Economic Implications of Advance Care Planning and Living Will (Article 12) Implementation in Thailand: A State-of-the-Art Narrative Review

Pantitra Singkheaw[b], Sila Tonboot[a*], Attakorn Raksasataya[c], Wiroj Wannapira[d] and Supasit Pannarunothai[a]

[a]Centre for Health Equity Monitoring Foundation, Phitsanulok, Thailand

[b]Department of Family Medicine, Faculty of Medicine, Naresuan University, Phitsanulok, Thailand

[c]Karunruk Palliative Care Research Collaboration Center, Faculty of Medicine, Khon Kaen University, Khon Kaen, Thailand

[d]Buddhachinaraj Hospital, Phitsanulok, Thailand

[*]Corresponding author. E-mail address: pugsugus@gmail.com

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Abstract

This study examines the economic implications of implementing Advance Care Planning (ACP) and Article 12 of Thailand's National Health Act within the healthcare system. As Thailand faces an aged population and rising non-communication disease rates, understanding the economic aspects of these end-of-life care initiatives is essential for effective policymaking. Through a state-of-the-art narrative review (without a formal meta-analysis or pooled economic model) of existing research, the study describes implementation costs, including provider training, infrastructure development, and public education. It also frames potential benefits such as reduced unnecessary treatments, improved care quality, and more efficient resource utilisation. Limited available evidence suggests potential long-term cost savings, though significant implementation costs and data gaps remain. Major challenges include limited Thai-specific economic data, cultural barriers to end-of-life discussions, and the absence of standardized cost-effectiveness evaluation methods. This review's contribution is threefold: 1) it maps the economic components of ACP and Article 12 in the Thai context (direct, non-medical, caregiver, and intangible costs), 2) it synthesises sparse Thai evidence with international insights to propose a context-appropriate evaluation framework, and 3) it identifies priority data gaps and a staged research agenda (pilot implementation with prospective costing, goal-concordant outcomes, and valuation of informal care). This review does not call for new methods or pilot trials; instead, it underscores the need to specify and routinely measure Thai-relevant variables that determine both the costs and the benefits of end-of-life care. The research emphasises balancing economic considerations with cultural sensitivity and patient autonomy, concluding with pragmatic considerations for cost-conscious implementation strategies and identifying areas for future research to better characterise economic impacts in Thailand's healthcare system.

Keywords: Advance Care Planning, Health Economics, End-of-Life Care Costs, Healthcare Costs, Thailand

Introduction

Advance Care Planning (ACP) and the implementation of Article 12 of the National Health Act represent significant developments in Thailand's approach to end-of-life care. As the country grapples with an aged population and an increasing prevalence of non-communicable diseases (NCDs) (Department of Disease Control, Ministry of Public Health, 2023), these initiatives have gained prominence in healthcare policy and practice. ACP is a process that enables individuals to express their preferences for future medical treatments and care, particularly in situations where they may be unable to make decisions for themselves (National Health Commission Office, 2022). Complementing this, Article 12 of the National Health Act B.E. 2550 (2007) provides a legal framework for individuals to make advanced directives regarding their healthcare wishes, including the right to refuse life-prolonging treatments in terminal stages of illness (National Health Commission Office, 2007).

The implementation of ACP and Article 12 in Thailand is not merely a matter of medical ethics or legal compliance; it has profound economic implications for patients, families, healthcare providers, and the broader

healthcare system. Understanding these economic dimensions is crucial for several reasons. Firstly, it informs policy decisions regarding resource allocation in a healthcare system already strained by demographic shifts and increasing healthcare demands. Secondly, it provides valuable insights into the potential economic impact on patients and families, who often bear significant out-of-pocket expenses and opportunity costs in end-of-life care scenarios. Lastly, economic analysis can help identify areas where interventions might be most cost-effective, potentially improving both the quality and efficiency of end-of-life care.

However, the economic aspects of ACP and Article 12 implementation in Thailand remain understudied. While international literature suggests that advance care planning can lead to more appropriate use of healthcare resources and potential cost savings (Bond et al., 2018; Hunt et al., 2013; Klingler et al., 2016), the applicability of these findings to the Thai context is not yet fully understood. The unique cultural, social, and healthcare system characteristics of Thailand necessitate a focused examination of the economic implications in this specific setting.

Thailand's recent health-expenditure trends further justify this focus: according to the most recent Thai National Health Accounts and NHSO budget reports, total health spending and publicly funded outlays have continued to rise, with hospital and end-of-life services representing meaningful cost pressures (National Health Security Office, 2025). These trends underscore the importance of assessing whether ACP and Article 12 can improve goal-concordant care while using resources more efficiently.

