

## COMPARISON OF ADVANCE CARE PLANNING STRATEGIES FOR CRITICALLY ILL PATIENT'S WELL-BEING: SYSTEMATIC REVIEW

Ibrahim Khalid Abdulal<sup>\*1</sup>, Mohammed Saad Althobaiti<sup>2</sup>, Rawan Nasser Asiri<sup>3</sup>, Ahmed Azhar Alaqqa<sup>4</sup>, Layan Wajdi Sindi<sup>4</sup>, Raed Abbas Serafi<sup>4</sup>, Abdullah Khaled Abusulaiman<sup>3</sup>, Sara Waleed Hefni<sup>4</sup>, Asma Khalid Alamoudi<sup>4</sup>, Kholoud Mohammed Bamookrah<sup>5</sup>

<sup>1</sup>Consultant Critical Care and Internal Medicine, North Medical Tower in Arar & Security Forces Hospital in Dammam, Saudi Arabia; <sup>2</sup>General Practitioner, Head of Comprehensive Medical Examination Department, King Abdullah Medical complex, Jeddah, Saudi Arabia; <sup>3</sup>Medical Intern, King Abdulaziz University Hospital, Jeddah, Saudi Arabia; <sup>4</sup>Medical Student, Fakeeh College for Medical Sciences, Jeddah, Saudi Arabia; <sup>5</sup>General Practitioner, King Abdullah Medical Complex, Jeddah, Saudi Arabia

### Abstract

**Objectives:** To assess the effectiveness of different advance Care Planning (ACP) strategies in improving patient outcomes, particularly in critically ill populations.

**Methods:** A thorough search across four databases identified 565 relevant publications. After removing duplicates using Rayyan QCRI and screening for relevance, the search yielded 244 publications, of which 34 full-text articles were reviewed, and 5 met the eligibility criteria for evidence synthesis. Results: We included 5 studies with a total of 679 patients and more than half of them 361 (53.2%) were females. The review included studies that demonstrated significant improvements in alignment between provided care and patient preferences, enhanced communication, and increased patient and family satisfaction. Some studies noted that ACP facilitated better understanding of patient wishes, leading to more personalized and appropriate care interventions. However, results varied depending on the patient population and the specifics of the ACP intervention.

**Conclusion:** ACP is beneficial in managing end-of-life care for critically ill patients. Healthcare systems should consider integrating structured ACP discussions as a standard part of care for patients with serious illnesses. Further research is needed to identify the most effective strategies for different patient populations and to explore the impact of ACP across a broader spectrum of clinical conditions.

**Keywords:** Advance Care Planning, end-of-life care, critically ill, patient outcomes, systematic review.

### Introduction

The increasing attention to ACP has led to the development of numerous ACP interventions and programs

### Eligibility Criteria

#### Inclusion Criteria

1. Study Design: Include randomized controlled trials (RCTs), observational studies, cohort studies, case-control studies, and qualitative studies that focus on ACP.
2. Population: Studies involving critically ill adult patients (age 18 and above) in any healthcare setting (e.g., intensive care units, emergency departments, palliative care units).
3. Intervention: Studies that examine the implementation and outcomes of various ACP strategies, including but not limited to facilitated discussions, legal documentation like living wills, and medical orders for life-sustaining treatment.
4. Comparators: Studies that compare different ACP strategies against each other or with usual care practices.
5. Outcomes: Studies must report on at least one of the following outcomes: alignment of delivered care with patient preferences, patient and family satisfaction, quality of communication between patients and healthcare providers, or any measure of psychological impact on patients and families.
6. Publication Time Frame: Studies published within the last 5 years, to ensure relevance to current healthcare contexts and practices.
7. Language: Studies published in English.

