

Does advance care planning alter management decisions made by healthcare professionals?

Review Methods

Search Strategy: A systematic search was conducted across a wide-ranging set of databases: Ovid Medline, including In-Process & Other Non-Indexed Citations, Ovid Embase, Ovid PsycINFO, Ebsco CINAHL and Cochrane Library.

The preliminary search strategy was developed on Ovid Medline using both text words and Medical subject headings from January 2006 to August 2016 restricted to English language studies and all adult (19 plus years). The search strategy was modified to capture indexing systems of the other databases. (Search strategies available upon request).

To identify additional papers, the following websites were searched: [The National Gold Standards Framework \(GSF\) Centre in End of Life Care](#), [The Social Care Institute for Excellence \(SCIE\)](#) and [European Association for Palliative care](#).

Furthermore electronic tables of content for the last two years were scanned for BMC Supportive and Palliative Care, International Journal of Palliative Nursing, European Journal of Palliative Care and Palliative Medicine. Reference lists of published reviews and included studies were checked for any relevant studies. The searches generated 327 citations after removing duplicates and irrelevant records. Figure 1 represents the flow of information through the different phases of the review.

Inclusion: Studies reporting that health care professionals providing patient care were influenced by the presence of an advanced care plan in making management decision. Studies published in English from 2006 to current.

Exclusion: Studies where physicians experiences were not explored, advance directives only referring to do-not-resuscitate (DNR) orders, studies set in non Organization for Economic Cooperation and Development (OECD) countries.

Study selection/Quality Assessment/Data

Extraction: Study selection was based upon review of the abstract by two independent reviewers. The full text was then assessed independently using a pre-designed eligibility form according to inclusion criteria. Quality assessment of the eligible studies was carried out by two reviewers independently, using appropriate quality assessment checklists.

Any discrepancies between the two reviewers were resolved by consensus or by recourse to a third reviewer. Study data was extracted by one reviewer and checked by another using a pre-established data extraction form.

Context

“Advance care planning (ACP) is a voluntary process of discussion about future care between an individual and their care providers, irrespective of discipline. If the individual wishes, their family and friends may be included. It is recommended that with the individual’s agreement this discussion is documented, regularly reviewed, and communicated to key persons involved in their care”.

<http://www.ncpc.org.uk/sites/default/files/AdvanceCarePlanning.pdf>

Although there is a significant body of literature informing the development and implementation of advance care planning processes, the impact of completed advance care plans on the decision making of healthcare professionals at the time of a medical event is less clear. Evidence for the impact of advance care planning programmes on the quality of care provided is required to underpin funding and delivery of integrated advance care planning across care settings.

The purpose of this rapid review is to examine whether there is evidence that having an advance care plan in place assists healthcare professionals with care and medical intervention decisions at the time of a change in condition. The scope of the review is to assess for evidence for treatment decisions other than cardiopulmonary resuscitation which is a specific order often completed out with other advance care planning events.

Key Findings

Overall the selected studies suggest that where a comprehensive programme of advance care planning is in place across care settings, those participants with orders to limit life sustaining treatments are less likely to receive interventions which are discrepant with their stated wishes. The evidence is strongest for intervention decisions taken in care home settings, with very limited evidence for acute care settings.

Quality of Evidence:

A. Reliability

Eight studies were identified as relevant to the key question. Five were retrospective studies and two assessed healthcare professional attitudes. Only one study was prospective.

Of the five retrospective studies all but one were US based, and three of them (Hickman et al 2010, Hammes et al 2012, Schmidt et al 2013) relate to a single, specific form of advance care planning known as POLST (Physician Orders for Life Sustaining Treatment) undertaken as part of a comprehensive programme of ACP: the Respecting Choices programme.

Only two studies (Hickman et al 2010 and Street et al 2015) had a comparator cohort.

The majority of treatment decisions refer to those undertaken in care homes, with very limited evidence related to the acute care setting.

The quality of the evidence from the studies is therefore weakened by their retrospective observational design with variability in the type of data capture and verification, limited population base/institutional type and predominant focus on a single form of advance care planning (POLST orders).

The prospective study (Baker et al 2012) was UK based, in a single GP practice, and had as its intervention a combination of ACP and intensified community support. It is not possible to assess the direct impact of ACP on outcomes. The generalizability of the results, from a single primary care setting, is therefore uncertain.

