



# Palliative sedation in clinical scenarios: results of a modified Delphi study

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## Abstract

**Purpose** To explore the consistency in international expert opinions about palliative sedation.

**Methods** A modified electronic-Delphi procedure was carried out in two rounds. On hundred nine eligible experts were identified from their publications in MEDLINE related with terminal delirium, dyspnea and palliative sedation in the last 3 years. Delphi study included three vignettes of cancer patients and two non-cancer patients, with an estimated survival of days and severe suffering secondary to refractory complications. Experts were asked about whether they would perform continuous sedation and sedation level (described as Richmond Agitation Sedation Scale or defined as patient/family report of symptom relief). Consensus was considered when 70% or more of the experts agreed on a certain topic.

**Results** Thirty-four and 27 panellists completed the 2 Delphi rounds, respectively. Participants were from the USA, Canada, Europe, Australia and Asia. One hundred per cent, 97% and 88% of the respondent agreed use of sedatives, continuously or temporary, in cases of refractory delirium, dyspnea secondary to lung cancer and GOLD IV-EPOC. There were discrepancies for cases of dementia and psycho-existential suffering. Expert selection of continuous palliative sedation was 93% for delirium, 41% for cancer dyspnea, 66% for EPOC dyspnea, 22% for agitation/pain in dementia and 19% for existential suffering. Responses about types and levels of sedation did not achieve consensus in any cases.

**Conclusions** The Delphi study failed to reach consensus in continuous palliative sedation and sedation levels for patients with refractory symptoms described in hypothetical clinical scenarios.

**Keywords** Palliative sedation · Continuous palliative sedation · Proportional sedation · Palliative sedation consensus · Delphi · Sedation levels

## Introduction

Palliative sedation is used for refractory symptoms that many advanced cancer and non-cancer patients experience in the last days of life and that cannot be controlled even by the best palliative therapies. It is defined as the monitored use of medications intended to induce a state of decreased or absent awareness (unconsciousness) in order to relieve the burden of otherwise intractable suffering [1–3]. Agitated delirium

and dyspnoea are the most commonly refractory symptoms reported as reasons for palliative sedation.

Different methods of palliative sedation exist [4, 5]. Recently, a series of theoretical and empirical studies have suggested that there seems to be two types of palliative sedation over the world, i.e. one is palliative proportional sedation (sedation with increasing the depth if necessary), and another is sudden sedation to unconsciousness (deep sedation right from the start) [4, 6–12].

Continuous deep sedation is the most controversial type of sedation since it involves ethically controversial such as the absence of precise concepts of refractory symptoms and intolerable suffering and the proportional level of sedation required controlling it [4, 5, 10, 13–15]. Evaluation of clinical practices and clinical guidelines from different countries however indicate that there is a considerable variation regarding definitions for sedation practices and terminology [7–9, 13, 16–20]. Thus, although there is general agreement that use of sedatives is a

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necessary treatment to respond to refractory suffering at an international level, confusion still remains about exactly what the practice entails. Cross-cultural studies may be valuable to obtain more insights into what degree international experts agree or disagree about the practice and terminology of palliative sedation.

The aim of this study was to explore the consistency in opinions of a panel of international palliative care experts about types and levels of palliative sedation in different hypothetical scenarios.

## Methods

We performed an electronic modified Delphi study (Fig. 1). Delphi procedure is a formal consensus technique, consisting of sequential rounds of a questionnaire interspersed by controlled feedback, used to obtain and synthesise the views of an expert group with knowledge and experience in a specialised area [21]. We made the following method modifications made to suit the present study: (1) preparatory phase with literature review and assessment of the controversial subjects by the experts was not incorporated because palliative sedation is a recognised clinical practice; (2) a questionnaire was performed to collect expert opinion on palliative sedation decisions in usual hypothetical clinical scenarios, vignettes, of dying patients; (3) Delphi procedure was applied in two rounds because we did not carry out a preparatory phase, usually considered as first round, and more than two rounds

