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The Effect of Nurse Practitioner Co-Management on the Care of Geriatric Conditions

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Abstract

Background/Objectives—The quality of care for geriatric conditions remains poor. The Assessing Care of Vulnerable Elders (ACOVE)-2 model (case finding, delegation of data collection, structured visit notes, physician and patient education, and linkage to community resources) improves the quality of care for geriatric conditions when implemented by primary care physicians (PCPs) or by nurse practitioners (NPs) co-managing care with an academic geriatrician. However, it is unclear whether community-based PCP-NP co-management can achieve similar results.

Design—Case study.

Setting—Two community-based primary care practices.

Participants—Patients > 75 years who screened positive for at least one condition: falls, urinary incontinence (UI), dementia, and depression.

Intervention—The ACOVE-2 model augmented by NP co-management of conditions.

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Author Contributions

David B. Reuben: conception and design, acquisition of data, analysis and interpretation of data; drafting the article; final approval.

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Measurements—Quality of care by medical record review using ACOVE-3 quality indicators (QIs). Patients receiving co-management were compared with those who received PCP care alone in the same practices.

Results—Of 1084 screened patients, 658 (61%) screened positive for > 1 condition; 485 of these patients were randomly selected for chart review and triggered a mean of 7 QIs. A NP saw approximately half (49%) for co-management. Overall, patients received 57% of recommended care. Quality scores for all conditions (falls: 80% versus 34%; UI: 66% versus 19%; dementia: 59% versus 38%) except depression (63% versus 60%) were higher for patients seen by a NP. In analyses adjusted for gender, age of patient, number of conditions, site, and a NP estimate of medical management style, NP co-management remained significantly associated with receiving recommended care ($p<0.001$), as did the NP estimate of medical management style ($p=0.02$).

Conclusion—Compared to usual care using the ACOVE-2 model, NP co-management is associated with better quality of care for geriatric conditions in community-based primary care.

Keywords

quality improvement; practice redesign; ACOVE; geriatric conditions

INTRODUCTION

As a result of a century of improvement in public health and medical treatment, Americans are living longer but spend late life with more chronic conditions. The management of these conditions and the overall medical care of older patients has become increasingly complicated, outstripping the capacity of practicing physicians. One study estimated that a family physician with a panel of 2500 patients that reflect the sociodemographic characteristics and distribution of chronic conditions of the US population would require nearly 11 hours a day to provide guideline-based care for managing 10 conditions, and that estimate does not consider managing acute symptoms or other conditions.¹ Not surprisingly, the management of chronic conditions is inadequate. Several studies have demonstrated that only about half of recommended medical care is provided.^{2, 3} For geriatric conditions, such as falls and dementia, the care is even worse; only a third of recommended care is provided.³ In large part, the problem is that physicians still are providing care using a model that was developed more than a century ago. This model does not meet the needs of patients with multiple chronic diseases. As noted in the Institute of Medicine's Crossing the Quality Chasm report, "working harder simply will not work."⁴

In response, a variety of practice redesign efforts^{5, 6, 7, 8, 9} have been developed to meet the triple aim of better care for individuals, better health for populations, and lower costs.¹⁰ The ACOVE-2 model¹¹ incorporates principles of the Chronic Care Model¹² to change the care of geriatric conditions in primary care settings by modifying the work of clinicians and support staff. ACOVE-2 begins with screening to identify patients with target conditions (case finding) and includes delegation of data collection to office staff, use of structured visit notes for each condition that guide clinicians to perform appropriate care processes, clinician and patient education, and linkage to community resources. In controlled studies, the implementation of the ACOVE-2 intervention in settings with small amounts of delegation to office staff led to significantly better care for urinary incontinence and falls as measured by ACOVE quality indicators.¹³ Quality scores for these conditions were higher in an advanced iteration when practices were encouraged to increase delegation of care process to office staff, a quality improvement component was added, and an electronic health record facilitated practice redesign.¹⁴

Despite the potential of practice-based interventions to improve quality, physicians continue to find it difficult to alter their practices to incorporate some of the care processes needed by older patients. In response, the model was modified to incorporate a nurse practitioner (NP) to co-manage (i.e., assess and treat on an ongoing basis in coordination with the primary care physician) chronic conditions using the ACOVE-2 approach. In a preliminary study focusing on the care of falls, urinary incontinence (UI), dementia, depression, and heart failure at an academic geriatrics practice, NP co-management significantly improved the quality of care for dementia, falls, and UI.¹⁵ Academic practices, however, differ from community-based practices because they include trainees who can assume some of the workload and are frequently subsidized by institutional and grant support. To determine whether this co-management model was effective in non-academic settings, where the vast majority of primary care is provided, we conducted a case study of the ACOVE-2 model augmented by NP co-management of four conditions (falls, UI, dementia, and depression) in two community-based primary care practices.

