ESTABLISHING A NATIONAL FRAMEWORK FOR GERIATRIC HOMECARE EXCELLENCE

MEDICATION MANAGEMENT

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
Bangalore (2007) * Systematic review and meta-analysis evaluating the role of fixed-dose combination regimens. Fixed-dose combinations aim to improve compliance in patients who have chronic illnesses that require multiple medications by combining them into a single pill or preparation.	Randomized Controlled Trials (RCT) (3) Retrospective review of claims (6)	Not stated (community implied) Age range: 40 to 68	Pill counts Self report Rx renewals Clinical/Laboratory tests	Fixed-dose combinations reduced non-compliance 24-26% from non-compliance rates of 38% to 35% (RR 0.74; 95% CI 0.69-0.80). In the 3 studies that measured efficacy, fixed dose combination regimens were equally efficacious or more efficacious than individual medication combination regimens.
Bayley (2005) To improve understanding of risks related to transfer of medication information and to evaluate an information technology (IT) solution that merges the hospital discharge and ambulatory care record.	Evaluation Study: Qualitative methods for problem identification followed by controlled evaluation of IT intervention using chart review	Inpatient and ambulatory care in an integrated delivery system No age information provided	Description of barriers to medication information during hand offs. Accuracy rates of medication lists after discharge.	Concludes that gathering and communicating medication information relies on nurses, pharmacists and physicians at both hospital admission and discharge. IT reduced risk of inaccuracy at discharge steps over 50% and produced 100% accurate medication lists for intervention patients. In controls 81% of medications were correct and 55% of patients had a completely accurate list.

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Bennett and Glasziou (2003) * Systematic review of RCTs of computer generated medication reminders (provided at time of decision making for a single patient) and feedback (information about treatment patterns among a group of patients designed to change future provider actions).	RCT (26)	Outpatient and Inpatient Settings	Provider adherence to recommendations Patient adherence Cost	Provider reminders in outpt.settings: 6 of 12 comparisons found a positive effect. Feedback to providers: 4 out of 7 had a positive effect, but the effects were smaller than reminders. Combined: the 1 study found no improvement. Patient reminders: 2 of 3 studies of patient reminders found no effect, the 1 with an effect had a limited follow-up period of 10 days.
Bergman-Evans (2006) + A guideline produced with support from the National Institute of Nursing Research that focuses on improving medication management practices for older adults; designed to be used by those that interact with older adults such as RNs, nurse practitioners and pharmacists.	Guideline is based on a literature review. Supporting evidence is graded where A is meta-analysis and D is expert opinion	Guideline is not setting specific. Designed for care of older adults	Recommends assessments and assessment actions to achieve 4 outcomes: 1. reduce inappropriate prescribing, 2. decrease polypharmacy, 3. avoid adverse events, and 4. maintain functional status; Proposes corresponding Nursing Interventions Classifications as well as process and outcome indicators	No information provided or located on effectiveness of guideline or evaluations of implementation.

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Boockvar (2006) An individual study examining the effect of pharmacist-conducted medication reconciliation on the occurrence of discrepancy-related adverse drug events (ADEs) that are associated with drugs ordered at the time of a resident's return from the hospital to a nursing home.	Preintervention/ Postintervention study	Nursing Home Nursing home patients (Mean age of patients in post intervention group is 84.4; mean age of patients in pre intervention group is 83.9)	Occurrence of discrepancy-related ADEs	Out of the 112 cases that were selected for ADE ascertainment, 11 discrepancy-related ADEs were identified; 1 in the post intervention group and 10 in the pre intervention group (incidence of 2.3% and 14.5% respectively); after an adjustment for baseline ADE risk, the odds of having a discrepancy-related ADE were significantly lower in the postintervention group vs. the preintervention group (OR, 0.11; 95% CI, 0.01-1.0; P=0.05); Authors conclude that pharmacist led medication reconciliation and communication with physicians reduced discrepancy-related ADEs for patients transferred from hospital to nursing home.

