The Influence of Geography, Religion, Religiosity and Institutional Factors on Worldwide End-of-Life Care for the Critically III: The WELPICUS Study

Journal of Palliative Care 1-9 © The Author(s) 2021 Article reuse guidelines: sagepub.com/journals-permissions DOI: 10.1177/08258597211002308 journals.sagepub.com/home/pal



Charles L. Sprung, MD, JD¹, Ann L. Jennerich, MD, MS², Gavin M. Joynt, MBBCh³, Andrej Michalsen, MD, MPH⁴, J. Randall Curtis, MD, MPH², Linda S. Efferen, MD, MBA⁵, Sara Leonard, MBBCH⁶, Barbara Metnitz, PhD⁷, Adam Mikstacki, MD, PhD⁸, Namrata Patil, MD, MPH⁹, Robert C. McDermid, MD, FRCPC¹⁰, Philipp Metnitz, MD, PhD¹¹, Richard A. Mularski, MD, MSHS, MCR¹², Pierre Bulpa, MD¹³, and Alexander Avidan, MD¹

Abstract

Purpose: To evaluate the association between provider religion and religiosity and consensus about end-of-life care and explore if geographical and institutional factors contribute to variability in practice. **Materials and Methods:** Using a modified Delphi method 22 end-of-life issues consisting of 35 definitions and 46 statements were evaluated in 32 countries in North America, South America, Eastern Europe, Western Europe, Asia, Australia and South Africa. A multidisciplinary, expert group from specialties treating patients at the end-of-life within each participating institution assessed the association between 7 key statements and geography, religion, religiosity and institutional factors likely influencing the development of consensus. **Results:** Of 3049 participants, 1366 (45%) responded. Mean age of respondents was 45 \pm 9 years and 55% were females. Following 2 Delphi rounds, consensus was obtained for 77 (95%) of 81 definitions and statements. There was a significant difference in responses across geographical regions. South African and North American respondents were more likely to encourage patients to write advance directives. Fewer Eastern European and Asian respondents agreed with withdrawing life-sustaining treatments without consent of patients or surrogates. While respondent's religion, years in practice or institution did not affect their agreement, religiosity, physician specialty and responsibility for end-of-life decisions did. **Conclusions:** Variability in agreement with key consensus statements about end-of-life care is related primarily to differences among providers,

¹⁰ Division of Critical Care, University of Alberta, Edmonton, Alberta, Canada

Charles L. Sprung, General Intensive Care Unit, Department of Anesthesiology, Critical Care Medicine and Pain, Hadassah Hebrew University Medical Center, P.O. Box 12000, Jerusalem 91120, Israel.

Email: charles.sprung@ekmd.huji.ac.il

¹ Department of Anesthesiology, Critical Care Medicine, and Pain Medicine, Hadassah Medical Center, Hebrew University of Jerusalem, Jerusalem, Israel

² Division of Pulmonary, Critical Care and Sleep Medicine, Harborview Medical Center, University of Washington, Seattle, WA, USA

³ Department of Anaesthesia and Intensive Care, The Chinese University of Hong Kong, Hong Kong, China

⁴ Department of Anaesthesiology and Critical Care Medicine, Tettnang Hospital, Tettnang, Germany

⁵ Department of Medicine, Stony Brook Medicine, Stony Brook, NY, USA

⁶ Department of Anaesthesia and Critical Care, King's College Hospital, London, UK

⁷ Austrian Centre for Documentation and Quality Assurance in Intensive Care Medicine, Vienna, Austria

⁸ Faculty of Health Sciences, Poznan University of Medical Sciences, Poznan, Poland

⁹ Division of Thoracic Surgery and Division of Trauma, Burn and Critical Care, Department of Surgery, Brigham & Women's Hospital, Boston, MA, USA

¹¹ Clinical Department of General Anaesthesiology, Emergency and Intensive Care Medicine, LKH-University Hospital of Graz, Medical University of Graz, Graz, Graz, Austria

¹² The Center for Health Research Kaiser Permanente Northwest, Portland, OR, USA

¹³ Intensive Care Unit of Mont-Godinne University Hospital, CHU UCL Namur, Université Catholique de Louvain, Yvoir, Belgium

Corresponding Author:

with provider-level variations related to differences in religiosity and specialty. Geography also plays a role in influencing some end-of-life practices. This information may help understanding ethical dilemmas and developing culturally sensitive end-of-life care strategies.