B. Consistency

Three of the five retrospective studies suggested a largely positive impact of advance care planning on subsequent treatment interventions. These were all US based and either single institution (Cohen-Mansfield et al 2008) or related to the POLST programme. Only one had a comparator cohort (Hickman et al 2010). Most decisions occurred in the pre-admission nursing home environment with very limited data on acute hospital decision making. Where available, data from hospital settings indicated a positive impact of ACP on treatment interventions in line with stated wishes.

The single Australian study (Street et al 2015) which compared a care home cohort using an advance care plan with a community based cohort without one, found no difference in rate of hospitalization or rehospitalisation, interventions received or discharge destination between groups, although length of hospital stay was shorter in the presence of an ACP.

The UK prospective study showed a reduction in hospital admissions and healthcare costs for the ACP/complex service intervention group, but it was not possible to discretely identify the direct impact of ACP on the outcomes of interest.

C. Relevance

The participants in the retrospective studies were largely from the US, care home based in institutions committed to advance care planning, and in the majority of cases exposed to a single comprehensive advance care planning programme, Respecting Choices.

Differences in care provision between the US and UK, and the exposure to a comprehensive programme of ACP education and facilitation limit the direct relevance of these studies to the UK population.

In only two studies (Cohen-Mansfield et al 2008 and Hammes et al 2012) was the level of data interrogation sufficient to allow direct assessment of the impact of ACP on the measured outcomes.

The single UK study (Baker et al 2012) targeted a relevant community based population but as a single practice study with outcomes only indirectly attributable to ACP, the direct relevance of the results to the wider UK population is again questionable.

Advance Care Planning Rapid Review

Flow Diagram:

Evidence Implications:

Clinical:

The evidence base provided by the current studies is weakened by their retrospective nature, variability in data collection and a preponderance of evidence relating to the care home rather than acute setting. Well-designed studies of a prospective nature and assessing the impact of ACP across all care settings are required to establish a robust evidence base.

Policy:

Further research is also required to establish the most appropriate training methods to support healthcare professionals in engaging with, and making complex decisions in the context of, completed ACPs.

Glossary:

- ACP—advance care plan
- AD—advance directive
- ED—emergency department
- EMT—emergency medical technician
- EP—emergency physician
- GP—general practitioner
- HCP—health care professional
- ICU—intensive care unit
- POAHC—powers of attorney for healthcare
- POLST—physician orders for life sustaining treatment
- WTE—whole time equivalent

