

Application of the *Antipsychotic Use in Dementia Assessment* Audit Tool to Facilitate  
Appropriate Antipsychotic Use in Long Term Care Residents with Dementia

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## Abstract

Approximately 25% of all nursing home residents take antipsychotics for behavioral disturbances, despite limited efficacy and warnings against their use. The purpose of this quality improvement project was to test the utility of an educational in-service to facilitate the appropriate use of antipsychotics for nursing home residents with dementia. A single group pre/post design targeting the reduction of antipsychotic medications in older adults was guided by Rogers' Diffusion of Innovations theory. Descriptive analyses were done to evaluate antipsychotic use and supporting documentation at baseline and 2 months following an educational intervention that focused on appropriate antipsychotic use, documentation requirements and non-pharmacologic interventions. The prescribing rate for antipsychotics showed a reduction from 20.3% to 15.4% and nursing documentation of non-pharmacological interventions increased from 16.7% to 75%. Assuring appropriate use of antipsychotics is currently mandated and is consistent with high quality, patient centered care. This simple, yet individualized educational intervention and assessment can serve as a model for use in other long term care facilities.

Clinically significant behavioral and psychiatric symptoms of dementia (BPSD) are found in approximately 80% of residents with dementia residing in long-term care facilities.<sup>1</sup> BPSD includes a broad range of behavioral symptoms which include depression, anxiety, delusions, hallucinations, aberrant motor behaviors, verbal aggression, physical aggression, and disinhibition.<sup>2</sup> Treatment modalities for BPSD include non-pharmacologic strategies<sup>3,4</sup> and/or pharmacologic treatments.<sup>5,6</sup> Non-pharmacologic interventions are considered first line treatment options<sup>7</sup> and have shown modest benefits in the treatment of BPSD.<sup>8,9,10</sup> These interventions include interpersonal behavioral management; cognitive-emotion focused interventions (reminiscence, stimulated presence, and validation therapies); sensory stimulation (acupuncture, aroma, light, touch/massage, music therapies); environmental modifications; exercise and physical activity<sup>11,12</sup>; and psychosocial strategies (animal assisted).<sup>3,4</sup>

While research that rigorously tests non-pharmacologic interventions is limited by small sample sizes and the use of research teams to implement interventions rather than nursing home staff, the studies done to date provide some evidence of effectiveness of non-pharmacologic interventions if they are consistently implemented.<sup>5</sup> One major advantage of the use of non-pharmacologic interventions for BPSD is that there are minimal side effects or long-term health risks associated with these interventions. Based on this data, national guidelines by multiple professional associations support non-pharmacological interventions as first line treatment for BPSD in the long-term care setting.<sup>13,14,15</sup>

When non-pharmacologic options fail, pharmacologic options, such as use of antipsychotics have been used.<sup>2,16,17</sup> In fact, approximately 25% of all nursing home residents in the United States are taking antipsychotic medications.<sup>18,19</sup> Factors associated with antipsychotic

use among older adults with dementia include resident factors such as advancing age<sup>20</sup> ; male gender<sup>21</sup>; degree of cognitive impairment<sup>22</sup>; and facility culture, specifically the underlying prescribing culture of the nursing home.<sup>16,23,24</sup>

Used appropriately, antipsychotic medications have been noted to improve psychotic symptoms and physically aggressive behaviors in some residents with dementia during a short duration of therapy.<sup>25,26,27</sup> For other types of behaviors associated with BPSD, such as resistance to care, biting, kicking, or inappropriate language or behavior, there was no noted improvement.<sup>26</sup> Thus the challenge in clinical care is in knowing when to prescribe antipsychotics appropriately and to use them for as short a period of time as possible.

