QUERI

Evidence Brief: Effect of Geriatricians on Outcomes of Inpatient and Outpatient Care

SUPPLEMENTAL MATERIALS

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SEARCH STRATEGY

MEDLINE (PubMed) searched 3/2/2012				
Concept	**Search#**	**Search string**	**Results**	**Notes**
Geriatrics	#1	**"Geriatrics"[Mesh]**	25696	Note: Mesh terms aged, and aged 80 and over retrieved too many irrelevant hits to include
	#2	**(((gerontologist) OR geriatrician) OR geriatrics) OR gerontology**	57551	
	#3	**#1 AND #2**	57551	
Care models	#4	**(((((((("Geriatric Assessment"[Mesh]) OR "Personnel Staffing and Scheduling"[Mesh]) OR "Health Services for the Aged"[Mesh]) OR "Referral and Consultation"[Mesh]) OR "Patient-Centered Care"[Mesh]) OR ("Patient Care"[Mesh] OR "Patient Care Team"[Mesh])) OR "Case Management"[Mesh]) OR "Program Evaluation"[Mesh]) OR "Interdisciplinary Communication"[Mesh]**	677349	
Non-geriatricians	#5	**((((("Medical Staff"[Mesh]) OR "Physicians"[Mesh]) OR "Primary Health Care"[Mesh]) OR "Internal Medicine"[Mesh]) OR "General Practice"[Mesh]**	263691	These broad Mesh terms include primary care physicians and hospitalists, and attempt to cover inpatient and outpatient settings, and are included to capture the relationship of geriatrics to other providers
Union of concepts	#6	**#3 AND #4 AND #5**	848	
Geriatric referrals	#7	**("Geriatrics"[Mesh]) AND "Referral and Consultation"[Mesh]**	212	Targeted search for geriatric consults
	#8	**#6 OR #7**	987	

Cochrane Central Register of Controlled Trials ; Cochrane Library of Systematic Reviews ; Cochrane Database of Reviews of Effects (OVID) Searched 3/2/2012				
Concept	**Search#**	**Search string**	**Results**	**Notes**
Geriatrics	#6	**1 exp Geriatrics/** **2 geriatrics.mp.** **3 geriatrition.mp.** **4 gerontology.mp.** **5 gerontologist.mp.** **6 1 or 2 or 3 or 4 or 5**	460	With such a small retrieval (especially after deduplication), rather than further specify the search, it was left as is
Deduplication	After deduplication with MEDLINE citations 103 unique citations remain			

MEDLINE (PubMed) searched 3/9/2012				
Concept	**Search#**	**Search string**	**Results**	**Notes**
Geriatric assessment	#1	**"Geriatric Assessment"[Mesh]**	15550	Informed by Ellis 2011 Cochrane Review
	#2	**"Health Services for the Aged"[Mesh]**	13697	
	#3	**"Geriatrics"[Mesh]**	25701	
	#4	**((((((("Needs Assessment"[Mesh]) OR "Risk Assessment"[Mesh]) OR "Diagnostic Services"[Mesh]) OR "Health Services Needs and Demand"[Mesh]) OR "Health Services"[Mesh]) OR "Delivery of Health Care"[Mesh]) OR "Outcome and Process Assessment (Health Care)"[Mesh]**	2353860	
	#5	**3 AND 4**	6030	
	#6	**1 OR 3 OR 5**	32979	
Geriatrics in the hospital	#7	**("Hospitals"[Mesh]) AND "Geriatrics"[Mesh]**	1051	
	#8	**7 OR 6**	33370	
RCT	#9	**(((((((groups[tiab])) OR (trial[tiab])) OR (randomly[tiab])) OR (drug therapy[sh])) OR (placebo[tiab])) OR (randomized[tiab])) OR (controlled clinical trial[pt])) OR (randomized controlled trial[pt])**	2941705	Cochrane RCT hedge
	#10	**8 AND 9**	975	
After deduplication with previous searches: 877 unique citations				

DETAILED INCLUSION AND EXCLUSION CRITERIA

Inclusion criteria for inpatient studies (PICOTS):

- ***P****opulation:* Medical and surgical in-patients
- ***I****ntervention*: A geriatrician serving in the role of consultant or co-manager either individually or as part of a care team
- ***C****omparator*: Standard care (without the care of a geriatrician)
- ***O****utcomes:* Mortality, falls, length of hospital stay, re-admission rates, functional status, incident reports, discharge to nursing home, and the number of prescriptions prescribed
- ***T****iming:* No restriction on minimum study duration
- ***S****etting*: In-patient medical and surgical wards

Inclusion criteria for outpatient studies (PICOTS):

- ***P****opulation:* Outpatient (primary care) patients
- ***I****ntervention*: A geriatrician serving in the role of consultant or as part of a co-management team, or as a primary care physician
- ***C****omparator*: Standard care (without the care of a geriatrician)
- ***O****utcomes:* Mortality, hospital admission, emergency department visits, functional status, nursing home placement, falls, and the number of prescriptions prescribed
- ***T****iming:* No restriction on minimum study duration
- ***S****etting*: Outpatient (primary care) facilities
- *Additional inclusion criteria*: International studies (studies conducted outside of the United States) will be reviewed and included on an individual basis per their applicability to the specified outcomes of interest.
- In order to focus on the current and thus more relevant literature, we will include studies published after 1985

Exclusions:

- *Population*: Studies that focus on disease specific populations, such as elderly cancer patients or patients with diabetes
- *Intervention*: (providers) Studies that do not include a geriatrician, including only other geriatric care providers such as Geriatric Nurse Practitioners (GNPs) and other non-physician health care providers such as geriatric pharmacists, as well as specialists who have extra geriatric training
- *Intervention*: (model of care) Studies that examine models of care that integrate acute and long-term care, such as PACE and EVERCARE
- *Comparator*: Studies that do not include an appropriate comparison group
- *Outcomes*: Studies that do not include outcomes (e.g., opinion articles, descriptive/discussion articles, and consensus statements.) and studies that examine outcomes outside of the proposed scope of work (e.g., patient satisfaction, physician job satisfaction)
- *Setting*: Nursing homes or other long-term care facilities

QUALITY RATING OF SYSTEMATIC REVIEWS: INPATIENT

USING AMSTAR CRITERIA*

Author, year	1 Was an 'a priori' design provided?	2 Was there duplicate study selection and data extraction?	3 Was a comprehensive literature search performed?	4 Was the status of publication (i.e., grey literature) used as an inclusion criterion?	5 Was a list of studies (included and excluded) provided?	6 Were the characteristics of the included studies provided?	7 Was the scientific quality of the included studies assessed and documented?	8 Was the scientific quality of the included studies used appropriately in formulating conclusions?	9 Were the methods used to combine the findings of studies appropriate?	10 Was the likelihood of publication bias assessed?	11 Was the conflict of interest stated?	Number of yes
Bachmann 2010[1]	Can't answer	Yes	Yes	Yes; included some unpublished data	Yes (excluded studies list available on request)	Yes	Yes	Yes	Yes	Yes; funnel plots, and Begg and Egger tests	Yes	10
Baztan 2009[2]	Can't answer	Yes	Yes	Yes	No for excluded studies; yes for included studies	Yes	Yes	Unclear; reported results of QA, but not clear how quality was used in synthesis	Yes	Yes; attempted funnel plots	Yes	8
Conroy 2011[3]	Can't answer	Yes	Yes	Yes; appears to have included published data only, excluded one study for abstract-only	No for excluded studies; yes for included studies	Yes	Yes	Trials scoring less than a mean of 9 on the van Tulder critical appraisal score were excluded	Yes	Yes; funnel plots	Yes	9
Day 2004[4]	Can't answer	Can't answer; not reported	Yes	No; published studies only; English language only	Yes	Yes	Yes	Yes	Yes	Yes; assessed publication bias within reviews included	Yes	8
Ellis 2011[5]	Can't answer	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	9

*Shea BJ, Grimshaw JM, Wells GA, et al. Development of AMSTAR: a measurement tool to assess the methodological quality of systematic reviews. *BMC Medical Research Methodology.* 2007;7:10.

QUALITY RATING OF SYSTEMATIC REVIEWS: OUTPATIENT

USING AMSTAR CRITERIA*

Author, year	1 Was an 'a priori' design provided?	2 Was there duplicate study selection and data extraction?	3 Was a comprehensive literature search performed?	4 Was the status of publication (i.e. grey literature) used as an inclusion criterion?	5 Was a list of studies (included and excluded) provided?	6 Were the characteristics of the included studies provided?	7 Was the scientific quality of the included studies assessed and documented?	8 Was the scientific quality of the included studies used appropriately in formulating conclusions?	9 Were the methods used to combine the findings of studies appropriate?	10 Was the likelihood of publication bias assessed?	11 Was the conflict of interest stated?	Number of yes
Beswick 2008[6]	Can't answer	No for study selection; yes for data extraction	Yes	No	Yes for included; no for excluded	Yes	Yes	Yes	Yes	Yes	Yes for SR; no for included studies	8
Byles 2000[7]	Can't answer	Can't answer for study selection; yes for data extraction and QA	Yes	Yes; only included published studies	Yes for included; no for excluded	Yes	Yes	Yes	N/A; meta-analysis not attempted	No	Yes for SR; no for included studies	6
Eklund 2009[8]	Can't answer	Yes	Yes	Yes; only English language and published in peer-reviewed journals	Yes for included; no for excluded	Yes	Yes	Yes	N/A; meta-analysis not attempted	No	Yes for SR; no for included studies	7
Huss 2008[9]	Can't answer	Yes	Yes	No; no language restrictions; included unpublished data	Yes for included; no for excluded	Yes	Yes	Yes	Yes	Yes	Yes for SR; no for included studies	8
Kuo 2004[10]	Can't answer	Yes	No; only 1 electronic source (Medline) plus supplemental	No	Yes for included; no for excluded	Yes	No	N/A	Yes	Yes	Yes for SR; no for included studies	6

*Shea BJ, Grimshaw JM, Wells GA, et al. Development of AMSTAR: a measurement tool to assess the methodological quality of systematic reviews. *BMC Medical Research Methodology.* 2007;7:10.

