Supplementary file for 'The effectiveness of the Nurse Care Coordinator role on patient-reported and health service outcomes: A systematic review'

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Search strategy

* Note: MH refers to MeSH term

MEDLINE via EBSCOhost search strategy

1. (care coordinat*) OR (MH "Patient Navigation") OR (nurse navigat*) OR (MH case manager) OR (MH case management)

2. "patient outcome" OR (MH "Quality of Life") OR (MH "Signs and Symptoms") OR (MH "Needs Assessment") OR (MH "Treatment Outcome") OR "care experience"

3. (MH "Interprofessional Relations") OR (MH "Patient Care Team") OR "multidisciplinary team"

4. (MH "Health Services Accessibility") OR (MH "Health Care Costs") OR (MH "Delivery of Health Care")

5. 2 OR 3 OR 4

6. 1 AND 5 (limited to humans, date of publication 1990-present)

CINAHL via EBSCOhost search strategy

1. (care coordinat*) OR (nurse navigat*) OR (patient navigat*) OR (case manage*)

2. "patient outcome" OR (MH "Quality of Life") OR (MH "Signs and Symptoms") OR (MH "Needs Assessment") OR (MH "Treatment Outcome") OR "care experience"

3. (MH "Interprofessional Relations") OR (MH "Patient Care Team") OR "multidisciplinary team"

4. (MH "Health Services Accessibility") OR (MH "Health Care Costs") OR (MH "Delivery of Health Care")

5. 2 OR 3 OR 4

6. 1 AND 5(limited to humans, date of publication 1990-present)

EMBASE search strategy

1. (care NEXT/2 coordinat*) OR (patient NEXT/1 navigat*) OR (nurse NEXT/1 navigat*) OR (case NEXT/1 manage*)

2. ('treatment outcome'/exp) OR ('quality of life'/exp) OR ('health care need'/exp) OR ('physical disease by body function'/exp)

3. ('multidisciplinary team') OR (interdisciplinary communication'/exp)

4. ('health care delivery'/exp) OR ('health care access'/exp) OR ('health care cost'/exp) OR 'health care utilization'/exp)

5. #3 OR #4 OR #5

6. 1 AND 5 (limited to humans, date of publication 1990-present)

SF Table 1. Characteristics of care coordinator intervention models used in included studies

Study	Characteristics of model	Care coordinator characteristics	Population Characteristics	Location	Pros/Cons highlighted by authors
Aiken et al. (2006)	Home-based case management by nurse case managers (caseload 30-50 patients) that focused on: • Self-management and knowledge • End of life preparation • Enhancing physical and mental functioning • Shifting care from high cost emergency medical and inpatient services to proactive management in the outpatient setting.	Registered Nurse	Terminally ill with chronic heart failure or COPD	C	• Criteria for entry into the study resulted in a one third of the sample dying or being transferred to hospice within the first three months. • Nursing case managers were able to perform roles in palliation (including education and patient empowerment) and an administrative role in coordinating palliative care and active treatment services. • Positive impacts were attributed to the specialised training and experienced registered nurse case managers.
Aldeen, Courtney, Lindquist, Dresden, and Gravenor (2014)	Emergency department based geriatric advanced practice nurse -coordinated care. Components included: • Arranging geriatrics, allied health, palliative care consults as required • Coordinate care plan with ED staff • Discuss care plan with primary care provider	ED RNs (with average 24 years clinical experience) who received training (total 164 hours over 4 months) in geriatric assessment and care coordination	Geriatric at high risk of readmission	I	• Care coordinators may have uncovered underlying problems in older adults than the lower-acuity presenting problem resulting in higher admission rate to hospital.

CCHT (Barnett et al., 2006; Chumbler et al., 2005; Neugaard, Kobb, Ryan, Qin, & Joo, 2005; Young, Foster, Silander, & Wakefield, 2011)	Advanced practice nurse coordinated home telehealth care using disease management protocols	Registered nurses or advanced registered nurse practitioners	Ethnically diverse group of veterans with diabetes	T	Daily monitoring may have assisted care coordinators to detect subtle changes earlier in their clinical course allowing for earlier intervention leading to reduced requirement for primary care provider consultations.
Bauer et al. (2006)	Nurse care coordinator clinic visits and telephone support focused on enhancement of access to care and continuity of care.	No information about qualifications or training provided	Bipolar disorder	I	Potentially psychoeducation was the mechanism for improved outcomes because pharmacotherapy was similar in both groups. Enhancing access to care was another potential mechanism.
Berry et al. (2011)	Nurse care coordinator identified need for care coordination then met with family and physician to develop a care plan	No information about qualifications or training provided	Children with special health care needs	M	A new tool was developed for identification of children with more complex health care needs in order for the CC caseload to be feasible. The entire practice became engaged in care coordination activities by holding meetings and making referral forms more visible. Fee structures didn't completely cover the costs of establishing and maintaining the CC role
Boult et al. (2013); Boult et al. (2008); Boult et al. (2011); Boyd et al. (2010)	Registered nurse guided care providing: comprehensive assessment, evidence-based care planning, proactive monitoring, care coordination, transitional care, coaching for self-management, caregiver support and access to community-based services to 50-60 high risk multi-morbid	RNs with experience in geriatric nursing, interest in counselling patients in self-	Elderly patients at high risk of generating high health expenditures	I	Reasons for lack of effect of guided care on functional health and use of health services may include: • Inadequate 'dosing' of the intervention • Heterogenous implementation of care coordination model across sites

patients soured from 2-5 primary care practices.	management, and comfort with interdisciplinary team practice and information technology were given preference (average 16 years clinical experience; range 4 to 31). patients.			• Inadequate statistical power (for health service utilisation outcomes) Core features of successful models include: • Systematic identification of high risk patients • Intensive case management (including face to face interaction) • Collaboration with primary care physicians • IT that supports care coordination • Patient and family engagement • Well-coordinated transition from acute care • Medication management • Integration of community-based support services
Boyd et al. (2014)	Comprehensive geriatric assessment and liaison with primary care and specialist services.	Gerontology nurse specialists who had at least 1 year of postgraduate education or a Masters degree in Nursing. All had more than 10 years of clinical experience in gerontology.	Residents at aged care facilities	• The program integrates gerontology specialists across healthcare boundaries. • Higher intensity interventions (e.g. Evercare) may have a greater effect on reducing hospitalisations.
Medicare Coordinated Care Demonstration (MCCD)	All assessed patients' needs and developed care plans. 14/15 provided education to improve medication adherence, diet, exercise and self-care. Most programs sent physician written reports and trained patients in strategies to improve	All except one program required CC registered nurses (4 required CC	Chronic disease I	• Diversity in care coordination and patient profiles between programs made it difficult to ascertain beneficial effects.

