Keywords:** End of life discussion, nationwide survey, health care provider

1 Introduction

2 End-of-life discussion (EOLD) is considered an essential part of high-quality
3 end-of-life care for patients with life-threatening illnesses¹. Several studies have
4 revealed that EOLD makes it easier to provide treatment and care according to the
5 patient's wishes, reduces aggressive treatment near death, improves depression and
6 complex grief among the bereaved family, and helps patients to experience quality
7 end-of-life care and a good death²⁻⁷.

8 Recent international recommendations have pointed out that involving the
9 multidisciplinary healthcare team in supportive discussions about the patient's
10 preferences for goals of care is an important part of EOLD^{8,9}.

11 According to Ganguli et al., 44.0% of physicians reported discussing goals of care
12 with all patients who had life-threatening illnesses, although this study was conducted at
13 a single hospital¹⁰. Kanoh et al. reported that EOLD was conducted by physicians and
14 nurses at about three quarters of long-term care facilities in Japan, but it was unclear
15 whether care staff participated in EOLD with patients¹¹. As Bernacki et al. pointed out,
16 development of a systematic and multidisciplinary approach is needed to improve the
17 quality of end-of-life care and ensure that each patient receives personalized goals of
18 care¹.

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6 1 Therefore, it is worthwhile to understand current EOLD practice among healthcare
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9 2 providers in order to develop a strategy for systematic improvement of end-of-life care,
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12 3 since little is known regarding the attitudes and factors associated with EOLD in this
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15 4 setting.

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18 5 Accordingly, this study aimed to clarify attitudes toward EOLD with patients near
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21 6 death and to explore associated factors among physicians, nurses, and care staff. The
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24 7 secondary objectives were to clarify attitudes of physicians, nurses and care staff toward
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27 8 identifying the proxy decision maker and sharing documented EOLD information with
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30 9 the multidisciplinary team, as well as the associated factors.
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33 34 35 36 11 **Methods**

37 38 39 12 *Participants and procedure*

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42 13 This study was part of a nationwide cross-sectional anonymous survey of public
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45 14 attitudes toward end-of-life medical care that was conducted by the Japanese Ministry
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48 15 of Health, Labor and Welfare ([MHLW](#)) in December 2017.

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51 16 The participants were physicians, nurses and care staff from randomly selected facilities
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54 17 throughout Japan [in December 2017](#), where the facility managers were asked to
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57 18 distribute questionnaires to each healthcare professional. The facilities targeted were
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1 hospitals, clinics, home-visit nursing offices, nursing homes, and long-term care
2 facilities. The inclusion criteria were 1) physicians who worked in the selected hospitals
3 or clinics; 2) nurses who worked in the selected hospitals, clinics, home-visit nursing
4 offices, nursing homes, or long-term care facilities; or 3) care staff who worked in the
5 selected nursing homes or long-term care facilities. The number of participants targeted
6 at each facility was one for each type of professional, except two participants each were
7 targeted among doctors and nurses working in hospitals. The hospital managers were
8 asked to distribute the questionnaire to at least one professional who was deeply
9 involved in EOL care. The questionnaire was mailed to 4,500 physicians, 6,000 nurses
10 and 2,000 care staff, accompanied by a letter explaining the survey. We sent a reminder
11 to all non-responders in January 2018. Completion and return of the questionnaire, in
12 combination with receipt of the explanatory letter, were deemed adequate indication of
13 voluntary and informed consent to participation. The institutional review board of the
14 University of Tsukuba approved the protocol of this study.

15 16 *Questionnaire*

17 Since there were no specific and validated instruments for evaluating the attitudes to
18 EOLD among physicians, nurses, and care staff, we developed an original questionnaire

1 based on data from previous reports¹²⁻¹⁵ and discussion among the authors of this study.

2 Subsequently, we submitted the draft questionnaire to the MHLW and the ministry

3 made the final decision about the questionnaire items.

4 To assess attitudes toward EOLD, we asked “Do you have adequate discussion with
5 patients near death about treatment and care in the end-of-life period?” Participants
6 selected one of four responses: 1) EOLD is adequate, 2) EOLD is done to some extent,
7 3) EOLD is infrequent, or 4) I am not involved in the treatment and care of patients near
8 death.

