Pharmacological Treatment of Behavioral and Psychological Symptoms of Dementia (BPSD) in Nursing Homes: Development of Practice Recommendations in a Swiss Canton

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Objectives: In 2002, the canton of Fribourg, Switzerland, implemented a coordinated pharmaceutical care service in nursing homes to promote rational drug use. In the context of this service, a project was conducted to develop recommendations for the pharmacological management of behavioral and psychological symptoms of dementia (BPSD) in nursing home residents.

Design and Methods: Selected evidence-based guidelines and meta-analysis sources related to the management of depression, insomnia, and agitation in dementia patients were systematically searched and evaluated. Evidence and controversies regarding the pharmacological treatment of the most common BPSD symptoms were reviewed, and treatment algorithms were developed.

Results: Ten evidence-based guidelines and meta-analyses for BPSD management were identified, with none specifically addressing issues related to nursing home residents. Based on this literature, recommendations were developed for the practice of pharmacological management of depression, sleep disturbances, and agitation in nursing home residents. For depression, SSRIs are considered the first choice if an antidepressant is required. No clear evidence has been found for sleep disturbances; the underlying conditions need to be investigated closely before the introduction of any drug therapy. Many drugs have been investigated for the treatment of agitation, and if necessary, antipsychotics could be used, although they have significant side effects. Several areas of uncertainty were identified, such as the current controversy about typical and atypical antipsychotic use or the appropriateness of cholinesterase inhibitors for controlling agitation. Treatment algorithms were presented to general practitioners, pharmacists, and medical directors of nursing homes in the canton of Fribourg, and will now be implemented progressively, using educational sessions, pharmaceutical counseling, and monitoring.

Conclusion: Based on existing evidence-based studies, recommendations were developed for the practice of pharmacological management of depression, sleep disturbances, and agitation in nursing home residents. It should be further studied whether these algorithms implemented through pharmaceutical care services will improve psychotropic drug prescriptions and prevent drug-related problems in nursing home residents.

Keywords: Nursing homes; dementia; pharmaceutical care service; practice recommendations; BPSD; Switzerland
In Switzerland, about 7.1% of the population aged 65 years and over resided permanently in a nursing home in 2000. As in the United States, the main mission of Swiss nursing homes is to provide long-term care, including nursing care services. Medical care is usually provided by local primary care physicians. Most of these physicians lack formal training in geriatric and long-term care medicine, as geriatrics only recently (2000) became a subspecialty of internal and family medicine. To address this issue and improve drug prescriptions in long-term care settings, a pharmaceutical care service was implemented in 2002 in the canton of Fribourg, one of the 26 Swiss cantons. Located in the western (French-speaking) part of Switzerland, this canton has 42 nursing homes (Table 1) for a population of about 250,000 inhabitants. Although the institutionalization rate of the persons aged 65 years and older in the canton of Fribourg is slightly above the Swiss average (8% versus 7.1% in 2000), age and gender distribution of residents are similar to those in the rest of the country.

The pharmaceutical care service was developed by pharmacists in the context of a new cantonal law on nursing homes. Rational and individualized drug use in nursing home residents is promoted through local networking between primary care physicians working in the facilities, pharmacists, nurses, and nursing home medical directors. On an annual basis, the volume and price of prescribed therapeutic classes are discussed with participants. An annual report is provided to each nursing home by the consultant pharmacist, and an independent academic expert has been mandated to perform an annual benchmarking report. This report details prescriptions of each therapeutic class and highlights problems of drugs safety as well as the use of noneffective drug according to current guidelines.

Dementia is one of the most common diseases in nursing home residents, with an estimated prevalence of 60% to 80%. Moreover, about 50% to 80% of residents suffering from dementia are affected by behavioral and psychological symptoms of dementia (BPSD). BPSD are among the most troublesome symptoms, and frequently require drug management when nonpharmacological interventions are ineffective. In Swiss nursing homes, as in the canton of Fribourg facilities, about 78% of the residents were prescribed one or more psychotropic drug. In particular, antipsychotics, antidepressants, and benzodiazepines are used extensively in older residents with dementia, raising concerns about the appropriateness of these prescriptions.