Although there is some benefit to appropriate use of antipsychotics, there are a number of known risk factors as well. Specifically, risks associated with the use of antipsychotics include significantly higher rates of death, cerebrovascular accidents (CVA) and pneumonia<sup>26,28-31</sup> ; cardiac arrhythmias<sup>32</sup>; venous thrombosis<sup>33</sup>; falls and fractures<sup>34,35</sup>; metabolic abnormalities<sup>36</sup>; sedation and accelerated cognitive decline<sup>30,22</sup> ; and extrapyramidal effects.<sup>37</sup>

Although antipsychotic drugs are not approved by the Food and Drug Administration (FDA) for the treatment of dementia related psychosis or behavioral disturbance, the off-label use occurs.<sup>38</sup> In a recent federal report, it was reported that 39.4% of nursing home residents with BPSD in the United States were given antipsychotic drugs without the documented diagnosis of psychosis.<sup>39</sup> It is therefore, not surprising that dementia special care units within long-term care facilities tend to have a higher prevalence of psychotropic use.<sup>40,41</sup>

#### Facilitating Appropriate Antipsychotic Use in LTC: The CMS Initiative

The Centers for Medicare and Medicaid Services (CMS) launched a National Initiative to Improve Behavioral Health and Reduce Unnecessary Antipsychotic Medication Use among

Nursing Home Residents with Dementia. The initiative supports a 15% reduction of antipsychotic medication use per nursing facility by 2013<sup>42</sup> and supports increased use of non-pharmacological interventions to treat BPSD. CMS has a specific set of guidelines for antipsychotic prescription in residents diagnosed with dementia (F Tag 329) and these guidelines are utilized in the survey process of long term care facilities.<sup>43</sup>

To better establish effective ways in which to address the CMS initiative and decrease the inappropriate use of antipsychotics in LTC, the purpose of this quality improvement project was to test the utility of an educational in-service guided by the American Medical Directors audit tool, *Antipsychotic Use in Dementia Assessment*, to facilitate the appropriate use of antipsychotics for nursing home residents in a dementia special care unit.<sup>44</sup> We hypothesized that following completion of the audit and providing the audit findings with some additional education to staff: (1) antipsychotic medication use would decrease; and (2) documentation of non-pharmacological interventions would increase.

## **Methods**

### Design

This project used a single group pre/post design to target the reduction of antipsychotic medications among nursing home residents in a single dementia special care unit. The American Medical Directors Association (AMDA) audit tool, *Antipsychotic Use in Dementia Assessment*,<sup>45</sup> was used to review the records of all residents on the special care dementia unit at baseline. The findings from the baseline audit were provided to staff along with additional education. At two months following the educational program, the audit was repeated. Patient charts were reviewed to consider the frequency of antipsychotics used, and the frequency of documentation of non-pharmacological interventions. The project was reviewed by both a University Institutional

Review Board (IRB) and the Quality Improvement committee at the continuing care retirement community.

### Sample

The sample included de-identified medical records on a sixty bed dementia special care unit housed within a continuing care retirement community. The first audit consisted of a review of the records on 59 residents currently living in the facility and the second audit reviewed the records on 53 residents living in the facility.

### Quality Improvement Intervention

In an effort to reduce the inappropriate use of antipsychotic medications and improve documentation of non-pharmacological interventions, this quality improvement project was guided by Roger's Diffusion of Innovations theory. The theory served as a framework for describing the rate of adoption of a change through the communication process within a system.<sup>46</sup> Rogers defines diffusion as a process by which an innovation is communicated through channels, over time, between members of a social system.<sup>46</sup> The concepts of the theory and their application in this project are summarized in Table 1.

The first step in the process was completion of the baseline audit using AMDA's *Antipsychotic Use in Dementia Assessment*.<sup>45</sup> We quantified the number of residents receiving antipsychotic medications and the amount of documentation provided to support that use. The second step involved providing the staff with the results of the audit and using the audit review to provide additional education on appropriate antipsychotic use.

Building the in-service off the audit information led us to focus teaching on documentation of behaviors and interventions attempted by the staff as this was lacking. Specifically, the in-service focused on appropriate antipsychotic use, antipsychotic

documentation requirements per CMS guidelines, and use of non-pharmacological interventions to treat BPSD. To help facilitate use of behavioral approaches, we incorporated information about treatment options into the training. Innovative non-pharmacological interventions included and introduction to personal music therapy and encouraging the use of interventions that seek to increase physical activity. Details of the educational intervention are provided in Table 2.