METHODS

This case study aimed to determine the effectiveness of the ACOVE-2 model augmented by NP co-management of falls, UI, dementia, and depression. The study was approved by the UCLA Institutional Review Board. Facilitated by the California Association of Physician Groups (CAPG), two practices within designated zip codes of interest to the sponsor were recruited. The patients cared for in these practices were culturally and financially mixed and most seniors were insured through HMO/PPO and fee-for-service Medicare. Neither practice cared for large veteran populations. One practice was loosely affiliated with a family medicine residency program and the other had no academic relationship. One practice enlisted seven physicians and one NP to participate in the project; the other recruited five physicians and one NP. The time period for the intervention phase of the study was December 21, 2009-September 15, 2010.

The research team worked with each practice to develop a standard approach to screening for the four target conditions in consecutive patients age ≥ 75 years at routine office visits. Screening was performed through a combination of self-administered and staff-administered (for the cognitive screening) assessments. Patients screened positive (Figure 1) if they had two or more falls in the past 12 months, or a fall with injury since the last visit, or fear of falling; bothersome urinary incontinence; PHQ-2 score of 3 or higher; or failure to recall least 2 of 3 items or had a diagnosis of cognitive impairment/dementia.

The research team also collaborated with each practice including physicians, NPs, office staff, and administration to create relevant clinical materials (examples in Figures 1 and 2) to facilitate managing the conditions. Physicians were notified at the time of the visit if their patients had screened positive, and for which conditions, by placement of the patient screen on top of the materials for the visit. Physicians were encouraged, but decided on a case-by-case basis, to refer to the NP for co-management. They also had materials available so that they could implement the ACOVE-2 intervention without referring to the NP. Because physician to NP referrals were fewer than expected in the first few months, NPs began proactively attempting to schedule follow-up NP visits for patients who had screened positive.

NP co-management of the conditions followed the ACOVE-2 model¹⁰ including the use of structured visit notes that have important care processes embedded in them, patient education and empowerment, decision support, and linkage to community resources. For all clinicians at each practice site, the research team conducted formal training sessions in the management of the study conditions according to the ACOVE-2 model. Although

oftentimes physicians were working in the same offices as the NPs, the NPs generally did not see the patients the same day. Rather, the patient was screened prior to a physician's visit and then scheduled to return to see the NP for management of the condition. The fidelity of the intervention was monitored through weekly submission by the sites of completed patient screens, an on-site audit of medical records by one of the authors (CPR) from a sample of patients who screened positive in the first 2 months of the study, and periodic review of a sample of NP notes by a study geriatrician (DBR). This fidelity monitoring process was designed to ensure that the intervention was being applied correctly.

Of those who screened positive for at least 1 condition, patients who received co-management were compared with those who received PCP care alone. Quality of care was assessed by medical record review using ACOVE-3 quality indicators (QIs), which were developed after ACOVE-2 and reflect the most recent evidence-base, to evaluate care provided to community dwelling vulnerable elders.¹⁶ Patients who screened positive for any condition were deemed eligible for medical record review for quality of care. To ensure balanced representation of all study physicians, approximately equal numbers of patients from each physician were randomly selected, resulting in 485 total patients. Of those who screened positive for any condition, 485 patients were randomly selected for medical record review for quality of care including records of all study physicians in each practice. The medical record review was structured to measure quality of care for falls (11 QIs), UI (10 QIs), dementia (14 QIs), and depression (16 QIs) (Appendix).

Measures

Prior to implementation, participating physicians completed questionnaires rating the relevance of the study conditions to their patients (on a five-point scale from "Not at all" to "Extremely"), their confidence in managing the conditions and their frustration in treating the conditions. Knowledge was assessed with 43 multiple-choice questions presented as clinical cases; scores were calculated as the percent of all items correctly answered.

Early in the implementation, the NPs noticed large variability in both the referral patterns and management styles of the 12 physicians. To capture this variability, a survey was administered to the NPs asking them to evaluate the management styles of the physicians participating in the project at their site. Two items focused on physician management of study conditions: "The physician is good at managing study conditions" and "The physician makes sure that study conditions are managed." The NPs rated these items on a five-point scale (1=Strongly disagree, 5=Strongly agree). Medical management style scores were created by averaging these two items.

Statistical Analysis

Statistical analysis was performed using SAS Version 9.2. Differences between sites were evaluated using t-test and chi-square statistics. QIs were scored dichotomously (recommended care provided or not) for those patients eligible for the QI. Care for each condition and overall was calculated as the sum of care processes appropriately provided (i.e., passed) divided by the number of QIs for which patients were eligible, expressed as a percentage. Chi-square tests were used to compare care provided to patients seen by the PCP only with care provided to patients co-managed by the NP and PCP. Mixed-effects logistic regression models (PROC GLIMMIX) were used to determine the likelihood of receiving recommended care after adjusting for patient gender and age, the number of conditions for which a patient screened positive, and clustering at the level of the physician and the practice.