#### Exclusion Criteria

1. Non-Clinical Studies: Exclude studies that are purely theoretical, opinion pieces, editorials, or literature reviews without original data.
2. Non-Adult Populations: Exclude studies focusing solely on pediatric populations or those under the age of 18.
3. Non-Critical Care Settings: Studies that do not focus on critically ill patients or those not treated in acute or palliative care settings.
4. Lack of Relevant Outcomes: Studies that do not measure or report on the predefined outcomes relevant to the effectiveness of ACP.
5. Single Case Reports: Due to their limited generalizability, single case

Manuscrito recibido: 25/03/2025  
Manuscrito aceptado: 02/04/2025

\*Corresponding Author: Ibrahim Khalid Abdulal, Consultant Critical Care and Internal Medicine, North Medical Tower in Arar & Security Forces Hospital in Dammam, Saudi Arabia

Correo-e: ptrservices2022@gmail.com

[1]. Typically, ACP definitions include the exchange of values and medical care preferences between patients and healthcare professionals (HCPs), frequently enhanced by contributions from family members or informal caregivers. Variations exist in whether ACP solely addresses decisions about future medical care or also includes choices related to current medical care. Additionally, opinions differ on the value of ACP, extending from its relevance to the general population to a more specific emphasis on patients nearing the end of their life [2–5].

ACP is commonly regarded as a crucial approach to enhance end-of-life communication between patients and their healthcare professionals (HCPs), aiming to align preferred and provided care [6–8]. Additionally, ACP is expected to improve the quality of life for both patients and their relatives, potentially reducing anxieties about the future [1]. Reported benefits also include allowing patients to maintain a sense of control, providing peace of mind, and facilitating discussions about end-of-life issues with family and friends [9–13].

ACP plays a pivotal role in ensuring that critically ill patients receive care that aligns with their values and preferences. As the complexity of care options increases, and as populations age, the need for effective ACP becomes increasingly critical. Different ACP strategies may vary widely in their approach and effectiveness. A systematic review of these strategies is essential to identify which methods are most effective in facilitating meaningful conversations about end-of-life care, ensuring that medical care aligns with patients' wishes, and potentially improving patient and family satisfaction with care. This review is particularly necessary given the varied settings in which ACP is implemented, the range of professionals involved, and the diverse populations affected.

The objective of this systematic review is to compare the effectiveness of various ACP strategies implemented with critically ill patients.

### Methods

This systematic review followed the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines to ensure transparency and methodological rigor. The primary objective of this review was to evaluate the effectiveness of various ACP strategies implemented with critically ill patients. A comprehensive search strategy was implemented across multiple electronic databases, including PubMed, Web of Science, SCOPUS, and Science Direct, to identify relevant English-language studies. Two independent reviewers screened the search results, selected studies meeting the eligibility criteria, extracted data, and assessed the quality of the included studies.

reports will be excluded.

6. Incomplete Data: Studies with incomplete data or those lacking sufficient detail on the ACP interventions and outcomes.

7. Non-English Publications: Studies published in languages other than English, unless translations are available

### Data Extraction

The Rayyan (QCRI) tool was used to manage and screen the search results, ensuring consistency and reliability. Titles and abstracts were screened for relevance based on the inclusion and exclusion criteria. Full-text articles of potentially eligible studies were reviewed independently by two reviewers. Any discrepancies in study selection were resolved through discussion and consensus. A standardized data extraction form was used to collect key information, including:

- Study title, authors, and publication year.
- Study design and location.
- Participant demographics (e.g., age & gender).
- Data collection tool.
- Population type.
- Main outcomes.

### Data Synthesis Strategy

The extracted data were synthesized qualitatively and presented in summary tables to facilitate comparison across studies. Key findings related to the effectiveness of various ACP strategies implemented with critically ill patients were summarized. If sufficient homogeneous data were available, a meta-analysis was conducted using appropriate statistical methods to pool effect sizes and assess heterogeneity. Subgroup analyses were performed based on factors such as cabergoline dosage, patient characteristics, and study design.

