



Published in final edited form as:

*Aging health*. 2012 June ; 8(3): 273–284. doi:10.2217/ahe.12.28.

## Late-Life Depression in Home Healthcare

Yolonda Pickett, M.D., M.S., Patrick J. Raue, Ph.D., and Martha L. Bruce, Ph.D., M.P.H.

Weill Cornell Medical College

### Abstract

Major depression is disproportionately common among elderly adults receiving home healthcare and is characterized by greater medical illness, functional impairment, and pain. Depression is persistent in this population and is associated with numerous poor outcomes such as increased risk of hospitalization, injury-producing falls, and higher health care costs. Despite the need for mental health care in these patients, significant barriers unique to the home healthcare setting contribute to under-detection and under-treatment of depression. Intervention models target the home healthcare nurse as liaison between patients and physicians, and instruct in the identification and management of depression for their patients. Successful implementation requires interventions that ‘fit’ how home healthcare is organized and practiced, and long distance implementation strategies are required to increase the reach of these interventions.

### Keywords

depression; home healthcare; nursing; geriatrics; care management; implementation strategies

### Introduction

Depression is the third leading contributor to the overall burden of disease in the US, reflecting both its pervasiveness and consequences. Beyond personal suffering, depression in late life increases the risk of caregiver burden, medical illness, disability, social isolation, institutionalization, suicide and non-suicide mortality.[1] In this paper, we summarize published research on the epidemiology, course, treatment, and interventions associated with late-life depression in the home healthcare setting. We highlight examples from our own work as well as future directions for the field.

The 12-month prevalence of geriatric major depression is approximately 3% in community-dwelling samples[2, 3] and 6–8% in older primary care patients.[4] Rates of depression are even twice as high, if not higher, among geriatric medical inpatients, home healthcare patients, residents of assisted living facilities, home-delivered meal clients, and other populations of older adults who are characterized by the medical, functional, and social disadvantages that are associated with the risk and outcomes of depression. Rates of minor and subthreshold depression are also high in these geriatric populations and have been shown to be clinically significant in terms of persistence and negative effects on health and functioning.[5–9]

---

Corresponding Author: Martha L. Bruce, Ph.D., M.P.H., Department of Psychiatry, Westchester Division, Weill Medical College of Cornell University, 21 Bloomingdale Road, White Plains, NY, 10605, 914-997-5977 (voice mail), 914-682-6979 (fax), MBruce@med.cornell.edu.

#### DISCLOSURE

Dr. Bruce has served as a reviewer for the McKesson Health Solutions. She has no other sources of potential conflict of interest to report. Drs. Pickett and Raue report no sources of potential conflict of interest.

Our interest in home healthcare grew from epidemiologic evidence of disproportionately high rates of depression in homebound older adults.[10, 11] These findings were consistent with the population's significant medical burden, disability and social isolation, conditions that are both risk factors and outcomes of depression.[1, 7, 12, 13] From a services delivery perspective, homebound status not only increases the need for mental health care but also poses significant barriers to meeting this need. We turned to home healthcare as the sector providing care to the homebound and found little research on depression.

## Prevalence and correlates of depression in home healthcare

Home health (HH) agencies provide subacute care to over 3.5 million Medicare beneficiaries annually, mostly aged 65 and older.[14] Home healthcare is less costly[15] and generally preferred by patients over hospitals or nursing homes.[16, 17] Fee-for-service Medicare pays HH agencies by 60-day payment episodes using a case-mix adjusted standard rate. Few (2%) patients are referred to HH agencies with a primary psychiatric diagnosis; our research has thus focused on depression that co-occurs among patients referred for a medical or surgical (med/surg) condition. [15] Home healthcare patients receive an average of 22 nursing visits per episode of care. Many also receive home-based physical therapy or other services.

In the first study on rates and correlates of major depressive disorder in this population, we collected longitudinal data (N=539) in older adults (age 65) newly admitted to a Medicare certified HH agency in Westchester County, New York.[18] We interviewed patients at baseline (start of care), one, six, and twelve months after initiating home healthcare, collected additional data on depression from family members, reviewed medical records, and interviewed nurses.

To examine rates of depression, we determined DSM-IV diagnoses by best estimate conference where the Structured Clinical Interview for DSM-IV (SCID) for both patients and informants, medical record, and medication history were reviewed by the supervising psychologist, geriatric psychiatrist, geriatrician, and principle investigator. Using this best-estimate procedure, the one-month prevalence of major depression in this sample was 13.5% and that of minor depression was 10.8%.

Ell and colleagues estimated a comparable, albeit somewhat lower, 8.5% rate of probable major depression using the self report Patient Health Questionnaire (PHQ-9).[19, 20] Besides providing an estimate of depression, this study demonstrated the feasibility of integrating the PHQ-9 into routine home healthcare practice and lay the groundwork for the addition of the PHQ-2 when Medicare revised its mandatory assessments in 2010.[21, 22]

Among patients who met DSM-IV criteria for major depression in our first home healthcare study, most (71%) were experiencing their first episode of major depression. The average depressive episode lasted over two months. Major depression was significantly associated with medical severity (OR=1.13 per point in the Charlson Comorbidity Index), disability in instrumental activities (OR=1.25 per IADL), reported pain (OR=1.82), and history of depression (OR=4.32).[18] Major depression was not, however, associated with sociodemographic factors such as gender, age, or marital status that are commonly associated with depression in community, primary care, and groups of older adults who do not have the level of medical severity, disability or pain that both characterize home healthcare patients and strongly contribute to depression risk.

Although the prevalence of major depression, specific symptom groups, and overall symptom severity did not differ between African-American and Caucasian patients in our research sample,[23] racial disparities are evident in the identification and treatment of

depression in real world practice. In a recent national sample of US elderly patients receiving home healthcare, Caucasians were significantly more likely than African-Americans to have a formal depression diagnosis noted in their home healthcare chart (OR=4.06, 95% CI=1.66–9.93).[24] Future research is needed to determine whether this finding reflects differences in depression recognition, documentation, or transfer of clinical information across health care settings.

Medical severity and disability also contributed to the incidence of depression among home healthcare patients who were not depressed during the first weeks of home healthcare. Among patients without depression, 10% reported major or minor depression at one year follow-up.[25] Factors predicting depression incidence were similar to correlates observed at baseline, including worse self-rated health, somatic depressive symptoms, greater number of ADL limitations, and greater decline in ADL.