(Brown, Peikes, Chen, & Schore, 2008; Brown, Peikes, Peterson, Schore, & Razafindrakoto, 2012; Peikes, Chen, Schore, & Brown, 2009)	communication. CC caseloads varied from 36 to 86 patients. Most contact was by telephone. 3 programs used telemonitoring.	to be Bachelor's degree prepared RNs and one other program employed RNs or experienced licensed practical nurses)		Features of programs associated with reductions in hospitalisations: • Program with the highest amount of in-person contact had a statistically significant reduction in hospital use. • Physician engagement and cooperation achieved through CC located near physicians, CC attended physician appointments or saw physicians on hospital rounds • CC had communications 'hub' role • Patient education using a behaviour change model instead of only factual information • Transition management (care coordinators had timely notification of admission to hospital/ED, contacted patient during hospitalisation, requested copy of discharge information, used a transition protocol).
Ciccone et al. (2010)	All patients received: (a) initial and follow-up assessments conducted by the care manager in order to establish baseline measures of health measures and behaviors and provide a means for tracking patient progress during the study, (b) an individualized care plan which reflected the treatment recommendations of their doctor and specialists as well as personal health goals chosen by the patient, (c) educational materials matched to their specific conditions or risk factors, (d) assistance with service coordination including easier access to specialist care, and (e) regular, ongoing one-on-one health coaching sessions offering opportunities to	Trained nurses who had been working as hospital or home care nurses in the district in various capacities.	Elderly with chronic illness	C	The project offered an opportunity for primary care provider and CC to directly collaborate by having the CC co-located. CC also provided home visits, which was advantageous in situations of illness, physical or situational barriers to attending meetings at the clinic.

	address individual patient concerns and goals.			
Health Quality Partners – one of the MCCD sites (Coburn, Marcantonio, Lazansky, Keller, & Davis, 2012)	• Assessments to identify physical, functional, cognitive, psychological, behavioural, social, and environmental needs • Nurse case manager developed an individualised care plan informed by patient's self-articulated primary concerns and unmet needs, findings from risk assessments and evaluations and the participant's motivational readiness. • Interventions incorporated into care plan included education, symptom monitoring, medication reconciliation and counselling for adherence and assistance with community health and social services. • Group interventions were delivered by nurse case managers. • Case managers collaborated with primary care physicians and specialists as needed to help patients achieve target clinic goals and receive appropriate and timely preventive care according to guidelines. • Contact (in-person, group sessions, telephone) frequency determined by patient need. • Intensified transition follow-up provided upon discharge from hospital.	Registered Nurse	Over 65 with chronic illness (heart failure, coronary artery disease, diabetes, asthma, hypertension, hyperlipidemia) C	Elements contributing to this program's effectiveness include: • delivering a broad set of services that match the preventive health needs of the targeted population • frequent longitudinal in-person contacts with participants • collaboration with primary care providers • training, management, and performance monitoring capabilities.

	• Caseload was 85-110 once fully trained				
Care Transitions (Coleman, Parry, Chalmers, & Min, 2006; Coleman et al., 2004; Parry, Kramer, & Coleman, 2006)	Nurses visited patients in the hospital, at home and had telephone contact during a 28-day post-hospitalisation discharge period guided by the four pillars: 1. Medication self-management (knowledgeable and has medication management system) 2. Patient-centred record (patient understands and uses record to facilitate communication and continuity of care) 3. Follow-up (scheduled and completed) 4. Red flags (knowledgeable about clinical deterioration)	No information about qualifications or training provided	Inpatients with stroke, congestive heart failure, coronary artery disease, cardiac arrhythmias, chronic obstructive pulmonary disease, diabetes mellitus, spinal stenosis, hip fracture, peripheral vascular disease, deep venous thrombosis, and pulmonary embolism.	I	• Encouraging patients and their caregivers to assert a more active role in their care transitions results in reduced rehospitalization rates. • The transition coach could manage more patients and there was less potential for redundancy with existing health care practitioners such as discharge planners, home health care nurses, and case managers. • The care transitions intervention was designed not only to improve the immediate transitions that patients and their caregivers faced but also to provide them with skills and tools that could be applied to future care transitions. • Having a transition coach to better prepare patients for their ambulatory follow-up visits could enhance overall clinic productivity. • Intervention led to improved self-management knowledge and skills for many patients, primarily in the areas of medication management, condition management, and patient confidence about what was required of them during the transition and beyond
Dajczman et al. (2013)	Components include: • Educating patients and caregivers • Contactable via telephone, email contact • Nurse-physician partnership	Masters prepared clinical nurse specialist with extensive experience with	COPD at the discretion of pulmonary physician, ED or ward personnel	I	The nurse-physician partnership and the presence of a nurse navigator to meet the needs of this patient population are pivotal to the success of this program.

	• Facilitates timely transfers and performs transition care and follow-up	pulmonary disease		
Eloniemi-Sulkava, Notkola, and Hentinen (2001)	• advocacy for patients and their caregivers • comprehensive support for the patients and their caregivers • continuous and systematic counselling • annual training courses for patients and their caregivers • follow-up calls • in-home visits • assistance with arrangements for social and healthcare services • 24-hour-per-day availability by mobile telephone.	RN with public health background who received extensive training, support, and advice in dementia care from dementia specialists	Aged 65 and older with dementia	C	• Family care coordinator should be targeted especially at patients with problems threatening the continuity of community care. • More effective in severe dementia • success of the dementia family care coordinator requires a wide range of knowledge and skills regarding dementia care. • The coordinator not only needs continuous training and support but should also have access to an appointed skilled physician for consultations. • It should be considered how to provide support for demented patients and their caregivers on a 24-hour basis if instant intervention measures are needed outside working hours in problematic situations threatening the continuity of community care.
Engelhardt et al. (2008)	• Nurse provided home assessment visit • Care plan developed based on nursing assessment and home health assessment • Strengths-based telephone counselling to address health literacy, care coordination, caregiver support, financing of care, patient-physician communication, treatment adherence, use of community resources and to address neglect of affective components of illness and avoidance of end of life discussions.	No information about qualifications or training provided	Alzheimer's disease and carers	M, T	• Telephone case manager support useful when in-home support is withdrawn but psychosocial and social supports are still needed.

Sweeney, Halpert, and Waranoff (2007)	• Initial home evaluation to establish goals addressing a care domain weakness (disease knowledge, treatment plan, terminal care planning, benefit plan management, family and living environment, pain and symptom management and provider support) • Patient status reviewed at weekly meetings • Care manager placed telephone calls to patient and providers on behalf of patients • Management ended when goals achieved	Registered nurses with an average of 18 years of nursing experience	Life-limiting illness	C	• Frequent telephone contact (2-3 per week) enabled proactive identification of potential lapses in care • Intervention can change patient behaviours and environments otherwise known to negatively affect care and increase healthcare resource use
Fens et al. (2014)	• 5 home visits over a period of 18 months by a stroke care coordinator using a structured assessment tool to assess activities of daily living, social activity, cognition, communication, psycho-emotion, fatigue, secondary prevention, medical consumption, medical condition, caregiver strain and provision of information. • More home visits offered as required • Written reports sent to general practitioner • CC could consult nursing home multidisciplinary team for advice as needed	Home care service nurses specialised in stroke.	Stroke survivors	C	The intervention may have focussed too much on screening for stroke-related problems and not as much on adequate follow-up care and referral.
Gabbay et al. (2013)	• Met with nurse case manager at baseline and then at 2 and 6 weeks, followed by 3, 6, and 12 months, and then at least every 6 months thereafter. • Intervention group participants could also contact their NCMs by phone and	Registered Nurses	Diabetics with high risk of complications: • HbA1C >8.5%		• Case managers trained in motivational interviewing produced improvements in blood pressure control depression symptoms.