Keywords

geography, religion, religiosity, end-of-life decisions, withholding and withdrawing life-sustaining treatment, do not resuscitate orders, cardiopulmonary resuscitation, intensive care unit

Introduction

End-of-life decisions are common in intensive care units (ICUs) although medical practices vary around the world.^{1,2} Factors influencing practices include geography,³⁻⁶ religion,⁷⁻⁹ culture,^{7,10-12} religiosity^{8,13} and patient,⁶ physician^{4,14} and institutional characteristics.^{5,6} Given how common these decisions are, and how important end-of-life care is, efforts to understand the underpinnings that lead to ethical dilemmas around consensus on core end-of-life care practices are warranted.

The WELPICUS (Consensus for <u>Worldwide End of Life</u> <u>Practice for Patients in Intensive Care Units</u>) study¹⁵ identified definitions and statements that achieved worldwide consensus for key end-of-life practices and sought to identify reasons for lack of consensus. Subsequent analyses of the WELPICUS data found that variability in agreement with consensus statements about end-of-life care was related primarily to differences among individual providers.¹⁶ The present study evaluates the contribution of provider level factors of religion and religiosity to consensus about end-of-life care and also explores geographical and institutional factors which may contribute to variability in practice patterns.

Material and Methods

In WELPICUS, worldwide critical care professional societies were invited to participate in developing consensus on principles related to end-of-life care. A modified Delphi process was used to evaluate 22 end-of-life, ethical issues consisting of 35 definitions and 46 statements in 32 countries.¹⁵ A multidisciplinary, expert group from specialties treating patients at the end of their lives within each participating institution was identified. These included ICU physicians and nurses, hematologists, oncologists, gerontologists, hospice and palliative care specialists, ethicists, social workers, clergy, legal experts, media and patient advocacy groups. Definitions, consensus statements and demographic information were translated from English into Chinese, French, German, Italian, Portuguese and Spanish. Geographic regions were prospectively defined as Western Europe (Austria, Belgium, Cyprus, Denmark, France, Germany, Ireland, Israel, Italy, Netherlands, Portugal, Spain, Sweden, Switzerland, Turkey, United Kingdom); Eastern Europe (Czech Republic, Poland, Slovakia); South America (Argentina, Brazil, Colombia, Peru); North America (Canada, USA); Asia (China, Hong Kong, India, Korea); Australia; and South Africa. Helsinki Committee approval was obtained for each center unless exempt. More specific information

regarding the development of the 22 ethical issues, consensus process, original and revised questionnaire statements, translations and agreement or disagreement were previously reported.¹⁵ The present study assessed the association between 7 key statements and geography, religion, religiosity and institutional factors which could play a role for the development of consensus (defined as greater than 80% agreement). Statements that previously did not have consensus¹⁵ or had regional differences were chosen to be evaluated.

Statistical Analyses

Associations between demographic variables and agreement/disagreement with statements were tested using the Fisher's exact test. Data are presented as mean \pm standard deviation and number and percentage. Variables included: age, sex, marital status, religion, religiosity, occupation, years in practice and type of practice (facility type and academic/non-academic), hospital bed number and type (private/public), responsibility for end-of-life decisions, frequency of limitations, and geographical region. A p-value < 0.05 was considered significant. P-values were Bonferroni-adjusted for the number of tests in each table.