This study aimed to review the current data and literature for existing guidelines and meta-analyses related to the management of BPSD, and to develop adapted recommendations for psychotropic drug use in nursing homes. Specifically, practice recommendations aimed at improving prescription by primary care physicians were developed for the pharmacological treatment of depression, agitation, and sleep disturbances in residents with dementia institutionalized in nursing homes in the canton of Fribourg.

### METHOD

#### Search Strategy

To identify evidence-based guidelines and meta-analyses for BPSD in nursing home facilities, the Cochrane Database of Systematic Review, the Agency for Healthcare Research and Quality (AHRQ), the National Institute for Health and Clinical Excellence (NICE), and the Scottish Intercollegiate Guidelines Network (SIGN) were queried and investigated. Guidelines and meta-analyses on pharmacological interventions for the management of BPSD (including depression, agitation, and sleep disturbance) in elderly patients with dementia were first selected. For identified areas of uncertainty (eg, antipsychotic use, use of cholinesterase inhibitors for agitation, or drug selection to treat sleep disturbances), additional searches were performed in MEDLINE and PubMed databases between 1966 and December 2007, using the following MeSH terms: “nursing homes,” “long-term care,” “dementia,” “sleep disturbance,” “agitation,” and “depression.” Recent articles were also retrieved and their references were surveyed. Finally, in the absence of evidence-based alternatives or in the presence of insufficient levels of evidence, expert consensus and advice were used.

#### Choice of Drugs Proposed in the Recommendations

The choice of a class or specific drug was based on evidence from the literature search, and also took into account drug safety, including interaction profile, as well as cost. Extracted data are summarized in tables, and algorithms were developed.

### RESULTS

Ten evidence-based guidelines and meta-analyses were identified that fulfill selection criteria for drug management in BPSD (Table 2). Only one article was specifically intended for the management of patients aged 60 years and older, while all the others did not include any age specification. None of the guidelines and meta-analyses specifically address issues of drug management in the nursing home setting. However, several expert consensus and position statements were retrieved discussing the management of BPSD in U.S. nursing home residents. No evidence-based guidelines or comparable documents were identified in Switzerland or in Europe.

All retrieved papers emphasized the need for a global assessment of patients and their environment to identify potential...
# Table 2. Results of the Literature Search on Pharmacological Treatments for the Management of BPSD