This literature review aims to address this knowledge gap by synthesising existing research and providing a comprehensive overview of the economic implications of ACP and Article 12 implementation in Thailand. This paper is a state-of-the-art narrative review with an explicit economic lens; it does not conduct formal economic evaluation. The review examines the current landscape of ACP and Article 12 implementation in Thailand, including policy frameworks and cultural factors influencing adoption. It analyses the various economic considerations in end-of-life care, including types of costs and the impact of patient choices on economic outcomes. The review also evaluates the direct, indirect, and intangible costs associated with ACP and Article 12 implementation in Thailand, and identifies factors influencing cost variations in ACP implementation, including patient demographics, healthcare system factors, and timing of implementation.

By synthesising current knowledge and identifying areas for further investigation, this review aims to contribute to the ongoing dialogue on how best to implement patient-centred, economically sustainable end-of-life care practices in Thailand. Findings are presented as indicative signals rather than decision-grade estimates. The insights gained from this analysis may help to properly design methodology for precise estimation of economic cost. Additionally, these insights may inform policy decisions, guide healthcare resource allocation, and ultimately contribute to improving the quality of palliative care for Thai patients and their families. As Thailand continues to navigate the challenges of an aged population and evolving healthcare needs, understanding the economic implications of ACP and Article 12 implementation becomes increasingly critical for ensuring high-quality, cost-effective end-of-life care that respects individual preferences and cultural values.

Review Approach and Methods

This paper is a state-of-the-art narrative review with an explicit economic lens. It is not a systematic review and does not conduct formal economic evaluation (e.g., CEA/CUA), pooled meta-analysis, or ICER estimation. Evidence is synthesised narratively to map concepts, cost components, and Thai-relevant signals; quantitative estimates are cited only as directional indications, not decision-grade figures. We searched academic databases—

MEDLINE/PubMed, Embase, Scopus, Web of Science Core Collection, Cochrane Library (CENTRAL/HTA), and EconLit—and Thai sources including ThaiJO. We also screened grey-literature/policy repositories: NHSO, HITAP, MoPH, the National Health Act/Article 12 resources, WHO Global Health Expenditure Database (GHED), World Bank, and Thailand's National Statistical Office. The last comprehensive search was September 2025, with coverage 2007–2025. Search terms covered "advance care planning" OR "living will" OR "Article 12" AND Thailand AND (economic OR cost OR expenditure OR utilisation); example Boolean (PubMed): ("advance care planning" [tiab] OR "living will" [tiab] OR "advance directive" [tiab]) AND (Thailand[tiab] OR Thai[tiab]) AND (economic*[tiab] OR cost*[tiab] OR expenditure*[tiab] OR utili?ation[tiab]). Inclusion encompassed both Thai and international studies with explicit economic endpoints (costs and/or consequences), while opinion pieces without empirical content were excluded. We synthesised evidence on direct medical and direct non-medical costs, indirect costs, and direct/indirect benefits. Two reviewers screened and discussed discrepancies. Given limited Thai primary evidence, we prioritised peer-reviewed international literature for breadth while incorporating Thai studies wherever available; grey literature is used for context and explicitly flagged. This review does not conduct formal economic evaluation (e.g., CEA/CUA or ICER estimation); transferability limits are noted following good-practice guidance.

The Current Landscape of ACP and Article 12 in Thailand

The landscape of Advance Care Planning (ACP) and Article 12 implementation in Thailand is characterised by an evolving policy framework and a complex interplay of cultural and societal factors. Understanding this landscape is crucial for contextualising the economic implications of these end-of-life care initiatives.

Thailand's policy framework for ACP and Article 12 has been shaped by several key legislative and regulatory developments. The cornerstone of this framework is Article 12 of the National Health Act B.E. 2550 (2007), which provides the legal foundation for advanced directives in Thailand. This legislation stipulates that individuals have the right to make decisions about their end-of-life care, including the refusal of life-prolonging treatments. Building on this foundation, the Ministry of Public Health introduced a Palliative Care Policy in 2014, mandating the integration of palliative care services, including ACP, into all levels of the healthcare system (National Health Commission Office, 2022).

The implementation status of ACP and Article 12 in Thailand, however, reveals a mixed picture. While there have been significant strides in policy development, the practical implementation of these initiatives faces several challenges. Literature from Thailand (Phenwan et al., 2024; Pimsen et al., 2023) indicate that awareness and understanding of ACP among both healthcare professionals and the general public remain limited. This lack of awareness has led to inconsistent ACP implementation across different healthcare settings. However, the implementation status summarised here draws on a limited number of Thai studies and selected grey literature; accordingly, we interpret these signals cautiously and treat them as preliminary, highlighting data gaps that require further evaluation.

