Medication Use in Assisted Living: A Review of Published Reports

U.S. legislators and policy-makers are increasingly turning their attention to quality-of-care issues in assisted living facilities, including medication issues. The best available evidence indicates medication use levels comparable to those in skilled nursing facilities—and a host of medication-related problems similar to those common in nursing homes before federally mandated drug regimen review.
Assisted living is a rapidly growing model for delivery of support services to older adults who can no longer live alone safely without assistance. Many older adults who previously would have been admitted to a nursing facility are now residing in assisted living communities.

Because this new model has sprung up relatively quickly, regulatory oversight of the assisted living field is still evolving in the United States. At present, no federal legislation addresses the provision of assisted living services, although Congress is holding hearings to explore possible federal oversight.

A number of states have adopted laws or regulations to govern assisted living, but there is little consistency from state to state on how the industry is defined or regulated. Even the terminology varies widely, with terms such as “board and care homes,” “personal care homes,” “adult congregate living facilities,” and many others being used.

Last year, two organizations developed accreditation standards for assisted living: the Commission on Accreditation of Rehabilitation Facilities (CARF) and the Joint Commission on Accreditation of Healthcare Organizations (JCAHO). Because of the absence of federal regulations or oversight, these accreditation standards represent the first widely recognized standards of care for assisted living residents.

Medication Use Issues

One of the main reasons many seniors move into assisted living communities is difficulty taking medications accurately and consistently. Medication management has therefore become an important responsibility of assisted living facilities.

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Residents and their family members expect that the facilities will assist with self-administration of medications or even administer the medications to the resident.

Just as in other areas of assisted living operations, state laws governing medication administration and oversight vary widely. Some states permit unlicensed staff to administer certain medications under certain conditions. Other states limit medication administration to licensed nurses. And in some states, the laws are vague and unclear about who can administer medications in assisted living.

In an ideal world, policies and regulations would be based on research that provides facts and information upon which to make sound decisions. Dozens of journal articles have been written about medication use in the elderly and patterns of medication use in nursing facilities. However, very little research has been conducted with regard to medication use trends or patterns in assisted living.

Many states are still in the process of developing regulations for assisted living communities or have appointed task forces to study this issue. As legislators and regulators endeavor to formulate appropriate, effective public policy in this area, it’s worthwhile to take a look at the research that has been done to this point about how medications are used in residents of assisted living communities. The findings from this research have important implications for the quality of care provided to these residents.

**Assessing the Published Data**

In one of the largest studies to date, Spore and colleagues examined the prevalence of use of potentially inappropriate medications in 2,054 residents of 410 board and care facilities in 10 states. This study found that 88% of the residents were prescribed at least one drug, 37% were taking 4–7 medications, and 11% of residents were taking eight or more medications. The mean number of medications per resident was 4.6 (range 0 to 26), including a mean of 3.8 scheduled, or routine, medications per resident (range 0 to 19).

With regard to inappropriate drug prescriptions, Spore et al. found that according to criteria developed by Stuck and colleagues, 15% of residents were taking one potentially inappropriate medication; 3% of residents were taking two or more. About 7% of residents were taking one or more potentially inappropriate psychotropic drugs. According to widely used inappropriate medication use criteria developed by Mark Beers, MD, 25% of residents were found to have an inappropriate medication order; of those with an inappropriate medication order, 84% were taking a potentially inappropriate medication.

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**Table 1. Summary Findings of Major Studies of Medication Use in Assisted Living Facilities**

<table>
<thead>
<tr>
<th>Study Reference</th>
<th>Residents Reviewed</th>
<th>Mean Medications per Resident</th>
<th>Any Psychotropic Use</th>
<th>Antidepressant Use</th>
<th>Antianxiety/Hypnotic Use</th>
<th>Antipsychotic Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>1,5</td>
<td>2,054</td>
<td>4.6</td>
<td>35%</td>
<td>15%</td>
<td>14%</td>
<td>13%</td>
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<tr>
<td>4</td>
<td>818</td>
<td>5</td>
<td>48%</td>
<td>16%</td>
<td>23%</td>
<td>18%</td>
</tr>
<tr>
<td>8</td>
<td>1,201</td>
<td>—</td>
<td>55%</td>
<td>9%</td>
<td>—</td>
<td>39%</td>
</tr>
<tr>
<td>6</td>
<td>2,949</td>
<td>—</td>
<td>41%</td>
<td>16%</td>
<td>14%</td>
<td>21%</td>
</tr>
<tr>
<td>*</td>
<td>143</td>
<td>4.0</td>
<td>38%</td>
<td>19%</td>
<td>11%</td>
<td>15%</td>
</tr>
<tr>
<td>7</td>
<td>102</td>
<td>5.1</td>
<td>38%</td>
<td>16%</td>
<td>25%</td>
<td>7%</td>
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<td>**</td>
<td>41</td>
<td>13.0</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>***</td>
<td>6.2</td>
<td>40%</td>
<td>11%</td>
<td>13%</td>
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</table>

In general, there is little or no oversight of medication use in assisted living residents, although states with greater regulatory oversight appear to have lower rates of antipsychotic and psychotropic medication use.