Results

Of 3049 participants from 32 countries, 1366 (45%) responded to the original questionnaires (Supplemental Table 1). An additional 603 responses were received for the revised questionnaire after respondent feedback. The demographics of all respondents are shown in Table 1. The mean age was 45 \pm 9 years and 55% were female. Following the first round, consensus was obtained for 34 of 35 (97%) definitions and 32 of 46 (70%) statements; 66 (81%) of the 81 definitions and statements exceeded 80% agreement and 26 (32%) exceeded 90% agreement. The second round achieved consensus for an additional 11 definitions and statements resulting in an overall consensus of 77 of 81 (95%) items.

Consensus was initially achieved for shared decision making (Statement 7) and withholding and withdrawing lifesustaining treatment if a patient's chances of surviving are extremely low or the patient would not want continued lifesustaining treatment (Statement 11A and 12A). Consensus was not initially but was subsequently obtained for medical advance directives (Statement 3E). Consensus could not be reached for withholding or withdrawing life-sustaining treatment in circumstances when informed consent cannot be obtained (Statement 11B and 12B) nor for active shortening of the dying

Table 1. Original Respondent Demographi	ic Data	
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Table I. (continued)

		Ν	%	mean		std
Respondents		1366				
Age (years) Sex		175		45.26	±	9.32
	Female	745	54.5			
	Male	613	44.9			
	Unknown	8	0.6			
Marital						
status	Married	1005	73.6			
	Single	227	16.6			
	Separated/divorced	107	7.8			
	Widowed	12	0.9			
D 1	Unknown	15	1.1			
Religion		453	33.Z			
	Protestant	319	23.4			
	Atheist/agnostic	212	23.1			
	Hindu	37	2.5			
	No Religion	24	1.8			
	Muslim	17	1.0			
	Christian	14	10			
	Buddhist		0.8			
	Other	31	2.3			
	Unknown	56	4.1			
Religiosity	Religious	547	40.0			
0,	Non-religious	357	26.1			
	Very religious	60	4.4			
	Unknown	402	29.4			
Occupation-	-physicians					
	Intensive Care	230	16.8			
	Anesthesiology	227	16.6			
	Internal Medicine	104	7.6			
	Oncology	61	4.5			
	Gerontology	57	4.2			
	Hematology	55	4.0			
	Hospice	25	1.8			
	Palliative Medicine	24	1.8			
	Surgery	23	1./			
	Pediatrics	9	0.7			
0	Other	24	1.8			
Occupation—	-non-physicians	254	24 1			
	Social Worker	336	20.1			
	Social WORKER	22	J.Z			
	lawver	21	1.0			
	Clergy	20	1.5			
	Patient advocate	7	0.5			
	Other	22	1.6			
Unknown	Unknown	35	2.6			
Years practic	ing					
1	Physicians	839	61.4	17.23	±	9.17
	Nurses	356	26. I	20.43	±	9.53
	Other professions	136	10.0	19.74	±	9.47
	Unknown	35	2.6	18.41	±	9.76
	Total	1366		18.32	\pm	9.41
Practice type	Α.					
	Hospital	1237	90.6			
	Clinic	41	3.0			

(continued)

		Ν	%	mean	std
	Community	5	0.4		
	Unknown	83	6. I		
В.					
	Academic	921	67.4		
	Non-academic	347	25.4		
	Unknown	98	7.2		
Hospital bed					
number					
	≤400	358	26.2		
	401-700	492	36.0		
	701-1000	249	18.2		
	>1000	260	19.0		
	Unknown	7	0.5		
Hospital					
type	Public	1072	78.5		
	Private	181	13.3		
	Unknown	113	8.3		
Responsible for	or end-of-life decisions				
-	Yes	855	62.6		
	No	489	35.8		
	Unknown	22	1.6		
Work with pa	atients undergoing				
limitations					
	Yes	1170	85.7		
	No	176	12.9		
	Unknown	20	1.5		
Frequency of					
limitations					
	Regularly (daily)	171	12.5		
	Frequently (once or twice a month)	465	34.0		
	Occasionally (number of times per month)	379	27.7		
	Seldom (once or twice every few months)	149	10.9		
	Unknown	202	148		

process or intentionally hastening death (Statement 13). These statements are found in Table 2.

