Table 1

An overview of the main features of the articles that were included in the review

Author, year of publication and location of research	Specialization physician/care unit	Research design	Research aims	Recruitment location, sample size	Data collection	Data analysis	Reported barriers in ACP communication (only reported by hospital physicians)
1. Ahluwalia et al., 2015, USA[25,26]	Internal medicine, specialty medicine, hospital medicine, intensive care, and palliative care	A qualitative, cross-sectional study	To evaluate healthcare providers' experiences, perspectives, and practices regarding the ACP process	Veterans Affairs medical center, 20 providers (not all physicians, hospital physicians $n = 13$)	2 focus groups and 3 telephone interviews	Thematic analysis	1. Variation in definitions of ACP. 2. Lack of useful information about patient values to guide decision-making.
2. Bentur, 2008, Israel[27]	Stakeholders, geriatricians working in the hospital system and family physicians working in the community	Exploratory design	This study aims to (1) determine what clinicians know about Israel's new 'Dying Patient Act' and its recommendations, (2) to examine their attitudes and perceptions about it, and (3) to assess their willingness to increase their involvement in advance care planning	10 stakeholders, 40 physicians, of which the number of hospital geriatricians is unclear	In-depth face to-face interviews with 10 stakeholders and specialists in the healthcare system, and 4 focus groups with family physicians and geriatricians working in the hospital system and the community	No clear methodology was used, only coding and categorization of text fragments	Barriers are related to (1) the medical system, (2) the law itself, and (3) characteristics of the Israeli population
3. Bradley et al., 2010, USA[28]	Mostly surgeons or hospital physicians involved in the pre and postsurgery care	A qualitative exploratory design	How do physicians involved in the surgery process of patients experience discussions about AD's with patients?	10 surgeons, of which 1 from a private practice and 9 from an academic practice	In-depth semi-structured interviews	Grounded theory and deductive approaches	Three themes: (1) framework for discussion, (2) disconnection from reality: AD's not adapted to reality, and (3) AD's in practice: feasibility
4. Deep et al., 2007, USA[29]	Internal medicine residents	Mixed methods	To explore residents' perceptions of end-of-life discussions (focus on previous experiences), and discern the challenges they face in this process	55 physicians	Self-administered survey with Likert-type scale and open-ended questions	For the qualitative part: thematic coding using content analysis	1. Emotional concerns 2. Confronting unrealistic expectations 3. Uncertainty of patient wishes 4. Patient/family's lack of medical knowledge 5. Physician uncertainty 6. Imparting information to patient/family

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Table 1 (Continued)

An overview of the main features of the articles that were included in the review

Author, year of publication and location of research	Specialization physician/care unit	Research design	Research aims	Recruitment location, sample size	Data collection	Data analysis	Reported barriers in ACP communication (only reported by hospital physicians)
5. Deep et al., 2008, USA[30,31]	Resident physicians and patients/ surrogates	Explorative design	1. To explore how discussions about life-sustaining treatment occur 2. To examine the factors that influence physicians' communicative practices	28 physicians, 28 patients/surrogates	56 semi-structured interviews	Constant comparative method	1. Residents discussed decisions about resuscitation in a depersonalized and procedure focused manner. 2. Framing of decisions
6. Frey et al., 2014, New Zealand[32]	Hospital physicians, general practitioners, and other health professionals	Explorative design	What are the challenges in having ACP conversations for indigenous and other cultural minorities in New Zealand populations for health professionals?	8 hospital physicians in the interview study, none in the focus groups from community and hospital support services	11 semi-structured interviews, 6 focus groups, and no data from hospital physicians alone were reported	Thematic analysis	1. Cultural differences concerning death 2. Cultural differences concerning discussing difficult themes (preserving harmony instead of telling what you want) 3. Patients are not well informed about the fact that they can have ACP conversations 4. 'lost in translation' (overcoming language challenges)
7. Gehlbach et al., 2011, USA	Patients or surrogates and physicians of ICU	Descriptive mixed method research design	1. To assess concordance between patients' code status preferences and reality 2. To assess understanding of outcome probabilities after in-hospital CPR 3. To describe patients goals of care 4. To compare patients and physicians goals of care regarding their respective assessments of most important goals of care	100 patients/ surrogates and their respective physicians (n unknown), large mid-west academic center	Interviews (open- and closed-ended questions) and medical record tracking	(1) Thematic analysis and (2) quantification of qualitative material: descriptive statistics to show discrepancies	The most important goal of care identified by the patients differed from the physicians identified goal of care