QUALITY ASSESSMENT OF RANDOMIZED TRIALS

Author, Year	Setting	Country	1 Appropriate randomization technique	2 Allocation concealment adequate?	3 Groups (intervention and control) similar at baseline?	4 Eligibility criteria specified?	5 Outcome assessors masked?	6 Reporting of: a) attrition b) crossovers c) adherence d) contamination	7 Drop out rate <20 percent	8 Intention-to-treat (ITT) analysis	9 Appropriate statistical analyses	Quality rating	Funding source
Bula 1999[11]	Outpatient	USA	Unclear	No	Yes	Yes	No	6a) attrition: yes 6b) crossovers: no 6c) adherence: no 6d) contamination: yes	No	Unclear	Yes	Fair	Not mentioned
Counsell 2007 & 2009[12, 13]	Outpatient	USA	Yes	Yes	Yes	Yes	Yes	6a) attrition: yes 6b) crossovers: no 6c) adherence: no 6d) contamination: yes	Yes	Yes	Yes	Good	NIA, private foundations
Eloniemi-Sulkava 2009[14]	Outpatient	Finland	Yes	Yes	Yes	Yes	Unclear	6a) attrition: yes 6b) crossovers: no 6c) adherence: no 6d) contamination: no	Yes	Yes	Yes	Good	Finnish Slot Machine Association
Fallon 2006[15]	Inpatient	USA	No	No	No	Yes	No	6a) attrition: yes 6b) crossovers: no 6c) adherence: no 6d) contamination: no	Unclear	Yes	Yes	Poor	Non random trial...assignment based on day/time of admission
Gayton 1987[16]	Inpatient	Canada	No	No	Yes	Yes	Yes	6a) attrition: yes 6b) crossovers: no 6c) adherence: sort of 6d) contamination: no	No	No	No	Poor	National Health and Welfare, Canada
Germain 1995[17]	Inpatient	US	Yes	Unclear	No	Yes	No	6a) attrition: yes 6b) crossovers: no 6c) adherence: no 6d) contamination: yes	Yes	No	Yes	Fair	Regional Council 05 (Eastern Township) and the Ministry of Health and Social Affairs
Hogan 1990[18]	Inpatient	Canada	Unclear	Yes	Yes	Yes	Unclear	6a) attrition: yes 6b) crossovers: no 6c) adherence: no 6d) contamination: yes	Yes	Yes	Yes	Fair	University Internal Medicine Research Fund

Author, Year	Setting	Country	1 Appropriate randomization technique	2 Allocation concealment adequate?	3 Groups (intervention and control) similar at baseline?	4 Eligibility criteria specified?	5 Outcome assessors masked?	6 Reporting of: a) attrition b) crossovers c) adherence d) contamination	7 Drop out rate <20 percent	8 Intention-to-treat (ITT) analysis	9 Appropriate statistical analyses	Quality rating	Funding source
Kerski 1987[19]	Outpatient	USA	Unclear	Unclear	Yes	Yes	Unclear	6a) attrition: yes, 6b) crossovers: no 6c) adherence: no 6d) contamination: no	Yes	Unclear	Yes	Poor	VA
Legrain 2011[20]	Inpatient	France	Yes	Yes	Yes	Yes	Unclear	6a) attrition: yes 6b) crossovers: no 6c) adherence: no 6d) contamination: no	Yes	Yes	Yes	Good	French Ministry of Health
Li 2010[21]	Outpatient	Taiwan	No	Unclear	Yes	Yes	No	6a) attrition: yes 6b) crossovers: no 6c) adherence: no 6d) contamination: no	No	No	Yes	Fair	National Taiwan University
McLean 1994[22]	Inpatient	UK	No	No	Unclear	Unclear	Unclear	Unclear	Unclear	Unclear	Yes	Poor	Not reported
Monteserin 2010[23]	Outpatient	USA	Yes	No	Yes	Yes	Yes	6a) attrition: yes 6b) crossovers: no 6c) adherence: no 6d) contamination: no	Yes	No	Yes	Fair	Research Unit, Sardenya Primary Health Care Center, Barcelona, Spain
Phelan 2007[24]	Outpatient	USA	Yes	Yes	Yes	Yes	Yes	6a) attrition: yes 6b) crossovers: no 6c) adherence: no 6d) contamination: no	No	Yes	Yes	Good	John A. Hartford Foundation, NIA
Phelan 2008[25]	Outpatient	USA	Yes	Yes	Yes	Yes	Yes	6a) attrition: yes, 6b) crossovers: no 6c) adherence: no 6d) contamination: no	No	Yes	Yes	Good	Jonn A. Hartford Foundation, NIA
Rubenstein 2007[26]	Outpatient	USA	Unclear	Unclear	Yes	Yes	No	6a) attrition: yes 6b) crossovers: no 6c) adherence: no 6d) contamination: yes	No	Unclear	Yes	Fair	VA
Schmader 2004[27]	Inpatient, outpatient	USA	Yes	Yes	Yes	Yes	Yes	6a) attrition: yes 6b) crossovers: no 6c) adherence: no 6d) contamination: no	Yes	Yes	Yes	Good	VA, NIA

Author, Year	Setting	Country	1 Appropriate randomization technique	2 Allocation concealment adequate?	3 Groups (intervention and control) similar at baseline?	4 Eligibility criteria specified?	5 Outcome assessors masked?	6 Reporting of: a) attrition b) crossovers c) adherence d) contamination	7 Drop out rate <20 percent	8 Intention-to-treat (ITT) analysis	9 Appropriate statistical analyses	Quality rating	Funding source
Slaets 1997[28]	Inpatient	The Nether-lands	Unclear	Yes	Yes	Yes	No	6a) attrition: yes 6b) crossovers: no 6c) adherence: no 6d) contamination: yes	Yes	Yes	Yes	Fair	Not reported

QUALITY ASSESSMENT OF COHORT STUDIES

Author, year	Setting	Country	1 Did the study attempt to enroll all (or a random sample of) patients meeting inclusion criteria, or a random sample (inception cohort)?	2 Were the groups comparable at baseline on key prognostic factors (e.g., by restriction or matching)?	3 Did the study maintain comparable groups through the study period?	4 Did the study use accurate methods for ascertaining exposures and potential confounders?	5 Were outcome assessors and/or data analysts blinded to the exposure being studied?	6 Did the article report attrition?	7 Did the study perform appropriate statistical analyses on potential confounders?	8 Is there important differential loss to follow-up or overall high loss to follow-up?	Quality rating	Funding source
Avila-Beltran 2008[29]	Outpatient	Mexico	Yes	No	No	Yes	No	Yes	Yes	No	Fair	
Egger 2006[30]	Inpatient	Switzerland	Yes	No	No	Yes	Unclear		No	No	Poor	Swiss National Science Foundation Grant
Famadas 2008[31]	Outpatient	USA	Yes	Yes	Yes	Yes	No	Yes	Yes	No	Good	
Fenton 2006[32]	Outpatient	USA	Yes	Yes	Yes	Yes	Unclear	Yes	Yes	No	Fair	Robert Wood Johnson Foundation
Hermush 2009[33]	Outpatient	Israel	Unclear	No	No	No	No	No	No	Unclear	Poor	No study sponsors.
Inouye 1993[34]	Inpatient	USA	No	No	No	Yes	Yes	Yes	Yes	No	Fair	Various grants, including one from Sandoz Foundation
Pawlson 1988[35]	Inpatient	USA	Yes	No	No	Unclear	Unclear	No	No	No	Poor	National Institute on Aging Geriatric Medicine Academic Award
Peleg 2008[36]	Outpatient	Israel	Yes	Unclear	Unclear		No	No	No	Unclear	Poor	Not reported
Phillips 2005[37]	Outpatient	USA	Yes	No	Unclear	No	Unclear	No	No	Unclear	Poor	Not reported
Sennour 2009[38]	Inpatient	USA	Unclear	Unclear	Unclear	Unclear	No	No	No	Unclear	Poor	Methodist Health Foundation, Donald W Reynolds Foundation, John A Hartford Foundation, National Institute on Aging and Clarian Health

INPATIENT STUDIES WITH POOR QUALITY RATINGS

Year, First Author Study Design (# subjects)	Type of Intervention	Comments/Reason for Poor Rating
2006, Egger[30] Obs (800)	Special Units	Unit patients had lower mortality and fewer prescriptions at follow-up compared to baseline, but results must be interpreted with caution given baseline differences in groups and methodological challenges.
2006, Fallon[15] Trial (285)	Consultation	Non-random assignment by time of day of admissions determined if patient received a consultation. Additionally, other study design elements have the potential to introduce significant bias in the results.
1987, Gayton[16] RT (402)	Team	No difference in mortality, LOS, NH admission or function. Poor quality due to randomization issues, drop out and non intention to treat approach to analyses.
1994 McLean[22] Obs (2,496)	Consultation	Based on need patients were assessed when admitted, and assigned both a general physician and a geriatrician. Several elements of the study were not described.
1988, Pawlson[35] Obs (270)	Consultation	Study compared inpatient management by geriatricians to management by general internists; however, groups were not comparable at baseline, and data collection and measurement issues were not described or addressed.
2009, Sennour[38] Obs (1,538)	Consultation	A descriptive study of consultation model in one hospital. Many elements of the evaluation study were not described and data were not always provided for the comparison group.

OUTPATIENT STUDIES WITH POOR QUALITY RATINGS

Year, First Author Study Design	Type of Intervention	Comments/Primary Reasons for Poor Rating
2007, Famadas[31] Obs	Team/Clinic	Primarily descriptive study of new program and most elements of the evaluation component are not described. Authors caution that selection bias is likely to be very high.
2009, Hermush[33] Obs	Consultation	Visits to general practitioners were lower in patients seen by the geriatrician, but groups differed; confounding was not addressed sufficiently, and key criteria were not reported or met.
1987, Kerski[19] RT	Team	All patients received a CGA, and then were randomized to follow-up in geriatric clinic with an interdisciplinary team or a general clinic with no team. No difference was found in key outcomes. Rating is based on lack of reporting of key characteristics of the trial.
2008, Peleg[36] Obs	Consultation	Hospitalizations declined after the implementation of a multipart intervention that included a geriatric liaison service to the primary care clinic. The study is a pre-post design that did not meet many quality criteria and did not provide statistical tests of reported differences.
2005, Phillips[37] Obs	Primary Care	Study compares patients in geriatric primary care practice to those in general medicine practices in the same health plan and finds that they have different utilization patterns and lower costs. However, differences are not statistically significant; the groups differ and confounding is not sufficiently addressed.