Attendance at the educational in-service was voluntary and open to all nursing home staff and prescribers. An invitational flyer was circulated two weeks prior to the in-service to inform the staff of the in-service. The in-service was offered twice during staff work time in an attempt to capture nursing staff from all three shifts. A copy of the in-service PowerPoint was made available to the Staff Development Coordinator and Quality Improvement Coordinator. These individuals disseminated the handouts to those nursing staff and prescribers who were unable to attend.

#### Measures

A facility based nurse who was appointed by the Quality Improvement Coordinator and was trained in chart abstraction conducted the data collection at baseline and 2 months. The American Medical Directors *Antipsychotic Use in Dementia Assessment* audit tool focuses on evaluation of the specific antipsychotic being used and dosage of the drug, reason for antipsychotic initiation (such as dementia with delusions, dementia with behavioral symptoms), targeted behaviors, non-pharmacological interventions attempted (e.g. music, massage, exercise, supportive communication), and adverse effect monitoring post drug initiation (e.g. sedation, confusion, falls, constipation, weight gain, tardive dyskinesia).<sup>44</sup>

Treatment fidelity was evaluated with regard to delivery and receipt of the educational aspects of the intervention. Specifically we considered the number of staff exposed to the education materials and their receipt of the information provided following exposure. Specifically, the nursing staff and prescribers were asked to complete an anonymous evaluation of the educational program and answer six post-test knowledge questions about appropriate antipsychotic use among nursing home residents with dementia (Figure 1)

### Data Analysis

Descriptive analyses were done using SPSS 20.0 to evaluate antipsychotic use and documentation practices at baseline and two months after the educational in-service to compare facility wide pre and post behavior of providers following an educational intervention. The data was checked for any missing data or inaccuracies and variables were coded to represent each item. Inferential statistical analyses were not conducted as the unit of analysis was the dementia special care unit. No demographic or identifying data was collected and pre and post educational intervention audits of resident charts were not matched. Treatment fidelity educational data were also analyzed using descriptive statistics at the post-test period only.

### Results

Table 3 summarizes the results of the audits done at baseline (which were retrospective by two months) and two months post education of staff. At baseline, the prescribing rate for antipsychotic medications was 20.3% (n=12). Only atypical antipsychotics were prescribed with Risperidone being the most commonly prescribed antipsychotic (N=6, 50%). All of the residents being treated with antipsychotics had a documented indication for use with the most common indication being psychotic symptoms (N=9, 83%). The frequency for any adverse event related to antipsychotic use at baseline was (N=4, 33%). Three residents sustained a fall and one

resident experienced restlessness that was attributed to antipsychotic use. Documentation of the use of non-pharmacological interventions was most commonly provided by the activities personnel (N=10, 83.3%) and infrequently documented (N=2, 16.7%) by the nursing staff. Care plan documentation to support appropriate antipsychotic use was 100% at baseline.

At follow up, the rate of antipsychotic medication use was 15.4%, which was a decrease from the baseline rate of 20.3%. There were no adverse events associated with antipsychotic use at two months. Nursing documentation of non-pharmacological interventions increased from 16.7% to 75%. Care plan documentation to support the appropriate use of antipsychotics decreased from 100% at baseline to 75% following the educational intervention.

There were 9 types of non-pharmacologic interventions documented across both the time periods (Table 4). The most common non-pharmacological interventions included unit based activities, which included recreational activities, such as movies, sing-a-long, balloon toss (100% at baseline and two months), animal assisted therapy (91.7% and 82.5%), redirection (91.7% and 87.5%), massage (83.3% and 75%), and re-orientation (83.3% and 75%). These non-pharmacological interventions were used to prevent and treat behavioral symptoms and remained consistent at baseline and two months. The majority of the interventions were sedentary in nature. The interventions that also incorporated physical activity included one to one interaction with walking or whisper-glide use (41.7% and 75%), performing household tasks and chores (8.3% and 25%), and exercise (16.7% and 25%). The incorporation of these types of interventions that increased physical activity was more prevalent during the follow up period.

