

AFirst Author	Year	Country	Method	Stated problem	Aim	Description of Intervention	Outcome
Bose-Brill	2016	USA	RCT	<i>Uptake of ACP was low and ACPs were not available in medical records</i>	To test efficacy of a novel personal health record delivered by IT ACP framework	Develop and test a patient portal messaging system, linked to the patient's electronic medical record, with use of an IT system enabler making ACPs accessible to providers. This multi-level initiative had influence at the individual level (patient's communicating their wishes), at the provider level (access to patient information previously unavailable) and at a system level (the supporting infrastructure created a process and a business as usual approach).	The aim of increasing uptake and having availability of ACP in the record was achieved at the test level. (43) Rate of outpatient ACP documentation increased and improved in quality. A larger trial is required to determine reproducibility A number of known barriers and enablers were not considered which may have limited efficacy. For example, GP time pressure was known to be a significant barrier but no accommodation was made to overcome this barrier which would continue to have a hindering effect during the study.
De Vleminck	2016	Belgium	Complex intervention	<i>General practice was lacking a practical approach to implement ACP</i>	To develop an intervention to support the initiation of ACP in general practice – methodological paper	A complex intervention using a 4 phased approach based on the Medical Research Council Framework for design and evaluation of complex interventions.(19) The first phase included a systematic review and GP focus groups to identify barriers and facilitators of ACP. The findings were then used to inform the next phase. A proposed intervention was modelled based explicitly on an understanding of the barriers and enablers, with key components identified. Key features of the proposed intervention included involvement of trained facilitators, (to address knowledge barriers at an organizational level), a process of stratifying the practice population into age specific target groups (a known enabler at a system level), structured	GPs have diverse conceptualisations about ACP. Need to develop a shared conceptualisation and agreement on the purpose of ACP amongst GPs and make systematic integration of ACP in routine practice The next phases of the intervention have not yet been reported.

						discussions between the patient and provider (a known enabler at the interpersonal level) and the opportunity to complete the ACP document (individual level).	
Duffield	1996	USA	Mixed method	<i>Need to initiate ACP in primary care prior to catastrophic or long term illness becoming a factor.</i>	To determine if discussion about and distribution of Advance Directive forms in a rural primary health practice would increase completion and return of forms.	To test the feasibility of initiating ACP discussions in primary care a study involving primary care clinic patients in a short survey about their ACP attitudes (individual level), followed by a discussion with their usual doctor (interpersonal level) who then also provided a simple ACP form to be taken home for completion (system level).	Distributing AD forms in practice increased the number of completed AD without impacting on consultation time. This study concluded that discussing AD with primary care patients and providing them with forms to complete for the medical record was a practical means to ensure wishes regarding EOL care were known. It also highlighted the significance of the GP involvement in the activity.
Hare	2019	USA	Cross sectional survey	<i>Problem that only 17% of patients report having ACP discussion with physician</i>	To establish the usefulness of a 9 item ACP survey in determining readiness and self - efficacy of patients to engage in ACP.	Patients from two primary care clinics between the ages of 55 -80 years old were asked to complete a 9 item survey and provide brief demographic information	The tool was found to be useful with participants indicating providers should engage in ACP
Heiman	2004	USA	RCT	<i>Will a combination of two simple ACP initiatives create a synergistic response for greater effect?</i>	To assess two simple interventions in a combined approach to improve completion of advance directives	A 3 arm blinded randomized control trial to test the efficacy of a combination of two simple interventions was completed. Patients with upcoming appointments received a mail out of patient information (system level) and this was combined with the physician receiving an IT reminder during consultation (system level).	Reported findings showed a small but significant increase in completed ACPs in one of the 3 study arms supporting the efficacy of a mail out supported by a physician prompt, with no change between the control and the physician only prompt arms. Findings suggested that involving patients resulted in a greater response than simply prompting a physician. Authors noted that known barriers to physician involvement were not addressed in the study which limited the efficacy. Future strategies should focus on encouraging patients to put