The primary analysis included all QIs, including QIs for conditions that the NP did not specifically treat. In other words, a patient who screened positive for both UI and falls, but was only seen by the NP for falls, would have quality scores for both conditions included in the primary analysis. A supplemental analysis included only those conditions that were specifically addressed by the NP.

RESULTS

Physician mean pre-test knowledge score was 56% correct (SD=9, range=40–70) and there was no difference by study site. Physicians rated all four conditions very/extremely relevant to their patients (73–83%) and were most confident managing depression (73% very/extremely), followed by dementia (64%), falls (55%), and UI (45%). Physicians were more frustrated with managing dementia (64% very/extremely) and UI (45%) compared to depression and falls (both 18%). The mean medical management style score (NP estimate of physician management style, with higher being better) was 3.4, (SD=1.0, range=1.5–5). Correlation between PCP knowledge and medical management style was low ($r=0.165$).

Of 1084 screened patients >75 years old, 658 (61%) screened positive for > 1 condition (mean 1.6 conditions). Of these, 485 were randomly selected for medical record review. These patients' conditions made them eligible for a mean of 7 QIs across all conditions. Approximately half (237 [49%]) were seen by a NP for co-management of at least one study condition. Of those who did not see a NP, 82% lacked medical record documentation of having been referred by the PCP.

Overall, 57% of triggered QIs were passed. Overall quality scores by condition and by site are presented in Table 1. Site A performed slightly better on overall quality across the four conditions, and for the specific conditions of incontinence and depression. Quality scores for those patients seen by a NP were higher for all conditions except depression (Table 2). Some examples of specific falls QIs where co-management was much better (see Appendix) included: falls history taken (91% versus 47%); orthostatic blood pressure assessed (81% versus 7%); vision testing (87% versus 36%); and gait, balance, and strength assessment (86% versus 21% for those who screened positive because of falls history and 86% versus 12% for those who screened positive because of fear of falling). Similarly, co-management resulted in large differences in performance for specific UI QIs including: taking a urinary incontinence history (70% versus 13%), performing an incontinence exam (80% versus 31%), classification of urinary incontinence (93% versus 40%), discussing treatment options (79% versus 28%), and offering behavioral/lifestyle treatment first (95% versus 0%). Although the differences in dementia care were less dramatic, co-management resulted in higher rates of annual cognitive evaluations (75% versus 50%), providing caregiver support (52% versus 29%), and monitoring for behavioral and psychological symptoms (70% versus 45%).

In the supplemental analysis that considered only those conditions that were specifically addressed by the NP, the differences between NP care and MD-only care were even larger for urinary incontinence (73% versus 19%) and dementia (73% versus 43%).

In multivariate analyses, adjusting for gender, age of patient, number of conditions, site, and medical management style score, NP co-management remained positively and significantly associated with receiving recommended care ($p<0.001$) and the medical management style score also remained positively and significantly associated ($p=0.02$).

DISCUSSION

The findings of this community-based study provide further support for the effectiveness of NP co-management to improve the quality of care for geriatric conditions in primary care practice. In this case study, the difference between co-managed and physician-alone quality of care for falls, incontinence, and dementia was dramatic, with co-management quality scores that were 22 to 50 percentage points higher (in absolute terms) than in those patients receiving physician care alone.

Although the ACOVE-2 model has demonstrated effectiveness for falls and urinary incontinence even with minimal delegation of tasks,¹³ the quality achieved by physicians working alone has remained below that provided for general medical conditions.³ Prior ACOVE-2 intervention iterations suggest that with progressively more delegation, care can be further improved.¹⁴ However, the highest quality scores have been achieved using ACOVE-2 in a co-management model in both the current and a prior study.¹⁵ Co-management holds considerable promise for comprehensive care of older persons with multiple disorders and fits well with the emerging patient-centered medical home¹⁷ in that it enhances the capability of primary care physicians to provide comprehensive services within their practices. Other co-management approaches, such as the Geriatric Resources for Assessment and Care of Elders (GRACE) model of primary care (which includes interdisciplinary teams) and Guided Care (which includes a registered nurse who focuses on all care for high-risk patients), have also improved the quality of care for geriatric conditions,^{5,18} although with variable success on reducing healthcare costs and utilization, an aspect of care that was not evaluated in this study.^{7,19,20}

One unanticipated challenge for the project was the difficulty in getting referral of patients with positive screens to the NP for co-management. Over 80% of the time, this was because the physician did not document a disposition for the patient with a positive screen; in only a small minority of cases was there documentation of patient refusal of referral. In part, this might be explained by the fact that the NPs were relatively new to the practices and there was no specific NP-PCP team training (other than group training in the management of the conditions) to facilitate and support the co-management process. A more positive medical management style (i.e., the NP more strongly agreed that the physician is good at managing study conditions and making sure that study conditions are managed) was also associated with better quality of care. Of note, management style was not associated with physician knowledge about these conditions. These findings suggest that implementing co-management requires overcoming a variety of physician barriers that extend beyond knowledge, including unwillingness of some physicians to share the responsibility of patient care with other disciplines and possibly lack of knowledge or skepticism about what other disciplines may have to offer. Other obstacles to co-management included patient reluctance to follow through on the NP referral (perhaps due to the inconvenience of additional visits or an additional co-pay) or possibly unwillingness to see a NP. While the latter was not measured in this study, this would be important to include in future research.