The prevalence of suicide ideation was also disproportionately high in home healthcare patients; in the Westchester patient sample, 10.6% of patients reported passive and 1.2% reported active suicidal ideation.[26] Higher depression severity, greater medical comorbidity, and lower subjective social support were independently associated with the presence of any level of suicidal ideation.[27] In particular, satisfaction with one's relationships and feeling useful to family and friends were significantly associated with a lower likelihood of suicidal ideation. Despite the predominantly mild levels of ideation, we consider the home healthcare population to nevertheless be at relatively "high risk" for suicide based on their combination of several risk factors as identified in the literature, including depression, medical comorbidity, disability, and low perceived social support. Among patients without suicide ideation at baseline, 5.4% reported suicidal ideation at their one year follow-up interview.[26]

## Course and outcomes of depression

Longitudinal evidence on the persistence of depression among our sample suggests that major depression has clinical significance in this patient population.[28] Among patients with baseline major depression, 42% continued to meet criteria at one month, 27% achieved partial remission, and 31% were in full remission. Baseline factors that predicted full remission at one month included fewer IADL limitations, experiencing a "great deal" of pain, and absence of a recent stressful life event. Similarly, suicidal ideation persisted for 36.7% of those with such ideation at baseline.

Evidence that depression increases home healthcare patients' risk for other adverse outcomes underscores the clinical meaningfulness of depression in these patients and the overall costs involved in their care. Longitudinal analyses documented that depressed patients compared to other home healthcare patients, controlling for other risk factors, had higher risk of hospitalization, injury-producing falls, and higher health care costs.[29–32] For example, the mean time to hospitalization in our research sample was 8.4 for depressed patients versus 19.5 days for non-depressed patients after start of care.[32]. Hospitalization risk was significantly higher for depressed patients during the first few weeks. In an analysis of administrative data on all geriatric patients admitted to one HH agency over two years, patients with adverse falls were over twice as likely to be identified as depressed at the start-of-care than matched nonfallers.[29]

## Depression recognition

Our group investigated nurses' recognition of depression in their home healthcare patients in two ways. First, we interviewed the nurses who provided care to patients in our study sample and compared their assessment to that of the SCID. The nurses correctly identified

depression among 44 of the 97 SCID-depressed patients (sensitivity of 45.4) and 230 of the 306 patients who were not depressed (specificity of 75.2).[33] Nurses' reports of moderate or severe depression agreed poorly with our SCID diagnosis of major depression ( $Kappa=.19$ ) and with the presence of gateway symptoms of depressed mood or anhedonia ( $kappa=.25$ ) identified in our best estimate consensus conference. Nurses who had more geriatric nursing experience, however, were more likely to correctly identify depression.

A second analyses compared nurses' identification of depressed mood or anhedonia (i.e., the gateways symptoms for a DSM-IV depression diagnosis) on mandated start of care assessments (OASIS). OASIS ratings also agreed poorly with research-assessed gateway symptoms ( $kappa=.38$ ) ( $kappa=.27$ ) and with SCID major depression.[34] The home healthcare nurses accurately documented the presence of depression in 13 of 35 cases (sensitivity=37.1%), and agreed on the absence of depression in 175 of 185 cases (specificity=94.6%; negative predictive value=88.8%).

These data suggested that home healthcare nurses had difficulty making accurate assessments of depression among older home care patients. From interviews of nurses, we also learned that many nurses reported similar misconceptions as much of the general public regarding the symptoms (e.g., social isolation) and causes of depression (e.g., depression is an inevitable consequence of aging). These studies identified inaccurate assessment of depression as a significant barrier to treatment in this elderly homebound population.

## Treatment

In our group's representative sample of home healthcare patients, only 21.9% of patients with major depression were receiving antidepressant treatment at start of home healthcare, and none was receiving psychotherapy.[18] Moreover, over 40% of these treated patients received inadequate treatment due to under-dosing compared to evidence-based guidelines or to patient non-adherence. While rates of identification and treatment of depression in home healthcare patients have risen sharply in the past decade,[24, 35, 36] most patients with clinically significant depressive symptoms are still either not being treated or are being treated inadequately. Reasons for inadequate treatment range from patients' refusal or nonadherence to physicians' not following evidence-based guidelines in prescribing or in adjusting treatment in response to persistent symptoms.[18, 37–39].

Examination of patient preferences for depression treatment may shed light on the reluctance of patients to initiate and adhere to recommended treatments. In analyses of a recent research sample of home healthcare patients, we found that 47% preferred an active treatment such as antidepressant medication or psychotherapy as their first choice.[40] Over half, however, preferred nonactive or complementary approaches such as religious or spiritual activities, exercise, or "doing nothing". Current antidepressant use, previous psychotherapy experience, white and Hispanic versus African-American patients, greater IADL impairment, and less personal stigma about depression were independently associated with preference for an active treatment.

The data presented above on prevalence, course, outcomes, recognition and treatment of depression in home healthcare are summarized in Table 1.

## Partnership approach to intervention development

Studies documenting the problems of under-recognition and under-treatment have led to initiatives aimed at improving depression assessment, referral, and treatment. These projects confronted the kinds of challenges typically faced when trying to implement new practices in routine care as well as some unique to home healthcare.[37, 38, 40, 41] Working in

partnership with HH agencies proved to be a successful approach to the development of depression management in home healthcare. Advantages to this approach are increased acceptability, feasibility, and effectiveness of the intervention efforts.[42–44]

Using this approach, our group worked with three regional HH agencies to identify factors that would facilitate better depression assessment. At that time, the Medicare OASIS-B did not include any standard assessment for depression. After working with the agencies, we decided against the inclusion of a standardized scale into the routine nursing assessment because it increased the already time consuming and unpopular burden of formal assessments. Further, there was little evidence that the addition of rating scales to routine home healthcare practice, or to clinical practice generally, would improve patient care or outcomes.[45–47] Rather, the intervention trained nurses in more accurate use of existing required assessments, specifically those in the OASIS that target the evaluation of depression. Training nurses to improve the existing depression assessment also alleviated the nurses' concerns that assessments would be cumbersome and incongruent with other aspects of routine care.

### **TRIAD: Training in the Assessment of Depression**

Weill Cornell's intervention, TRIAD: *Training in the Assessment of Depression*, operationalized the gateway depression items (depressed mood and anhedonia) in the OASIS to be consistent with DSM-IV criteria with appropriate questions and, when indicated, clinical probes.[48] The goal of this intervention was for nurses to accurately identify patients with persistent depressed mood or anhedonia, symptoms warranting further evaluation by the primary care provider or through a mental health referral. In an effort to improve the sensitivity of detection to depression symptoms, the training called attention to factors that frequently cause difficulties the course of depression in HH patients, such as medical illness, disability, and pain. Nurses were also trained to ask follow-up depression assessment with clinically relevant questions about duration and persistence of symptoms. Nurses were also encouraged to observe and assess behavioral or nonverbal cues such as crying, eye contact, and affect.

Training procedures used proven techniques for effectiveness in continuing education. One such technique was the development of videos depicting nurse interviews with patients showing different scenarios and complicating conditions that may be encountering while using the OASIS for depression assessment. Other techniques incorporated into the intervention were tool kits, role play, and didactic instruction.[49] The training totaled 4.5 hours divided into two sessions, 1 month apart, as well as two e-mail boosters. By giving enough time for nurses to practice their skills with patients between sessions, the booster session could respond to the nurses' "real world" experience rather than hypothetical situations. Trainings were set up in a way at the agency's request to minimize the time that nurses spent "out of the field" in an effort not to disrupt clinical care.