							advance directives on their agendas. To ensure the discussion is not bypassed.
Holland	2017	USA	Prospective 4-arm comparison study	<i>ACP discussion in primary care setting was rare, and decision aids to facilitate patient provider interactions were suggested to be valuable tools but had not been evaluated.</i>	To evaluate the feasibility and acceptability of a nurse-led advance care planning intervention in primary care	The researchers conducted a 4 arm prospective comparison study to compare the effectiveness of the decision aids when used in ACP conversations with nurse care coordinators. The intervention involved training the nurses (provider level), selecting the decision aids (system level), enrolling individuals (individual level) and providing a one hour patient-provider consultation after which the patient was instructed to go home and discuss their values and wishes with family and friends (interpersonal level).	Build standardised ACP processes into nurse-patient interactions and encourage nurses to practice at the full scope of their license. With regard to differences between the 4 decision aids, the pilot study was not sufficiently powered to determine statistical differences but the authors concluded that subsequent studies should structure the intervention to facilitate conversations between patients and their health care agent.
Lum	2016	USA	complex intervention	<i>Primary care providers faced time barriers impeding their ability to participate in ACP discussions during consultations with patients.</i>	To describe the feasibility of a primary care group visit advance care planning model	Patients (individual level) participated in a group medical visit (interpersonal level) facilitated by a physician and another health care provider (organizational level) during which handouts, discussion, question and answer (system level) increased patient knowledge and motivation to engage in ACP.	Group appointment was acceptable to patients and clinicians. By supporting interactive discussion and working with a group of patients together, time demands were compressed. (49) The authors recommended more research to understand the sustainable work flows required and to address ongoing barriers.
Miller	2019	Australia	Qualitative	<i>Uptake of ACP in outpatient settings is low</i>	Explore patient perspectives of an ACP intervention designed to address common barriers to uptake in general practice	Training of nurses from 4 general practices to initiate and lead ACP discussions with referred patients. Patient perspectives captured by semi structured interview following the intervention.	After training, nurses were found to be capable of facilitating ACP conversations and achieving significant relational benefits for patients. Patients felt uncomfortable communicating ACP with their families.
Pearlman	2005	USA	RCT	<i>This study started by recognising</i>	To conduct an educational and	The researchers' goal was to evaluate a systems orientated ACP	Findings from this multi-modal intervention reported mixed results highlighting ongoing

				<i>many barriers exist to ACP and many interventions had been tried to address these barriers.</i>	motivational intervention to increase ACP	intervention using a workbook <i>Your Life, Your Choices</i> .(59). A randomised control trial involved an intervention group who participated in a 4 step intervention. Patients (individual level) received a mail out of the workbook followed one week later by a reminder post card (system level). Immediately prior to the persons next scheduled physician appointment they met with a social worker for 30 minutes (interpersonal level) and then during their physician visit a reminder prompt was provided by the physician. (organizational level) Control group received the usual mail out and a standard consultation.	challenges. System level processes were improved with success in increasing ACP discussion. Documentation rates doubled. Clinicians need to target those who are ready to engage and likely to benefit. The study design employed a number of known enablers, including training of health care providers, providing role clarity and direction for providers with clear instruction about process.
Rose	2019	USA	Mixed methods	<i>Lack of physician training and lack of time</i>	To measure impact of physician coaching and staff training with RN support and EMR enhancements on ACP uptake.	36 primary care practices were engaged over a 31 month period. Coaching tools and EMR modifications were supported by RN case managers	29% of patient participants completed an advance care directive mostly initiated by RN case managers.
Tierney	2001	USA	RCT	<i>Fear initiating discussion would cause a reduction in patient satisfaction of care.</i>	To determine patient and provider satisfaction with prompted advance care planning discussions	The researchers determined to explore the various aspects of ACP and designed a cohort study linked to an existing randomised control trial. Physicians received one of four different computer prompts during patient consultation to initiate an ACP discussion. Patient satisfaction with process was recorded.	Findings reported patients were more satisfied with their provider when ACP was discussed, so the barrier was debunked by the research however it was not clear if physicians responded to the findings. Physicians should be encouraged to initiate ACP discussions with elderly patients during consultations as this is shown to improve patient satisfaction with the visit.

Tieu	2017	USA	RCT	<i>Rates of completion of ACP are universally low</i>	To determine if ACP specific patient electronic messaging would increase rate of ACP	Primary care patients age 65+ who were previously enrolled in a patient electronic messaging system were randomized to receive an ACP message and to determine completion after three months	There was a statistically significant increase in ACP completion but absolute number remained low. Older frail adults were more likely to complete.
Wickersham	2019	USA	Mixed methods	<i>ACP completion rates were less than 10%</i>	Compare implementation performance of 2 different advance directive forms	6 primary care practices were randomized to use or the other form then assessed for rate of offering, acceptance and ACP uptake.	One form was found to be the more readable, understandable, appealing and usable to both patients and clinicians.
Wissow	2004	USA	complex intervention	<i>Ongoing low uptake of ACP, and an understanding of previous interventions to increase uptake</i>	To determine efficient ways of promoting advance directives among heterogeneous populations of elderly ambulatory patients.	Complex intervention aimed at increasing ACP uptake. Patients received an appointment, a reminder letter, a handbook, a medical consultation and a follow-up letter. Providers received executive guidance about the priority, a workbook including scripts to employ in consultation. At an organizational level administration processes were instituted and checklists included in records.	Reported findings showed a modest increase however providers did not engage fully with the process because the barriers that limit ACP discussions continued were not mitigated and continued to exist throughout the study. Future interventions may need to specifically address doctors attitudes and comfort when discussing advance directives.

Supplementary file 3: General practice intervention studies