9 To assess the attitude toward identifying the proxy decision maker, we asked “When do
10 you identify someone who can make proxy decisions if the patient cannot make
11 decisions about the choice of treatment or care?” Participants selected one of six
12 responses which the multiple answers was allowed: 1) When an incurable disease is
13 diagnosed, 2) When the treatment plan is changed significantly, 3) When death is
14 approaching as the disease progresses, 4) When a patient or family member consults
15 about end-of-life care, 5) At other times, or 6) I do not identify a proxy decision maker.

16 To assess the attitude toward sharing documented EOLD information with the
17 multidisciplinary team, we asked “Have you shared the documented details of EOLD
18 with other professionals?” Participants selected one of three responses: 1) I have shared

1 documented records, 2) I have shared information, but it was not a documented record,
2 or 3) I have not shared information. This question was only answered by responders
3 who answered that they had adequate or frequent EOLD with patients near death.

4 As characteristics of the participants, we collected the number of years of practice
5 (categorical variable), the workplace (categorical variable), participation in a nationwide
6 education program on EOLD (binary category) [the Palliative care Emphasis program
7 on symptom management and Assessment for Continuous medical Education (PEACE)
8 and Education For Implementing End-of-Life Discussion (E-FIELD)¹⁶⁻¹⁸], and the
9 frequency of caring for dying patients (categorical variable).

10

11 *Analysis*

12 We first conducted descriptive analyses of the categorical and binary variables,
13 followed by univariate analysis and multivariate logistic regression analysis. For logistic
14 regression analysis, we defined the participants who answered “adequate EOLD” as the
15 participants having EOLD with patients. In addition, we defined the participants who
16 gave answers other than “I do not identify the proxy decision maker” as participants
17 who identified the proxy decision maker. We divided the duration of practice into three
18 categories (≤ 15 years, 16-30 years, and ≥ 31 years), based on the distribution of

1 experience of the participants and discussion among the study authors. We performed
2 univariate analyses by using the chi-square test or Fisher's exact test to evaluate the
3 significance of differences between two groups. We performed multivariate logistic
4 regression analysis by using four categorical variables as independent variables: years
5 of practice, workplace (hospital or not and long-term care facilities or not), participation
6 in a nationwide education program or not, and caring for at least one dying patient per
7 month or not. Probability values were two-sided and statistical significance was
8 accepted at $P < 0.05$. All analyses were conducted using SPSS-J (ver. 24.0; IBM, Tokyo,
9 Japan).

11 **Results**

12 A total of 1,039 physicians, 1,854 nurses, and 752 care staff who returned the
13 questionnaire (response rate: 23.1%, 30.9%, and 37.6% respectively). After excluding
14 questionnaires with missing data, we analyzed the responses of 1,012 physicians, 1,824
15 nurses, and 749 care staff (97.4%, 98.4%, and 99.6% of the returned questionnaires).
16 Characteristics of the responders are summarized in Table 1. The majority of physicians
17 and nurses had ≥ 31 years of experience [481 (47.5%) and 612 (33.6%), respectively],
18 and worked in hospitals [652 (64.4%) and 838 (45.9%), respectively], while the

1 majority of the other care staff had less than 30 years of experience and worked in
2 long-term care facilities (396; 52.9%) (Table 1). The number of physician, nurses, and
3 care staff who answered they had adequate EOLD with patients near death was 281
4 (27.8%), 324 (17.8%), and 139 (18.6%), respectively (Table 1).

5
6 *Factors influencing the attitude toward adequate EOLD, identifying the proxy decision*
7 *maker, and sharing documented EOLD information with the multidisciplinary team*

8 Univariate analysis revealed several factors associated with adequate EOLD, identifying
9 the proxy decision maker, and sharing EOLD information with the multidisciplinary
10 team among physicians, nurses, and care staff (Table 2).