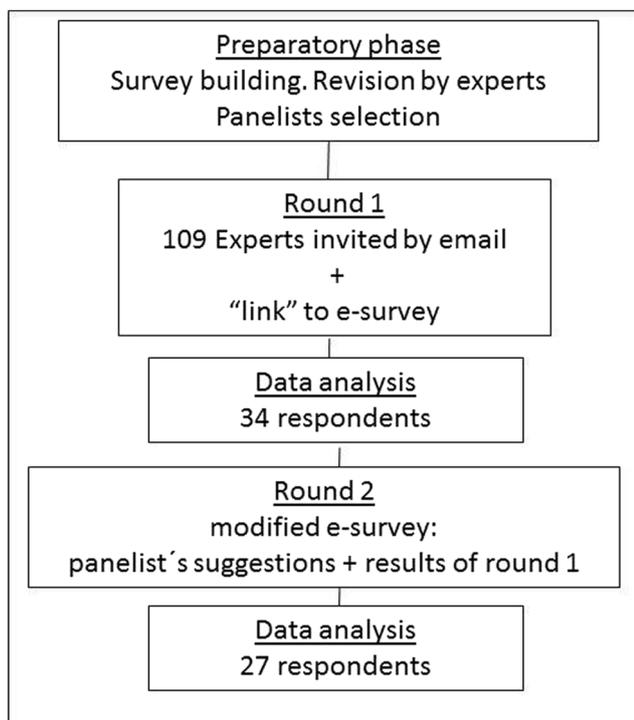


Fig. 1 Delphi procedure flow chart

increases panel attrition [21]. The Human Research Ethics Committee of University Hospital of La Candelaria, Tenerife, approved the study protocol.

## Participants

A panel of international experts was invited to contribute to the study. Panel members were selected on the basis of the following criteria: (1) recognised scientific expertise in clinical experience and research of palliative sedation and/or palliative care, and/or terminal delirium and/or dyspnoea demonstrated by international publications in MEDLINE between years 2011 and 2015 or participation in sedation guideline development published in MEDLINE between years 2005 and 2015 and (2) available e-mail address in the scientific publications or in Google. Experts were identified either through their publication(s) and citation record, or through contacts from the other participants in the study. One hundred and nine eligible experts were identified and invited with the intention to recruit a minimum panel size to ensure at least 25–30 responses [21].

## Procedure

The Delphi procedure consisted of two rounds, which were designed and distributed using an online survey program (Googler Forms). Eligible experts received over 6 weeks one e-mail of invitation and two reminders to participate on the first Delphi round. They were given a comprehensive introduction to the aims and content of the Delphi rounds, informed of the expected amount of time necessary to complete the questionnaire and provided with a personal link to the online survey program, a statement on privacy policy and an e-mail to contact with the researchers of the study. The experts were invited to leave comments and to suggest additional items to be included in the second round. In the second round, panel members received a feedback report that summarised but not analysed or interpreted the response percentages for each question.

The following sociodemographic details were asked in the second Delphi round: age, gender, country of work, work setting, occupational background and years of experience in palliative care. Additionally, panellists were asked to rate 6 questions about palliative sedation and their own preference on an 11-point scale (from 0 the lowest level to 10 the highest level, Table 2). Whether they would like to be included in the list of participants of the Expert Committee in the paper of this study was also asked.

## Clinical scenarios

A draft of the hypothetical clinical scenarios was developed by the authors and revised by Spanish palliative care experts.

The definitive version of the study included three vignettes of advanced cancer patients and two non-cancer patients, with an estimated survival of days and severe suffering secondary to refractory complications of their dying process. Delirium, dyspnoea at rest and existential suffering were selected as refractory symptoms according to the main reasons for palliative sedation described by guidelines (1–3). Every vignette contemplated an explicit agreement of the patients and their family about the acceptance and desire of palliative sedation for controlling the suffering in the last days of the life. The refractory symptoms described were significant psychomotor agitation secondary to hyperactive delirium in a 74-year-old woman with end-stage pancreatic cancer and liver failure; dyspnoea at rest secondary to severe respiratory failure in a 44-year-old male with advanced lung cancer and in a 64-year-old male with end-stage GOLD IV COPD; potential pain and mild restlessness in an 86-year-old patient with end stage of Alzheimer’s disease and psycho-existential suffering in a 36-year-old woman with end-stage cervical cancer (Appendix 1).