These findings should be interpreted in the context of the study's limitations. The PCPs and NPs were able to select which cases were referred for co-management, and only half of eligible cases were seen by the NP. Physicians may have been less likely to refer "mild cases" of the study conditions, ones that they did not perceive as needing treatment, and patients considering the condition to be more important may have been more likely to respond to the NP contact. As a result, performance could have been worse in those who were not seen by the NP because of lower prioritization by the physician or patient. However, ACOVE QIs were designed to reflect a minimum set of care processes needed for a particular set of clinical circumstances, meaning that all patients with the condition (e.g., a

positive screen for falls) should receive the care specified in the QIs. In addition, during medical record review, abstractors looked for evidence that would justify the lack of a referral for patients screening positive for falls or UI (e.g., patient denial of bothersome UI symptoms, documentation that the patient had already received maximal management for the condition, or the condition was currently under the care of an outside specialist). Cases where such evidence was found were excluded from eligibility for that condition.

The study was also limited to two practices in one geographic region. Neither practice was a small group nor was patient care exclusively reimbursed by one payment system. Fee-for-service payment would reimburse for NP visits though it is unlikely that the volume of cases would capture enough reimbursement to cover the salary of the NP. In managed care, the costs of the NP would need to come from the capitation or global rate to the provider; thus, the group would need to value the quality benefit of co-management highly enough to justify this expenditure. The study was also limited by being a one-time intervention with minor revisions as the project unfolded rather than going through a formal continuous quality improvement learning process and future use of this intervention should have the ability to dynamically modify the process if the desired changes are not achieved.

As practice redesign moves forward, the choice of attempting to influence the primary care practitioner's behavior versus a more centralized approach to condition management, either within the practice or outside the practice, will need to be considered. This study and others^{13,14,18} have demonstrated that intervening at the practice level and focusing on multiple geriatric conditions can improve quality. Preventive services (e.g., Annual Wellness Visits) and lifestyle modification also may be well suited for co-management within individual practices. But substantial effort is required for practice change and sometimes physicians' attitudes and behavior are barriers.²¹ Conversely, some geriatric conditions may be better managed through a more centralized co-management approach.^{22,23,24} This may be particularly true in small general practices that care for patients of all ages where practitioners provide care for some of these conditions (e.g., dementia) too infrequently to maintain skills or lack systems of care needed to sustain high quality of care. Thus, the best ultimate strategy to provide high quality care for geriatric conditions may be a blend of improving practitioner skills, practice redesign, and centralized co-management.

Although this study demonstrates the ability to dramatically improve quality of care for some geriatric conditions, its effect on clinical outcomes, costs, and utilization remains to be determined. Unless the ACOVE-2 model or other practice redesign efforts are able to demonstrate either benefits to efficiency of health care delivery (thereby saving the practice money), clinical outcomes, or utilization (thereby saving the insurer money), they will not be sustained or disseminated. The link between process measures and clinical outcomes has been demonstrated in numerous research studies¹⁶ that are the basis for development of quality indicators. However, continued research will be needed to demonstrate that improving performance on these quality indicators leads to the triple aim of better care for individuals, better health for populations, and lower costs.¹⁰

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Appendix. ACOVE-3 Quality Indicators used in this study

Quality indicator	Physician Care Alone		Co-management with NP	
	Pass / Eligible (N)	Pass %	Pass / Eligible (N)	Pass %
DEMENTIA				
ALL VEs should be evaluated annually for changes in function.	16/32	50%	36/48	75%
IF a VE screens positive for dementia, THEN a physician should document an objective cognitive evaluation that tests 2 cognitive domains.*	14/57	25%	21/58	36%
IF a VE screens positive for dementia and is taking medications that are commonly associated with mental status changes in the elderly, THEN the physician should discontinue or justify continuing these medications.	1/11	9%	7/21	33%
IF a VE is newly diagnosed with dementia, THEN a physician should perform a neurologic examination that includes evaluation of gait, motor function and reflexes.	2/4	50%	7/9	78%
IF a VE is newly diagnosed with dementia, THEN complete blood count, thyroid testing, electrolytes, liver function tests, glucose, blood urea nitrogen, serum B12 and a syphilis test should be performed.	2/4	50%	7/9	78%
IF a VE is newly diagnosed with dementia AND has risk factors for HIV, THEN HIV testing should be offered.	0	---	0	---
IF a VE has newly diagnosed dementia, THEN s/he should be screened for depression during the initial evaluation period.	3/4	75%	8/9	89%
IF a VE has been diagnosed with mild to moderate Alzheimer's disease, mild to moderate vascular dementia, or Lewy body dementia, THEN there should be a documented discussion with the patient and/or caregiver about cholinesterase inhibitor treatment.*	1/1	100%	4/4	100%
IF a VE has mild to moderate vascular or mixed dementia, THEN s/he should receive stroke prophylaxis.*	3/3	100%	3/3	100%

