

Table S3. Key characteristics of the included studies.**Table S3a. Key characteristics – Qualitative cross-sectional studies**

Source	Study methods			Patient population			
	Study aim	Setting, country	Data collection	Def of MM	Sample (number)	Age: Mean (SD); range	Sex (% females)
Bayliss, 2008 (136)	To explore processes of care desired by elderly patients with MM, and that may present competing demands for patients and providers	Population based; USA	ssl (f2f)	≥ 2 chronic conditions	26	65-84	50
Belcher, 2006 (134)	To explore the views of older adults regarding participation in medication decision-making	GP & Hospital (outpatient) & Nursing home; USA	ssl (f2f)	≥ 2 chronic conditions + ≥ 1 medications	51	77; 65-89	63
Beverly, 2008 (94)	To define, identify, and rank the values and preferences that older adults express in their diabetes care	Population based; USA	FG	Type 2 diabetes + ≥ 1 comorbidity	35	75; 60-88	57
Beverly, 2011 (95)	To explore the perceived impact of chronic co-morbid conditions on type 2 diabetes self-management in older patients	Population based; USA	FG	Type 2 diabetes + ≥ 1 comorbidity	32	75 (7); 60-88	56
Bower, 2012 (96)	To examine patients' representations of multimorbid long-term conditions and assess how models of illness representation might need modification in the presence of MM	GP; UK	ssl (f2f)	≥ 2 chronic conditions	28	Median 66; 39-89	43
Bravo, 2017 (125)	To identify typologies of decision-making with foreign-born Latino elders with MM who have enrolled in an integrative geriatric health care program	Nursing home; USA	ssl (f2f)	≥ 2 chronic conditions	13	75; 65-85	77
Brown, 2007 (104)	To describe how goals for the self-management of hypertension are developed and whether or not they conform to the characteristics of effective goal-setting	Hospital (outpatient); USA	l (f2f)	Hypertension + comorbidities	30	70 (9); 50-87	100

Browne, 2014 (137)	To examine patient, carer, and professional perspectives on current management of advanced CHF, as well as barriers and facilitators to improved care	GP & Hospital (inpatient); UK	FG & ssl (f2f)	CHF (severe)	30	72; 60-86	27
Caldwell, 2007 (39)	To identify the preferences of patients with advanced CHF regarding communication about their prognosis and its implications	Hospital (outpatient); Canada	I (f2f)	CHF (severe)	20	68; 50-84	30
Caughey, 2017 (108)	To examine how older patients with MM and clinicians balance benefits and harms associated with a medication and in the presence of competing health outcomes	Hospital (outpatient); Australia	I (f2f)	≥2 chronic conditions	15	Median; IQR: 79; 73-86	53
Cheraghi-Sohi, 2013 a (97)	To explore how patients prioritise their osteoarthritis among all their conditions, which factors underlie this prioritisation, and whether and why these priorities change over time	Hospital (outpatient); UK	2a	≥ 2 chronic conditions Osteoarthritis	30	69; 55-86	60
Cheraghi-Sohi, 2013 b (98)	To explore how and why people with MM prioritise some long-term conditions over others, what the potential implications may be for self-management activity, and, in turn, suggest how such information may help clinicians negotiate the management of MM patients	GP; UK	2a	≥ 2 chronic conditions Osteoarthritis	41	68; 39-83	44
Clover, 2004 (51)	To report on a study exploring patients' understanding of their discussions about end-of-life care with nurses in a palliative care setting	Hospital (outpatient); Australia	I (f2f)	Terminal illness	11	74; 57-85	36
DiNapoli, 2016 (106)	To explore middle-aged and older veterans' current disease-management practices, mental health treatment preferences, and challenges they face in living with MM	GP; USA	ssl (f2f)	≥2 score (cumulative Illness Rating Scale for Geriatrics)	28	64 (6)	21
Ekdahl, 2010 (128)	To deepen the knowledge of frail elderly patients' preferences for participation in medical decision-making during hospitalisation	Hospital (inpatient); Sweden	ssl (f2f)	≥ 3 chronic conditions	15	84; 75-96	67
Etkind, 2017 (170)	To understand patient experiences of uncertainty in advanced illness and develop a typology of patients' responses and preferences to inform practice	Hospital (outpatient); UK	2a	Seriously ill patients CHF, COPD, CKD, liver disease or cancer	30	75; 43-95	40