#### Treatment Fidelity Results

A total of 18 nursing staff members were invited to participate in the education. A total of 10 (55%) staff members attended the in-service and the remaining 8 staff members (45%)

received the materials in handouts from the Staff Development Coordinator. There was evidence that the participants in the face-to-face class learned the material provided in that knowledge of the materials was demonstrated with a score of 94.9%  $\pm$  8.21 on the 6 item multiple choice knowledge post-test (Table 5). Those who received handout instruction were not asked to complete the program evaluation or knowledge assessments.

### Discussion

This quality improvement project provided some evidence that staff education and a quality improvement plan can positively impact the use of antipsychotic medications, non-pharmacological interventions and documentation for behavioral symptoms associated with dementia. Since the target unit for this project was a dementia special care unit, it was anticipated that there would be a higher prevalence of antipsychotic use when compared to other nursing homes that are not dementia specific. The initial prescribing rate for antipsychotics was 20.3%, which is slightly lower than the national average of 25%,<sup>18,42</sup> but above the Maryland average of 15%.<sup>42</sup> The reduction in antipsychotic use to 15.4% at second audit represented a 30% decrease in antipsychotic prescribing and exceeded expectations of the current CMS initiative of a 15% decline. Individual residents were not matched between audits, however the process was consistent with state and federal survey procedures.

Care plan documentation of the rationale for appropriate antipsychotic use was documented 100% of the time at baseline, yet this decreased to only 75% at the two month follow up. Careful examination of the reason for this decrease led to recognition that two residents who were taking antipsychotics were recently admitted (within 24 hours) and care plan documentation at the facility had not occurred on these new residents. In contrast to the decrease in documentation of appropriate use in the care plan, there was an improvement in the nursing

staff documentation of non-pharmacologic interventions at two months. This documentation is important because it provides evidence of meeting state and federal nursing home survey requirements.

While the quality improvement project was feasible to implement, there were some challenges associated with the data collection and staff education. The open and free text nature of the chart abstraction made data collection time consuming. The documentation was not only done by multiple disciplines, there were many different areas within the chart where the information could be recorded. With a move toward electronic medical records in the long term care setting, future data extraction will likely become more straightforward.

The in-service was provided at two separate times during the day in order to capture staff from all three shifts, however, only day shift and 3 to 11 shift attended (55%). This resulted in 45% of the invited staff reviewing the educational handouts with the Staff Development Coordinator or Quality Improvement Coordinator. The in-service was not mandatory and staff coverage on the unit may have impacted the ability to attend. In-service attendance of long term care staff is variable from 27%-87%<sup>48-50</sup> and varies based on a variety of factors such as frequency of classes, length of classes, mandatory nature of in-service, and teaching strategies utilized.

In the future, educational sessions could be offered at multiple times, or computerized learning modules could be developed to deliver the information and assess receipt when it is convenient with staff schedules. The outcomes of the project are similar to other comparable projects that utilize staff education and quality improvement initiatives as a viable way to improve resident care and leverage practice change.<sup>51-55</sup>

#### Limitations

There were several limitations associated with this quality improvement project. This descriptive study was in a single site and used a retrospective chart review with unmatched resident samples, thus limiting the ability to make any causal interpretations.

In conclusion, this project represents a concerted effort to improve resident care and comply with CMS standards to improve behavioral health and reduce the inappropriate use of antipsychotics among nursing home residents. This quality improvement project provides some evidence that in long term care facilities with low rates of antipsychotic use and good baseline documentation practices can continue to demonstrate modest improvements. Sustainability of this practice change will require continued effort by staff and quality improvement team members. Future projects should include a longer assessment period to verify sustainability and to provide additional training for facility level champions. Further research is warranted to establish efficacy of this approach with a larger more heterogeneous group of facilities and randomization of facilities to treatment using this approach versus routine care.

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