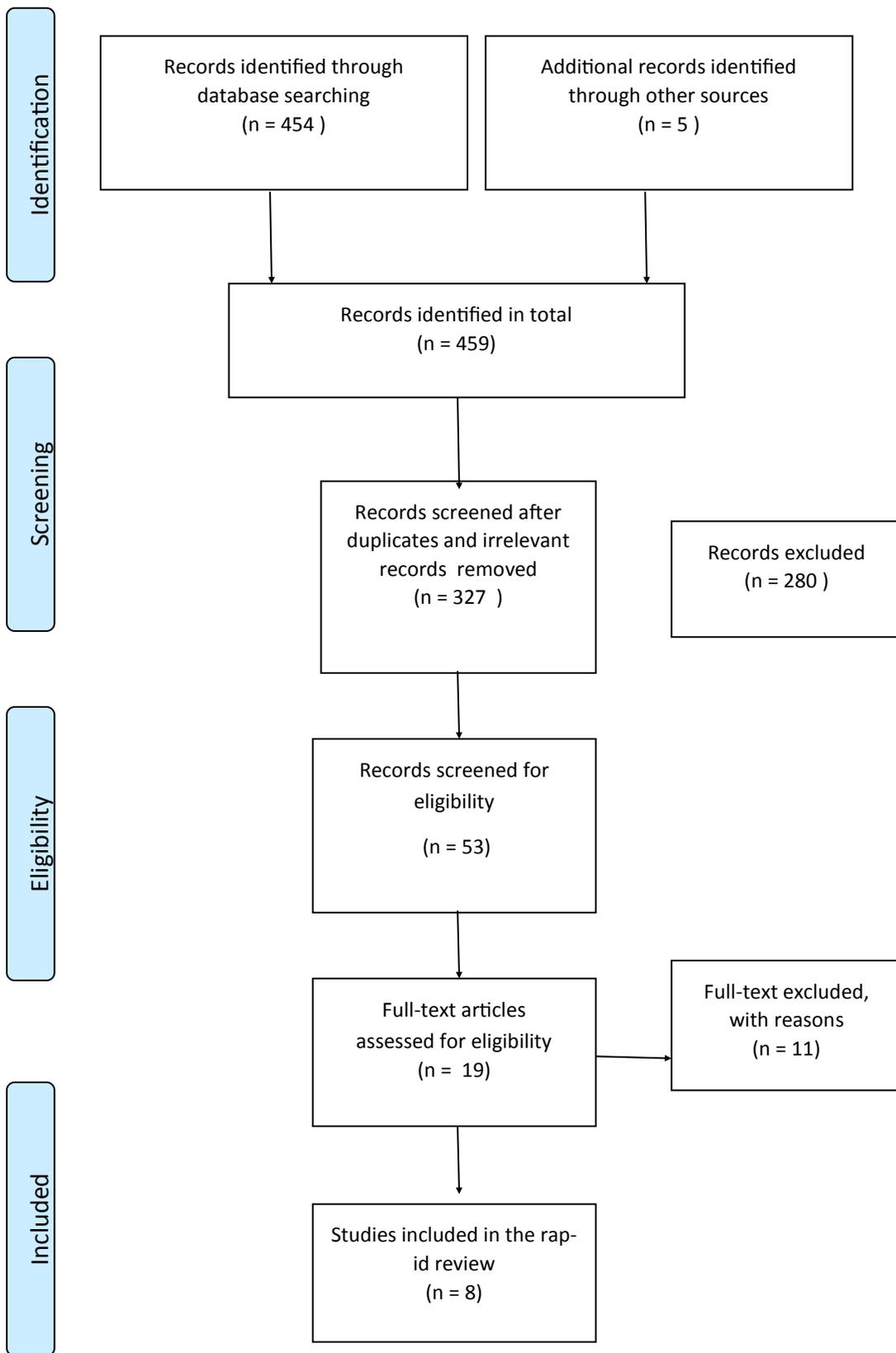


Table 1: Characteristics of Included Studies

Baker et al 2012	Study Setting & Design – A single General Practice, Scotland; Prospective cohort study.
Study Objective	To identify a population at risk of admission to hospital and to assess whether provision of an Advance Care Plan (ACP) and complex service intervention helps to reduce unplanned hospitalisations in this population compared to a matched control group of patients.
Participants	96 patients in intervention group (ACP & service intervention); 96 matched patients in control group Mean age intervention group = 80.6yrs; mean age control group =79.5yrs
Interventions/ Comparators/ Methods	<ul style="list-style-type: none"> • ACP outlining patients' wishes in the event of a sudden deterioration in health • Service intervention was proactive case management using dedicated additional personnel within the locality using an extended primary care team comprising a case manager post (1.2 WTE); care workers (2.0 WTE); physiotherapist (1.0 WTE); and occupational therapist (0.5 WTE)
Outcomes	The proposed outcomes were: Surviving patients' outcomes for hospital utilisation data based on: <ul style="list-style-type: none"> • Number of admission • Occupied bed days • Unplanned hospital costs during the 12-month period prior to, and after, the intervention.
Summary of the Study Results	The study demonstrates that combining an ACP with a higher intensity and coordinated multiprofessional primary care team intervention in a clearly identified population at high risk of hospitalisation, can reduce admission rates and occupied bed days. This approach to care also leads to an increased likelihood of dying at home. The study also suggests that the cost of unplanned hospitalisations was significantly lower in the intervention group. The total net change in costs of unplanned hospitalisation for survivors and decedents from the ACP cohort was £143,546 less than for the control cohort.
Appraisal Summary	<p>Limitations:</p> <ul style="list-style-type: none"> • Being based in one practice and utilising a study population representing 0.9% of practice caseload may limit generalizability • The cost analysis did not include the costs of GP contacts, prescribing or planned hospital admissions • Although outcomes may reflect HCP actions based on patient preferences expressed in the ACP, there is no direct correlation with preferences expressed in the ACP and outcomes, so the specific impact of stated patient preferences on outcome is unclear
Cohen-Mansfield et al 2008	Study Setting & Design – A single care home, USA; Retrospective observational study.
Study Objective	To ascertain the role that advance directives (ADs) play in actual decision making in nursing homes at the time of a medical event.
Participants	6 physicians and 3 nurses 64 patients with an AD in place
Interventions/ Comparators/ Methods	A descriptive study comprised of two components: <ul style="list-style-type: none"> • Retrospectively administered questionnaire to the physician or nurse practitioner to assess the role that ADs played in actual decision making following a patient medical event in one nursing home environment • Retrospective chart analysis of ADs and interventions undertaken in the same patient cohort
Outcomes	The proposed outcomes were: <ul style="list-style-type: none"> • Under what circumstances did ADs influence care in the nursing home at the time of a medical event • The relevance of AD contents to actual medical interventions under consideration at the time • Physician perceptions of the influence of ADs on decision making
