

ESTABLISHING A NATIONAL FRAMEWORK FOR GERIATRIC HOMECARE EXCELLENCE
CARE COORDINATION, MANAGEMENT AND TRANSITIONS

ARTICLE DESCRIPTIONS

First Author (Year) and Focus of the Interventions	Study Designs or Methods (# of studies included)	Intervention Settings/ Population	Outcomes/ Measures	Findings and Conclusions
<p>Beswick (2008) * Systematic review and meta-analysis to determine if complex community-based interventions were effective in preserving physical function and independence in older people. Interventions included geriatric assessment of older people in the general population (28 studies), assessment of people identified as frail (24 studies), care after hospital discharge (21), fall prevention (13) and group education (3).</p>	<p>89 RCTs</p>	<p>Community subjects having a mean age of 65 or older was an inclusion criteria for all studies included in the review</p>	<p>Living at home on follow-up Nursing home admission Hospital admission Falls Physical function</p>	<p>Risk of not living at home (RR 0.95, 95% CI 0.93-0.97) and nursing home admission (RR 0.87, 95% CI 0.83-0.90) were reduced 5% and 13% respectively. No effect was found on mortality (RR 1.00, 95% CI 0.97-1.02). Positive effects were also found on risk of hospital admission, falls, and physical function. Sensitivity analysis by study quality and randomization process did not change results. Sub group analysis by intensity of intervention and involvement of one versus three or more disciplines in the intervention did not produce evidence suggesting either of these factors made interventions more effective. Authors conclude that complex interventions can be effective, but there is a lack of evidence supporting a particular approach and suggest interventions should be tailored to the situation and individual needs.</p>
<p>Bours et al. (1998) * A systematic review of the efficacy of nursing aftercare in chronic patients and frail elderly upon discharge from the hospital. Interventions were diverse ranging from in home visits and assessments to telephone and mail follow-up. Some interventions included educational programs. A smaller number included the provision of support services (care attendants or placement in foster care).</p>	<p>12 RCTs and 5 Controlled Trials without randomization</p>	<p>Various types of nursing care: hospital-based, community-based, liaison-nursing</p> <p>Age not specified but focus is on interventions with frail older adults</p>	<p>Quality of life Compliance Costs Medical Consumption Quality of Care</p>	<p>10 studies found no difference between the nursing intervention group and usually care; 3 studies reported benefits to the intervention group and 4 studies reported mixed results. Results by outcome measure: <u>Medical consumption:</u> 3 studies found positive effects <u>Quality of life:</u> no studies found beneficial effects <u>Compliance:</u> 1 study reports a positive effect. <u>Quality of Care:</u> 2 studies had positive effects. <u>Cost:</u> 5 studies reported cost savings. No effect sizes or quantitative summaries provided. Authors add that the methodological quality of the majority of the trials was low.</p>


* Meta-Analysis or Systematic Review

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<p>Boyd (2005) An evaluation of the appropriateness of clinical practice guidelines for chronic conditions for the care of older adults with multiple chronic conditions.</p>	<p>Guidelines for 9 conditions that are prevalent among older adults. Guidelines had to be developed by national or international medical societies to be included</p>	<p>Primary Care Outpatient Care</p> <p>Focus on care appropriate for older adults (age not specified)</p>	<p>Guidelines were assessed for:</p> <ol style="list-style-type: none"> 1. Applicable to people either 65+or with multiple conditions or both 2. Discussion of quality of evidence. 3. Included recommendations for one comorbid condition 4. Included recommendations for several comorbid conditions 5. Consideration of time to effectiveness and life expectancy 	<p>4 guidelines address multiple conditions; 2 discuss evidence and only 1 considered life expectancy. Application of guidelines to a model patient resulted in 12 medications, contradictions and high costs to the patient. Conclusion is that most guidelines do not adequately address multiple morbidities, provide little guidance to clinicians caring for patients with multiple conditions, and combining guidelines may have undesirable effects.</p>
<p>Brooten (2002) Summary of evaluations of a team model of transitional care developed nearly 30 years ago at UPenn. Care is delivered by advanced practice nurses (APNs), serving as a safety net for vulnerable patient groups being discharged early from hospitals. The intervention included a series of home visits, daily telephone availability of APN specialists, and physician back up. Originally patients who met certain criteria were discharged early; now many patients are discharged early and the program serves as extra support.</p>	<p>7 RCTs</p>	<p>All subjects were hospitalized and discharged to communities.</p> <p>5 of 7 studies concerned mothers, infants and hysterectomy patients; the remaining two focus on “elderly” patients</p>	<p>Clinical Outcomes Health Services Utilization Cost Quality of Life</p>	<p>APN intervention has consistently resulted in improved patient outcomes and reduced health care costs across groups. Groups with APN providers were re-hospitalized for less time at less cost, reflecting early detection and intervention. In the elderly specific trials, there were fewer re-hospitalizations and fewer hospital days, resulting in substantially reduced cost. There were, however, no significant differences found in acute care visits, functional status, depression, satisfaction and other patient and family outcomes.</p>