## Outcome measures

Experts were asked about (1) whether they would perform continuous sedation (treatment plan), (2) sedation type and (3) sedation level (Appendix 2). Continuous palliative sedation was described as “a state of decreased or absent awareness in different levels induced with medications, usually benzodiazepines as midazolam, until death” [1, 3], and other options included only transitory (intermittent) sedation or not sedation. As sedation types, we had initially rapid sedation (within 30–60 min) and slowly and progressively sedation (in a few hours). The sedation level options were described from mild, moderate, deep and complete, according to Richmond Agitation Sedation and Ramsay scales. In the clinical scenarios of advanced COPD and dementia patients, the options “No opinion, I rarely see this patients” was provided.

## Analyses

We performed a descriptive analysis of the data. It was conducted blind to the names and characteristics of the expert respondents according to the characteristics of an Internet anonymous survey. We considered that consensus to have been reached when 70% or more of the experts agreed on a certain topic [22].

## Results

### Participant enrolment and characteristics

Thirty-four experts completed the first Delphi round. A month later, 1 e-mail of invitation and 1 reminder to

participate on the second round were sent. The survey was modified according to experts’ suggestions with the following options for sedation proceeding and sedation level: “using repeated dosing of a sedative; I would titrate sedation to a level where that patient/family caregivers indicated they have adequate relief, and then maintain the level with a continual infusion titrated to patient / family / caregivers report of adequacy”. Twenty-seven experts completed the second Delphi round. Characteristics of these experts are shown in Table 1. Participants were from the USA, Canada, Europe, Australia and Asia, principally from Japan. They were between 31 and 64 years of age, more often male and more than 75% rated their own expertise regarding palliative sedation  $\geq 7/10$ .

Table 2 describes the opinions of the panellist about sedation and their own preference. About 50% of the respondents disagreed (rated 0–3) that it is difficult to accurately determine medical indications for sedation, while 34% agreed (rated 7–10). A total of 85% disagreed that palliative sedation is an act to accelerate death, and 56% disagreed that palliative sedation is associated with a risk of shortening the patient’s survival. Twenty-two percent of panellist agreed that sedation is often associated with a risk of shortening the patient’s life. Additionally, 66% of the panellist showed the preference to receive drugs to make their sleep when their distress secondary to a hypothetical terminal illness could not be sufficiently controlled, but 85% did not want any treatment to hasten death (Table 2).

### Responses to clinical scenarios: general agreement

The first and second Delphi rounds showed similar findings, consensus was reached only in case of delirium in the treatment plan (Table 3). A total of 100, 97 and 88% of the respondent agreed use of sedatives in vignettes 1–3 (delirium and dyspnea), but the opinions were separate whether they use sedatives continuously or temporary.

**Table 1** Characteristics of experts

Characteristic	Number
Males	19
Females	8
Age years (median; Q1–Q3)	53; 43–59
Country	
Europe	14
USA	6
Canada	3
Asia	2
Australia	2
Number of years involved in the care of cancer patients (median, max–min)	22; 6–32

**Table 2** Opinions and personal preference for palliative sedation, *n* (%): rated from 1 (strongly disagree) to 10 (strongly agree). *N* = 27

	1–3	4–6	7–10
<b>Opinions about sedation</b>			
- It is difficult to accurately determine medical indications for sedation therapy.	14 (52%)	4 (14%)	9 (34%)
- Sedation therapy is practically indistinguishable from acts to hasten death.	23 (85%)	1 (4%)	3 (11%)
- Sedation therapy is often associated with a risk of shortening the patient's life.	15 (56%)	6 (22%)	6 (22%)
<b>Personal preference, if I were diagnosed with incurable terminal cancer</b>			
- I want to receive drugs to make their sleep when distress could not be sufficiently controlled.	0	9 (34%)	18 (66%)
- I would select the most effective methods for symptom alleviation, even if they could shorten my life expectancy.	15 (56%)	6 (22%)	6 (22%)
- If distress could not be sufficiently controlled, I would want the doctor to hasten death.	23 (85%)	1 (4%)	3 (11%)

On the other hand, there were discrepancies in physician opinions for vignettes 4/5 of dementia and psycho-existential suffering. Furthermore, responses about types and levels of sedation selected did not achieve the threshold for consensus in any vignettes (Table 4).