<table>
<thead>
<tr>
<th>Source/Year</th>
<th>Title</th>
<th>Drug Reviewed</th>
<th>Age of Patients</th>
<th>Symptoms Reviewed</th>
</tr>
</thead>
<tbody>
<tr>
<td>AHRQ</td>
<td>Shekelle et al, 2007</td>
<td>Risperidone (mean, 1 mg/d), olanzapine (mean, 5.5 mg/d), quetiapine (mean, 56.5 mg/d), aripiprazole (2–10 mg/d)</td>
<td>Any age</td>
<td>Agitation</td>
</tr>
<tr>
<td>Cochrane</td>
<td>Ballard et al, 2006</td>
<td>Risperidone (0.25–2.0 mg/d), olanzapine (1–15 mg/d), quetiapine (50–100 mg/d), aripiprazole (2–15 mg/d)</td>
<td>&gt; 60 years old</td>
<td>Agitation</td>
</tr>
<tr>
<td></td>
<td>Lonergan et al, 2004</td>
<td>Sodium valproate (400–1000 mg/d)</td>
<td>Any age</td>
<td>Agitation</td>
</tr>
<tr>
<td></td>
<td>Kirchner et al, 2004</td>
<td>Thioridazine (10–200 mg/d), diazepam (4–18 mg), chlorpromazine (528–749 mg/d), loxapine (10 mg/d), haloperidol, zuclopenthixol (2–6.8 mg/d), clozapine, etoperidone, thiothixene</td>
<td>Any age</td>
<td>Agitation</td>
</tr>
<tr>
<td></td>
<td>Martinon–Torres et al, 2004</td>
<td>Trazodone (50–300 mg/d)</td>
<td>Any age</td>
<td>Agitation</td>
</tr>
<tr>
<td></td>
<td>Lonergan et al, 2002</td>
<td>Haloperidol (0.25–6.0 mg/d)</td>
<td>Any age</td>
<td>Agitation</td>
</tr>
<tr>
<td></td>
<td>Jansen et al, 2006</td>
<td>Sertraline (25–150 mg/d), citalopram (10–30 mg/d), clomipramine (25–100 mg/d), fluoxetine (10–40 mg/d), maprotiline (25–75 mg/d), imipramine (average dose of 83 mg/d), moclobemide (400 mg/d)</td>
<td>Any age</td>
<td>Sleep disturbance</td>
</tr>
<tr>
<td></td>
<td>Bains et al, 2002</td>
<td>Cholinesterase inhibitors, memantine, SSRI, antipsychotics</td>
<td>Any age</td>
<td>Agitation</td>
</tr>
<tr>
<td></td>
<td>NICE, 2007</td>
<td>Cholinesterase inhibitors, memantine, SSRI, antipsychotics</td>
<td>Any age</td>
<td>Agitation</td>
</tr>
<tr>
<td></td>
<td>SIGN, 2006</td>
<td>Cholinesterase inhibitors, memantine, SSRI, TCA, venlafaxine, mirtazapine, Trazodone, typical and atypical antipsychotics</td>
<td>Any age</td>
<td>Agitation</td>
</tr>
</tbody>
</table>

BPSD, behavioral and psychological symptoms of dementia; SSRI, serotonin selective reuptake inhibitor; TCA, tricyclic antidepressant.
reversible factors contributing to the disturbance prior to considering any pharmacological treatment when managing BPSD manifestations.\(^2\) Unless there is evident risk for the patient and/or the caregivers, nonpharmacological interventions should always be attempted first, before introducing drug therapy.\(^2\),\(^3\)

### Pharmacological Management of Depression

With a rate of 15% to 25%, depression is a highly prevalent symptom in dementia patients in nursing homes.\(^2\) Two guidelines\(^1\),\(^2\) and one meta-analysis\(^3\) were retrieved that specifically addressed the treatment of depression in patients with dementia (Table 3).

#### Evidence From the Literature

NICE\(^4\) guidance specifies that depression in elderly patients with dementia should be treated in the same way as depression in older patients without dementia, and therefore practitioners should refer to NICE guidance for depression.\(^2\) Surprisingly, no clear evidence has been reported supporting the effectiveness of antidepressant treatments, with the notable exception of sertraline, even though the numbers of enrolled patients are small.\(^2\) Despite this limited evidence, NICE recommendations specify that patients with dementia and major depression should be offered antidepressant medication.\(^4\) From Cochrane’s meta-analysis,\(^3\) selective serotonin receptor inhibitors (SSRI) and tricyclic antidepressants (TCA) could be used for the treatment of depression in dementia patients, but TCAs are associated with a higher withdrawal rate due to side effects. Moreover, all guidelines and meta-analyses agree that antidepressants with anticholinergic properties, such as TCA, should be avoided in elderly patients with dementia because of their negative impact on cognition, including an increased risk of delirium. No specific SSRI is recommended, but clinicians should take into account each drug side-effect profile, potential for interactions, pharmacokinetics, and half-life properties.\(^7\),\(^2\)

#### Controversies

The 3 sources reviewed emphasize the paucity of research and evidence on the pharmacological management of depression in this specific population of elderly patients with dementia. Controversies remain on the choice of SSRI for the treatment of depression in elderly patients with dementia.

#### Recommendation for Nursing Homes in the Canton of Fribourg

Despite the lack of clear evidence identifying advantages for a specific treatment, antidepressants should be considered for the management of depression in residents with dementia (Figure 1). SSRIs are proposed as a first choice because they appear less likely to be discontinued because of side effects and have lower potential for drug–drug interactions. TCA should not be used in first or second line therapy. However, if agitation is a predominant symptom in a depressed resident with dementia, experts propose a trial of sedative antidepressants such as mianserine or trazodone.

