Evidence Table 3. Trials of Case Management for the Frail Elderly

| **Author Year (Quality)** | **Study Purpose and/or *A Priori* Hypothesis (if stated)** | **Eligibility Criteria** | **Exclusion Criteria** | **Study Design/Type Duration of intervention** | **Demographics: Age Gender Race and/or Ethnicity  Socioeconomic Status** | **Primary Disease of Population**  **(and other medical comorbidities and/or coexisting mental illness)** | **Factors of Complex Care Needs** |
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| Applebaum 20025  (Fair) | As a result of the extensive attention from the clinical nurse care manager there would be a better match of services to needs. As a result intervention clients would be more satisfied with acute and long-term care services received, feel like they had more control over the health services that they receive, would report higher function status, and would have reduced hospital and nursing home use and lower overall health care costs. | Chronically disabled home-care clients age 60+. | NR | Randomized trial  6, 12 and 18 months depending on date of entry into program | Treatment group: Average age 78.2 72% female 60.3% Caucasian Comparator group: Average age 79.5 71.1% female 58.6% Caucasian | Frail elderly Alzheimer/Dementia: treatment 17.8% comparator 11.5% | Chronically disabled older people receiving in-home services, financed through a local tax levy, who were at risk of using a high amount of acute services. High risk; hospitalized during the past year, used the emergency room in the past 6 months, experienced functional limitations in select instrumental or activities of daily living, or have one of a selected number of medical conditions. |
| Bernabei 19987  (Good) | To evaluate the impact of a program of integrated social and medical care among frail elderly people living in the community. | People ages 65 and over who were recipients of home health services or home assistance programs. | NR | "Random allocation to an intervention group receiving integrated social and medical care and case management or to a comparator group receiving conventional care."  Duration: 1 year | Mean age: 80 years Female: 70% Race NR | Frail elderly  1) NR 2) Mean value of geriatric depression score=10.6 | Mean number of medical conditions=4.8; Mean number of medications=4.4 per patient |
| Gagnon 199931;  Schein 200532  (Fair) | To compare the effects of nurse case management with usual care provided to community-dwelling frail older in regard to QOL, satisfaction with care, functional status, hospital admissions, length of hospital stay, and readmission to ED department. *Research question: are there differences in QOL, satisfaction with care, functional status, admission to hospital, length of hospital stay, or readmission to ED, for community-dwelling older people identified as being at risk of health decline who receive either NCM or usual care?* | Age ≥ 70 years; discharged home from the hospital ED; living in vicinity of community health centers of Montreal; able to speak English or French; passed the abbreviated Mini-Mental Health State Exam; require assistance with at least one ADL or 2 IADL; had a probability of 40% or more of admission to hospital as defined by the Boult assessment tool. | Admission to the ED from a long-term care facility or nursing home; participation in other research studies; currently followed by the geriatric team of the hospital; unavailable for >2 months during the period of the study; having a partner already participating; and hospitalization at the time of contact. | Randomized trial, 10 months | Age: 81 years Gender: 59% femaleRace: NR | Frail elderly >70 years of age and at risk for repeated hospital admissions discharged home from the emergency department.1) Diabetes: 22%  Cardiac disease: 54%  Self-reported health: 25% poor; 44% fair2) NR | 65% had a hospitalization within the previous 12 months; 65% >6 visits with physician61% living alone though 73% reported a caregiver is available (see previous cell). |