	Email between visits when appropriate. • Case manager visits typically included a review of the patient's clinical laboratory test results, health-related lifestyle behavior relevant to managing T2D, and medication adherence. • Case managers also checked whether the patient was due for complications screening and reminded them of follow-up specialist visits when they were due. Referrals to a certified diabetes nurse educator or a dietitian were made. • Case managers prompted primary care providers for medication titrations.		• Hypertension • Dyslipidaemia		• Case manager prompts for medication titration were not always acted upon by physicians
Hajewski and Shirey (2014)	Nurse case manager assigned for high risk in-patients: • Organise referrals for home care, wound care, diabetes consult • Promote progression of care • Physician relationship building	No information about qualifications or training provided	In-patients on a medical-surgical unit	I	• Case management principles central to effectiveness • Weekly meetings were essential for ongoing evaluation of process changes at the unit level impacting role change for the primary nurse and unit-based case manager. • Evaluation of the balance of patient care requirements between the NCM, primary nurse, and non-licensed staff resulted in redefining the work responsibilities of all members of the unit-based nursing team was complex and time-consuming
High Risk Case Management (Hawkins et al., 2015)	• In-home visit by case manager for comprehensive assessment • Care plan developed and shared with participant, physician and caregivers	No information about qualifications or training provided	Chronic disease	C, T	• ROI of the HRCM program increased with longer duration in the program, particularly evident for participants in the program for less than 10 months (people within last phase of life accrue more expenses and it takes months of the intervention to improve quality of health care)

	• Telephone contact every 3 weeks to discuss plan of care and ongoing health status • If hospitalised, CC assisted hospital with discharge planning and home-care planning if required • Mail-outs with tailored messages regarding gaps in care (medication refill reminders and missed office visits)				• Home visits provide a comprehensive understanding of patient and caregiver needs and environmental issues
Evercare (UK) (Gravelle et al., 2007; Sheaff et al., 2009)	• Evercare model • preventive and responsive care for patients aged over 65 years at high risk of admission to emergency departments • Case managers carried out structured assessments of their patients, planned care, arranged and co-ordinated services, monitored patients at a frequency determined by individual need and arranged ad hoc interventions when incipient deterioration was found.	Advanced practice nurses	Elderly	C	• access to case management added a frequency of contact, regular monitoring, psychosocial support, and a range of referral options that had not previously been provided to frail elderly people. (p. 33) • No significant impact on ED admissions and mortality • did not collect data on a range of other important outcomes, especially on any direct measures of the health of the target population (p. 33) • CC implementation did not lead to major service reorganization or savings elsewhere in the health care system • examples of admissions which case management had prevented, but overall hospital admissions did not significantly change, possibly due to increased case-finding
Jingping, Goehring, and Mancuso (2015)	Nurse case managers to coordinate care, educate patients to better recognise and respond to worsening health, and to support self-management goals using	No information about qualifications or training provided	Disabled (functional limitations who received in-home personal	C	• Some of the features of the program that might account for its success include frequent face-to-face contact with patients, facilitating the exchange of patient-related information among health care providers

	behaviour management techniques such as motivational interviewing.		care to assist with activities of daily living)		and use of patient education and behaviour changing techniques such as motivational interviewing
Kind et al. (2012)	Standardised protocols to achieve 'Four Pillars of Transitional Care' including education in medication management, medical follow-up in place, education regarding detection of clinical deterioration (red flags) and how to respond and providing a key contact for concerns. • Nurse case manager identified eligible participants and participated in multidisciplinary discharge rounds on the inpatient wards • Offered geriatric and transitional care advice • Made telephone contact within 72 hours post-discharge • Written information provided about post-discharge follow-up and up to three 'red flags' • Calls made on a weekly basis until medical follow-up or no further follow-up required • Primary care provider contacted by case manager if red flags or medication discrepancies identified • In-home visits provided if deemed necessary by case manager	Registered nurse	Hospitalised on medical or surgical ward with dementia, delirium, cognitive impairment or over 65 and living alone or previously hospitalised with 12 months.	I	• Comparatively low-cost for transitional care • Telephone-based program increases geographic reach • Refusal rate was low (may be due to close integration of case manager with inpatient team) • Program identified medication discrepancies for nearly half the participants
Koehler et al. (2009)	• Intensive patient-centred education program started within 24 hours of enrolment and ended within one week of discharge	Highly experienced (averaging >8 years of	Inpatients with more than 3 comorbidities, over 70, use of	I	• CC scope of duties was realistic for implementation

	• CC saw patients daily whilst in hospital emphasising optimal home self-care and contingency plans for clinical deterioration • On the post-discharge phone call, CC followed standardised protocol to check medical equipment, medications, home health arrangements and scheduling of follow-up as well as reinforcing education, symptom management and providing recommendations for care planning	inpatient floor nursing plus >10 years as CCs) and all had advanced nursing certifications (ACM, BSN, or MSN).	more than 5 medications, requiring home assistance and living at home		• hospital-based intervention's influence is strongest closer to the time of the initial hospital stay • Electronic health records could potentially facilitate these care transitions, beginning with an automated screening process for identification of high-risk inpatients and continuing through post-discharge follow-up. • Targeting medication management appears to be a high-yield intervention to reduce unplanned health care utilization following hospital discharge
Kogut, Johnson, Higgins, and Quilliam (2012)	Nurse case manager delivered education and assistance with health behaviour change goals. Participants also received reduced copayments for their diabetes medications	Registered nurses	Diabetics	C	• No difference in receipt of appropriate care
Kruse et al. (2010)	Nurse practitioner assessed health maintenance needs, reviewed medications, saw the patient in the office (often at the same visit as the primary care physician), provided patient education, coordinated referrals to specialty physicians and home health services, and provided both first access care on the telephone for patients with problems and follow-up phone care to check on patients after doctor visits or hospitalizations.	Nurse practitioner	Outpatients who attended primary care clinic		• Expected that hospitalisations were not impacted by this CC intervention because it was applied to patients not at high risk. • Direct phone access to the CC was reported as a valued aspect of the program • CC viewed as vital contributor to continuity of care
Medication self management for elderly(Marek	Advanced practice registered nurses worked closely with participants to identify their goals in care and provided education and tools for chronic disease self-management. Medication adherence	Advanced practice registered nurses	Older than 60 with impaired ability to manage medications	M	• Focus on medication management connected CC with participants via planned weekly telephone calls and bi-weekly home visits.

et al., 2014; Marek et al., 2013)	was supported by either a pill organiser or medication dispenser. CC visited participants a minimum of every 2 weeks. If hospitalised, CC visited participants during and after hospitalisation and participated in discharge planning.				• On-going contact facilitated quick intervention for exacerbations of chronic illness
Aging in Place (Marek, Adams, Stetzer, Popejoy, & Rantz, 2010; Marek, Popejoy, Petroski, & Rantz, 2006)	Aging in place (AIP) intervention which involved nurse care coordination. RNs trained in CC delivered the intervention. AIP participants received: • Individualised assessment • Care plan reviewed with participants and family no less than monthly during a home visit • Same nurse coordinated care • Additional nursing interventions to monitor and coordinate health care • Hospitalised participants were followed by CC who worked with hospital discharge planners and families on post-hospital plan of care	Advanced practice registered nurses	Missouri Care Options (MCO) program participants - Community based long-term care. Eligible for nursing facility care but could have needs met outside a facility	C	• Nurse care coordination is potentially more likely to influence clinical outcomes with more frail clients • Nurse care coordinator in this project also was the provider of the majority of skilled nursing care delivered to clients. This engagement in care provided the nurse care coordinator a more comprehensive perspective of each client's abilities and care needs. • Chronically ill older adults might need a longer time to show the effectiveness of the nurse care coordination intervention (12 months).
Parsons et al. (2012)	Experienced nurses working at an advanced level who were assigned to defined geographical areas and: • Developed strong partnerships with family physicians, practice nurses, and organizations within their area. • Performed standardised assessment • Organised required support services • Maintained continuation of care	Experienced nurses working at an advanced level	High risk of residential care	C	• CC became the point of contact for the family physician, the older person, and their family regarding care options and services • CC intervention did not increase the burden on or decrease the health-related quality of life of the primary informal caregiver • mechanism by which the outcome was achieved is not exactly understood (no effect on functional status • possibility that the intervention model was more adept at preventing deterioration in