A nurse randomized trial conducted in three HH agencies compared TRIAD to a minimal intervention consisting of a training video only and to a control condition.[37] The study compared nurses' assessments with assessments conducted by research associates. Based upon review of patient records, the full TRIAD intervention improved the likelihood that a patient with persistent depressed mood or anhedonia would be successfully referred for a mental health evaluation. Specifically, 50.0% of depressed TRIAD patients received a referral, versus 18.5% of depressed patients in the minimal and 21.4% of the depressed control patients ( $p=.047$ ). Furthermore, the intervention did not promote "false positives" in mental health referrals. In analyses of patients with a depression diagnosis, patients who were referred had clinical outcomes, specifically reduction in depressive symptoms.

Because the group of nurses who were provided a simple video did not have a better referral rate than the control group, the TRIAD results suggest that changing nurse practice involves more than providing a script or standardized assessment. An important component was helping nurses to understand the importance of depression to their patients' care, giving them an opportunity to practice their assessments, and building upon their existing clinical skills. As these factors are relevant to the use of standardized assessments, the same strategy was used when developing the training curriculum and resources for appropriate use of the PHQ-2 (and PHQ-9) when it was added to revised OASIS-C.[50, 51]

## Primary care and home-based intervention models

Improving depression assessment is only a first essential building block to quality depression care for elderly depressed home healthcare patients. A more comprehensive approach would integrate broader depression care management functions into home healthcare. An international evidence-base demonstrates that depression can be treated and managed in community-dwelling, homebound older adults.[52] Much of this research comes from outside the United States. These studies have demonstrated the effectiveness of home-based psychiatric services and/or integrating psychiatric care into routine home healthcare; however, the relevance of these specific models to the US is limited by significant differences in how home healthcare is organized and financed in different countries.[53–55] In the US, other studies have demonstrated the effectiveness of home-based depression care but were not conducted in the context of home healthcare. For example, the PATCH intervention conducted in senior housing combined case finding with home visits from university-based psychiatric nurses.[56] The PEARLS intervention demonstrated improved outcomes for older adults with minor depression or dysthymia who were referred by senior centers.[57]

One barrier to integrating depression care into home healthcare is that, unlike depression assessment which has been required of home healthcare nurses, depression care management has not been an expected part of nursing care for medical or surgical patients. Home healthcare nurses may be reluctant to add a new clinical responsibility to their workload. This challenge was similar to that originally faced by depression care management interventions designed for primary care. Two successful primary care models form the evidence bases used to develop depression care management interventions for home healthcare.

The Hartford Foundation-funded IMPACT and the NIMH-funded PROSPECT randomized controlled trials similarly investigated the effectiveness of primary care-based multi-faceted interventions for late-life depression.[58, 59] Both interventions are based on the Collaborative Depression Care model,[60] an evidenced-based approach shown effective in improving quality of care and clinical outcomes. Its cornerstone is managing depression as a chronic – rather than acute – illness. Thus patients benefit from not only active treatments (e.g., pharmacological and/or psychotherapy) but also ongoing care, e.g., monitoring symptoms and adherence, and teaching patients self-management skills. Primary care clinicians are supported both by a “depression care manager” (e.g., nurse or social worker) who provides much of the direct care and by access to mental health specialists for consultation as needed.

The Collaborative Depression Care model has been the subject of many meta-analyses, cost effectiveness, quality improvement and implementation initiatives.[47, 60–67] In IMPACT and PROSPECT, primary care physicians provided depressed older patients guideline-based treatment with depression care management. And in both trials, patients in the Intervention arms achieved better clinical outcomes than similar patients provided usual care alone.

There is also evidence that depressed care management is associated with reduced mortality rates compared to usual care for depressed patients.[68]

In home healthcare, Ell and colleagues implemented a randomized intervention, modeled on IMPACT, that included nurse training in depression assessment, designated depression care specialists, and the option of home-based PST.[69] Their experience confirmed the feasibility and potential effectiveness of conducting depression interventions in home healthcare. However, as the authors acknowledged, barriers to implementing their model confirmed the need for further adaptation of the primary care model of depression care management to fit the needs of home healthcare patients and the organization and practice of home healthcare. The following section describes our group's adaptation of the IMPACT and PROSPECT to home healthcare. As with TRIAD, the Depression CAREPATH (CARE for PATients at Home) was developed using the evidence-based practice partnership model.[44]

## Depression care management in home healthcare; the Depression CAREPATH

The Depression CAREPATH was designed for medical/surgical home healthcare patients who suffer clinically significant depressive symptoms.[70, 71] The underlying premise in developing the Depression CAREPATH was that successful implementation requires an intervention that 'fits' how home healthcare is organized and practiced. Our group worked with partnership with HH agencies to adapt the IMPACT and PROSPECT models of depression care management (DCM) from primary care to home healthcare. We found that the basic model fits naturally with HH which already uses a team approach to develop and follow a patient's Medicare-mandated "Care Plan".[72] The patient's physician authorizes the Care Plan and is responsible for treatment decisions. The HH nurse supports the physician by providing in-home patient care and consulting with the physician and experts as clinically indicated both during care and at discharge.

In the Depression CAREPATH, the basic clinical functions of DCM remained the same as primary care, but whereas primary care assigns many of these functions to a single depression care manager, the Depression CAREPATH integrated these functions into the routine care practice of all medical/surgical nurses. This decision to train all nurses in DCM reflected two major considerations: 1. Cost: HH agencies are reimbursed based on a prospective payment system for fee-for-service Medicare patients. Additional home visits by a new provider would likely increase patient costs relative to reimbursement; 2. Skills: Nurses commonly manage chronic diseases regardless of the formal reason for home care (e.g., diabetes management with patients receiving wound care). Managing depression is fundamentally comparable to managing other chronic diseases, making nurses clinically prepared to practice DCM and fitting DCM easily into routine care.[73, 74]

The CAREPATH DCM protocol was designed to fit within a routine visit and used weekly or, for patients seen less frequently, at each visit. Each DCM visit involves (in home healthcare terminology):

- a. *Assessment* of depression severity: Nurses are expected to assess patients who screen positive on the OASIS PHQ-2 with the full PHQ-9 to determine the severity of depression.[20] Although the PHQ-9 can be used as a self-report paper-and-pencil screen, nurses are expected to ask patients the PHQ-9 questions and encouraged to use visual and verbal clues when relevant when reviewing response with patients. Nurses continue to assess depression with the PHQ-9 weekly to monitor clinical course; lack of improvement or worsening symptoms trigger additional case coordination.