### Quality review

We utilized the ROBINS-I technique to evaluate the risk of bias because it allows for extensive assessment of confounding, which is significant because bias owing to omitted variables is common in studies in this field. The ROBINS-I tool is intended to evaluate non-randomized investigations and can be applied to cohort designs in which participants exposed to various staffing levels are monitored over time. Two reviewers separately assessed the risk of bias for each paper, and disagreements were resolved through group discussion [14].

### Results

The specified search strategy yielded 565 publications (Figure 1). After removing duplicates ( $n = 244$ ), 321 articles were evaluated based on title and abstract. Of these, 287 failed to satisfy eligibility criteria, leaving just 34 full-text articles for comprehensive review. A total of 5 satisfied the requirements for eligibility with evidence synthesis for analysis (Figure 1).

### Sociodemographic and clinical outcomes

We included 5 studies with a total of 679 patients and more than half of them 361 (53.2%) were females. Two studies were retrospective cohorts [17, 18], one was an RCT [16], one was a retrospective observational study [19], and one was a qualitative study [20].

The reviewed studies emphasize the varied impacts of ACP (ACP) on patient outcomes in different healthcare settings, with a focus on cancer patients. One study highlights that ACP interventions could enhance psychosocial outcomes and overall quality of life by integrating mindfulness techniques and ACP [16]. Another study observed significant differences in the completion of Acute Resuscitation Plans and Advance Health Directives among different patient groups, indicating variability in ACP engagement and implementation, as well as in the time elapsed since the last use of the Acute Resuscitation Plan [17].

Further research demonstrated that a comprehensive ACP program led to increased documentation of care goals in outpatient records for patients with advanced pancreatic cancer, suggesting that systematic ACP can enhance the management of care preferences [18]. Findings from another study showed that documented Goals of Care (GOC) discussions were associated with significant improvements in clinical outcomes, such as the rates of post-cardiac arrest care and reductions in hospital and ICU lengths of stay, underscoring the benefits of having prior ACP discussions [19].

Lastly, a study advocated for the integration of preoperative ACP support for ICU patients, proposing that early engagement in ACP could help patients better understand and articulate their preferences for life-sustaining treatments, ultimately aiding in the management of their care during critical

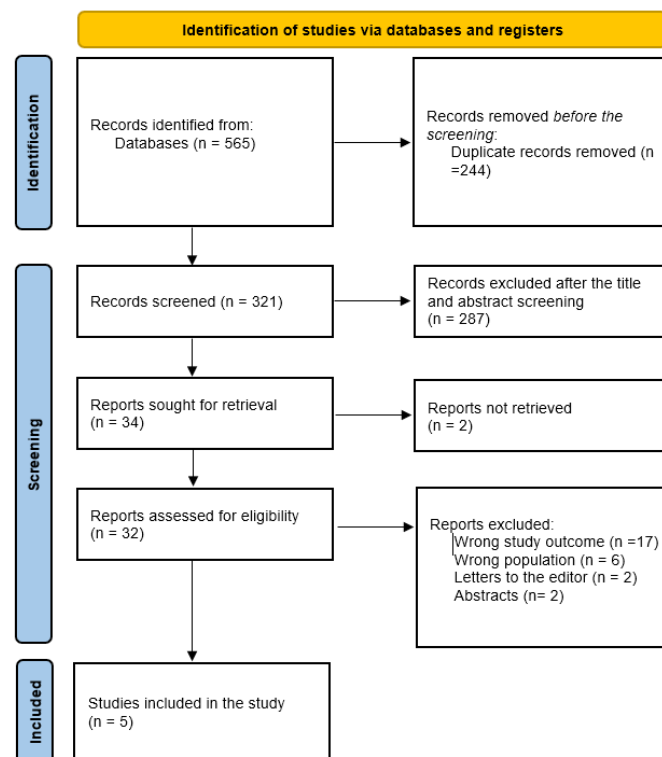


Figure 1. PRISMA flowchart [15].

health episodes [20]. These studies collectively highlight the important role of ACP in improving both the process and outcomes of patient care in critical and advanced illness contexts (Table 1, and 2).