	• Development of relationship and regular scheduled meetings with primary care physician				the health and home situation of the older adult through managing crises (p. 90)
Plant et al. (2015)	Three nursing roles were allocated: Inbound, Inflight and Outbound: • Inbound (manage patients at presentation to ED, assess health status and readmission risk and coordinate direction of care whether that be at hospital or home) • Inflight (monitoring progress and minimise delays to discharge) • Outbound (reviewing hospital stay, assessing need for out of hospital care and making arrangements for post-discharge care)	No information about qualifications or training provided	Chronic illness admitted to emergency department	I	• Nursing personnel was reduced from two nurses to one nurse during intervention period. The remaining CN nurse reviewed existing risk assessments, updating participants' requirements where required, but did not carry out any other part of the Inbound CN role due to availability of time and a lack of expertise in ED nursing. • CC did have an impact on the processes of care following discharge. Patients in the intervention group received more services from community health agencies, mainly nursing services. • Delivery of CC was largely within the hospital, with limited arrangements made for ongoing care after departure.
Price (1996)	Nurse telephoned patients monthly (or more often if required) to: • Educate • Facilitate adherence • Monitor health status • Facilitate resolution of identified problems • Facilitate access to primary care	No information about qualifications or training provided	Diabetics	T	• Intervention not require large investment in extra resources
Sidorov et al. (2002b)	Package of interventions over one year including: • Promotion of diabetes clinical guidelines by nurse CC in day to day interactions with primary care provider and patient	Registered nurses trained in diabetes patient education as well as tobacco cessation, congestive heart	Diabetics	C	• Findings may be biased due to non-randomised design • Diabetes disease management can simultaneously benefit patients and health service funders through lowering health

		failure, hypertension, chronic obstructive pulmonary disease, and asthma.			care use, cost savings and higher health care quality.
Sidorov, Fisher, Girolami, and Wolke (2002a)	Nurse case managers located in primary care clinics provide: • Promotion of clinical guidelines by nurse CC in day to day interactions with primary care provider and patient • Early and appropriate specialty clinic referral • Education by nurse CC	Registered nurses trained in diabetes patient education as well as tobacco cessation, congestive heart failure, hypertension, chronic obstructive pulmonary disease, and asthma.	Asthmatics, diabetics, chronic heart failure	C	• Results at high risk of selection bias and regression to the mean • primary care-based DM and case management were effectively promoting clinically indicated outpatient interventions, thereby avoiding complications associated with inpatient utilization and associated higher costs (p. 13)
Sullivan et al. (2015)	CC provided an orientation to care, care coordination, and regular phone contacts, utilizing a strengths-based perspective and motivational interviewing over a period of 8 months.	Licensed registered nurse (RN) with mental health training and experience	Women of colour with HIV	C	• See qualitative findings.
Taylor et al. (2013)	• assesses the patients' and families' comfort level in working with and navigating through the healthcare system • coaches families in the development of coordination skills, including how to partner with providers, track and organize	Bachelor's degree in nursing and at least 5 years of clinical experience in a complex	Children with special healthcare needs	C	• Further research required to address limitations in study design • CC intervention supports the IOM's recommendations that knowledge is shared between providers (Institute of Medicine, 2001).

	clinical information, and identify community • supports • evaluates the complexity of care needed in terms of the number and variety of services required • works with the family and patient's care team to define coordination needs and ensures that a clear care plan is defined • provides coordinated, centralized scheduling for patients to ensure continuity during transitions in care • identifies a long-term point person (or persons) to oversee the care plan, and, ultimately, transitions facilitation of ongoing coordination to that person.	medical environment.		
White, Carney, Flynn, Marino, and Fields (2014)	Responsibilities included fielding calls or electronic communications from the inpatient team, developing a hospital follow-up workflow, developing a standardized list of questions to ask each patient after discharge, and calling patients to ensure a follow-up appointment was scheduled, ideally within 2 to 3 days and at least within 7 days of discharge. The CC prioritized scheduling follow-up appointments with the patient's primary care provider to ensure the highest level of continuity.	Registered Nurse	Primary care	M	• Authors argue that outpatient adoption of the enhanced "reaching in" and a multicomponent intervention would have a significant positive impact on patient care and improve the transition from in- to outpatient care, and likely reduce readmissions. • Implemented 8 of the 12 predischarge, postdischarge, and bridging interventions identified by Hansen et al

C: Community; I: Institution (eg hospital); T=Telehealth; M: Mixed.

SF Table 17: Quality of life findings from included studies

Study	N	Design	Outcome measure	Finding	GRADE
Aiken et al. (2006)	190 randomised (85 provided data for final follow-up)	RCT	SF-36	Physical functioning, general health and vitality in COPD patients randomised to the care coordination group was greater than the usual care group at 9 months (p<0.05).	Downgraded to low quality due to risk of attrition bias and imprecision
CCHT (Barnett et al., 2006)	N=445	Single group longitudinal	SF-36	Significant improvement in Role limitations due to physical health (p=0.02), bodily pain (p=0.005) and social functioning (p=0.0498).	Downgraded to very low quality due to serious concerns about risk of bias
Bauer et al. (2006)	CC=166 Non CC=164	RCT	SF-36	• Mental component score for the CC group was significantly greater than the non-CC group at 6 months (p=0.01; effect size 0.27) • No difference in physical component score (p=0.298)	High quality
Boult et al. (2013)	N=274 CC; n=203 non-CC	Cluster RCT	SF-36	• Physical health component score overall treatment effect was -1.3 (95% CI = -3.02 to 0.41). • Mental health component score overall treatment effect was 1.05 (95% CI = -1.08 to 3.12)	High quality
Medicare Coordinated Care Demonstration (MCCD) (Peikes et al., 2009)	18309 (15 programs analysed separately)	Multi-site RCT	SF-36 Effect of primary condition on life	• None of the 12 programs had an effect on mental health component score • 1 of the 12 programs had a moderate impact on physical health component score • 1 of the 12 programs had a moderate impact on effect of primary condition on life	High quality
Ciccone et al. (2010)	N=1160	Single group	SF-12	Average score was 7.99 points above the national normal value (47.6) and 5.28 points above baseline	Downgraded to very low quality due to serious concerns about risk of bias

Study	Sample	Design	Measure	Results	Quality
		longitudinal			
Fens et al. (2014)	N=58 CC, n=43 non-CC	Non-randomised comparison	• SASIP-30 (patients) • LiSAT-9 (carers)	• Median score was 6 (IQR 3, 10) in the CC group at 18 months follow up compared with median score of 4 (IQR 1-9) in the non-CC group (p=0.416) • Median score was 4.7 (IQR 4.4, 5) in the CC group at 18 months follow up compared with median score of 5 (IQR 4.9-5.3) in the non-CC group (p=0.005)	Downgraded to low quality due to serious concerns about risk of bias and imprecision
Gabbay et al. (2013)	N=232 CC N=313 non-CC	RCT	Audit of diabetes dependent quality of life	• Scores did not differ between groups at 2 years follow-up	Downgraded to moderate quality due to concerns about risk of bias
Marek et al. (2013)	N=414	RCT	SF-36	Participants who received CC and the pill organizer had significantly better quality of life than the control group, but the addition of the medication dispenser to CC did not result in better clinical outcomes.	High quality
Parsons et al. (2012)	N=351	Cluster RCT	EuroQOL	No differences between groups in overall QoL, cognitive performance scale, depression rating scale, changes in health and pain scale	High quality
Plant et al. (2015), Australia	RCT	N=259 at 24 month follow-up (52% of enrolled sample)	Mean difference in EQ-5D score	Mean difference was 0 (95% CI=-0.10 to 0.09)	High quality
Price (1996)	N=251 (CC 188)	RCT	SF-36	No between group differences for any domain	Downgraded to moderate quality due to concerns about risk of bias