- b. *Case Coordination* involves consultation with the patient's physician about possible initiation or changes in medication and/or psychotherapy treatment, as well as possible consultation or referral to a psychiatric nurse (if available), social worker, or outside mental health specialist.[37, 75–77]. Case Coordination includes ensuring that depression care continues after discharge.[72]
- c. *Medication Management* includes monitoring side effects and adherence for patients taking antidepressants.[78] Problems of treatment initiation and adherence are exacerbated in home healthcare as: 1. accessing psychotherapy is difficult for homebound older adults making it easy to skip appointments, and 2. home healthcare patients typically take many prescription medications; antidepressant medication are often viewed as the least important medication, contributing to the likelihood that patients will skip doses.
- d. *Education*: As with other conditions, nurses educate patients about depression and its treatment, working to dispel myths and stigma.[79–81] One goal of patient education is to increase patient involvement in decision-making. Such involvement, while generally shown to be beneficial,[81–83] has particular relevance for depression as it may directly affect the helplessness and hopelessness associated with depression. Although research in this area is relatively new, especially with older adults or home healthcare patients, we do know that treatment[82] and in participating in decision-making[83] and, when randomly assigned to treatments that matched preferences had higher treatment initiation and adherence over 3 months.[84] The Depression CAREPATH intervention trains nurse to educate patients about depression and its treatments, to help patients clarify their own treatment preferences, and to use that information when coordinating care.
- e. *Goal Setting*: While not psychotherapists, nurses typically assist patients in goal setting and activation.[85–87] For DCM, nurses help patients set and review weekly goals for self care, pleasurable activities, and social contact.[73, 88] Nurses are encouraged to involve family caregivers in developing strategies to support patients' goals.

Family caregivers are a potential resource to all home healthcare interventions. A promising area for future research is skill training for family members to help them support DCM and determining the impact such training can have on patient health outcomes. A survey of the family caregivers of older home healthcare patients found that family members already provided a variety of relevant caregiver tasks but were also interested in receiving training in improve and extend those skills.[89] This interest in training was independent of the nature and extent of tasks they currently provided to their family member. Black caregivers expressed greater overall interest in receiving training than did white caregivers, as did younger caregivers compared to same-generation caregivers.

The depression intervention research, described above. is summarized in Table 2.

## Implementation strategies

To be effective, a protocol needs to be used. The Depression CAREPATH was developed with this in mind to ensure that the intervention could be implemented and sustained in real world home healthcare practice. In addition to training home healthcare nurses in depression care management skills, the intervention also includes guidelines and resources to help HH agencies develop the infrastructure needed to support the use of the DCM protocol in routine care.[71] As part of infrastructure development, HH agencies are helped to tailor the guidelines to fit their own policies and local resources, including: 1. *Case Coordination Guideline* that designates whom to contact (e.g., patients' physician, specialist) for referral



or consultation; 2. *Suicide Risk Protocol* that operationalizes responses to levels of risk; 3. *Mental Health Resources Directory* for communities that serve their patients; 4. Supervision Strategies, including consultation on how to oversee the nurses' use of the protocol; and 5. *Benchmark Reports* for use in supervision and quality improvement.

The dissemination and effective implementation of best practices commonly entail face-to-face involvement by the implementation staff.[90–92] Such intensity, however, may limit their availability, affordability or acceptability, especially to agencies that are small, geographically dispersed, decentralized, or resource poor. Most of the >10,000 Medicare certified HH agencies in the US are freestanding, small, and without resources to support advanced quality improvement. This situation leads to the unequal distribution of evidence-based care.

In response to these concerns, our group has developed a long distance implementation strategy designed to reach HH agencies regardless of size, affiliation, or location. It uses a web-based platform to support the implementation of Weill Cornell's Depression CAREPATH Intervention by HH agencies. The implementation strategy employs e-learning modules, webinars, email/telephone consultation, toolkits, and social networking technology for long distance delivery of four implementation activities: 1. Infrastructure development, 2. Training in the Depression CAREPATH protocol, 3. Supervision and performance feedback on nurses' use of the Depression CAREPATH protocol, and 4. Social learning among HH agencies that use the Depression CAREPATH. Future research will evaluate the effectiveness of using such long distance strategies to support the implementation of evidence-based practices.

## Conclusion: Lessons learned and future perspective

Major depression affects one in seven elderly home healthcare patients, is mostly undetected or poorly treated, and leads to worse functional and health outcomes and higher healthcare costs. All older home healthcare patients, regardless of gender, race, ethnicity or age, share this high risk of depression. Over the past decade, an increasing number of older adults, with or without a depression diagnosis, start home healthcare already taking antidepressants. Nonetheless, most patients with clinically significant depressive symptoms are either still not being treated or are being treated inadequately. Thus interventions designed to improve depression detection, care and outcomes in home healthcare are still needed.

The challenge is to design interventions that are both effective in helping patients and sustainable in the organization. Our group's strategy has been to work in partnership with key stakeholders to adapt the depression evidence based practice to fit naturally into routine home healthcare practice. At the same time, we help HH agencies modify their infrastructure so they can support these new practices. Effective and sustainable interventions have the potential for wide dissemination.

Home healthcare serve patients regardless of socioeconomic status and in locations ranging from the inner city to the most rural and isolated regions. Thus home healthcare is well positioned to reach all patients in need of evidence-based depression care. Effective implementation strategies with extended reach are needed to support the dissemination and implementation of evidence-based depression care by the large number of HH agencies who serve the nation's homebound older adults.