11 According to multivariate logistic regression analysis, performing adequate EOLD and
12 identifying the proxy decision maker were significantly associated with participation in
13 the nationwide education program and caring for at least one dying patient per month
14 among physicians, nurses, and care staff (Table 3). Caring for at least one dying patient
15 per month was associated with the attitude of nurses to sharing EOLD information with
16 the multidisciplinary team, but there were no factors associated with the attitude of
17 physicians or care staff toward sharing information (Table 3).

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6 **1 Discussion**
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9 2 To the best of our knowledge, this is the first nationwide survey of attitudes toward
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12 3 EOLD with patients near death and exploration of influential factors among physician,
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15 4 nurses, and care staff.
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18 5 The first important finding was that 27.8% of physicians, 17.8% of nurses, and 18.6%
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21 6 of care staff answered they participated in adequate EOLD with patients near death.
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24 7 According to a recent study, 44.0% of physicians and 33.0% of advanced practitioners,
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27 8 including nurse practitioners, physician assistants, certified registered nurse anesthetists,
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30 9 and nurse midwives, discussed the goals of care with all patients who had serious,
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33 10 life-limiting illnesses¹⁰. Those results are inconsistent with our findings, but the other
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36 11 study was conducted at single hospital in the USA. One possible reason for the
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39 12 difference is that many US states, including that where this study was conducted, ask
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42 13 physicians to use a specified medical form to document EOLD with patients who have
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45 14 advanced illnesses¹⁰. In addition, the US government has recently begun to pay
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48 15 physicians for EOLD, as well as nurse practitioners and physician assistants. On the
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51 16 other hand, there is no systematic approach or support to encourage EOLD in Japan,
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54 17 though several education program on end-of-life care have been implemented recently
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7 1 The second important finding was that a factor significantly associated with adequate
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9 2 EOLD was participation of physicians, nurses, and care staff in a nationwide education
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12 3 program. This finding was consistent with a previous systematic review that revealed
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15 4 lack of training in communication as one of the barriers to end-of-life discussion^{19,20},
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18 5 with the authors suggesting that communication training should be provided for
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21 6 physician to overcome barriers. A noteworthy point is that nurses and care staff might
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24 7 also benefit from such education programs, though no previous study has assessed the
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27 8 effects of education programs on EOLD implementation by nurses and care staff.

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30 9 The third important finding was that caring for at least one dying patient per month
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33 10 was a factor significantly associated with physicians, nurses, and care staff identifying
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36 11 the proxy decision maker. This result implies that more experienced health professional
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39 12 were more likely to recognize when it was necessary to identify the proxy decision
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42 13 maker, although our study could not assess causality.

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45 14 The fourth important finding was that the only factor significantly associated with
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48 15 sharing EOLD information with the multidisciplinary team was caring for at least one
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51 16 dying patient per month among nurses. One possible interpretation is that sharing
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54 17 EOLD information with the multidisciplinary team might be encouraged by external
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57 18 motivation, such as practice guidelines or reimbursement. Another possible
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1 interpretation is that our study did not assess potential individual variables, such as
2 knowledge and attitudes toward interprofessional collaborative practice²¹⁻²³. Therefore,
3 it might be worthwhile investigating associated factors in relation to interprofessional
4 collaborative practice in the future.

5 This study had several limitations. First, we did not assess gender, age, and knowledge
6 or beliefs about end-of-life care that could influence EOLD with patients. Therefore, our
7 study could not explore the association between EOLD and these factors, especially
8 gender, although there are significant gender differences of attitudes among health care
9 providers, as reported previously²⁴. Second, we did not define adequate EOLD.
10 Accordingly, it is possible that evaluation of adequate EOLD was overestimated or
11 underestimated by the participants. Third, our study was only conducted in Japan and
12 had a low response rate, making generalization of the results difficult. Fourth, we could
13 not assess causality, because it was a cross-sectional study. Although our findings need
14 to be interpreted with caution, we believe that this study has provided useful
15 information for improving EOLD between patients and healthcare providers.

16

17 **Conclusion**

18 Our nationwide survey revealed that the frequency of physicians, nurses, and care staff

1 performing adequate EOLD with patients near death was not high. Performance of
2 adequate EOLD and identification of the proxy decision maker by physicians, nurses,
3 and other care staff were significantly associated with participation in the nationwide
4 EOLD education program and with caring for at least one dying patient per month. To
5 improve end-of-life care, it seems that a tailored EOLD education program is needed,
6 especially for experienced healthcare providers.