SASIP-30=Stroke Adapted Sickness Impact Profile; SF-36= Medical outcomes short form 36 item survey; LiSAT-9=Life satisfaction questionnaire;

SF Table 18: Psychological morbidity findings from included studies

Study	N	Design	Outcome measure	Finding	GRADE
Medicare Coordinated Care Demonstration (MCCD) (Brown et al., 2008)	18309 (15 programs analysed separately)	Multi-site RCT	SF-12 (individual items related to emotional distress and depression)	• 3 out of 12 programs produced a moderate improvement in emotional distress • None of the 12 programs had an effect on depression	Downgraded to moderate quality due to study limitations
Sweeney et al. (2007)	N=358 CC, n=398 non-CC	Non-randomised comparison	Difference in inpatient symptoms (measurement tool not reported)	• No patients had anxiety in CC group compared with 3 patients in non-CC group	Downgraded to very low quality due to serious concerns about risk of bias
Fens et al. (2014)	N=57 CC, n=43 non-CC	Non-randomised comparison	Hospital Anxiety and Depression Scale	Patients • Median difference from baseline to 18 months follow up for anxiety subscale was -1 (IQR -3.5, 1) in the CC group compared with -1 (IQR -3,1) in the non-CC group (not significant) • Median difference from baseline to 18 months follow up for depression subscale was -1 (IQR -2.5, 1) in the CC group compared with 0 (IQR -	Downgraded to low quality due to serious concerns about risk of bias and imprecision

				2,1) in the non-CC group (not significant) Caregivers • Median difference from baseline to 18 months follow up for anxiety subscale was -2.5 (IQR -4.3, 1) in the CC group compared with 0 (IQR -2.3,2.3) in the non-CC group (not significant) • Median difference from baseline to 18 months follow up for depression subscale was -1 (IQR -4, 0) in the CC group compared with 0 (IQR -2.3,1) in the non-CC group (not significant)	
Gabbay et al. (2013)	N=232 CC N=313 non-CC	RCT	• Centre for Epidemiological Studies-Depression • Problem areas in diabetes (PAID) scale (measures emotional distress related to diabetes	• Depression symptoms were rates as less severe at 2 years follow-up in the CC group (mean 10, SD 11 in CC group versus mean 14, SD 14 in non-CC group) • PAID scores were not significantly different at 2 years follow-up (mean 23, SD 21 in CC group versus mean 29, SD 27 in non-CC group)	Downgraded to moderate quality due to concerns about risk of bias

Marek et al. (2013)	N=414	RCT	• Geriatric depression scale	• Participants who received CC and the pill organizer had significantly better depression scores than the control group, but the addition of the medication dispenser to CC did not result in better clinical outcomes.	High quality
Marek et al. (2006)	CC=55; non-CC=30	Non-randomised comparison	OASIS (assessment tool used for all patients who receive Medicare home health services)	• At 12 months the CC group scored the same as the non-CC group	Low quality

HADS=Hospital anxiety and depression scale

SF Table 19: Symptom findings from included studies

Study	N	Design	Outcome measure	Finding	GRADE
Aiken et al. (2006)	85 at final follow-up	RCT	Worst symptom frequency, severity and distress ratings measured using the Memorial Symptom Assessment Scale	CC patients with COPD reported lower symptom distress (p<0.05). CC patients with CHF had higher symptom distress (p<0.05).	Downgraded to moderate quality due to risk of attrition bias and imprecision
Medicare Coordinated Care Demonstration (MCCD) (Brown et al., 2008)	18309 (15 programs analysed separately)	Multi-site RCT	SF-12 (individual items used to determine 'poor sleep' and 'Pain interference with usual activities')	• 2 of 12 programs had a moderate improvement in poor sleep and pain	Downgraded to moderate quality due to study limitations
Marek et al. (2006)	CC=55; non-CC=30	Non-randomised comparison	OASIS (assessment tool used for all patients who receive Medicare home health services)	• At 12 months the CC group scored lower (better) than the non-CC group in the outcomes of pain and dyspnea	Low quality
Sweeney et al. (2007)	N=358 CC, n=398 non-CC	Non-randomised comparison	% difference in inpatient symptoms	• 44% less nausea and vomiting in CC group (not significant)	Downgraded to very low quality due to serious concerns about risk of bias

SF Table 20: Satisfaction with care findings from included studies

Study	N	Design	Outcome measure	Finding	GRADE
Bauer et al. (2006)	CC=166 Non CC=164	RCT	Patient Satisfaction Index	Score for the CC group was significantly greater than the non-CC group at 6 months (p<0.001; effect size 0.55)	High quality
Boult et al. (2013)	N=274 CC; n=203 non-CC	RCT	Patient assessment of chronic illness care	Overall treatment effect of CC was 0.27 (95% CI = 0.08 to 0.45)	High quality
Fens et al. (2015); Fens et al. (2014)	N=64	Single group cross sectional	Satisfaction with stroke care part 2 (SASC-19)	• Mean score at 18 months 2.0 (SD 0.2) • 97.9% reported total to moderate satisfaction	Downgraded to low quality due to serious concerns about risk of bias and imprecision
Gabbay et al. (2013)	N=232 CC N=313 non-CC	RCT	Diabetes treatment satisfaction questionnaire	• Scores did not differ between groups at 2 years follow-up	Downgraded to moderate quality due to concerns about risk of bias

SF Table 21: Satisfaction with coordinator findings from included studies

Study	N	Design	Construct	Finding	GRADE
Fens et al. (2015); Fens et al. (2014)	N=53	Single group cross sectional	Satisfaction with stroke care part 1 (SASC-19)	• Mean score at 18 months 2.6 (SD 0.5) • 100% reported total to moderate satisfaction	Downgraded to low quality due to serious concerns about risk of bias and imprecision

SF Table 22: Family-reported satisfaction with care findings from included studies

Study	N	Design	Outcome measure	Finding	GRADE
Engelhardt et al. (2008)	N=36	Single group cross-sectional	Client experiences questionnaire (1=extremely satisfied; 5=extremely dissatisfied)	Mean score was 1.89 (SD 0.524)	Downgraded to very low quality due to concerns about confounding
Fens et al. (2015); Fens et al. (2014)	N=38	Single group cross sectional	Satisfaction with stroke care part 2 (SASC-19)	• Mean score at 18 months 2.0 (SD 0.4) • 97.4% reported total to moderate satisfaction	Downgraded to low quality due to serious concerns about risk of bias and imprecision

SF Table 23: Family-reported satisfaction with coordinator intervention findings from included studies

Study	N	Design	Outcome measure	Finding	GRADE
Fens et al. (2015); Fens et al. (2014)	N=38	Single group cross sectional	Satisfaction with stroke care part 1 (SASC-19)	• Mean score at 18 months 2.6 (SD 0.5) • 94.1% reported total to moderate satisfaction	Downgraded to low quality due to serious concerns about risk of bias and imprecision
Taylor et al. (2013)	N=25 CC; n=50 non-CC	Non-randomised comparison group	Care coordination composite score	• 83.5% 'agree' or 'strongly agree' in CC group compared with 56% in non-CC group (p<0.001)	Downgraded to very low quality due to concerns about attrition bias and confounding

SF Table 24: Staff-reported effectiveness of coordinator findings from included studies

Study	N	Design	Outcome measure	Finding	GRADE
Berry et al. (2011)	Not reported	Pre-post test	Care coordinator domain of Medical Home Index	Post introduction of the CC, improvements in care coordination (1.25 pre, 2.0 post) and community outreach (1.0 pre to 1.5 post) domains were achieved. All other domains did not change.	Downgraded to very low quality due to concerns about attrition bias and confounding

