# A Clinical Practice Guideline for Monitoring Antidepressant Use Among Residents with Dementia

Oluchi J. Ayichi

University of Maryland

DNP Scholarly Proposal

Dementia is a set of neurological disorders resulting in progressive declines in different areas of cognitive functioning including memory, language, praxis, and executive functioning (Feliciano et al, 2009). Evidence has shown that people with dementia are more likely to suffer from depression than those without cognitive impairments (AMDA, 2011; Seitz, Purandare, & Conn, 2010). The international prevalence of depression among individuals with dementia was found to be 58% (Seitz et al., 2010). Approximately 67% of elderly people living in long term care (LTC) facilities have some form of dementia and 32% exhibit depressive symptoms (Feliciano et al., 2009; Cody & Drysdale, 2013). Depression in this population is associated with reduced quality of life, increased functional decline, faster cognitive decline, and increased mortality (, Buettner et al., 2010; Cody & Drysdale, 2013). To reduce the impact of depression among dementia patients living in long term care facilities, it is vital to use evidence-based tools to diagnose, treat, and monitor responses of treatment in this population (AMDA, 2011). Although findings have shown that depression is common among dementia patients in LTC facilities, it continues to be underdiagnosed, inadequately treated, and monitored (Kramer, Allgaier, Fejtkova, Mergl, & Hegerl, 2009), with less than 50% of cases of depression being recognized (AMDA, 2011). Raymond et al., (2010), reported that problems with cognition and communication hinder detection of depression in this group of patients.

The use of clinical practice guidelines which provide proper guidance to the assessment, diagnosis, treatment, and monitoring of depression have been shown to be effective in dementia patients (Hepner et al., 2007). Clinical practice guidelines have different

detailed treatment strategies including pharmacological and non- pharmacological interventions (AMDA, 2011). Pharmacological interventions involve the use of different classes of antidepressants (Wilson, Mottram, & Vassilas, 2009). In 2011, the American Medical Directors Association (AMDA) published a clinical practice guideline for the assessment, treatment, and monitoring of depression among LTC residents. Several research studies show that adherence to clinical practice guidelines have resulted in significantly lower rates of depressive symptoms and higher quality of care (Hepner et al., 2007; Verkaik, 2011). Despite the availability of these evidence- based clinical practice guidelines, practitioners in long term care facilities often do not follow these guidelines recommendations due to a lack of knowledge of CPG, disruption of work flow, and lack of individualized care (AMDA, 2011; Hepner et al., 2007).

A local long-term care facility for individuals with dementia has identified the need to monitor the response and side effects of antidepressant therapy more closely for almost half of the residents in assisted living population. The purpose of this scholarly project is to assess current antidepressant use among assisted living residents and to develop and evaluate a site specific clinical practice guideline (CPG) for monitoring antidepressant treatment in long term care residents with dementia. The significance of this project is the facilitation of evidence-based practice guidelines in the treatment of depressed dementia patients. This will result in the appropriate monitoring of pharmacological interventions.

## Theoretical Framework

Upon agreement to adopt the AMDA guideline, Social Ecological Model (SEM) will be used to describe barriers and facilitators to the adoption of the practice guideline. This framework developed by McLeroy, Bibeau, Steckler, and Glanz (1988), provides a detailed

approach in describing different characteristics and environmental conditions that influence health choices. SEM has been used by several researchers to describe the barriers and facilitators to the implementation of different quality improvement projects (Dunn, Kalich, Henning, & Fedrizzi, 2015; Kerr et al., 2012; McLeroy et al., 1988). There are five levels of the SEM: individual, interpersonal, community, organizational, and policy or enabling environment, see appendix B (McLeroy et al., 1988). The individual level includes characteristics of an individual that may influence change. These include, but are not limited to: age, gender, self-efficacy, and racial identity. The interpersonal level involves influences that can emanate from social networks or support systems such as family, friends, or coworkers. The community level consists of relationships between organizations, community leaders, or businesses within defined boundaries. The organizational level includes rules and regulations that affect provision of care. Finally, the policy/enabling environment include laws and policies such as local, state, national, and global influences regarding distribution of resources (McLeroy et al., 1988). In this project, the individual, interpersonal, community, organizational, and policy or enabling environment will facilitate or hinder the adoption of this guideline.

## Literature Review

Depression is common in dementia patients particularly in long term care facilities (Seitz et al., 2010). Of the 837 nursing home residents with dementia evaluated by Ash et al., (2013), 46.4% were depressed. A similar report published by Buettner et al., (2010) showed that there was a 36.6% depression rate among people with dementia living in LTC. Given the

high prevalence of the condition, it is vital that depression in the long-term care setting among people with dementia is adequately diagnosed, treated, and monitored (Ash et al., 2013).