### Case 1: terminal hyperactive delirium due to pancreatic cancer

A majority of panellist (91% in round 1 and 93% in round 2) felt that to perform a continuous palliative sedation until death is the best option to refractory terminal delirium. Moreover, it is the clinical scenario with higher number of votes to select highest level of sedation (37% of the panellist selected deep or complete sedation) and to carry out a quick sedation (44%).

### Case 2: dyspnea at rest due to terminal lung cancer

In the second round, 97% of the respondents agreed use of sedatives, with 41% of continuous use and 56% of temporary use. Sedation levels varied from mild (11%) to complete (8%) with 64% of proportional sedation (titrated to patient/family report of adequacy). Similarly sedation types varied as quick (11%), slowly (27%) and proportionally (62%).

### Case 3: dyspnea at rest due to terminal COPD

In round 2, 88% of the respondents agreed use of sedatives, with 66% of continuous use and 22% of temporary use. Sedation levels varied from moderate (21%) to complete (17%) with 54% of proportional sedation (titrated to patient/family report of adequacy). Similarly, sedation types

**Table 3** Opinions of the expert panel (*n* (%)). Round-1 (*N* = 34) and round-2 (*N* = 27)

Options	Clinical scenario 1 <i>delirium—pancreatic cancer</i>		Clinical scenario 2 <i>dyspnea—lung cancer</i>		Clinical scenario 3 <i>dyspnea—COPD</i>		Clinical scenario 4 <i>pain/agitation dementia</i>		Clinical scenario 5 <i>existential suffering</i>	
	R1	R2	R1	R2	R1	R2	R1	R2	R1	R2
<i>Treatment plan</i>										
I would not perform CPS	0	0	1 (3)	1 (3)	0	0	0	0	0	0
Perform CPS until death	31 (91)	25 (93)	24 (71)	11 (41)	18 (53)	18 (66)	9 (26)	6 (22)	3 (9)	5 (19)
Perform only TPS sedation in exacerbations of suffering	3 (9)	2 (7)	8 (23)	15 (56)	12 (35)	6 (22)	12 (35)	8 (30)	10 (29)	5 (19)
None of the above options	0	0	1 (3)	0	1 (3)	1 (3)	7 (21)	8 (30)	21 (62)	17 (62)
No clinical experience	—	—	—	—	3 (9)	2 (7)	6 (18)	5 (18)	—	—

CPS continuous palliative sedation, TPS transitory palliative sedation

**Table 4** Opinions of the experts who selected to perform palliative sedation (*n* (%)). Round-1 (*N* = 34) and round-2 (*N* = 27)

Options	Clinical scenario 1		Clinical scenario 2		Clinical scenario 3		Clinical scenario 4		Clinical scenario 5	
	R1	R2	R1	R2	R1	R2	R1	R2	R1	R2
<i>Palliative sedation level</i>										
Mild palliative sedation	6 (17)	1 (4)	9 (28)	3 (11)	?	0	8 (38)	6 (43)	4 (31)	2 (20)
Moderate palliative sedation	7 (20)	6 (22)	7 (22)	3 (11)	?	5 (21)	3 (14)	1 (7)	2 (15)	0
Deep palliative sedation	11 (32)	7 (26)	7 (22)	2 (8)	?	2 (8)	6 (28)	2 (14)	3 (23)	1 (10)
Complete palliative sedation	5 (15)	3 (11)	4 (12)	2 (8)	?	4 (17)	2 (10)	1 (7)	2 (15)	1 (10)
Sedation titrated to patient/family caregivers report adequacy	(a)	10 (37)	(a)	16 (64)	?	13 (54)	(a)	4 (29)	(a)	6 (60)
No above options	5 (15)	0	5 (16)	0		2 (10)	0	2 (15)	0	
<i>Palliative sedation type</i>										
I would initiate CPS quickly	19 (56)	12 (44)	11 (34)	3 (11)	13 (43)	6 (25)	5 (24)	1 (3)	4 (31)	3 (30)
I would initiate CPS slowly	15 (44)	7 (26)	20 (62)	7 (27)	13 (43)	7 (29)	14 (66)	5 (18)	9 (69)	1 (10)
<i>I would titrate proportional sedation</i> <sup>a</sup>		8 (30)	<sup>a</sup>	16 (62)	<sup>a</sup>	11 (46)	<sup>a</sup>	8 (30)	<sup>a</sup>	6 (60)
No above options	0	0	1 (3)	0	4 (13)	0	2 (10)	0		

CPS continuous palliative sedation, TPS transitory palliative sedation, ? data not available by computer error

<sup>a</sup> Questions only in R-2

varied as quick (25%), slowly (29%) and proportionally (46%). Unfortunately, because of a malfunction, the survey provider did not save the data in the first round regarding the levels of sedation.