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Bosch-Capblanch (2007) * Cochrane systematic review to assess the effects of contracts between patients and healthcare practitioners about patient adherence to treatment, prevention and health promotion activities. Contracts included goals, timelines, and some, but not all, included incentives or penalties.	RCT (30)	Community dwelling individuals were recruited through various settings Most subjects were adults, but ages were not specified. One study included only people over 55	Clinical (BP, weight loss, fitness score, # of acne lesions) Adherence (pill count, attendance) Knowledge test	16 trials had statistically significant differences that favored the contract group for at least one outcome; 5 trials favored the control group; 26 trials found no differences between the groups on at least one outcome. Authors concluded that the evidence is not sufficient to recommend the routine use of contracts to improve patients' adherence.
CHAMP (Curricula for Homecare Advances in Management and Practice) **Feldman (in press)** **McDonald (2008)** **http://www.champ-program.org** Program offers multimodal, quality improvement educational approach that targets home care frontline nurses and therapy managers. Content focuses on teambuilding, quality management and clinical medication issues for older adults. Seven to nine month education program consisting of e-learning, face to face workshops, e-measurement system, coaching calls and list serve.	Pre and Post training data	Home care agencies frontline nurse and therapy managers	8 clinical performance measures, including 6 process measures (e.g., comprehensive medication assessment, adherence assessment, identification of potentially inappropriate medications, MD notification) and 2 outcome measures: reduction in polypharmacy and improvement in management of oral medications	Statistically significant improvement, ranging from 10 to 30 percentage points, was shown in 7 of the 8 clinical performance measures tracked by the program for the 30 agencies that have participated to date. One participating agency reported a 9% increase in the Outcome Based Quality Improvement measure related to improvement in managing oral medications. However, improvement in this measure did not reach statistically significant levels across all participating agencies.

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Claxton (2001) * Systematic review of the association between dose frequency and medication compliance based on studies that used electronic monitoring to measure compliance. Comparisons were examined for 1 to 4 doses per day.	Interventions, but no details on designs provided (76)	Setting of care not specified (assumed patients are taking their own meds) No information on subjects' age	Both dose taking and dose timing using electronic bottle cap counters (MEMS) that record when the bottle is opened	More frequent dosing associated with statistically significant lower adherence (both dose taking and dose timing); 51% compliance with 4 doses per day ; 65%with 3 doses; 69% with 2 doses and 79% with 1 dose per day ($p<0.001$).
Connor (2004) * Systematic review to determine if fixed-dose combination pills or unit of use packaging improves adherence. Fixed-dose pills combine multiple medications in one pill and unit of use packaging includes blister packs or devices into which medications are loaded that combine the medications to be taken together according to calendar labeling.	RCT (15)	Not Stated (varied settings) 5 of 15 studies were specifically about the elderly	Clinical measures (BP, sputum conversion, viral load) Adherence (pill count, self report, questionnaire, urine testing)	7 of 13 studies showed statistically significant improvements in adherence. Authors suggest almost all the studies lack the sample size needed to detect clinically significant improvement.
De Smet (2007) + Study designed to develop guidelines for medication reviews. Recommends content domains based on a comprehensive review of existing tools and research studies.	Examined existing screening tools and conducted an extensive literature review	Outpatient Not age specific	Identifies 2 prescription issues, 16 treatment issues, and 9 patient issues that should be included in medication reviews	Authors call for research on medication review in general, citing conflicting findings. No information on outcomes associated with their approach was located.

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DiMatteo (2004) * A systematic review and meta- analysis designed to empirically summarize the relationship between patient adherence and structural social support (living arrangements, marital status, family conflict) and functional social support (emotional and practical assistance) reported in descriptive studies.	122 descriptive articles	Not Stated Age not specified	Adherence to medical treatment	All types of social support were found to have substantial effects on patient adherence. Patients with functional support had higher odds of adherence (OR=3.60) then those with none. Structural support (living arrangements martial status) had a positive, but smaller effect.
Gleason (2004) To determine if pharmacist-obtained and reconciled admission medications lists reduced errors and potential for harm.	Single group convenience sample, cross sectional description	Inpatient academic medical center No age information provided	Discrepancies among MD history, admission profile, and pharmacist interview. Discrepancies requiring change were classified as errors and assessed for potential to cause harm. Harm estimates were based on adaptation of the National Coordinating Council for Medication Error Reporting and Prevention's (NCCMERP) 9- point index for categorizing severity of medication errors	Half of 204 patients had discrepancies. Authors estimated that in the absence of a pharmacist intervention 22% of discrepancies could have resulted in harm during the hospitalization, and 59% could have resulted in harm if the error continued after hospital discharge.