Quality indicator	Physician Care Alone		Co-management with NP	
	Pass / Eligible (N)	Pass %	Pass / Eligible (N)	Pass %
<p>IF a VE with dementia has a caregiver, THEN the patient and/or caregiver should be given information on the following:</p> <ul style="list-style-type: none"> Dementia diagnosis, prognosis and associated behavioral symptoms Home occupational safety Community resources 	9/31	29%	24/46	52%
IF a VE has dementia, THEN s/he should be screened annually for behavioral symptoms of dementia.	14/31	45%	32/46	70%
<p>IF a VE with dementia has behavioral symptoms, THEN specific target symptoms should be documented and behavioral interventions instituted first or concurrently with pharmacotherapy, OR if treating first with a pharmacologic intervention, then severe symptoms or safety concerns should be present and documented.</p> <ul style="list-style-type: none"> Behavioral Psychological Sleep 	1/2 4/6 2/4	50% 67% 50%	8/9 10/14 6/11	89% 71% 54%
IF a VE with dementia and behavioral symptoms is newly treated with an antipsychotic, THEN there should be a documented risk-benefit discussion.	0	---	0/2	0%
<p>IF a VE has newly diagnosed dementia, THEN 1 of the following should occur (consistent with state law):</p> <ul style="list-style-type: none"> Patient advised not to drive a motor vehicle Referral to the Department of Motor Vehicles to test driving ability Referral to a driver's safety course that includes assessment of driving ability 	1/4	25%	3/9	33%
DEMENTIA Summary	73/194	38%	176/298	59%
DEPRESSION				
IF a vulnerable elder presents with one of the following symptoms (and the symptom has not previously been documented as a chronic condition): sad mood, feeling down, insomnia or difficulties with sleep, apathy or loss of interest in pleasurable activities, complaints of memory loss, unexplained weight loss, unexplained fatigue or low energy, THEN the patient should be asked about depression, treated for depression, or referred to a mental health professional within 2 weeks of presentation.*	49/60	82%	51/59	86%
IF a VE receives a diagnosis of a new depression episode, THEN the medical record should document at least 3 of the 9 Diagnostic and Statistical Manual (DSM-IV) target symptoms for major depression within 2 weeks of diagnosis.*	11/14	79%	18/20	90%

Quality indicator	Physician Care Alone		Co-management with NP	
	Pass / Eligible (N)	Pass %	Pass / Eligible (N)	Pass %
IF a VE receives a diagnosis of a new depression episode, THEN the medical record should document on the day of diagnosis the presence or absence of suicidal ideation and psychosis.*	Ideation: 9/14 Psychosis: 1/14	64 7%	15/20 3/20	75 15%
IF a VE has thoughts of suicide, THEN the medical record should document, on the same date, that the patient either has no immediate plan for suicide, or that the patient was referred for evaluation for psychiatric hospitalization.	1/2	50%	6/6	100%
IF a VE has thoughts of suicide, THEN the medical record should document, on the same date, the patient was asked about access to firearms.	0/2	0%	2/6	33%
IF a VE receives a diagnosis of a new depression episode, THEN the medical record should document evaluation of the following within 1 month or in the prior 3 months: Hypothyroidism for women.	3/11	27%	8/12	67%
IF a VE receives a diagnosis of a new depression episode, THEN the medical record should document evaluation of the following within 1 month or in the prior 3 months: Substance dependence or abuse.	9/13	69%	17/19	89%
IF a VE is diagnosed with depression, THEN antidepressant treatment, psychotherapy, or electroconvulsive therapy (ECT) should be offered within 2 weeks after diagnosis unless there is documentation within that period that the patient has improved, or unless the patient has substance abuse or dependence, in which case treatment may wait until 8 weeks after the patient is in a drug- or alcohol-free state.	13/14	93%	15/20	75%
IF a VE is started on antidepressant medication, THEN the following medications should not be used as 1st- or 2nd-line therapy: <ul style="list-style-type: none"> • Tertiary amine tricyclics (amitriptyline, imipramine, doxepin, clomipramine, trimipramine) • Monoamine oxidase inhibitors (unless atypical depression is present) • Benzodiazepines • Stimulants (except methylphenidate) 	9/9	100%	7/7	100%
IF a VE has depression with psychotic features, THEN s/he should be referred to a psychiatrist OR should receive treatment with a combination of an antidepressant and an antipsychotic, or with ECT.	0	---	0	---
IF a VE is newly treated for depression, THEN the following should be documented at the first follow-up visit to the same physician or to a mental health provider within 4 weeks of treatment initiation: Degree of response to at least 2 of the 9 DSM-IV target symptoms for major depression.*	3/13	23%	8/19	42%
IF a VE is newly treated for depression, THEN the following should be documented at the first follow-up	3/9	33%	0/7	0%