Moreover, the implementation of Article 12 has been hampered by uncertainties regarding its interpretation and application in clinical settings. Rotpenpian et al. (2021) revealed that many feel hesitant to honour patients' advanced directives due to concerns about legal liability and lack of clear guidelines. This uncertainty has led to a cautious approach in many healthcare institutions, potentially limiting the effectiveness of the legislation.

Cultural and societal factors play a significant role in shaping the adoption of ACP in Thailand. The Thai cultural context, heavily influenced by Buddhist beliefs, often views discussions about death and dying as taboo subjects (Pairojkul et al., 2021). This cultural reticence can make it challenging to initiate ACP conversations, as both healthcare providers and patients may feel uncomfortable discussing end-of-life scenarios.

Furthermore, the Thai family structure and decision-making norms present unique challenges for ACP implementation. In Thai culture, family members often play a central role in medical decision-making, which can sometimes conflict with the individual-focused approach of ACP (Pairojkul et al., 2021). A study by the Karunruk Centre of Srinagarind Hospital reported that many Thai patients prefer family-centred decision-making, including for end-of-life decisions; this can complicate individual advanced directives and necessitates family-inclusive ACP.

Despite these challenges, there are also cultural factors that may facilitate ACP adoption in Thailand. The Buddhist concept of "good death", which emphasises peaceful and mindful passing, aligns well with many ACP principles (Keratichewanun et al., 2023). Additionally, the strong emphasis on filial piety in Thai culture can motivate adult children to engage in ACP discussions with their older parents as a way of fulfilling their familial duties (Pairojkul et al., 2023).

In response to these challenges, there have been several initiatives aimed at improving ACP implementation in Thailand. For instance, the Karunruk Center of Srinagarind Hospital has been actively involved in developing guidelines and training programmes for healthcare professionals on ACP and end-of-life care communication (Pairojkul et al., 2021). Additionally, community-based ACP programmes have shown promise in increasing awareness and acceptance of ACP among the public, particularly when they are tailored to local cultural contexts.

Generalizability: Much of the Thai evidence currently comes from single-site hospital studies (e.g., provincial or tertiary centres); findings should therefore be read as context-specific signals rather than decision-grade estimates until replicated across regions, facility levels, and payment contexts (e.g., Chanthong et al., 2023; Prommarat, 2023).

Economic Considerations in End-of-Life Care

Understanding the economic dimensions of end-of-life care is crucial for evaluating the impact of ACP and the implementation of Article 12 of the National Health Act (2007) in Thailand. This section explores the various types of costs associated with end-of-life care and examines the economic impact of patients' choices in end-of-life decisions.

End-of-life care encompasses a wide range of services and interventions, each carrying its own set of costs. These costs can be broadly categorised into direct medical costs, direct non-medical costs, indirect costs, and intangible costs. Direct medical costs include expenses related to hospital admissions, outpatient visits, medications, diagnostic tests, and specialised palliative care services. Chanthong et al. (2023) found that in Thailand, these direct medical costs can account for a significant portion of total healthcare expenditure, particularly in the final months of life.

Direct non-medical costs, while often overlooked in formal economic analyses, can place a substantial burden on patients and families. These include expenses such as transportation to healthcare facilities, home modifications to accommodate patient care, and personal care supplies (Páez Esteban et al., 2020). In the Thai context, where family-based care is common, these costs can be particularly significant (Kunakornvong & Ngoasri, 2020).

Studies have shown that patients preferring hospital-based end-of-life care often present with greater physical disability and lower quality of life compared to those who prefer home care. Making home-based healthcare and supportive services in the home more readily available and affordable may help address the concerns of patients facing severe physical challenges (Gomutbutra & Brandeland, 2020).

Indirect costs primarily relate to productivity losses, both for patients (if applicable) and their family caregivers. In Thailand, where filial piety is strong, adult children often reduce work hours or leave jobs entirely to care for older parents, leading to significant opportunity costs. Kongpakwattana et al. (2019) estimated that the indirect costs associated with family caregiving in Thailand could amount to a substantial percentage of household income, highlighting the economic impact beyond direct healthcare expenses.

Intangible costs, while difficult to quantify in monetary terms, are nonetheless crucial in evaluating the full economic impact of end-of-life care. These include the pain and suffering experienced by patients, as well as the emotional distress and reduced quality of life for both patients and caregivers. While these costs are not typically included in formal economic analyses, they play a significant role in decision-making processes and overall welfare considerations.