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Author, year of publication and location of research	Specialization physician/care unit	Research design	Research aims	Recruitment location, sample size	Data collection	Data analysis	Reported barriers in ACP communication (only reported by hospital physicians)
8. Hajizadeh et al., 2015, USA[33]	Chronic lung patients and their hospital physicians	Mixed methods	(1) Gain general insights into the current practice of shared decision-making and attitudes about patient involvement and (2) gain insights into experience with and attitudes about SDM for ACP	11 patients, 5 physicians New York city public hospital	Semi-structured interviews, open- and closed-ended questions	Grounded theory and descriptive statistics	Identified barriers by doctors: (1) impression that patients do not understand medical data, (2) lack of patient-empowerment to participate in decision-making, (3) cultural background of patient and language, (4) time constraints, and (5) discomfort when talking about prognosis
9. Koh et al., 2016, South Korea[34]	Hospital physicians and nurses	Explorative design	To develop a communication model for end-of-life care compatible with the clinical environment in South Korea	Focus group 1: physicians ($n=8$; all hospitalists), focus group 2: nurses ($n=5$; all of different acute hospital settings and hospice facilities)	Focus groups following Krueger and Casey (2009)	Content analysis following Hsieh and Shannon (2005)	1. Ambiguity about timing 2. Responsible professionals 3. Disclosure of bad news 4. Contents of EOL care discussions 5. Implementation of EOL discussions
10. Schwarze et al., 2010, USA[35]	Surgeons	Explorative design	To assess attitudes and concerns of surgeons regarding AD's (concerning surgical 'buy-in') for patients who have high-risk surgical procedures	Purposive sampling of surgeons ($n=10$) with a variety of expertise, experience and setting (academic and private practice) until saturation was reached	Interviews using a standardized script of 9 open-ended questions	Grounded theory	1. Surgeons' understanding of patient commitment 2. Negotiations regarding limiting interventions 3. Negotiations for time 4. Distress when postoperative care is refused 5. Responsibility and emotional toll of bad outcomes
11. Reckrey et al., 2011, USA[36]	Medical residents	Explorative design	To explore the experiences of residents with decision-making conversations with surrogates	18 s and third-year residents (13 F, 5 M) working in three different tertiary care settings	In-depth interviews asking about memorable interactions with surrogates	Iteration of interviewing and analyzing with content analysis by a research group	1. Conflict in the resident-surrogate relationship 2. Different roles of the resident 3. Resident education

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Table 1 (Continued)

An overview of the main features of the articles that were included in the review

Author, year of publication and location of research	Specialization physician/care unit	Research design	Research aims	Recruitment location, sample size	Data collection	Data analysis	Reported barriers in ACP communication (only reported by hospital physicians)
12. O'Hare et al., 2016, USA[37]	26 multidisciplinary care providers of patients with kidney disease from different settings	Explorative design	To elicit perspectives on ACP in the providers for patients with kidney disease	13 physicians with different specialties (palliative care, psychiatry, primary care, nephrology, and cardiology), not clear how many hospitalists	26 in-depth interviews	22 analyzed with grounded theory, 4 used for reviewing for concurrence	Results for nephrologists: (1) lack of a shared understanding of ACP and (2) unclear locus of responsibility and authority for ACP
13. Pfeil et al., 2015, Germany[38]	Hospital physicians and nurses	Explorative design	1. To explore the factors that hinder ACP communication 2. To reconstruct how nurses and physicians perceive their roles in preparing patients for EOL decisions	12 physicians and 6 nurses working at one university hospital, working with hematology/ oncology patients	18 in-depth interviews	Grounded theory analysis within a research group	Results for oncologists: (1) patients' unrealistic expectations as a challenge for addressing ACP, (2) understanding of their roles in preparing the patient for EOL decisions, and (3) emotional involvement versus need for objective evidence-based decision-making
14. Baggs et al., 2007, USA[39]	Physicians, nurses, social workers, patients, and families	Ethnographic field work	This research was designed to study limitation of treatment decision-making in real time, to evaluate similarities and differences in the cultural contexts of 4 ICUs and the relationship of those contexts to EOLDM	30 physicians working on different types of ICU's, total number of participants = 30	Interviews, transcription of family meetings, field notes of daily work on ICU's	Ethnographic approach, iterative process between collection and analysis, throughout the whole process	Results for physicians: (1) Physician authority, (2) physician's preparedness to share responsibility with other disciplines, and (3) physician specialties
15. Grudzen et al., 2012, USA[40]	Attending emergency physicians	Explorative design	To explore attitudes and beliefs among emergency care providers regarding the provision of palliative care services in the ED	27 attending emergency physicians	Three semi-structured focus groups	Thematic analysis using grounded theory	1. Culture of necessity for palliation is lacking 2. Primary physicians should address goals of care 3. Medicolegal issues 4. Time