Fix, 2014 (92)	To understand barriers to hypertension self-management in patients with hypertension and comorbidities	GP; USA	ssl (f2f)	Hypertension + ≥ 1 comorbidity	48	60 (10)	10
Fried, 2003 (151)	To elicit from patients themselves the aspects of treatment decision-making that are most important to them when making end-of-life treatment decisions	Hospital (outpatient); USA	FG & ssl (f2f)	Seriously ill patients CHF, COPD, CKD or cancer	23	70; 60-84	35
Fried, 2008 (53)	To examine the ways in which older persons with MM think about potentially competing outcomes in order to gain insight into how processes to elicit values regarding these outcomes can be grounded in the patient's perspective	Community; USA	FG	≥ 5 medications	66	75 (6)	67
Green, 2015 (115)	To examine older adults' attitudes towards ICD implantation in the context of competing health risks and to explore the determinants of ICD decision-making among a group of patients who had faced the decision in the past	Hospital (outpatient); USA	ssl (tel.)	ICD + comorbidities + Geriatric syndromes mean (SD): 6.9 (2.7).	44	78 (5)	29
Gross, 2015 (161)	To understand how older persons with MM approach decisions about cancer screening	Hospital (outpatient), USA	ssl (f2f)	≥ 2 chronic conditions + ≥ 5 medications	28	65-75: 57% 76-85: 4% >86: 21% Unknown: 18%	82
Hansen, 2015 (99)	To identify reasons for disagreement between patients and their GPs on illnesses	GP; Germany	FG	≥ 3 chronic conditions	21	77; 70-88	48
Haverhals, 2011 (100)	To understand the medication self-management issues faced by older adults and caregivers that can be addressed by an electronic personal health application	Hospital (outpatient) & Nursing homes; USA	FG & ssl (f2f)	≥ 2 chronic condition + ≥ 3 medications	32	82; 73-90	60
Huang, 2005 (55)	To explore self-reported healthcare goals, factors influencing these goals, and self-care practices of older patients with diabetes mellitus	GP; USA	ssl (f2f)	T2 diabetes + hypertension or hypercholesterolemia	28	74; 65-88	57

Jones, 2015 (56)	To assess barriers and facilitators to the use of a patient decision aid designed for serious illness	Hospital (outpatient); USA	FG	Seriously ill patients	12	66; 28-96	66
Kuluski, 2013 (159)	To compare goals across each patient, caregiver and physician triad to determine alignment	GP; Canada	ssl (f2f)	≥ 2 chronic conditions	27	82 (8)	44
Lim, 2017 (146)	To identify what patients with MM describe as most important to their well-being and health	GP; USA	ssl (f2f)	Type 1 or 2 diabetes + ≥ 2 chronic conditions	31	69	45
Lindsay, 2009 (86)	To examine how patients self-manage MM and especially how they prioritise their conditions	GP; UK	FG	Mean conditions: 3.3 (2–8)	53	63	45
Linsky, 2015 (40)	To identify patient perspectives on intentional medication discontinuation in order to optimise medication use	GP; USA	FG & ssl (f2f)	≥ 5 medications	27	66	19
Lyle, 2017 (123)	To explore older people's experiences of living with neurogenic claudication, their preferences for physiotherapy treatment provision and associated outcomes in order to inform an intervention to be tested in a clinical trial	Hospital (outpatient); UK	ssl (f2f)	Lumbar spinal stenosis + comorbidities	15	75; 69-80	40
Manias, 2007 (101)	To investigate perceptions of and experiences with managing drug regimens from the perspectives of patients with osteoarthritis and coexisting chronic conditions and of healthcare professionals from diverse backgrounds	Hospital outpatient & consumer organisation; Australia	FG	Osteoarthritis + comorbidities	34	male: 75 (4) female: 67 (9)	79
McKillop, 2013 (42)	To explore attitudes towards medicines, polypharmacy and adherence in patients with CKD	Hospital (outpatient); UK	ssl (f2f)	CKD	10	60; 29-82	50
McPherson, 2014 (171)	To explore and describe patients' and caregivers' perspectives and roles concerning pain management at home	Community; Canada	ssl (f2f)	Advanced cancer receiving palliative care at home	18	78 (9)	56
Moen, 2009 (102)	To conduct an exploratory study describing multiple medicine use from the elderly patient's perspective	Population based; Sweden	FG	≥ 5 medications	59	76; 67-88	51
Morrow, 2004 (135)	To describe patient-centred instructions for taking CHF medications that were developed as part of a multifaceted pharmacy-based intervention to improve	GP; USA	FG	CHF	16	64	69

	medication adherence and health-related outcomes among older adults with CHF						
Morrow, 2008 (44)	To investigate the life and health goals of older adults with diabetes, and to explore the factors that influence their diabetes self-management	GP; USA	ssl (f2f)	Diabetes + hypertension + comorbidities	24	69	38
Naganathan, 2016 (140)	To understand how patients, informal caregivers and family physicians perceive the value of various formal and informal supports for older adults with MM	GP; Canada	ssl (f2f)	≥ 2 chronic conditions	27	82 (8)	43
Naik, 2016 (147)	To identify a taxonomy of health-related values that frame goals of care of older, MM adults who recently faced cancer diagnosis and treatment	Hospital (outpatient); USA	I (n.a.)	Colorectal, head and neck, gastric, or oesophageal cancers Deyo comorbidity index 6.85	146	65	2
Noël, 2005 (45)*	To explore collaborative care needs and preferences in primary care patients with MM	GP; USA	FG	≥ 2 chronic conditions	60	30-80	20
O'Dell, 2008 (124)	To increase understanding of the views of frail elderly women in residential care related to quality of life, values, and preferences for pelvic floor care	Hospital (outpatient); USA	ssl (f2f)	"Assisted living or long-term care"	25	Assisted living participants: 87; 73-96; Long term care: 81; 65-89	100
Pages-Puigdemont, 2016 (103)	To explore factors that impact on drug compliance and to identify strategies to improve it from the perspective of patients with at least one chronic condition	Hospital (outpatient); Spain	FG	≥ 1 chronic condition Mean comorbidities: 2.3 (1.7)	36	65; 39-90	53
Parks, 2014 (117)	To explore sociocultural factors that might influence African American and Hispanic patients' decisions regarding joint replacement	Hospital (outpatient); USA	ssl (f2f)	Osteoarthritis + comorbidities	36	68 (10)	80
Piamjariyakul, 2014 (172)	To explore end-of-life preferences and determine the presence of signed end-of-life advanced directives	Community; USA	I (f2f)	Cardiovascular disease (severe) + comorbidities	30	70	67

