Appendix 4 (as supplied by the authors)
Study characteristics (n = 25)

First author, Year (Country); Study period	**Patient characteristics** (patient criteria, sample size, mean age [SD]) **and Setting**	**Study design**	**Cochrane outcome category investigated:** study outcomes	**Disease cluster investigated**	**Intervention vs. Comparator** (if applicable)	**Intervention category(ies):** *elements*	**Follow-up**
Alexopoulos GS,[33] 2014 (USA) Study period Not reported	**Patient criteria:** i) Diagnosed with COPD, and met DSM-IV criteria for unipolar major depression; ii) Score ≥ 14 on HAM-D **Sample size:** 138 **Mean age (SD):** NR (NR) **Setting:** Acute inpatient pulmonary rehabilitation unit	RCT	**Health behaviour:** Compliance **Health behaviour:** Health enhancing lifestyle or behaviour **Treatment:** Adverse outcomes **Treatment:** Clinical assessment	COPD + Depression	Personalized Intervention for Depressed Patients with COPD (PID-C) vs. Usual care	**Coordination of care; Education:** *CM + ED (Pt) + FR*	28 weeks
Alexopoulos GS,[34] **2016** Study period Not reported	**Patient criteria:** i) Diagnosed with COPD, and met DSM-IV criteria for unipolar major depression; ii) Score ≥ 20 on HAM-D **Sample size:** 101 **Mean age (SD):** NR (NR) **Setting:** Acute inpatient pulmonary rehabilitation unit; community	RCT	**Treatment:** Adverse outcomes **Treatment:** Clinical assessment	COPD + Depression	Personalized Intervention for Depressed Patients with COPD (PID-C) vs. Problem Solving-Adherence (PSA)	**Coordination of care; Education:** *CM + ED (Pt) + FR* **Coordination of care; Education; Self-Management:** *CM + ED (Pt) + FR + SM*	26 weeks
Becker A,[35] 2011 (Germany) Study period Not reported	**Patient criteria:** coronary heart disease (CHD), diabetes, or both **Sample size:** 79 **Mean age (SD):** 64.5 (12.1) **Setting:** Five general practitioners in rural areas around Marburg, Germany	Mixed-methods (pre-/-post + qualitative)	**Evaluation of care:** Perceptions and ratings of care or interventions **Health behavior:** Attitudes **Skills acquisition:** Self-care skills	CVD + Diabetes	Computer-based Counseling system (CBCS)	**Information and health technology**; **Education; Self-management:** *ED (Pt) + SM*	6 weeks
Begrambekova YL,[36] 2015 (Russian Federation) Study period: Not reported	**Patient criteria:** Patients with CHF and depression **Sample size:** 253 **Mean age (SD):** 65 (10.2) **Setting:** Inpatient	RCT	**Treatment:** Adverse outcomes *(Mortality)* **Treatment:** Adverse outcomes *(Composite of all-cause mortality and hospitalization)*	CHF + Depression	Disease Management Program (DMP) vs. Control	**Coordination of care; Education; Self-management:** *DM + ED (Pt) + SM*	52 weeks
Bernocchi P, [38] **2018** Study period: July 2013 – April 2015	**Patient criteria:** i) Diagnosed with CHF and COPD, ii)Living at home, iii) Cognitively intact (Mini Mental Test Examination 16 or greater), iv) no physical activity limitations, v) expected to live 6 months or more	RCT	**Treatment:** Clinical Assessments **Health Service Delivery:** Service utilization **Health Status and Wellbeing:** Physical health of patient **Skills acquisition:** Self-care skills	COPD + Depression	Integrated telerehabilitation home-based program (Telereab-HBP) vs. Standard Care	**Coordination of Care; Information and communication technology (ICT); Education;** DM + ED (Pt) + TH + TM	6 months

Appendix to: Kastner M, Cardoso R, Lai Y, et al. Effectiveness of interventions for managing multiple high-burden chronic diseases in older adults: a systematic review and meta-analysis. *CMAJ* 2018. doi: 10.1503/cmaj.171391

