

**Appendix 6 (as supplied by the authors)**  
Results for studies investigating treatment outcomes (n = 18)

Study (design)	Disease cluster	Type of intervention (intervention vs. comparator)	Intervention component combination	Specific outcome	Description of results	Effect measure (95% CI; between-group p-value)
<b>Patient relevant clinical assessments: Depression (n = 14)</b>						
<b>Alexopoulos GS, 2014</b> RCT; 28-week FU	COPD + DEP +	<u>Coordination of care:</u> <i>Personalized care management intervention for depressed patients with COPD (PID-C) vs. Usual care</i>	CM + ED + SM	Reduction in depression scores	Intervention patients had significantly greater reduction in depression scores on the Ham-D than those in usual care	Effect size: 0.53; CI 0.09 to 0.97; p = 0.021*
				Depression remission rate	Intervention patients had a higher depression remission rate (HAM-D ≤ 7) than those in the usual care group	Hazard ratio: 2.18; NNT 3.83; p = 0.016*
				Reduction in depression scores due to adequate adherence to antidepressants	Adherence to adequate antidepressant treatment contributed to the advantage of the intervention over usual care in reducing depressive symptoms and signs later in the course of treatment.	Adherent patients had a mean of 1.69 Ham-D points greater reduction in depression than non-adherent patients; p = 0.023*
<b>Alexopoulos GS, 2016</b> RCT; 26-week FU	COPD + DEP	<u>Coordination of care:</u> <i>Personalized Intervention for Depressed Patients with COPD (PID-C) vs. Problem Solving Adherence (PSA)</i>	CM + ED + SM	Reduction in depression scores (between groups)	PSA is not more efficacious than PID-C in reducing symptoms of major depression.	Not provided.
				Reduction in depression scores (PSA only)	PSA led to a sustained, clinically significant improvement of depression in more than 70% of patients with major depression and severe COPD	Not provided.
<b>Bowles 2009</b> RCT; 2- and 3-month FU	CHF + DM	<u>Information and health technology</u> (Telemedicine): <i>Telephone (in-person visits + telephone) vs. TM (in-person visits + TM) vs. Control (in-person visits only)</i>	DM + ED + TM	Reduction in depression scores	There was no significant difference between groups for depression scores on the PHQ-9 after adjusting for HF and number of nursing visits (24% of patients had moderate-to-severe depression at baseline)	Not provided.
<b>Brodaty 2003</b> RCT; 3-month FU	DEP + DEM	<u>Coordination of care:</u> <i>Psychogeriatric Case Management vs. Consultative general practice vs. Control</i>	CM + CP + ED + TEAM	Reduction in depression scores	There was no difference between groups for change in depression symptoms on the HAM-D, CSDS, GDS scales	p = 0.240
<b>Doyle 2017</b> RCT; 8-week FU	COPD + depression or anxiety	<u>Cognitive-behavioural:</u> <i>Telephone-based CBT vs. telephone-based befriending</i>	DM + ED + TM	Reduction in depression scores	The intervention group had a greater reduction in depression scores (PHQ-9) than the control group, equating to a small to medium effect size.	Effect size: -0.03 (95% CI: -0.4, +0.4) Cohen's d = 0.4
<b>Kiosses 2015</b> RCT (n = 39); 12-week FU	DEP + DEM	<u>Cognitive-behavioural:</u> <i>Problem Adaptation Therapy (PATH) vs. Supportive Therapy for Cognitively Impaired Older Adults (ST-CI)</i>	DM (psychosocial) + SM	Depression reduction	The PATH group had significantly greater reduction in depression than the ST-CI group	Treatment group by time interaction: 7.28; p = 0.0082*; Cohen's d: 0.50.
<b>Lamers 2010</b> RCT; 9-month FU	DEP + DM or COPD	<u>Cognitive-behavioural:</u> <i>Nurse-led Minimal Psychological Intervention (MPI) vs. Usual care</i>	ED + SM	Depression symptoms	Intervention group had significantly less depressive symptoms on the BDI scale than the control group	Mean BDI difference: 2.09; CI 0.25 to 3.93; p = 0.03*
<b>Lin 2003</b> RCT; 6-month FU	DEP + AT	<u>Coordination of care:</u> <i>IMPACT-DP (Improving Mood-</i>	CM + DM + TEAM	Depression reduction	Intervention patients were more than twice as likely as those receiving	41% vs 18%; OR 3.28; CI 2.4 to 4.5; p < 0.001*

