

BACKGROUND

- Advance Care Planning (ACP) is the process of thinking about, talking about, and documenting wishes for healthcare in the event that an individual becomes incapable of consenting to or refusing treatment or (Alberta Health Services 2015).
- Primary research studies have examined the effects of Advance Care Planning, at an individual- or patient-level, on costs to individuals and families, healthcare organizations and healthcare systems, and society. Resources utilized for health care may be allocated to inpatient care, clinic visits, emergency visits, physician and other professional care, home care, long-term care, medication, medical devices and supplies, hospice care, or insurance or program implementation.
- Conducting a systematic review and synthesis of these primary studies allows us to generate a complete understanding of how ACP activities affect healthcare resource use from all payer perspectives.

OBJECTIVE

Methodology of previous studies

Previous authors have conducted literature and systematic reviews of primary studies to examine the economic impacts of ACP. The shortcomings of these studies are:

1. **Limited population or study setting:** restriction of study sample to only studies with hospitalized patients, or seniors in long-term care (Taylor, Heyland and Taylor 1999; AHFMR 2005).
2. **Definition of ACP:** considered ACP interventions to be only those that involved written directives (AHFMR 2005), specific types of written documentation (Dixon et al. 2015), or that had to include verbal communication as part of the ACP process (Klingler et al. 2015).
3. **Limited focus non-cost outcomes:** included only healthcare resource use as measured by 'natural' units (e.g. hospitalization days) (Brinkman-Stoppelenburg et al. 2014).
4. **No formal search strategy was implemented** (Emanuel 1996).

It was found that the only study that was inclusive of all study settings and types of ACP (written orders/discussions/multi-activity interventions) did not consider cost outcomes. In cost studies, there was no clear rationale for methods of categorizing different types of interventions, and no attempts at meta-analysis of quantitative results.

Research question

What is the effect of participation in Advance Care Planning activities on healthcare resource use as measured in monetary values?

Inclusion criteria for selected studies

- **Population:** Adults
- **Intervention:** Having conversations or discussions; having completed documentation (including medical orders such as DNR orders); or participating in a formal program that involves facilitation of documentation/discussion
- **Comparison:** No ACP activity
- **Outcomes:** Costs of care for society, institution, or payer, including patients and families
- **Study types:** Observational (cross-sectional, cohort, case control), experimental (Randomized Control Trial)

METHODS

A number of search terms that encompass the definition of ACP were developed by the primary author and a librarian. To capture economic outcomes, the following terms were used: cost, charge, fee, expenditure, budget, economic, health economic, economic evaluation, cost-benefit analysis, cost effectiveness analysis.

An electronic database search was carried out with a number of multi-disciplinary databases: MEDLINE, CINAHL, EMBASE, PsycINFO, Social Work Abstracts, and All EBM Reviews. Grey literature searches were also conducted with Scopus and Google Scholar.

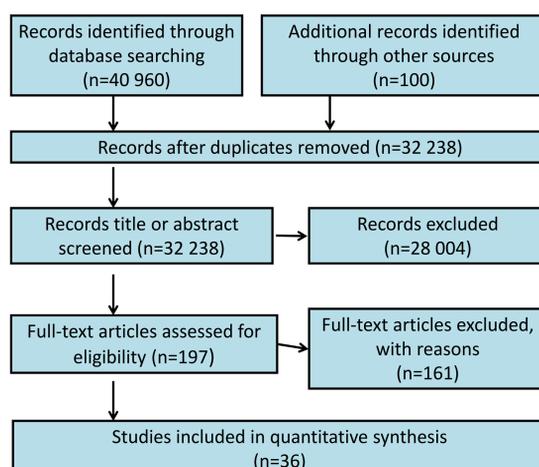
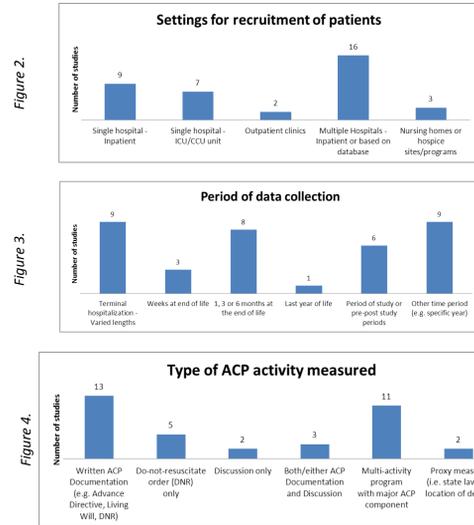