Regional differences in rates of agreement were found for statements regarding advance directives, shared decision making, withholding treatments, withdrawing treatments and active shortening of the dying process (Table 3, Figure 1A-1F, significant for all statements except active shortening of the dying process). Australian and North American respondents were more likely, in comparison to those in other countries, to agree that physicians should encourage their patients to write advance directives (Figure 1A). Eastern European professionals were less likely to agree that health care professionals should use shared decision making in forming end-of-life determinations (Figure 1B). Although agreement for withdrawing lifesustaining treatment if survival chances were low or these were the patient's desires was found in 82% of respondents, there was substantially less agreement from Asian and Eastern European Table 2. End-of-Life Statements and Percent Agreement (Statement Numbers Are From Reference 15).

- 1. Medical advance directives (Original WELPICUS statement #3). Consensus E. Physicians should encourage their patients to write advance directives. 69%
- Shared decision making (Original WELPICUS statement #7). Consensus: Health care professionals should attempt to use shared decision making in decision making about end-of-life care for critically ill patients. 88%
- 3. Withholding life-sustaining treatment (Original WELPICUS statement #11A and 11B). Consensus: A. If a medical decision is made that a patient's chances of surviving are extremely low or the patient under the present medical circumstances would not want continued life-sustaining treatment, life-sustaining treatment may be withheld. 88%.
- B. Although life-sustaining treatment should generally be withheld only after obtaining informed consent of the patient and/or the surrogate decision-maker or family, there are circumstances when withholding life-sustaining treatment is permissible even though informed consent cannot be obtained (such as when the patient is not capable of decision-making and no family is available). 77%
- 4. Withdrawing life-sustaining treatment (Original WELPICUS statement #12A and 12B)
- Consensus: A. If a medical decision is made that a patient's chances of surviving are extremely low or the patient under the present medical circumstances would not want continued life-sustaining treatment, life-sustaining treatment may be withdrawn. 82%
- B. Although life-sustaining treatment should generally be withdrawn only after obtaining informed consent of the patient and/or the surrogate decision-maker or family, there are circumstances when withdrawing life-sustaining treatment is permissible even though informed consent cannot be obtained (such as when the patient is not capable of decision-making and no family is available). 73%

5. Active shortening of the dying process (Original WELPICUS statement #13)

Consensus: A. Even if a medical decision is made that a patient's chances of surviving are extremely low or under the present medical circumstances the patient and/or the surrogate decision-maker or family request that the physician hasten the patient's death, active shortening of the dying process or intentionally hastening death is not permissible. 74%

Table 3. Participants Who Agreed to Key End-of-life Statements Stratified by Region.