## References

1. Alexopoulos GS. Depression in the elderly. *Lancet*. 2005; 365(9475):1961–1970. [PubMed: 15936426]

2. Mojtabai R, Olfson M. Major depression in community-dwelling middle-aged and older adults: prevalence and 2- and 4-year follow-up symptoms. *Psychol Med.* 2004; 34(4):623–634. [PubMed: 15099417]
3. Steffens DC, Skoog I, Norton MC, et al. Prevalence of depression and its treatment in an elderly population: the Cache County study. *Arch Gen Psychiatry.* 2000; 57(6):601–607. [PubMed: 10839339]
4. Katon W, Schulberg H. Epidemiology of depression in primary care. *Gen Hosp Psychiatry.* 1992; 14(4):237–247. [PubMed: 1505745]
5. Husain MM, Rush AJ, Sackeim HA, et al. Age-related characteristics of depression: a preliminary STAR\*D report. *Am J Geriatr Psychiatry.* 2005; 13(10):852–860. [PubMed: 16223963]
6. Lyness JM, Heo M, Datto CJ, et al. Outcomes of minor and subsyndromal depression among elderly patients in primary care settings. *Ann Intern Med.* 2006; 144(7):496–504. [PubMed: 16585663]
7. Lyness JM, Kim J, Tang W, et al. The clinical significance of subsyndromal depression in older primary care patients. *Am J Geriatr Psychiatry.* 2007; 15(3):214–223. [PubMed: 17213374]
8. Meredith LS, Cheng WJ, Hickey SC, Dwight-Johnson M. Factors associated with primary care clinicians' choice of a watchful waiting approach to managing depression. *Psychiatr Serv.* 2007; 58(1):72–78. [PubMed: 17215415]
9. Wilson K, Mottram P, Hussain M. Survival in the community of the very old depressed, discharged from medical inpatient care. *Int J Geriatr Psychiatry.* 2007; 22(10):974–979. [PubMed: 17299805]
10. Bruce ML, Hoff RA. Social and physical health risk factors for first-onset major depressive disorder in a community sample. *Soc Psychiatry Psychiatr Epidemiol.* 1994; 29(4):165–171. [PubMed: 7939965]
11. Bruce ML, Mcnamara R. Psychiatric status among the homebound elderly: an epidemiologic perspective. *J Am Geriatr Soc.* 1992; 40(6):561–566. [PubMed: 1534092]
12. Bruce ML. Depression and disability in late life: directions for future research. *Am J Geriatr Psychiatry.* 2001; 9(2):102–112. [PubMed: 11316615]
13. Bruce ML. Psychosocial risk factors for depressive disorders in late life. *Biol Psychiatry.* 2002; 52(3):175–184. [PubMed: 12182924]
14. Centers for Medicare & Medicaid Services. Health Care Financing Review: Medicare & Medicaid Statistical Supplement. 2009. 2009.
15. National Association of Home Care Hospice. Basic Facts about Home Care, Updated 2010. 2010.
16. Fried TR, Van Doorn C, O'leary JR, Tinetti ME, Drickamer MA. Older person's preferences for home vs hospital care in the treatment of acute illness. *Arch Intern Med.* 2000; 160(10):1501–1506. [PubMed: 10826465]
17. Wiener, JM.; Friman, MP.; Brown, MA. Nursing Home Care Quality: Twenty Years after the Omnibus Budget Reconciliation Act of 1987. The Henry J. Kaiser Foundation; Menlo Park, CA: 2007.
- 18\*. Bruce ML, Mcavay GJ, Raue PJ, et al. Major depression in elderly home health care patients. *Am J Psychiatry.* 2002; 159(8):1367–1374. First paper to document the disproportionate high rate of depression in home health care patients. [PubMed: 12153830]
- 19\*. Ell K, Unutzer J, Aranda M, Sanchez K, Lee PJ. Routine PHQ-9 depression screening in home health care: depression, prevalence, clinical and treatment characteristics and screening implementation. *Home Health Care Serv Q.* 2005; 24(4):1–19. First paper to report results from integrating the PHQ-9 depression assessment into routine practice. [PubMed: 16446263]
20. Kroenke K, Spitzer RL, Williams JB. The PHQ-9: validity of a brief depression severity measure. *J Gen Intern Med.* 2001; 16(9):606–613. [PubMed: 11556941]
21. Centers for Medicare & Medicaid Services. OASIS-C Guidance Manual for 2010 Implementation. 2009; Chapter 3:J-4.
22. Kroenke K, Spitzer RL, Williams JB. The Patient Health Questionnaire-2: validity of a two-item depression screener. *Med Care.* 2003; 41(11):1284–1292. [PubMed: 14583691]
23. Fyffe DC, Sirey JA, Heo M, Bruce ML. Late-life depression among black and white elderly homecare patients. *Am J Geriatr Psychiatry.* 2004; 12(5):531–535. [PubMed: 15353393]

24. Pickett Y, Weissman J, Bruce ML. Racial Differences in Antidepressant Use Among Older Home Healthcare Patients. *American Journal of Geriatric Psychiatry*. (in press).
25. Weinberger MI, Raue PJ, Meyers BS, Bruce ML. Predictors of new onset depression in medically ill, disabled older adults at 1 year follow-up. *Am J Geriatr Psychiatry*. 2009; 17(9):802–809. [PubMed: 19700952]
26. Raue PJ, Meyers BS, Rowe JL, Heo M, Bruce ML. Suicidal ideation among elderly homecare patients. *Int J Geriatr Psychiatry*. 2007; 22(1):32–37. [PubMed: 16955449]
27. Rowe JL, Conwell Y, Schulberg HC, Bruce ML. Social support and suicidal ideation in older adults using home healthcare services. *Am J Geriatr Psychiatry*. 2006; 14(9):758–766. [PubMed: 16943173]
28. Raue PJ, Meyers BS, Mcavay GJ, Brown EL, Keohane D, Bruce ML. One-month stability of depression among elderly home-care patients. *Am J Geriatr Psychiatry*. 2003; 11(5):543–550. [PubMed: 14506088]
29. Byers AL, Sheeran T, Mlodzianowski AE, Meyers BS, Nassisi P, Bruce ML. Depression and risk for adverse falls in older home health care patients. *Res Gerontol Nurs*. 2008; 1(4):245–251. [PubMed: 20077999]
30. Friedman B, Delavan RL, Sheeran TH, Bruce ML. The effect of major and minor depression on Medicare home healthcare services use. *J Am Geriatr Soc*. 2009; 57(4):669–675. [PubMed: 19392959]
31. Sheeran T, Brown EL, Nassisi P, Bruce ML. Does depression predict falls among home health patients? Using a clinical-research partnership to improve the quality of geriatric care. *Home Healthc Nurse*. 2004; 22(6):384–389. quiz 390-381. [PubMed: 15184780]
32. Sheeran T, Byers AL, Bruce ML. Depression and increased short-term hospitalization risk among geriatric patients receiving home health care services. *Psychiatr Serv*. 2010; 61(1):78–80. [PubMed: 20044423]
33. Brown EL, Mcavay G, Raue PJ, Moses S, Bruce ML. Recognition of depression among elderly recipients of home care services. *Psychiatr Serv*. 2003; 54(2):208–213. [PubMed: 12556602]
- 34\*. Brown EL, Bruce ML, Mcavay GJ, Raue PJ, Lachs MS, Nassisi P. Recognition of late-life depression in home care: accuracy of the outcome and assessment information set. *J Am Geriatr Soc*. 2004; 52(6):995–999. Documents low rates of depression recognition among home health nurses. [PubMed: 15161468]
35. Shao H, Peng TR, Bruce ML, Bao Y. Diagnosed depression among medicare home health patients: national prevalence estimates and key characteristics. *Psychiatr Serv*. 2011; 62(5):538–540. [PubMed: 21532081]
36. Weissman J, Meyers BS, Ghosh S, Bruce ML. Demographic, clinical and functional factors associated with antidepressant use in the home healthcare elderly. *American Journal of Geriatric Psychiatry*. 2011 [Epub ahead of print].
- 37\*\*. Bruce ML, Brown EL, Raue PJ, et al. A randomized trial of depression assessment intervention in home health care. *J Am Geriatr Soc*. 2007; 55(11):1793–1800. Describes the benefits of an intervention to increase nurse recognition and referral of elderly depressed patients. [PubMed: 17916119]
38. Ell K. Depression care for the elderly: reducing barriers to evidence-based practice. *Home Health Care Serv Q*. 2006; 25(1–2):115–148. [PubMed: 16803741]
39. Suter P, Suter WN, Johnston D. Depression revealed: the need for screening, treatment, and monitoring. *Home Healthc Nurse*. 2008; 26(9):543–550. [PubMed: 18849721]
40. Brown EL, Meyers BS, Lee PW, Fyffe DC, Raue PJ, Bruce ML. Late-life depression in home healthcare: is nursing ready? *Long-Term Care Interface*. 2004; 47(5):34–36.
41. Feldman PH, McDonald MV. Conducting translation research in the home care setting: lessons from a just-in-time reminder study. *Worldviews Evid Based Nurs*. 2004; 1(1):49–59. [PubMed: 17147758]
42. Bruce ML, Smith W, Miranda J, Hoagwood K, Wells KB. Community-based interventions. *Ment Health Serv Res*. 2002; 4(4):205–214. [PubMed: 12558005]
43. Wallerstein N. Commentary: challenges for the field in overcoming disparities through a CBPR approach. *Ethn Dis*. 2006; 16(1 Suppl 1):S146–148. [PubMed: 16681137]