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

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		<i>Promoting Access to Collaborative Treatment: Depression with Arthritis vs. UC</i>			usual care to experience a 50% reduction in HSCS scores at follow-up.	
<b>McSweeney 2011</b> <i>RCT; 15-week FU</i>	DEP + DEM	<u>Coordination of care:</u> <i>Multidisciplinary specialist mental health consultation vs. Usual care</i>	CP + TEAM	Depression reduction	Intervention reduced levels of depression more than care as usual, constituting a moderate treatment effect on CSDD scores	Mean post-intervention CSDD scores for the intervention group: 9.47 (SD 5.57) and control group: 14.23 (SD 4.60); p < 0.05*
				Diagnosis of major depression	The groups did not differ for clinical diagnosis of major depression at post-intervention assessment on the RAID and BEHAVE-AD scales	
<b>Morgan 2013</b> <i>RCT; 6-month FU</i>	CVD + DM	<u>Coordination of care:</u> <i>TrueBlue Model of Collaborative Care (nurse-led collaborative care) vs. Control</i>	CM + CP + ED + SM	Improvement in depression scores (PHQ-9)	Improvement for depression was significantly better in the intervention group than in the control group (PHQ-9) at 6 months; this was maintained after 12 months (p < 0.001)	p = 0.012*
				Improvement in depression for patients with baseline moderate-to-severe depression (PHQ 9)	Intervention patients with baseline moderate-to-severe depression had significantly greater reduction in depression scores on the PHQ-9 than control patients; and an even greater improvement at 12 months	p < 0.001*
<b>Naik 2012</b> <i>Uncontrolled trial; 6-month FU</i>	DM + DEP	<u>Self-management:</u> <i>Healthy outcomes through patient empowerment (HOPE): Telephone-delivered behavioural coaching</i>	CP + ED + FR + SM + TEAM	Depression	Depressive symptoms were significantly reduced at follow-up on the PHQ-9	Mean change from baseline: 7.03 (SD 4.43); effect size 1.69 [large effect]*
<b>Pols 2017</b> <i>Cluster RCT; 12-month FU</i>	DM +/-or CHF + DEP	<u>Coordination of Care:</u> <i>Step-Dep (Stepped-care program) vs. Usual care</i>	CM + DM + ED (Pt)	Cumulative incidence of major depressive disorder	There was no overall treatment effect over 12 months of the intervention	OR = 1.21 (95% confidence interval (0.12 to 12.41))
				Depression severity (PHQ9)	There was no overall treatment effect over 12 months of the intervention	-0.02 (-0.93; 0.89) (B, 95% CI); p=0.97
				Depression severity (HADS-D)	There was no overall treatment effect over 12 months of the intervention	0.18 (-0.79; 1.16) (B, 95% CI); p=0.71
<b>Unutzer 2008</b> <i>Mixed-methods; 6-month FU</i>	DEP + OA	<u>Coordination of care:</u> <i>Adapted IMPACT-DP intervention IMPACT-DP (Improving Mood–Promoting Access to Collaborative Treatment - depression and pain)</i>	CM + DM + ED + SM + TEAM	Depression severity	The intervention led to a significant change from baseline to 6-month follow-up on the HSCL-20 and PHQ-9 scales	HSCL-20 effect size: 1.27; CI 0.27 to 1.16; p = 0.004* PHQ-9 effect size: 1.40; CI 4.0 to 10.31; p = 0.001*
<b>Williams JW, 2004</b> <i>RCT; 12-months FU</i>	DEP + DM	<u>Coordination of care:</u> <i>IMPACT-DP (Improving Mood – Promoting Access to Collaborative Treatment: Diabetes and depression) vs. Usual care</i>	CP + DM + ED + TEAM	Depression severity	Intervention group had significantly less severe depression on the SCL-20 compared with the usual care group	Between group difference: -0.43; CI -0.57 to -0.29; p < 0.001*