### Pharmacological Management of Agitation

Three guidelines\(^1\),\(^2\),\(^3\) and 5 meta-analyses\(^9\),\(^10\),\(^15\)–\(^17\) were retrieved for the management of agitation in dementia patients (Table 4). One document\(^9\) specifically mentioned an age limit (60 years and over), while the others did not and were applied to patients with dementia at any age.

#### Evidence From the Literature

Agitation can be managed or controlled with antipsychotics (typical and atypical), but only in the short term. No superior effectiveness was found between the different phone.
atypical antipsychotics risperidone, olanzapine, and quetiapine. Haloperidol has been extensively used for agitation, but clinicians should be aware that high doses can be associated with an increased incidence of extrapyramidal adverse effects, compared with atypical antipsychotics.

For the management of agitation in patients with Lewy body dementia, acetylcholinesterase inhibitors should be tried first, considering the high sensitivity of these patients to antipsychotics.

Controversies

The main controversies are in the use of atypical antipsychotics and the resulting increased risk of cerebrovascular events and mortality in elderly patients with dementia. Recent studies suggest that conventional antipsychotic medications are at least as likely as atypical agents to increase the risk of death among elderly persons. Despite these risks, antipsychotics are the most widely prescribed treatments for agitation in dementia. Moreover, results from a recent study question the effectiveness of acetylcholinesterase inhibitors for the treatment of agitation in Alzheimer’s disease.

Recommendation for Nursing Homes in the Canton of Fribourg

Antipsychotic treatment is required if no reversible cause is suspected and agitation is severe enough to jeopardize resident and/or caregiver safety (Figure 2). The type of dementia and the risk-benefit ratio of such an approach need to be carefully analyzed. In Alzheimer’s disease, the first choice treatment is either low-dose haloperidol (0.5 to 1.0 mg) or an atypical antipsychotic if the patient already presents with extrapyramidal signs or is felt to be at high risk of developing extrapyramidal side effects. The increased risk of stroke as well as cardiovascular mortality associated with these treatments in patients with dementia makes these treatments unsuitable for routine use in clinical practice. Antipsychotics should be used only in the presence of severely distressing symptoms, and advice for current practice is to periodically

Fig 1. Recommended algorithm for depression management in residents with dementia, canton of Fribourg nursing homes.
### Table 4. AGITATION in Patients with Dementia - Summary of Evidence Retrieved from Guidelines and Literature Review