Proctor, 2008 (93)	To examine older adults' perceptions of depression among co-occurring social, medical, and functional problems and to compare the priority of depression with that of other problems	Community; USA	ssl (f2f)	Depression + comorbidities (86%)	40	74 (6)	90
Richardson, 2016 (89)	To identify and elaborate a range of factors that influence how and why patients with comorbid chronic conditions prioritise their conditions	GP & Hospital (outpatient); USA	ssl (f2f)	Comorbidities mean (range): 6 (3-11)	33	61-70: 67%	6
Rifkin, 2010 (47)	To find out how patients prioritise their medical conditions or decide which medications to take	Hospital (outpatient); USA	ssl (f2f)	CKD (stages 3-5D)	20	72; 55-84	60
Ruggiano, 2017 (173)	To expand current knowledge in the area of chronic health self-management, this study examined perceptions of transportation and health self-management among older adults with chronic conditions (i.e., chronic illnesses and disabilities)	Community; USA	ssl (f2f)	≥2 chronic conditions (82%)	37	77; 60-97	68
Schellinger, 2018 (149)	To examine whole-person goals of patients with serious illness identified during their last 2 to 3 years of life	Community; USA	l (f2f)	CHF, cancer and dementia comorbidity score (SD): 5 (1.5)	160	79 (11)	48
Schoenberg, 2009 (91)	Focusing on elders with two or more chronic conditions and low socioeconomic status, to investigate which morbidities older adults prioritise, why, and how they accommodate these conditions.	Community; USA	ssl (f2f)	≥2 chronic conditions	41	70; 55-90	85
Schoenborn, 2015 (142)	To characterise current practice and opportunities for improvement in the care of older adults with MM in an internal medicine residency clinic	Hospital (inpatient); USA	l (f2f)	≥2 chronic conditions	30	74 (7)	73
Seah, 2015 (113)	To gain insight into the decision-making process leading to opting out of dialysis and experience with conservative non-dialytic management from the patients' perspective	Hospital (outpatient); Singapore	ssl (f2f)	CKD (end-stage)	9	Median: 81; 61-84	44
Song, 2013 (48)	To address patient perspectives on the extent of information provided and how decisions to start dialysis are made	Hospital (outpatient); USA	ssl (tel.)	CKD (dialysis) + CCI ≥ 5-6	99	61 (12); 28-89	53

Stapleton, 2005 (72)	To understand how the association between preferences for life-sustaining treatment and depression or quality of life is important in providing care	Hospital (outpatient); USA	I (f2f)	COPD (Oxygen-prescribed)	101	67; 59-74	23
Strachan, 2011 (174)	To examine patients' perspectives on related end-of-life issues	Hospital (outpatient); Canada	I (f2f)	ICD + comorbidities	30	63; 26-87	20
Tariman, 2014 (49)	To examine patient perspectives with regard to the personal and contextual factors relevant to treatment decision-making	Hospital (outpatient); USA	ssl (f2f)	Multiple Myeloma	20	65 (8)	60
Visser, 2009 (114)	To explore the considerations taken into account by patients making decisions concerning renal replacement therapy	Hospital (outpatient); The Netherlands	I (f2f)	CKD + comorbidities	14	77 (7)	43
Walker, 2012 (175)	To explore the experiences of patients attempting to integrate lifestyle changes into their lives	Hospital (outpatient); UK	ssl (f2f)	CKD (Stage 4)	9	76	56
Weir, 2017 (133)	To explore decision-making about polypharmacy among older adults and their companions	Hospital (outpatient); Australia	ssl (f2f)	CCI 1-5+: 80%	30	83; 75-85+	63
Zulman, 2015 (105)*	To understand self-management and health care navigation challenges that patients face due to MM and to identify opportunities to support these patients through new and enhanced eHealth technology	GP; USA	FG	≥ 3 chronic conditions	53	59 (11)	26

Table S3b. Key characteristics – Qualitative longitudinal studies

Source	Study methods			Patient population			
	Study aim	Setting, country	Data collection	Def of MM	Sample (number)	Age: Mean (SD) or range	Sex (% females)
Baxter, 2012 (29)*	To increase understanding of disabled and chronically ill people's experiences of revisiting choices by considering events that prompted people to reconsider them	Hospital (outpatient) & Community; UK	I (f2f)	Chronic conditions + disabled	20	65+: 35%	75

Klindtworth, 2015 (62)	To understand how old and very old patients with advanced CHF perceive their disease and to identify their medical, psychosocial and information needs, focusing on the last stages of life	Hospital (inpatient & outpatient); Germany	I (f2f)	CHF (severe)	25	85;71-98	56
Morris, 2011 (30)*	To examine what influences self-management priorities in individuals with multiple long-term conditions and how these change over time	GP; UK	ssl (f2f, tel.)	≥ 3 chronic conditions	21	50; 36-84	48
Pardon, 2009 (46)	To identify preferences of advanced lung cancer patients to receive information and participate in decision-making concerning treatment options, health-care-setting transfers and end-of-life decision-making	Hospital (outpatient); Belgium	ssl (f2f)	Advanced lung cancer	128	64; 41-86	20