For Peer Review

References

1. Bernacki RE, Block SD, American College of Physicians High Value Care Task Force. Communication about serious illness care goals: a review and synthesis of best practices. *JAMA Intern Med.* 2014;174(12):1994-2003. doi:10.1001/jamainternmed.2014.5271
2. Mack JW, Weeks JC, Wright AA, Block SD, Prigerson HG. End-of-life discussions, goal attainment, and distress at the end of life: predictors and outcomes of receipt of care consistent with preferences. *J Clin Oncol.* 2010;28(7):1203-1208. doi:10.1200/JCO.2009.25.4672
3. Mori M, Ellison D, Ashikaga T, McVeigh U, Ramsay A, Ades S. In-advance end-of-life discussions and the quality of inpatient end-of-life care: a pilot study in bereaved primary caregivers of advanced cancer patients. *Support Care Cancer.* 2013;21(2):629-636. doi:10.1007/s00520-012-1581-x
4. Wright AA, Keating NL, Balboni TA, Matulonis UA, Block SD, Prigerson HG. Place of death: correlations with quality of life of patients with cancer and predictors of bereaved caregivers' mental health. *J Clin Oncol.* 2010;28(29):4457-4464. doi:10.1200/JCO.2009.26.3863
5. Wright AA, Zhang B, Ray A, et al. Associations between end-of-life discussions, patient mental health, medical care near death, and caregiver bereavement adjustment. *JAMA.* 2008;300(14):1665-1673. doi:10.1001/jama.300.14.1665
6. Yamaguchi T, Maeda I, Hatano Y, et al. Effects of End-of-Life Discussions on the Mental Health of Bereaved Family Members and Quality of Patient Death and Care. *J Pain Symptom Manage.* 2017;54(1):17-26.e1. doi:10.1016/j.jpainsymman.2017.03.008
7. Mack JW, Cronin A, Keating NL, et al. Associations between end-of-life discussion characteristics and care received near death: a prospective cohort study. *J Clin Oncol.* 2012;30(35):4387-4395. doi:10.1200/JCO.2012.43.6055
8. Sudore RL, Lum HD, You JJ, et al. Defining Advance Care Planning for Adults: A Consensus Definition From a Multidisciplinary Delphi Panel. *J Pain Symptom Manage.* 2017;53(5):821-832.e1. doi:10.1016/j.jpainsymman.2016.12.331
9. Rietjens JAC, Sudore RL, Connolly M, et al. Definition and recommendations for advance care planning: an international consensus supported by the European Association for Palliative Care. *Lancet Oncol.* 2017;18(9):e543-e551. doi:10.1016/S1470-2045(17)30582-X
10. Ganguli I, Chittenden E, Jackson V, Kimball AB. Survey on Clinician Perceptions and Practices Regarding Goals of Care Conversations. *J Palliat Med.*