#### Case 4: agitation/pain in advanced dementia patient

Twenty-seven percent of 22 panellists with experience in palliative care in dementia believed that “to perform continuous palliative sedation until death” is the best option for suffering control secondary to agitation/pain in advanced dementia patients. Roughly one in five (22%) of the experts who selected to perform transitory or continuous sedation felt that the highest levels of sedation, deep or complete, are appropriate for that clinical situation (Table 3).

#### Case 5: psycho-existential suffering in the last days

In both rounds, more than half (62%) of the experts selected the option other than sedation, i.e. “increase psychological support, spiritual and religious accompaniment” (described in none of the above options in Table 3). The remaining 40% agreed use of sedatives continuously or temporary.

## Discussion

First important finding of this study is the clarification of the clinical situations there is or is not a controversy in the use of sedatives in the last stage of life. That is, almost of all participants agreed use of sedatives, continuously or temporary, for patients with refractory dyspnoea and delirium,

while there is a wide variation in dementia patients and existential suffering. These findings are consistent with empirical studies that palliative sedation was mainly performed for refractory dyspnoea and delirium close to death, but appropriateness of sedation is controversial for dementia patients and existential suffering [1–3, 5, 20, 23].

Second important finding is the fact, although we had prepared the RASS/Ramsay scores as indications of sedation levels in the initial round, some experts recommended other option, i.e. “sedation titrated to patient/family report adequacy.” In the round, 29–64% of the respondents reported that titration to the dose where patient/family reported adequacy was the best indication to describe sedation levels. This finding is consistent with the key concept of palliative sedation that treatment goal is symptom relief, not consciousness level itself [1–3, 5]. These findings raise one research question to be explored further, i.e. what the best indicator to describe sedation level in performing palliative sedation is. Although some experts recommend the RASS as useful indicators [24, 25], the RASS is originally a measure of consciousness, not symptom intensity, and may be regarded as a second outcome of symptom palliation. Some empirical studies used the STAS (Support Team Assessment Schedule) or Discomfort scale as outcome measures, but these tools are not fully validated in this setting [26–29]. We believe therefore a new tool or modification of the RASS or the Ramsay scale to directly measure symptom intensity is urgently necessary.

Third and the most important finding is the fact that although we had prepared rapid/slow sedation concepts as a sedation type, some experts recommended proportional sedation as a strong option. Finally, a considerable number of the respondents (30–62%) agreed that proportional sedation was

the best description for sedation types. This is consistent with recent debates about the potential typology of palliative sedation [1–6]. Some empirical and religious research proposed the differentiation of two practices, gradual/proportional sedation vs. rapid/sudden/emergent sedation (sedation to unconsciousness); some experts however dissent this proposal and maintain that there is just only one proportional sedation [4, 6–9, 11, 29]. Conceptually, all medical practice should be performed proportionally appropriate to patient situation, and we agree that rapid/sudden sedation is surely a part of proportional sedation. The focus of research is therefore whether differentiation of sudden vs. proportional sedation is useful in clinical practice and ethical discussion. Very recent study demonstrated that two types of sedation achieved indeed different outcomes if performed using intervention protocols [30]. Further discussion is undoubtedly needed to clarify what “proportional” means in clinical practice and the usefulness of potential classifications of two types of palliative sedation.

This study has several limitations. First, vignettes and reply options were made through careful discussion among the authors, but formal face validity or cognitive testing was not performed. Participants therefore might understand the same vignette differently. Second, as this study intended to explore general trends of the international expert opinions, the results should be confirmed in a large international survey.

In conclusion, international experts generally agree use of sedations for patients with refractory dyspnoea and delirium in last days of life. However, there are inconsistencies in their terminology of sedation types (rapid, slow or proportional) and sedation levels (described as RASS/Ramsay scale or defined as patient/family report of symptom relief). Further efforts are needed to create a common language about internationally common clinical practice using sedatives.