| Kristensson 201048  (Good) | The aim was to test sampling and explore sample characteristics in a pilot study using a case management intervention for older people with functional dependency and repeated contact with the health care services as well as to investigate the effects of the intervention on perceived health and depressed mood after 3 months. The aim was also to explore internal consistency in the life satisfaction index Z, ADL-staircase and Geriatric Depression Scale-20 | Persons who lived in the municipality chosen for the study, aged 65 or over, needed help with at least two ADL such as cleaning or shopping, been admitted to hospital on at least two occasions, or have had at least four contacts with outpatient or primary care during the previous 12 months, be able to communicate verbally and have no cognitive impairment. | Not meeting the inclusion criteria. Refuse to participate. Deceased. Not reachable. | Randomized trial, 3 months | Intervention:  Age: 82  Gender: 60% female Race: NR Comparator:  Age: 85  Gender: 65% female Race: NR | Frail elderly, needed help with at least two ADL.  Life satisfaction index, median (q1-q3): 13 (10-18)  Diseases of the eye and adnexa: n=25  Diseases of the circulatory system: n=34  Pain in extremities: n=37  Difficulty hearing, dizziness and fatigue: n=28 | NR |
| Leung 2004 (a)54  (Poor) | To evaluate the effectivenessof case management provided to a group of home dwelling, frail elderly patients. | Hospital-discharged; age ≥ 60 years; >2 or more chronic medical illnesses, and a recent history of repeat hospitalizations (2 or more episodes in past 6 months). | NR | Randomized trial, 6 months | Mean age= 76 years (+/- 6 years) Gender: 53% femaleRace: NR | Frail elderly, two or more chronic medical illnesses.  1) 51% Hypertension; 12% HF; 32% with diabetes; 28% with COPD  2) NR | All |
| Leung 2004 (b)53  (Fair) | Evaluate cost-benefit of a case management project for older individuals in Hong Kong. | Patients aged 60 years and older discharged from a rehabilitative hospital in Hong Kong | NR | Randomized trial, 6 months | Intervention vs. Comparator Mean Age: 74 vs. 75 years 45% vs. 48% Female Race: NR | Most of the patients suffered from more than one chronic illness: chronic obstructive pulmonary disease, stroke, diabetes, and/or heart disease. | Frail elderly |
| Marshall  199958;  Long 200059;  Long 200260  (Good) | This demonstration project of an ambulatory CM program in Ohio goal was to eliminate fragmented care, inappropriate utilization, unnecessary cost, and confusion among Kaiser members for older members with chronic diseases.  *Hypothesized health and function status and satisfaction with care would improve in CM group. Expected more outpatient visits (less costly) and fewer hospitalizations, ED use.* | Age ≥ 75 years; severe functional disability; excessive hospital use or emergency department use | NR | Randomized trial, 24 months (Assessments taken at 0, 6, 12, 24 months). | Mean Age: 82 years  Gender: 64% female  Race: NR  Education: 65% did not complete 12th grade | Poor functional status, high utilizations of ED and/or hospital.  1) Mean ADL: 6.5  Mean IADL: 5.7  2) NR (though measured poor function status) | NR |
| Rubenstein 200793  (Good) | To test whether a system of screening, assessment, referral, and followup provided within primary care for high-risk older outpatients improves recognition of geriatric conditions and health care outcomes. | Patients > 65 years old receiving care at 2 practice groups SACC of the VA Greater Los Angeles Health care System who had at least one clinic visit at SACC in the previous 18 months. Patients identified by Geriatric Postal Screening Survey and scored >4. | Living outside a 30-mile radius of SACC, already enrolled in outpatient geriatric services at SACC, or living in a long-term care facility. | Randomized trial, 12 months with followup interviews at 2 and 3 years | Mean Age: 74 years  3% Female  Race: NR  76% > high school degree | Target conditions: falls/balance problems, urinary incontinence, depression, memory loss, and functional impairment.1) Average comorbid conditions=2.32) 47% with a >5 on geriatric depression score (range 0-15) | Unmet needs for geriatric services |