Summary of the Study Results	Although a significant cohort of patients (64 of 70) had ADs limiting treatment, they related to the treatment under consideration in only a third of cases when a medical event actually occurred. 21 advance directives were related to the treatment under consideration. Of those, 11 were directives with orders limiting treatment: specifically no hospitalization (10) and no i.v. fluids/tube feeding/antibiotics (1). In 8 of the 11 cases the directive was followed. The other 10 were conditional directives and the outcomes were unclear because of the complex interplay between the conditions specified, the medical event and the nursing home environment. The limited role of advance directives in influencing decisions at the time of a medical event in a single nursing home environment is highlighted, particularly given the high rate of completion of advance directives and relatively stable medical staffing.
Appraisal Summary	<p>Limitations:</p> <ul style="list-style-type: none"> • Based at a single institution with a high rate of AD completion which may not be reflective of other nursing home environments • The conditional nature and/or lack of clarity of some of the directives made interpretation by physicians, and assessment by researchers, difficult <p>Nonetheless the study is relevant in directly linking doctors' orders with specific directives to refuse treatment in particular circumstances, providing detail of direct influence which is often not available from other studies.</p>

Table 1: Characteristics of Included Studies

Gutierrez et al 2012	Study Setting & Design – An ICU in a large community hospital, Midwestern USA; Qualitative study.
Study Objective	To identify the benefits and limitations of advance directives (ADs), and recommendations for improvement, by exploring the experiences of critical care nurses and physicians with ADs in an intensive care unit (ICU)
Participants	14 critical care nurses, 7 attending, and 3 fellow critical care physicians. Years in profession: 1-26 (nurses); 4-10 (fellows); 5-28 (attending) (following initial interview 5 nurses and 7 attending physicians were formally interviewed)
Interventions/Comparators/Methods	Subjects were first interviewed during work in ICU; notes taken using verbatim quotes as much as possible and later recorded into a transcript. Additional formal semi structured interviews, recorded and transcribed verbatim. Patient medical records were reviewed for ADs
Outcomes	The proposed outcomes were: <ul style="list-style-type: none"> • Identification of benefits and limitations of ADs in an ICU setting
Summary of the Study Results	Results supported many problems with ADs described previously such as the vague and confusing terminology and formatting of ADs; the application of ADs only to imminent death, which is problematic because of the trajectories of illnesses commonly experienced by ICU patients who are usually not imminently terminal; and the focus on situations very often not relevant to the individual patients' medical experience. Results identified additional problems, including inability of ADs to prevent unwanted aggressive treatments outside of health care facilities because of lack of availability of the AD, and patient reluctance to share ADs for fear of physicians "throwing in the towel" too early. Recommendations are described, including evolving the current emphasis of increasing completion of ADs to encourage patient-family discussions focused on quality of life to increase the likelihood of discussions occurring; training to improve engagement of healthcare staff with completed directives, and decision trees to support healthcare staff with complex decisions.
Appraisal Summary	The methodology describing data collection and analysis is appropriate. Limitations: <ul style="list-style-type: none"> • The setting - in a single institution, may not be representative of wider ICU settings • The HCP study sample may also not be representative, being of white ethnicity and predominantly female • Although the study was designed to explore professional's experiences of and attitudes to ADs, it did not seek to directly compare specific AD orders with treatment interventions