The economic impact of patient choices in end-of-life decisions is profound and multifaceted. Research has shown that patients who engage in ACP often choose less aggressive treatments at the end of life (Green et al., 2020), potentially leading to reduced healthcare utilisation and associated costs. A study conducted in the United States found that patients with advanced directives had $5,585 (USD) lower healthcare costs in the last week of life compared to those without (Institute of Medicine, 2015), while comparable data for Thailand is limited.

Patient choices facilitated by ACP can lead to shifts in care settings, often from hospitals to home-based or hospice care. While this can reduce direct medical costs, it may increase out-of-pocket expenses for families (Spencer et al., 2024). In Thailand, where home-based care is culturally preferred, this shift can have significant implications for family finances and the caregiver burden (Kunakornvong & Ngoasri, 2020).

The timing of palliative care integration, often influenced by ACP, also has economic implications. Early integration of palliative care has been associated with cost savings by preventing unnecessary treatments and hospitalisations (Seow et al., 2021; Sheridan et al., 2021). However, the cost-effectiveness of early palliative care integration in the Thai healthcare system requires further study.

Delayed ACP can generate material indirect costs through an "indirect-cost channel". When preferences are not documented early, families face prolonged decision uncertainty, repeated facility visits, and increased informal-care time, amplifying productivity losses and travel/time expenses. By contrast, earlier ACP (e.g., $\geq$ months before the terminal phase) is associated internationally with lower hospital utilisation and costs, implying that delayed ACP sustains higher use and shifts burdens to households. In Thailand—where family caregiving is common—these opportunity costs likely compound existing caregiver strain and out-of-pocket spending. Future Thai studies should explicitly measure caregiver time (hours/week), travel episodes, and crisis-decision time, and model how earlier ACP timing attenuates these costs (Kongpakwattana et al., 2019; May et al., 2018; Seow et al., 2021).

Patient choices also influence resource allocation within the healthcare system. Clear communication of end-of-life preferences through ACP can lead to more efficient use of healthcare resources (Goswami, 2021), potentially allowing for reallocation to other areas of need. This is particularly relevant in Thailand's universal healthcare coverage system, where resource optimisation is crucial for system sustainability.

It is important to note that while economic considerations are significant, they should not be the sole criterion for evaluating ACP and patients' end-of-life care options. The alignment of care with patient preferences, improved quality of life, and adherence to ethical principles are equally important considerations. In the Thai context, where Buddhist values often influence end-of-life perspectives, the economic impact of patient choices must be balanced with cultural and spiritual considerations.

Cost Implications of ACP and Article 12 Implementation

The implementation of ACP and Article 12 of the National Health Act in Thailand has significant cost implications for the healthcare system, patients, and their families. This section examines these implications by analysing direct medical costs, indirect and intangible costs, and comparing the costs with and without ACP implementation.

Direct Medical Costs

The implementation of ACP and Article 12 of the National Health Act can significantly impact direct medical costs in several ways. One of the primary effects is the potential reduction in unwanted or unnecessary treatments at the end of life. Studies have shown that patients who engage in ACP are less likely to receive aggressive, costly interventions that may not align with their wishes (Agarwal & Epstein, 2018; Green et al., 2020). This reduction can lead to substantial cost savings for the healthcare system.

However, it is important to note that while ACP may lead to long-term savings, there may be increased upfront costs associated with its implementation. These costs include training healthcare providers in ACP facilitation, developing and maintaining ACP documentation systems, and potentially increasing staffing for ACP discussions (Bond et al., 2018).

Another aspect of direct medical costs is the potential shift of care from hospital-based to home or hospice settings. ACP often leads to increased use of hospice and home-based care, which can be less costly than hospital-based care (Brinkman-Stoppelenburg et al., 2014). In Thailand, where home-based care is culturally preferred, this shift could lead to reduced hospital costs but may increase the need for community-based palliative care services.

Implementation costs should be itemised and prospectively micro-costed for Thai settings: 1) staff training sessions (hours × wage) aligned with Thai ACP Standards, 2) facilitator time per ACP discussion (minutes/encounter), 3) documentation and IT integration (forms, data entry, and interoperability), and 4) community education/outreach. Reporting unit costs per facility and per ACP completed would enable cost-offset analyses against downstream utilisation (National Health Commission Office, 2022; Bond et al., 2018; May et al., 2018).