44. Wells K, Miranda J, Bruce ML, Alegria M, Wallerstein N. Bridging community intervention and mental health services research. *Am J Psychiatry*. 2004; 161(6):955–963. [PubMed: 15169681]
45. Bergus GR, Hartz AJ, Noyes R Jr, et al. The limited effect of screening for depressive symptoms with the PHQ-9 in rural family practices. *J Rural Health*. 2005; 21(4):303–309. [PubMed: 16294652]
46. Pignone MP, Gaynes BN, Rushton JL, et al. Screening for depression in adults: a summary of the evidence for the U.S. Preventive Services Task Force. *Ann Intern Med*. 2002; 136(10):765–776. [PubMed: 12020146]
47. Rubenstein LV, Meredith LS, Parker LE, et al. Impacts of Evidence-Based Quality Improvement on Depression in Primary Care. *J Gen Intern Med*. 2006; 21(10):1027–1035. [PubMed: 16836631]
48. Brown EL, Raue PJ, Roos BA, Sheeran T, Bruce ML. Training nursing staff to recognize depression in home healthcare. *J Am Geriatr Soc*. 2010; 58(1):122–128. [PubMed: 20002507]
49. Robertson MK, Umble KE, Cervero RM. Impact studies in continuing education for health professions: update. *J Contin Educ Health Prof*. 2003; 23(3):146–156. [PubMed: 14528785]
50. Bruce, ML.; Sheeran, T.; Raue, PJ.; Reilly, C.; Pomerantz, JC. Patient Health Questionnaire for Depression Screening: Online Training. 2012.
51. Delaney, C.; Fortinsky, R.; Doonan, L.; Grimes, RLW.; Pearson, TL.; Bruce, ML. Home Health Care Management and Practice. Depression screening and interventions for older home health care patients: program design and training outcomes for a train-the-trainer model. (in press)
52. Bruce ML, Van Citters AD, Bartels SJ. Evidence-based mental health services for home and community. *Psychiatr Clin North Am*. 2005; 28(4):1039–1060. x–xi. [PubMed: 16325739]
53. Banerjee S, Shamash K, Macdonald AJ, Mann AH. Randomised controlled trial of effect of intervention by psychogeriatric team on depression in frail elderly people at home. *Bmj*. 1996; 313(7064):1058–1061. [PubMed: 8898601]
54. Blanchard MR, Waterreus A, Mann AH. Can a brief intervention have a longer-term benefit? The case of the research nurse and depressed older people in the community. *Int J Geriatr Psychiatry*. 1999; 14(9):733–738. [PubMed: 10479744]
55. Llewellyn-Jones RH, Baikie KA, Smithers H, Cohen J, Snowdon J, Tennant CC. Multifaceted shared care intervention for late life depression in residential care: randomised controlled trial. *Bmj*. 1999; 319(7211):676–682. [PubMed: 10480824]
56. Rabins PV, Black BS, Roca R, et al. Effectiveness of a nurse-based outreach program for identifying and treating psychiatric illness in the elderly. *Jama*. 2000; 283(21):2802–2809. [PubMed: 10838648]
57. Ciechanowski P, Wagner E, Schmalting K, et al. Community-integrated home-based depression treatment in older adults: a randomized controlled trial. *Jama*. 2004; 291(13):1569–1577. [PubMed: 15069044]
58. Bruce ML, Ten Have TR, Reynolds CF 3rd, et al. Reducing suicidal ideation and depressive symptoms in depressed older primary care patients: a randomized controlled trial. *Jama*. 2004; 291(9):1081–1091. [PubMed: 14996777]
59. Unutzer J, Katon W, Callahan CM, et al. Collaborative care management of late-life depression in the primary care setting: a randomized controlled trial. *Jama*. 2002; 288(22):2836–2845. [PubMed: 12472325]
60. Katon W, Unutzer J, Wells K, Jones L. Collaborative depression care: history, evolution and ways to enhance dissemination and sustainability. *Gen Hosp Psychiatry*. 2010; 32(5):456–464. [PubMed: 20851265]
61. Wells KB, Sherbourne C, Schoenbaum M, et al. Impact of disseminating quality improvement programs for depression in managed primary care: a randomized controlled trial. *Jama*. 2000; 283(2):212–220. [PubMed: 10634337]
62. Neumeyer-Gromen A, Lampert T, Stark K, Kallischnigg G. Disease management programs for depression: a systematic review and meta-analysis of randomized controlled trials. *Med Care*. 2004; 42(12):1211–1221. [PubMed: 15550801]
63. Glied S, Herzog K, Frank R. Review: the net benefits of depression management in primary care. *Med Care Res Rev*. 2010; 67(3):251–274. [PubMed: 20093400]