Hammes et al 2012	Study Setting & Design - 12 healthcare organisations in La Crosse County, Wisconsin community USA; Retrospective cohort study.
Study Objective	To determine the use and utility of the physician orders for life sustaining treatment (POLST) programme in a community where powers of attorney for healthcare (POAHCs) are prevalent.
Participants	400 adults who died between 1 September 2007, and 31 March 2008 in a mixed rural/urban setting with a population of 110,000. All 12 healthcare organizations in the geographical area participated in the study.
Interventions/Comparators/Methods	The intervention was completion of a POLST form. A retrospective review of medical record and death certificate data was undertaken to assess interventions undertaken in the 30 days prior to death in order to compare with the orders on the POLST form.
Outcomes	The proposed outcomes were: <ul style="list-style-type: none"> • Correlation between POLST orders and treatment decisions/medical interventions in the 30 days prior to death • Treatment was considered to be discrepant unless: <ol style="list-style-type: none"> 1. treatment was consistent with the POLST order 2. an appropriate decision maker requested the treatment or 3. changed the goals of care based on a change in the decedent's prognosis 4. the treatment options covered in the POLST were not relevant to the care required
Summary of the Study Results	67% of the cohort had a POLST form in place. They were more likely to be older and to reside in long term care environments. None of 157 decedents with POLST orders for comfort only were intubated or received care in ICU. 15 were hospitalized but in 13 cases this was documented as undertaken to enhance comfort. Antibiotic use was consistent with POLST orders. Decedents with POLST orders for higher levels of medical treatment received more active treatment including hospitalization and, where appropriate, intubation. Overall orders to limit treatment were discrepant with treatment provided (overtreatment) in only 2 cases.
Appraisal Summary	This study is important in providing information on the correlation between advanced care plan orders and treatment received in the last 30 days of life across a range of care settings. The analysis of medical records across all settings allowed detailed assessment of potential discrepancies and clarification of the nature of interventions. Limitations: <ul style="list-style-type: none"> • The population under study had low ethnic diversity and the healthcare delivery system was largely controlled by two integrated health organizations across care settings, so generalizability of results to more diverse settings is questionable • There was further potential bias in that this community setting also has a well-established ACP programme, Respecting Choices, across all care settings including education and non-physician facilitation • Data was only collected from the health setting in which the patient died, and not in all the settings caring for the patient in the last 30 days. Retrospective collection of the data may also compromise accuracy The study provides indirect evidence of the impact of POLST forms on treatment received but did not directly explore HCP engagement with the POLST

Table 1: Characteristics of Included Studies

Hickman et al 2010	Study Setting & Design - Random sample of 90 Medicaid nursing facilities in Oregon, Wisconsin and West Virginia, USA; Retrospective matched cohort study.
Study Objective	To evaluate the relationship between communication methods (POLST versus traditional practices) and documentation of life-sustaining treatment orders, symptom assessment and management, and use of life-sustaining treatments.
Participants	817 POLST users and 894 non-POLST users, living and deceased nursing facility residents aged 65 and older with a minimum 60-day stay.
Interventions/Comparators/Methods	Use of a coordinated, focused, advanced care planning programme across care settings, known as Respecting Choices (using POLST orders), compared to traditional practice.
Outcomes	The proposed outcomes were: <ul style="list-style-type: none"> Percentage of users in each group with orders reflecting life sustaining treatment Differences between groups in the initiation of life sustaining medical interventions whilst residents Differences in the management of two common symptoms: pain and breathlessness
Summary of the Study Results	POLST users were more likely to have orders about life-sustaining treatment preferences beyond CPR than non-POLST users (98.0% vs. 16.1%, $P < .001$). POLST users with orders for Comfort Measures Only were 67% less likely to receive life sustaining medical interventions including hospitalization than residents with POLST Full Treatment orders ($P = .004$), and 59% less likely than controls with traditional non-POLST DNR orders ($P < .001$). There was no overall difference in the use of antibiotics between groups. There were no differences between POLST and non-POLST groups on any of the symptom assessment or management measures in relation to pain or breathlessness.
Appraisal Summary	Although retrospective, the use of an observational cohort design allowed for comparison between groups in a large, geographically diverse sample. Methodology was clearly described; types of stratification, sampling strategy and timeframes all explicit. Statistical analysis included multilevel modelling at resident and facility levels to reduce bias by taking the nesting of patients within facilities into account. Limitations: <ul style="list-style-type: none"> Although stratified, 70% of the resident sample was female and 87% were white. This is important as non-white residents were less likely to have a POLST in place and more likely to have a preference for aggressive medical interventions The interventions considered were largely undertaken at nursing home level, with little information available on the impact of POLST orders once patients were hospitalized The rate of hospitalization may have been underestimated as patients who were hospitalized but did not return to the care home (and therefore not resident) were excluded Although the associations between POLST orders and reductions in hospitalization and emergency department visits are strong, it is not possible to confirm that the POLST orders directly guided treatment decisions as this data was not sought