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<p>Brown (2003) + Review of evidence and expert consensus used to evaluate components of diabetes care within the context of frailty, comorbidities and geriatric syndromes. Results used as basis for a guideline with 41 specific recommendations for care of older people with diabetes.</p>	<p>RCTs and Systematic Reviews or Meta-Analyses were reviewed and integrated by an expert panel</p> <p>Evidence is graded on Quality and Strength</p>	<p>Out patient, community based is implied but not stated</p> <p>Focus is on older adults (age not specified)</p>	<p>Guideline consists of 41 specific recommendations covering Aspirin, Smoking, Hypertension Glycemic Control, Lipids Eye Care, Nephropathy Diabetes Education, Depression Polypharmacy, Cognitive Impairment, Urinary Incontinence, Injurious Falls and Pain</p>	<p>No information provided or located on effectiveness of guideline or evaluations of implementation.</p>
<p>California Health Care Foundation (2007) A description of six funded projects in which safety net providers support patients' ability to self manage their own conditions. Interventions included a multifaceted program with a registry, workshop and case manager, a program of provider education, use of health educators, and program that combined training for medical residents with a psychologist coach for patients.</p>	<p>Program evaluations with various designs 4 for adults with diabetes; 2 for children with asthma not included in this summary</p>	<p>Community, including clinics, social services agency, and teaching hospital</p> <p>Not specific to older adults</p>	<p>Clinical outcomes Patient satisfaction Participation in program</p>	<p>Some clinical improvement was measurable including lower HbA1c results. Given the short time frame, more process measures were used including increase in patient goal setting and depression screening (compared to other clinics). Review concludes the interventions were expensive and 12-18 months was not long enough for full implementation.</p>


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<p>The Care Transitions Intervention Coleman (2005) Parry (2003) A program designed to encourage greater patient and caregiver involvement in transitions across settings. Uses a NP as a transitions coach who meets the patient in the hospital, conducts a home visit 48 to 72 hours after discharge and completes 3 phone follow-ups in the 28 days post discharge. Program also includes personal health record to facilitation transfer of information and continuity of care.</p>	<p>1 RCT</p>	<p>Inpatient then discharged home or to a skilled nursing facility</p>	<p>Rehospitalization 30, 90, and 180 days after index discharge</p>	<p>The intervention group had a lower rehospitalizations at 30 days (OR 0.59 95% CI 0.35 –1) and at 90 days (OR0.64, 95% CI 0.42-0.99). At 180 days there was no difference for all hospitalizations but hospitalizations for the same diagnosis as the initial admission were lower (OR 0.55 95% CI 0.30-0.99) for the intervention group. Costs were statistically significantly lower for intervention patients at all follow-up points.</p>


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<p>Chen (2000) A review of current best practices in coordinated care programs that serve chronically ill persons. Coordinated care is defined as programs that target people at risk for adverse outcomes or high cost and have 3 functions: 1. identify needs that increase the risk for adverse health events, 2. address these needs, and 3. monitor for progress and early signs of problems.</p>	<p>29 care coordination programs with published and unpublished results selected for detailed study using program data and semi-structured interviews</p>	<p>Program providing care coordination in any setting. Community/out patient implied. Limited to adults with chronic conditions, but not by age</p>	<p>Identification in successful programs of component tasks that make up the three care coordination steps: 1. Assess and Plan 2. Implement and Deliver 3. Reassess and Adjust Recommendations for successful programs and the Medicare demonstration program</p>	<p>Component tasks in successful programs were identified as: 1. Assess and Plan a. uncover all important problems; b. address all important problems and goals; c. draw from proven interventions; d. produce a clear, practical plan of care with specific goals 2. Implement and Deliver a. build ongoing relationships with clinicians; b. build relationships with patients and families; c. provide excellent patient education; d. make certain planned interventions get done. 3. Reassess and Adjust a. perform periodic reassessments; b. be accessible; c. nurture relationships with clinicians; d. nurture relationship with patients and families; e. make prompt adjustments to plan of care. Conclusions All care coordination programs focus on prevention. Rural programs look like non rural in terms of steps and tasks, but were constrained by geography and travel time. Disease management approaches to care coordination generally had more explicit guidelines than case management approaches. Overall authors conclude that incremental steps to improving chronic illness care can succeed within the current health care structure.</p>
<p>Dorr (2007) * Review of the role of Informatics Systems (IS) in improving care for chronic illness.</p>	<p>109 articles describing 112 IS Systems</p>	<p>The majority of the studies concerned IS systems</p>	<p>Outcomes grouped into three categories: <u>Technical Aspects of the</u></p>	<p>Non-experiments were much more likely to be associated with positive results than experiments, and were thus excluded from further analysis.</p>

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	50 experiments 55 observational (with evaluation) or descriptive studies (without evaluation) 4 other	<p>implemented in outpatient settings (60%). 43% studied hospital implementations and 42% studied multi-site systems. (IS systems could be implemented in multiple settings simultaneously)</p> <p>Interventions were focused on diabetes (44%), heart disease (38%), depression (17%), and schizophrenia (7%). 34% addressed multiple disorders.</p> <p>Age range not specified</p>	<p><u>Software</u> (usability, accuracy)</p> <p><u>Process of Care</u> (guideline adherence, visit frequency, documentation, treatment adherence, referral rate, screening and testing, cost)</p> <p><u>Clinical Outcomes</u> (laboratory values, standardized instruments, hospitalizations, quality of life, disease complications)</p>	<p>One subcomponent of Health Information and Data, the ability to exchange data with an electronic medical record, was positively related to improvements in process outcomes ($r=0.28$, $p=0.05$). Decision support was moderately helpful in the form of computerized prompts ($r=0.20$, $p=0.08$), but were did not lead to improvement when all provided were electronic access to guidelines ($r= -0.37$, $p=0.02$). Population management yielded positive results ($r=0.25$, $p=0.06$), particularly if the system generated reports of important measures and provided feedback to providers. Order Entry systems were also linked to success ($r=0.41$, $p=0.02$), specifically those including disease specific checks and corollary orders templates and those facilitating ordering of care plan elements such as referral to a specialist.</p>