- 2016;19(11):1215-1217. doi:10.1089/jpm.2015.0424
11. Kanoh A, Kizawa Y, Tsuneto S, Yokoya S. End-of-Life Care and Discussions in Japanese Geriatric Health Service Facilities: A Nationwide Survey of Managing Directors' Viewpoints. *Am J Hosp Palliat Med*. 2018;35(1):83-91. doi:10.1177/1049909117696203
 12. Selman L, Robinson V, Klass L, et al. Improving confidence and competence of healthcare professionals in end-of-life care: An evaluation of the "Transforming End of Life Care" course at an acute hospital trust. *BMJ Support Palliat Care*. 2016;6(2):231-236. doi:10.1136/bmjspcare-2015-000879
 13. Lord L, Clark-Carter D, Grove A. The effectiveness of communication-skills training interventions in end-of-life noncancer care in acute hospital-based services: A systematic review. *Palliat Support Care*. 2016;14(4):433-444. doi:10.1017/S1478951515001108
 14. Giezendanner S, Jung C, Banderet H-R, et al. General Practitioners' Attitudes towards Essential Competencies in End-of-Life Care: A Cross-Sectional Survey. Foster AM, ed. *PLoS One*. 2017;12(2):e0170168. doi:10.1371/journal.pone.0170168
 15. Morrison RS, Morrison EW, Glickman DF. Physician reluctance to discuss advance directives. An empiric investigation of potential barriers. *Arch Intern Med*. 1994;154(20):2311-2318. <http://www.ncbi.nlm.nih.gov/pubmed/7944853>. Accessed April 30, 2019.
 16. Yamamoto R, Kizawa Y, Nakazawa Y, Morita T. The palliative care knowledge questionnaire for PEACE: reliability and validity of an instrument to measure palliative care knowledge among physicians. *J Palliat Med*. 2013;16(11):1423-1428. doi:10.1089/jpm.2013.0112
 17. Nishikawa M, Miura H, Oya S, et al. [Feasibility Study of a One-Day Educational Program to Train Advance Care Planning Facilitators(ACPFs)in Regional Areas]. *Gan To Kagaku Ryoho*. 2016;43(Suppl 1):47-49. <http://www.ncbi.nlm.nih.gov/pubmed/28028278>. Accessed May 1, 2019.
 18. Tsuneto S. Past, present, and future of palliative care in Japan. *Jpn J Clin Oncol*. 2013;43(1):17-21. doi:10.1093/jjco/hys188
 19. De Vleminck A, Houttekier D, Pardon K, et al. Barriers and facilitators for general practitioners to engage in advance care planning: A systematic review. *Scand J Prim Health Care*. 2013;31(4):215-226. doi:10.3109/02813432.2013.854590
 20. Brighton LJ, Koffman J, Hawkins A, et al. A Systematic Review of End-of-Life

- Care Communication Skills Training for Generalist Palliative Care Providers: Research Quality and Reporting Guidance. *J Pain Symptom Manage.* 2017;54(3):417-425. doi:10.1016/j.jpainsymman.2017.04.008
21. Rosenberg K. Interprofessional Collaborative Practice Model Improves Staff Communication, Patient Care. *Am J Nurs.* 2018;118(3):70. doi:10.1097/01.NAJ.0000530945.37630.1a
22. Rozensky RH, Grus CL, Goodie JL, et al. A Curriculum for an Interprofessional Seminar on Integrated Primary Care: Developing Competencies for Interprofessional Collaborative Practice. *J Allied Health.* 2018;47(3):e61-e66. <http://www.ncbi.nlm.nih.gov/pubmed/30194832>. Accessed April 30, 2019.
23. Morgan S, Pullon S, McKinlay E. Observation of interprofessional collaborative practice in primary care teams: An integrative literature review. *Int J Nurs Stud.* 2015;52(7):1217-1230. doi:10.1016/j.ijnurstu.2015.03.008
24. Ishikawa H, Son D, Eto M, Kitamura K, Kiuchi T. Changes in patient-centered attitude and confidence in communicating with patients: a longitudinal study of resident physicians. *BMC Med Educ.* 2018;18(1):20. doi:10.1186/s12909-018-1129-y

Table 1 Characteristics of the respondents

	Physicians (n=1012)		Nurses (n=1824)		Care staff (n=749)	
	n	%	n	%	n	%
Years of practice						
1-15	139	13.7	317	17.4	386	51.5
16-30	392	38.7	895	49.1	334	44.6
31-	481	47.5	612	33.6	29	3.9
Workplace						
Hospital	652	64.4	838	45.9	n.a [†]	n.a [†]
Clinic	337	33.3	300	16.4	n.a [†]	n.a [†]
Long-term care facility	n.a [†]	n.a [†]	194	10.6	340	45.4
Care home	n.a [†]	n.a [†]	199	10.9	396	52.9
Visiting nurse office	n.a [†]	n.a [†]	210	11.5	n.a [†]	n.a [†]
Others	10	1.0	63	3.5	6	0.8
Participation in nationwide training program						
Yes	205	20.3	164	9.0	26	3.5
Frequency of caring for dying patients						
At least one patient per month	403	39.8	549	30.1	115	15.4
One patient per 6 months	230	22.7	631	34.6	349	46.6
One patient per year	131	12.9	270	14.8	200	26.7
Rarely	225	22.2	337	18.5	72	9.6
EOLD* with patient						
Adequate	281	27.8	324	17.8	139	18.6
To some extent	385	38.0	809	44.4	280	37.4
Not much	135	13.3	301	16.5	232	31.0
Not involved with dying patients	196	19.4	354	19.4	89	11.9
Identifying the proxy decision maker						
Yes	830	82.0	1541	84.5	597	79.7
Sharing documented EOLD* information with the multidisciplinary team						