REVIEW COMMENTS/RESPONSES

Reviewer No.	Comment	Response
1. Are the objectives, scope, and methods for this review clearly described?		
1	Yes.	--
2	Yes -- The Authors have done a complete analysis of the available data.	--
3	No -- As noted in the comments below and attached documents, many of the terms and outcomes are poorly or loosely defined, i.e. effectiveness. Even the title, value of geriatricians, while catchy, is vague.	We have attempted to be more precise in specifying outcomes when reporting results. We have changed the title of the review.
4	Yes.	--
5	Yes.	--
6	Yes.	--
7	Yes.	--
8	Yes.	--
2. Is there any indication of bias in our synthesis of the evidence?		
1	No.	--
2	No.	--
3	Yes. 1. The choice of the impact of the geriatrician on mortality as the main outcome measure is problematic. The vast majority of geriatric consults and management issues focus on geriatric syndromes, quality of life, rehabilitation, case management in older adults with multiple medical problems. A priori one would not anticipate that in the majority of the settings, the intervention, often only one of many that these complex patients have received would have any measureable impact on mortality. Delayed admission to a nursing facility, reduced stress in a caregiver, reduced polypharmacy, etc. are highly significant outcomes in this population. The focus on mortality sends the wrong message. 2. The study eliminates PACE and other interventions that are more broadly integrated along the continuum of care in older adults (supplement). These are the types of interventions that would most likely show benefit, and potentially reduce mortality yet they have been excluded from this paper. 3. The VA health care system has its own rewards and challenges. The vast majority of studies quoted were not conduced in the VA and their applicability to the integrated VA health care system is uncertain. The authors should temper their conclusions given the scarcity of high quality	1. We revised the methods section to clarify that our outcomes included mortality, function, nursing home admission/or living at home, utilization (hospital admission or readmission, emergency department visits, outpatient visits), or medication management (appropriateness, number, or adverse events). These were specified at the start of the review, before the evidence was collected. 2. We excluded PACE and similar interventions because long-term care was excluded in the scope of work for this review. Programs such as PACE integrate long term care and acute care and the impact cannot be separated. This was specified before we conducted the search and corresponded to the priorities of the requestors. 3. We agree that direct evidence is sparse. Our objective was to summarize all available research. 4. This is a 'future research need' and could be a possible result of the review.

Reviewer No.	Comment	Response
	randomized clinical trials in older veterans. Certainly except for the GEM trial conducted more than a decade ago, few if any trials have sufficient power to detect changes in mortality. 4. QUERI and cooperative studies programs at the VA should partner with the GRECCs to initiative multicenter trials to more definitively examine the issues raised in this manuscript.	
4	No.	--
5	No.	--
6	No.	--
7	No.	--
8	Yes -- No really bias but more a misunderstanding of the goals of the review. For example mortality is an irrelevant outcome when evaluating the value of geriatricians but the synthesis makes it look like the most important (negative) outcome	The organizations requesting this brief specified a priori that mortality was one of several outcomes of interest. When appropriate, we have edited the report to clarify that mortality was not our only outcome of interest (e.g., by reporting other outcomes before mortality outcomes in summary statements, etc). However, we cannot change the fact that it is one of the most frequently studied outcomes, and we believe we should report that information.
3. Are there any published or unpublished studies that we may have overlooked?		
1	No -- I have limited experience to really address this question.	--
2	No.	--
3	Yes -- No overt mention about interventions to prevent or manage delirium in hospitalized patients. These studies should be included.	When identifying and managing delirium was part of geriatric care, the studies were included.
4	No.	--
5	Yes -- Possibly, see #4 re: search strategy.	See response below.
6	No.	--
7	No.	--
8	Yes -- Studies related to patient/family satisfaction, improved communication and its relation to tort claims.	These outcomes were specifically excluded by the scope of work agreed to by the researchers and the groups requesting this review.
4. Please write additional suggestions or comments below. If applicable, please indicate the page and line numbers from the draft report.		
1	Page 17: under Bottom line: the second para must have been truncated. " an initial assessment ……are more like????	Text was revised.
1	Page 6. It is unclear if you are referring to comparison between care on an acute medicine unit and a specialized geriatric unit. (para 2.) It has not been my experience that acute admissions are made to a	In the RCTs, patient who are admitted are randomly assigned to these specialized units. These are not long-term care or transitional units. They

Reviewer No.	Comment	Response
	geriatric specialized unit but rather to an acute medicine unit and then once stable the patient is sent to the specialized geriatric unit. It is unclear whether this is truly a direct comparison. *SIMILAR COMMENT FROM EMAIL MESSAGE:* Just a question for clarity: Page: 6. Interventions on specialized units vs. floats on units . Were the "floats" providing care on rehab specialized units or acute medicine wards units? Were the" specialized hospital units" rehab or considered acute medicine units?	are acute care units that specialize in the care of elderly patients. The assignment of the teams varied somewhat by study, but from the descriptions in most studies the 'floating teams' provided care across a variety of units. What varies is how the patients are referred to the team (automatically or at the request of a treating physician), and whether the team becomes directly involved in care or if its recommendations are given to the clinicians with primary responsibility. We have edited the report to clarify these points.
1	*"Veterans who seek medical care are aging. The proportion of all Veterans 65 and older **who enroll** in the VA health care system is projected to increase to 43 percent in 2013, up from 31 percent in 2003.[1] Enrollees age 85 and older are expected to have an even greater growth: from 20 percent in 2003 to 51 percent in 2013."* Do they mean who are enrolled? Or are these data for expected new enrollments?	The text has been revised to clarify that this is the percent of older Veterans who enroll in VHA for health care.
2	Clearly one of the reasons why a CGA done on inpatients may not have as much benefit if there is no direct involvement by the Geriatrician in the patient's care is the lack of follow-through by the primary care team on the recommendations made by the Geriatric Assessment Team. A mechanism to insure better follow-through would improve care/outcome in my opinion and the data should not be misinterpreted that the CGA has no value.. it does!	The commenter raises a good point, but because studies within our scope did not report results according to whether primary care teams followed through on the geriatrician's recommendations, it is not possible to draw conclusions about this. Studies of follow through on recommendations probably do exist but they were outside the scope of this review.
3	This document has been reviewed by myself and my colleague Dr. Jacob Blumenthal, a geriatrician who co-directs our geriatric medicine fellowship program and geriatric assessment clinics. We both had major concerns about this manuscript, particularly the use of mortality as the main outcome metric. We have provided many comments in the reviewer sheets and throughout the document (including one major typo). It is clear that few high quality larger randomized clinical trials have been performed that would specifically address many of the issues that this review is examining. QUERI and cooperative studies programs at the VA should partner with the GRECCs to initiative multicenter trials to more definitively examine the issues raised in this manuscript.	Thank you for the comments and we have revised the text. Mortality is one of several outcomes included in the scope of work as agreed to and specified by the requestor. We have edited the text to clarify this point.
3	The key messages (page 1) seem frankly biased, and	We believe an evidence review should

Reviewer No.	Comment	Response
	not the conclusion I draw from the scant literature. I would argue that what is the message from this review is that there is insufficient research into the value of Geriatrician involvement. The null hypothesis is that there is no difference in outcomes when Geriatricians are involved, and if any conclusion is to be drawn, it is that there is insufficient evidence to reject this. 1. However, I would point out that certainly, mortality is likely the wrong primary metric! It may be interesting to compare mortality among patients cared for by Geriatricians/not, but to do these sort of randomized controlled trials would likely involve huge numbers, given the high likelihood of the outcome regardless of group assignment. 2. A number of more meaningful metrics might include measures of morbidity such as ED/unplanned office visits, falls, adverse drug events, dependency, institutionalization…. 3. For example, I would suspect that post discharge geriatric follow-up would be associated with lower readmission (as follow-up arrangements have been demonstrated to do in a number of other settings – c.f. CHF, psych, ED), although this is by no means universal in the literature. This latter point highlights the importance of also understanding/accounting for the baseline characteristics of the group(s) examined (c.f. below – point 7).	summarize what is known from the available research. Reviews may also highlight where more research is needed, but to avoid conclusions and only suggest more research is needed is not sufficient in our opinion. We have revised the key point wording. 1 and 2: Outcome measures were pre-specified. Mortality was one of but not our primary outcome measure. We included these other outcomes (ED visits, adverse drug events, institutionalization, etc.) and reported them when available. We have revised the text to clarify this. 3. Follow-up was not reported in all studies, but was included when it was available. Our ability to address this is limited by the research available. Results for Key Question 1B include what information we were able to locate. The recent Cochrane review did compare the results of studies of interventions that included outpatient follow-up after inpatient geriatric care and those that did not. They found no difference in the outcomes across studies when they compared these two groups.
3	On the same page, Geriatric Syndromes may contribute to, but don't necessarily cause many of the problems listed.	Edited as suggested.
3	The handling of systemic reviews in these analyses is unclear (page 3). Are data from included studies "double-counted" (once as individual trial and again as meta-analysis?	We revised the methods to clarify that we only included individual studies that were not already included in a systematic review.
3	On page 4, and following, the metric upon which these conclusions are made remains unclear. The words "effectiveness" is used (Key Question #1A, page 4 and following), but the measure appears to be mortality (problematic as above). Furthermore, also unclear (?uniform across study) is at what point in time it is assessed…. No one gets out of this world alive, and certainly those cared for by Geriatricians are no exception	(Page 4 lists the key question) We have listed our outcome measures (which include, but are not limited to, mortality) and when discussing particular studies, have made sure to note the time period of the outcome measure.
3	The final paragraph on page 5 seems all alone and without a conclusion. What was the conclusion of the "technology assessment" (and what is this?)	The technology assessment is not discussed in detail because it included the same studies that are also included