## Expert panel

The following people participated in the expert panel of the current study in at least one of the two rounds (only 17 panellists agreed to be identified). Their participation does not imply that they agree with the results and conclusions from the study: Radbruch L (Germany), van Deijck RHPD (The Netherlands), Verhagen C (The Netherlands), Hagen DF (Norway), Menten J (Belgium), Visser K (The Netherlands), Wilcok A (UK), Roider-Schur S (Austria), Larkin P (Ireland), Bruera E (USA), Bascom P (USA), Henry B (Canada), Fainsinger R (Canada), Imai K (Japan), Tsuneto S (Japan), Sang-Yeon Suh (South Korea), Giles A (Australia).

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## Compliance with ethical standards

**Conflict of interest** The authors declare that there is no conflict of interest.

**Ethical approval** This article does not contain any studies with animals performed by any of the authors. All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards. The study protocol was approved by the Human Research Ethics Committee of Hospital Universitario La Candelaria. For this type of study formal consent is not required.

**Informed consent** Additional informed consent was obtained from all individual participants for whom identifying information is included in this article.

## Appendix 1. Vignettes

1. Seventy-four-year-old woman with end-stage pancreatic cancer and liver failure, irreversible hyperactive delirium with significant psychomotor agitation and no response to levomepromazine 300 mg/day combined with intermittent use of benzodiazepines. Oligoanuria, impaired intake. PPS 10. Twenty-four breaths per minute, 105 beats per minute, oxygen saturation of 85%, death rattle in both lung fields. The estimated survival of the patient is “days” according to the Prognosis in Palliative Care Study predictor model-A. She has previously stated to agree to receive pharmacological agents to reduce consciousness in order to relieve the suffering in the last days of her life. Her family has agreed to respect her decision.
2. Forty-four-year-old male with end-stage lung cancer, bedridden and dependent for all basic activities of daily living due to severe respiratory failure with continuous dyspnoea at rest refractory to all treatments, including parenteral opioids and oxygen. The patient is alert and not depressed. No delirium. Presence of premortem wheezing with an oxygen saturation of 89% and a breathing rate of 28 breaths/min. PPS 10%. Using the Prognosis in Palliative Care Study predictor model-A, the estimated survival of the patient is days. He has explicitly stated to his physician, “I want to die right without any suffering. I agree to sleep until I die if it is necessary”. His family has agreed to respect his decision.
3. Sixty-four-year-old male with end-stage GOLD IV COPD. Bedridden and dependent for all basic activities of daily living due to severe respiratory failure with continuous dyspnoea at rest (impaired oral intake and communication) refractory to all treatments, including antibiotic, opioids and NIMV. The patient is alert and not depressed. No delirium. Twenty-eight breaths per minute, oxygen saturation of 86% despite of adequate oxygen therapy, 110 beats per minute. Presence of death rattle. Estimated survival of less than 3–4 days. The patient has been informed of his diagnosis, conditions of his illness,

and prognosis. He has explicitly and repeatedly stated to his physician, “I want you to help die right without suffering by my inability to get enough air, if possible. If you can’t do that, then I want to be unconscious until I die”.

4. Eighty-six-year-old patient with end-stage of Alzheimer’s disease (stage 7f on the Reisberg scale). Eyes remain open. Presents with foetal position and interrupted whimpers when moving, which make the staff caring for him doubt whether he is suffering, in spite of increasing the dosage of morphine to 60 mg/day. Estimated survival of 2–4 days, presence of oligoanuria, premortem wheezing, 28 breaths per minute, oxygen saturation of 84%, 102 beats per minute. His family feels that he is suffering.

5. Thirty-six-year-old patient with end-stage cervical cancer. Presents with symptoms of irreversible complete intestinal obstruction, which has lasted for 20 days. Controlled vomiting and pain; abscessified tumour implant in the abdominal wall with enterocutaneous fistula. In addition, rectovaginal fistula, with fecaloid vaginal discharge. Irreversible coagulopathy with a high risk of massive bleeding. Bedridden due to neoplastic asthenia with a score of 8/10 on the VAS and requires help for all basic ADLs. Palliative Performance Scale 20%. She is alert; no sign of delirium. The estimated survival of the patient is days according to the Prognosis in Palliative Care Study predictor model-A. When informed of the diagnosis and the prognosis of days, the patient expresses a desire to end her life due to spiritual distress. She feels like she is a burden and expresses profound despair. As a result, she requests to be asleep during the final days of her life, in mutual agreement with her family. She does not recognise the presence of emotional disturbance, and her score on the hospital scale of anxiety and depression is 10 points.