### Discussion

The findings from the reviewed studies collectively underscore the significant role of ACP in improving end-of-life care among critically ill patients, particularly those with cancer. ACP interventions have shown promise in enhancing psychosocial outcomes and quality of life by facilitating more profound engagement between patients, families, and healthcare providers. The documented benefits include better alignment of care with patient preferences, improved communication, and a clearer understanding of the care goals, which is crucial for both patients and healthcare teams.

Similarly, Zwakman et al., reported that this comprehensive analysis of the data pertaining to patients' experiences with ACP revealed that patients' "ambivalence," "readiness," and "openness" all significantly influence their willingness and capacity to engage in an ACP discussion. They advocate for the creation of a more individualized ACP, a method that is thoughtfully adapted to each patient's requirements, worries, and coping mechanisms [21].

The idea that ACP might ease discussions about end-of-life choices could be connected to how patients perceive certain aspects of the ACP process as relevant and helpful to their specific conditions. Research on stress coping indicates that deriving situational meaning can alter an individual's perception of their circumstances, thus mitigating distress [22]. Participating in ACP appears to help patients handle various perceived stressors. Although ACP doesn't remove the stress related to death and dying, it can provide patients with new perspectives, increased control, and supportive or trusting relationships with family members, all of which are significant to them.

Additionally, patients utilize a range of coping mechanisms to deal with life-threatening or life-limiting conditions. Coping is a dynamic and highly personalized process, and the degree to which patients manage stress can fluctuate during the course of their illness [23-25].

Rosa et al., recommended a balanced approach to ACP, acknowledging both the empirical gaps and the potential benefits, along with ethical considerations such as promoting trust and shared decision-making between clinicians and patients. We advocate for a focus on patient/surrogate-centered outcomes, using more comprehensive measures to capture the nuances of clinician-patient interactions that are crucial to ACP's effectiveness and can provide deeper insights during encounters involving serious illnesses [26].

The clinical implications of these findings are profound. Implementing

Table 1. Outcome measures of the included studies.

Study ID	Country	Study design	Sociodemographic	Data collection	Population type	Main outcomes
Mosher et al., 2024 [16]	USA	RCT	Cases: 55 Mean age: 70.6 Females: 34 (61.8%)	ACP Engagement Survey	Cancer patients	For patients and caregivers dealing with advanced cancer, training in mindfulness techniques and ACP may enhance psychosocial outcomes, advance care planning, and quality of life.
Veltre et al., 2023 [17]	Australia	Retrospective cohort	Cases: 61 Median age: 65 Females: 42 (68.9%)	Hospital electronic database	Cancer patients	Significant variances were observed among the Control, <2-weeks, and 2-4 weeks' groups regarding the completion of Acute Resuscitation Plan (p=0.003) and Advance Health Directives (p=0.045). A notable difference was also noted in the number of days since the last use of the Acute Resuscitation Plan between the control and <2-weeks groups.
Anaka et al., 2022 [18]	Canada	Retrospective cohort	Cases: 471 Median age: 73 Females: 229 (48%)	Hospital electronic database	Advanced pancreatic cancer patients	During the system-wide, multifactorial ACP program, patients with advanced pancreatic cancer had more goals of care recorded in their outpatient records.
Wechsler et al., 2024 [19]	Switzerland	Retrospective observational study	Cases: 100 Mean age: 62 Females: 50 (50%)	Hospital electronic database	Cancer patients	Patients with documented GOC discussions have statistically significant greater rates of post-cardiac arrest transformation to do-not-resuscitate and shorter hospital and intensive care unit lengths of stay, possibly because prior ACP discussions prepared patients and their families to choose a palliative approach.
Yamamoto, 2024 [20]	Japan	Qualitative study	Cases: 10 Mean age: 56.9 Females: 6 (60%)	Semi-structured interviews	ICU admitted patients	It is recommended that preoperative ACP support could serve as an introduction step for patients anticipating the need for intensive care, allowing them to examine their preferences regarding life sustaining therapy.