### Instruments to Assess Depressive Symptoms

There are several screening tools available for assessment and recognition of depression such as the Geriatric Depression Scale (GDS), the Resident Assessment Instrument, Patient Health Questionnaire 9 (PHQ-9), and Cornell Scale for Depression in Dementia (CSDD) (AMDA, 2011; Phillip, 2012). Although the GDS has been shown to have high sensitivity and specificity in diagnosing depression in older adults, the CSDD is widely accepted for detecting depression in dementia patients (AMDA, 2011; Phillip, 2012; Raymond et al., 2010). This is because the CSDD incorporates a proxy report of symptoms by caregivers in addition to direct observation of the patients since some severely demented patients are not able to answer survey questions (Alexopoulos, Abrams, Young, & Shamoian (1988). Effective use of these tools in dementia patients requires implementation of evidence–based clinical guideline to overcome the barrier posed by cognition and communication problems (AMDA, 2011; Raymond et al., 2010).

### Antidepressants Use and Monitoring Among Older Adults with Dementia

There are seven classes of antidepressants/ agents used include Selective Serotonin Reuptake Inhibitors (SSRIs), Tricyclic antidepressants (TCAs), Dopamine Norepinephrine Reuptake Inhibitors (SNRIs), Psychostimulants, Serotonin modulators, Monoamine oxidase inhibitors (MAOI), and Norepinephrine serotonin modulators (AMDA, 2011). Although their use in older adults with dementia has several disadvantages such as poor tolerance, side effects, long response time, and poor compliance (Ash et al., 2013), antidepressants are

extensively used in this population (Felicie et al, 2015). Bhattacharjee, Kamble, and Aparasu (2011), reported 46.2% use of antidepressants among long term care residents.

Although researchers have continued to suggest over use of antidepressants in elderly patients with dementia, following reports show that they are effective in the population. Banerjee et al. (2011) evaluated the safety and efficacy of Sertraline and Mirtazapine, for the treatment depression in dementia patients. Their findings show that both antidepressants were effective when compared to placebo in treatment of depression in dementia. A similar study by Felicie et al. (2015) compared different classes of antidepressant with placebo. Their report showed that TCA and MAOIs were reported to be effective in elderly patients. However, SSRI was noted to have better efficacy in the same elderly population. This agrees with the report that SSRIs, MAOIs and TCAs are effective in treatment of elderly depressed patients (Wilson, Mottran, Silvananthan, & Nightingale, 2009). The study by Calati et al., (2013) was different from the above reports. They reported that the SNRI venlafaxine did not have a significant effect on elderly depressed patients with dementia. However, this study covered only one medication in the entire class of antidepressant. Fischer et al. (2013) evaluated the impact of dementia on antidepressant response and found significantly higher response rates to antidepressants in patients without dementia compared to those with dementia. Antidepressants have lower efficacy on elderly patients with severe dementia (Calati et al., 2013).

Although SSRIs are widely reported to be safer than TCAs among depressed patients with dementia, there are disadvantages (Felicie et al, 2015). In fact, studies have reported several adverse effects with the use of SSRIs including gastrointestinal bleeding, nausea, vomiting, hyponatremia, suicide death and fall (Felicie et al, 2015; Rahme, Dasgupta, Nedjar,

& du Fort, 2008; Wilson et al , 2009 ) .TCAs have been shown to have more severe, adverse effects, particularly cardiovascular and anticholinergic effects (Felicie et al., 2015; Wilson et al., 2009).These serious side effects have shifted their use as first line treatment for depression, especially in older adults (Felicie et al, 2015).

To ensure safety and determine effectiveness of treatment, ongoing monitoring of patients during antidepressant treatment is vital (Jordan et al., 2014). Patients should be monitored for adverse effects of medications, drug- drug interactions and tolerance (Jordan et al, 2014). Since most initial antidepressant trials did not include a frail dementia population in the LTC facility, practitioners estimate use from the trials (Felicie et al., 2015). Current practices among clinicians include prescribing lower doses and titrating after 4-6 weeks of treatment depending on response (Wilson et al., 2009). To achieve optimal effect, a minimum of six weeks is advised (AMDA, 2011; Mottram, Wilson, & Strobl, 2009). After six weeks, it is recommended that clinicians reassess patients with the same tool to determine efficacy and any evidence of adverse drug reaction (AMDA, 2011; Mottram, Wilsom, & Strobl, 2009). This agrees with the study conducted by Munro et al. (2012) who examined the effect of antidepressant at eight weeks following initiation of treatment, then four weeks subsequently. In their study, Weintraub et al. (2010) adjusted daily dose of Sertraline after four weeks based on response and tolerability. Follow up re-assessments continued very four weeks for a total of 24 week. Additionally, Jordan et al. (2014) utilized a four week interval instead of 6-8 weeks in their adverse drug reaction monitoring profile for depressed dementia patients. Their report showed that implementing monitoring guidelines enhanced care given by clinicians, and led to identification of more subtle side effects such as insomnia, polyuria, and abnormal movements. Recommendations for treatment include, one year for first episode of major

depression, and two to three years for patients who has experienced two or more episodes (AMDA, 2011). A shorter treatment period of 4-9 months for first episode of major depression was recommended by Munro et al. (2012), once positive response is achieved. These treatment durations have been shown to result in remission and sometimes total recovery (AMDA, 2011). Remission was defined by Weintraub et al (2010), as achieving and maintaining a CSDD score of less or equal to six. All significant evidence is synthesized and summarized in the tables 7 and 8 in the appendix.