Schmidt et al 2013	Study Setting & Design – Electronic Registry of Physician Orders for Life Sustaining Treatments (POLST), Oregon, USA; Retrospective mixed methods study.
Study Objective	To determine Emergency Medical Services use of a 24 hour a day Advance Care Planning (POLST) Registry and its impact on interventions undertaken.
Participants	Of 34 relevant events in a seven month period, 23 emergency medical technicians (EMTs) who contacted the Oregon POLST Registry and received orders from the registered POLST forms were surveyed. 2 patients and 9 surrogates were surveyed.
Interventions/Comparators/Methods	Access to the electronic POLST Registry. Combination of case record review and HCP and patient/surrogate surveys.
Outcomes	The proposed outcomes were: <ul style="list-style-type: none"> Effect of POLST form on medical interventions undertaken
Summary of the Study Results	For 10 events (44%) the POLST orders changed treatment, and in 6 instances (26%) they affected the decision to transport the patient. For 10/11 patients or surrogates interviewed, the care reportedly matched their wishes. Of the 34 cases in which the Registry provided information, in 87% of cases the original paper POLST form was never located at the scene of the medical event. This small study suggests that an electronic registry of POLST forms can be used by EMTs to enhance their ability to locate and honour patient preferences regarding life sustaining treatments.
Appraisal Summary	Limitations: <ul style="list-style-type: none"> The original sample size was small Response rates by professionals and patients/carers makes data interpretation difficult There was very limited cross correlation between survey responses and medical services' documentation of events

Table 1: Characteristics of Included Studies

Street et al 2015	Study Setting & Design – Three emergency departments at Eastern Health, Victoria, Australia; Retrospective matched cohort study.
Study Objective	To determine the prevalence of advance care planning (ACP) among older people presenting to an Emergency Department (ED) from the community or a residential aged care facility, and the impact of ACPs on care received.
Participants	300 older people (aged 65+ years) presenting to EDs in 2011. A total of 150 patients transferred from residential aged care to ED were randomly selected and then matched by age, gender, reason for ED attendance and triage category on arrival, to 150 people who lived in the community and attended the ED
Interventions/Comparators/Methods	Documented ACP versus no ACP/ attendance at emergency department/ retrospective observational matched cohort study
Outcomes	The proposed outcomes were: <ul style="list-style-type: none"> • Length of stay in ED • Investigations and treatment given in ED • Discharge destination from ED • Length of inpatient hospital stay • Representation to ED or readmission to hospital
Summary of the Study Results	The overall prevalence of ACP was 13.3%, with none of the community dwelling cohort having an ACP in place. The presence of an ACP did not alter any of the outcomes apart from length of hospital stay which was significantly shorter in the ACP group (median 3 days vs 6 days).
Appraisal Summary	Limitations: <ul style="list-style-type: none"> • This study was conducted at one health service and although three hospital EDs were represented it is not possible to generalise the results to other health services • This study is a retrospective secondary analysis of data collected for another purpose, namely clinical care of the older person in ED • There was no standardised format for the collection of ACP, documentation varied in both style and content • Although there was sufficient data to determine the prevalence of ACP in the study population, it did not allow for causation to be determined