	Sample size: 112 **Mean age (SD):** 70 (9) **Setting:** Community setting; hospital						
Bowles KH,[39] 2009 (USA) Study period Not reported	**Patient criteria:** i) Diagnosed with heart failure or diabetes as one of two main diagnoses, and receiving home care; ii) Age ≥ 55 years; iii) Cognitively intact; iv) Can see and hear well enough to use equipment; v) English speaking, and has conventional (fixed) telephone. **Sample size:** 303 **Mean age (SD):** 75 (NR) **Setting:** Four home care agencies in Pennsylvania ranging in size from 5000 to 16000 patients/year, most being rural	RCT	**Health status and well being:** Physical health of patient or caregiver **Health service delivery:** Service utilization **Knowledge and understanding:** Patient knowledge acquisition **Treatment:** Clinical assessment	CHF + Diabetes	Telephone (in-person visits + telephone) vs. TM (in-person visits + TM) vs. Control (in-person visits only)	**Information and health technology; Education**: *DM + ED (Pr) + TM*	60 and 90 days
Brodaty H,[40] 2003 (Australia) Study period Not reported	**Patient criteria:** i) Residing in nursing home for at least one month; ii) Significant cognitive impairment (AMTS score ≤ 7); iii) At least three depressive symptoms on the EBAS-DEP or defined psychotic symptoms on the BEHAVE-AD; iv) Reach predetermined cutoff criteria (Table 1) on at least two depression scales or two psychosis scales. **Sample size:** 86 **Mean age (SD):** 82.9 (8.89) **Setting:** 11 nursing homes in Sydney, Australia	RCT	**Treatment:** Clinical assessment	Dementia + Depression	Psychogeriatric Case Management vs. Consultative general practice vs. Control	**Coordination of care; Education:** *CM + CP + ED (Pr) + TEAM*	12 weeks
Doyle C,[41] **2017** Study period Jan 2012 – Dec 2014	**Patient criteria:** i) COPD, ii) 45 years or older, iii) scored 8 or more on the HADS or 10 or more on the PHQ-9, iv) could hear over the phone **Sample size:** 110 **Mean age (SD):** 68.5 (9.4) **Setting:** telephone	RCT	**Treatment:** Clinical assessments **Health Status and well being**: Physical Health of Patient **Skills acquisition:** Self-care skills	COPD + depression or anxiety	Telephone-administered CBT Vs. Telephone-administered Befriending	**Cognitive-behavioural:** DM (psychosocial) + SM + TH	8 weeks
Kiosses DN[43] 2015 (USA) Study period Not reported	**Patient criteria:** Major depression and mild or moderate dementia **Sample size:** 39 **Mean age (SD):** 82.5 (7.16) **Setting:** Community agencies of the Weill	RCT	**Treatment:** Clinical assessments	Depression + Dementia	Problem Adaptation Therapy (PATH) vs. Supportive Therapy for Cognitively Impaired Older Adults (ST-CI)	**Cognitive-behavioural:** *DM (psychosocial) + SM*	12 weeks