**Patient relevant clinical assessments: Pain (n = 2)**

<b>Lin 2003</b> <i>RCT; 6-month FU</i>	DEP + AT	<u>Coordination of care:</u> <i>IMPACT-DP (Improving Mood-Promoting Access to Collaborative Treatment: Depression with Arthritis vs. Usual care)</i>	CM + DM + TEAM	Pain intensity (on a scale from 0 to 10)	Intervention group had significantly greater reduction in pain than the usual care group	Between group difference: -0.53; CI -0.92 to -0.14; p = 0.009*
				Interference with daily activities due to pain	Intervention group had less interference with daily activities due to pain (on a scale of 1 to 5)	Between group difference: -0.26; CI -0.41 to -0.10; p = 0.002*
<b>Unutzer 2008</b> <i>Mixed-methods; 6-month FU</i>	DEP + OA	<u>Coordination of care:</u> <i>Adapted IMPACT-DP intervention (nurse administered case management supporting primary care)</i>	CM + DM + ED + SM + TEAM	Pain severity (BPI)	At 6-month follow-up, intervention patients had significantly greater reduction in pain on the BPI scale compared with the control patients	Effect size: 0.88; CI 0.27 to 2.72; p = 0.021*
				Total number of body areas with pain	Intervention patients had significantly reduced total number of body areas with pain compared with control patients on the BPI	Effect size: 0.93; CI 0.80 to 2.89; p = 0.002*
<b>Physiological measures: HbA1c (n = 4)</b>						
<b>Morgan 2013</b> <i>RCT; 6-month FU</i>	DM + CVD	<u>Coordination of care:</u> <i>TrueBlue Model of Collaborative Care (nurse-led collaborative care) vs. Control</i>	CM + CP + ED + SM	Mean percent HbA1c levels	Intervention group had significantly greater reduction in mean percent HbA1c levels than those in the control group	p = 0.049*
<b>Williams 2004</b> <i>RCT; 12-months FU</i>	DM + DEP	<u>Coordination of care:</u> <i>IMPACT-DP (Improving Mood – Promoting Access to Collaborative Treatment: Diabetes and depression) vs. Usual care</i>	CP + DM + ED + TEAM	Mean percent HbA1c levels	The groups did not differ for mean percent HbA1c levels	p > 0.2
<b>Naik 2012</b> <i>Uncontrolled trial; 6-month FU</i>	DM + DEP	<u>Self-management:</u> <i>Healthy outcomes through patient empowerment (HOPE): Telephone-delivered behavioural coaching</i>	CP + ED + FR + SM + TEAM	HbA1c level	HbA1c was significantly reduced at follow-up	Effect size: Cohen's d: 0.84 (large effect <sup>1</sup> )*
<b>Noel 2004</b> <i>RCT; 6-month FU</i>	DM + CHF + COPD	<u>Information and health technology</u> <i>(Telemedicine): Home telemedicine (telehealth) vs. Control</i>	CM + ED + TM	HbA1c level	At 6-months, the intervention group had a significant decrease in A1c levels (mean 7.30; p < 0.001); the control group had significant increase in A1c levels (mean 7.83; p = 0.002); no difference between groups.	p = 0.225
<b>Physiological measures: BP (n = 2)</b>						
<b>Morgan 2013</b> <i>RCT; 6-month FU</i>	DM + CVD	<u>Coordination of care:</u> <i>TrueBlue Model of Collaborative Care (nurse-led collaborative care) vs. Control</i>	CM + CP + ED + SM	Systolic BP	The groups did not differ for systolic BP.	Baseline mean (intervention): 134.2 (CI +/-3.0); control: 133.5 (CI +/- 133.5); Follow-up mean (intervention): 132.4 (CI +/- 2.8); control: 131.2 (CI +/-3.4)
<b>Williams A, 2012a</b> <i>RCT; 10-month FU</i>	DM + CKD	<u>Self-management:</u> <i>Medication Self-Management Intervention vs. Usual care</i>	DM + ED + SM	Systolic BP pressure	The mean systolic BP reduction was -6.9 mmHg (CI -13.8 to -0.02) in the intervention group; -3.0 (CI -8.4 to 2.4) in the control group, but the difference between groups was not significant	p = 0.371