Yes	587	58.0	969	53.1	362	48.3
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2 *EOLD: End-of-life discussion

3 †n.a: not applicable
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For Peer Review

Table 2 Univariate analysis of factors influencing the attitude toward EOLD, identifying the proxy decision maker, and sharing documented EOLD information with the multidisciplinary team

Table 2-1 Physicians

	Physicians (n=1012)															
	Adequate EOLD* with patients					Identifying the proxy decision maker					Sharing documented EOLD* information with the multidisciplinary team					
	Yes		No		p	Yes		No		p	Yes		No		p	
n	%	n	%	n		%	n	%	n		%	n	%			
Years of practice					0.005					0.006					0.009	
	1-15	43	4.2	93	9.2		120	11.9	19	1.9		101	10.0	7	0.7	
	16-30	128	12.6	262	25.9		335	33.1	57	5.6		254	25.1	23	2.3	
	31-	110	10.9	361	35.7		375	37.1	106	10.5		232	22.9	42	4.2	
Workplace																
	Hospital	228	22.5	414	40.9	<0.001	582	57.5	70	6.9	<0.001	483	47.7	27	2.7	<0.001
	Clinic	45	4.4	287	28.4	<0.001	225	22.2	112	11.1	<0.001	85	8.4	45	4.4	<0.001
	Long-term care facility	n.a†	n.a†	n.a†	n.a†	n.a†	n.a†	n.a†	n.a†	n.a†	n.a†	n.a†	n.a†	n.a†	n.a†	n.a†
	Care home	n.a†	n.a†	n.a†	n.a†	n.a†	n.a†	n.a†	n.a†	n.a†	n.a†	n.a†	n.a†	n.a†	n.a†	n.a†
	Visiting nurse office	n.a†	n.a†	n.a†	n.a†	n.a†	n.a†	n.a†	n.a†	n.a†	n.a†	n.a†	n.a†	n.a†	n.a†	n.a†
Participation in nationwide training program					<0.001					<0.001					0.655	
	Yes	97	9.6	103	10.2		192	19.0	13	1.3		168	16.6	19	1.9	
	No	187	18.5	613	60.6		641	63.3	174	17.2		421	41.6	54	5.3	
Frequency of caring for dying patients					<0.001					<0.001					0.008	
	At least one patient per month	180	17.8	215	21.2		369	36.5	34	3.4		327	32.3	23	2.3	
	One patient per 6 months	72	7.1	156	15.4		213	21.0	17	1.7		166	16.4	26	2.6	
	One patient per year	19	1.9	108	10.7		118	11.7	13	1.3		70	6.9	11	1.1	
	Rarely	8	0.8	216	21.3		114	11.3	111	11.0		17	1.7	5	0.5	