**Methods/Design**: This quality improvement project focused on the assessment of antidepressant use among assisted living residents with dementia residing in a single facility. It also focused on the development and evaluation of a site specific clinical practice guideline for antidepressant monitoring. Following a review of the American Medical Directors Association guidelines on depression in long term care, the published evidence on the use and monitoring of antidepressants and the completion of a de-identified, retrospective chart review, a clinical practice guideline was developed in collaboration with the DNP student, a subject matter expert panel and nursing stakeholders.

**Procedure**

The project consisted of 4 phases. Phase 1 involved a retrospective chart review of assisted living residents who are taking at least one antidepressant. De-identified medical records were reviewed and the following information extracted: antidepressant and dose, indication for use, documentation of effectiveness of use through description in narrative notes or by an instrument to measure depressive symptoms, documentation of side effect monitoring, and date of last gradual dose reduction. The doctoral student utilized this

facility-based data to assist in the development of an evidence-based clinical practice guideline specific for the setting. Phase 2 consisted of selection and meeting of three subject matter experts (SMEs) currently working in the facility who served as the committee for the evaluation and adoption of the unit specific clinical practice guideline. The invitation and selection were done via email and participation was voluntary. The SME Committee was composed of the medical director of psychiatry, who is a neuropsychiatrist, and two advanced practice nurses who provide psychiatric assessment and management of the residents. The SMEs utilized the CAN-IMPLEMENT Questionnaire to appraise the draft guideline developed by the doctoral student. Phase 3 involved the aggregation of the appraisal from the SMEs which was used to revise the draft clinical practice guideline developed by the doctoral student to improve quality and consensus. The revised CPG was then re-evaluated by the expert panel using the AGREE II Global Rating Scale (GRS) and the CAN-IMPLEMENT Questionnaire and approved. In the final phase (Phase 4), six nursing stakeholders were selected who provided feedback on the final copy of the CPG using the Practitioner feedback survey.

**Setting**: The setting of this project was a 60-bed non-profit long term care (LTC) assisted living facility for older adults with dementia located in suburban area of Maryland. Although the clinicians in this facility utilize pharmacological treatments, they have an interest in improving the on-going monitoring of pharmacological treatment depression in dementia. Prior to data collection, it was estimated that 50-60% of the residents in the assisted living were receiving treatment with an antidepressant.

**Sample**: Participants include a purposeful sample of three subject matter experts (SMEs) including the medical director of psychiatry, and two advanced practice nurses who provide

psychiatric assessment and management of the residents. Also, six nursing stakeholders were selected who provided feedback on the final copy of the CPG.

**Measures:** Using the sample performance measurement indicators outlined in the 2011 AMDA CPG for depression in LTC, a tool was developed for chart audit for the assisted living facility. The tool which is comprised of 7 items was used to aggregate the name, dosage, frequency, and indicate use of antidepressants. Also, data on documentation of effectiveness in narrative notes, use of instrument, side effects, and last date of dose adjustment were collected using this tool. The CAN-IMPLEMENT Questionnaire AGREE II Global Rating Scale (GRS) was used to appraise the draft, revise, and final copy of the guideline. This tool measures the methodological rigor of practice guideline development (see appendix E for link to tool) (Brouwer et al., 2010). The CAN-IMPLEMENT Acceptability and Applicability Questionnaire is organized into multiple domains: acceptability of each recommendation, strength of the evidence, benefit of the intervention, compatibility with culture and values of the setting, applicability to patients, available expertise, and assessment of policies or resources in the setting to impede the use . Additionally, the AGREE II Global Rating Scale was used to assess how well the CPG was (Brouwer et al., 2010). The Practitioner Feedback Survey which is a component of the CAN-IMPLEMENT toolkit was utilized to solicit feedback on the final copy of the guideline from the stakeholders. The Practitioner Feedback Survey has been used to modify and adapt recommendations from already published guidelines (Harrison, 2012).

### Data Collection and Analysis

Descriptive statistics, frequencies, and percent agreement were used to describe the results of the retrospective chart review and summarize results of the surveys (CAN-

IMPLEMENT Questionnaire, the AGREE II Global Clinical Rating and the Practitioner Feedback Survey). The data obtained from the AGREE II tool and the Practitioner Feedback Survey was coded in Excel.