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	conducted by the New Zealand Department of Public Health and General Practice? What model(s) of care were examined? What were the measures? outcomes?	in another, more recent systematic review. We have clarified this in the text.
3	The speculation of the authors cited on page 6 "special units allow the geriatric team to have more control over care, including implementation of the recommendations based on CGA, and permit the development of greater expertise among everyone who works on the unit" is certainly a reasonable and testable hypothesis. This again points out another "hole" in the literature needing filling. Although, again, just because we don't know what the effect is/haven't proven its existence, does not mean that there is no effect. Prior to the DCCT, the value of "tighter" glycemic control was unproven, yet such an approach certainly was beneficial prior to 1993.	We revised the text to clarify that this speculation was made by the authors of the cited review, not the authors of this brief. The literature and the summary in this brief suggest several potential avenues for future research; however, developing a future research agenda is outside the scope of an Evidence Brief. We do hope the Brief might inform others who might take on this task in the future.
3	With regards to Key Question 1b, on page 8, if outcome = 3 month mortality, not surprising that no relationship found with follow-up…. Certainly it is intuitive (at least to me) that there are "baseline" characteristics that are predictive of better outcomes. If data is insufficient to account for these, I don't see how one can dismiss this likely "confounder." As above, would suspect that post discharge follow-up (geriatric or otherwise) would be associated with lower readmission, but this is likely significantly impacted by characteristics of the discharged patient.	Yes, this is a possible and a potentially useful area for future research. In conducting a brief review of existing evidence, we are limited to the studies available, and have attempted to provide enough information without making this Brief excessively long to allow different readers to assess these potential issues.
3	Bottom lines on page 9 are overstated, as above. In particular: 1. I should hope that Geriatric Teams don't reduce MORALITY (sic)…. 2. Similarly, this statement (understood as referring to mortality) is not evidence-based, as intimated above in #1.	Corrected typo. Thank you for pointing this out.
3	On page 12, it is noted that the summarized systematic reviews have a "focus on models of care and…summarize a mix of studies that both include and do not include geriatricians." Furthermore, the role(s) of the Geriatrician(s) is often unclear, and certainly not obviously uniform. Given these limitations, it is difficult to then use these as blanket indictments of Geriatrician involvement.	Text has been revised to clarify. We agree that it is difficult to separate out the effect of the geriatrician in many studies – this was a major limitation of the evidence base. However, we did not include a systematic review unless it was possible to tell if studies included geriatricians, and we provided this information in Tables 1 and 3. We used results based on the studies that include geriatricians when presenting the conclusions of systematic reviews.
3	Certainly the "bottom line" found on page 17 does not make it to the "Key Messages" on page 1…and likely should.	The Bottom Line box is about the finding for outpatient studies, and the Key Messages are the overall conclusions of the review. We have clarified wording, but they are not meant to be the same.

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3	With regards to the limitations listed on page 22, these are understated. Certainly, the "large number" of studies cited is somewhat of an overstatement given their broad diversity. It is exactly because "the model was usually evaluated" and it differs between studies, that it is difficult reach blanket conclusions about "Geriatric Assessment" or Geriatrician "involvement." Nonetheless, evaluating "parts" of what is often a multidisciplinary process, and always a multifaceted one, will likely underestimate its net effect(s).	Text has been revised to clarify and incorporate these points.
3	The "take home" message of this review is that there is a paucity of data regarding the effect Geriatricians have, as well as the reasons behind this. The "key questions" outlined on page 2 are excellent starting points, and should (with specific, measurable and clinically meaningful outcomes) be the subject of large, randomized controlled trials.	Text has been revised to highlight the limitations of the data available.
4	On page 17 in Bottom Line box: the 3rd item, second sentence (beginning "An initial assessment suggests…") has a typo or missing words.	Text has been revised to address this.
4	See copy of draft for more suggestions.	Comments in the draft have been addressed.
5	RE: 3/2/12 search (#1,2,5,6,7) add a [tiab] tag at the end of the search term so it only searches for the keyword phrase in the title and abstract of a PubMed record, which helps improve precision in the retrieval. RE: 3/2/12 search (#4) The subject terms used in the current search strategy in the document you sent are pretty thorough and appropriate. The main issue I see after further searching is that there's no good/precise Medical Subject Heading (MeSH) term in PubMed/Medline and other databases that captures "Care Model" as a concept. Below are some keywords that could be used for searching the titles and abstracts in PubMed to perhaps pull in some relevant articles related to Care Models. management model[tiab] model of care[tiab] care approach[tiab] care intervention[tiab] care program[tiab] integrated approach[tiab] integrated system[tiab] integrated model[tiab] system of care[tiab] framework[tiab] paradigm[tiab] I would "OR" these phrases together and combine them with other relevant MeSH terms, such as	Thank you for these suggestions.

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	Geriatrics Assessment or Health Services for the Aged and then NOT the publications I don't want, such as letters, case reports, editorials, etc. Example: (management model[tiab] OR model of care[tiab] OR care approach[tiab] OR care intervention[tiab] OR care program[tiab] OR integrated approach[tiab] OR integrated system[tiab] OR integrated model[tiab] OR system of care[tiab]) AND ("Health Services for the Aged"[Mh] OR "Geriatric Assessment"[tw]) NOT (letter[pt] OR case reports[pt] OR editorial[pt]) AND english[la] The strategy above yields about 237 citations. Many will be related to a specific disease or condition (e.g., falls, dementia, depression) , but you may also find some that are specific to geriatric assessment and care models in general. RE 3/9-12 Search (#1-10) add a [tiab] tag at the end of the search term so it only searches for the keyword phrase in the title and abstract of a PubMed record, which helps improve precision in the retrieval.	
6	Page 1: "Key Messages"—I would reorder so that the first bullet is the last (i.e., list positive findings first, then negative finding)	Edited as suggested.
6	Page 1: "Introduction" 3rd paragraph, 4th-5th line: "Given these small numbers"—not very informative. Why are those numbers small? (e.g., 500,000 MDs for 300M people is a ratio of 600:1; 7000 geriatricians for 40M people age 65 and over is 1:5,700)	The sentence has been deleted. Discussing why there is a shortage of geriatricians is outside the scope of this Brief.
6	Page 2: "Methods"—paragraph 2. insert ":" following the first use of "intervention" in line 3.; lline 4, change "living at home" to "discharge to home"; line5, insert "Bed Days of Care" after "readmission" [only if this is true, of course…)	Text revisions have been made to address these points.
6	Page 6: bottom 1/3 of page, third bullet point **"And no difference in readmission at three months"—** following the Confidence Interval, should the word "or" instead be the word "among?"	Text corrected as suggested.
6	Page 9: "Bottom Line"—would move 2nd bullet to become first bullet (as above, Positive finding, then negative findings).	Text edited as suggested.
6	Page 14: top of page, second open bullet: after Relative Riak figures, should this read "and a few instances…" instead of "and few instances?"	Text corrected.
6	Page 17: top 1/3 of page, first open bullet: "then" should be "than"	Text corrected.
6	Page 17, bottom 1/3 of page, red-bordered box: 1. any reason for the different format compared to "Bottom Line" on page 9?	1. Made format consistent 2. Edited as suggested 3. Corrected typo

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	2. move second statement to end (positive findings, negative findings) 3. second line: change "bout" to "about" 4. Third paragraph, third line, I am guessing this should read "…are more likely to improve outcomes than intervention where…"	4. Edited sentence
7	I was very interested in the primacy that the outcome of mortality seemed to take in the manuscript. While this is clearly one of the outcomes that emerged as being common to many of the individual studies, for this analysis there is no reason to place the mortality outcomes first in each area of discussion. I believe that many geriatricians would feel that mortality is a confounded outcome in many of these studies. The goal of geriatric care and geriatric models of care is frequently not to extend mortality. I have been involved in studies of models where the geriatric approach led to early referral to hospice or comfort care, making the mortality effects difficult to interpret. Since functional outcomes are likely to be more valued by patients and providers for this population, there is no reason to present the functional effects as a "secondary outcome."	Mortality was one of our outcomes, but not our primary outcome measure. This has been clarified in the text. The frequency with which mortality is discussed is the result of how many studies included this as an outcome.
7	I also felt that there is a lack of parallelism between the inpatient and outpatient analyses as presented in the manuscript. On face value the key messages seemed the same across the inpatient and outpatient realms, i.e. that more direct involvement by geriatricians produced better functional outcomes. However, the split for inpatient was most important for who had charge of the patient i.e. special geriatric unit vs. float team or consultation. This seems quite different from the split in the outpatient realm which fell between direct patient contact and indirect involvement. The difference can be highlighted by the role of consultation by an individual geriatrician which seemed to be not effective on the inpatient side, but associated with positive outcomes on the outpatient side. I think that the analyses and choices of split were fine for inpatient and outpatient side, but they were presented as showing parallel and analogous outcomes that are really not justified by the data.	We have attempted to clarify this in the text revisions.
8	Please see numerous comments entered directly on the draft document.	Thank you. These have been addressed.
5. Are there any VA clinical performance measures, programs, quality improvement measures, patient care services, or conferences that will be directly affected by this report? If so, please provide detail.		
1	Yes, an increase in outpatient geriatricians was requested and this will be used in that deliberation.	--
3	If in fact this report is accepted as providing evidence of minimal impact of geriatricians on healthcare outcomes in a variety of settings in older adults,	--

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	ongoing initiatives to integrate geriatricians into PACTs, implementation of geriatric emergency departments, GEM and geriatric acute care units, etc. may be scaled back or eliminated. This is particularly problematic given that few of the studies have been conducted in the VA and the metric of whether the clinical care provided by geriatricians in these settings decreases mortality is not the main outcome(s) of interest. These analyses highlight the need for larger scale, good quality randomized control trials to more directly test the key questions proposed on page 2.	
4	Validates value of GEM Unit program in the VA system. Supports further development of Acute Care for the Elderly inpatient units in the VA as well as outpatient geriatric consultation teams providing direct patient contact.	--
6	Ongoing discussion within the Healthcare Delivery Committee of the NLC concerning recommendation for growing geriatric inpatient and outpatient presence in VAMCs.	--
7	This seems to directly inform the role of geriatrics in PACT models.	--
8	Yes, big impact on workforce deployment in geriatric settings.	--