| **Author Year (Quality)** | **Payer/Insurance Carrier (e.g., Medicare, Medicaid, private)** | **Managed Care (Yes/No)** | **Characteristics of the Case Manager** | **Describe Case Management Intervention** | **Preintervention Training** | **Primary Location of Case Manager** | **Primary Mode of Case Manager Contact with Patient** |
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| Applebaum 20025  (Fair) | Medicare | No | Clinical nurse care managers supplemented regular care managers | Enhanced clinical service plus traditional care management, a sub-sample of 150 participated in fact-to-face interviews at baseline and at 6 and 12 months to assess service quality, health care utilization and health satisfaction, and physical functioning. | Yes, not specified | NR | Home care |
| Bernabei 19987  (Good) | Health agency of Rovererto, Italy | NA | CM trained in comprehensive geriatric assessment and case management, Geriatric Evaluation Unit and GP. | Case management and care planning by the community geriatric evaluation unit and general practitioners. 2 case managers conducted assessment visits every 2 months, available to deal with problems and to monitor services. | CMs received training in comprehensive geriatric assessment and case management. | Clinic | Assessment visits at least every two months and as needed |
| Gagnon  199931  Schein 200532  (Fair) | Montreal, Canada Health System | See previous cell | 4 nurses with a minimum of 2 years of geriatric nursing experience and worked full-time as NCMs for the study. | Patients in NCM group given a card with CM beeper number, CM available by beeper 8am-8pm Monday-Friday. CM provided integrated care including support patients and caregivers during times of transitions (e.g., hospital to home), and changes in resource needs. The CM coordinated the work of all health care providers and implemented a responsive plan of care. *CM met weekly with research team members to ensure uniformity in care.* | 24 hours (3 days) of initial training which included an introduction to role of CMs, resources available, and study expectations. Each NCM developed a guide to community services available to clients. Skills validated by conducting full geriatric assessments of selected patients. | University hospital and two community health centers, patient’s home, phone followup | Home visits and calls, averaged 3.6 home visits per patient and 2.8 calls per month for each patient. |
| Kristensson 201048  (Good) | NR | NA | CMs were 2 nurses specialized in geriatric nursing, employed part-time. | Four dimensions:  Case management: Assessment, care plan care coordination, home visits, telephone calls and advocacy. General education:  Education about the health care system, social activities, nutrition, exercise, etc.  Safety and continuity: contactable by phone.  Specific education:  Related to the respondents' specific health status, individual needs and medication. | CMs underwent 1 week of training about case management in general, the intervention program, fall prevention, common diseases and medication-related problems in older people, nutrition for older people and the health care organization. | NR | Home visits, phone calls and when needed, accompanying participants to outpatient visits |
| Leung 2004 (a)54  (Poor) | Hong Kong Health Care System | NA | 4 CM trained in nursing elderly patients. | Scope of intervention included, regular monitoring health status to provide preventive proactively; available for via phone 8am-9pm; home visits, if needed; prescribing of community-based supportive services (including community nursing services). Included access a case geriatrician by the CM for medical support which included telephone consultation, assessment of subjects in the outpatient department, and admission of subjects to the hospital. | NR | Unclear but hospital and via phone | Phone |