	Health care professionals should Physicians should encourage their patients to write advanced directives Health care ptients to write end-of-life care decisions		If low chance of survival or patient's desire, treatments may be withdrawn	Withholding treatments without informed consent of the patient or surrogates is permissible	Withdrawing treatments without informed consent of the patient or surrogates is permissible	Active shortening of the dying process or intentionally hastening death is not permissible	
	(Statement 3E) count (%) *	(Statement 7) count (%) *	(Statement I2A) count (%) *	(Statement IIB) count (%) *	(Statement 12B) count (%) *	(Statement 13) count (%)	
Region							
Åsia	69/133 (51.9)	115/124 (92.7)	82/124 (66.1)	78/133 (58.6)	77/133 (57.9)	93/133 (69.9)	
Australia	10/10 (100.0)	7/8 (87.5)	8/8 (100.0)	9/10 (90.0)	9/10 (90.0)	5/10 (50.0)	
Eastern Europe	45/74 (60.8)	54/72 (75.0)	45/72 (62.5)	55/74 (74.3)	43/74 (58.1)	55/74 (74.3)	
North America	378/433 (87.3)	382/414 (92.3)	347/414 (83.8)	332/433 (76.7)	315/433 (72.7)	325/433 (75.1)	
South Africa	6/11 (54.5)	10/11 (90.9)	11/11 (100.0)	11/11 (100.0)	11/11 (100.0)	7/11 (63.6)	
South America	12/17 (70.6)	12/13 (92.3)	11/13 (84.6)	12/17 (70.6)	15/17 (88.2)	13/17 (76.5)	
Western Europe	422/688 (61.3)	552/641 (86.1)	549/641 (85.6)	553/688 (80.4)	540/688 (78.5)	517/688 (75.1)	
Total	942/1366 (69.0)	1132/1283 (88.2)	1053/1283 (82.1)	1050/1366 (76.9)	1010/1366 (73.9)	1015/1366 (74.3)	

* Bonferroni adjusted p-value < 0.05.

country respondents (Figure 1C). Regarding the principle of withholding or withdrawing life-sustaining treatments prior to death without consent of the patient or surrogates, less agreement was found for withholding in Asian countries (Figure 1D) and less agreement for withdrawing in Asian and Eastern European countries (Figure 1E). Fewer respondents in Australia and South Africa agreed that active shortening of the dying process was not permissible (Figure 1F).

There were no differences in perspectives based on withholding or withdrawing life-sustaining treatments without consent of the patient or surrogates or the impermissible nature of intentionally hastening death based on respondent religion, years in practice, number of hospital beds or hospital type. There were, however, differences by respondent religiosity with less religious respondents being more likely to agree with withholding or withdrawing life-sustaining treatments without consent of the patient or surrogates and more religious respondents being more likely to agree that intentionally hastening death is not permissible (Table 4). Anesthesiologists and respondents with more responsibility for end-of-life decisions were more likely to agree with withholding or withdrawing lifesustaining treatments without consent of the patient or surrogates and to agree that intentionally hastening death is not permissible (Table 4).



Figure 1. A, Percentage of respondents who agreed by region to the statement "Consensus E. Physicians should encourage their patients to write advance directives." (Original WELPICUS statement #3E), p < 0.001. B, Percentage of respondents who agreed by region to the statement "Health care professionals should attempt to use shared decision making in decision making about end-of-life care for critically ill patients"

Discussion

This is the first multinational, multicontinental study to evaluate and determine the contribution of geography, religiosity and institutional factors in the development of worldwide consensus for important principles in end-of-life care. Despite major differences in location, professional backgrounds, legal systems, religion and cultures of respondents, consensus was obtained for the majority of key ethical issues. There was consensus that if a patient's chances of surviving are extremely low or the patient would not want continued life-sustaining treatment, therapy may be withheld or withdrawn. These statements are consistent with the guidance provided by ethical, medical and regulatory bodies¹⁷⁻²¹ and more importantly, they are based on the principles of beneficence, non-maleficence and respect for patient autonomy.

Consensus could not be reached for withholding or withdrawing life-sustaining treatments without the consent or agreement of the patient or surrogate. Some respondents stated that when treatments are not medically indicated, patients and surrogates should be informed but their agreement is not required as these are medical decisions. The lack of consensus may be related to a variety of factors including different cultural, religious or legal perspectives,^{4,8,22} concerns how the failure to receive consent will negatively affect the patient/surrogate relationship with the staff and the patient/surrogate grieving process, variability in the paternalistic attitudes of respondents, or disparate respondent attitudes toward the importance of patient/surrogate agreement. Health care providers also have different attitudes regarding limitations of therapy.²³