<table>
<thead>
<tr>
<th>Source/Year</th>
<th>Drug reviewed</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>AHRQ</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| 2007<sup>18</sup> | - Haloperidol  
- Risperidone  
- Quetiapine  
- Olanzapine | There is insufficient evidence to conclude that atypical antipsychotics are more effective than conventional antipsychotics at controlling agitation and psychosis in dementia patients. There is evidence that adding the atypical antipsychotic quetiapine to rivastigmine produces no additional benefit. There is no consistent evidence that there are any appreciable differences in efficacy between risperidone, olanzapine, and quetiapine. |
| **Cochrane** |               |          |
| Ballard et al 2006<sup>9</sup> | - Risperidone  
- Olanzapine | Evidence suggests that risperidone and olanzapine are useful in reducing aggression, and risperidone reduces psychosis, but both are associated with serious adverse cerebrovascular events and extrapyramidal symptoms. Despite the modest efficacy, the significant increase in adverse events confirms that neither risperidone nor olanzapine should be routinely used to treat dementia patients with aggression or psychosis unless there is severe distress or risk of physical harm to those living and working with the patient. |
| Martinon-Torres et al, 2004<sup>17</sup> | - Trazodone | Trazodone: no significant benefits when used for BPSD manifestations. Longer-term trials are needed to assess safety and effectiveness. |
| Kirchner et al, 2001<sup>16</sup> | - Thioridazine  
- Chlormethiazole | Compared to placebo, thioridazine reduces anxiety, while no other benefits were observed. The drug was withdrawn from the market in Switzerland (and in many other countries) because of its propensity for QTc prolongation. Compared to chlormethiazole, thioridazine was significantly inferior when assessed on some items of the CAPE and the CGBRS. |
| Lonergan et al, 2004<sup>15</sup> | - Valproate acid | Ineffective in treating agitation in dementia patients. High dose therapy gives an unacceptable rate of adverse effects. |
| Lonergan et al, 2002<sup>10</sup> | - Haloperidol | Haloperidol should not be routinely used to treat patients with agitated dementia. Treatment of agitated dementia with haloperidol should be individualized and patients should be monitored for adverse effects of therapy. |
| **NICE** |               |          |
| 2006<sup>14</sup> | - Antipsychotics  
- Acetylcholinesterase inhibitor (donepezil, galantamine, rivastigmine) | Antipsychotics increase the risk of adverse cardiovascular events and death in patients with dementia. These drugs should only be used in the presence of severe psychosis or agitation causing significant distress. Individual risk-benefit analysis should be made for the choice of an antipsychotic. Anticholinesterases could be used if antipsychotics are ineffective in Alzheimer’s dementia or in the presence of Lewy Body dementia patients. They should not be used in vascular dementia. |
| **SIGN** |               |          |
| 2006<sup>12</sup> | - Haloperidol  
- Risperidone  
- Olanzapine  
- Quetiapine | No clear evidence was found of superior efficacy or an improved side-effect profile of atypical compared to conventional antipsychotics. Atypical antipsychotics with reduced sedation and extrapyramidal side effects may be useful in practice, although the risk of serious adverse events such as stroke must be carefully evaluated. |

BPSD, behavioral and psychological symptoms of dementia; CAPE, Clifton Assessment Procedures for the Elderly - Behavior Rating Scale; CGBRS, Crichton Geriatric Behavioral Rating Scale.
review the need and to limit treatment duration to three months at most.40

Pharmacological Management of Sleep Disturbances

Only one specific protocol was identified for pharmacological interventions for sleep disorders in patients with dementia,41 but this protocol has been withdrawn since no progress has been made with the review since it was first published in 2001. Some information was retrieved on the management of sleep disturbances in 2 guidelines12,14 and 1 meta-analysis11 (Table 5).

The management strategy for sleep disturbances is dependent upon both the duration and nature of the presenting symptoms. Most research on nonpharmacological treatment of sleep disturbances in dementia (such as sleep hygiene strategies or daily structured social and physical activities program) has focused on nursing home residents.42 Before any drug therapy is administered, appropriate management of existing comorbidities may relieve the symptoms.14

Evidence From the Literature

No clear consensus has been identified for the pharmacological treatment of sleep disturbances in dementia patients. The current literature lacks studies that establish the appropriate role, use, and effectiveness of medications in the treatment of sleep disturbances.

Controversies

Many drugs have been tried for sleep disturbances in dementia patients such as benzodiazepines, antipsychotics, antihistamines, antidepressants, and melatonin. The benefits of these drugs must be weighed against the risk of adverse events (eg, falls and delirium) associated with their side effects. When sleep disturbances occur without other psychiatric symptoms, some practice guidelines and review articles21 recommend the use of very short-acting benzodiazepines or nonbenzodiazepine hypnotics (such as zolpidem or zopiclone), despite evidence of an increased risk of