| Leung 2004 (b)53  (Fair) | Hong Kong Health Care System | NR | Case management was delivered by a social worker plus a registered nurse. | Regular (usually biweekly) home visits and telephone consultations; comprehensive geriatric assessment using Hong Kong version of Minimum Data Set-Home Care; formulation, implementation, and revision of care plans with reference to the results of MDS-HC and discussion with elderly care recipients and their informal caregivers; linking of elderly care recipients with formal health and social services in an integrated care approach, that is, through formal referral procedures plus routine case conferences; monthly monitoring of elderly care recipients' health and hospitalization patterns via a computing program - Integrated Patient Administration System - operated by the Hospital Authority of Hong Kong; on-site and/or over-the-phone health and psychosocial counseling; health educational programs; and supportive groups and educational classes for elderly care recipients and their informal caregivers. | NR | NR | NR |
| Marshall  199958;  Long and Marshall 2000157;  Long 200260  (Good) | Kaiser | Yes, Kaiser of Northern Ohio | 2 CMs from both nursing and social work with prior geriatric CM experience | CM protocols were developed (in consultation with geriatrician) by the study team and defined scope of work for CM and adapted as needed. Initial visit of CM was a home visit to explain the study (and obtain consent), and conduct an initial 2-4 hour assessment visit. After initial visit, CM developed a care plan and for complicated cases, CM care plan was reviewed by interdisciplinary team. | NR | Depended on location of patient, home, hospital nursing home visits, home visits, family conferences and telephone | Presumably home visits and phone |
| Rubenstein 200793  (Good) | VA Greater LA Healthcare System | Yes, VA | Physician assistant with geriatric expertise | 1) Initial assessment over the phone to identify specific risks and unmet needs and CM made specific referrals and recommendations and referrals for services accordingly. If needed, CM conducted this at the geriatric assessment clinic. Based on information collected, patients were given referrals and recommendations. 2) Participants referred to the geriatric clinic received a physical examination geriatric assessment (evaluation of physical health, functional status, and mental health). Also, a geriatric psychiatrist was available to evaluate patients with dementia or depression. 3) CM participants were discussed with team and a care plan was developed. 4) CM followed up with patients who a 1-month after initial and afterwards, every 3 months via phone. | NR | The geriatric assessment clinic within the primary care practice group | Phone |

| **Author Year (Quality)** | **Caseload** | **Frequency of Visits and Phone Calls** | **Location of Face: Face Time** | **Planning and Assessment** | **Patient Education** | **Self-Management Support** | **Coordination of Services** | **Medical Monitoring and Adjustment** | **Integrated within Primary Care** |
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| Applebaum 20025  (Fair) | 75-100 home care patients | NR | Patients home | Yes | NR | NR | NCMs supervised by project geriatrician | NR | Yes |
| Bernabei 19987  (Good) | No more than 20 subjects per case manager | NR | NR | Initial assessment included the following: physical function, daily living, cognitive function and mood and the geriatric depression scale as well as providing a complete list of diagnoses and drug treatments. Subsequent visits were every 2 months and more if needed. Also recorded the number of home visits by GPs. | NR | NR | CM provided coordination and initiation of services (with initial assessment visit) for participants. | NR | Yes, CM was part of an interdisciplinary team which included a GP and geriatric evaluation unit. |
| Gagnon  199931  Schein 200532  (Fair) | 40-55 patients per CM with an average of 46 patients/CM | 3.6 home visits per month for each patient and 2.8 calls per month for each patient. (36 home visits and 28 telephone calls per patient) | NR | Yes, initiated a responsive plan of care. | NR | Not explicit. | Yes, CM developed a list of community resources to give to patients. | NR | Yes |
| Kristensson 201048  (Good) | 4 for 47 subjects (~10 per CM) | NR | NR | Yes, included in intervention | NR | NR | Provided community-based supportive services | Yes, as part of the intervention, monitored medication but did not adjust. | Not clear if CM and team geriatrician reported to GP |