Interestingly, geographical differences were found even where the threshold for overall consensus was achieved. Respondents from the Americas, Australia, South Africa and Western Europe agreed with withdrawal of life-sustaining treatment where the patient desires it or where there is a low chance of survival (greater than 85% agreement), whereas Asian and Eastern European respondents agreed less than 70% of the time. This is consistent with prior studies reporting doctors' resistance to withdrawing life-sustaining treatment in China²⁴ and other Asian countries.²⁵ It is also consistent with the view of the majority of physicians in Asia that withholding and withdrawal are not ethically equivalent.²⁵

Agreement for withholding life-sustaining treatment in the absence of patient or surrogate consent was also less common for Asian respondents (56%). Withdrawing life-sustaining treatment in the absence of patient or surrogate consent was less acceptable for both Asian and Eastern European respondents (<60% agreement). Filial duty is a strong traditional expectation across Asia with at least 4 countries having introduced laws on requirements for filial support.²⁶ Allowing withholding or withdrawing of therapy may be perceived as failure of filial duty²⁴ and physicians may therefore want to be certain of family acceptance before proceeding to withhold or withdraw treatment. In addition, previous studies have shown that doctors are less certain of general acceptance by patients, with more than a third of Asian physicians regularly expecting patient families to demand inappropriate life support therapies and up to one third of physicians in Asia reporting a fear of subsequent litigation.²⁴ These factors may further explain the reluctance of physicians in these countries to limit therapy without family agreement.24,25

There was also less agreement with statements for withdrawal of therapies in Eastern Europe. This confirms the findings of several smaller studies in Poland, Hungary, Greece and the United Arab Emirates.²⁷⁻³⁰ The lack of a legal or ethical framework to support decision-making maybe a factor in a greater reluctance to limit ICU treatments.²⁹

There was close to consensus (74% which increased to 79% after revision) that active shortening of the dying process with the intention to hasten death even after all palliative care measures were optimized is not permissible, even when permitted by law. Failure to reach a consensus on this issue may reflect the gray area between palliation and therapies to actively shorten the dying process.^{31,32} There are clearly differing opinions of physicians as to whether hastening death is permissible.³³ An important finding, however, is that the majority of respondents still consider the action non-permissible, even if allowed by law, and religious participants are even more likely to consider actively shortening the dying process non-permissible.

Respondent's religiosity, but not specific religion, emerged as an important factor regarding consensus with statements on end-of-life care. Practitioners self-identified as strongly religious may be more likely to include factors in their decision-

Figure 1. (Continued). (Original WELPICUS statement # 7), p < 0.001. C, Percentage of respondents who agreed by region to the statement "If a medical decision is made that a patient's chances of surviving are extremely low or the patient under the present medical circumstances would not want continued life-sustaining treatment, life-sustaining treatment may be withdrawn." (Original WELPICUS statement #12A), p < 0.001. D, Percentage of respondents who agreed by region to the statement "Although life-sustaining treatment should generally be withheld only after obtaining informed consent of the patient and/or the surrogate decision-maker or family, there are circumstances when withholding life-sustaining treatment is permissible even though informed consent cannot be obtained (such as when the patient is not capable of decision-making and no family is available). (Original WELPICUS statement #11B), p < 0.001. E, Percentage of respondents who agreed by region to the statement #11B), p < 0.001. E, Percentage of respondents who agreed by region to the statement #11B), p < 0.001. E, Percentage of respondents who agreed by region to the statement should generally be withdrawn only after obtaining informed consent of the patient and/or the surrogate decision-maker or family, there are circumstances when withdrawing life-sustaining treatment is permissible even though informed consent cannot be obtained (such as when the patient is not capable of decision-making and no family is available)." (Original WELPICUS statement #12B), p < 0.001. F, Percentage of respondents who agreed by region to the statement "Even if a medical decision is made that a patient's chances of surviving are extremely low or under the present medical circumstances the patient and/or the surrogate decision-maker or family request that the physician hasten the patient's death, active shortening of the dying process or intentionally hastening death is not permissible." (Original WELPICUS statement #13), p = 0.479.