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Author, year of publication and location of research	Specialization physician/care unit	Research design	Research aims	Recruitment location, sample size	Data collection	Data analysis	Reported barriers in ACP communication (only reported by hospital physicians)
16. Stone et al., 2011, USA[41]	Emergency physicians	Explorative design	To explore experiences related to palliative care, to explore perceptions of providing palliative care, to explore education and training needs	26 emergency physicians	Semi-structured interviews	Constant comparative approach	Palliative care is not a priority: no exploration of ACP/EOL wishes
17. Tilden et al., 2009, USA[42]	Surgeons	Explorative design	To explore surgeons' attitudes and decision-making practices regarding utilization of palliative and supportive care for patients with advanced illness from traumatic injury at one American hospital	9 surgeons	Face-to-face open-ended interviews	Grounded theory	1. Different prognostic criteria for start of palliative care 2. Patient factors as a cue for ACP conversations
18. Barnato et al., 2012, USA	Attending physicians, patients and family	Explorative design	To explore norms of decision-making regarding life-sustaining treatments (LSTs) at two academic medical centers (AMCs) that contribute to their opposite extremes of end-of-life ICU use	2 academic medical centers	Mixed methods study: 1) semi-structured interviews with 49 staff members, 153 patients, 7 patient-family interviews, and 2) observation and field notes	Comparison of patterns of decision-making regarding initiation, continuation, and withdrawal of LST using tests of proportions and grounded theory analysis of field note and interview transcripts.	1) Physician's self-efficacy 2) Fear to harm by omission of treatment. 3) Differences between physicians in perception of when someone is dying.
19. Hsieh et al., 2006, USA[43]	36 physicians who led the conferences	A naturalistic, exploratory design	To identify inherent tensions that arose during family conferences in the intensive care unit, and the communication strategies clinicians used in response	4 hospitals in Seattle	Eligible conferences were audiotape-recorded after written consents were obtained from all conference participants	Qualitative content analysis, analyzed using a dialectic perspective; communication between family members and physicians was analyzed using a dialectic perspective in 51 family–clinician conferences in 4 hospitals	1. Killing or allowing to die 2. Death as a benefit or a burden 3. Honoring the patient's wishes or following the family's wishes 4. Weighing contradictory versions of the patient's wishes 5. Should an individual family member make the decision or should the family as a unit make the decision?

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An overview of the main features of the articles that were included in the review

Author, year of publication and location of research	Specialization physician/care unit	Research design	Research aims	Recruitment location, sample size	Data collection	Data analysis	Reported barriers in ACP communication (only reported by hospital physicians)
20. Coombs et al., 2012, USA	13 physicians and13 nurses	Explorative design	To identify the challenges for healthcare professionals when moving from a recovery trajectory to an end-of-life trajectory in intensive care	One large university-affiliated hospital	Single semi-structured interviews	Data analysis was an iterative approach utilizing constant comparison identifying themes as coding progressed	1. End of life trajectory in intensive care 2. Making a diagnosis of dying 3. Transition from intervention to end-of-life care
21. Ahern et al., 2012, Canada[44]	19 critical care physician trainees in their postgraduate years	Hermeneutic phenomenology	To identify what is important to physician trainees in the ICU and infer from this positive educational experiences for physician trainees	Different ICUs across Canada	Semi-structured interviews	1. The first coding scheme consisted of a contextual descriptive analysis of the interviews 2. The second coding scheme applied to the narrative accounts was phenomenological (thematic) and was intended to distill the essential features of the participants' experiences with critically ill patients at EOL, the patients' families, and ICU colleagues	1. Theoretical and technical skills 2. Communication skills 3. Moral values and ethical sensitivity 4. Emotions and feelings
22. Beck et al., 2008, Germany[45]	28 interviewees: 4 consultants, 11 senior registrars, 13 senior house officers (20 of 28 were specialists)	Exploratory design	To identify difficulties and uncertainties in making decisions about withholding and withdrawing mechanical ventilation among intensive care physicians	9 medical intensive care units in tertiary care hospitals	Problem-centered semi-structured interviews (using predetermined cases)	Analysis of the way of using the terms passive and aktive Sterbehilfe	1. Interpreting the patient's wishes and best interest 2. Understanding the terminology of Sterbehilfe 3. Perception of support for decision-making