| Leung 2004 (a)54  (Poor) | 2 part-time CMs, n=46 | Home visits were once monthly or more frequent if participant had special needs | Initially when participants were in homes, if needed, when participants were on outpatient visits | Initial assessment followed by monthly followup, using Mini Data Set for Home Care, a comprehensive geriatric assessment questionnaire from which a care plan was developed, monitored and followed up. CM coordinated care and provided advocacy when needed, accompanying them to outpatient visits or encouraging participation in various social activities. | About health care system, social activities, nutrition, exercise etc | Participants encouraged to engage in various social activities. Education on What to eat, how to exercise, where to turn to in different matters. Participants encouraged to take a walk when having pain and joining social activities when feeling isolated. | CM provided advocacy when needed: establishing contacts with caregivers, guiding towards an adequate level of care or as support in health care contacts. Helping by contacting physician to sort out a medical problem, establishing contact with home-help officers. | CM made evaluation of participants prescribed medications. If problems were detected, one of the physicians involved in the project was contacted. | CMs were nurses in geriatrics, supported by primary care physicians and one hospital-based geriatric specialist. CMs participated in weekly meetings with staff at primary care centers and with home care nurses. |
| Leung 2004 (b)53  (Fair) | NR | 361 home visits; 1171 telephone consultations; 145 face-to-face counseling sessions at the hospital | Home visits and in the hospital | Individual care plans were developed for all clients through accurate assessment of their clinical condition and regularly updated or revised according to their changing health status. | Patients were offered health educational programs and supportive groups and educational classes for elderly care recipients and their informal caregivers. | Patients were offered health educational programs and supportive groups and educational classes for elderly care recipients and their informal caregivers. | Yes, medical and social | NR | NR |
| Marshall  199958;  Long and Marshall 2000157;  Long 200260  (Good) | 2 CM acting as a team for 140 in CM group | NR | Initial assessment visit was 2-4 hours | Care plan was developed after initial visit and for complex cases reviewed by interdisciplinary team for approval. | NR | NR | Yes, scheduled medical appointments, accompanied participants to appointments and met with staff to coordinate care across sites (e.g., hospital, clinic). Arranged nonmedical services such as respite care, meals on wheels, nursing home placement, Medicaid eligibility and transportation to doctor's visits. | NR but presumably CM discussed this with PCP and did not adjust | Yes |
| Rubenstein 200793  (Good) | NR | Followup calls 1-month after initial CM contact and subsequent calls every 3 months | NR | Developed a care plan after discussion with interdisciplinary team | Yes, CM provided health promotion recommendations and health education based on info collected during initial telephone contact. | NR | Yes, referred to specific services such as audiology and social work when needed by patient | NR | Yes, embedded within geriatric clinic within primary care group |

| **Author Year (Quality)** | **Health IT** | **Describe Comparator** | **Results by Patient Health Outcomes** | **Results by Resource Utilization Outcomes** | **Results by Process Measure Outcomes** | **Harms Reported** | **Number Screened/ Eligible/ Enrolled** | **Number Withdrawn/ Lost to Followup/ Analyzed (Overall)** | **Total Withdrawals;  Withdrawals due to Adverse Events** | **Notes** |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Applebaum 20025  (Fair) | NR | Normal care manage-ment services | Mortality:  6 months, 5% of the treatment group vs. 7.6% of the comparator group. Average number of survival days (175 vs. 174).  