	Withholding treatments without informed consent of the patient or surrogates is permissible	Withdrawing treatments without informed consent of the patient or surrogates is permissible	Active shortening of the dying process or intentionally hastening death is not permissible		
	(Statement IIB) count (%)	(Statement 12B) count (%)	(Statement I3A) count (%)		
	()	()	*		
Nengiosity	202/257 (81.8)	282/257 (70)			
	292/357 (81.8)	282/357 (79)	255/357 (71.4)		
Religious	409/547 (74.8)	393/547 (71.8)	424/547 (77.5)		
Very religious	48/60 (80.0)	40/60 (66./)	53/60 (88.3)		
Unknown	301/402 (74.9)	295/402 (73.4)	283/402 (/0.4)		
lotal	1050/1366 (76.9)	1010/1366 (73.9)	1015/1366 (/4.3)		
Occupation	*	*	*		
Intensive Care	180/230 (78.3)	171/230 (74.3)	180/230 (78.3)		
Anesthesiology	194/227 (85.5)	186/227 (81.9)	178/227 (78.4)		
Internal Medicine	80/104 (76.9)	75/104 (72.1)	76/104 (73.1)		
Oncology	46/61 (75.4)	48/61 (78.7)	48/61 (78.7)		
Gerontology	37/57 (64.9)	33/57 (57.9)	46/57 (80.7)		
Hematology	40/55 (72.7)	39/55 (70.9)	45/55 (81.8)		
Hospice	21/25 (84.0)	23/25 (92)	20/25 (80.0)		
Palliative Medicine	19/24 (79.2)	22/24 (91.7)	23/24 (95.8)		
Surgery	18/23 (78.3)	16/23 (69.6)	17/23 (73.9)		
Pediatrics	9/9 (100.0)	8/9 (88.9)	9/9 (100.0)		
Other	14/24 (58.3)	14/24 (58.3)	15/24 (62.5)		
Nurse	278/356 (78.1)	263/356 (73.9)	251/356 (70.5)		
Social Worker	24/44 (54.5)	25/44 (56.8)	32/44 (72.7)		
Ethicist	17/22 (77.3)	18/22 (81.8)	10/22 (45.5)		
Lawyer	15/21 (71.4)	13/21 (61.9)	14/21 (66.7)		
Clergy	13/20 (65.0)	14/20 (70.0)	16/20 (80.0)		
Patient advocate	7/7 (100.0)	6/7 (85.7)	4/7 (57.1)		
Other	14/22 (63.6)	15/22 (68.2)	8/22 (36.4)		
Unknown	24/35 (68.6)	21/35 (60.0)	23/35 (65.7)		
Total	1050/1366 (76.9)	1010/1366 (73.9)	1015/1366 (74.3)		
Being responsible for EOL	*	* /	* '		
No	358/489 (73.2)	344/489 (70 3)	323/489 (66 1)		
Yes	681/855 (79.6)	655/855 (76.6)	678/855 (79 3)		
Linknown			14/22 (63.6)		
Total	1050/1344 (74.9)	1010/1344 (73.9)	17/22 (03.0)		
	1030/1300 (70.7)	1010/1500 (73.7)	1013/1300 (74.3)		
	297/359 (90.2)	279/259 (77 9)	264/359 (73 7)		
	207/330 (00.2)	262/492 (72.6)	275/492 (75.7)		
701-700	307/772(77.1)	302/772 (73.0)	575/472 (70.2) 194/249 (73.9)		
>1000	185/249 (74.3)	184/249 (73.9)	184/249 (73.9)		
	185/260 (71.2)	181/260 (69.6)	2/7 (42.0)		
	4/7 (57.1)	4/7 (57.1)	3/7 (42.9)		
Iotal	1050/1366 (76.9)	1010/1366 (73.9)	1015/1366 (74.3)		
Practice type		* (2)(02) (7) (0)			
Academic	695/921 (75.5)	662/921 (71.9)	693/921 (75.2)		
Non-academic	283/34/ (81.6)	281/347 (81)	260/34/ (/4.9)		
Unknown	72/98 (73.5)	67/98 (68.4)	62/98 (63.3)		
Total	1050/1366 (76.9)	1010/1366 (73.9)	1015/1366 (74.3)		
Hospital type	*	*	*		
Private	134/181 (74.0)	134/181 (74)	144/181 (79.6)		
Public	845/1072 (78.8)	811/1072 (75.7)	800/1072 (74.6)		
Unknown	71/113 (62.8)	65/113 (57.5)	71/113 (62.8)		
Total	1050/1366 (76.9)	1010/1366 (73.9)	1015/1366 (74.3)		