SF Table 10: Hospitalisation findings from included studies

Study	N	Design	Outcome measure	Finding	GRADE
Aldeen et al. (2014)	CC=408 Non CC=6806	Non-randomised comparison	• Difference in proportion of admissions to hospital • Difference in readmissions within 30 days	• 2.8% fewer admissions to hospital in the CC group (95% CI= 6.3% fewer to 1.3% higher) • 3.7% fewer readmissions to hospital within 30 days (95% CI = 6.9% fewer to 0.1% higher)	Downgraded to very low quality due to concerns about confounding
CCHT (Barnett et al., 2006)	391 cases and controls	Matched case control	Likelihood of having at least one admission within 24 months	9.1% less likely in CC group (p=0.02)	Low quality
Boult et al. (2013)	N=485 CC; n=419 non-CC	Cluster RCT	Difference in adjusted mean annual per capita use of health services	• 6% reduction in hospital admissions (0.94; 95% CI = 0.74 to 1.19) • 13% reduction in 30-day readmissions (0.87; 95% CI= 0.53 to 1.41)	Downgraded to moderate quality due to imprecision
Boyd et al. (2014)	29 facilities received CC compared with 25 facilities with no CC	Randomised comparison	Hospital admission rate ratio 1 year before and after CC	• 0.73 (95% CI=0.61 to 0.86) • 5.66 admissions less per facility for the CC group (95% CI = 0.38 to 10.94).	Downgraded to low quality due to serious concerns about risk of bias
Medicare Coordinated	18309 (results from programs	Multi-site RCT	Average annualized number	• One of the 15 programs had a statistically significant	High quality

Care Demonstration (MCCD) (Peikes et al., 2009)	analysed separately)		of hospital admissions	reduction (0.168 fewer hospitalisations per person per year; 90% confidence interval [CI], −0.283 to −0.054; 17% less than the control group mean, P=.02) • One of the programs had 0.118 more hospitalisations per person per year (90% CI, 0.025-0.210; 19% more than the control group mean, P=.04)	
Care Transitions (Coleman et al., 2006)	N=750	RCT	Odds ratio of re-hospitalisations within: 1. 30 days 2. 90 days 3. 180 days	1. OR 0.59 (95% CI=0.35 to 1.0) 2. OR 0.64 (95% CI=0.42 to 0.99) 3. OR 0.80 (95% CI=0.54 to 1.19)	Downgraded to moderate quality due to imprecision
Dajczman et al. (2013)	N=202	Pre-post test	• Reduction in admissions due to respiratory causes • Reduction in admissions due to any cause	• 58 (60%) less visits after CC implementation • 56 (34%) less visits after CC implementation	Downgraded to very low quality due to serious concerns about risk of bias
Engelhardt et al. (2008)	N=36 CC, n=113 non-CC	Historical control group comparison	Admissions	11%(n=4) in CC group versus 74%(n=84) in non CC group (p<0.001)	Downgraded to very low quality due to serious concerns about risk of bias

Sweeney et al. (2007)	N=358 CC, n=398 non-CC	Non-randomised comparison	% difference in admissions to hospital	29.4% less in CC group (noted to be marginally significant)	Downgraded to very low quality due to serious concerns about risk of bias
Hajewski and Shirey (2014)	Not reported	Non-randomised comparison with a control unit	Readmissions during a quarter year	Reduced by 4 admissions in CC group and by 19 days in non-cc group (p=0.068)	Downgraded to very low quality due to concerns about risk of bias and imprecision
Hawkins et al. (2015)	1604 propensity score matches (from 2015 participants compared with 7626 nonparticipants)	Non-randomised comparison (control group qualified for program but did not participate)	Hospital readmission within 30 days (OR greater than 1 indicates improvement in CC group)	• OR 1.1 overall • OR 1.5 for less than 10 months participation (p<0.05)	Downgraded to very low quality due to concerns about inconsistency and imprecision
Jingping et al. (2015)	907 CC group compared with 907 matched controls 910 CC group compared with 13847 matched controls	Non-randomised comparison with propensity score matched control group	Difference in inpatient admissions per 1,000 member months	9.64 admissions less per 1,000 member months in CC group (p=0.13)	Downgraded to very low quality due to concerns about imprecision
Kind et al. (2012)	Pre-post test	605 participants included in intervention period compared with 103	30-day readmissions	OR 0.55 (95% CI=0.33 to 0.9)	Downgraded to very low quality due to concerns about imprecision

		participants in baseline period		
Koehler et al. (2009)	Pilot RCT	41 inpatients who received transition care	• 30 day readmissions • 60 day readmissions	• Relative risk 0.26 (95% CI=0.06 to 1.08) • Relative risk 0.70 (95% CI=0.30 to 1.6)	Downgraded to low quality due to imprecision
Kruse et al. (2010)	Matched case control	CC=130; Non-CC=249 primary care patients	Inpatient stays (mean/1000 days)	1.04 (0.79-1.37) in CC group compared with 1.09 (0.9-1.34) in non-CC group (p=.75)	Low quality
Plant et al. (2015)	RCT	N=500 patients with chronic illness admitted to an emergency department	Difference in readmissions (rate ratio)	RR 0.85 (95% CI=0.7 to 1.04)	High quality
Sidorov et al. (2002b)	Non-randomised comparison	N=3118 CC; n=3681 non-CC	Mean number of inpatient admissions per year	0.12 in CC group compared with 0.16 in non-CC group (p<0.05)	Low quality
White et al. (2014)	Non-randomised comparison	N=961 (685 CC group)	Readmissions per month	Decrease in readmissions in CC group and no strong correlation between usual care and readmissions over time (P=.05).	Downgraded to very low quality due to concerns about risk of bias (unadjusted analysis)

SF Table 251: Length of stay findings from included studies

Study	N	Design	Outcome measure	Finding	GRADE
Aldeen et al. (2014)	CC=408 Non CC=6806	Non-randomised comparison	Median difference in hours	18 hours less in the CC group	Downgraded to very low quality due to concerns about confounding
CCHT (Barnett et al., 2006)	391 cases and controls	Matched case control	• Percent increase in length of stay due to any cause (days) over 24 months • Difference in length of stay due to diabetes (days) over 24 months	• 7% higher in CC group (p=0.2) • 4.9% higher in CC group (p=0.31)	Downgraded to very low quality due to serious concerns about risk of bias
Bauer et al. (2006)	CC=166 Non CC=164	RCT	Difference in total days in hospital	3.7 less in the CC group (95% CI=16.1 less to 9.3 more)	Downgraded to moderate quality due to concerns about imprecision
Dajczman et al. (2013)	N=202	Pre-post test	• Reduction in total days spent in hospital for any cause • Reduction in total days spent in hospital for respiratory cause	• 37% decrease for any cause (709 days) • 71% decrease for respiratory cause (793 less days)	Downgraded to very low quality due to serious concerns about risk of bias
Engelhardt et al. (2008)	N=36 CC, n=113 non-CC	Historical control group comparison	Difference in mean length of stay	4.29 days less in CC group (p<0.001)	Downgraded to very low quality due to serious concerns about risk of bias