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Haynes (2007) * A Cochrane systematic review updating an earlier review of all types of interventions designed to enhance medication adherence. Eighteen different types of interventions are described ranging from instructions to psychological therapy.	RCT (57) Including 67 short term and long term interventions	Hospital, outpatient clinic, home Age information included in each study description	Medication adherence and treatment outcome	31 of 67 interventions had statistically significant increases in adherence; neither of the two interventions that targeted the elderly with complex medication regimes had an effect. For long-term treatments 26 of 58 interventions improved adherence and 18 improved a clinical outcome. It is not possible to separate what aspect of the interventions worked. Authors conclude even the most effective interventions did not lead to large improvements in adherence or treatment outcomes.
Health Care Association of New Jersey (HCANJ) (2006) + Guideline for medication management in long term care facilities.	Developed by a committee that drew on regulations, literature review, expert opinion and consensus	Long term care facilities Focus on older adults explicit in list of potential drug interactions, implicit in other recommendations	Guideline has 4 stated objectives: 1. reduce medication errors, 2. improve quality of care and quality of life, 3. outline intervention strategies, 4. reduce risk and liability. Presented as 'risk points' and 'risk reducing strategies'; outlines goals of QI processes and types of related education	Designed as a basis for facility policies, procedures, training and QI. No information on impact or effectiveness available.

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Heneghan (2006) * A Cochrane review and meta-analysis to determine the effects of reminder packaging on patient adherence to self-administered medications.	RCT (8)	Not Stated All studies were of adults; 3 were Medicaid recipients under 65	Clinical (BP, HgA1c, serum levels, psychiatric symptoms) Adherence (pill counts, self reports) Cost (expenditures, cost of packaging)	In six interventions the percentage of pills taken increased significantly (11%, 95% CI 6% to 17%). 2 trials that used self-report of adherence reported a non-significant reduction in adherence in the intervention group (OR 0.89, 95% 0.56 to 1.40).
Higgins (2004) * Systematic review of interventions to help older people adhere to their medication regimes. Interventions included mechanics of medication delivery and education.	Not Stated (7 studies)	Hospital, hospital outpatient and general practice. One of the inclusion criteria was that subjects had to be over 65	Adherence (self reports, counts, Medication Rating Scale) Knowledge Composite Scores	4 studies found no improvement. In the 3 that found improvement the magnitude of the effect varied (5, 12, and 20 percentage points improvement in adherence—all statistically significant). 2 of 3 effective interventions were with inpatients, and all were complex interventions. Authors summarize results as confirming that complex interventions are more effective then single approaches, and conclude there is no strong evidence to support any one intervention type.

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Holland (2007)* Meta analysis and systematic review to determine the effects of pharmacist-led medication reviews for older people across various care settings.	RCT (32)	Hospitals Outpatient Clinic Home Nursing Home Pharmacy Mean age over 60 was part of inclusion criteria	Hospital admission and mortality as primary outcomes. Quality of life and patient satisfaction as secondary outcomes	Meta analysis revealed no significant effect on admission (0.99RR, CI 0.87, 1. 1.4, p=0.92) or mortality (0.96 RR, CI 0.82, 1.13, p-0.62). Interventions may reduce number of medications (-.48, 95% CI -0.89, -0.07). In trials that measured QoL, 1/3 had a positive effect. Extensive sensitivity analyses that considered outliers, quality of studies, and characteristics of the interventions did not change conclusions.
Katz (2006) Review the effects of pictorial aids in medication instructions. Pictures were tested with and without text and were designed to affect time medications were taken, how to take medication (e.g., route, with or without food) or completion of course of medication.	Cross-sectional studies (15)	Pharmacy (2) Community implied Two studies targeted the elderly; another one examined sub groups by age	Adherence Knowledge and recall	Authors conclude that pictures enhance understanding about medications because the majority of the results are positive (No quantitative synthesis done). In two studies in which the success was limited, pictures did not improve comprehension for older adults.