Table 4. Respondents Who Agreed to Key End-of-life Interventions, by Religiosity, Occupation and Responsibilities for End-of-Life Decisions.

* Bonferroni adjusted p-value < 0.05.

making that fall into the domain of spirituality or abiding by certain rules than do those without strong religious beliefs, independent of their specific religion. Religious respondents are more reluctant to participate in ending a patient's life sooner than non-religious respondents.³⁴⁻³⁶ "Religion" appears to be an attribute given to individuals at birth without their own deliberation whereas "religiosity" requires a personal inner deliberation.

In a world where there is little unanimity over what constitutes a "good death" or appropriate societal responses to the issue of delivering culturally relevant end of life care, the demonstration of variability in practitioner beliefs in the ICU raises more questions than it answers and demonstrates a need for more international comparative research on variation in end-of-life care.³⁷

Anesthesiologists seem to be more likely to agree to statements allowing withholding or withdrawing life-sustaining treatments without the patient's or a surrogate's consent. In their day-to-day work in the operating room and ICUs, they are likely confronted with the implementation or prolonged continuation of inappropriate life-sustaining therapies more often than colleagues from other specialties. The same might hold for those respondents who are responsible for end-of-life decisions.

The strength of this study is that it provides data from a diverse group of physicians, nurses, ethicists, and administrators involved in end-of-life care from many countries, with a diversity of languages, religions, religiosity and cultures. The end-of-life definitions and statements were developed by experts in the field with input from the diverse study participants.

Limitations of the study include the potential for selection bias of study participants interested in bioethical and end-oflife issues which may not accurately reflect the views of all professionals. There may also have been constraints on respondents' views based on their specific religions or laws in their country. Finally, other limitations include the potential inaccuracy introduced during questionnaire translations and/or language differences that could alter the meaning of statements, secondary analyses, lack of economical, availability or other hidden variables, the low response rate in the initial survey and for the revised statements and a relatively small number of responses from some regions.

In conclusion, we identified important variability in perspectives on the principles regarding end-of-life care by geography as well as by clinician religiosity. Although variability in agreement with these consensus statements about end-of-life care is related primarily to differences among providers,¹⁶ variability by geography, religion, and religiosity are important to provide new understanding for ethicists, clinicians and others to be more alert to their inherent biases, to be open to different approaches and to help enhance educational and quality improvement programs and guidelines. This information should help the field develop patient-focused, culturally sensitive end-of-life care tailored to these differences in regions and cultures.

Authors' Note

Welpicus Steering Committee-Charles Sprung (chairman), Elie Azoulay, Randy Curtis, Jozef Kesecioglu, Paulo Maia, Andrej Michalsen, Moshe Sonnenblick, and Robert Truog.

Declaration of Conflicting Interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Funding

The author(s) received no financial support for the research, authorship, and/or publication of this article.

ORCID iD

Charles L. Sprung D https://orcid.org/0000-0002-2268-906X

Supplemental Material

Supplemental material for this article is available online.

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