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<p>Frich (2003) * A systematic review of RCTs of long-term nursing interventions provided to older people with chronic conditions during home visits; Interventions were multifaceted and involved assessment/examination, developing an appropriate plan and follow-up. Specific interventions varied from follow up to a mail questionnaire about risk factors to phone monitoring, to cognitive behavioral strategies.</p>	<p>15 RCTs</p>	<p>Home Care</p> <p>6 studies were about people 75+</p> <p>The other studies did not provide age specifics</p>	<p>Patient outcomes Clinical outcomes Cost</p>	<p>10 out of the 15 studies had at least one positive outcome, 8 reported positive clinical outcomes. Patient satisfactions/ratings of health improved in 5 studies. Cost savings were identified in 2 studies, though the one negative outcome reported was for an increase in cost with no increased benefit. Authors conclude targeting the population for services and multiple home visits are needed for success.</p>
<p>Gonseth (2004) * A systematic review and meta-analysis of disease management for elderly patients with heart failure. Disease management was broadly defined as any intervention designed to manage heart failure using a systematic approach to care. Programs potentially employed multiple treatment modalities, though in many cases teaching and support activities for patients were important.</p>	<p>27 RCTs and 27 non random, controlled studies (includes 17 of 18 RCTs in Phillips)</p>	<p>Community-based, could include home visits and/or clinic visits</p> <p>Mean age was over 70 in most studies.</p> <p>Description notes that serious co morbidities including acute MI, valve disease and diabetes were common</p>	<p>Readmission for heart failure Readmission for all causes Readmission or death All three were examined as different studies used different outcomes</p>	<p>Readmissions for heart failure were reduced by 30% (pooled RR 0.70, 95% CI 0.62-0.79); all cause readmissions by 12% (pooled RR 0.88, 95% CI 0.79-0.97) and combined readmission or death by 18% (pooled RR 0.82, 95% CI: 0.72-0.94). Sensitivity analysis by quality of studies, number of participants, follow-up for more than 6 months, use of home visits, and clinic follow-up did not change conclusions. Analysis of non randomized studies produced results in the same direction, though with larger effects. Authors conclude disease management is effective at reducing readmissions for elder patients with HF. However as different interventions have not been compared directly in these studies, there is no information on their relative effectiveness.</p>

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<p>GRACE (Geriatric Resources for Assessment and Care of Elders) Counsell (2007)</p> <p>Home-based care management by a nurse practitioner and social worker who collaborate with a primary care physician and a geriatric interdisciplinary team to incorporate 12 care protocols for geriatric conditions into care. Program is targeted to low-income elders.</p>	1 RCT	<p>Outpatient</p> <p>Low income (200% of poverty level or lower) adults over 65 living in the community</p>	<p>SF-36 Function (ADLs) Mortality Hospital Admission ED visits Quality of Life</p>	<p>Intervention group members had significantly better improvement in 4 of 8 SF-36 scales and the mental health component score. No effect was found on function (ADLs), mortality, or hospitalizations. However in a sub group identified as high risk for hospitalizations at enrollment, the cumulative rate of hospitalization over 2 years was lower in the intervention group (848 per 1000 vs. 1314 per 1000 p=.03). Authors conclude that the intervention can have an impact, but that more testing is needed to determine if better targeting would improve effectiveness.</p>
<p>Guided Care Boyd (2007, 2008) Boult (2008)</p> <p>Model that integrates RNs with training in chronic care management into primary care practices to provide comprehensive care for 50-60 older adults with multiple morbidities. Creates an enhanced primary care model based on principles from seven prior chronic care innovations and consists of eight clinical activities: assessment, planning, chronic disease self-management, monitoring, coaching, coordinating transitions between sites and providers, educating and supporting care givers, and accessing community resources.</p>	<p>Pilot test completed; RCT in progress (data collection through 2008)</p>	<p>Out patient, but includes coordination care across settings</p>	<p>Pilot test: Integration of model into physician practices.</p> <p>RCT: Costs Mortality Patient ratings of care (Primary Care Assessment Tool and Patient Assessment of Chronic Illness Care) Health Status Functional Status Health care utilization RN job satisfaction MD satisfaction</p>	<p>Model was successfully implemented in pilot test and accepted by MDs and patients. Limitations identified include that that the nurse can facilitate access to community resources, but she/he cannot overcome lack of funds or availability of services such as transportation, equipment or home renovations. Scores on the Primary Care Assessment Tool improved for 2 subscales in the intervention group while these deteriorated or stayed the same in the control group.</p> <p>Initial results from randomized study are that intervention patients are twice as likely as controls to rate their overall care as high quality (OR=2.03, 95% CI, 1.22,3.3.9) at the six month follow-up and physicians in the intervention group were more satisfied with their communication with patients and caregivers.</p>


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<p>Hallberg (2004) A review of studies describing case/care management in preventive home care for frail older people. Interventions were examine to determine if they took a preventive or rehabilitative approach and whether they used psycho-educative interventions focusing on self-care activities, risk prevention, health complaints management, social activities, community involvement and functional ability and if they used a family-oriented approach including support and education for informal caregivers.</p>	<p>Study design not specified (26 articles were reviewed)</p>	<p>Home care Limited to studies that focused on people 65 +</p>	<p>Patient health and function Utilization including hospital, ED, nursing home, and office visits Quality of care</p>	<p>Effects of interventions were mixed with some showing positive results, others no effect. No estimates of magnitude of effects provided. Authors conclude there were deficiencies in the content of the interventions, specifically lack of a prevention/rehab focus and lack of attention to family caregivers.</p>
<p>Hastings & Heflin (2005) Interventions designed to improve outcomes for elders discharged from the emergency department (ED) were reviewed. Four studies utilized telephone follow-up; 5 studies evaluated a trained nurse or team in the ED; 1 evaluated health visitors and one evaluated staff education programs 9 looked at “rapid home-based services” defined as “quick response initiatives, designed to prevent unnecessary hospitalizations of frail elders by promptly coordinating services to their homes.”</p>	<p>6 RCTs 2 Non-randomized clinical trials 19 Observational studies or program descriptions</p>	<p>Emergency department / Emergency department to home Most included studies utilized either an age cut off (ranging from 60 + to 75 +) or a screen for frailty or functional dependence as inclusion criteria</p>	<p>Clinical Outcomes Health Services Utilization Patient Satisfaction Caregiver Burden</p>	<p>In some studies, no information on outcomes was evaluated. Others had limited methodological validity. These trials did however “demonstrate the feasibility of such interventions and document a large burden of unmet home care needs in this population.” 3 of 4 RCTs designed to measure functional outcomes showed improvements in the functional status. The 3 positive trials included (1) use of a specially trained nurse to perform geriatric assessment and (2) a component of home-based care. Targeting a high-risk group appears to be more effective than applying these intensive interventions more broadly. Clinical trial results have been mixed as to whether interventions can improve clinical outcomes. Some showed reduced health care service utilization, and some showed a</p>