Sweeney et al. (2007)	N=358 CC, n=398 non-CC	Non-randomised comparison	% difference in mean days spent in hospital	24.3% less in CC group (not significant)	Downgraded to very low quality due to serious concerns about risk of bias
Hajewski and Shirey (2014)	Not reported	Non-randomised comparison with a control unit	Mean length of stay in days over quarter year	Reduced by 1 day in CC group and by 0.08 days in non-cc group (p=0.031)	Downgraded to very low quality due to concerns about risk of bias
Kind et al. (2012)	Pre-post test	605 participants included in intervention period compared with 103 participants in baseline period	Re-hospitalisation length of stay	408.7 less days in hospital in CC group	Downgraded to very low quality due to concerns about imprecision
Koehler et al. (2009)	Pilot RCT	41 inpatients who received transition care	Mean difference in length of stay	1.5 days less in CC group (SD 7.54; p=0.11)	Downgraded to low quality due to imprecision
Kruse et al. (2010)	Matched case control	CC=130; Non-CC=249 primary care patients	Total inpatient days (mean/1000 days)	6.65 (4.5-9.83) in CC group compared with 7.23 (5.45-9.6) in non-CC group (p=.74)	Low quality
Plant et al. (2015)	RCT	N=500 patients with chronic illness admitted	Difference in length of stay (rate ratio)	RR 0.98 (95% CI=0.82 to 1.17)	Downgraded to moderate quality due to imprecision

			to an emergency department		
Sidorov et al. (2002b)	Non-randomised comparison	N=3118 CC; n=3681 non-CC	Mean number of inpatient days per year	0.56 in CC group compared with 0.98 in non-CC group (p<0.05)	Low quality

SF Table 262: Emergency department use findings from included studies

Study	N	Design	Outcome measure	Finding	GRADE
Aiken et al. (2006)	190	RCT	ED visits per month	0.11 (SD 0.34) in the care coordination group; 0.10 (SD 0.31) in usual care	Downgraded to moderate quality due to risk of attrition bias
Aldeen et al. (2014)	CC=408 Non CC=6806	Non-randomised comparison	ED length of stay (difference in median hours)	1.1 hours more in the CC group (p<0.001)	Downgraded to very low quality due to concerns about confounding
CCHT (Barnett et al., 2006)	391 cases and controls	Matched case control	• Likelihood of having at least one ED visit within 24 months • Likelihood of having at least one ED visit due to diabetes within 24 months	• 39.6% more likely in CC group (p=0.000) • 19.6% more likely in CC group (p=0.000)	Downgraded to very low quality due to serious concerns about risk of bias
Boult et al. (2013)	N=485 CC; n=419 non-CC	RCT	• Difference in adjusted mean annual per capita use of health services	2% increase in ED visits for CC group (1.02; 95% CI= 0.78 to 1.33)	Downgraded to moderate quality due to imprecision
Dajczman et al. (2013)	N=202	Pre-post test	• Reduction in ED visits due to respiratory causes	23 (38%) less visits	Downgraded to very low quality due to serious concerns about risk of bias and imprecision

Evercare UK (Gravelle et al., 2007)	Pre-post comparison with non-randomised propensity-score matched comparison	9 primary care trusts in the UK including 64 intervention practices compared with 6960-7695 practices (depending on outcome)	ED visits and bed days	Rates were higher in the CC group (not significant at the 5% level)	Low quality
Sweeney et al. (2007)	N=358 CC, n=398 non-CC	Non-randomised comparison	% difference in ED visits	23% less in CC group	Downgraded to very low quality due to serious concerns about risk of bias and imprecision
Jingping et al. (2015)	907 CC group compared with 907 matched controls 910 CC group compared with 13847 matched controls	Non-randomised comparison with propensity score matched control group	Difference in ED visits per 1,000 member months	• 10.81 less ED visits per 1,000 member months in CC group (p=0.33)	Low quality
Kruse et al. (2010)	Matched case control	CC=130; Non-CC=249 primary care patients	Emergency department visits (mean/1000 days)	0.714 (0.535-0.953) in CC group compared with 1.04 (0.859-1.27) in non-CC group (p=.034)	Low quality

Plant et al. (2015)	RCT	N=500 patients with chronic illness admitted to an emergency department	1. Difference in representations (rate ratio) 2. Difference in time to departure ready 3. Mean length of ED stay	1. RR 0.83 (95% CI=0.68 to 1.01) 2. RR 0.84 (95% CI=0.69 to 1.02) 3. RR 0.95 (95% CI=0.82 to 1.11)	Downgraded to moderate quality due to imprecision
Sidorov et al. (2002b)	Non-randomised comparisons	N=3118 CC; n=3681 non-CC	Mean number of ED visits over 2 years	0.49 visits per patient in CC group compared with 0.56 in non-CC group (not statistically significant in adjusted analysis)	Low quality

SF Table 273: Outpatient/clinic use findings from included studies

Study	N	Design	Outcome measure	Finding	GRADE
CCHT (Barnett et al., 2006)	391 cases and controls	Matched case control	1. Likelihood of having at least one visit to the podiatrist within 24 months 2. Likelihood of having at least one visit to the opthamology clinic within 24 months 3. Likelihood of having at least one visit to the diabetes clinic within 24 months	1. 8.7% more likely in CC group (p=0.04) 2. 6.2% less likely in CC group (p=0.07) 3. 5.3% more likely in CC group (p=0.14) 4. 1.2% less likely in CC group (p=0.36)	Downgraded to very low quality due to serious concerns about risk of bias
Kruse et al. (2010)	Matched case control	CC=130; Non-CC=249 I primary care	• Specialties visit (mean/1000 days)	• 16.9 (14.1-20.2) in CC group compared with 16.4 (14.3-18.7) in non-CC group (p=.79)	Low quality

SF Table 284: Home visit use findings from included studies

Study	N	Design	Outcome measure	Finding	GRADE
Boult et al. (2013)	N=485 CC; n=419 non-CC	RCT	• Difference in adjusted mean annual per capita use of health services	29% reduction in home health care episodes (0.71; 95% CI= 0.51 to 0.97)	Downgraded to moderate quality due to imprecision

SF Table 295: Primary care provider visit findings from included studies

Study	N	Design	Outcome measure	Finding	GRADE
Boult et al. (2013)	N=485 CC; n=419 non-CC	RCT	• Difference in adjusted mean annual per capita use of health services	1% reduction in primary care visits 0.99 (95% CI=0.82 to 1.18)	Downgraded to moderate quality due to imprecision
CCHT (Barnett et al., 2006)	391 cases and controls	Matched case control	Likelihood of having at least one visit to the primary care clinic within 24 months	8.7% more likely in CC group (p=0.04)	Downgraded to very low quality due to serious concerns about risk of bias
Kruse et al. (2010)	Matched case control	CC=130; Non-CC=249 primary care patients	• Urgent care visits (usual provider not available) (mean/1000 days) • Usual care provider visit (mean/1000 days)	• 0.174 (0.123-0.246) in CC group compared with 0.426 (0.362-0.502) in non-CC group (p<.001) • 15.1 (13.3-17.1) in CC group compared with 15.8 (14.4-17.3) in non-CC group (p=.56)	Low quality
Sidorov et al. (2002b)	Non-randomised	N=3118 CC; n=3681 non-CC	Mean number of visits per year	8.4 in CC group compared with 7.8 in non-CC group	Low quality

SF Table 306: Receipt of appropriate care findings from included studies

Study	N	Design	Outcome measure	Finding	GRADE
Kogut et al. (2012)	CC=649; non-CC=9049	Retrospective propensity score matched comparison	Receiving 5 processes of care	CC patients were similarly likely to have all 5 recommended processes of care performed (40.1% vs 38.9%; p = 0.543).	Downgraded to very low quality due to risk of bias
Gabbay et al. (2013)	N=232 CC N=313 non-CC	RCT	Diabetic complications screening	• More CC patients received neuropathy screening (22% versus 14%; p<0.001) • More CC patients received retinopathy screening (34% versus 24%, p<0.001) • More patients received nephropathy screening (92% versus 85%, p=0.017)	Downgraded to moderate quality due to concerns about risk of bias