					Diastolic BP pressure	The mean systolic BP reduction was -2.25 mmHg (CI -5.2 to 0.7) in the intervention group; -3.1 mmHg (CI -5.9 to -0.3) in the control group, but the difference between groups was not significant	p = 0.681
<b>Patient relevant adverse outcomes: Mortality (n = 4)</b>							
<b>Alexopoulos 2014</b> <i>RCT; 28-week FU</i>	COPD + DEP	<u>Coordination of care: Personalized care management intervention for depressed patients with COPD (PID-C) vs. Usual care</u>	CM + ED + FR	Mortality	The groups did not differ for mortality.	18% vs 17%	
<b>Begrambekova YL, 2015</b> <i>RCT (n = 253); 12-month FU</i>	CHF + DEP	<u>Coordination of care: Disease Management Program (DMP) vs. Control</u>	DM + ED (Pt) + SM	Mortality	Patients in the treatment group had lower risk of death than did those in the control group	RRR: 17% (CI 0.68 to 0.99); p = 0.036*	
				Composite: All-cause mortality and hospitalization	Patients in the treatment group had lower odds of death and hospitalization than did those in the control group	Odds ratio: 0.4699 (CI 0.3128 to 0.7058); p = 0.5651	
<b>Bernocchi 2018</b> <i>RCT; 4 and 6 month FU</i>	COPD + CHF	<u>Information and health technology</u> (Telemedicine and Telehealth) vs. Standard Care	DM + ED (Pt) + TH + TM	Composite: All-cause mortality or hospitalization	Patients in the treatment group has a lower time to event (all-cause hospitalization or death) than did those in the control group	113.4 days vs. 104.7 days; p=0.0484, log-rank test	
<b>Martin-Lesende 2013</b> <i>RCT; 12-month FU</i>	COPD + CHF +	<u>Information and health technology</u> (Telemedicine): Home TM vs. Standard care	ED + TM	Mortality	The groups did not differ for mortality	12.5% vs 26.7%; p = 0.310	

\*RCT = randomized controlled trial; FU = follow-up; DEP = depression; COPD = chronic obstructive pulmonary disease; CM = case management; ED = education; FR = facilitated relay; HAM-D= Hamilton depression rating scale; CI = confidence interval; NNT = number needed to treat; CHF = congestive heart failure; DM = diabetes mellitus; TM = telemonitoring; PHQ-9 = patient health questionnaire; HF = heart failure; DEM = dementia; CP = care pathways; TEAM = teams; CSDD = Cornell Scale for Depression in Dementia; GDS = geriatric depression scale; SM = self-management; BDI = Beck Depression Inventory; AT = arthritis; HSCS = ; RAID = rating anxiety in dementia; BEHAVE-AD = ; SD? ; CVD = cardiovascular disease; OA = osteoarthritis; HSCL-20 = Hopkins symptom checklist; SCL-20?; BPI = ; HbA1c = hemoglobin A1c; BP = blood pressure; CKD = chronic kidney disease. RRR = relative risk reduction;

<sup>1</sup>Effect size measured using Cohen's d (0.8 = large effect; 0.5 = medium effect; 0.2 = small effect)