64. Bauer AM, Azzone V, Goldman HH, et al. Implementation of collaborative depression management at community-based primary care clinics: an evaluation. *Psychiatr Serv.* 2011; 62(9): 1047–1053. [PubMed: 21885583]
65. Bao Y, Casalino LP, Ettner SL, Bruce ML, Solberg LI, Unutzer J. Designing payment for Collaborative Care for Depression in primary care. *Health Serv Res.* 2011; 46(5):1436–1451. [PubMed: 21609327]
66. Williams JW Jr, Gerrity M, Holsinger T, Dobscha S, Gaynes B, Dietrich A. Systematic review of multifaceted interventions to improve depression care. *Gen Hosp Psychiatry.* 2007; 29(2):91–116. [PubMed: 17336659]
67. Christensen H, Griffiths KM, Gulliver A, Clack D, Kljakovic M, Wells L. Models in the delivery of depression care: a systematic review of randomised and controlled intervention trials. *BMC Fam Pract.* 2008; 9:25. [PubMed: 18454878]
68. Gallo JJ, Bogner HR, Morales KH, Post EP, Lin JY, Bruce ML. The effect of a primary care practice-based depression intervention on mortality in older adults: a randomized trial. *Ann Intern Med.* 2007; 146(10):689–698. [PubMed: 17502629]
69. Ell K, Unutzer J, Aranda M, Gibbs NE, Lee PJ, Xie B. Managing depression in home health care: a randomized clinical trial. *Home Health Care Serv Q.* 2007; 26(3):81–104. [PubMed: 17804354]
- 70\*\*. Bruce ML, Raue PJ, Sheeran T, et al. Depression Care for Patients at Home (Depression CAREPATH): home care depression care management protocol, part 2. *Home Healthc Nurse.* 2011; 29(8):480–489. Describes a depression care management protocol for home health nurses. [PubMed: 21881429]
- 71\*\*. Bruce ML, Sheeran T, Raue PJ, et al. Depression Care for patients at home (Depression CAREPATH): intervention development and implementation, part 1. *Home Healthc Nurse.* 2011; 29(7):416–426. Describes a depression care management implementation strategies for home health agencies. [PubMed: 21716043]
72. Hennessey B, Suter P. The Community-Based Transitions Model: one agency's experience. *Home Healthc Nurse.* 2011; 29(4):218–230. quiz 231–212. [PubMed: 21464664]
73. Suter P, Hennessey B, Florez D, Newton Suter W. Review Series: Examples of Chronic Care Model: The home-based chronic care model: Redesigning home health for high quality care delivery. *Chron Respir Dis.* 2011; 8(1):43–52. [PubMed: 21339374]
74. Hennessey B, Suter P. The home-based chronic care model. *Caring.* 2009; 28(1):12–16. [PubMed: 19266748]
75. Chen SY, Hansen RA, Farley JF, Gaynes BN, Morrissey JP, Maciejewski ML. Follow-up visits by provider specialty for patients with major depressive disorder initiating antidepressant treatment. *Psychiatr Serv.* 2010; 61(1):81–85. [PubMed: 20044424]
76. Chen SY, Hansen RA, Gaynes BN, Farley JF, Morrissey JP, Maciejewski ML. Guideline-concordant antidepressant use among patients with major depressive disorder. *Gen Hosp Psychiatry.* 2010; 32(4):360–367. [PubMed: 20633739]
77. Mojtabai R, Olfson M. National patterns in antidepressant treatment by psychiatrists and general medical providers: results from the national comorbidity survey replication. *J Clin Psychiatry.* 2008; 69(7):1064–1074. [PubMed: 18399725]
78. Feldman PH, Totten AM, Foust J, et al. Medication management: evidence brief. Center for Home Care Policy & Research. *Home Healthc Nurse.* 2009; 27(6):379–386. [PubMed: 19509525]
79. Ayalon L, Arian PA, Alvidrez J. Adherence to antidepressant medications in black and Latino elderly patients. *Am J Geriatr Psychiatry.* 2005; 13(7):572–580. [PubMed: 16009733]
80. Pescosolido BA, Martin JK, Long JS, Medina TR, Phelan JC, Link BG. "A disease like any other"? A decade of change in public reactions to schizophrenia, depression, and alcohol dependence. *Am J Psychiatry.* 2010; 167(11):1321–1330. [PubMed: 20843872]
81. Sirey J, Bruce ML, Kales HC. Improving Antidepressant Adherence and Depression Outcomes in Primary Care: The Treatment Initiation and Participation (TIP) Program. *Am J Geriatr Psychiatry.* 2010; 18(6):554–562. [PubMed: 20220604]
82. Simon D, Schorr G, Wirtz M, et al. Development and first validation of the shared decision-making questionnaire (SDM-Q). *Patient Educ Couns.* 2006; 63(3):319–327. [PubMed: 16872793]

83. Wills CE, Holmes-Rovner M. Preliminary validation of the Satisfaction With Decision scale with depressed primary care patients. *Health Expect.* 2003; 6(2):149–159. [PubMed: 12752743]
84. Raue PJ, Schulberg HC, Heo M, Klimstra S, Bruce ML. Patients' depression treatment preferences and initiation, adherence, and outcome: a randomized primary care study. *Psychiatr Serv.* 2009; 60(3):337–343. [PubMed: 19252046]
85. Dobscha SK, Corson K, Perrin NA, et al. Collaborative care for chronic pain in primary care: a cluster randomized trial. *Jama.* 2009; 301(12):1242–1252. [PubMed: 19318652]
86. Kroenke K, Bair MJ, Damush TM, et al. Optimized antidepressant therapy and pain self-management in primary care patients with depression and musculoskeletal pain: a randomized controlled trial. *Jama.* 2009; 301(20):2099–2110. [PubMed: 19470987]
87. Scott LD, Setter-Kline K, Britton AS. The effects of nursing interventions to enhance mental health and quality of life among individuals with heart failure. *Appl Nurs Res.* 2004; 17(4):248–256. [PubMed: 15573333]
88. Suter PM, Suter WN. Patient education. Timeless principles of learning: a solid foundation for enhancing chronic disease self-management. *Home Healthc Nurse.* 2008; 26(2):82–88. quiz 89-90. [PubMed: 18301109]
89. Wilkins VM, Bruce ML, Sirey JA. Caregiving tasks and training interest of family caregivers of medically ill homebound older adults. *J Aging Health.* 2009; 21(3):528–542. [PubMed: 19252141]
90. Davies P, Walker AE, Grimshaw JM. A systematic review of the use of theory in the design of guideline dissemination and implementation strategies and interpretation of the results of rigorous evaluations. *Implement Sci.* 2010; 5:14. [PubMed: 20181130]
91. Mchugh RK, Barlow DH. The dissemination and implementation of evidence-based psychological treatments. A review of current efforts. *Am Psychol.* 2010; 65(2):73–84. [PubMed: 20141263]
92. Thompson DS, Estabrooks CA, Scott-Findlay S, Moore K, Wallin L. Interventions aimed at increasing research use in nursing: a systematic review. *Implement Sci.* 2007; 2:15. [PubMed: 17498301]
93. Spitzer, R.; Gibbon, M.; Williams, J. *Structured Clinical Interview for Axis I DSM-IV Disorders (SCID).* American Psychiatric Association Press, Inc; Washington, D.C: 1995.

## Executive summary

### Depression in home healthcare

The prevalence of major depression among older adults newly admitted to home healthcare is 13.5%, and that of minor depression is 10.8%.

Depression is persistent in this population and further increases the risk of hospitalization, injury-producing falls, and higher health care costs.

Home healthcare nurses have difficulty making accurate assessments of depression, and rates of treatment are low.

### Depression care management in home healthcare

An intervention aimed at increasing nurses' ability to identify key symptoms of depression improved the likelihood that depressed patients would be successfully referred for a mental health evaluation.