Table 2. Risk of bias assessment using ROBINS-I.

Study ID	Bias due to confounding	Bias in the selection of participants into	Bias in the classification of interventions	Bias due to deviations from the intended interval	Bias due to missing data	Bias in the measurement of outcomes	Bias in the selection of reported result	Overall bias
Veltre et al., 2023 [17]	Low	Low	Mod	Low	Low	Low	Mod	Low
Anaka et al., 2022 [18]	Low	Low	Mod	Low	Low	Low	Mod	Low
Wechsler et al., 2024 [19]	Mod	Mod	Mod	Low	Mod	Mod	Low	Moderate
Yamamoto, 2024 [20]	Mod	Mod	Low	Low	Low	Mod	Mod	Moderate

structured ACP interventions can lead to a more patient-centered approach to care, where decisions are not only informed by medical assessments but also by patients' values and wishes. This approach could potentially reduce the emotional and financial burden of unnecessary treatments and improve satisfaction rates among patients and relatives. Hospitals and healthcare systems should consider integrating ACP discussions as a standard part of care for patients with life-threatening illnesses, ensuring that these conversations occur early enough in the care process to influence treatment decisions.

Strengths and Limitations

The primary strength of this body of research lies in its focus on diverse patient populations and the variety of settings in which ACP is applied, providing a broad understanding of its effectiveness. The inclusion of different study designs, from randomized controlled trials to qualitative studies, enriches the data and offers multiple perspectives on the impact of ACP.

However, there are limitations to consider. Most of the studies focus on patients with cancer, which may not fully represent the benefits and challenges of ACP in other patient populations with different prognostic trajectories. Additionally,

the retrospective nature of some studies could introduce bias related to the documentation and recall of ACP discussions. There is also a variation in the implementation of ACP programs, which can affect the comparability of outcomes across different studies.

Conclusion

ACP is a critical component of care for critically ill patients, offering significant benefits in aligning medical care with patient preferences and improving communication among patients, families, and healthcare providers. The evidence supports the need for healthcare systems to adopt comprehensive ACP strategies to enhance end-of-life care. Further research should aim to explore ACP's effectiveness in a broader range of diseases and care settings to fully understand its potential benefits and limitations. Such research will help refine ACP interventions to better meet the needs of all patients facing serious illness.