12 months, 16% treatment group vs. 11% for the comparator group.  Average number of survival days (336 vs. 346).  These patterns continued at 18 months showing no intervention effect on mortality | Health care use by Medicare Hospital admissions (% with 1 admission or more): first 6 months treatment 27.9% comparator 28.1% second 6 months treatment 26.1% comparator 33.3% third 6 months treatment 32.4% comparator 28.2% Nursing home admission (% with 1 admission): first 6 months treatment 9.9% comparator 10.4% second 6 months treatment 7.2% comparator 13.9% (p ≤ .05) third 6 months treatment 14.7% comparator 15.4% | Physical functioning and satisfaction with health Average number of ADLs, getting help (range 0-6): baseline treatment 1.28 comparator 1.56 6 months treatment 1.23 comparator 1.35 12 months treatment 1.15 comparator 1.26 Average number of IADLs, getting help (range 0-7): baseline treatment 3.78 comparator 3.95 6 months treatment 3.56 comparator 4.00 12 months treatment 3.58 comparator 3.42 Overall health status (range 0-16; high score better health): baseline treatment 10.40 comparator 10.60 6 months  treatment 10.50 comparator 10.30 12 months treatment 10.30 comparator 9.20 | NR | NR/NR/NR/308 | 11 dropped out | NR |  |
| Bernabei 19987  (Good) | NR | Care with GP including office visits, home visits, nursing and social services, home aides and meals on wheels. | Adjusted mean of functional outcomes\* of CM vs. comparator:  1) ADL: 2.0 vs. 2.6; p<0.001 2) IADL: 4.1 vs. 4.4 p<0.05 3) Mental status questionnaire: 2.8 vs. 3.4; p<0.05 4) Geriatric depression scale 10.9 vs. 12.8 p<0.05 Mortality CM vs. comparator; HR, (95% CI) 12 vs. 13 died HR: 0.99 (0.89-1.09) \*Higher number=greater impairment | Number of admissions of CM vs. comparator; HR (95% CI)  1) Nursing home: 10 vs. 15; HR: 0.81 (0.57 to 1.16) p=0.3 2) Acute hospital 36 vs. 51; HR: 0.74 (0.56 to 0.97), p<0.05 3) Nursing home or hospital: 38 vs. 58; HR: 0.69 (0.53 to 0.91) p<0.01 4) ED: 6 vs. 17; HR: 0.64 (0.48 to 0.85) p<0.025 | Adjusted mean number of medica­tions in intervention (baseline vs. 1 year followup): 5.4. vs. 4.7 (p<0.05) | NR | NR/224/199 | 0/0/NR | 0/NR | Note: CMs from the national council (not involved in study) performed baseline and final assess­ments. |
| Gagnon  199931  Schein 200532  (Fair) | No | For usual care group, hospital and community services provided separately. | NCM vs. Comparator; Mean Difference (95% CI) Satisfaction: 25.0 vs. 23.9; 1.1 (-0.1, 2.3), NSADL: vs. 13.6 vs. 13.4; 0.2 (-0.2, 0.6), NSIADL: 10.5 vs. 10.3; 0.2 (-0.5, 0.9), NS | NCM vs. Comparator; Mean Difference (95% CI)  Hospitalizations: 0.5 vs. 0.4 0.09 (-0.05, 0.23), NS  Hospital LOS: 13.0 vs. 11.9; 1.1 (-4.7, 6.9), NS ED Admissions: 1.2 vs. 0.9; 0.32 (0.01, 0.63) p=0.041 | NR | NR | 1893/680/427  Of 680, 253 were not frail | NR/118/427 | NR/NR |  |
| Leung 2004 (a)54  (Poor) | NR | Usual care | NR | Self-reported health status was 50 vs. 57 for the intervention and the comparator group. | NR | No harms reported | Screened n=111 Excluded n=65 Enrolled n=46 (23 intervention, 23 comparator) | Excluded n=65: Not meeting inclusion criteria n=17  Refused to participate n=39  Deceased n=6  Not reachable n=3  Followup n=20 Discontinued intervention n=6 Deceased n=4 Declined participation n=2 Delayed followup n=8 | NR |  |
| Leung 2004 (b)53  (Fair) | NR | Comparator group received conventional and often fragmented health and social services, such as home visits by community nurses and home help service, provided by existing care providers. | Intervention group,  mean number of health problems before vs. after: 2.0 vs. 1.8; mood symptoms: 1.7 vs. 0.8; mental functioning: 1.3 vs. 1.1; ADL: 0.8 vs. 1.1; continence: 0.12 vs. 0.11; behavioral symptoms: 0.05 vs. 0.07; informal support: 0.3 vs. 1.1  Comparator group,  mean number of health problems before vs. after: 1.9 vs. 1.9; mood symptoms: 1.8 vs. 0.9; mental functioning: 1.5 vs. 1.4; ADL: 0.8 vs. 1.2; continence: 0.08 vs. 0.3; behavioral symptoms: 0.02 vs. 0.08; informal support: 0.4 vs. 1.2 | Intervention group, hospitalization rate, mean before vs. after: bed-days in acute hospital in 6 months, 8.1 vs. 3.8; unplanned