*EOLD: End-of-life discussion

†n.a: not applicable

Table 2-2 Nurses

	Nurses (n=1824)														
	Adequate EOLD* with patients					Identifying the proxy decision maker					Sharing documented EOLD* information with the multidisciplinary team				
	Yes		No		p	Yes		No		p	Yes		No		p
n	%	n	%	n		%	n	%	n		%	n	%		
Years of practice	0.004					0.1					0.243				
1-15	76	4.2	235	12.9		250	13.7	67	3.7		160	8.8	18	1.0	
16-30	156	8.6	729	40.0		766	42.0	129	7.1		501	27.5	56	3.1	
31-	92	5.0	500	27.4		525	28.8	87	4.8		308	16.9	48	2.6	
Workplace															
Hospital	102	5.6	726	39.8	<0.001	743	40.7	95	5.2	<0.001	487	26.7	63	3.5	0.772
Clinic	7	0.4	290	15.9	<0.001	175	9.6	125	6.9	<0.001	25	1.4	26	1.4	<0.001
Long-term care facility	55	3.0	135	7.4	<0.001	173	9.5	21	1.2	0.059	122	6.7	7	0.4	0.035
Care home	76	4.2	118	6.5	<0.001	188	10.3	11	0.6	<0.001	135	7.4	10	0.5	0.089
Visiting nurse office	70	3.8	131	7.2	<0.001	190	10.4	20	1.1	0.011	154	8.4	13	0.7	0.143
Participation in nationwide training program	0.001					0.003					0.072				
Yes	45	2.5	119	6.5		152	8.3	12	0.7		120	6.6	8	0.4	
No	279	15.3	1345	73.7		1389	76.2	271	14.9		849	46.5	114	6.3	
Frequency of caring for dying patients	<0.001					<0.001					<0.001				
At least one patient per month	157	8.6	381	20.9		506	27.7	43	2.4		411	22.5	38	2.1	
One patient per 6 months	123	6.7	492	27.0		572	31.4	59	3.2		408	22.4	47	2.6	
One patient per year	28	1.5	238	13.0		28	1.5	42	2.3		116	6.4	32	1.8	
Rarely	10	0.5	322	17.7		201	11.0	136	7.5		22	1.2	5	0.3	

*EOLD: End-of-life discussion

†n.a: not applicable

Table 2-2 Care staff

	Care staff (n=749)																		
	Adequate EOLD* with patients					Identifying the proxy decision maker					Sharing documented EOLD* information with the multidisciplinary team								
	Yes		No		p	Yes		No		p	Yes		No		p				
n	%	n	%	n		%	n	%	n		%	n	%						
Years of practice						0.009						0.043							0.356
1-15	59	7.9	321	42.9		294	39.3	92	12.3		170	22.7	18	2.4					
16-30	72	9.6	259	34.6		279	37.2	55	7.3		180	24.0	17	2.3					
31-	8	1.1	21	2.8		24	3.2	5	0.7		12	1.6	3	0.4					
Workplace																			
Hospital	n.a†	n.a†	n.a†	n.a†	n.a†	n.a†	n.a†	n.a†	n.a†	n.a†	n.a†	n.a†	n.a†	n.a†	n.a†	n.a†	n.a†		
Clinic	n.a†	n.a†	n.a†	n.a†	n.a†	n.a†	n.a†	n.a†	n.a†	n.a†	n.a†	n.a†	n.a†	n.a†	n.a†	n.a†	n.a†		
Long-term care facility	44	5.9	291	38.9	<0.001	245	32.7	95	12.7	<0.001	138	18.4	14	1.9		1			
Care home	94	12.6	298	39.8	<0.001	346	46.2	50	6.7	<0.001	221	29.5	24	3.2		0.863			
Visiting nurse office	n.a†	n.a†	n.a†	n.a†	n.a†	n.a†	n.a†	n.a†	n.a†	n.a†	n.a†	n.a†	n.a†	n.a†	n.a†	n.a†	n.a†		
Participation in nationwide training program						0.014						0.043							0.708
Yes	10	1.3	16	2.1		25	3.3	1	0.1		20	2.7	1	0.1					
No	129	17.2	585	78.1		572	76.4	151	20.2		342	45.7	37	4.9					
Frequency of caring for dying patients						<0.001						<0.001							0.417
At least one patient per month	45	6.0	70	9.3		109	14.6	6	0.8		76	10.1	7	0.9					
One patient per 6 months	66	8.8	277	37.0		279	37.2	70	9.3		197	26.3	19	2.5					
One patient per year	27	3.6	172	23.0		150	20.0	50	6.7		76	10.1	12	1.6					
Rarely	0	0.0	72	9.6		48	6.4	24	3.2		8	1.1	0	0.0					

*EOLD: End-of-life discussion

†n.a: not applicable

Table 3 Multivariate logistic regression analysis of factors influencing the attitude toward adequate EOLD, identifying the proxy decision maker, and sharing documented EOLD information with the multidisciplinary team