Quality indicator	Physician Care Alone		Co-management with NP	
	Pass / Eligible (N)	Pass %	Pass / Eligible (N)	Pass %
visit to the same physician or to a mental health provider within 4 weeks of treatment initiation: Medication side effects, if he or she is taking antidepressant medications.*				
IF a VE is newly treated for depression and has suicidal ideation at an outpatient visit, THEN at the next follow-up visit, which must occur within 1 week, documentation should reflect asking about suicide risk.*	0/2	0%	0/6	0%
IF a vulnerable elder has no meaningful symptom response after 6 weeks of depression treatment, THEN one of the following treatment options should be initiated by the 8th week of treatment: <ul style="list-style-type: none"> Medication dose should be optimized or changed Referral to a psychiatrist (if initial treatment was medication) Medication should be initiated or referral to a psychiatrist should be offered (if initial treatment was psychotherapy alone). 	3/9	33%	1/13	8%
IF a vulnerable elder with depression responds only partially after 12 weeks of treatment, THEN one of the following treatment options should be instituted by the 16th week of treatment: <ul style="list-style-type: none"> Switch to a different medication class or add a second medication to the first (if initial treatment includes medication) Add psychotherapy (if the initial treatment was medication) Try medication (if initial treatment was psychotherapy without medication) Consider ECT Refer to a psychiatrist 	2/8	25%	3/11	27%
DEPRESSION Summary	116/194	60%	154/245	63%
FALLS/MOBILITY DISORDERS				
IF a VE reports a history of 2 falls (or 1 fall with injury) in the past year, THEN there should be documentation of a basic fall history (circumstances, medications, chronic conditions, mobility, alcohol intake) within 3 months of the report (or within 4 weeks of the report, if the most recent fall occurred in the past 4 weeks).	27/57	47%	106/116	91%
IF a VE reports a history of 2 falls (or 1 fall with injury) in the past year, THEN there should be documentation of orthostatic vital signs (blood pressure and pulse) within 3 months of the report (or within 4 weeks of the report, if the most recent fall occurred in the past 4 weeks).	4/57	7%	94/116	81%
IF a VE reports a history of 2 falls (or 1 fall with injury) in the past year, THEN there should be documentation of	20/56	36%	97/112	87%

Quality indicator	Physician Care Alone		Co-management with NP	
	Pass / Eligible (N)	Pass %	Pass / Eligible (N)	Pass %
receipt of an eye exam in the past year, or evidence of visual acuity testing within 3 months of the report.*				
IF a VE reports a history of 2 falls (or 1 fall with injury) in the past year, THEN there should be documentation of a basic gait, balance, and strength evaluation within 3 months of the report (or within 4 weeks of the report, if the most recent fall occurred in the past 4 weeks).	12/57	21%	100/116	86%
IF a VE has new or worsening difficulty with ambulation, balance, or mobility, THEN there should be documentation of a basic gait, balance, and strength evaluation within 3 months of the report.	7/57	12%	100/116	86%
IF a VE reports a history of 2 falls (or 1 fall with injury) in the past year, THEN there should be documentation of an assessment of cognitive status in the past 6 months or within 3 months of the report (or within 4 weeks of the report, if the most recent fall occurred in the past 4 weeks).*	31/56	55%	69/112	62%
IF a VE reports a history of 2 falls (or 1 fall with injury) in the past year, THEN there should be documentation of an assessment and modification of home hazards recommended in the past year or within 3 months of the report.	5/57	9%	97/116	84%
IF a VE reports a history of 2 falls (or 1 fall with injury) in the past year and is taking a benzodiazepine, THEN there should be documentation of a discussion of related risks and assistance offered to reduce/discontinue benzodiazepine use.	2/10	20%	7/14	50%
IF a VE demonstrates decreased balance/ proprioception or increased postural sway AND does not have an assistive device, THEN an evaluation/ prescription for an assistive device should be offered within 3 months.	6/8	75%	32/87	37%
IF a VE reports a history of 2 falls (or 1 fall with injury) in the past year AND has an assistive device, THEN there should be documentation of an assistive device review in the past 6 months or within 3 months of the report (or within 4 weeks of the report, if the most recent fall occurred in the past 4 weeks).	6/16	38%	39/52	75%
IF a VE is found to have a problem with gait, balance, strength, or endurance, THEN there should be documentation of a structured/supervised exercise program offered in the past 6 months or within 3 months of the report.*	22/28	79%	161/165	98%
FALLS/MOBILITY DISORDERS Summary	120/431	28%	741/957	77%
URINARY INCONTINENCE				
IF a VE has new UI or established UI with bothersome symptoms, THEN a targeted history should be documented.	7/53	13%	73/105	70%
IF a VE has new UI, THEN a targeted physical examination should be documented.*	11/35	31%	39/49	80%