Depression care management interventions are being developed and tested in home healthcare and focus on ongoing monitoring of depression symptoms, case coordination with other health care professionals, medication management, patient and family education, and patient goal setting.

### Implementation strategies

Effective implementation of depression care management skills in home healthcare necessitates helping agencies develop infrastructure support. Long distance implementation strategies are being developed in order to reach HH agencies regardless of size, affiliation, or location.

Strategies include infrastructure development within HH agencies, web-based training modules, ongoing supervision and automated feedback on nurses' use of care management interventions, and social learning among HH agencies.

**TABLE 1**  
KEY OBSERVATIONAL STUDIES OF DEPRESSION IN HOME HEALTHCARE AND FINDINGS

Study	Sample	Prevalence	Correlates (Higher rates)	Course and Outcomes	Recognition	Depression Treatment
Weill Cornell: Westchester HH Agency	Representative sample of new Medicare medical/surgical patients Age 65, N=539	SCID Diagnosis:[18] <ul style="list-style-type: none"> <li>MDD: 13.5%</li> <li>Minor: 10.8%</li> </ul> Suicide Ideation: [26] <ul style="list-style-type: none"> <li>Active: 1.2%</li> <li>Passive: 10.6%</li> </ul>	<ul style="list-style-type: none"> <li>Medical Comorbidity [18]</li> <li>Disability[18]</li> <li>Less Social Support[27]</li> <li>No difference race/ethnicity, gender or age [18]</li> </ul>	Course of MDD at one month: [28] <ul style="list-style-type: none"> <li>MDD: 42%</li> <li>Partial Remission: 27%</li> <li>Full Remission: 31%</li> </ul> Days to Hospitalization: [32] <ul style="list-style-type: none"> <li>Depressed 8.4 days</li> <li>Not Depressed: 19.5</li> </ul> Use of Agency Services (by MDD):[30] <ul style="list-style-type: none"> <li>Skilled nurse: no difference</li> <li>Medical social work: increased</li> <li>Therapist: no difference</li> <li>HH Aide: increased</li> </ul>	Compared to SCID Nurse Reports: [33] <ul style="list-style-type: none"> <li>Sensitivity: 45.4%</li> <li>Specificity: 75.2%</li> </ul> OASIS: [34] <ul style="list-style-type: none"> <li>Sensitivity: 37.45%</li> <li>Specificity: 94.6%</li> </ul>	Among Patients with MDD[18]: <ul style="list-style-type: none"> <li>antidepressants: 21.9%</li> <li>psychotherapy: 0.0%</li> </ul>
U. Southern California: 3 HH Agency Trial	Newly enrolled patients aged 65 Medicare or Medi-Cal recipients (N=9,178)	PHQ9: [19] <ul style="list-style-type: none"> <li>probable MDD: 8.5%</li> <li>mild depression: 1.6%</li> </ul>	<ul style="list-style-type: none"> <li>Females [19]</li> <li>Latinos</li> <li>Not married</li> <li>Living w/others</li> <li>Poorer health</li> </ul>		Compared to PHQ 10-14 OASIS:[19] <ul style="list-style-type: none"> <li>Sensitivity=55%</li> </ul> Compared to PHQ 15+ OASIS:[19] <ul style="list-style-type: none"> <li>Sensitivity=64%</li> </ul>	Among patients with high PHQ9 scores:[19] <ul style="list-style-type: none"> <li>antidepressants: 36%</li> </ul>
National Homecare and Hospice Survey	Cross-sectional analysis of national survey	Chart Diagnosis:[35, 36]	<ul style="list-style-type: none"> <li>Younger Age [35]</li> </ul>			Antidepressant Use(by chart diagnosis):[24, 36]



Study	Sample	Prevalence	Correlates (Higher rates)	Course and Outcomes	Recognition	Depression Treatment
Weill Cornell: Westchester HH Agency Administrative Data Study	All patients (age 65) over 2 years with Serious Falls and Matched Controls (N=908)	OASIS (M0590)		Depressed increased risk of falling (OR=1.9)[29, 31]		<ul style="list-style-type: none"> <li>• Depression: 73.2%</li> <li>• No Depression: 31.6%</li> <li>• Higher in whites in both depressed and nondepressed [24]</li> </ul>

Abbreviations:

HH: Home Healthcare

SCID: Structured Clinical Interview for Axis I DSM-IV Disorders (SCID)[93]

MDD: Major Depressive Disorder

PHQ9: Patient Health Questionnaire [20]

ICD9: International Classification of Disease, 9th Edition

OASIS: Medicare's Outcome Assessment Information Set

**TABLE 2**  
**KEY INTERVENTION STUDIES OF DEPRESSION IN HOME HEALTHCARE AND FINDINGS**

Study	Design	Sample	Depression Criteria	Intervention	Outcome
Weill Cornell TRIAD RCT [37]	Nurses randomized within each of 3 HH agencies in one county	Newly enrolled aged 65 Medicare medical/surgical patients (N=256) of nurse randomized sample	SCID Gateway symptoms (mood and anhedonia)	TRIZAD (Training in assessment of Depression) of routine visiting nurses	<p><i>Outcomes by end of first episode of care</i></p> <p>Completed referral of depressed patients:</p> <ul style="list-style-type: none"> <li>Intervention: 50%</li> <li>minimal intervention: 18%</li> <li>controls: 21%</li> </ul>
U. Southern California Depression Care Management RCT [69]	Patients randomized within each of three HH programs in Los Angeles region	Depressed (PHQ9), newly enrolled aged 65 Medicare or Medi-Cal recipients (N=311)	PHQ9	<i>Depression Intervention</i> (Depression Care Management by routine visiting nurses plus Problem Solving Therapy)	<p><i>Outcomes at 12 months</i></p> <p>Symptom Improvement:</p> <ul style="list-style-type: none"> <li>Enhanced Usual Care: 78%</li> <li>Intervention: 79% (OR=1.12)</li> </ul> <p>Response (50% reduction in PHQ9):</p> <ul style="list-style-type: none"> <li>Enhanced Usual Care: 36%</li> <li>Intervention: 44% (OR=1.39)</li> </ul>
Weill Cornell CAREPATH Demonstration Trial [71]	Nurses randomized within each of four HH agencies across New York State	Depressed (PHQ9) Newly enrolled aged 65 Medicare medical/surgical patients (N=200) of nurse randomized sample	PHQ9	<i>Depression CAREPATH</i> (Care for Patients at Home): Depression Care Management by routine visiting nurses	<p><i>Outcomes (Intervention only) by end of first episode of care:</i></p> <ul style="list-style-type: none"> <li>Full Remission: 50%</li> <li>Partial Remission: 23%</li> </ul>

Abbreviations:

RCT: Randomized Control Trial

HH: Home healthcare

SCID: Structured Clinical Interview for Axis I DSM-IV Disorders (SCID)[93]

OR: Odds Ratio

PHQ9: Patient Health Questionnaire [20]