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6. Please provide any recommendations on how this report can be revised to more directly address or assist implementation needs.		
1	Has there been the opportunity to review surgical inpatient care with and with geriatrics for same age groups to see if the outcomes are improved with geriatric care?	We did not separately evaluate studies of surgical inpatient care. There are some studies available that look at specific orthopedic surgeries with and without geriatric involvement, but these were outside the scope of this Brief.
1	And can we group by gender at all (since VA has many more men and private sector many more women in clinics ?)	Studies and systematic reviews do not provide enough information to allow this within the format of an Evidence Brief.
2	It would be worth prospectively evaluating CGA recommendations and determine how follow-through affected outcome versus merely grouping all patients who had the CGA together.	Agree that this would be a useful area for future research.
3	Many areas should be changed (also see attached comments). 1. The title itself, "The value of geriatricians" should be changed as geriatricians typically are part of larger multidisciplinary teams and virtually none of the studies quoted were designed to tease out the contribution of the geriatrician per se to the outcomes. Would recommend a more generic, broader title, "impact of geriatric consultation and management on health care outcomes in older adults" or something along these lines. 2. Key message first bullet about mortality should be moved to the third bullet with more emphasis on functional outcomes, rather than mortality 3. The term effectiveness is used loosely without clear definition. 4. Time points of downstream outcome measures are not consistently defined (for example discussion about inpatient geriatric teams page 7).	1. Title has been revised, but we do include studies where geriatricians are not part of the team and function as individual specialists or primary care providers, so we cannot have the title be limited to specific models. 2. Bullets have been reorganized 3. We have added the outcomes that we used to define effectiveness for this review. 4. When they were provided and/or considered in a study or systematic review they are reported. In the Evidence Brief format, we are not able to follow up with authors or check other sources to obtain additional details.
5	Agree with summary findings as reported – use of search strategy in #4 may yield additional pertinent references.	
6	None -- nice job.	--
7	I would like to see more direct suggestions about studies that could address current deficiencies in the data.	Developing a future research needs report would be interesting and could be informed by this initial effort; however, it is outside the scope of an Evidence Brief.
8	English language search may have limited valuable data. The European Union based on their review of literature has recently mandated geriatric specialty in all its member nations and established very strict guidelines regarding staffing by geriatricians at all levels of clinical care.	Although we agree that the exclusion of non-English language literature is a limitation of this rapid review, we did not have the resources to permit translation.
7. Please provide us with contact details of any additional individuals/stakeholders who should be made aware of this report.		
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LIST OF EXCLUDED STUDIES

	Excluded Trials	Exclusion Code
1	AARP, Academy of Managed Care P, American College of Clinical P, et al. Sound medication therapy management programs. Case Manager. Jul-Aug 2006;17(4):47-50.	Publication type
2	Ahmed A, Allman RM, Kiefe CI, et al. Association of consultation between generalists and cardiologists with quality and outcomes of heart failure care. Am Heart J. Jun 2003;145(6):1086-1093.	Intervention
3	Allard J, Hebert R, Rioux M, Asselin J, Voyer L. Efficacy of a clinical medication review on the number of potentially inapprrropriate prescriptions prescribed for community - dwelling elderly people. CMAJ. 2001;164(9):1291-1296.	Intervention
4	Allen CM, Becker PM, McVey LJ, Saltz C, Feussner JR, Cohen HJ. A randomized, controlled clinical trial of a geriatric consultation team. Compliance with recommendations. JAMA. May 16 1986;255(19):2617-2621.	Outcome
5	Applebaum R, Straker J, Mehdizadeh S, Warshaw G, Gothelf E. Using high-intensity care management to integrate acute and long-term care services: substitute for large scale system reform? Care Manag J. Spring 2002;3(3):113-119.	Setting
6	Applegate WB, Miller ST, Graney MJ, Elam JT, Burns R, Akins DE. A randomized, controlled trial of a geriatric assessment unit in a community rehabilitation hospital. N Engl J Med. May 31 1990;322(22):1572-1578.	Population
7	Arbaje AI, Maron DD, Yu Q, et al. The geriatric floating interdisciplinary transition team. J Am Geriatr Soc. Feb 2010;58(2):364-370.	Outcome
8	Asplund K, Gustafson Y, Jacobsson C, et al. Hospital care for the elderly with acute medical illness. A randomised comparison of geriatric-based versus general wards [abstract]. 2000.	Publication type
9	Atkin NL, McInnes EC, Mira M, Kennedy P. GPs and geriatricians working together. Med J Aust. Oct 20 1997;167(8):455-456.	Outcome
10	Bachman SS, Collard AF, Greenberg JN, et al. An innovative approach to geriatric acute care delivery: the Choate-Symmes experience. Hosp Health Serv Adm. Nov 1987;32(4):509-520.	Intervention
11	Bakker FC, Robben SHM, Olde Rikkert MGM. Effects of hospital-wide interventions to improve care for frail older inpatients: a systematic review. BMJ Qual Saf. Aug 2011;20(8):680-691.	Intervention
12	Barker WH, Williams TF, Zimmer JG, Van Buren C, Vincent SJ, Pickrel SG. Geriatric consultation teams in acute hospitals: impact on back-up of elderly patients. J Am Geriatr Soc. Jun 1985;33(6):422-428.	Intervention
13	Barrick C, Karuza J, Levitt J. Impacting quality: assessment of a hospital-based geriatric acute care unit. American Journal of Medical Quality. 1999;14(3):133-137.	Setting
14	Baztan JJ, Gil L, Andres E, Vega E, Ruiperez I. [The community activity of a hospital geriatrics service: a practical example of coordination between primary and specialized care]. Aten Primaria. Oct 15 2000;26(6):374-382.	Foreign language
15	Beck A, Scott J, Williams P, et al. A randomized trial of group outpatient visits for chronically ill older HMO members: the Cooperative Health Care Clinic. J Am Geriatr Soc. May 1997;45(5):543-549.	Intervention
16	Beland F, Bergman H, Lebel P, et al. A system of integrated care for older persons with disabilities in Canada: results from a randomized controlled trial. Journals of Gerontology Series A-Biological Sciences & Medical Sciences. Apr 2006;61(4):367-373.	Intervention
17	Beland F, Bergman H, Lebel P, et al. Integrated services for frail elders (SIPA): a trial of a model for Canada. Can J Aging. Spring 2006;25(1):25-42.	Intervention
18	Blain A, Dardalhon B, Jouaffre V, et al. [Multidisciplinary work of a mobile geriatric team]. Soins Gerontol. Mar-Apr 2007(64):42.	Foreign language
19	Blewett LA, Johnson K, McCarthy T, Lackner T, Brandt B. Improving geriatric transitional care through inter-professional care teams. Journal of Evaluation in Clinical Practice. Feb 2010;16(1):57-63.	Setting

Excluded Trials		Exclusion Code
20	Borok GM, Reuben DB, Zendle LJ, et al. Rationale and design of a multi-center randomized trial of comprehensive geriatric assessment consultation for hospitalized patients in an HMO. J Am Geriatr Soc. May 1994;42(5):536-544.	Other: Protocol only
21	Boult C, Reider L, Leff B, et al. The effect of guided care teams on the use of health services: results from a cluster-randomized controlled trial. Archives of internal medicine. 2011;171(5):460-466.	Intervention
22	Boyd CM, Shadmi E, Conwell LJ, et al. A pilot test of the effect of guided care on the quality of primary care experiences for multimorbid older adults. J Gen Intern Med. May 2008;23(5):536-542.	Intervention
23	Bula C, Waeber G. [General internal medicine and geriatrics in the acute care setting: opportunities for collaboration]. Rev Med Suisse. Nov 8 2006;2(86):2540-2543.	Foreign language
24	Burns R, Nichols LO, Graney MJ, Cloar FT. Impact of continued geriatric outpatient management on health outcomes of older veterans. Archives of internal medicine. Jun 1995;155(12):1313-1318.	Intervention
25	Buurman BM, Parlevliet JL, van Deelen BA, de Haan RJ, de Rooij SE. A randomised clinical trial on a comprehensive geriatric assessment and intensive home follow-up after hospital discharge: the Transitional Care Bridge. BMC Health Serv Res. 2010;10:296.	Other: Protocol, study not completed
26	Callahan CM, Weiner M, Counsell SR. Defining the domain of geriatric medicine in an urban public health system affiliated with an academic medical center. J Am Geriatr Soc. Oct 2008;56(10):1802-1806.	Other: Descriptive study
27	Campbell KH, Sachs GA, Hemmerich JA, Smith SG, Stankus N, Dale W. Physician referral decisions for older chronic kidney disease patients: a pilot study of geriatricians, internists, and nephrologists. J Am Geriatr Soc. Feb 2010;58(2):392-395.	Outcome
28	Campion EW, Jette A, Berkman B. An interdisciplinary geriatric consultation service: a controlled trial. J Am Geriatr Soc. Dec 1983;31(12):792-796.	Published before 1985
29	Campion EW. The merits of geriatric consultation. JAMA. May 1 1987;257(17):2336-2337.	Publication type
30	Carlsen WR, Galluzzi KE, Forman LF, Cavalieri TA. Comprehensive geriatric assessment: applications for community-residing, elderly people with mental retardation/developmental disabilities. Ment Retard. Oct 1994;32(5):334-340.	Setting
31	Cefalu CA, Colbourne G, Duffy M, Johnson E, Lestter M, Wright J. A university-affiliated community hospital inpatient geriatrics program functioning in an administrative and educational capacity. J Am Geriatr Soc. Mar 1997;45(3):355-360.	No comparator
32	Cefalu CA. Adhering to inpatient geriatric consultation recommendations. J Fam Pract. Mar 1996;42(3):259-263.	Intervention
33	Cefalu CA. Preoperative geriatric assessment. J Am Geriatr Soc. Mar 1996;44(3):333.	Publication type
34	Challis D, Clarkson P, Williamson J, et al. The value of specialist clinical assessment of older people prior to entry to care homes. Age and ageing. Jan 2004;33(1):25-34.	Intervention
35	Champion G, Henschke P, Harris R, et al. The Geriatric Assessment Research Project: a randomised study. [abstract]. Aust NZ J Med Suppl. 1987;17(1):111.	Publication type
36	Chesney TR, Alvarado BE, Garcia A. A mild dementia knowledge transfer program to improve knowledge and confidence in primary care. J Am Geriatr Soc. May 2011;59(5):942-944.	Outcome
37	Chin MH, Wang JC, Zhang JX, Sachs GA, Lang RM. Differences among geriatricians, general internists, and cardiologists in the care of patients with heart failure: a cautionary tale of quality assessment. J Am Geriatr Soc. Nov 1998;46(11):1349-1354.	Population
38	Cho CY, Alessi CA, Cho M, et al. The association between chronic illness and functional change among participants in a comprehensive geriatric assessment program. J Am Geriatr Soc. Jun 1998;46(6):677-682.	No comparator
39	Chun AK. When is it the right time to ask for a geriatrician? Mt Sinai J Med. Jul-Aug 2011;78(4):485-488.	Other: Non-SR
40	Clarkson P, Brand C, Hughes J, Challis D. Integrating assessments of older people: examining evidence and impact from a randomised controlled trial. Age Ageing. May 2011;40(3):388-391.	Intervention