**Ethical Consideration**

Data collected from the retrospective chart review were de-identified and presented to the SMEs and stakeholders in aggregate. Participation by the SME committee members and stakeholders were voluntary. There were no names or identifying data on the AGREE II tool or the Practitioner Feedback Survey which made the results anonymous. The collected data were stored in the computer with a secured password to allow access to the principal investigation and the doctoral student. A query was submitted to the University of Maryland Institutional Review Board and the Integrace Copper Ridge Ethics Committee to have this reviewed as an exemption from human subjects' research.

**Results**

1. Chart Audit

There were 54 Assisted Living residents. Forty residents were taking antidepressants and 14 were not. Out of the residents who were taking antidepressants, 29 took only 1 antidepressant, 7 took 2 antidepressants and 4 took 3 antidepressants. The most common antidepressant was Effexor XR. Among 70% of the residents who were prescribed Effexor XR, the dose was sub-therapeutic at 37.5mg. The frequency of specific antidepressants prescribed and dose range is outlined in Table 1.

Table 1: Frequency of antidepressants prescribed and dose range

| Antidepressant | Frequency | Percent | Dose Range |
|---|---|---|---|
| Lexapro | 3 | 5.5 | 5-20 mg |
| Zoloft | 4 | 7 | 25-100mg |
| Remeron | 10 | 18 | 7.5-30mg |
| Effexor | 3 | 5.5 | 25-50mg |
| Effexor XR | 23 | 42 | 37.5-150mg |
| Trazadone | 7 | 13 | 25-150mg |
| Wellbutrin | 4 | 7 | 100mg-150mg |
| NTP | 1 | 2 | 40mg |

As noted in Table 2, the indication for use was documented 82% of the time, and the presence or absence of side effects was documented 98% of the time. While providers documented effectiveness of the antidepressant therapy in the narrative note 93% of the time, none of the providers used a standardized instrument to assess depressive symptomatology and response to treatment.

Table 2: Documentation of each antidepressant's indication, effectiveness, and side effects

| Documentation | Frequency | Percent |
|---|---|---|
| Indication for use is documented | 45 | 82% |
| Effectiveness is documented in narrative | 51 | 93% |
| Effectiveness is documented using an instrument | 0 | 0% |
| Presence or absence of side effects were documented | 54 | 98% |

Based on the informed results of the chart audit on the use and ongoing monitoring of antidepressants among residents in the assisted living facility, an evidence-based clinical practice guideline (CPG) was drafted consisting of 5 recommendations.

**Table 3: Summary of First Draft of CPG**

Recommendations for Assessment, Diagnosis, treatment, and Monitoring of Depression in dementia patient at the assisted Living facility

| **Recommendation** | **When to use** | **Duration** | **SME % Agreement** |
|---|---|---|---|
| 1. CDSS use for the assessment of depressive symptoms. | Done as a component of the initial neuropsychiatric assessment following admission to the assisted living facility and if nursing staff identify signs of depression at | Ongoing | 83.3% |

| | | | |
|---|---|---|---|
| | some point during resident's admission. | | |
| 2. Use of CDSS for treatment response and ongoing monitoring of depressive symptoms. | Four to six weeks after initiation of treatment. | Continue every four to six weeks until maintenance dose is attained. | 72.2% |
| 3. Assessment of common side effects of antidepressant | Every follow up visit by psychiatrist provider. | Until resident is discharged. | 88.9% |
| 4. Documentation of Indication for use of antidepressant | At the time of prescription of antidepressant. | If medication is active. | 94.4% |
| 5. Gradual Dose reduction. | In the presence of significant side effects, after remission of depression. | Until resident is stable. | 77.8% |

Percentage agreement on the acceptability and applicability of the initial draft of the CPG by the 3 SMEs ranged from 72.2% to 94.4% for all the recommendations. The average was 83.3%. Recommendation 4 had the highest consensus of 94.4%.

Table 4: Final Facility Based Clinical Practice Guideline for the Ongoing Monitoring of Antidepressants.

| **Recommendation** | **When to use** | **Duration** | **SMEs Percentage Agreement** |
|---|---|---|---|
| 1. Utilization of the Cornell Scale for Depression to objectively measure depressive symptoms | Done as a component of the initial neuropsychiatric assessment following admission to the assisted living facility and at least annually afterwards. | Ongoing | 94.4% |
| 2. Use of CDSS to assess treatment response and ongoing monitoring of depressive symptoms. | The psychiatric provider or nursing staff member will complete the CDSS 4-6 weeks after the | If no response to first treatment dose, then repeat CDSS every four to six weeks until | 94.4% |

| | | | |
|---|---|---|---|
| | resident reaches a treatment dose. | symptom remission and maintenance dose is attained. | |
| 3. Assessment and documentation of common potential side effects of antidepressant | Every follow up visit by psychiatric provider. | Until the antidepressant is discontinued or the resident is discharged. | 94.4% |
| 4. Documentation of Indication for use of antidepressant. | At the time, the medication is ordered and with each dose adjustment. | As long as medication is prescribed. | 100% |
| 5. Consider gradual Dose reduction. | In the presence of significant side effects to the antidepressant, or, at least 2 years following successful treatment of major depression. | Until resident is stable. | 88.9% |

After incorporating the views and inputs made by the SMEs, the revised and final draft acceptability and applicability agreement by the same SMEs increased to an average of 94.4%, and a range of 88.9% -100%. Recommendation 5 had the lowest consensus agreement of 88.9%, while a 100% agreement was achieved with

recommendation 4.The final CPG had an average Global rating scale consensus of 84.4%. All the participants gave the guideline an overall assessment above 94%.