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<p>Hickman (2007) * A systematic review of interventions to manage older people in acute care. Interventions include geriatric/multidisciplinary expertise, consultation models and targeted assessment, emphasis on discharge planning, and communication across settings.</p>	<p>22 RCTs 2 Clinical Trials 2 Case Control</p>	<p>All initiated in acute care. All studies focused on the elderly, though they used different age cut offs</p>	<p>Length of stay Use of services Nursing Home Admission Readmission Physical Function Delirium</p>	<p>trend toward increased health care service utilization. Results were not summarized by author. 12 studies reported positive findings, 7 mixed and 7 no effect. Outcomes and interventions differed. 6 studies of special geriatric units /teams all had positive findings; 4 studies that used specialized assessment and geriatric consults had mixed results with 3 finding no positive effects and the 1 focused on delirium reduce its incidence; 4 of 5 studies of comprehensive discharge planning had positive effects on several outcomes, but increased costs. The communication component of several studies was highlighted but the results were not summarized across studies.</p>
<p>Hughes (1997) A summary of 4 studies that assess the effects of different home health care models including hospice care, short-term skilled home health, extended home health including personal care services, and team-managed hospital-based home care.</p>	<p>4 evaluations, 1 quasi-experimental, 1 RCT and 2 in progress at time of publication and the study design is not provided</p>	<p>Home care Age provided for 1 study and means in both groups are over 70</p>	<p>Functional status NH Admission Hospital readmission Cost</p>	<p>Results only reported for 2. For the extended home care program, outcomes at 9 months included a significant reduction in NH admission and at 4 years significantly reduced risk of permanent NH admission and previously unmet service needs. The team-based model produced a non-significant total cost savings of 10% and significant savings of 24% for disabled veterans for rehospitalization.</p>


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<p>Huss (2008) * Review and meta-analysis of RCTs of the effects of multidimensional preventive home visit programs in older adults living in the community. The review examined the characteristics differentiating successful from unsuccessful programs.</p>	<p>21 RCTs</p>	<p>Home Care Included trails with mean participant age > 70</p>	<p>Nursing home admission, Functional status decline, and Mortality</p>	<p>Pooled effects estimates revealed statistically non-significant favorable, and heterogeneous effects on mortality (odds ratio [OR] 0.92, 95% confidence interval [CI], 0.80-1.05), functional status decline (OR 0.89, 95% CI, 0.77-1.03), and nursing home admission (OR 0.86, 95% CI, 0.68-1.10). A beneficial effect on mortality was seen in younger study populations (OR 0.74, 95% CI, 0.58-0.94) but not in older populations (OR 1.14, 95% CI, 0.90-1.43). Functional decline was reduced in programs including a clinical examination in the initial assessment (OR 0.64, 95% CI, 0.48-0.87) but not in other trials (OR 1.00, 95% CI, 0.88-1.14). There was no single intervention factor that explains the heterogeneous effects on nursing home admissions.</p>

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<p>Luck (2007) A synthesis of reviews, case studies and reports that address the business case (compares benefits with costs) of programs to improve care for chronic conditions. The most common intervention is disease management (9 out of 19). Others include Chronic Care Model components, self care, preventive services, telemedicine integrated care programs, case management, Home-based primary care, and the collaborative care model.</p>	10 reviews, 3 case studies; 6 reports	Not stated, but community implied Age of subjects not reported	Cost-benefit Utilization of services	10 review/reports found no reduction in costs/utilization, 3 reported mixed results, and 5 reported positive findings. Author notes that many studies were flawed and conclude that “literature does not provide clear evidence that mechanisms to improve care for patients with complex conditions...are cost saving or can improve quality without increasing costs”.
<p>McCusker (2006) * Systematic review of studies of geriatric interventions designed to reduce Emergency Department (ED) visits. Focus is on whether comprehensive geriatric assessment (CGA) interventions affect this outcome. CGA is defined by authors as a general term that can apply to hospital programs (specialized units, consultation services), hospital-home assessment, and outpatient services. The authors also classify interventions by the extent to which they involve primary medical care.</p>	26 studies, 16 RCTs	Inpatient, outpatient, home care and community Non-institutionalized, over 60	Emergency Department use	Two of 7 studies that recruited patients in EDs with the objective of preventing return visits and had a positive effect, but neither of these were RCTs; none of the 4 hospital interventions included significantly reduced ED visits; 10 studies were based in outpatient settings and 5 of 7 RCTs of interventions integrated with primary care had a positive effect; interventions integrated with Home and community based services had mixed results with 3 of 5 having a positive effect, one with no effect and 1 non randomized study where the comparison group had less ED use. Authors concluded that hospital based interventions that were mostly short term had little effect on ED use, while outpatient and home based interventions did reduce ED use.