Table 2. Medication Use in Samples of U.S. Nursing Facilities

<table>
<thead>
<tr>
<th>Variable</th>
<th>2000</th>
<th>1997</th>
<th>1994</th>
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<tbody>
<tr>
<td>Routine medications per resident</td>
<td>6.69</td>
<td>5.85</td>
<td>4.86</td>
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<tr>
<td>p.r.n. medications per resident</td>
<td>2.61</td>
<td>3.03</td>
<td>2.66</td>
</tr>
<tr>
<td>p.r.n medications in past 5 days</td>
<td>0.69</td>
<td>0.61</td>
<td>0.56</td>
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<tr>
<td>Nine or more medications</td>
<td>27.1%</td>
<td>18.2%</td>
<td>—</td>
</tr>
</tbody>
</table>

Sources: References 9–11.

ate drug, 19% were taking medication in excessive doses, and 41% were taking inappropriate psychotropic medications.

More recently, Williams and colleagues evaluated medication use in 818 residents of 54 residential care facilities in the Los Angeles area. Among the key findings of this study, 94% of residents were taking at least one medication. The residents were receiving a mean of 1.5 psychotropic medications per resident; assessment of records revealed that, on average, a mean of 3.0 diagnoses per resident were not documented.

Spore and colleagues have published an analysis of psychotropic medication use among the sample of board and care residents they studied in 10 states. They found that 11% of residents were taking two or more psychotropic medications; 70% were taking a psychotropic agent in the absence of mental health services. Notably, the most frequently used antidepressant in this resident population was amitriptyline, a medication generally considered to be inappropriate for use in the elderly due to the high incidence of side effects in this population.

Spore and colleagues have also presented results of an analysis of 2,949 residents of 493 board and care facilities in 10 states. They found that 14% of residents were taking two or more psychotropic medications; 54% of those taking psychotropic agents had not visited a mental health professional. Overall use of psychotropic medications was found to be 76% higher in residents of facilities located in states with less regulatory oversight, compared to those states that have more regulations and inspections of these facilities. Extensively regulated states had lower overall use of psychotropic agents, as well as lower rates of use of antipsychotic medications.

Hyde and colleagues reviewed medication use in 102 residents of 12 assisted living facilities in Massachusetts. They found that 7% of residents were taking two or more psychotropic medications. Avorn and colleagues, in their
evaluation of 1,201 residents of 55 Massachusetts rest homes, found that 11% of residents were taking two or more psychotropic medications.

**Comparison to Nursing Facility Medication Use**

Tobias has led three consecutive surveys of medication use patterns in nursing facilities. Studies were conducted in 1994, 1997, and 2000. Table 2 presents a comparison of general medication use in the three studies conducted. Although the specific numbers of medications taken by assisted living residents varied somewhat from one study to another, several consistent trends can be identified from these studies:

- The number of medications taken by assisted living residents is comparable to the number of medications used by nursing home residents.
- The proportion of assisted living residents who take psychotropic medications is similar to that among the nursing home population.
- In general, there is little or no oversight of medication use in assisted living residents, although states with greater regulatory oversight appear to have lower rates of antipsychotic and psychotropic medication use.

The studies conducted to date have also identified a number of significant problems with regard to medication use in assisted living. These include:

- Substantial use of medications that are considered to be generally inappropriate for use in the elderly, including wide use of amitriptyline
- Widespread use of psychotropic medications, including problems such as duplicate therapy, excessive doses, and use of inappropriate medications
- Undertreatment of depression
- Use of medications without documentation of a diagnosis or reason for use of the medicine

The medication-related problems that appear prevalent in assisted living today were significant problems in nursing facilities 10–20 years ago. Substantial progress in addressing these problems has been documented in nursing facilities since the passage of nursing home reform regulations mandated by the Omnibus Budget Reconciliation Act (OBRA) of 1987.

**ASCP Resources**

**Model State Language for Assisted Living Regulation**

In this document, designed to assist pharmacists in state lobbying initiatives, ASCP recommends that pharmacist-conducted drug regimen review be offered to all assisted living residents, and provided regularly to all residents receiving medication assistance.

**Assisted Living Resource Page**

www.ascp.com/public/pr/assisted

This section of ASCP’s Web site offers a compilation of resources and information on issues including assisted living consulting/dispensing guidelines, medication policies and procedures, state licensure requirements, immunization issues, and assisted living organizations and Web sites.

**Medication-Related Problems in Older Adults**


This on-line resource page provides a broad overview of medication-related problems in seniors, with links to ASCP resources, other Web sites, and dozens of pertinent journal references.

**Closing Notes**

Consultant pharmacists have played a key role in assisting physicians and nursing facilities with improving drug therapy of nursing facility residents, and facilitating compliance with the OBRA regulations. They have also recently become involved in working with some assisted living organizations to help improve drug therapy outcomes and prevent medication-related problems. However, there is much more that needs to be done.

In U.S. nursing facilities, federal law requires that the drug regimen of each resident be reviewed by a consultant pharmacist at least monthly. A landmark study by Bootman et al. found that pharmacist-conducted drug regimen review improved the
frequency of optimal therapeutic outcomes by 43% and saved $3.6 billion per year in costs associated with medication-related problems.

Given that medication use patterns in assisted living and nursing facilities are similar, it is reasonable to expect that provision of consultant pharmacists’ professional services in assisted living settings would yield quality improvements and cost savings comparable to those already achieved in nursing homes. Consultant pharmacists can—and should—play a central role in achieving these gains.

REFERENCES