Table S3c. Key characteristics – Quantitative cross-sectional studies (observational)

Source	Study methods			Patient population			
	Study aim	Setting, country	Data collection	Def of MM	Sample (number)	Age: Mean (SD) or range	Sex (% females)
Ainslie, 1994 (37)**	To examine hypotheses that elderly persons refusing minimally described treatment might choose nonaggressive treatment if options were described, and that persons refusing treatment would want an active decision-making role	Community; USA	S	≥2 chronic conditions	116	[older patients]	75
Buttery, 2014 (145)	To investigate older CHF patients' preferences from hospital, community and home-based service models, and sociodemographic and clinical factors associated with these preferences	Hospital (inpatient); UK	S	CHF (moderate-severe)	106	78 (7)	38
Chanouzas, 2012 (110)	To examine how patient choice of different treatment modalities [haemodialysis, peritoneal dialysis and conservative management] is influenced by personal and demographic parameters	Hospital (outpatient); UK	S	CKD (pre-dialysis)	118	67 (14)	48
Chi, 2017 (126)	To explore preferences for health care decision making among older adults, and identify MM profiles associated	Population based; USA	S	≥ 2 chronic conditions	2,017	65-74: 55% 75-84: 34% ≥85: 12%	57

	with preferring less active, i.e., passive, participation among older US adults						
Chiu, 2016 (50)	To determine the Decision Control Preferences (DCP) of diverse, older adults and whether DCPs are associated with participant characteristics, advance care planning, and communication satisfaction	Hospital (outpatient); USA	S	≥ 2 chronic conditions	146	71 (10)	41
Collins, 2004 (127)	To determine whether psychological variables, particularly depression, influence patients' willingness to share medical decisions with family members or friends	Hospital (outpatient); USA	lc (f2f)	Seriously ill patients CCI ≥ 5	95	70; 44-85	2
Davison, 2010 (176)	To evaluate end-of-life care preferences of CKD patients to help identify gaps between current end-of-life care practice and patients' preferences and to help prioritise and guide future innovation in end of-life care policy	Hospital (outpatient); Canada	S	CKD (stage 4 and 5)	584	68 (14)	46
De Vries, 2015 (109)	To assess whether patients' willingness to add a blood pressure-lowering drug and the importance they attach to specific treatment characteristics differ among age groups in patients with type 2 diabetes	Community; The Netherlands	S	Diabetes + Hypertension	151	68 (9)	42
Downey, 2013 (79)	To investigate patient preferences for life-sustaining therapies, clinicians' accuracy in understanding those preferences, and predictors of patient preference and clinician error	GP; USA	S	COPD	196	69 (10); 39-91	0
Ehman, 2017 (138)	To test if multimorbidity patients may value continuity more highly than healthy patients, and thus may prefer to wait to see their primary care physician (PCP)	GP; USA	S	MM Tier score: 3 or 4	193	62 (65+; 119)	58
Ekdahl, 2011 (129)	To investigate the preferred and the actual degree of control, i.e. the role elderly people with co-morbidities wish to assume and actually had with regard to information and participation in medical decision making during their last stay in hospital	Hospital (inpatient); Sweden	S	≥ 3 chronic conditions	156	83; 76-98	51
Elie, 2018 (177)	To compare SPMI and CMI patients' end-of-life care preferences and comfort level with end-of-life care discussions, and identify potential predictors of interest in medical assistance in dying	Hospital (outpatient); Canada	S	SPMI and CMI	SPMI; 106; CMI 95	SPMI 66 (13); CMI 63 (13)	SPMI: 63; CMI: 60

Flynn, 2007 (178)	To explore relationships between five factors of personality and four preference types that account for multiple components of the health care decision-making process (information exchange, deliberation, and selection of treatment choice)	Population based; USA	S	Mean OARS conditions: 3.8 (2.5); Mean medications: 2.8 (2.5)	5,830	64 (1)	54
Fox, 2018 (122)	To explore older hospitalised patients' perceived acceptability of, and preference for, two low-intensity early activity interventions (bed-to-sitting and sitting-to-walking), and characteristics associated with perceived acceptability and preference	Hospital (inpatient); Canada	S	≥2 chronic conditions	60	79 (8)	53
Fried, 1994 (179)	To characterise the limitation of care in routine geriatric practice in advance of and at the time of a patient's final episode of illness.	GP; USA	Chart	Seriously ill patients CHF, COPD, CKD or cancer	59	84 (8)	85
Fried, 2002a (180)	To examine the effects of the burden of treatment and a variety of possible outcomes on the preferences for care expressed by older patients with serious illnesses	Hospital (inpatient & outpatient); USA	lc (f2f)	Seriously ill patients CHF, COPD, CKD or cancer	226	73 (7)	43
Fried, 2002b (81)	To develop a patient-centred measure of treatment preference applicable across a range of diseases and treatment decisions	Hospital (inpatient & outpatient); USA	Survey	Seriously ill patients CHF, COPD, CKD or cancer	125	73 (7)	43
Fried, 2011a (181)**	To explore the use of a simple tool to elicit older persons' health outcome priorities	GP; USA	lc (f2f)	≥ 4 chronic conditions (69%) + ≥ 4 medications (49%)	357	[older patients]	75
Fried, 2011b (153)	To develop and test a simple tool to elicit the preferences of older persons based on prioritisation of universal health outcomes	Community housing; USA	lc (f2f)	Hypertension + fall risk Mean chronic conditions (SD): 2.9 (1.1)	81	65-74: 16% 75-84: 54% 85+: 30%	69
Girones, 2012 (119)	To examine the relationships between preferences and chemotherapy use in this group of patients	Hospital (inpatient); Spain	S	Lung cancer + comorbidities (84%).	83	77; 70-91	24