Quality indicator	Physician Care Alone		Co-management with NP	
	Pass / Eligible (N)	Pass %	Pass / Eligible (N)	Pass %
IF a VE has new UI or established UI with bothersome symptoms, THEN a urinalysis (or dipstick UA) AND a urine culture, if the urinalysis demonstrates pyuria or hematuria, should be obtained.	15/53	28%	70/105	67%
IF a male VE presenting with new/worsening urinary incontinence, or complaints of incomplete emptying or LUTS and has neurologic disease (e.g. spinal cord injury, multiple sclerosis) or has had a procedure that can affect innervation of the bladder or urethral sphincter mechanism (e.g. spinal surgery), THEN he should have a post-void residual measurement.	0/13	0%	1/23	4%
IF a vulnerable elder has a post-void residual > 300 cc, THEN s/he should have a serum creatinine within 72 hours and (if no reversible causes found) referred to a clinician with urological expertise within 2 months.*	0	---	0/1	0%
IF a VE with UI has a PVR of between 200cc and 300cc, THEN renal function should be assessed within 3 months.	0	---	0	---
IF a VE has new UI or established UI with bothersome symptoms AND the UI is treated with medication or surgery, THEN classification of the type of/suspected reason(s) for UI should be documented.	2/5	40%	14/15	93%
IF a VE has new UI or established UI with bothersome symptoms, THEN treatment options should be discussed within 3 months.	15/53	28%	83/105	79%
IF a VE is treated for UI, THEN response to treatment should be documented within 3 months.	2/53	4%	38/105	36%
IF a cognitively intact, ambulatory VE has stress, urge, or mixed UI, THEN behavioral/lifestyle treatment should be offered.*	0/4	0%	61/64	95%
URINARY INCONTINENCE Summary	52/269	19%	379/572	66%
ALL CONDITIONS	361/1088	33%	1450/2072	70%

VE = vulnerable elder

* Quality indicator not applied, in whole or in part, to patients with advanced dementia and/or poor prognosis. For detailed explanation, see Solomon DH, Wenger NS, Saliba D et al. Appropriateness of quality indicators for older patients with advanced dementia and poor prognosis. *J Am Geriatr Soc* 2003;51:902–907.

Name: _____ Date of visit: _____

MR #: _____ Date of birth: _____ ☐ Male ☐ Female

Dr: _____

PATIENT SURVEY

Please answer questions 1-5. Check all that apply to you.

Yes No

Have you:

1. *Fallen 2 or more times in the past 12 months?* ☐* ☐

2. *Fallen and hurt yourself since your last doctor's visit?* ☐* ☐

3. *Been afraid of falling because of balance or walking problems?* ☐* ☐

4. *Had urinary incontinence (lose your urine) that is bothersome enough that you would like to know how it could be treated?* ☐* ☐

5. *Over the past 2 weeks, how often have you been bothered by:*

a) *little interest or pleasure in doing things?*

☐ 0 Not at all

- ☐ 1 Several days
- ☐ 2 More than half the days
- ☐ 3 Nearly every day

b) feeling down, depressed, or hopeless?

- ☐ 0 Not at all
- ☐ 1 Several days
- ☐ 2 More than half the days
- ☐ 3 Nearly every day

FOR OFFICE USE ONLY:

3-item recall results: ☐ *0 ☐ *1 ☐ 2 ☐ 3 ☐ *Refused/Unable

☐ *Current dx of cognitive impairment

PHQ-2 (items 5a and 5b) ^ results: ☐ 0-2 ☐ *3-6

* = failed screen

dx: diagnosis

^ Kroenke K, Spitzer RL, Williams JB. The Patient Health Questionnaire-2: Validity of a two-item depression screener. Med Care 2003;41:1284-1292.