Excluded Trials		Exclusion Code
41	Clarkson P, Venables D, Hughes J, Burns A, Challis D. Integrated specialist assessment of older people and predictors of care-home admission. Psychol Med. Jul 2006;36(7):1011-1021.	Intervention
42	Coast J, Peters TJ, Inglis A. Factors associated with inappropriate emergency hospital admission in the UK. Int J Qual Health Care. Feb 1996;8(1):31-39.	Intervention
43	Collard AF, Bachman SS, Beatrice DF. Acute care delivery for the geriatric patient: an innovative approach. QRB Qual Rev Bull. Jun 1985;11(6):180-185.	Intervention
44	Conroy S, Ferguson C, Woodard J, Banerjee J. Interface geriatrics: evidence-based care for frail older people with medical crises. Br J Hosp Med (Lond). Feb 2010;71(2):98-101.	Other: Non-SR
45	Corbett HM, Lim WK, Davis SJ, Elkins AM. Care coordination in the Emergency Department: improving outcomes for older patients. Aust Health Rev. Feb 2005;29(1):43-50.	Intervention
46	Cordato NJ, Saha S, Price MA. Geriatric interventions: the evidence base for comprehensive health care services for older people. Australian Health Review. May 2005;29(2):151-155.	Publication type
47	Couderc AL, Bailly-Agaledes C, Camalet J, et al. [Adaptations of psychotropic drugs in patients aged 75 years and older in a departement of geriatric internal medecine: report of 100 cases]. Geriatr Psychol Neuropsychiatr Vieil. Jun 2011;9(2):163-170.	Foreign language
48	Counsell SR, Callahan CM, Buttar AB, Clark DO, Frank KI. Geriatric Resources for Assessment and Care of Elders (GRACE): a new model of primary care for low-income seniors. J Am Geriatr Soc. 2006;54(7):1136-1141.	Outcome
49	Covinsky KE, King JT, Jr., Quinn LM, et al. Do acute care for elders units increase hospital costs? A cost analysis using the hospital perspective. Journal of the American Geriatrics Society. 1997;45(6):729-734.	Intervention
50	Cravens DD, Mehr DR, Campbell JD, Armer J, Kruse RL, Rubenstein LZ. Home-based comprehensive assessment of rural elderly persons: the CARE project. J Rural Health. 2005;21(4):322-328.	No comparator
51	Crotty M, Halbert J, Rowett D, et al. An outreach geriatric medication advisory service in residential aged care: a randomised controlled trial of case conferencing. Age & Ageing. Nov 2004;33(6):612-617.	Setting
52	Cunliffe AL, Gladman JR, Husbands SL, Miller P, Dewey ME, Harwood RH. Sooner and healthier: a randomised controlled trial and interview study of an early discharge rehabilitation service for older people. Age Ageing. May 2004;33(3):246-252.	Intervention
53	Dapp U, Anders JA, von Renteln-Kruse W, et al. A randomized trial of effects of health risk appraisal combined with group sessions or home visits on preventive behaviors in older adults. J Gerontol A Biol Sci Med Sci. May 2011;66(5):591-598.	Intervention
54	De Jonge E, Taler G. Is there a doctor in the house? Caring. Aug 2002;21(8):26-29.	Population
55	de Vries OJ, Peeters GM, Elders PJ, et al. Multifactorial intervention to reduce falls in older people at high risk of recurrent falls: a randomized controlled trial. Arch Intern Med. Jul 12 2010;170(13):1110-1117.	Population
56	Duncan G, Caird FI. Collaboration between geriatricians and general surgeons. Health Bull (Edinb). Mar 1992;50(2):163-167.	No comparator
57	Eagle DJ, Guyatt GH, Patterson C, Turpie I, Sackett B, Singer J. Effectiveness of a geriatric day hospital. CMAJ. Mar 15 1991;144(6):699-704.	Intervention
58	Edmans J, Conroy S, Harwood R, et al. Acute medical unit comprehensive geriatric assessment intervention study (AMIGOS). Trials. 2011;12:200.	Other: Protocol only
59	Elkan R, Kendrick D, Dewey M, et al. Effectiveness of home based support for older people: systematic review and meta-analysis. BMJ. 2001;323(7315):719-725.	Intervention
60	Elliot JR, Wilkinson TJ, Hanger HC, et al. The added effectiveness of early geriatrician involvement on acute orthopaedic wards to orthogeriatric rehabilitation. N Z Med J. Mar 8 1996;109(1017):72-73.	Population
61	Ellis G, Langhorne P. Comprehensive geriatric assessment for older hospital patients. Br Med Bull. 2004;71:45-59.	Other: Review has been updated

Excluded Trials		Exclusion Code
62	Enguidanos SM, Gibbs NE, Simmons WJ, et al. Kaiser Permanente community partners project: improving geriatric care management practices. J Am Geriatr Soc. May 2003;51(5):710-714.	Outcome
63	Evans DJ, Oakey S, Almdahl S, Davoren B. Goal attainment scaling in a geriatric day hospital. Team and program benefits. Can Fam Physician. Apr 1999;45:954-960.	Intervention
64	Fairhall N, Aggar C, Kurrle SE, et al. Frailty Intervention Trial (FIT). BMC Geriatrics. 2008;8:27.	Other: Protocol only
65	Fisher A, Davis M, Rubenach S, Sivakumaran S, Smith P, Budge M. Outcomes for Older Patients With Hip Fractures: The Impact of Orthopedic and Geriatric Medicine Cocare. Journal of Orthopaedic Trauma March. 2006;20(3):172-180.	Population
66	Fletcher AE, Jones DA, Bulpitt CJ, Tulloch AJ. The MRC trial of assessment and management of older people in the community: objectives, design and interventions [ISRCTN23494848]. BMC Health Serv Res. Oct 25 2002;2(1):21.	Other: Protocol only
67	Foley KT, Szabo E, Whitelaw N. Can geriatricians maintain separate consultative and primary care roles? J Am Geriatr Soc. Sep 1995;43(9):1065.	Publication type
68	Forster A, Young J, Lambley R, Langhorne P. Medical day hospital care for the elderly versus alternative forms of care [Systematic Review]. Cochrane Database of Systematic Reviews. 2009(1).	Population
69	Friedman G, Brodsky J, Bentur N, Ben-Yehuda A, Stern Z, Isaacs B. Evaluation of a geriatric consultation unit in an acute university hospital. Aging (Milano). Jun 1995;7(3):234-236.	Outcome
70	Ganz DA, Fung CH, Sinsky CA, Wu S, Reuben DB. Key elements of high-quality primary care for vulnerable elders. Journal of General Internal Medicine. Dec 2008;23(12):2018-2023.	Intervention
71	Gilchrist WJ, Newman RJ, Hamblen DL, Williams BO. Prospective randomised study of an orthopaedic geriatric inpatient service. BMJ. Oct 29 1988;297(6656):1116-1118.	Population
72	Gold S, Bergman H. A geriatric consultation team in the emergency department. J Am Geriatr Soc. Jun 1997;45(6):764-767.	No comparator
73	Gonzalez-Montalvo JI, Alarcon T, Mauleon JL, Gil-Garay E, Gotor P, Martin-Vega A. The orthogeriatric unit for acute patients: a new model of care that improves efficiency in the management of patients with hip fracture. Hip Int. Apr-Jun 2010;20(2):229-235.	Population
74	Hackstaff L, Davis C, Katz L. The case for integrating behavior change, client-centered practice and other evidence-based models into geriatric care management. Soc Work Health Care. 2004;38(3):1-19.	Intervention
75	Hastings SN, Heflin MT. A systematic review of interventions to improve outcomes for elders discharged from the emergency department. Acad Emerg Med. Oct 2005;12(10):978-986.	Intervention
76	Hebert R, Raiche M, Dubois M-F, et al. Impact of PRISMA, a coordination-type integrated service delivery system for frail older people in Quebec (Canada): A quasi-experimental study. Journals of Gerontology Series B-Psychological Sciences & Social Sciences. Jan 2010;65B(1):107-118.	Intervention
77	Henschke P. The Geriatric Assessment Research Project: a randomised study [abstract]. Proc Annu Conf Aust Assoc Gerontol. 1986;21(77).	Publication type
78	Hershfield NB. Effect of a geriatric consultation service on the management of patients in an acute care hospital. CMAJ. Jul 1 1987;137(1):12-13.	Publication type
79	Hinkka K, Karppi SL, Pohjolainen T, Rantanen T, Puukka P, Tilvis R. Network-based geriatric rehabilitation for frail elderly people: feasibility and effects on subjective health and pain at one year. J Rehabil Med. Jul 2007;39(6):473-478.	Population
80	Huber M, Kennard A. Functional and mental status outcomes of clients discharged from acute gerontological versus medical/surgical units. J Gerontol Nurs. Jul 1991;17(7):20-24.	Intervention
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82	Jayadevappa R, Chhatre S, Weiner M, Raziano DB. Health resource utilization and medical care cost of acute care elderly unit patients. Value in Health. 2006;9(3):186-192.	Intervention
83	Kafetz K, O'Farrell J, Parry A, et al. Age-related geriatric medicine: relevance of special skills of geriatric medicine to elderly people admitted to hospital as medical emergencies. J R Soc Med. Nov 1995;88(11):629-633.	Intervention