admissions to hospitals, 1.1 vs. 0.7; attending emergency rooms, 0.3 vs. 0.4 Attendance of community-based health services, mean before vs. after: community nursing service, 1.2 vs. 1.2; geriatric day hospital, 2.5 vs. 2.6  Comparator group, hospitalization rate, mean before vs. after: bed-days in acute hospitals in 6 months, 4.9 vs. 4.7; unplanned admissions to hospitals, 0.9 vs. 0.7; attending emergency rooms, 0.3 vs. 0.2 Attendance of community-based health services: community nursing service, 0.7 vs. 0.5; geriatric day hospital, 0.7 vs. 1.3 | Intervention group, MDS-HC results, mean before vs. after: mood symptoms, 1.7 vs. 0.8; informal support, 0.3 vs. 1.1; number of health problems, 2.0 vs. 1.8; mental functioning, 1.3 vs. 1.1; ADL and instrumental ADL, 0.8 vs. 1.1; continence, 0.12 vs. 0.11; behavioral symptoms, 0.05 vs. 0.07  Comparator group, MDS-HC results, mean before vs. after: mood symptoms, 1.8 vs. 0.9; informal support, 0.4 vs. 1.2; number of health problems, 1.9 vs. 1.9, mental functioning; 1.5 vs. 1.4, ADL and instrumental ADL, 0.8 vs. 1.2; continence, 0.08 vs. 0.3; behavioral symptoms, 0.02 vs. 0.08 | NR | 260/260/260 | NR | NR | NR |
| Kristensson 201048  (Good) | NR | Usual care included of regular medical followup through the hospital service system of Hong Kong. | Baseline and post-intervention differences on the functional performance between groups (intervention vs. comparator):  1) Level of ADL: +0.3 vs. 0.2 (1.1), NS2) Level of transfer: 0.4 (1.2) +0.2 (1.0), NS**3) Level of continence +0.3 vs. 0.0, < 0.05 (intervention group worse)**4) Level of mental status −0.1 vs. 0.2, NS6) Level of mood symptoms −0.5 vs. −0.2, NS7) Level of impairment +0.1 vs. −0.1, NS | Mean difference in total number of outcome between the intervention vs. comparator groups:  1) Acute hospital bed-days: −3.3 vs. 3.9, p<0.01  2) Rehabilitation hospital bed-days: −4.6 vs. 13.4, p=0.05  3) Hospital bed-days: −7.9 vs. 17.2, p=0.001  4) Episodes of unplanned hospital admission −0.2 vs. 0.3; p<0.05  5) Episodes of hospital admission −0.7 vs. 1.3; p=0.001  6) Attendances at ED−0.2 vs. 0.4, NS  7) Attendances at outpatient dept−0.8 vs. 0.2; p=0.05 Attendances at geriatric day hospital −0.8 vs. −0.9; NS  8) Home visits by community nurse 6.7 vs. −1.2;p<0.05 | NR | NR | NR/NR/92 | 6/0/92  6 died during study (2 in intervention, 4 in comparator) | 0/0 |  |
| Marshall  199958;  Long and Marshall 2000157;  Long 200260  (Good) | No | Usual care was determined by contracts without CM coordinating care. | CM vs. Control at Year 2 :  Functional Status  1) Mean ADL: 6.5 vs. 8.1, p<0.01  2) Mean IADL: 5.6 vs. 6.1, p<0.05  3) Mean Health Status: 2.4 vs. 2.7, NS  4) Mean satisfaction: 2.3 vs. 2.3, NS | CM vs. control at Year 2:  1) Hospitalization rates, 36% vs. 30%, NS  2) Mean # of outpatient visits: 14 vs. 10, NS  3) ER rate: 66 vs. 78%, NS  4) Mean number of patient ER visits: 1.6 vs. 1.4, NS | NR | NR | NR/NR/317 | NR/109/208 | NR/NR | CM kept provider records of study participants. |
| Rubenstein 200793  (Good) | NR | Usual care | Mean values: Y0, Y1, Y3  *Y0=Baseline*  Depression  CM: 4.9, 3.5, 3.9  Comparator: 5.2, 4.1, 3.4  Falls (>1 falls in previous 3 months):  CM: 152, 79, 64  Comparator: 160, 71, 54  Incontinence  CM: 188, 118, 91  Comparator: 199; 143; 105  Functional Status:  a) ADLCM: 84.1; 85.3; 82.4  Comparator: 82.8; 82.3; 85.2  b) IADLCM: 53.9; 61.3; 56.5  Comparator: 53.4; 59.1; 58.2  Health Perception:  CM: 33.5; 36.0; 35.6  Comparator: 33.7; 35.5; 36.2 | Mean values: Y1, Y2, Y3  Hospital utilizations  (Number participants admitted):  CM: 210, 168, 159  Comparator: 217, 171, 131  Number hospital days:  CM: 0.57; 0.56; 0.55  Comparator: 0.51; 0.56; 0.49 | NR | NR | 2646/1001/792 | 260/0/532 | 260/NR |  |

Abbreviations: ADL=activities of daily living, IADL=instrumental activities of daily living, CI=confidence interval, CM=case management, COPD=chronic obstructive pulmonary disease, HF=heart failure, HR, hazard ratio, GP, general practitioner, NA, not applicable, NCM=nurse case manager, NS, not significant, OR=odds ratio, QOL=quality of life, VA=Veterans Affairs, SACC= Sepulveda Ambulatory Care Center.