SF Table 317: Treatment adherence findings from included studies

Study	N	Design	Outcome measure	Finding	GRADE
Marek et al. (2013)	n=289	Single group	Correct medication doses per month	Average percent of correct doses per month was 98.8% in the CC group who received a medication disepenser and 97.4% in the CC group who received a pill organizer.	Low quality

SF Table 32: Survival findings from included studies

Study	N[1]	Design	Outcome measure	Finding	GRADE
Aldeen et al. (2014)	CC=408 Non CC=6806	Non-randomised comparison	Difference in proportion of death (no timepoint)	0.5% fewer in the CC group (95%CI=2.1% fewer to 1.9% higher)	Downgraded to very low quality due to concerns about confounding
Bauer et al. (2006)	CC=166 Non CC=164	RCT	Deaths	12 (7%) in CC group and 8 (5%) in non-CC group	Downgraded to moderate quality due to imprecision
Boult et al. (2013)	N=485 CC; n=419 non-CC	RCT	Mortality at 32 months	OR 0.88 (0.59 to 1.31)	Downgraded to moderate quality due to imprecision
CCHT (Chumbler et al., 2009)	N=387	Non-randomised comparison (propensity score matched control group)	Adjusted hazard ratio for mortality over 4 years follow-up	HR 0.68 (95% CI=0.5-0.92)	Low quality
Health Quality Partners (Coburn et al., 2012)	N=1736	RCT	Mortality (unadjusted and adjusted) over the 6 years of the program	Unadjusted • HR death 0.75 (95% CI=0.57-1.0 • 86 (9.9%) deaths in CC group vs 111 (12.9%) deaths in non CC group Adjusted for sex, age, primary diagnosis, perceived health, number of medications taken, hospital stays in the past 6 months and tobacco use • HR death 0.73 (95% CI=0.55 to 0.98)	High quality

Eloniemi-Sulkava et al. (2001)	RCT	N=100 demented patients and their families	Death in community care at 2 years	9 (17%) in CC group and 8(17%) in non CC group	Downgraded to low quality due to serious concerns about risk of bias and imprecision.
Engelhardt et al. (2008)	Historical control group comparison	N=36 CC, n=113 non-CC	Death	N=4 (11%) CC versus n=5(4%) non-CC (p=0.22)	Downgraded to very low quality due to risk of bias and imprecision
Evercare et al. (Gravelle et al., 2007)	Pre-post comparison with non-randomised propensity-score matched comparison	9 primary care trusts in the UK including 64 intervention practices compared with 6960-7695 practices (depending on outcome)	Mortality	Rates were higher in the CC group (not significant at the 5% level)	Low quality
Jingping et al. (2015)	907 CC group compared with 907 matched controls 910 CC group compared with 13847 matched controls	Non-randomised comparison with propensity score matched control group	Odds ratio of 12-month mortality	OR 0.82 (p=0.39)	Low quality
Kruse et al. (2010)	Matched case control	CC=130; Non-CC=249 primary care patients	Death within 5 years follow-up	26.9% in CC group compared with 27.3% in non-CC group. No difference in survival between groups using Cox regression adjusting for age and sex (p=0.56)	Low quality
Sweeney et al. (2007)	N=358 CC, n=398 non-CC	Non-randomised comparison	Death	71 patients in CC group died compared with 86 in non-CC group (p=0.80)	Downgraded to low quality due to risk of bias and imprecision
Parsons et al. (2012)	N=351	Cluster RCT	Death within 24 months	ARR 1.5% in CC group (n=21 vs n=17)	Downgraded to moderate quality due to imprecision

| Plant et al. (2015) | RCT | N=500 patients with chronic illness admitted to an emergency department | Mortality | CC had no effect on mortality (hazard ratio, 0.92; 95% CI, 0.67–1.26; P = 0.60) | Downgraded to moderate quality due to imprecision |

SF Table 19: Health service cost and income findings from included studies

Study	N	Design	Outcome measure	Finding	GRADE
Atherly et al. (2011)	CC=11284, non-CC=8607	Non-randomised comparison	Total annual medicare costs	total annual Medicare costs for the participating sample were 15.7% lower in 2007 ($3240) than for the control group, controlling for age, sex, race, and baseline risk	Low quality
Bauer et al. (2006)	CC=166 Non CC=164	RCT	Difference in costs between groups over three years	$2981 less in the CC group (95% CI=16030 less to 10601 more)	Downgraded to moderate quality due to imprecision
CCHT (Barnett et al., 2007)	N=387	Non-randomised comparison (propensity score matched control group)	Incremental cost-effectiveness ratio	• Mean ICER $60,941 • Program was cost-effective for one-third of participants	NA
Medicare Coordinated Care Demonstration (MCCD) (Peikes et al., 2009)	18309 (15 separate programs)	Multi-site RCT	Difference in cost between groups over 4 years	• No programs generated savings	High quality
Care Transitions (Coleman et al., 2006)	N=750	RCT	Difference in log transformed non-elective hospital costs at: 1. 30 days 2. 90 days 3. 180 days	Patients in the CC group had lower costs at 90 and 180 days (p=0.02 and 0.049)	High quality

Study	Sample	Design	Outcome	Result	Quality
Engelhardt et al. (2008)	N=36 CC, n=113 non-CC	Historical control group comparison	Difference in inpat(2014)ient costs	$17547.08 less in CC group	Downgraded to very low quality due to risk of bias
High Risk Case Management (Hawkins et al., 2015)	1604 propensity score matches (from 2015 participants compared with 7626 nonparticipants)	Non-randomised comparison (control group qualified for program but did not participate)	Return on investment (ratio of savings to costs where value over 1:1 indicates savings)	1.4:1 overall -5.3:1 with less than 10 months participation -0.5:1 with 10-18 months participation 1.2:1 with 19-37 months participation	Downgraded to very low quality due to inconsistency
Jingping et al. (2015)	907 CC group compared with 907 matched controls	Non-randomised comparison with propensity score matched control group	Per member per month healthcare costs	-$248 (p=0.09)	Downgraded to very low quality due to risk of bias and imprecision
Kind et al. (2012)	Pre-post test	605 participants included in intervention period compared with 103 participants in baseline period	Overall costs	$1255 per participant less in CC group	Downgraded to very low quality due to concerns about imprecision
Marek et al. (2014)	N=414	RCT	Monthly dollar savings	$296 savings per month for CC plus pill dispenser compared with control group	High quality
Marek et al. (2010)	Retrospective cohort design with non-	CC=57; non-CC=80	Monthly Medicare and Medicaid savings	$686 lower Medicare costs in first 12 months of intervention $203 higher Medicaid costs	Low quality

	randomised comparison group				
Sidorov et al. (2002b)	Non-randomised comparisons	N=3118 CC; n=3681 non-CC	Total paid claims	$394.62 per member per month in CC group compared with $502.48 per member per month in non-CC group (p<0.05)	Low quality
Sidorov et al. (2002a)	Pre-post test	N=396 asthmatics; n=3556 diabetics; n=3346 chronic heart failure	Total paid claims	Total mean reductions in claims over one year of follow-up from the day of entry for patients with asthma, diabetes mellitus, CHF and for case management programs were $US105 544, $US896 112, $US7 237 440 and $US17 907 992, respectively.	Low quality
Sweeney et al. (2007)	N=358 CC, n=398 non-CC	Non-randomised comparison	Difference in overall costs	$18599 less per patient in CC group	Downgraded to low quality due to risk of bias and imprecision