Table 5: Summary of SME Agreement for initial and revised CPG recommendations.

| Recommendations | Initial CPG Draft | Revised CPG Copy |
|---|---|---|
| R1 Use of CDSS for symptom detection. | 83.30% | 94.40% |
| R2 Use of CDSS for treatment response. | 72.20% | 94.40% |
| R3 Documentation of medication side effect. | 88.90% | 94.40% |
| R4 Documentation of indication for use. | 94.40% | 100% |
| R5 Gradual dose reduction. | 77.80% | 88.90% |
| AVE | 83.30% | 94.40% |

The above figure 1 is a graphic representation of table 5.

Table 6: AGREE II-Global Rating Scale (AGREE II-GRS) Instrument

Below is the summary of the GRS ratings by the 6 stakeholders. The range of the AGREE II GRS was 1-7, with one being the lowest quality clinical practice guideline and 7 being the highest quality clinical practice guideline.

| Item Rated | Mean | SD |
|---|---|---|
| Overall quality of the guideline development methods | 5.66 | 1.52 |
| Overall quality of guideline presentation. | 6.33 | 1.15 |

| | | |
|---|---|---|
| The completeness of reporting. | 5.66 | 1.15 |
| Overall quality of `the guideline. recommendations | 6.33 | 0.57 |
| Overall quality of the guideline. | 6.33 | 0.57 |

The mean score for the items on the AGREE II –GRS ranged from 5.66 to 6.33, SD 0.57 -1.52.

The Practitioner Feedback Survey was completed by 6 nursing stakeholders. For the Practitioner survey, all nursing stakeholders (n=6) recommended the CPG. “Strongly agree” was the mode, selected 81.6% of the time.

**Discussion**

The results of our chart review showed that none of the providers in this facility utilized standardized instruments in assessing depressive symptoms, presence or absence of side effects, or effectiveness of medication management. CPGs are a guide for practitioners to make objective rather than subjective decisions in patient care. The use of these tools reduces uncertainty in decision making. Indication for use of medication was not documented 18% of the time. Since many antidepressants are used for the treatment of other illnesses, indication for use is vital to clarify the focus of treatment, and in assessing effect on targeted symptoms. Also, one of the measures used to monitor a facility’s performance in depression management includes the number of resident’s receiving intervention for depression (AMDA, 2011).

However, if the indication for use is not documented, the medication will not be counted as intervention for depression.

The CPG has 5 recommendations. Inter-rater agreement improved for all five recommendations with minor modifications of the guideline. One of the recommendations in the CPG was: documentation of indication for use of antidepressant. This received 100% agreement among the SMEs in the final copy. The recommendation to use CDSS for diagnosis and monitoring every 4-6 weeks received the least agreement of 72.2%. From the comments of the SMEs, it was obvious that reducing the frequency utilizing the CDSS for assessing depression will increase consideration for use. In the revised copy, the frequencies for use of CDSS were reduced, and the percentage agreement increased by 10-20% as seen in TABLE 5. Consideration for gradual dose reduction had the lowest percentage of inter-rater agreement among the list of recommendations with a low rate of 77.8% in the draft CPG, and 88.9 % in the final copy. This may be the explanation for prescribed antidepressants remaining at low doses as was noted during the chart review or due to concern of depressive symptom relapse if gradual dose reduction was attempted.

The quality of the overall CPG was appraised as high with a mean of 6.33 (range 1-7 with 7 being the highest quality)by the subject matter experts. Also, strongly agree being the mode for the practitioner feedback survey signifies that the CPG is appropriate for the population of the assisted living, and the nursing staff will be receptive of the recommendations. All the above results are evidence of support for the CPG by the stakeholders and the SMEs. The influence of stakeholders in promoting and implementing high quality evidence has been well documented (Dickson & Flynn, 2009; Taxman & Belenko, 2011)

## Conclusion

The final CPG found support among the expert panel and stakeholders. This site specific, evidence- based CPG will provide an opportunity for objective, and evidence-based monitoring of antidepressant therapy among dementia residents in the assisted living facility.