Green, 2016 (116)	To explore patients' perceptions of their decision-making experiences related to ICDs	Hospital (outpatient); USA	S	ICD + comorbidities (71%)	295	65-74: 25% 75-84: 23% 85+: 3%	22
Gum, 2010 (139)	To examine use of behavioural health services, treatment preferences, and facilitators and barriers to service use in older adults receiving home-based services within the aging network	Aging network agencies; USA	S	≥ 2 chronic conditions No medication group: 4.4 (2.1); Medication group: 5.7 (2.8)	142	75 (8)	80
Hamelinck, 2016 (120)	To examine patients' preferences for adjuvant chemotherapy and adjuvant hormonal therapy, factors related to minimally required benefit, and patients' self-reported motivations	Hospital (outpatient); The Netherlands	S	Advanced cancer + comorbidities	81	Median: 61; 42-86	100
Hopper, 2016 (54)	Use questionnaires to examine the attitudes of patients and prescribing clinicians to medication withdrawal	Hospital (inpatient & outpatient); Australia	S	CHF + ≥ 5 medications	85	61 (12)	27
Janssen, 2011 (182)	To assess life-sustaining treatment preferences, advance care planning, and the quality of end-of-life care communication in Dutch outpatients with clinically stable but severe COPD or CHF	Hospital (outpatient); The Netherlands	S	COPD or CHF (severe)	185	COPD 66 (9); CHF: 76 (8)	COPD: 38; CHF: 32
Janssen, 2013 (183)	To understand the preferences for life-sustaining treatments of outpatients on dialysis and to study the quality of patient-physician communication about end-of-life care and barriers and facilitators to this communication	Hospital (outpatient); The Netherlands	S	CKD (Dialysis)	80	62 (16)	40
Janssen, 2015 (154)	To rate the relative importance of different outcomes for haemodialysis patients and to analyse whether the relative importance differed among subgroups of patients	Hospital (outpatient); Germany	S	CKD (Dialysis)	4,518	67 (14)	42
Jorgensen, 2013 (57)	To identify potential barriers to adjuvant chemotherapy, use in older patients by examining the associations between patient age, factors influencing chemotherapy	Hospital (outpatient); Australia	S	Colon cancer + ≥1 chronic condition	35	74 (5)	47

	treatment decisions, and preferences for information and decision-making involvement						
Junius-Walker, 2011 (84)	To disclose patients' and doctors' perspectives on individual health and treatment priorities	GP; Germany	Ic (f2f)	Mean health problems (SD): 11.9 (5.4)	123	78 (5)	67
Junius-Walker, 2015 (184)	To examine older patients' perceived burden of their health problems	GP; Germany	S	Median of health problems (IQR): 11 (8–15)	836	79 (4)	61
Karel, 2015 (155)	To examine the individual variability, thematic content, and sociodemographic correlates of valued life abilities and activities among MM veterans diagnosed with life-altering cancer	Hospital (outpatient); USA	Ic (f2f)	Head and neck, oesophageal, gastric, or colorectal cancer; CCI 6.85 (4.41)	144	0–70: 51% >70: 23%	2
Kerr, 2007 (85)	To understand how the number, type, and severity of comorbidities influence diabetes patients' self-management and treatment priorities	Community; USA	S	Diabetes + comorbidities	1,191	<65: 30% 65–74: 40% >74: 30%	53
Krucien, 2015 (31)*	To identify the preferences of patients with MM for recommendations of the Chronic Care Model	GP; France	S	≥ 1 chronic condition + obstructive sleep apnoea syndrome	150	61–69: 42% ≥ 70: 23%	29
Krumholz, 1998 (32)*	To describe the resuscitation preferences of patients hospitalised with an exacerbation of severe CHF, perceptions of those preferences by their physicians, and the stability of the preferences	Hospital (inpatient); USA	Ic (f2f)	CHF (severe)	936	65–74: 28% > 75: 26%	48
Lee, 2006 (185)	To compare attitudes towards making end-of-life decisions in non-demented and mildly demented Chinese subjects	Nursing home; China	S	Dementia / no dementia + comorbidities	56	82 (6)	95
Li, 2016 (63)	To understand treatment preferences of Parkinson patients with regard to end-of-life care	Hospital (outpatient); Singapore	S	≥ 2 chronic conditions Parkinson 54%	136	63	38
Linsky, 2017 (41)	To develop a survey instrument that assesses patients' experience with and attitudes toward deprescribing	GP; USA	S	≥ 5 medications	790	66–75: 43% ≥ 76: 19%	15