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85	Kagan SH. Revisiting interdisciplinary teamwork in geriatric acute care. Geriatr Nurs. Mar 4 2010;31(2):133-136.	Publication type
86	Karppi P. Effects of a geriatric inpatient unit on elderly home care patients: a controlled trial. Aging (Milan, Italy). Jun 1995;7(3):207-211.	Setting
87	Kay G, MacTavish M, Moffatt C, Lau G. Development and evaluation of a geriatric assessment unit in a community hospital. Perspectives. 1992;16(3):2-9.	Population
88	Keeler EB, Robalino DA, Frank JC, Hirsch SH, Maly RC, Reuben DB. Cost-effectiveness of outpatient geriatric assessment with an intervention to increase adherence. Med Care. Dec 1999;37(12):1199-1206.	Publication type
89	Kehusmaa S, Autti-Ramo I, Valaste M, Hinkka K, Rissanen P. Economic evaluation of a geriatric rehabilitation programme: a randomized controlled trial. J Rehabil Med. Nov 2010;42(10):949-955.	Outcome
90	Kelley-Gillespie N. Mobile medical care units: an innovative use of Medicare funding. J Health Soc Policy. 2005;20(2):33-48.	Intervention
91	Kimber J, Silver CP. Home visiting by a geriatric department. J R Coll Gen Pract. Jan 1981;31(222):41-44.	No comparator
92	Kravitz RL, Reuben DB, Davis JW, et al. Geriatric home assessment after hospital discharge. J Am Geriatr Soc. Dec 1994;42(12):1229-1234.	No comparator
93	Lampela P, Hartikainen S, Lavikainen P, Sulkava R, Huupponen R. Effects of medication assessment as part of a comprehensive geriatric assessment on drug use over a 1-year period: a population-based intervention study. Drugs Aging. Jun 1 2010;27(6):507-521.	Intervention
94	Landefeld CS, Palmer RM, Kresevic DM, Fortinsky RH, Kowal J. A randomized trial of care in a hospital medical unit especially designed to improve the functional outcomes of acutely ill older patients. N Engl J Med. May 18 1995;332(20):1338-1344.	Intervention
95	Landefeld CS. Care of hospitalized older patients: opportunities for hospital-based physicians. J Hosp Med. Jan 2006;1(1):42-47.	Intervention
96	Lang VJ, Clark NS, Medina-Walpole A, McCann R. Hazards of hospitalization: hospitalists and geriatricians educating medical students about delirium and falls in geriatric inpatients. Gerontol Geriatr Educ. 2008;28(4):94-104.	Intervention
97	Ledesert B, Lombrail P, Yeni P, Carbon C, Brodin M. The impact of a comprehensive multi-dimensional geriatric assessment programme on duration of stay in a French acute medical ward. Age & Ageing. 1994;23(3):223-227.	Intervention
98	Lichtenstein H, Winograd CH. Geriatric consultation: a functional approach. J Am Geriatr Soc. May 1984;32(5):356-361.	No comparator
99	Lundstrom M, Edlund A, Karlsson S, Brannstrom B, Bucht G, Gustafson Y. A multifactorial intervention program reduces the duration of delirium, length of hospitalization, and mortality in delirious patients. Journal of the American Geriatrics Society. Apr 2005;53(4):622-628.	Intervention
100	MacLean DS. Outcome and cost of family physicians' care--pilot study of three diagnosis-related groups in elderly inpatients. J Am Board Fam Pract. Nov-Dec 1993;6(6):588-593.	Intervention
101	MacLennan WJ, Chapman BJ, Smith M, Prescott RJ, Wang JX. Co-ordinating geriatric and general medical services; experience of a geriatric assessment ward in the Royal Infirmary of Edinburgh. Scott Med J. Jun 1992;37(3):80-82.	No comparator
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103	Marcantonio ER, Flacker JM, Wright RJ, Resnick NM. Reducing delirium after hip fracture: a randomized trial. J Am Geriatr Soc. May 2001;49(5):516-522.	Population
104	Martin F, Oyewole A, Moloney A. A randomized controlled trial of a high support hospital discharge team for elderly people. Age Ageing. May 1994;23(3):228-234.	Intervention
105	Martinez Lozano MD, Guzman Quilo C, Primeras Consultas Study G. Management of suspected Alzheimer's disease patients by specialist physicians at the first visit in Spain: First Consultation Study. Expert Rev Neurother. May 2011;11(5):657-663.	Population

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107	McCusker J, Dendukuri N, Tousignant P, Verdon J, Poulin de Courval L, Belzile E. Rapid two-stage emergency department intervention for seniors: impact on continuity of care. Acad Emerg Med. Mar 2003;10(3):233-243.	Intervention
108	McCusker J, Verdon J. Do geriatric interventions reduce emergency department visits: a systematic review. Journals of Gerontology Series A - Biological Sciences and Medical Sciences. 2006;61(1):53-62.	Intervention
109	McInnes E, Mira M, Atkin N, Kennedy P, Cullen J. Can GP input into discharge planning result in better outcomes for the frail aged: results from a randomized controlled trial. Fam Pract. Jun 1999;16(3):289-293.	Intervention
110	Mehta SS, Siegler EL, Henderson CR, Jr., Reid MC. Acute pain management in hospitalized patients with cognitive impairment: a study of provider practices and treatment outcomes. Pain Med. Oct 2010;11(10):1516-1524.	No comparator
111	Meissner P, Andolsek K, Mears PA, Fletcher B. Maximizing the functional status of geriatric patients in an acute community hospital setting. Gerontologist. 1989;29(4):524-528.	Intervention
112	Melis RJ, Adang E, Teerenstra S, et al. Cost-effectiveness of a multidisciplinary intervention model for community-dwelling frail older people. J Gerontol A Biol Sci Med Sci. Mar 2008;63(3):275-282.	Setting
113	Melis RJ, van Eijken MI, Teerenstra S, et al. A randomized study of a multidisciplinary program to intervene on geriatric syndromes in vulnerable older people who live at home (Dutch EASYcare Study). J Gerontol A Biol Sci Med Sci. Mar 2008;63(3):283-290.	Intervention
114	Merel SE, McCormick W. Geriatricians and hospitalists: opportunities for partnership. J Am Geriatr Soc. Sep 2010;58(9):1803-1805.	Publication type
115	Mesteig M, Helbostad JL, Sletvold O, Rosstad T, Saltvedt I. Unwanted incidents during transition of geriatric patients from hospital to home: a prospective observational study. BMC Health Serv Res. 2010;10:1.	No comparator
116	Mion LC, Palmer RM, Meldon SW, et al. Case finding and referral model for emergency department elders: a randomized clinical trial. Ann Emerg Med. Jan 2003;41(1):57-68.	Intervention
117	Mulder J, Groenier KH, Dekker JJ, Berendsen AJ, Schuling J. Is there a need for a GP consultant at a university hospital? BMC Fam Pract. 2008;9:55.	Outcome
118	National Institutes of Health Consensus Development Conference Statement: geriatric assessment methods for clinical decision-making. Journal of the American Geriatrics Society. Apr 1988;36(4):342-347.	Publication type
119	Naylor MD, Brooten D, Campbell R, et al. Comprehensive discharge planning and home follow-up of hospitalized elders: a randomized clinical trial. JAMA. 1999;281(7):613-620.	Intervention
120	Nikolaus T, Detterbeck H, Gartner U, et al. [Diagnostic house call within the scope of inpatient geriatric assessment]. Z Gerontol Geriatr. Jan-Feb 1995;28(1):14-18.	Foreign language
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123	O'Donnell JC, Toseland RW. Does geriatric evaluation and management improve the health behavior of older veterans in psychological distress? J Aging Health. Nov 1997;9(4):473-497.	Other: Primary reports are covered by SRs
124	O'Reilly J, Lowson K, Young J, Forster A, Green J, Small N. A cost effectiveness analysis within a randomised controlled trial of post-acute care of older people in a community hospital. BMJ. Jul 29 2006;333(7561):228.	Intervention

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126	Parsons M, Senior H, Kerse N, et al. Should care managers for older adults be located in primary care? A randomized controlled trial. J Am Geriatr Soc. Jan 2012;60(1):86-92.	Intervention
127	Peeters GMEE, de Vries OJ, Elders PJM, Pluijm SMF, Bouter LM, Lips P. Prevention of fall incidents in patients with a high risk of falling: design of a randomised controlled trial with an economic evaluation of the effect of multidisciplinary transmural care. BMC Geriatrics. 2007;7:15.	Other: Protocol only
128	Phelan EA, Williams B, LaCroix AZ, Grothaus L, LoGerfo JP, Wagner EH. Effects of provider practice on functional independence in older adults. Journal of the American Geriatrics Society. Aug 2004;52(8):1233-1239.	Intervention
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130	Pope G, Wall N, Peters CM, et al. Specialist medication review does not benefit short-term outcomes and net costs in continuing-care patients. Age Ageing. May 2011;40(3):307-312.	Setting
131	Popplewell PY, Henschke PJ. What is the value of a Geriatric Assessment Unit in a teaching hospital? A comparative study of the management of elderly inpatients. Aust Health Rev. May 1983;6(2):23-25.	Published before 1985
132	Powell C, Montgomery P. The age study: the admission of geriatric patients through emergency. Age & Ageing. 1990;19(Suppl):21-22.	Publication type
133	Raj V, Parulekar M, Steel RK. Geriatric medicine in the intensive care unit. J Am Geriatr Soc. Aug 2011;59(8):1570-1571.	Publication type
134	Reuben DB, Maly RC, Hirsch SH, et al. Physician implementation of and patient adherence to recommendations from comprehensive geriatric assessment. Am J Med. Apr 1996;100(4):444-451.	Outcome
135	Reuben DB. Organizational interventions to improve health outcomes of older persons. Med Care. May 2002;40(5):416-428.	Other: Mixed interventions
136	Rikala M, Korhonen MJ, Sulkava R, Hartikainen S. The effects of medication assessment on psychotropic drug use in the community-dwelling elderly. Int Psychogeriatr. Apr 2011;23(3):473-484.	Intervention
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138	Rizza P, Bianco A, Pavia M, Angelillo IF. Preventable hospitalization and access to primary health care in an area of Southern Italy. BMC Health Serv Res. 2007;7:134.	Intervention
139	Rockwood K, Howlett S, Stadnyk K, Carver D, Powell C, Stolee P. Responsiveness of goal attainment scaling in a randomized controlled trial of comprehensive geriatric assessment. J Clin Epidemiol. Aug 2003;56(8):736-743.	Other: Psychometric study of scale
140	Roller PD, Allman RM. Comprehensive geriatric assessment in Medicare managed care: the geriatrician's calling card. Am J Med. Apr 1996;100(4):383-385.	Publication type
141	Romeis JC, Schey HM, Marion GS, Keith JF, Jr. Extending the extenders. Compromise for the geriatric specialization-manpower debate. J Am Geriatr Soc. Aug 1985;33(8):559-565.	Intervention
142	Rozzini R, Sabatini T, Trabucchi M. Hospital organization: general internal medical and geriatrics wards. J Gerontol A Biol Sci Med Sci. Apr 2005;60(4):535.	No comparator
143	Rubenstein LZ. Documenting impacts of geriatric consultation. J Am Geriatr Soc. Aug 1987;35(8):829-830.	Publication type
144	Rubin CD, Sizemore MT, Loftis PA, Adams-Huet B, Anderson RJ. The effect of geriatric evaluation and management on Medicare reimbursement in a large public hospital: a randomized clinical trial. Journal of the American Geriatrics Society. Oct 1992;40(10):989-995.	Intervention
145	Saad M, Harisingani R, Katinas L. Impact of geriatric consultation on the number of medications in hospitalized older patients. Consult Pharm. Jan 2012;27(1):42-48.	No comparator