Wiese et al 2011	Study Setting & Design - Three emergency medical services (Braunschweig, Göttingen und Kaiserslautern), Germany; Cross-sectional questionnaire study.
Study Objective	To identify emergency physicians' (EPs') knowledge about ethical and end-of-life decisions and their legal education and experiences concerning advance directives (ADs)
Participants	150 prehospital EPs categorised by level of experience
Interventions/Comparators/Methods	Emergency medical interventions / ADs / An anonymous, self-administered questionnaire with a mixed-methods design was used over 6 month period.
Outcomes	The proposed outcomes were: <ul style="list-style-type: none"> • EPs experience with ADs and DNAR orders • The influence of ADs on EP decisions • EPs prior knowledge of palliative medicine
Summary of the Study Results	The survey response rate by EPs was 69% (104/150).The presence of an AD influenced the therapy decisions for 77% of all EPs; 91% of experienced EPs and 61% of inexperienced EPs. Experience of or qualifications in palliative care did not influence their response to ADs. The majority of respondents (82%) were uncertain with regard to legal issues of validity and obligation to comply. 38% EPs reported that following written ADs in therapy decisions was obligatory (44% in the case of starting or stopping resuscitation); however, these EPs re-reported that therapy decisions were influenced only when the AD's contents were verbally confirmed by the palliative care patient before an emergency medical situation.
Appraisal Summary	Limitations: <ul style="list-style-type: none"> • As a retrospective survey the study was prone to selection bias as respondents may be more motivated in relation to ADs, and non-respondents were not further pursued • The survey was reliant on EP recall and did not capture specific clinical events nor any data relating an AD to a specific interventional outcome

Included Studies:

Studies were included where it was reported that a Health care professional providing patient care was helped by the use of an advance care plan to make a decision in relation to patient care.

1. Baker A, Baker A, Leak P, Ritchie L. Anticipatory care planning and integration: a primary care pilot study aimed at reducing unplanned hospitalisation. *British Journal of General Practice* 2012 Feb;62(595):e113-e120
2. Cohen-Mansfield J, Lipson S. Which advance directive matters?: An analysis of end-of-life decisions made in nursing homes. *Research on Aging* 200830(1):74-92. Ref ID: 320
3. Gutierrez KM, Gutierrez KM. Advance directives in an intensive care unit: experiences and recommendations of critical care nurses and physicians. *Crit Care Nurs Q* 2012 Oct;35(4):396-409.
4. Hammes BJ, Rooney BL, Gundrum JD, Hickman SE, Hager N. The POLST program: A retrospective review of the demographics of use and outcomes in one community where advance directives are prevalent. *J Palliative Med* 2012 15(1):77-85.
5. Hickman SE, Nelson CA, Perrin NA, Moss AH, Hammes BJ, Tolle SW. A comparison of methods to communicate treatment preferences in nursing facilities: traditional practices versus the physician orders for life-sustaining treatment program. *J Am Geriatr Soc.* 2010 Jul;58(7):1241-8.
6. Schmidt TA, Olszewski EA, Zive D, Fromme EK, Tolle SW. The Oregon physician orders for life-sustaining treatment registry: a preliminary study of emergency medical services utilization. *J Emerg Med.* 2013 Apr;44(4):796-805
7. Street M, Ottann G, Johnstone MJ, Considine J, Livingston PM. Advance care planning for older people in Australia presenting to the emergency department from the community or residential aged care facilities. *Health & Social Care in the Community* 201523(5):513-522.
8. Wiese CH, Bartels UE, Ruppert DB, Graf BM, Hanekop GG., Wiese CHR. Prehospital emergency physicians' experiences with advance directives in Germany: a questionnaire-based multicenter study. *Minerva Anestesiol* 2011 Feb;77(2):172-9.

Excluded Studies:

A number of studies have been excluded due to various reasons including the following: papers where physicians experiences were not explored, where the advance directive refers to do-not-resuscitate (DNR) orders and the impact of having an ACP on care received.

For full list of studies excluded at full text reading stage please contact PaCERSWCRC@cardiff.ac.uk

Additional materials available upon request:

- Critical appraisal / data extraction forms
- Search strategies
- List of excluded studies

This report should be cited as follows: Palliative Care Evidence Review Service. A rapid review: Does advance care planning alter management decisions made by healthcare professionals? Cardiff: Palliative Care Evidence Review Service (PaCERS); 2017 February.

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