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Kawamoto (2005) * Systematic review and meta-analysis of trials of clinical decision support systems (DSS). Review was designed to identify the features of successful systems. DSS were defined as electronic or non-electronic systems that generate patient-specific assessments or recommendations that are then presented to the clinician.	70 RCTs with 82 comparisons; 71 compare DSS and a control group 53 included pharmaco-therapy, though these were not summarized separately	77% outpatient 59% academic setting (no other information given) 43% multi site trials Patient characteristics were not provided. No information on age.	Improvement in clinical practice that is statistically and clinically significant (as determined by authors)	68% (48 of 71) studies reported clinical improvement. Using meta regression, 4 features were independently associated with improvement: 1. providing DSS as part of workflow ($p<0.00001$); 2. DSS at time and location of decision making ($p=0.0263$); 3. providing a recommendation not just an assessment ($p=0.0187$); and 4. using a computer to generate decision support ($p=0.0294$). 94% (30 of 32) of systems with all 4 features improved in clinical practice.
Kovner (2005) Reviewed current literature on medication errors in home care and from this developed a description of the typical process that is used by home care nurses. Based on this, provides recommendations/ guidelines.	Utilized Failure Mode and Effects Analysis (FMEA) to review the process and evaluate potential failure modes and to provide recommenda-tions to home health agencies	Home health agencies Not age specific	Makes several recommendations as the basis for system level solutions: 1.address difficulties in contacting physician, 2. institute ways to ensure careful monitoring by home health nurse, 3. identify and fix systems that generate too many alerts 4. consider use of a pharmacist consultant and develop a process to work with consultant and MDs	No information on impact of implementing recommendations was provided or located.

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Krueger (2004) in Wu Extensive literature review designed to describe barriers to adherence, describe successful interventions, and make recommendations for future policies and demonstrations.	38 RCTs; 5 pre-post evaluations and 2 chart reviews for analysis of interventions; additional studies included for identification of barriers and care models	Not always specified Community is implied Mixed ages	Adherence measured by self-report, pill counts, MEMS(electronic pill bottle caps) and other methods, Clinical outcomes are mentioned, but not reported in tables	Only studies with a positive, significant impact on adherence were reported. 10 studies were of interventions based on health behavior theories, 14 were disease specific, 6 dealt with dosing, 6 provided reminders, 3 provided discharge counseling and 2 focused on self care. Authors conclude "current methods are complex, and do not produce consistent improvements" and recommend new ways of thinking and more patient involvement in designing interventions.
McDonald (2002) * Systematic review of interventions that assist patients' adherence to prescribed medications. Interventions included instructions, counseling, increased convenience, patient involvement and rewards.	RCT (33) including 39 interventions	Community implied but not stated Age of study subjects not provided	Clinical (BP, Hospitalizations, ED use, symptoms) Adherence (pill counts, self report, % dispensed, MD estimate, drug levels)	49% (19 of 39) of the interventions were associated with statistically significant increases in medication adherence and 17% reported statistically significant improvements in treatment outcomes. Interventions for long term medications that were effective included multi-faceted approaches. Authors conclude that effective interventions were complex and had modest effects.

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Medication Management Improvement System (MMIS) **Ahrens (2002)** **Alkema (2006)** **Atkinson (2005)** **Meredith (2002)** **http://www.HomeMeds.org** A medication management improvement program specifically designed for home health agencies and for older people. Intervention consists of standardized, expert-based criteria for identifying patients with potential medication problems, collaboration between a specially trained clinical pharmacist and frontline home care nurses to further assess, and, when warranted, contact physician to rectify these problems.	1 RCT other studies in progress (design unknown)	Home health agencies. California Medicaid waiver program	Improvement in medication use including: 1. stop therapeutic duplication 2. adhere to guidelines 3. reduce risk of negative effects Successful translation to others settings. Cost effectiveness (Alkema, Atkinson)	In the one completed study to date MMIS led to a 50% improvement in the intervention group compared to 38% in the control (p= 0.05), with significant improvements in reducing in therapeutic duplication and cardiovascular therapies that matched established guidelines. Differences in psychotropic and nonsteroidal anti-inflammatory use were not statistically significant. 71% of intervention patients had at least one duplicate drug stopped by follow-up compared to 24% in the control group. Findings from other studies not yet published.
Nickerson (2005) An individual study which evaluated the impact of a pharmacist led seamless care service. The service designates a pharmacist to conduct a medication reconciliation process for patients at the time of hospital discharge.	RCT	Hospital Mean age of patients in intervention group was 67.3 years Mean age of patients in the control group was 61.8 years	Study measured impact of seamless care on economic, clinical and humanistic outcomes and processes of care	The seamless care pharmacist was able to identify an average of 3.59 drug therapy problems in the intervention group and was able to resolve the majority. 67 out of 119 (56.3%) of control patients were discharged with an inconsistency or omission in the printed medication discharge list.