Maida, 2010 (186)	To evaluate the correlations that exist between preferences for pursuing active and aggressive medical interventions	Hospital (outpatient); Canada	S	Advanced cancer	380	73; 19-99	56
McDonald, 2011 (87)	To assess patients' and physicians' perceived importance of clinical problems and to describe the level of concordance between patients and physicians in relation to these problems	Hospital (outpatient); Australia	Ic (f2f)	COPD & asthma	52	70 (8); 55-87	60
Milic, 2016 (43)	To (quantify tablet burden in women with metastatic breast cancer, establish which groups of drugs contribute most to this burden and gain insight into patients' attitudes towards oral anti-cancer treatment	Hospital (inpatient & outpatient); UK	S	Metastatic breast cancer with polypharmacy	100	60; 31-95	100
Moise, 2017 (130)	To assess whether elevated depressive symptoms are associated with decision-making preference in patients with comorbid chronic illness	GP; USA	S	Hypertension + depression. CCI: 3.2 (2.4)	195	64 (9)	72
Morton, 2012 a (112)	To quantify pre-dialysis patients' and pre-dialysis caregivers' preferences for treatment-related attributes of kidney dialysis and the trade-offs they were willing to accept in making a choice between the different dialysis modalities	Hospital (outpatient); Australia	S	CKD (end stage)	105	Median: 63; 55-71	44
Morton, 2012 b (111)	To determine the most important characteristics of dialysis and the trade-offs patients were willing to make in choosing dialysis instead of conservative care	Hospital (outpatient); Australia	S	CKD (end stage)	105	Median: 63; 55-71	44
Moss, 2001 (65)	To examine the attitudes of dialysis patients toward CPR in the dialysis unit	Hospital (outpatient); USA	Ic (f2f)	CKD	469	61 (16)	54
Naik, 2011 (131)	To evaluate the effect of functional health literacy on decision-making preferences; and among those initially preferring a passive decision-making role, to explore how preferences change if their physician actively encourages their involvement	Hospital (outpatient); USA	S	Cardiovascular disease Comorbidities: active style 5.98 (1.67); passive style 5.0 (2.1)	100	71 (6) active decision-making; 75 (6) passive decision-making	100
Obrien, 1995 (66)	To determine life-sustaining treatment preferences among nursing home residents, whether information	Nursing home; USA	Ic (f2f)	> 5 chronic conditions (60%)	421	< 70: 11% 70-79: 25%	80

	regarding CPR affected these preferences, and with whom treatment preferences had been discussed, and to identify factors associated with CPR preferences					80-89: 45% 90-103: 19%	
Pandhi, 2008 (141)	To determine if patients vary in perceptions of safety if interpersonal continuity is disrupted. If so, which characteristics are associated with feeling unsafe?	Community; USA,	S	Chronic conditions + polypharmacy >80%	6,827	64; 63-66	54
Perret-Guillaume, 2011 (132)	To investigate elderly patients' willingness to accept antihypertensive therapy and their desire for information and for participation in medical decisions	Hospital (inpatient); Switzerland	S	Hypertension + comorbidities	120	84 (7)	80
Rahemi, 2018 (69)	To investigate the influence of sociodemographic factors, acculturation, ethnicity, health status, and spirituality on older adults' health-related decisions when confronted with a choice between competing options	Population based; USA	S	Seriously ill patients	451	75 (8)	32
Reinke, 2011 (70)	To assess whether a history of depression or active depressive symptoms is associated with preferences for life-sustaining therapies among veterans with COPD	Hospital (outpatient); USA	S	COPD & depression	376	70 (10)	3
Robben, 2011 (148)	To know what a particular patient values most and what his or her care-related goals are	Community; The Netherlands	Chart	Frail	336	81; 61-99	70
Rodriguez, 2008 (187)	To assess patients' preferred role and perceived level of involvement in medical decision making and test the effects of patients' age and role preference on perceived involvement in medical decision making	GP & Hospital (outpatient); USA	S (tel.)	CHF (advanced)	90	70; 42-88	6
Sharma, 2016 (71)	To determine knowledge of the CPR process, preference for CPR, and desire to participate in end-of-life decision making amongst older hospitalised patients	Hospital (inpatient); New Zealand	S	≥ 2 chronic conditions CCI 5 (4-10)	100	82; 65-98	50
Sudore, 2010 (188)	To examine the prevalence of uncertainty concerning advance decisions about life sustaining treatment among chronically ill, racially=ethnically diverse older adults with varying levels of health literacy; and to assess the associations between literacy and race=ethnicity with decisional uncertainty, hypothesising that low literacy and minority status would each be independently associated with uncertainty	Hospital (outpatient); USA	1c (f2f)	≥ 2 chronic conditions	205	61 (8)	53