References

1. Brinkman-Stoppelenburg A, Rietjens JA, Van Der Heide A. The effects of

- advance care planning on end-of-life care: a systematic review. *Palliat Med* 2014; 28(8): 1000-1025.
2. 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.
3. National Academy of Medicine (NAM). Dying in America: improving quality and honoring individual preferences near the end of life. Washington, DC: The National Academic Press, 2015.
4. National Hospice Palliative Care Organization. Advance Care planning, 2016, <https://www.nhpco.org/advance-care-planning>
5. Teno JM, Nelson HL, Lynn J. Advance care planning. Priorities for ethical and empirical research. *Hastings Cent Rep* 1994; 24(6): S32-S36.
6. Kirchhoff KT, Hammes BJ, Kehl KA, et al. Effect of a disease-specific planning intervention on surrogate understanding of patient goals for future medical treatment. *J Am Geriatr Soc* 2010; 58(7): 1233-1240.
7. Morrison RS, Chichin E, Carter J, et al. The effect of a social work intervention to enhance advance care planning documentation in the nursing home. *J Am Geriatr Soc* 2005; 53(2): 290-294.
8. Detering KM, Hancock AD, Reade MC, et al. The impact of advance care planning on end of life care in elderly patients: randomised controlled trial. *BMJ* 2010; 340: c1345.
9. Davison SN. Facilitating advance care planning for patients with end-stage renal disease: the patient perspective. *Clin J Am Soc Nephrol* 2006; 1(5): 1023-1028.
10. Seymour J, Almack K, Kennedy S. Implementing advance care planning: a qualitative study of community nurses' views and experiences. *BMC Palliat Care* 2010; 9: 4.
11. Fried TR, Bullock K, Iannone L, et al. Understanding advance care planning as a process of health behavior change. *J Am Geriatr Soc* 2009; 57(9): 1547-1555.
12. Musa I, Seymour J, Narayanasamy MJ, et al. A survey of older peoples' attitudes towards advance care planning. *Age Ageing* 2015; 44(3): 371-376.
13. Mullick A, Martin J, Sallnow L. An introduction to advance care planning in practice. *BMJ* 2013; 347: f6064.
14. Sterne JA, Hernán MA, Reeves BC, Savović J, Berkman ND, Viswanathan M, Henry D, Altman DG, Ansari MT, Boutron I, Carpenter JR. ROBINS-I: a tool for assessing risk of bias in non-randomised studies of interventions. *bmj*. 2016 Oct 12;355.
15. Moher D, Shamseer L, Clarke M, Ghera D, Liberati A, Petticrew M, Shekelle P, Stewart LA, Prisma-P Group. Preferred reporting items for systematic review and meta-analysis protocols (PRISMA-P) 2015 statement. *Systematic reviews*. 2015 Dec; 4:1-9.
16. Mosher CE, Beck-Coon KA, Wu W, Lewson AB, Stutz PV, Brown LF, Tang Q, Helft PR, Levoy K, Hickman SE, Johns SA. Mindfulness to enhance quality of life and support advance care planning: a pilot randomized controlled trial for adults with advanced cancer and their family caregivers. *BMC Palliative Care*. 2024 Sep 28;23(1):232.
17. Veltre A, Broadbent A, Sanmugarajah J, Marshall A, Hamiduzzaman M. The prevalence and types of advance care planning use in patients with advanced cancer: A retrospective single-centre perspective, Australia. *Progress in Palliative Care*. 2023 Mar 4;31(2):80-8.
18. Anaka M, Lee M, Lim E, Ghosh S, Cheung WY, Spratlin J. Changing rates of goals of care designations in patients with advanced pancreatic cancer during a multifactorial advanced care planning initiative: a real-world evidence study. *JCO Oncology Practice*. 2022 Jun;18(6): e869-76.
19. Wechsler AH, Sandoval M, Viets-Upchurch J, Cruz Carreras M, Page VD, Elsayem A, Qdaisat A, Yeung SC. Prior Advanced Care Planning and Outcomes of Cardiopulmonary Resuscitation in the Emergency Department of a Comprehensive Cancer Center. *Cancers*. 2024 Aug 13;16(16):2835.
20. Yamamoto K. Impact of Advance Care Planning Support on Patients Treated in the Intensive Care Unit After High-Risk Surgery. *Cureus*. 2024 Feb 14;16(2).
21. Zwakman M, Jabbarian LJ, van Delden JJ, van der Heide A, Korff LJ, Pollock K, Rietjens JA, Seymour J, Kars MC. Advance care planning: a systematic review about experiences of patients with a life-threatening or life-limiting illness. *Palliative medicine*. 2018 Sep;32(8):1305-21.
22. Park CL, Folkman S. Meaning in the context of stress and coping. *Rev Gen Psychol* 1997; 1(2): 115-144.
23. Copp G, Field D. Open awareness and dying: the use of denial and acceptance as coping strategies by hospice patients 2002; 7(2): 118-127.
24. Morse JM, Penrod J. Linking concepts of enduring, uncertainty, suffering, and hope. *Image J Nurs Sch* 1999; 31(2): 145-150.
25. Stroebe M, Schut H. The dual process model of coping with bereavement: rationale and description. *Death Stud* 1999; 23(3): 197-224.
26. Rosa WE, Izumi S, Sullivan DR, Lakin J, Rosenberg AR, Creutzfeldt CJ, Lafond D, Tjia J, Cotter V, Wallace C, Sloan DE. Advance care planning in serious illness: a narrative review. *Journal of pain and symptom management*. 2023 Jan 1;65(1): e63-78.