	Cornell Institute of Geriatric Psychiatry at a University hospital in NY, USA.						
Lamers F,[44] 2010 (Netherlands) Study period 2 years	**Patient criteria:** i) Diagnosed with Type 2 diabetes mellitus or COPD; ii) Minor depression, mild-to-moderate major depression or dysthymia (according to MINI); iii) Self-reporting at least two symptoms, loss of interest or depressed mood, present for more than half of the days; iv) Age ≥ 60 years, and community-dwelling. **Sample size:** 361 **Mean age (SD):** NR (NR) **Setting:** 89 primary care practices in the south of Netherlands	RCT	**Health status and well being:** Psychosocial outcomes **Treatment:** Clinical assessment	Depression + Diabetes	Nurse-led Minimal Psychological Intervention (MPI) vs. Usual care	**Cognitive-behavioural; Education; Self-management:** *ED (Pr) + SM (Home)*	36 weeks
Lin EHB,[45] 2003 (USA) Study period 1999 – 2001	**Patient criteria:** i) Major depression or dysthymia (according to DSM-IV); ii) Age ≥ 60 years; iii) Expects to use one participating primary care clinic as main source of general medical services over one year. **Sample size:** 1001 **Mean age (SD):** 72 (7.4) **Setting:** 18 primary care clinics from eight health care organizations in five states across the United States	RCT	**Health status and well-being:** Physical health of patient **Health status and well-being:** Psychosocial outcomes **Treatment outcomes:** Clinical assessment	Arthritis + Depression	IMPACT Intervention (collaborative care approach) vs. Usual care	**Coordination of care:** *CM + DM + TEAM*	52 weeks
Martin-Lesende I,[46] 2013 (Spain) Study period Unclear	**Patient criteria:** i) Diagnosed with HF and/or CLD; ii) At least two hospital admissions in previous year, with at least one admission associated with the two conditions of interest; iii) Age ≥ 14 years; iv) Receiving home care due to lack of or severe difficulties with mobility. **Sample size:** 58 **Mean age (SD):** 81 (7.5) **Setting:** 20 health centres in Bilbao	RCT	**Health service delivery:** Service utilization **Treatment outcomes:** Adverse outcomes	CHF + COPD	Home telemonitoring vs. Standard care	**Information and health technology; Education**: *ED + TM*	52 weeks
McSweeney K,[47] 2011 (Australia) Study period	**Patient criteria:** All permanent residents. **Sample size:** 44	Cluster RCT	**Treatment outcomes:** Clinical assessment	Dementia + Depression	Specialist multidisciplinary consultation vs. Usual care	**Coordination of care:** *CP + TEAM*	15 weeks

NR	**Mean age (SD):** 86.49 (6.95) **Setting:** Aged care facilities						
Morgan MA,[48] 2013 (Australia) Study period NR	**Patient criteria:** i) Patients with CHD and/or Type 2 diabetes mellitus; ii) Clinic has practice nurse (PN) to provide the collaborative care and can identify eligible registered patients. **Sample size:** 317 **Mean age (SD):** NR (NR) **Setting:** Primary care practices	Cluster RCT	**Health behavior:** Compliance **Health behaviour:** Health enhancing lifestyle or behavioural outcomes **Knowledge and understanding:** Provider level of knowledge or skills **Treatment:** Clinical assessment **Treatment:** Physiological measures	CVD + Diabetes	TrueBlue Model of Collaborative Care (nurse-led collaborative care) vs. Control	**Coordination of care; Education; Self-management:** *CM + CP + ED (Pr) + SM*	26 weeks
Naik AD,[49] 2012 (USA) Study period NR	**Patient criteria:** i) Uncontrolled diabetes and co-morbid, clinically elevated depressive symptoms; ii) Living in rural areas. **Sample size:** 8 **Mean age (SD):** 62.1 (2.85) **Setting:** Patients' homes	Pilot study	**Treatment:** Physiological measures **Treatment:** Clinical assessment **Health status and well being:** Psychological health of patient	Depression + Diabetes	Healthy Outcomes through Patient Empowerment (HOPE)	**Self-management; Education; Self-management:** *CP + ED (Pt + Pr) + FR + SM + TEAM*	26 weeks
Noel HC,[50] 2004 (USA) Study period NR	**Patient criteria:** i) Documented high use of healthcare resources; ii) Barriers to accessing healthcare services due to geographic, economic, physical, linguistic, technologic, and/or cultural factors. **Sample size:** 104 **Mean age (SD):** 71 (NR) **Setting:** VA Connecticut Healthcare System	RCT	**Health service delivery:** Health economic outcomes **Health Service Delivery:** Service utilization **Health Status and Well Being:** Physical health of patient **Health Status and Well Being:** Psychosocial outcomes **Treatment:** Physiological measures	CHF + COPD + Diabetes	Home telemedicine (telehealth) vs. Control	**Information and health technology**; **Education**: *CM + ED (Pt) + TM*	26 weeks
Pols AD,[51] **2017** Study period Jan 2103-Nov 2015	**Patient criteria:** i) CHF and/or DM2, ii) sub-threshold depression (>6 PHQ-9 score), iii) not taking anti-depressants, iv) not diagnosed with a psychotic illness, cognitive impairment, major depressive disorder or bipolar disorder **Sample size:** 236 **Mean age (SD):** 67.5 (10) **Setting:** Netherlands; primary care centres	RCT (cluster)	**Treatment outcomes:** clinical assessments	DM2 and/or CHF and sub-threshold depression	Stepped Care Program (Step-Dep) vs. Usual care	**Coordination of Care; Cognitive-behavioural:** CPM + DM (psychosocial) + ED (pt)	12 months
Schnipper JL.[53] 2010 (USA) Study period March – November 2007	**Patient criteria:** i) With CAD or DM on the electronic health record (EHR) problem list. ii) Had a visit with a primary care physician (PCP)	RCT	**Knowledge and Understanding:** Provider level of knowledge or skills	CVD + Diabetes	CDSS (CAD/DM SmartForm) vs. Usual care	**Information and health technology; Education**: *DM + ED (Pr) + REM (Pr)*	4 weeks