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Author, year of publication and location of research	Specialization physician/care unit	Research design	Research aims	Recruitment location, sample size	Data collection	Data analysis	Reported barriers in ACP communication (only reported by hospital physicians)
23. Cullati et al., 2014, Switzerland[46]	Eleven interviews were conducted with physicians, advanced practice nurses and social workers about their values, preferences and practices related to goals of care discussions Eleven interviews were conducted with physicians, advanced practice nurses and social workers about their values, preferences and practices related to goals of care discussions Eleven interviews were conducted with physicians, advanced practice nurses and social workers about their values, preferences and practices related to goals of care discussions 12 ICU and 12 internal medicine physicians	Qualitative design	1. To describe the experiences of ICU and internal medicine doctors about patient admission to ICU 2. To identify factors that influence the decision-making process: barriers and facilitators	University hospital of Geneva	In-depth interviews	Thematic approach	1. Clarity of the goals of care 2. Families' opinions 3. Work constraints (practically, time)

ACP: advance care planning; AD: advance directive; CPR: cardiopulmonary resuscitation; ED: emergency department; EOL: end of life; EOLDM: end-of-life decision-making; ICU: intensive care unit; SDM: substitute decision-maker.

Table 2

Appraisal of the included articles using the CASP appraisal guideline for qualitative methods

	Author	(1) Was there a clear statement of the aims of the research?	(2) Was a qualitative methodology appropriate?	(3) Was the research design appropriate to address the aims?	(4) Was the recruitment strategy appropriate to the aims?	(5) Were the data collected in a way that addressed the research issue?	(6) Was the relationship between researcher and participants adequately considered?	(7) Were ethical issues taken into consideration?	(8) Was the data analysis sufficiently rigorous?	(9) Was there a clear statement of findings?	(10) How valuable was the research?	Overall assessment
1	Ahluwalia et al.[25,26]	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	High
2	Bentur[27]	Y	Y	Y	Can't tell	Y	N	N	N	Y	Y	Low
3	Cullati et al.[46]	Y	Y	Y	N	N	N	Y	N	Y	Y	Low
4	Bradley et al.[28]	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	High
5	Deep et al.[29]	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	High
6	Deep et al.[30,31]	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	High
7	Frey et al.[32]	N	Y	Y	N	N	Y	Y	Y	Y	Y	Moderate
8	Gehlbach et al.	Y	Y	N	N	N	Y	Y	Y	Y	Y	Moderate
9	Hajizadeh et al.[47,33]	Y	Y	N	Y	Y	Y	Y	N	N	N	Low
10	Koh et al.[34]	Y	Y	Y	N	N	Y	Y	Y	Y	Y	Moderate
11	Schwarze et al.[35]	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	High
12	Reckrey et al.[36]	Y	Y	Y	N	Y	N	Y	Y	Y	Y	Moderate

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Table 2 (Continued)

Appraisal of the included articles using the CASP appraisal guideline for qualitative methods

	Author	(1) Was there a clear statement of the aims of the research?	(2) Was a qualitative methodology appropriate?	(3) Was the research design appropriate to address the aims?	(4) Was the recruitment strategy appropriate to the aims?	(5) Were the data collected in a way that addressed the research issue?	(6) Was the relationship between researcher and participants adequately considered?	(7) Were ethical issues taken into consideration?	(8) Was the data analysis sufficiently rigorous?	(9) Was there a clear statement of findings?	(10) How valuable was the research?	Overall assessment
13	O'Hare et al.[37]	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	High
14	Pfeil et al.[38]	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	High
15	Gedney et al.[39]	Y	Y	Y	Y	Y	N	N	Y	Y	Y	Moderate
16	Grudzen et al.[40]	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	High
17	Tilden et al.[42]	Y	Y	Y	Y	Y	N	Y	N	Y	Y	Moderate
18	Stone et al.[41]	Y	Y	Y	N	Y	N	Y	Y	Y	Y	Moderate
19	Barnato et al.	Y	Y	Y	N	Y	N	N	Y	Y	N	Low
20	Hsieh et al.[43]	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	High
21	Coombs et al.	Y	Y	Y	Y	Y	Can't tell	Y	Y	Y	Y	High
22	Ahern et al.[44]	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	High
23	Beck et al.[45]	Y	Y	Y	Y	Y	N	Y	N	Y	Y	Moderate