Tamura, 2010 (189)	To explore preferences for withdrawal and engagement in advance care planning also in terms of age, race and ethnicity	Hospital (outpatient); USA	S	CKD (end stage)	61	62 (15)	26
Tang, 2015 (73)	To explore heterogeneity and changes in patterns of life sustaining treatment preferences among 2 independent cohorts of terminally ill patients with cancer recruited a decade apart	Hospital (outpatient); Taiwan	S	Advanced cancer	4,353	65-74: 50% 75-85: 20% > 85: 13%	44
Tinetti, 2008 (156)	To determine the priority that older adults with coexisting hypertension and fall risk give to optimising cardiovascular outcomes versus fall- and medication symptom- related outcomes	Nursing home; USA	S	Hypertension + fall risk (frail patients)	123	82 (6)	71
Toto, 2015 (160)	To evaluate the feasibility of generating patient-centred goals using goal attainment scale with older adults who have MM and were recruited through primary care	GP; USA	S	≥ 2 chronic conditions (Geriatric and / or Psychiatry)	27	77 (6)	70
Uhlmann, 1991 (75)	To investigate whether perceived quality of life is associated with preferences for life-sustaining treatment in older adults	Hospital (outpatient); USA	S	Seriously ill patients	258	74	54
Utens, 2013 (143)	To investigate patient preference for treatment place, associated factors and patient satisfaction with a community-based hospital-at-home scheme for COPD exacerbations	Hospital & home care organisations; Netherlands	S	COPD + acute exacerbation CCI > 1: Usual hospital care 27 (39%); Early assisted discharge 32 (46%)	139	68 (11)	62
van Summeren, 2017 (158)	To determine proposed and observed medication changes when using an outcome prioritisation tool during a medication review in general practice	GP; The Netherlands	S	≥ 2 chronic conditions (one cardiovascular disease) + ≥ 5 medications	59	Median: 83; 81-86	51
Wieldraaijer, 2018 (144)	To assess what caregivers patients prefer to contact when faced with symptoms during survivorship care, what patient factors are associated with a preferred	Hospital (outpatient); Netherlands	S	Colorectal cancer + comorbidities	260	67; 32-94	46

	caregiver, and whether the type of symptom is associated with a preferred caregiver						
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Table S3d. Key characteristics – Quantitative longitudinal studies (observational)

Source	Study methods			Patient population			
	Study aim	Setting, country	Data collection	Def of MM	Sample (number)	Age: Mean (SD) or range	Sex (% females)
Brunner-LaRocca, 2012 (28)	To investigate end-of-life and CPR preferences in elderly CHF patients. In addition, predictive factors for willingness to trade survival time for better quality of life, and for wanting resuscitation if necessary, were evaluated	Hospital (outpatient); Switzerland	S	CHF (severe)	622	77 (8)	41
Casarett, 2006 (77)	To determine whether patient preferences are a barrier to hospice enrolment	Hospital (inpatient & outpatient); USA	lc (f2f)	Seriously ill patients CHF, COPD, CKD or cancer	203	73; 60-93	43
Case, 2013 (150)	To assess older adults' attitudes toward eliciting health outcome priorities	Nursing home; USA	S	≥ 4 chronic conditions (69%), ≥ 1 IADLs (26%) + depression (28%)	356	76 (7)	75
Cosgriff, 2007 (78)	To determine the association of preferences with end-of-life care	Hospital (outpatient); USA	lc (f2f)	Seriously ill patients CHF, COPD, CKD or cancer	118	73 (7)	42
Dunlay, 2014 (80)	To evaluate the resuscitation preferences of patients at study enrolment, to describe changes in resuscitation preferences over time, and to assess how resuscitation preferences relate to survival	Hospital (outpatient); USA	S	CHF (severe)	608	74	45
Efficace, 2014 (52)	To assess preferences for involvement in treatment decisions and requests for prognostic information in newly diagnosed higher-risk MDS patients	Hospital (outpatient); Italy	S	MDS with IPSS risk score of intermediate or high risk	280	70; 32-89	37

Fried, 2006 (162)	To examine changes over time in end-of-life treatment preferences, measured in terms of willingness to undergo treatment based on the health state that would result from the treatment, in a cohort of older persons with advanced chronic illness	Hospital (inpatient & outpatient); USA	lc (f2f)	Seriously ill patients CHF, COPD, CKD or cancer	226	73 (7)	53
Fried, 2007 a (59)	To determine whether preferences for future life-sustaining treatments change over time in a consistent and predictable manner	Community; USA	lc (f2f)	Seriously ill patients CHF, COPD, CKD or cancer	189	73 (7)	45
Fried, 2007 b (58)	To examine changes in treatment preferences over time	GP; USA	S	Seriously ill patients CHF, COPD, CKD or cancer	226	73 (7)	43
Hamel, 1999 (60)	To determine the effect of age on decisions to withhold life-sustaining therapies	Hospital (inpatient); USA	lc (f2f)	Seriously ill patients	9,105	Median: 63	44
Hamel, 2000 (36)*,**	To review previously published findings about how patient age influenced patterns of care for seriously ill patients	Hospital (inpatient); USA	lc (f2f)	Seriously ill patients	9,105	[older patients]	nr
Janssen, 2012 (61)	To investigate 1-year stability of preferences regarding CPR and mechanical ventilation in outpatients with advanced COPD, CHF, or CKD and to identify predictors of changes in preferences	Hospital (outpatient); The Netherlands	lc (f2f)	Advanced COPD, CHF or CKD	265	67 (13)	36
Lynn, 2000 (64)	To characterise COPD over patients' last 6 months of life	Hospital (inpatient); USA	lc (f2f)	COPD + ≥ 3 comorbidities	416	72	75
Ostermann, 2003 (67)	To ascertain the initial views of a haemodialysis cohort in the UK in terms of their CPR status in the event of an in-hospital cardiac arrest unrelated to dialysis	Hospital (outpatient); UK	lc (f2f)	CKD (Haemodialysis)	11	74 (10); 46-81	50
Parr, 2010 (68)	To understand age differences in advanced cancer patients' end-of-life experiences	Hospital (inpatient); USA	lc (f2f)	Advanced cancer CCI: 10.0 (2.7)	126	72 (6)	50