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Peterson (2003) * Meta analysis of the effect of tools and methods designed to enhance medication adherence that have been evaluated in RCTs. Divides interventions into educational, behavioral and combined.	RCT (61) Including 95 interventions	Various (outpatient pharmacy, long term care facilities, senior daycare, patients' homes, psychiatric hospitals, community centers, managed care organizations) Age of subjects not provided for 46% of cohorts; 67% in which age was reported it was 19-65	% of patients with high (70% to 90%) adherence	Increases in adherence ranged from 4-11%. Review revealed no patterns in the combination of types of interventions used; there was no difference between educational and behavioral interventions or among the different interventions within each type in terms of the impact on adherence. Combined interventions that included mail reminders as the behavioral component had the largest effect size (ES=0.38).
Roter (1998) * A meta-analysis summarizing studies that evaluated the effectiveness of interventions designed to improve patient compliance with medical regimens. Interventions were categorized as educational, behavioral and affective programs targeting patients, and interventions targeting clinician behavior. Many studies included combinations of these strategies.	Randomized trials (116) Non-randomized trials that included a control group (37)	Outpatient, community based physicians' offices, community settings, hospital inpatient; 7 studies involved elderly subjects (65+) and 59 involved mixed populations of adults and older adults (65+)	Compliance-related measures: Health outcomes (e.g. BP, survival) Direct measures (e.g. blood/urine tests) Indirect measures (pill count, prescription refills) Subjective measures (self reports on medication taking as well as other behaviors) Utilization indicators	Results are not reported separately for interventions designed to effect medication adherence; however, compliance measures related to medications are the most frequently reported outcome. Among the outcome measures analyzed, the pooled effect sizes were largest for pill counts and refills, which the authors call indirect objective measures. Analysis by type of intervention demonstrated that combined education and behavioral programs had more of an effect then single focus programs and that the

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				strongest effect came from programs that included all three types of interventions. Interventions targeting providers had small to moderate effects on pill count and very small effects on health outcomes and patient reports of compliance. Authors conclude that interventions have a weak to moderate statistical effect, but seem efficacious in practical terms. They also conclude no single strategy is consistently stronger than others.
Royal (2006) * A meta-analysis and systematic review of studies of interventions in primary care aimed at reducing medication related adverse events that could result in morbidity, hospital admission or mortality. 17 interventions were pharmacist led, 8 interventions were by other health care professionals and 13 complex interventions were designed to reduce falls in the elderly and included medications review.	38 studies RCT (29) Controlled before-after (8) Interrupted time series (1)	Home, nursing home, family and general practice, community pharmacies 21 studies are of elderly or nursing home residents	Hospitalization Mortality Morbidity	Pharmacist led interventions were effective in reducing hospital admissions (OR 0.64, 95% CI 0.43,0.96) but there was significant heterogeneity across studies. When analysis was restricted to RCTs only the effect was no longer significant (OR 0.92, 95% CI 0.81, 1.05). The study found no evidence of any significant effect from primary care medication reviews that were aimed at reducing falls (OR 0.91 95% CI 0.68 to 1.21) or those done by nurses (OR 1.05 95% CI 0.57, 1.94).

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Rozich (2004) Longitudinal assessment of incremental process changes to improve patient safety, including the reconciliation of medication orders. Interventions were proposed and adapted by staff after testing. Reconciliation procedures were implemented first for admission then for discharge 2 months later, and finally for transfers within the hospital after another month.	Quality Improvement Project	Community Hospital Age of patients not provided	Discrepancies for every 100 admissions	Over 7 months discrepancies per 100 admissions decreased from 213 to 80 after the admissions reconciliation pilot and to less than 50 after pilot programs were implemented at discharge and the time of transfers.
Russell (2006) * To examine interventions and outcomes of medication compliance studies in older adults. Interventions included combinations of education, counseling, organizers and changing dose frequency.	RCT (57)	Hospital; community is implied but not stated Mean age of sample over 60 for inclusion	Adherence (pill count, electronic monitoring, bar code, self report, 1 study used drug level in blood)	31 of 57 articles found a higher compliance rate in the intervention group. 3 studies of dose frequency and 2 of self-medication programs started in the hospital all had positive effects. The results from education and counseling and reminder interventions were mixed and difficult to isolate as these were rarely studied alone. Authors suggest 1/3 of studies had possible power problems as they had fewer than 30 subjects per group.