## Appendix 2. Questions regarding clinical scenarios

Question 1. *Faced with the clinical situation, your treatment plan would be:*

- Perform continuous sedation (CPS), a state of decreased or absent awareness in different levels (proportional, light, moderate or deep sedation), until death
- Perform only transitory/intermittent sedation (transitory state of decreased or absent awareness) in situations of exacerbations of severe dyspnoea, but not continuous sedation
- None of the above options, I would select other treatments

Question 2. *If you decide to perform continuous sedation until death, you would do so in the following manner...*

- I would initiate continuous sedation quickly in order to decrease awareness within 30–60 min

- I would initiate sedation slowly and progressively to decrease awareness in a few hours
- Using repeated dosing of a sedative, I would titrate sedation to a level where that patient indicated they have adequate relief, and then maintain the level with a continual infusion titrated to patient report of adequacy
- I would not perform sedation (I would not reduce patient’s consciousness level), I would select other treatments

Question 3. *If you perform continuous sedation until death, the level/depth of sedation, which you consider appropriate for the patient, would be...*

- Complete sedation (the patient does not respond to any stimuli: RASS -5 or level 6 on the Ramsay sedation scale)
- Deep sedation (the patient responds to tactile stimuli with eye opening or body movements: RASS-4 or level 5 on the Ramsay sedation scale)
- Moderate sedation (the patient responds to verbal stimuli with eye opening or body movements: RASS-3 or level 4 on the Ramsay sedation scale)
- Mild sedation (the patient responds to verbal stimuli with eye contact: RASS-2 or level 3 on the Ramsay sedation scale)
- Using repeated dosing of a sedative, I would titrate sedation to a level where that patient indicated they have adequate relief, and then maintain the level with a continual infusion titrated to patient report of adequacy
- None of the above options
- I would not perform palliative sedation (I would not reduce patient’s consciousness level), I would select other treatments

## References

1. Cherny NI, Radbruch L, Board of the European Association for Palliative Care (2009) European Association for Palliative Care (EAPC) recommended framework for the use of sedation in palliative care. *Palliat Med* 23:581–593
2. Kirk TW, Mahon MM, Palliative Sedation Task Force of the National Hospice and Palliative Care Organization Ethics Committee (2010) National Hospice and Palliative Care Organization (NHPCO) position statement and commentary on the use of palliative sedation in imminently dying terminally ill patients. *J Pain Symptom Manag* 39:914–923
3. Cherny NI, ESMO Guidelines Working Group (2014) ESMO clinical practice guidelines for the management of refractory symptoms at the end of life and the use of palliative sedation. *Ann Oncol* 25(Suppl 3):143–152
4. Quill TE, Lo B, Brock DW, Meisel A (2009) Last-resort options for palliative sedation. *Ann Intern Med* 151:421–424
5. Maltoni M, Setola E (2015) Palliative sedation in patients with cancer. *Cancer Control* 22:433–441