Indirect and Intangible Costs

The implementation of ACP and Article 12 of the National Health Act also has implications for indirect and intangible costs, which are often borne by patients and their families. Indirect costs primarily relate to productivity losses among family caregivers. In Thailand, where family-based care is common, the economic impact on caregivers can be substantial. Tuttle et al. (2022) found that family caregivers in Thailand spent an average of 40 hours per week providing care, resulting in substantial opportunity costs including lost wages and foregone career progression.

Delayed initiation of ACP can amplify indirect costs through prolonged decisional uncertainty and repeated unplanned contacts with the health system. When preferences are not documented early, families often incur additional travel and time losses, greater informal-care hours, and productivity impacts. International evidence

shows that earlier palliative integration—often facilitated by ACP—is associated with lower hospital utilisation and lower end-of-life costs, particularly in cancer populations. These findings support the directional expectation that delaying ACP can sustain higher use and shift burdens to households (May et al., 2018; Seow et al., 2021; Institute of Medicine, 2015), while underscoring the need for Thai replication. In Thailand—where family caregiving is common—prospective studies should quantify caregiver time (hours/week), travel episodes, and crisis-decision time to make these indirect costs explicit and to estimate how earlier ACP timing mitigates them (Tuttle et al., 2022).

ACP can potentially reduce some of these indirect costs by clarifying care preferences and reducing the time spent on decision-making during health crises. However, if ACP results in greater use of home-based care, it may increase caregiving burden on families (Kunzler et al., 2022). This highlights the need for support systems and resources for family caregivers as part of ACP implementation in Thailand.

Intangible costs, while difficult to quantify, are crucial considerations in evaluating the overall impact of ACP. These include the psychological distress experienced by patients and families during end-of-life decision-making. ACP has been shown to reduce anxiety and depression among patients and improve bereavement outcomes for families (Dixon et al., 2018). In the Thai context, where discussing death can be culturally sensitive, ACP might help in reducing the emotional burden by facilitating open communication about end-of-life preferences.

Comparative Analysis of Costs with and without ACP

Comparing the costs of end-of-life care with and without ACP implementation provides valuable insights into its economic impact. While comprehensive data specific to Thailand is limited, international studies have shown significant cost differences. For instance, a study conducted in the United States found that patients with advanced directives had $5,585 (USD) lower healthcare costs in the last week of life compared to those without (Institute of Medicine, 2015).

In Thailand, a study comparing patients who had engaged in ACP with those who had not found that ACP was associated with a 46.17% reduction in overall healthcare costs in the last month of life (Prommarat, 2023). This reduction was primarily attributed to decreased use of intensive care services and fewer hospital readmissions. This percentage reflects a single-site Thai study and should be interpreted as a context-specific signal pending replication across diverse Thai regions and settings. A Thai tertiary-hospital study reported ≈45% lower terminal-care costs in a designated palliative care unit versus usual wards, largely attributable to shorter length of stay (Chanthong et al., 2023).

However, it is important to note that cost savings should not be the primary goal of ACP. The main objective is to ensure that patients receive care aligned with their preferences. In some cases, this might lead to increased costs if the patient's wishes involve more intensive treatment.

The comparative analysis should also consider the long-term economic impacts. While the immediate costs of implementing ACP might be higher due to training and infrastructure needs, the potential for long-term savings in healthcare expenditure could be substantial. Moreover, the analysis should account for the potential reduction in legal costs and conflicts that can arise from unclear end-of-life care decisions. By providing a clear framework for expressing and documenting care preferences, the implementation of ACP and Article 12 may reduce legal disputes, yielding cost savings for healthcare institutions and families (Yeun, 2021).

At scale, per-patient delivery costs may fall due to shared training and IT, but system-level outlays typically rise for supervision, audit/feedback, and data systems to preserve fidelity. Thailand's scale-up should therefore

budget for facilitator accreditation, quality audits, and linkage of ACP records with hospital and community datasets (in der Schmitten et al., 2014; National Health Commission Office, 2022).