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Appendix A

Table A 7
Summary of literature review.

| Author, year | Study objective/intervention or exposures compared | Design | Strengths | Weaknesses | Quality Rating |
|---|---|---|---|---|---|
| | | | | | A |
| Banerjee, et al, (2011). | The aim of the study was to determine the efficacy of sertraline and mirtazapine in reducing depression compared to placebo. | Double blinded RCT. | Samples were randomized and double blinded. Study was conducted in different centers increasing chances of applicability. The used valid tools for measurements. | The study experienced drop outs. | B |
| Beerens et al., (2013) | Study aimed to investigate the factors associated with quality of life of people with dementia living in LTC facility. | Systematic review | Large sample size including 10 cross-sectional studies and 3 longitudinal studies. | Although this is a systematic review, the studies included in the review were not RCTs. Studies used different operationalization assessing different outcome | B |

| | | | | | |
|---|---|---|---|---|---|
| | | | | variables. | |
| Calati et al., (2013) | The purpose of the study was to define the socio-demographic and clinical profile for antidepressants treatment in the elderly. | Systematic review. | 34 RCTs were included in the study. Also, study focused only on one class of antidepressant (SSRIs) making it easier to compare studies. | Only RCTs were included. This may have excluded very important evidence. Also, dropout rate in the later part of most of the studies may have influenced the results. | A |
| Felice et al., (2015) | The study evaluated evidence on clinical efficacy of currently used antidepressants on mood and cognitive performance in depressed elderly patients. Also, preclinical effects of current of existing antidepressants on anxiety/depression, and cognitions in old animals were reviewed. | Systematic review | This is high quality evidence with a total of 41 RCTs including blinded studies. Large sample size consisting of research studies conducted in different parts of the globe. | Studies that evaluated different outcomes were included in the study. Also, studies that involved animals were part of this review making it difficult for comparison. | A |
| Fischer, et al., (2011). | To determine treatment response with patient with or | Quasi-experimental, pilot study. | The intervention is controlled. The | Very small sample size (17), therefore will be | C |

| | | | | | |
|---|---|---|---|---|---|
| | without dementia treated with antidepressant. | | tools used in the study are valid. | difficult to generalize. | |
| Herpner et al (2007). | To determine whether adherence to evidence-based clinical guidelines improves depression outcome | Observational analysis of RCTs, combined with expert opinion | Large sample size, use of RCTs and rigorous research methodology. Study has increased generalizability due to use of different settings. | Some of the tools are not well tested for reliability and validity. Also, results are passed on self-report of patients. | B |
| Mottram, Wilsom, and Strobl, (2009) | The review was conducted to determine the efficacy of different classes of antibiotic, withdrawal rates and side effects associated with them. Participants included depressed elderly population 55 years and older. | Systematic review. | 32 RCTs were reviewed. Large sample size. | This study examined studies with different outcome variables, (efficacy, withdrawal rates and side effects) and not easy to compare the studies. | A |
| Philip, (2012) | Comparison of the Cornell Scale for depression in dementia (CSDD) and patient health questionnaire- 9- | Quasi-experimental | The study used reliable and valid tools. Also, there was control group. | Small sample size and lack of randomization. | C |

| | | | | | |
|---|---|---|---|---|---|
| | observation version (PHQ-9-OB) measure for depressive symptoms in a sample of elderly depressed patients. | | | | |
| Rahme, et al., (2008) | To determine risks of suicide and poisoning among elderly patients prescribed SSRIs | Retrospective, cohort study | Large sample size 128,229, controlled study with consistent results. | Not a RCT, therefore study, there is room for bias. | B |
| Verkaik et al., (2011). | To study the effect of use of guidelines on depression in dementia patients living in a nursing home. | Multi-centered RCT. | This study was done in different locations; it is RCT with large sample size. It will have high generalizability. | Use of incompetent staff, (certified nursing assistants). Again, although the sample was randomized, participants were selected by the centers prior to randomization, which may have introduced bias. | B |
| Wilson et al, (2009). | Determination of antidepressant efficacy compared to placebo in treatment of depression in elderly patients | Systematic review. | Large sample size, n= 2000 participants. Study included 17 RCTs. | Few antidepressants were studied. Only one medication from SSRIs. Also, valuable evidence | A |

| | | | | | |
|---|---|---|---|---|---|
| | | | | that is not RCT may have been missed. | |

Table A8
Evidence Rating Table

| Author, year | Study objective/intervention or exposures compared | Design | Sample (N) | Outcomes studied (how measured | Results | Level and Quality rating |
|---|---|---|---|---|---|---|
| Banerjee et al., (2011). | The aim of the study was to determine the efficacy of sertraline and mirtazapine in reducing depression compared to placebo. | This was a double blinded RCT. | 326 participants enrolled in the study. Randomization done with 111 receive placebo, 107 received Sertraline and 108 received Mirtazapine. | Clinical effectiveness of Sertraline and Mirtazapine in reducing depression. Cost effectiveness of intervention and side effects of intervention. | The use of the two antidepressants was not significantly effective in the treatment of depression in dementia patients when compared to placebo. 41-43% of participants that received intervention had adverse reactions. Gastrointestinal reactions noted with Sertraline while | 2B |