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147	Scott I. Optimising care of the hospitalised elderly: a literature review and suggestions for future research. Australian and New Zealand Journal of Medicine. 1999;29(2):254-264.	Publication type
148	Scott IA. Care of older people in acute care hospitals: do we know how? Med J Aust. Nov 1 1999;171(9):485-488.	Publication type
149	Shaw FE, Bond J, Richardson DA, et al. Multifactorial intervention after a fall in older people with cognitive impairment and dementia presenting to the accident and emergency department: randomised controlled trial. BMJ. Jan 11 2003;326(7380):73.	Intervention
150	Shyu YI, Liang J, Wu CC, et al. Two-year effects of interdisciplinary intervention for hip fracture in older Taiwanese. J Am Geriatr Soc. Jun 2010;58(6):1081-1089.	Intervention
151	Silliman RA, McGarvey ST, Raymond PM, Fretwell MD. The Senior Care Study. Does inpatient interdisciplinary geriatric assessment help the family caregivers of acutely ill older patients? J Am Geriatr Soc. Apr 1990;38(4):461-466.	Outcome
152	Siu AL, Morishita L, Blaustein J. Comprehensive geriatric assessment in a day hospital. Journal of the American Geriatrics Society. Oct 1994;42(10):1094-1099.	No comparator
153	Somme D, Andrieux N, Guerot E, et al. Loss of autonomy among elderly patients after a stay in a medical intensive care unit (ICU): a randomized study of the benefit of transfer to a geriatric ward. Arch Gerontol Geriatr. May-Jun 2010;50(3):e36-40.	Intervention
154	Sonu IS, High KP, Clayton CP, Woolard NF, Hazzard WR. An evaluation of geriatrics activities within internal medicine subspecialties. Am J Med. Nov 2006;119(11):995-1000.	Intervention
155	Spinewine A, Swine C, Dhillon S, et al. Effect of a collaborative approach on the quality of prescribing for geriatric inpatients: a randomized, controlled trial. Journal of the American Geriatrics Society. May 2007;55(5):658-665.	Intervention
156	Steel K, Hays A. A consultation service in geriatric medicine at a university hospital. JAMA. Apr 10 1981;245(14):1410-1411.	Publication type
157	Stenvall M, Olofsson B, Nyberg L, Lundstrom M, Gustafson Y. Improved performance in activities of daily living and mobility after a multidisciplinary postoperative rehabilitation in older people with femoral neck fracture: a randomized controlled trial with 1-year follow-up. J Rehabil Med. Apr 2007;39(3):232-238.	Population
158	Stewart DA, Burns JM, Beard K, et al. The roles of general and geriatric medicine in the provision of acute medical care for elderly patients. Health Bull (Edinb). May 1992;50(3):259-266.	No comparator
159	Stock RD, Reece D, Cesario L. Developing a comprehensive interdisciplinary senior healthcare practice. Journal of the American Geriatrics Society. Dec 2004;52(12):2128-2133.	No comparator
160	Stuck AE, Egger M, Hammer A, Minder CE, Beck JC. Home visits to prevent nursing home admission and functional decline in elderly people: systematic review and meta-regression analysis. JAMA. 2002;287(8):1022-1028.	Other: Review has been updated
161	Stuck AE, Kharicha K, Dapp U, et al. The PRO-AGE study: an international randomised controlled study of health risk appraisal for older persons based in general practice. BMC Med Res Methodol. 2007;7:2.	Intervention
162	Stuck AE, Siu AL, Wieland GD, Adams J, Rubenstein LZ. Comprehensive geriatric assessment: a meta-analysis of controlled trials. Lancet. Oct 23 1993;342(8878):1032-1036.	Other: Review has been updated
163	Stuck AE, Zwahlen HG, Neuenschwander BE, Meyer Schweizer RA, Bauen G, Beck JC. Methodologic challenges of randomized controlled studies on in-home comprehensive geriatric assessment: the EIGER project. Evaluation of In-Home Geriatric Health Visits in Elderly Residents. Aging (Milano). Jun 1995;7(3):218-223.	Other: Method article
164	Templeton VH. Dementia care: an outpatient, community-based, multi-disciplinary approach. N C Med J. Jan-Feb 2005;66(1):64-66.	Publication type

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165	Thomas DR, Brahan R, Haywood BP. Inpatient community-based geriatric assessment reduces subsequent mortality. J Am Geriatr Soc. Feb 1993;41(2):101-104.	Intervention
166	Todd M, Crawford V, Stout RW. Differences between "geriatric" and "medical" patients aged 75 and over. Ulster Med J. Apr 1993;62(1):4-10.	No comparator
167	Torres C, Ciocon JO, Galindo D, Ciocon DG. Clinical approach to urinary incontinence: a comparison between internists and geriatricians. Int Urol Nephrol. 2001;33(3):549-552.	Outcome
168	Trentini M, Semeraro S, Rossi E, et al. A multicenter randomized trial of comprehensive geriatric assessment and management: experimental design, baseline data, and six-month preliminary results. Aging (Milano). Jun 1995;7(3):224-233.	Other: Review has been updated
169	Tucker MA, Davison JG, Ogle SJ. Day hospital rehabilitation--effectiveness and cost in the elderly: a randomised controlled trial. Br Med J (Clin Res Ed). Nov 3 1984;289(6453):1209-1212.	Intervention
170	Twomey C, Crowley MJ, Delaney L, Hyland CM. Patient throughput in an acute geriatric unit. Ir Med J. Jul-Aug 1995;88(4):126-128.	No comparator
171	Van Craen K, Braes T, Wellens N, et al. The effectiveness of inpatient geriatric evaluation and management units: a systematic review and meta-analysis. Journal of the American Geriatrics Society. Jan 2010;58(1):83-92.	Intervention
172	Vidan Astiz MT, Sanchez Garcia E, Alonso Armesto M, et al. [Functional decline during hospitalization in elderly patients. Benefits of admission to the geriatrics service]. Rev Esp Geriatr Gerontol. May-Jun 2008;43(3):133-138.	Foreign language
173	Vidan M, Serra JA, Moreno C, Riquelme G, Ortiz J. Efficacy of a comprehensive geriatric intervention in older patients hospitalized for hip fracture: a randomized, controlled trial. J Am Geriatr Soc. Sep 2005;53(9):1476-1482.	Population
174	Vind AB, Andersen HE, Pedersen KD, Joergensen T, Schwarz P. Effect of a program of multifactorial fall prevention on health-related quality of life, functional ability, fear of falling and psychological well-being. A randomized controlled trial. Aging Clin Exp Res. Jun 2010;22(3):249-254.	Intervention
175	von Sternberg T, Hepburn K, Cibuzar P, et al. Post-hospital sub-acute care: an example of a managed care model. J Am Geriatr Soc. Jan 1997;45(1):87-91.	Setting
176	Wald H, Huddleston J, Kramer A. Is there a geriatrician in the house? Geriatric care approaches in hospitalist programs. J Hosp Med. Jan 2006;1(1):29-35.	Intervention
177	Wald HL, Glasheen JJ, Guerrasio J, Youngwerth JM, Cumbler EU. Evaluation of a hospitalist-run acute care for the elderly service. J Hosp Med. Jul-Aug 2011;6(6):313-321.	Intervention
178	Warshaw G. Geriatrics in the family practice center. Fam Med. Jan 1998;30(1):10-11.	Publication type
179	Warshaw G. Providing quality primary care to older adults. J Am Board Fam Med. May-Jun 2009;22(3):239-241.	Intervention
180	Warshaw GA, Modawal A, Kues J, et al. Community physician education in geriatrics: applying the assessing care of vulnerable elders model with a multisite primary care group. J Am Geriatr Soc. Sep 2010;58(9):1780-1785.	Intervention
181	Wasserman MR, Holthaus KM, Cosgrove K. The MedWise Center--an innovation in primary care geriatrics. Continuum. Jan-Feb 1998;18(1):18-23.	No comparator
182	Wenger NS, Roth CP, Shekelle PG, et al. A practice-based intervention to improve primary care for falls, urinary incontinence, and dementia. Journal of the American Geriatrics Society. Mar 2009;57(3):547-555.	Intervention
183	Whinney C, Michota F. Surgical comanagement: a natural evolution of hospitalist practice. J Hosp Med. Sep 2008;3(5):394-397.	Intervention
184	Whitehead CH, Harding S, Giles LC, Crotty M. Establishment of and first 20 months of operating an outreach geriatric clinic in a regional centre. Rural Remote Health. 2006;6(1):444.	No comparator
185	Wilhelmson K, Duner A, Eklund K, et al. Design of a randomized controlled study of a multi-professional and multidimensional intervention targeting frail elderly people. BMC Geriatr. 2011;11:24.	Intervention

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186	Willett RM, Boling PA, Meyers ME, Hoban JD, Lawson SR, Schlesinger JB. Professional development in geriatrics for community-based generalist faculty. J Am Geriatr Soc. Feb 2007;55(2):300-304.	Intervention
187	Williams ME, Pulliam CC, Hunter R, et al. The short-term effect of interdisciplinary medication review on function and cost in ambulatory elderly people. J Am Geriatr Soc. Jan 2004;52(1):93-98.	Intervention
188	Winograd CH, Gerety MB, Brown E, Kolodny V. Targeting the hospitalized elderly for geriatric consultation. J Am Geriatr Soc. Dec 1988;36(12):1113-1119.	Outcome
189	Winograd CH, Stearns C. Inpatient geriatric consultation. Challenges and benefits. J Am Geriatr Soc. Aug 1990;38(8):926-932.	Publication type
190	Wong R, Chittock D, Malean N, Wilbur K. Discharge outcomes of older medical in-patients in a specialized acute care for elders unit compared with non-specialized units. Can J Geriatr. 2006;9(3):96-101.	Intervention
191	Xakellis GC. Who provides care to Medicare beneficiaries and what settings do they use? J Am Board Fam Pract. Sep-Oct 2004;17(5):384-387.	Outcome

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