Figure 1. PRISMA search diagram

CHARACTERISTICS OF SELECTED STUDIES

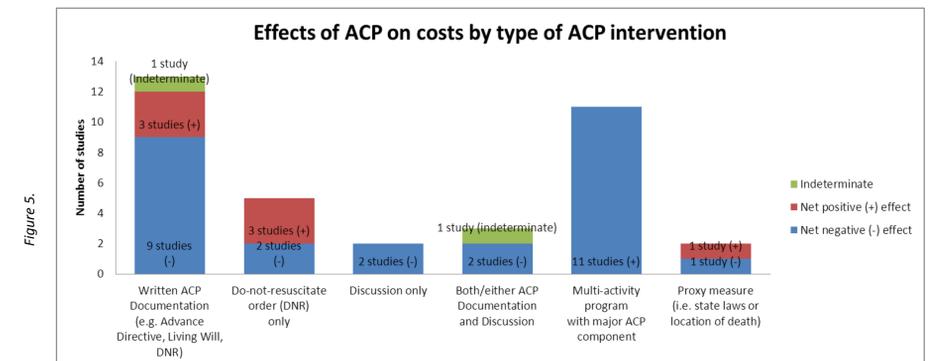


- The majority of studies (n=16) involved study samples from multiple hospital sites, while only n=3 studies involved samples from nursing homes or hospice programs.
- There was significant variance for the length of time of data collection for cost outcomes. While n=9 studies involved cost calculation for the last hospitalization for deceased patients, some studies involved data collection for patients both deceased and discharged alive in specified periods.
- Most studies considered written ACP documentation (n=13), while n=11 studies measured the impact of ACP programs involving staff facilitation of ACP.

RESULTS

Costing process used in the selected 36 studies

Identification: The majority of studies involved measuring the costs of inpatient hospital care. Between 5 and 8% of the studies involved measuring clinic visits, emergency visits, physician services, home care, long-term care, hospice care, and program implementation costs. **Measurement:** Twenty-one studies involved using administrative or hospital databases to gather cost data. **Valuation:** A significant number of studies (n=16), particularly those set in the United States, involved measuring "charges" for payers or patients. Other methods included using generic and specialty per diem rates or physician fees. In n=12 studies, it is unclear how "costs" were measured.



- Each of the 36 studies was summarized based on the finding of positive (+), negative (-), or indeterminate impacts of the respective type of ACP activity on costs. The indeterminate cases arose where multiple quantitative analyses within a single study yielded varying results.
- 27 studies showed decreased costs, 7 studies showed increased costs, 1 showed both positive and negative effects, and 1 study did not present the coefficient of interest.
- Except for studies on DNR orders, the majority of studies within each intervention type found cost savings with the ACP activity in question.
- Among multi-activity ACP programs, there were lower costs among intervention patients in all studies, although it is noted that these programs may have included additional services such as pain management.
- Nominal cost savings ranged from \$198 to \$94022 USD per patient for the respective study period. Nominal cost increases due to the ACP intervention ranged from \$39 to \$91 USD per patient in daily cost calculations and \$191 to \$15721 USD per patient in mean costs per stay.

CONCLUSIONS

- The findings from this study mirror those found in the other reviews, which show that the majority of studies show cost savings with ACP.
- As suggested by other authors (Klingler et al. 2015 and Dixon et al. 2015), there is significant heterogeneity in programs, study design, and cost analysis methods.
- Although we find that ACP activities lead to decreased resource utilization as measured by costs, the mechanisms by which cost savings are achieved is unclear. While inpatient costs were widely measured, further investigation must be undertaken to determine which specific procedures comprise the bulk of costs. Impacts on patient and family out-of-pocket and private costs are also unclear.
- Future work will involve further disaggregation of intervention type—the differential impacts of written legal or medical orders on costs will be examined.

CONTACT & ACKNOWLEDGEMENTS

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