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<p>McDonald (2007) * An AHRQ Evidenced-based Practice Center technical review on care coordination as a quality improvement strategy. This is a review of systematic reviews that is summarized by both type of intervention and population/setting.</p> <p><u>Multidisciplinary Teams</u> were defined as two or more providers from different specialties working together to provide care to a group of patients. The underlying assumption is that care will be more comprehensive and coordinated.</p>	<p>15 reviews that focused on entirely on care coordination; 11 reviews in which care coordination was part of the focus</p>	<p>Not stated, but community implied</p> <p>Age of subjects not reported</p>	<p>Cost-benefit Utilization of services</p>	<p>Two systematic reviews and four non quantitative reviews of teams in treating mental illness were evaluated and found teams resulted in declines in hospitalizations and maintenance of contact with providers. Two meta analyses of teams in heart failure care conclude that teams also result in a reduction in hospitalizations (RR 0.75, (95% CI 0.63-0.87 and RR 0.87, 95% CI 0.79-0.95) and mortality. Teams were also effective in improving stroke recovery and pain management.</p> <p>The EPC authors conclude there is evidence that multidisciplinary teams can affect selected patient outcomes in certain patient populations and that teams are most effective when members deliberately coordinate their activities.</p>
<p>McDonald (2007) * An AHRQ Evidenced-based Practice Center technical review on care coordination as a quality improvement strategy. This is a review of systematic reviews that is summarized by both type of intervention and population/setting.</p> <p><u>Disease Management</u> was not defined consistently in the review studies analyzed. All programs involve clinicians and patients and try to support patients and improve outcomes.</p>	<p>10 reviews that focused on entirely on care coordination; 8 reviews in which care coordination was part of the focus</p>	<p>Not stated, but community implied</p> <p>Age of subjects not reported</p>	<p>Cost-benefit Utilization of services</p>	<p>One review of disease management for depression concluded that it could decrease severity and reduce costs. Several reviews that contained many of the same studies concluded that hospitalizations and mortality are reduced by disease management for heart failure. Disease management for diabetics resulted in improvements in adherence and glucose control but disease management did not improve function for people with arthritis.</p> <p>The EPC authors conclude disease management is effective in some specific cases. But caution that the heterogeneity of definitions and the lack of studies that isolate components of programs make it difficult to assess overall effectiveness.</p>


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<p>McDonald (2007) * An AHRQ Evidenced-based Practice Center technical review on care coordination as a quality improvement strategy. This is a review of systematic reviews that is summarized by both type of intervention and population/setting.</p> <p><u>Case Management</u> is also called Care Management and usually involves one person who coordinates care. Qualifications and specific tasks may vary.</p>	<p>9 reviews that focused on entirely on care coordination; 12 reviews in which care coordination was part of the focus</p>	<p>Not stated, but community implied</p> <p>Age of subjects not reported</p>	<p>Cost-benefit Utilization of services</p>	<p>The EPC authors conclude the evidence does support the effectiveness of case management programs for patients with mental health problems, heart failure, or diabetes. Specifically, case management has reduced hospitalizations for people with mental illnesses, improved glycemic control in people with diabetes and had positive impact on many outcomes for heart failure. However there is insufficient evidence to determine what training is required for case managers or what specific tasks need to be included.</p>
<p>McDonald (2007) * An AHRQ Evidenced-based Practice Center technical review on care coordination as a quality improvement strategy. The review is a synthesis of systematic reviews that is summarized by type of intervention. Each major type of intervention is included in this report individually.</p> <p><u>Integrated Care</u> was defined as interventions designed to integrate care across either diseases or providers and is characterized by clinicians sharing information and working together. Integration is viewed as an approach to coordinating and improving care.</p>	<p>3 reviews: 1 on a program for the elderly that included acute and long-term care services and included 7 studies</p>	<p>Out patient Acute and Long-term care</p>	<p>Benefit or harm to patient, Elements of successful programs (review on care for the elderly only)</p>	<p>Neither the reviews of integration of substance abuse and mental health or primary care services provided any evidence of either benefit or harm. The review of integrated services for the elderly included only successful programs and identified key elements as: a single entry point, case management, geriatric assessment and multidisciplinary teams, and use of financial incentives.</p> <p>The EPC authors conclude the evidence does not support nor refute the effectiveness of integrated care programs.</p>

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<p>McDonald (2007) * An AHRQ Evidenced-based Practice Center technical review on care coordination as a quality improvement strategy. The review is a synthesis of systematic reviews that is summarized by type of intervention. Each major type of intervention is included in this report individually. <u>Interprofessional Education</u> is training and education programs in which professionals from different disciplines learn together and interactively with the goal of improving collaboration and ultimately coordination and quality of care.</p>	<p>3 reviews. 1 found no articles that met inclusion criteria so no further details were provided</p>		<p>Change in patient outcomes Change in provider behavior</p>	<p>In the review of interprofessional training about pain management, 1 of 4 studies resulted in a reduction in patient pain and 1 demonstrated increase documentation of pain history. In the review of interprofessional education for mental health, all the articles found a positive result but the author of the review noted that the quality of studies was poor.</p> <p>The EPC authors conclude there is insufficient evidence to determine the effectiveness of these interventions.</p>
<p>Mistiaen (2006) * A systematic review of telephone follow-up (TFU) for patients discharged from hospital to home. Telephone follow-up had to be by a hospital-based health professional. Calls varied by the type of professional, frequency and duration. Calls were designed to either improve patient compliance or ease the transition from hospital to home. Authors note that descriptions of the interventions were not sufficiently detailed to allow replication.</p>	<p>33 studies reported in 40 articles</p>	<p>Home</p>	<p><u>Psychosocial outcomes</u> Patient satisfaction Anxiety Depression <u>Physical outcomes</u> Functional status Health status <u>Other consumer-related outcomes</u> Compliance Knowledge <u>Health services-related outcomes</u> Readmission</p>	<p>Overall, in the 33 studies, 82 outcomes were measured and significant differences in favor of TFU were reported for 25 outcomes. Results by outcome category are as follows: psychosocial were included in 20 studies and 5 found positive effects, for example 3 studies reported increased in patient satisfaction and 8 reported no effect. 10 studies included physical outcomes and 3 found positive effects (1 for activity level, 1 for pain, 1 for self-care). 14 studies include other consumer outcomes and 7 reported positive effects. 11 studies included health services use and 2 reported fewer readmissions and 1 fewer emergency visits. Authors conclude there is not conclusive evidence</p>