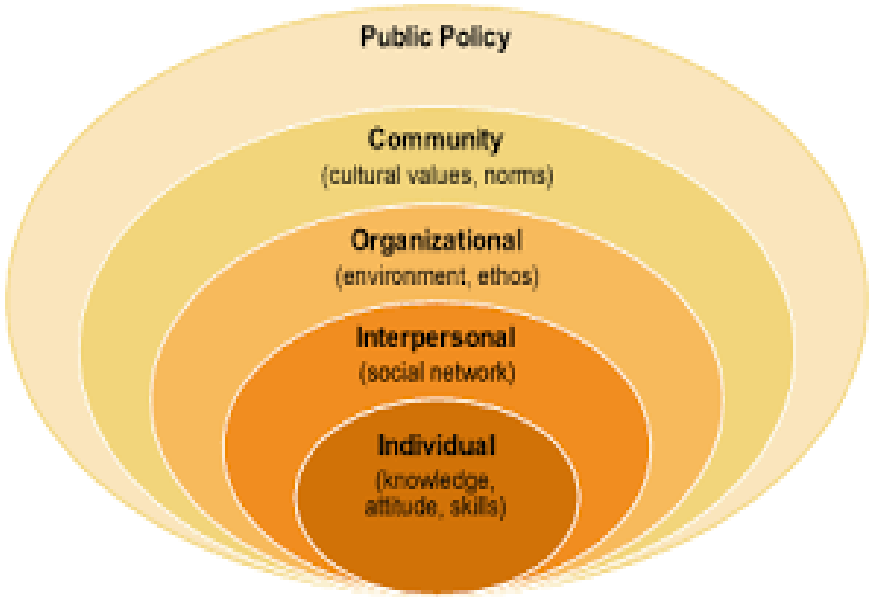
| | | | | | | |
|---|---|---|---|---|---|---|
| | | | | | drowsiness was mostly reported for Mirtazapine. | |
| | | | | | | |
| Beerens et al., (2013) | Study aimed to investigate the factors associated with quality of life of people with dementia living in LTC facility. | Systematic review. | Reviewed included 13 publications consisting of Cross sectional studies (n=10) and longitudinal studies (n=3). | Outcomes studies were Socio-demographic characteristics, depressive symptoms and anxiety, behavior, and dependency in activities of daily living. | Results showed that depression, dependency, and behavioral disturbances such as agitation have negative effect on quality of life negatively. | 3 B |
| Catali et al., (2013) | The purpose of the study was to define the socio-demographic and clinical profile for antidepressants treatment in the elderly. | Systematic review. | 34 RCTs were included in the study. | SSRI efficacy and response rates. | Male gender and older age resulted in lower response rate. Race (Caucasians) and patients with higher severity of depression showed higher response rate. | 1A |
| Felice et al., (2015) | The study evaluated evidence on clinical efficacy of currently used antidepressants | Systematic review | 41 RCT and 2 preclinical studies. | Outcomes studied include, cognition | Studies in rodent showed that TCAs are more effective | 1A |

| | | | | | | |
|---|---|---|---|---|---|---|
| | on mood and cognitive performance in depressed elderly patients. Also, preclinical effects of current of existing antidepressants on anxiety/depression, and cognitions in old animals were reviewed | | | performance, mood, anxiety, and depression. | than SSRIs, while results of clinical trials in depressed elderly patients with dementia did not reveal any significant difference. | |
| Fischer, et al., (2011). | To determine treatment response with patient with or without dementia treated with antidepressant. | Quasi-experimental, pilot study. | Total of 17 participants; dementia and depressed (n=8); non-dementia, depressed (n=9). | Response to antidepressant. | Study found statistically significant improved response to antidepressant in non-dementia patients than in patients with dementia. | 3C |
| Herpner et al., (2007). | To determine whether adherence to evidence-based clinical guidelines improves depression outcome | Systematic review combined with expert opinion | 1131 patients with depression in 45 different settings. | Outcome variables include: history of depression, treatment of depression, and monitoring of treatments. | All studies show that greater adherence to clinical guidelines lead to decreased depressive symptoms. | 2B |

| | | | | | | |
|---|---|---|---|---|---|---|
| Mottram, Wilson, and Strobl, (2009) | The review was conducted to determine the efficacy of different classes of antibiotic, withdrawal rates and side effects associated with them. Participants included depressed elderly population 55 years and older. | Systematic review | 32 RCTs | Withdrawal rates and efficacy of SSRIs and TCAs. | SSRIs and TCAs are efficacious in treating depression among elderly patients. Also, both antidepressants have comparable withdrawal rates. | 1A |
| Philip, (2012) | Comparison of the Cornell Scale for depression in dementia (CSDD) and patient health questionnaire- 9-observation version (PHQ-9-OB) measure for depressive symptoms in a sample of elderly depressed patients. | Quasi-experimental. | Sample size n=54 | Internal consistency and reliability. | Both tools showed adequate reliability. However, PHQ9 demonstrated lower threshold for detecting depression due to lower cuff point. | 3C |
| Rahme, et al., (2008) | To determine risks of suicide and poisoning among elderly patients prescribed SSRIs | Retrospective, cohort study | Large sample size N= 128,229. | Number of suicide deaths and hazard ratio. | 23 deaths occurred with SSRI use and 16 when other antidepressants were used for treatment. 29 suicides were | 4B |