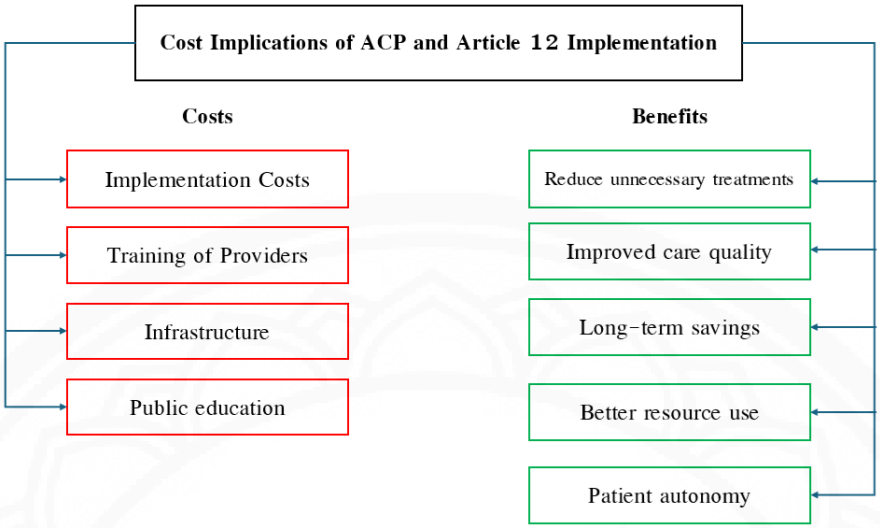

Figure 1 Costs and Benefits Associated with Implementing ACP and Article 12.

Figure 1 presents a balanced view of the economic implications of implementing ACP and Article 12 in Thailand's healthcare system. Structured as a simple tree diagram, it contrasts costs and benefits side by side. On the left, highlighted in red, are the key investments required: implementation costs, provider training, infrastructure development, and public education. These represent the necessary expenditures to integrate ACP effectively into the healthcare framework. The right side, in green, showcases the potential benefits: reduced unnecessary treatments, improved care quality, long-term savings, better resource use, and enhanced patient autonomy. This visual representation suggests that, despite significant upfront costs, the long-term benefits may lead to more efficient healthcare resource utilisation and improved patient outcomes. The balanced structure encourages a comprehensive evaluation of the economic impact, acknowledging both the challenges and potential rewards of implementing ACP and Article 12 in Thailand.

Factors Influencing Cost Variations

The cost implications of ACP and Article 12 implementation in Thailand can vary significantly based on several factors. Understanding these factors is crucial for accurately assessing the economic impact of these interventions and for tailoring implementation strategies to maximise cost-effectiveness. This section explores drivers of cost variations, including patient demographics and clinical characteristics, healthcare system factors, and the timing and extent of ACP implementation.

Quantitatively, Thai analyses should model interactions between patient-level factors (e.g., age, diagnosis), system capacity (e.g., availability of home-based palliative care), and ACP timing using multivariable or hierarchical models. Interaction terms (e.g., early ACP × home-palliative capacity) can estimate how timing effects depend on local infrastructure, improving budget-impact forecasts and targeting (May et al., 2018; Seow et al., 2021).

Policywise, results should inform differentiated commissioning: provinces with limited home-based services may prioritise building community palliative capacity before large-scale ACP roll-out, whereas high-capacity areas can fast-track ACP facilitation to capture earlier savings (Lustbader et al., 2017).

Equity considerations are central. Socioeconomic and urban–rural disparities can shape ACP uptake and household costs; Thai implementation should therefore include equity-promoting levers—such as travel vouchers for ACP visits, caregiver training/respite, and targeted outreach in lower-income districts—paired with monitoring by socioeconomic strata (Nouri et al., 2020; Tuttle et al., 2022).

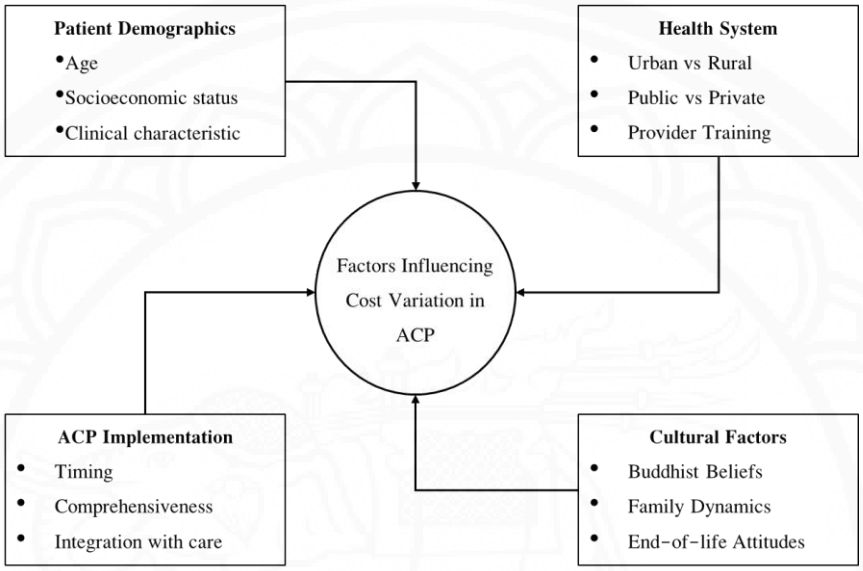

Figure 2 Factors Influencing Cost Variation in ACP Implementation.