Figure 1.
Screening instrument

URINARY INCONTINENCE – Initial Visit

[PATIENT LABEL]

Reason for Visit: Bothersome urinary incontinence (UI)

History of Present Illness:

Duration of symptoms? _____

Characteristics of voiding: **YES** **NO**

Sudden urge to void: ☐ ☐

Loss with cough, laugh, bending: ☐ ☐

Continuous leakage: ☐ ☐

Burning with urination: ☐ ☐

Hard to start urination: ☐ ☐

Feel like can't empty bladder: ☐ ☐

Problems using/getting to the toilet: ☐ ☐

If YES, explain: _____

Problem is during: ☐ Day ☐ Night

Volume of urine loss: ☐ Small ☐ Mod ☐ Large

Ever lose control of bowel movements: ☐ **YES** ☐ **NO**

Any UI precipitants: ☐ ☐

If YES, specify: _____

Prior surgery: _____

Prostate: ☐ ☐

UI/prolapse: ☐ ☐

Prior incontinence treatment: _____

Bladder training (urinating at regular intervals): ☐ ☐

Pelvic/Kegel's exercises (if female): ☐ ☐

Pessary (if female): ☐ ☐

Medications, specify: _____

Other: ☐ ☐

Has UI has been previously evaluated? ☐ YES ☐ NO

Examination (new UI only): ←

→ (If no known dementia, do 3-item recall: ball, flag, tree)

1. Functional/mobility limitation: ☐ **YES** ☐ **NO**

3. Abdomen: Mass: ☐ ☐

Palpable bladder: ☐ ☐

3. Lower extremity edema: ☐ ☐

4. 3-item recall result:

☐ PASS (2-3 words)

☐ FAIL (0-1 word) → Cognitive status: _____

5. Rectal: Fecal impaction/mass: ☐ **YES** ☐ **NO**

↓ rectal tone: ☐ ☐

6. Genital:

(female) Uterine prolapse: ☐ ☐

Cystocele: ☐ ☐

Urine loss with cough: ☐ ☐

Atrophic tissue: ☐ ☐

(male) Prostate enlargement: ☐ ☐

Prostate tenderness: ☐ ☐

Prostate mass: ☐ ☐

Lab/Tests:

☐ Urine for UA and C&S

☐ Post-void residual/bladder scan: _____ cc

☐ Serum creatinine, as indicated of PVR ?200cc

☐ Urodynamics (if planning surgery for stress UI)

☐ Other: _____

Impression:

☐ UI, type: ☐ Stress ☐ Urge ☐ Functional ☐ Overflow ☐ Mixed

☐ UI, prostate-related

☐ Urinary tract infection

☐ Cognitive impairment

Treatment:

Behavioral treatment (first-line for stress, urge, mixed UI):

☐ Pelvic exercises ☐ Environmental change: _____

☐ Bladder retraining ☐ Fluid restriction ☐ Other behavioral treatment: _____

☐ Bladder diary

☐ Patient education handouts

☐ Medication for UI:

☐ Medication for UTI: _____

☐ Gynecology consult

☐ Urology consult

☐ Other: _____

☐ Other instructions: _____

Follow up: ☐ within 3 months ☐ within _____

For urge/mixed UI (if behavioral treatment unsuccessful):

oxybutynin 2.5-5mg bid-tid

oxybutynin XL 5-20 mg qd

oxybutynin patch 3.9 mg, 2 x per week

oxybutynin 10% gel 1 gm qd topical

trospium 20 mg bid (if >75, taper to qd, if CrCl <30, qd at HS)

trospium XR 60mg qd (avoid if CrCl <30)

tolterodine 2 mg bid

tolterodine LA 2-4 mg qd

fesoterodine 4-8 mg qd

darifenacin 7.5-15 mg qd

solifenacin 5-10 mg qd

Provider's Signature _____ Date _____

Figure 2.
Structured visit note for urinary incontinence

Table 1

Quality scores (Number of indicators passed / Number of indicators eligible) overall and by site

	All Sites	Site A	Site B
Overall	57% (1811 / 3160)	62% (935 / 1518)	53% * (876 / 1642)
Falls	62% (861 / 1388)	63% (453 / 719)	61% (408 / 669)
Incontinence	51% (431 / 841)	59% (235 / 395)	44% * (196 / 446)
Dementia	51% (249 / 492)	53% (132 / 247)	48% (117 / 245)
Depression	61% (270 / 439)	73% (115 / 157)	55% * (155 / 282)

*

p<0.01 for comparison between sites

Note. For each condition, all triggered quality indicators for all patients were used to calculate the percent of eligible quality indicators for which recommended care was provided.

Table 2

Quality scores by condition for physician care alone versus co-management with nurse practitioner

	Physician Care alone (N of patients =247)	Co-management with NP (N of patients =238)
Overall	34% * (389 / 1116)	72% * (1584 / 2237)
Falls	31% (148 / 459)	80% (875 / 1122)
Incontinence	19% (53 / 269)	66% (379 / 572)
Dementia	38% (73 / 194)	59% (176 / 298)
Depression	60 (116 / 194)	63 (154 / 245)

*
p < 0.0001

Note. Numbers in parentheses indicate QIs passed/eligible QIs. For each condition, all triggered quality indicators for all patients were used to calculate the percent of eligible quality indicators for which recommended care was provided.