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Schnipper (2006) Single study of pharmacist reconciliation and counseling designed to prevent adverse drug events after hospitalization. Interventions included pharmacist reconciliation of home medications, inpatient medications and discharge instructions before discharge. A follow-up call to the patient 3 to 5 days later included reconciling patient-reported medications with the discharge list and asking questions about adherence.	Single RCT	Hospital discharge to home Age was not a factor in subject selection. Mean ages were 60.7 for the intervention group and 57.7 for the control	Adverse drug events (ADE) Unexplained discrepancies Health Care Utilization	Thirty days after discharge there were ADEs in 1% of patients in intervention group and 11% of control group (p=.01). No differences were found in health care utilization. In the intervention group 49% of patients had unexplained discrepancies between meds prior to admission and the discharge orders (this was not measured for the control as identifying discrepancies was part of the intervention). 20% had unexplained discrepancies between discharge orders and patient-reported meds.
Van Eijken (2003) * Review of interventions that aimed to improve compliance with medication regimens in older patients living in the community. Compared several types of interventions within and across categories: single versus multi-faceted, and general vs. tailored to an individual barriers faced by the patient. Meta analysis was not possible.	RCT (14) with 23 interventions	People living in their own homes Inclusion criteria included subjects over 60 with a mean age of > 70	Adherence (pill count, self report, MEMS)	Generalized interventions, that are the same for all patients, whether multifaceted (1 had a positive effect) or single (2 of 13 had a positive effect), had limited effects. Multifaceted interventions that were tailored to the barriers faced by the individual patient (3 of 7 studies) had a positive finding, suggesting these have a greater chance of success.

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Van Wijk (2005) * Reviewed the impact of interventions by community pharmacists on patients' adherence to chronic medication.	RCT (12) Non Cross over single group trials (6)	Community based pharmacy patients (implied they are at home) Mean age provided for intervention and control groups. For 7 of the 18, the means are >60	Adherence (pill count, self-report, 1 study used electronic monitoring)	8 studies showed significant improvement in patient adherence; 5 of these were RCTs 5 of the successful interventions were combinations of education, counseling and monitoring; improvement was not at all points in time in the longitudinal studies.
Veloski (2006) * Systematic review designed to determine the impact of feedback on physician performance. Feedback is defined in this review as information about a physician's performance compared to a standard of behavior or practice.	41 studies of feedback alone (17 RCTs, 10 crossover, 7 time series of a single cohort, 7 cross sectional, non random)	Not specified Age not specified	Clinical performance (as defined in each study, not specified in review)	29 of 41 (70%) studies of feedback demonstrated a positive impact. Two characteristics were associated with positive effects. Feedback from administrative units or professional groups was more effective than feedback from researchers (Chi sq =4.9, p,0.03); feedback studies that averaged about 2 years were more effective than studies that were less than 1 year (t=2.05, p<0.05).

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Wendt (1998) * Review of nursing interventions devised to aid community-dwelling older adults with self-administration of prescribed medications.	Experimental (5), quasi-experimental (2) Case study (1)	Not Stated Inclusion criteria included requiring that subjects be over 65	Adherence (pill counts, self-reports) Knowledge	Interventions that used medication instructions alone or in combination with a written instruction sheet were effective for short-term adherence at initial evaluations but the effect did not persist at later follow-ups. The studies evaluated did not include follow up for longer than 2 months.
Zwicker (2008) + Guideline based on literature review that describes 6 assessment tools and 5 strategies and interventions designed to reduce ADEs in older adults.	Most of the recommend-ations are based on non-experimental evidence (Level IV) and expert opinion (Level VI). Evidence includes 1 RCT and 2 systematic reviews (Levels II and I)	Discusses hospital specific settings and other generic settings; home care is not mentioned. Part of a series of protocols for geriatric nursing	Recommended strategies include: comprehensive assessments, assess renal function, reconcile medications, use Beers criteria, and assess self-management ability. Additions for hospital discharge include: assess adherence issues and provide patient and caregiver education	No information available on impact of implementation.

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