	belonging to one of the study practices from the date the practice was given the Smart Form until the end of the study. **Sample size:** 7009 **Mean age (SD):** NR (NR) **Setting:** 10 adult primary care practices at Brigham and Women's Hospital, and Massachusetts General Hospital						
Sran M,[54] 2016 Study period September 2006 – April 2011	**Patient criteria:** i) postmenopausal women, ii) 55 years and older, iii) osteoporosis OR low bone mass, iv) urinary incontinence **Sample size:** 48 **Mean age (SD):** NR (NR) **Setting:** osteoporosis clinic (outpatient)	RCT	**Treatment:** Clinical assessment **Skills acquisition:** Self-care skills	Osteoporosis + Urinary Incontinence	Physical therapy vs. control (osteoporosis education)	**Coordination of care; Education; Self-management:** DM + ED (Pt) + SM	1 year
Unutzer J,[55] 2008 (USA) Study period Unclear	**Patient criteria:** i) Depression severity score ≥ 10 on PHQ-9; ii) Score ≥ 2 on at least one of two core depression symptoms (depressed mood or anhedonia); iii) Self-reported functional impairment from osteoarthritis pain. **Sample size:** 13 **Mean age (SD):** 72.2 (8.5) **Setting:** University affiliated primary care clinics	Controlled before/after study	**Treatment:** Clinical assessment **Skills acquisition:** Self-care skills	Depression + Osteoarthritis	Adapted IMPACT-DP intervention (nurse administered case management supporting primary care)	**Coordination of care; Education; Self-management:** *CM + DM + ED (Pt + Pr) + SM + TEAM*	26 weeks
White KM,[56] 2012 (Australia) Study period NR	**Patient criteria:** i) Predominantly older adults diagnosed with Type 2 diabetes or CVD; ii) Voluntarily recruited from seven community health centres in Queensland, Australia. **Sample size:** 183 **Mean age (SD):** 61.17 (8.81) **Setting:** Patients from seven community health centres in Queensland, Australia	RCT	**Health behaviour:** Health enhancing life-style or behavior outcomes	CVD + Diabetes	Extended-Theory of Planned Behavior (TPB) Intervention vs. Control	**Cognitive-behavioural; Education; Self-management:** *ED (Pt + Pr) + SM*	6 weeks
Whitten P,[57] 2007 (USA) Study period 2002 - 2003	**Patient criteria:** i) Diagnosed with COPD and/or CHF; ii) Prescribed home health care services from the Marquette General Health System in Michigan. **Sample size:** 67	Mixed-methods (RCT + Qualitative)	**Evaluation of care:** Satisfaction **Health status and well-being:** Psychosocial outcomes	CHF + COPD	Home telehealth vs. Control (conventional home care)	**Information and health technology**: *DM + TM*	10.7 weeks