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			Emergency visits	that TFU is effective nor is there evidence it should be excluded from discharge planning. The authors add that the analysis was limited by the poor methodological quality of the studies and measurement issues.
Mollica (2003) Review designed to identify new and emerging state-level care coordination programs for people with chronic conditions and how existing state home care programs address care issues.	7 state case studies based on interviews. States selected to represent a range of approaches	Home and Community based state services 2 programs specific to elderly, others included elderly	Examines setting where care coordination occurs, scope of authority and relationship between care coordination and health services	Programs can be placed in 5 categories: 1. social, 2. social/medical, 3. medical, 4. partially integrated and 5 fully integrated. Authors conclude that while literature supports the need to integrate care for chronic conditions (literature review not provided in this report), challenges to implementation remain. Specifically, the need to bridge health and supportive services, to overcome difficulties in maintaining contact with primary care physicians, and to address implementation issues.
Naylor (2002) Defined transitional care as “a term that encompasses a broad range of services and environments designed to promote the safe and timely transfer of patients from one level of care to another or from one type of setting to another (Brooten & Naylor 1999).” Examines the literature using the nursing process as a framework: Needs Assessment, Planning, Implementation, and Evaluation.	94 articles, but study design was not stated. To be included articles “had to have a control or comparison group and a test for statistical significance”	Hospital Managed Care setting Home Nursing Home Inclusion of studies was based on population age 55 or older. Age not given for specific studies	Health Services Utilization Cost Patient and Caregiver satisfaction	<u>Needs Assessment:</u> (1) Unmet needs: managing illness, personal care, lack of skills and knowledge; poor discharge planning. (2) Few strong assessment instruments. (3) Transition to NH difficult. <u>Planning:</u> (1) Lack of agreement btw pt/families and health professionals re: health status and self-care problems; (2) Need for increased pt participation; (3) Effective communication is essential to quality discharge planning, but there are multiple breakdowns in the transfer of information. <u>Implementation:</u> Few existing studies of interventions. (1) Positive Impact: preventive home visits, counseling and support, APN involvement. (2) No impact or mixed: ACE units, discharge planning innovations; (3) Few interventions cross settings or levels. (4) High intensity interventions have been most effective.

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				<p><u>Evaluation:</u> (1) Appropriateness of transitions has received little attention; (2) A few studies look at adequacy of discharge plans and find them often lacking; (3) Pt and family involvement in planning is linked to satisfaction; (4) Evaluating the impact of post acute services is difficult given the diversity. Home care has a positive impact vs. NH or no formal care. APN involvement is optimal.</p>
<p>Phillips (2004) * A meta-analysis of the effect of comprehensive discharge planning and post-discharge support on readmission for older patients with CHF. Interventions included discharge planning, education (though it is not always clear if this was pre and/or post discharge), and follow-up. The duration and structure of the follow-up varied from a single home visit to clinic follow-up, to multiple visits and/or frequent phone contact.</p>	<p>18 RCTs</p>	<p>Acute hospital to home in 8 countries</p> <p>Age was a selection criteria. Mean age was over 70 in 16 of 18 studies</p>	<p>Readmission Mortality Length of stay Quality of life Medical Costs</p>	<p>Readmissions were reduced by 25% (RR 0.75, 95% CI 0.64-0.88). Trends toward shorter lengths of stay and lower mortality were not significant. Improvements in quality of life scores were significantly higher for the intervention groups (25.7% vs. 13.5% p=.01) in 6 studies that include measures of QoL. Cost provided in 11 studies were pooled by US and non US and were significantly lower in the intervention groups in both. In US trials pooled cost savings were \$536 per pt. per mo (95% CI \$956 to \$115 cost savings). Sensitivity analysis comparing statistical models or subgroups of studies by country, study quality or patient characteristics did not change results. Authors conclude the evidence supports comprehensive discharge planning and post discharge support for older people with CHF.</p>


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<p>Piette (2005) An assessment of phone care programs based on a review of literature supplemented by evaluation studies and semi-structured interviews. Interventions include phone care by a live clinician as well as Interactive Voice Response (IVR) systems that allow a patient to provide information for monitoring or assessment or receive health education or information.</p>	<p>RCTs Evaluation studies Interviews (numbers not stated)</p>	<p>Out patient Age not mentioned, though review is about chronic disease management and Medicare beneficiaries are mentioned</p>	<p>Clinical Outcomes (not specified) Costs (to the health plan or provider using phone care)</p>	<p>Author does not quantify evidence. He concludes that: a. IVR is ideally suited to administrative tasks such as reminders for appointments, vaccines, or taking medications; b. phone assessments and monitoring can have a positive impact on clinical outcomes, but costs may be increased if follow-up is required; c. there is some evidence that phone education can improve outcomes; and d. phone peer support has been shown to help participants. Overall results supporting cost-effectiveness are less conclusive than those supporting improvement in clinical outcomes.</p>
<p>Reuben (2002) A selective review of multiple approaches to organizational interventions for older persons. These are divided into component models (Comprehensive Geriatric Assessment- CGA, ACE units, self-management, disease management, case management) and system models (Geriatric Evaluation and Management- GEM, Group visits, chronic care clinics, PACE).</p>	<p>RCTs and non-randomized interventions were included, but number of specific types of studies was not stated</p>	<p>Hospital; outpatient clinic; home; nursing home; community setting (self-management program) Interventions focused on older persons but age was not specified</p>	<p>Clinical outcomes Health services utilization Cost Quality of life</p>	<p>Authors conclude research has produced mixed results. Component models: CGA had evidence of success in hospital settings in the past, but not in the home, though nurse-led model appears promising. Self-management, disease management, and case/care management are supported by limited evidence. System Models: GEM has been studied extensively, but results are mixed. Group visits have had positive results in single evaluations, for Chronic Care Clinics, the one cited study found no effect; PACE studies cited some positive effect on hospitalization. The author concluded these models are not be used because “few healthcare systems can afford to invest resources into developing, testing, and implementing, innovations, particularly those that may not demonstrate immediate benefits.”</p>