	Physicians								
	Adequate EOLD* with patients			Identifying the proxy decision maker			Sharing documented EOLD* information with the multidisciplinary team		
	Exp(B)	95% CI [§]	p	Exp(B)	95% CI [§]	p	Exp(B)	95% CI [§]	p
Years of practice									
1-15	1.00		0.293	1.00		0.358	1.00		0.316
16-30	1.31	0.84-2.06	0.234	1.13	0.61-2.10	0.704	0.58	0.19-1.81	0.348
31-	1.05	0.47-1.34	0.851	0.86	0.47-1.57	0.616	0.44	0.14-1.38	0.157
Workplace									
Hospital	1.67	1.12-2.50	0.012	2.84	1.91-4.23	<0.001	8.88	4.65-16.9	<0.001
Long-term care facility	n.a [†]	n.a [†]	n.a [†]	n.a [†]	n.a [†]	n.a [†]	n.a [†]	n.a [†]	n.a [†]
Participation in nationwide training program	2.03	1.43-2.89	<0.001	2.47	1.34-4.57	0.004	0.69	0.37-1.3	0.253
Frequency of caring for dying patients									
At least one patient per month	2.68	1.90-3.76	<0.001	1.62	1.02-2.59	0.043	0.90	0.46-1.77	0.758

*EOLD: End-of-life discussion

95% CI: 95% Confidence interval

†n.a: not applicable

Table 3-2 Nurses

	Nurses								
	Adequate EOLD* with patients			Identifying the proxy decision maker			Sharing documented EOLD* information with the multidisciplinary team		
	Exp(B)	95% CI§	p	Exp(B)	95% CI§	p	Exp(B)	95% CI§	p
Years of practice									
1-15	1.00		0.012	1.00		0.037	1.00		0.558
16-30	0.63	0.45-0.87	0.005	1.48	1.06-2.01	0.023	0.98	0.56-1.72	0.943
31-	0.63	0.44-0.90	0.011	1.55	1.08-2.23	0.019	0.79	0.44-1.42	0.431
Workplace									
Hospital	0.30	0.22-0.40	<0.001	1.49	1.13-1.97	0.005	0.86	0.58-1.27	0.439
Long-term care facility	n.a†	n.a†	n.a†	n.a†	n.a†	n.a†	n.a†	n.a†	n.a†
Participation in nationwide training program	1.52	1.03-2.24	0.035	2.09	1.13-3.84	0.018	1.80	0.85-3.80	0.125
Frequency of caring for dying patients									
At least one patient per month	3.89	2.92-5.15	<0.001	2.36	1.66-3.37	<0.001	1.59	1.05-2.42	0.030

*EOLD: End-of-life discussion

§95% CI: 95% Confidence interval

†n.a: not applicable

Table 3-3 Care staff

	Care staff								
	Adequate EOLD* with patients			Identifying the proxy decision maker			Sharing documented EOLD* information with the multidisciplinary team		
	Exp(B)	95% CI [§]	p	Exp(B)	95% CI [§]	p	Exp(B)	95% CI [§]	p
Years of practice									
1-15	1.00		0.146	1.00		0.143	1.00		0.327
16-30	1.42	0.95-2.12	0.086	1.48	1.00-2.18	0.049	1.05	0.52-2.12	0.896
31-	0.82	0.75-4.51	0.185	1.24	0.44-3.45	0.686	0.37	0.09-1.45	0.161
Workplace									
Hospital	n.a [†]	n.a [†]	n.a [†]	n.a [†]	n.a [†]	n.a [†]	n.a [†]	n.a [†]	n.a [†]
Long-term care facility	0.52	0.35-0.78	0.002	0.46	0.33-0.62	<0.001	1.11	0.54-2.27	0.779
Participation in nationwide training program	2.83	1.21-6.64	0.017	4.65	1.54-14.3	0.006	2.47	0.31-19.8	0.394
Frequency of caring for dying patients									
At least one patient per month	3.24	2.08-5.06	<0.001	2.23	1.40-3.54	0.001	1.17	0.49-2.79	0.720

*EOLD: End-of-life discussion

95% CI: 95% Confidence interval

†n.a: not applicable