Figure 2 Conceptual framework of factors influencing ACP/Article 12 implementation in Thailand: state-of-the-art narrative synthesis

Source: Authors' synthesis from narrative review; not a formal systematic review or model-based derivation.

1. **Patient Demographics:** Including age, socioeconomic status, and clinical characteristics.

2. **Healthcare System:** Highlights differences between urban and rural settings, public and private healthcare, and the importance of provider training.

3. **ACP Implementation:** Shows the relevance of timing, comprehensiveness, and integration with care.

4. **Cultural Factors:** Emphasises the influence of Buddhist beliefs, family dynamics, and attitudes towards end-of-life care.

The central circle represents the main topic, with these four factors surrounding it, connected by lines to indicate their interrelationships. Each factor is represented by a circle containing key sub-factors, illustrating the complex interplay of elements affecting ACP cost variations in the Thai context.

Patient Demographics and Clinical Characteristics

Patient-specific factors play a significant role in determining the cost implications of ACP. Age is a primary factor, with older patients generally incurring higher healthcare costs at the end of life (Chen et al., 2023; Hazra et al., 2018). In Thailand, where the population is rapidly aging, this factor may have significant implications for ACP cost-effectiveness. The National Health Commission Office also revealed significant financial burdens associated with end-of-life care. In the last month of life, average medical expenses reached 45,000 baht per person, with some cases escalating to 340,000 baht (National Health Commission Office, 2021).

Socioeconomic status is another crucial demographic factor. Patients from different socioeconomic backgrounds may have varying access to and engagement with ACP (Nouri et al., 2020), potentially leading to cost disparities. In the Thai context, where there are significant urban-rural disparities, this factor may be particularly relevant. In Thailand, ACP implementation is expanding into rural areas, with efforts to promote its adoption in community hospitals. This initiative aims to address the disparity in ACP engagement between urban and rural populations (National Health Commission Office, 2018).

Clinical characteristics, particularly the type and severity of illness, significantly influence cost variations. Patients with certain diseases (e.g., cancer, heart failure) may show different cost patterns with ACP compared to others (McDermott et al., 2021).

Healthcare System Factors

The structure and characteristics of the healthcare system play a crucial role in determining the cost variations of ACP implementation. In Thailand's tiered healthcare system, the cost implications of ACP may differ between urban and rural settings, primary care and specialty care, or public and private hospitals (Nilmanat, 2016).

The availability and quality of palliative care services can significantly influence the cost outcomes of ACP. Regions with well-developed palliative care infrastructure may see greater cost savings from ACP implementation due to more efficient use of these services. A comparative study of ACP outcomes found that established home-based palliative care services showed more than 30% cost reductions associated with ACP compared in hospital base (Lustbader et al., 2017).

Healthcare provider training and comfort with ACP conversations can also impact cost variations. Providers who are well-trained in conducting ACP discussions may be more effective in aligning care with patient preferences (Barber-Fleming et al., 2023).

Timing and Extent of ACP Implementation

The timing of ACP initiation can significantly influence its cost implications. Earlier initiation of ACP is generally associated with greater cost savings and better outcomes (Morrison & Meier, 2004). A meta-analysis study found that patients who engaged in ACP earlier could lead to lower end-of-life care costs (May et al., 2018). The comprehensiveness of ACP discussions also impacts ACP decisions (Detering et al., 2010; in der Schmitten et al., 2014). More thorough ACP that covers a wide range of potential scenarios may lead to better alignment of care with patient preferences.

The extent of ACP implementation across a healthcare system can also influence cost variations. Widespread, systematic implementation may lead to greater overall cost savings due to economies of scale and cultural shifts in end-of-life care practices.

Challenges, Future Directions, and Policy Implications

The economic evaluation of ACP and the implementation of Article 12 in Thailand faces several significant challenges, which, in turn, may inform future research directions and policy implications. One of the primary obstacles is the lack of comprehensive, nationwide data on ACP implementation and its economic impacts. There is currently no clear evidence regarding the overall implementation and coverage of ACP across Thailand. Studies on ACP in Thailand have been limited to specific regions or healthcare facilities, making it challenging to generalise findings to the national level since it is only in the early stages of implementation (National Health

Commission Office, 2022; Pairojkul et al., 2023). These challenges highlight the urgent need for a centralised, national database for ACP implementation and associated costs to support comprehensive economic analyses.