	Mean age (SD): 76 (13) **Setting:** Marquette General Health System in Michigan's Upper Peninsula						
Williams A,[58] 2012a (Australia) Study period 2008 - 2009	**Patient criteria:** i) Combined diagnosis of Stages 2-4 CKD (15 < eGFR ≤60), Type 1 or 2 diabetes, and evidence of CVD (hypertension, heart failure, hyperlipidaemia) in the medical record; ii) Requires routine outpatient specialist clinic appointments at two nephrology outpatient clinics; iii) Age ≥ 18years, and of either gender; iv) Non-English speaking background with preference to speak Greek, Italian or Vietnamese at home. **Sample size:** 48 **Mean age (SD):** 74.31 (8.37) **Setting:** Nephrology outpatient clinics at two public tertiary metropolitan hospitals	RCT	**Treatment:** Physiological measures **Health Behaviour:** Compliance **Skills acquisition:** Self-care skills	CKD + Diabetes	MESMI (Medication Self-Management Intervention) vs. Usual care	**Self-management; Education:** *DM + ED (Pt + Pr) + SM*	39 weeks
Williams JW,[60] 2004 (USA) Study period July 1999 to August 2001	**Patient criteria:** depressed pts with diabetes, > 60 years older **Sample size:** 1801 **Mean age (SD):** 71.2 (7.5) **Setting:** Seven study sites representing 8 diverse health care organizations with a total of 18 primary care clinics in 5 states	RCT	**Health behaviour:** Compliance **Health behaviour:** Health enhancing life-style or behaviour outcomes **Health service delivery:** Health economic outcomes **Health status and well-being:** Physical health of patient **Health status and well-being:** Psychological health of patient **Treatment outcomes:** Clinical assessment **Treatment outcomes:** Physiological measures	Depression + Diabetes	IMPACT intervention vs. Usual care	**Coordination of care; Education:** *CP + DM + ED (Pt + Pr) + TEAM*	52 weeks
Wu CJ,[61] 2012 (country and study period not reported) Study period August 2009 to December 2010	**Patient criteria:** aged over 18 years, admitted to CCU with a critical cardiac event, had a previous diagnosis of type 2 diabetes, had a mobile phone and were able to read and speak English **Sample size:** 28 **Mean age (SD):** intervention 62.7 years (13); intervention 71.5 years (9.9)	RCT	**Knowledge and understanding:** Patient knowledge acquisition **Skills acquisition:** Self-care skills	CHF + Diabetes	Peer support based Cardiac-Diabetes Self-Management Program (Peer-CDSMP) vs. Usual care	**Self-management; Education:** *ED (Pt + Pr) + REM (Pt) + SM*	2 weeks

	Setting: CCU at an acute hospital and then the participant's home						

*SD = Standard deviation; NR = Not Reported; RCT = Randomized Controlled Trial; HAM-D = Hamilton depression rating scale; COPD = Chronic obstructive pulmonary disease; CHD = Coronary heart disease; CHF = Congestive heart failure; CVD = Cardiovascular disease; CKD = Chronic kidney disease; DSM-IV = Diagnostic and statistical manual of mental disorders, fourth edition; AMTS = Abbreviated mental test score; EBAS-DEP = Even briefer assessment scale for depression; BEHAVE-AD = Behavioural pathology in Alzheimer's disease; MINI = Mini international neuropsychiatric interview ; SIGH-D = Structured interview guide for the Hamilton depression rating scale (HAM-D); MMSE = Mini mental state examination; PHQ-9 = Patient health questionnaire; RCT = Randomized Controlled Trial; DSM-IV = Diagnostic and statistical manual of mental disorders, fourth edition; MINI = Mini international neuropsychiatric interview;

† **EPOC** Outcome categorization taxonomy