6. Morita T, Imai K, Yokomichi N, Mori M, Kizawa Y, Tsuneto S (2017) Continuous deep sedation: a proposal for performing more rigorous empirical research. *J Pain Symptom Manag* 53:146–152
7. Anquinet L, Rietjens JA, Seale C et al (2012) The practice of continuous deep sedation until death in Flanders (Belgium), the Netherlands, and the UK: a comparative study. *J Pain Symptom Manag* 44:33–43
8. Swart SJ, Van der Heide A, Van Zuylen L et al (2012) Considerations of physicians about the depth of palliative sedation at the end of life. *CMAJ* 184:360–366
9. Seymour J, Rietjens J, Bruinsma S, UNBIASED consortium et al (2015) Using continuous sedation until death for cancer patients: a qualitative interview study of physicians' and nurses' practice in three European countries. *Palliat Med* 29:48–59
10. Materstvedt LJ, Bosshard G (2009) Deep and continuous palliative sedation (terminal sedation): clinical-ethical and philosophical aspects. *Lancet Oncol* 10:622–627
11. Sykes N, Thorns A (2003) Sedative use in the last week of life and the implications for end-of-life decision making. *Arch Intern Med* 163:341–344
12. Twycross R (2017) Regarding palliative sedation. *J Pain Symptom Manag* 53:e13–e15
13. Juth N, Lindblad A, Lynøe N, Sjöstrand M, Helgesson G (2010) European Association for Palliative Care (EAPC) framework for palliative sedation: an ethical discussion. *BMC Palliat Care* 9:20–25
14. Billings JA, Churchill LR (2012) Monolithic moral frameworks: how are the ethics of palliative sedation discussed in the clinical literature? *J Palliat Med* 15:709–713
15. Berger JT (2014) The proportionate value of proportionality in palliative sedation. *J Clin Ethics* 25:219–221
16. Claessens P, Menten J, Schotsmans P, Broeckaert B (2008) Palliative sedation: a review of the research literature. *J Pain Symptom Manag* 36:310–333
17. Schildmann E, Schildmann J (2014) Palliative sedation therapy: a systematic literature review and critical appraisal of available guidance on indication and decision making. *J Palliat Med* 17:601–611
18. Abarshi E, Rietjens J (2017) Robijn L, et al; EURO IMPACT international variations in clinical practice guidelines for palliative sedation: a systematic review. *BMJ Support Palliat Care* 7:223–229
19. Hamano J, Morita T, Ikenaga M, Abo H, Kizawa Y, Tunetou S (2018) A nationwide survey about palliative sedation involving Japanese palliative care specialists: intentions and key factors used to determine sedation as proportionally appropriate. *J Pain Symptom Manag* 55:785–791
20. Putman MS, Yoon JD, Rasinski KA, Curlin FA (2013) Intentional sedation to unconsciousness at the end of life: findings from a national physician survey. *J Pain Symptom Manag* 46:326–334
21. McMillan SS, King M, Tully MP (2016) How to use the nominal group and Delphi techniques. *Int J Clin Pharm* 38(3):655–662
22. Diamond IR, Grant RC, Feldman BM, Pencharz PB, Ling SC, Moore AM, Wales PW (2014) Defining consensus: a systematic review recommends methodologic criteria for reporting of Delphi studies. *J Clin Epidemiol* 67:401–409
23. Rys S, Deschepper R, Mortier F, Deliens L, Bilsen J (2014) Continuous sedation until death with or without the intention to hasten death—a nationwide study in nursing homes in Flanders, Belgium. *J Am Med Dir Assoc* 15:570–575
24. Beller EM, van Driel ML, McGregor L, Truong S, Mitchell G (2015) Palliative pharmacological sedation for terminally ill adults. *Cochrane Database Syst Rev* 1:CD010206
25. Schildmann EK, Schildmann J, Kiesewetter I (2015) Medication and monitoring in palliative sedation therapy: a systematic review and quality assessment of published guidelines. *J Pain Symptom Manag* 49:734–746
26. Arevalo JJ, Brinkkemper T, van der Heide A, AMROSE Site Study Group et al (2012) Palliative sedation: reliability and validity of sedation scales. *J Pain Symptom Manag* 44:704–714
27. Fainsinger RL, Waller A, Bercovici M, Bengtson K, Landman W, Hosking M, Nunez-Olarte JM, deMoissac D (2000) A multicentre international study of sedation for uncontrolled symptoms in terminally ill patients. *Palliat Med* 14:257–265
28. Chiu TY, Hu WY, Lue BH, Cheng SY, Chen CY (2001) Sedation for refractory symptoms of terminal cancer patients in Taiwan. *J Pain Symptom Manag* 21:467–472
29. Morita T, Chinone Y, Ikenaga M, Japan Pain, Palliative Medicine, Rehabilitation, and Psycho-Oncology Study Group et al (2005) Efficacy and safety of palliative sedation therapy: a multicenter, prospective, observational study conducted on specialized palliative care units in Japan. *J Pain Symptom Manag* 30:320–328
30. Imai K, Morita T, Yokomichi N et al (2017) Efficacy of two types of palliative sedation therapy defined using intervention protocols: proportional vs. deep sedation. *Support Care Cancer*. <https://doi.org/10.1007/s00520-017-4011-2>