Another crucial challenge lies in the valuation of informal care, which is particularly relevant in the Thai context where family-based caregiving is prevalent. The absence of a standardised approach to valuing informal (family) care creates a significant gap in our understanding of ACP's full economic impact on families (Sritharathikun & Nethipoomkun, 2021). This issue is further complicated by the influence of Buddhist value and family-centred decision-making in Thai culture, which may shape treatment and care decisions that are not solely based on economic considerations (Pairojkul et al., 2021; Pairojkul et al., 2023). In studying the costs in Thailand's context, data could be collected on aspects that contribute to quality service delivery, such as various forms of patient communication that are not typically captured in existing systems. This includes the consideration of patients' and relatives' beliefs and feelings integrated into communication processes, as well as the workload of care systems that should be incorporated into the cost study. Developing culturally sensitive economic evaluation methods that can account for these unique aspects of Thai society is essential for accurate cost assessments.

The lack of validated, culturally appropriate health-related quality-of-life (HRQoL) measures for end-of-life care in Thailand remains a significant challenge. This limitation comprehensive cost-utility analyses (e.g., QALY-based), which are crucial for assessing the overall value of ACP interventions. To address this, we will incorporate the costs of implementing Family Satisfaction with Advanced Cancer Care (FAMCARE) scale assessment into the system, ensuring that care system evaluation costs are included. This systematic integration of FAMCARE scale into ACP workflows would enable routine measurement of family satisfaction with care. Investing in the development and validation of quality-of-life measures specifically tailored to Thai cultural contexts would greatly enhance the accuracy and relevance of economic evaluations in this field.

Addressing these challenges requires a multifaceted approach that combines research initiatives with policy interventions. Future directions should focus on developing standardised methods for the economic evaluation of ACP in Thailand, including culturally adapted HRQoL measurement and valuation of informal care. In our Thai cost study, we aim to collect data vertically across the healthcare system, ranging from Tertiary Care services down to Primary Care units (Sub-district Health Promoting Hospitals) and community-based hospice care. This standardisation would improve the consistency and comparability of studies across different settings. Additionally, there is a pressing need for long-term economic impact studies that track the effects of ACP implementation over extended periods, providing valuable insights for future policy decisions.

From a policy perspective, integrating ACP discussions into routine primary care visits for older adults and those with chronic illnesses could improve the cost-effectiveness of ACP implementation by leveraging existing healthcare interactions. This integration should be supported by comprehensive training programmes for healthcare providers on conducting culturally sensitive ACP discussions, which could enhance the effectiveness and efficiency of ACP implementation (Pairojkul et al., 2021).

Supporting family caregivers should also be a key focus of future policies. Developing initiatives that recognise and support these caregivers - such as providing financial incentives or respite care services - could help offset the economic burden on families and improve the overall cost-effectiveness of ACP. This support should be complemented by targeted public-awareness campaigns to increase awareness and acceptance of ACP, potentially leading to broader engagement and improved cost-effectiveness of implementation efforts.

The legal framework surrounding Article 12 also requires attention. Strengthening this framework to provide clearer guidelines for healthcare providers could reduce potential legal uncertainties that may lead to defensive and costly medical practices (Petchkong, 2018). This legal clarity should be coupled with the exploration of technology utilisation, such as electronic health records and telemedicine, for ACP implementation. These technological solutions could potentially reduce costs and improve access, especially in rural areas.

Conclusion

This state-of-the-art narrative review synthesises current evidence on the economics of ACP and Article 12 in Thailand. Overall, ACP appears to support more goal-concordant end-of-life care and, in some settings, to reduce non-beneficial hospital use; however, net effects likely differ by patient mix, care setting, and the timing and intensity of ACP. Any potential savings must be considered alongside programme costs and the possibility of shifting care burdens to families within Thailand's strongly family-centred decision culture. These realities point to the need for economic evaluations that fit the Thai context—valuing informal caregiving, incorporating culturally adapted outcome measures, and pairing cost-effectiveness with budget-impact and equity considerations.

The evidence base remains limited and uneven, with several signals driven by small numbers of Thai studies. We do not call for new methods or pilot trials; instead, we set out a measurement-oriented roadmap that standardises Thai-relevant cost and benefit indicators across hospital and community settings. Because international evidence is heterogeneous, non-Thai estimates are treated as directional signals rather than decision-grade figures for Thailand. We also highlight unintended consequences to monitor—such as perfunctory ACP conversations, inequities in access or documentation, conflicts between family and patient preferences, and privacy risks. Strengthening caregiver supports and public-awareness efforts, alongside more diverse, multi-centre Thai health-economics research, will be essential to judge whether ACP and Article 12 can deliver value while respecting cultural norms and patient autonomy.

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