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<p>Richards and Coast (2003) * Systematic review of interventions to improve access to health and social services after hospital discharge. Two types 1. those that conduct assessments and make referrals: Geriatric Consult Teams(GCT) and Inpatient Geriatric Evaluation and Management (GEM) and 2. those that actually implement post-discharge recommendations: Outpatient GEM and Comprehensive Co-coordinators.</p>	<p>23 RCTs</p>	<p>All subjects were hospitalized and discharged to community</p> <p>All studies focused on 60+, some targeted frail elderly</p>	<p>4 types outcomes: Mortality Functional Health or disability Use of services post discharge Quality of Life/Adequacy of services</p> <p>Authors rate each study on short and long term outcomes and whether the findings are conclusive (C) (effect in same direction on multiple outcomes) or inconclusive (IC) (mixed effects across outcomes). When inconclusive, they add suggests no improvement or some improvement</p>	<p><u>GCTs</u> 1 C improvement 1 IC suggests improvement 4 IC suggests no improvement</p> <p><u>Inpt. GEM</u> 2 C improvement 3 IC suggests improvement 3 IC suggests no improvement</p> <p><u>Out pt. GEM</u> 3 C improvement 1 C no improvement 1 IC suggests improvement</p> <p><u>Comprehensive Coordinator</u> 1 C no improvement 3 IC suggests improvement 1 IC suggests no improvement</p> <p>Authors conclude out pt. GEM had the most positive effects, and that combining services that facilitate implementation of post hospital care as well as assessment are needed for success.</p>
<p>Sheppard (2004) * A Cochrane review including a meta-analysis to determine the effectiveness of discharge planning for patients going from hospital to home.</p> <p>Discharge planning was defined as the assessment, implementation and monitoring of an individualized discharge plan initiated before the</p>	<p>11 RCTs</p>	<p>All start as inpatient and are discharged home. Trials included medical and surgical patients</p> <p>9 of the 11 trials specifically</p>	<p>1. length of hospital stay (LOS) 2. readmission 3. place of discharge 4. mortality rate 5. health status 6. satisfaction 7. costs 8. use of medications (when intervention is pharmacy discharge planning)</p>	<p>1. LOS: no significant difference (weighted mean difference 0.86, 95% CI -2.0 to 4.0). In 3 trials not included in the pooled analysis, 2 found no difference and one reported a small difference in one of two hospital sites. 2. Readmission: 7 trials reported this outcome, in pooled data from 5 no significant difference (OR 0.91, 95% CI 0.67 to 1.23) 3. Place of discharge: no significant difference in 5 trials reporting % discharged to home (OR 1.15, 95% CI 0.72 to 1.82).</p>


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<p>patient leaves the hospital, though when the intervention was initiated varied. Interventions that included post hospital care as part of the intervention were excluded.</p>		<p>recruited older patients</p>		<p>4. Mortality: no difference in two trials (OR 1.44, 95%CI 0.82 to 2.51). 5. Health Status: 6 trials reported function, but only 3 included follow-up. Of these 1 found improvement and 2 no difference. 6. Satisfaction: 2 trials reported increased satisfaction, 1 no difference 7. Cost: 2 trials reported lower costs for some patients (medical, not surgical, or specific types of costs (laboratory)). 8. Use of medications: 1 study reported no difference in medications problems and another no difference in adherence. Authors conclude impact of discharge planning is uncertain.</p>


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<p>Stuck (2002) * Systematic Review and meta-analysis of home visits designed to delay or prevent functional impairment and nursing home admission through primary, secondary and tertiary prevention. 6 of 18 trials studied multidimensional geriatric assessment and follow-up.</p>	<p>18 RCTs 10 studies included population based solely on age, 3 based inclusion on risk of falls or functional decline; 5 excluded sicker patients (receiving home care, terminal or severely impaired)</p>	<p>Home Visits</p>	<p>Nursing Home Admission Death Functional Decline</p>	<p>Overall the interventions did not have significant effects on nursing home admission, or function and little effect on mortality. However in analysis by type of intervention, NH admissions were reduced by 34% in cases where there were 9 or more follow-up visits (R0.66, 95% CI 0.48-0.92); risk of functional decline was reduced 24% in trials that combined multidimensional assessment and follow-up, (RR0.76, 95% CI 0.64,0.91); and mortality was reduced but only in studies with lower mean age. Authors conclude that home visitation programs are successful if they are based on multidimensional geriatric assessment and include multiple visits. Mortality is only reduced in young-old groups and when people at lower risk of death are targeted.</p>
<p>Taylor et al. (2005) * Systematic review and meta-analysis addressing innovations in management of chronic obstructive pulmonary disease (COPD) that were led, coordinated or delivered by nurses. Review describes two types of interventions: hospital at home or early discharge schemes for acute exacerbations and interventions to improve ongoing management. All interventions included nurse case management and home visits, promotion of self-care and some included telephone follow-up.</p>	<p>RCTs (9) Other (6): Systematic Review (1); studies that are ongoing or being written up (5)</p>	<p>Hospital Outpatient Clinic Home Mean ages of individuals in interventions was between 65-70 No mention of co-morbidities</p>	<p>Survival Activities of daily living Use of healthcare resources; Health related quality of life</p>	<p>Two studies examined brief interventions and these found little evidence of any benefit. Meta-analysis of the long-term interventions failed to detect any influence on mortality at 9-12 months follow-up (OR 0.85, 95% CI 0.58 to 1.26) or health related quality of life (Cohen’s d 0.06, -1.14 to .26), The evidence on reduced hospital readmission is equivocal. Authors conclude there is little robust evidence to support nurse management of patients in community with COPD.</p>