Rothman, 2007 (107)	To assess the frequency of, reasons for, factors associated with, and outcomes of treatment refusal among older persons with advanced chronic disease	Hospital (outpatient); UK	lc (f2f)	Advanced cancer, CHF or COPD	226	74 (7)	43
Suggs, 2017 (118)	To analyse factors associated with selection of the following treatment modalities (breast conservation surgery, mastectomy, and contralateral prophylactic mastectomy) in a rural West Virginia tertiary care hospital	Hospital (outpatient); USA	Chart	Breast Cancer (early stage) CCI mean (SD): BCS 2.2 (0.5); M 2.4 (0.7)	226	74 (7)	43
Tang, 2016 (33)*	To explore longitudinal changes in life sustaining treatment preferences and their associations with accurate prognostic awareness, physician-patient end-of-life care discussions, and depressive symptoms in terminally ill cancer patients' final year	Hospital (inpatient); Taiwan	lc (f2f)	Advanced cancer	302	>65: 32%	43
Teno, 2000 (74)	To evaluate decision-making and outcomes in seriously ill patients with an intensive care unit stay of at least 14 days	Community; USA	lc (f2f)	Seriously ill patients	1,264	BCS:62 (12) M: 61 (13)	100
Weeks, 1998 (76)	To test the hypothesis that among terminally ill cancer patients an accurate understanding of prognosis is associated with a preference for therapy that focuses on comfort over attempts at life extension	Hospital (inpatient); USA	lc (f2f)	Advanced cancer	917	62	38
Wright, 2010 (34)*	To examine whether patients' desire for life extending therapy was associated with their end-of-life care	Hospital (outpatient); USA	S	Advanced cancer	301	60-69: 28% > 70: 21%	47
Zafar, 2013 (35)*	To determine how patient's preferences guide the course of palliative chemotherapy for advanced colorectal cancer	Hospital (outpatient); USA	S	Metastatic colorectal cancer	702	65-74: 25% 75: 27%	38
Zulman, 2010 (90)	To understand patterns of patient-provider concordance in the prioritisation of health conditions in patients with MM	GP; USA	S	Diabetes + hypertension + comorbidities	1,169	65 (11)	nr

Table 3e. Key characteristics – Quantitative study (interventional)

Source	Patient population
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	Study aim	Setting, country	Intervention	Randomisation	Data collection	Def of MM	Sample (number)	Age: Mean (SD) or range	Sex (% females)
Junius-Walker, 2012 (83)	To investigate whether a structured priority-setting consultation reconciles the often-differing doctor-patient views on the importance of problems	GP; Germany	Structured priority-setting consultation	CRT (randomisation unit=GPs)	S	Mean health problems: 11.4	317*** (IG=174; CG=143)	78	67

Table S3f. Key characteristics – Mixed-methods studies

Source	Study aim	Setting, country	Data collection	Patient population			
				Def of MM	Sample (number)	Age: Mean (SD) or range	Sex (% females)
Adams, 2013 (190)	To investigate the ease with which patients of differing functional ability use three types of multi-compartment medication device and whether some types are easier to use than others	Hospital (inpatient); USA	S & I (f2f)	1 - 15 medications (median 5)	50	Median: 85; 77-98	76
Puts, 2017 (121)	To better understand the treatment decision process from all perspectives	Hospital (outpatient); Canada	S & I (f2f)	Advanced cancer	32	63–69: 9% 70–79: 56% 80+: 34%	31
van Summeren, 2016 (157)	To explore an outcome prioritisation tool in eliciting individuals' preferred health outcomes (remaining alive, maintaining independence, reducing pain, reducing other symptoms) in the context of medication review in family practice	GP; The Netherlands	S & I (f2f)	≥ 2 chronic conditions (one cardiovascular disease) + ≥ 5 medications	60	84 (4)	52

CCI=Charlson Comorbidity Index; CHF=Chronic Heart Failure; CKD=Chronic Kidney Disease; CMI=Chronic Medically Ill; COPD=Chronic Obstructive Pulmonary Disease; CPR=CardioPulmonary Resuscitation; CRT=Cluster Randomised Controlled Trial; f2f=face-to-face; FG=Focus Groups; GPs=General Practice; IADL=Instrumental Activity of Daily Living; ICD=Implantable Cardioverter Defibrillator; I=open-ended questions interview; Ic=closed-ended questions

interview; IPSS=International Prognostic Scoring System; IQR=Interquartile Range; MDS=Myelodysplastic Syndromes; MM=Multimorbidity; n=number; nr=not reported; OARS=Older Americans Resources and Services; S=Survey; SD=Standard Deviation; SPMI=Severe and Persistent Mental Illness; ssi=semi-structured interviews; ssi (tel.) = semi-structured interviews (telephone); UK=United Kingdom; USA=United States of America; 2a=Secondary analysis.

* The study included a larger sample based on different (younger) age groups. In the present evidence map, only data from patients of 60 years of age or older were considered. Studies are included if preferences of older patients are addressed separately in the study, even when they included younger populations.

**The study did not report descriptives of age but mentions the included population are “older patients”.

***Number of patients analysed.