| | | | | | | |
|---|---|---|---|---|---|---|
| | | | | | reported without antidepressant use. | |
| Verkaik et al., (2011). | To study the effect of use of guidelines on depression in dementia patients living in a nursing home. | Multi-centered RCT. | 100 sample size. Experimental group (n=650, control group (n=35). | Primary outcome is depression severity. While secondary outcome is mood. | Use of clinical guidelines showed significant reduction in depression severity. No clinical effects were noted on mood. | 2B |
| Wilson et al, (2009). | Determination of antidepressant efficacy compared to placebo in treatment of depression in elderly patients | Systematic review OF RCT. | Large sample size, (n=1326). | Outcome includes recovery from depression or no recovery (efficacy), and quality of life. | TCAs, SSRIs and MAOIs are all effective in treatment of depression in the elderly. Four weeks treatment was proven better than placebo. | 1A |

Appendix B
The Social –Ecological Model (SEM) (McLeroy et al., 1988).




Appendix D
The CAN-IMPLEMENT tool
**STEP 4: ASSESS and SELECT**
Task 4.1 Assess Guidelines/Recommendations and Supporting Evidence
**4.1v Acceptability and Applicability Consensus Questionnaire**
(Modified from ADAPTE Collaboration Toolkit V1.0 Tool 15)

**Based on the assessments, the following recommendations have been proposed:**

Retrospective Chart Review of Antidepressant Use

| | | |
|---|---|---|
| Antidepressant Name | | |
| Dosage and Frequency | | |
| | Yes | No |
| Indication for Use | | |
| Documentation of Effectiveness in Narrative Notes | | |
| Documentation of Effectiveness through Instrument | | |
| Documentation of Side Effect Monitoring | | |
| Date of Last Gradual Dose Reduction | | |

For Recommendation #1: (*specify*)
Overall, the recommendation is acceptable.

| Strongly agree | Agree | Somewhat agree | No opinion | Somewhat disagree | Disagree | Strongly disagree |
|---|---|---|---|---|---|---|
| ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |

**Comments or suggestions:**

For Recommendation #2: (*specify*)
Overall, the recommendation is acceptable.

| Strongly agree | Agree | Somewhat agree | No opinion | Somewhat disagree | Disagree | Strongly disagree |
|---|---|---|---|---|---|---|
| ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |

**Comments or suggestions:**

For Recommendation #3: (*specify*)
Overall, the recommendation is acceptable.

| Strongly agree | Agree | Somewhat agree | No opinion | Somewhat disagree | Disagree | Strongly disagree |
|---|---|---|---|---|---|---|
| ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |

**Comments or suggestions:**

**(Process is repeated as needed for recommendations)**

**NOW, for the set of recommendations proposed by the working panel for this guideline…**

1. The strength of evidence and magnitude of effect adequately support the grade assigned to the recommendations.

| Strongly agree | Agree | Somewhat agree | No opinion | Somewhat disagree | Disagree | Strongly disagree |
|---|---|---|---|---|---|---|

| | | | | | | |
|---|---|---|---|---|---|---|
| ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |

**Comments or suggestions:**

2. There is sufficient benefit of the intervention compared with other available management.

| Strongly agree | Agree | Somewhat agree | No opinion | Somewhat disagree | Disagree | Strongly disagree |
|---|---|---|---|---|---|---|
| ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |

**Comments or suggestions:**

3. The recommendations are compatible with the culture and values in the setting where it is to be used.

| Strongly agree | Agree | Somewhat agree | No opinion | Somewhat disagree | Disagree | Strongly disagree |
|---|---|---|---|---|---|---|
| ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |

**Comments or suggestions:**

4. The recommendations are applicable to patients in the context of use.

| Strongly agree | Agree | Somewhat agree | No opinion | Somewhat disagree | Disagree | Strongly disagree |
|---|---|---|---|---|---|---|
| ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |

**Comments or suggestions:**

5. The necessary expertise is available in the context of use.

| Strongly agree | Agree | Somewhat agree | No opinion | Somewhat disagree | Disagree | Strongly disagree |
|---|---|---|---|---|---|---|
| ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |

**Comments or suggestions:**

6. There are no constraints, legislation, policies, or resources in the health care setting of use that would impede the implementation of the recommendations.

| Strongly agree | Agree | Somewhat agree | No opinion | Somewhat disagree | Disagree | Strongly disagree |
|---|---|---|---|---|---|---|

| | | | | | | |
|---|---|---|---|---|---|---|
| ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |

**Comments or suggestions:**

Appendix E
Link to AGREE II Tool: http://www.agreetrust.org/agree-ii/