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<p>Thornton (2002) Case studies of 4 managed care organizations that implemented innovations to improve care for high risk elderly in Medicare + Choice plans. Services added included screening, care and disease management, network credentialing, some off policy benefits (travel, support services etc.), and better coordination.</p>	<p>Case studies based on focus groups, surveys, and interviews</p>	<p>4 Managed Care Organizations with programs that target seniors with high risk of hospitalization or adverse health/function outcomes</p>	<p>Characteristics of programs Satisfaction among members</p>	<p>93% of high risk seniors surveyed would recommend their MCS to another person with similar health conditions. Care management was an important component, though how it was implemented differed (in clinic recruitment and function verse use of data to select patients and decentralized operations. Most (79%) seniors enrolled in care management were not aware they had a care manager. Authors conclude successful programs required a culture of experimentation, support of senior officials, ways to draw on community resources and that policy changes are required to support these efforts.</p>
<p>Transitional Care Model * Naylor (1999) Naylor (2004) Naylor (unpublished) Intervention uses advanced practice nurses (APNs) to help high-risk elderly make the transitions from acute-care to home. APNs receive special training, have access to a clinical information system that includes evidence-based protocols, and work with the patients' primary care physician.</p>	<p>2 RCTs completed, implementation study in an HMO in progress</p>	<p>Hospital to community</p>	<p>Rehospitalization Costs</p>	<p>RCTs demonstrated low rates of hospitalizations and lower costs. Implementation in an HMO is ongoing.</p>

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<p>Wagner (2002) Program review to assess best practice models of chronic disease management. Programs were assessed for patient education, self-management support, provider education, guideline use, use of information systems, delivery system changes and types of personnel involved.</p>	<p>Survey of 72 programs and site visits to a subset (number not specified). Programs were nominated by experts as being innovative and effective in chronic illness care</p>	<p>Ambulatory Care</p> <p>22 programs were elderly only; 27 mixed ages, 18 adults of any age, 5 children only</p> <p>34 were for multiple conditions and 7 were geriatric programs</p>	<p>Characteristics of programs in terms of structure and population served; use of elements of the chronic care model</p>	<p>Guideline use varied: 18 programs have no use, 21 moderate, and 27 extensive (5 missing). Programs were equally likely to have basis in expert opinion, literature review, or emulation of successful programs. Overall conclusion is that programs nominated as best practices are limited in reach and effectiveness.</p>
<p>Wells (2003) + An extensive literature review used to develop recommendations (guidelines) related to inpatient rehabilitation for geriatric patients. Focus is on how the higher burden of comorbid disease and the multiple causes of disability make rehabilitation for older people different.</p>	<p>336 studies evaluated 108 RCTs or reviews of RCTs (level 1) 39 controlled, but not random, cohort or case control (level 2) 189 consensus, expert opinion or descriptive (level 3)</p>	<p>In patient rehabilitation</p> <p>Searches limited to 65+</p>	<p>9 Total recommendations in 4 areas:</p> <ol style="list-style-type: none"> 1. Appropriateness of Comprehensive Geriatric Assessment in rehab 2. Screening 3. Assessment tools 4. Team Approaches 	<p>No information was provided or identified about the effectiveness of the recommendations.</p>
<p>Whellan (2005) * Review and meta analysis to assess the effectiveness of disease management in reducing</p>	<p>19 RCTs</p>	<p>Out patient clinics and home care</p>	<p>Hospitalization, both all cause and HF related, mortality, cost, medication use.</p>	<p>Over a 35% decrease in all cause hospitalization was detected for 3 types of interventions: follow-up supervised by cardiologist, home visits, and telephone follow-up appeared to be effective.</p>


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<p>hospitalization and mortality in patients with heart failure (HF). Interventions included 1. clinic follow-up with physician extender supervised by cardiologist, 2. physician extender with primary care supervision 3. home nursing follow-up, 4 telephone follow-up by a physician extender.</p>		<p>In the majority of the studies the average age was over 70</p> <p>Prevalence of comorbidities reported, but not included in analysis or discussed in results</p>		<p>Authors conclude underlying reasons could not be identified though they ruled out medications improvement due to the short follow-up periods and speculate that access to health care providers may be the cause, but do not suggest why interventions with primary care follow-up would not provide the same benefit.</p>
<p>Yin et al. (2002) * A meta-analysis to assess the effectiveness of group and individual interventions to reduce burden in caregivers of frail elderly. Interventional programs included individualized psychosocial counseling, a single social work visit, respite, information (videos, support phone line), family consultations, group therapy, psychoeducational programs and combinations of behavior and cognitive educational programs for group interventions.</p>	<p>18 studies of group interventions (12 RCTs, 6 nonrandom) and 8 studies of individual interventions (5 RCTs, 3 nonrandom)</p> <p>Caregivers of elderly was the primary selection target</p>	<p>Not Stated</p>	<p>Caregiver burden (converted to mean effect size) 10 of 18 studies used versions of the Zarit Burden Interview</p>	<p>Meta-analyses found a moderate positive treatment effect for both the group and individual interventions. For group interventions the weighted mean effect size was 0.41 with a 95% CI of 0.32 to 0.51. The effect persisted, but was smaller (0.26, 95% CI 0.15 to 0.37) when the analysis was limited to randomized studies. For individual interventions, the weighted mean effect size was 0.48, 95% CI of 0.30 to 0.67.</p>

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