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Table 5

<table>
<thead>
<tr>
<th>Line 1</th>
<th>Line 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alzheimer’s disease</td>
<td>Lewy bodies1 or Parkinson’s disease dementia</td>
</tr>
<tr>
<td>Consider antipsychotics12,18</td>
<td>Consider atypical antipsychotic:</td>
</tr>
<tr>
<td>- haloperidol (0.5–4 mg/d)</td>
<td>- clozapine8 (6.25–25 mg/d)</td>
</tr>
<tr>
<td>- risperidone (0.25–2 mg/d)</td>
<td>- quetiapine (50–100 mg/d)</td>
</tr>
<tr>
<td>- aripiprazole (15–45 mg/d)</td>
<td>- risperidone (0.25–2 mg/d)</td>
</tr>
<tr>
<td>Consider other antipsychotic:</td>
<td></td>
</tr>
<tr>
<td>- haloperidol (0.5–4 mg/d)</td>
<td></td>
</tr>
<tr>
<td>- risperidone (0.25–2 mg/d)</td>
<td></td>
</tr>
<tr>
<td>- quetiapine (50–100 mg/d)</td>
<td></td>
</tr>
<tr>
<td>Other dementias (VD2, FTD3)</td>
<td>No clear evidence of efficacy of mood stabilizer: SSRI have been reported to improve behavior in FTD and other dementias.12,16</td>
</tr>
</tbody>
</table>

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Fig 2. Recommended algorithm for agitation management in residents with dementia, canton of Fribourg nursing homes.
cognitive decline, falls, and hip fractures in patients with dementia. Clomethiazole is an alternative to benzodiazepines, and is widely used in Europe for its sedative/hypnotic properties in the elderly.\textsuperscript{16,43,44} However, it has not been well studied and therefore does not appear in the reviewed guidelines.

**Recommendation for Nursing Homes in the Canton of Fribourg**

Pharmacological treatment should be started only after excluding reversible causes, and once sleep hygiene and other nonpharmacological measures such as light therapy have been proven unsuccessful (Figure 3).\textsuperscript{42,45} Benzodiazepines should be introduced only after exclusion of underlying conditions such as agitation or depression, and effect on sleep should be documented closely to minimize the risk of chronic prescription without documented benefits.

**DISCUSSION**

This article presents clinical recommendations developed specifically for nursing home residents for the pharmacological treatment of BPSD in a Swiss canton. To our knowledge, these recommendations are the first available in Switzerland specifically for nursing home residents for the pharmacological treatment of BPSD in older nursing home residents that require further research. Among the many areas of uncertainty, the risk-benefit ratio of antipsychotics prescription and the use of cholinesterase inhibitors in elderly patients with dementia and agitation are high priorities given the heterogeneity of prescription practice observed for long-term patients, and the resulting high costs. For instance, cholinesterase inhibitors are proposed for agitation in the algorithm. Although some articles\textsuperscript{50} have recognized a significant benefit of this practice, other papers including a recent RCT publication\textsuperscript{39} challenges this observation. Although these controversies are not specific to the nursing home setting, their discussion in the recommendations proved useful for sensitizing the practitioners to these issues.

One obvious limitation of these recommendations is that certain drug selections may not be generalizable to other health care systems. Drug availability, indications and cost may vary substantially from country to country.

Several other limitations deserve comment. First, as already mentioned, these recommendations were based on existing evidence-based guidelines and literature review, but none specifically addressed issues related to the nursing home population. Therefore, these recommendations suffer similar weaknesses in

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**Table 5. SLEEP DISTURBANCES in Patients with Dementia - Summary of Evidence Retrieved from Guidelines and Literature Review**

<table>
<thead>
<tr>
<th>Source</th>
<th>Drug reviewed</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>SIGN 2006\textsuperscript{12}</td>
<td>- Antipsychotic medication, antidepressants or anxiolytic medication</td>
<td>No robust evidence identified for the pharmacological management of insomnia.</td>
</tr>
<tr>
<td>NICE 2006\textsuperscript{14}</td>
<td>- Benzodiazepines, - Antipsychotics, - Anticonvulsants, - Acetylcholinesterase inhibitors, - Hypnotics, - Antidepressants</td>
<td>The potential benefits of these drugs must be weighed against the potential risk of side effects and serious adverse events. In particular, several drugs such as antipsychotics and TCA have anticholinergic properties, and may increase the risk of side effects such as delirium.</td>
</tr>
<tr>
<td>Cochrane Jansen et al, 2006\textsuperscript{11}</td>
<td>- Melatonin</td>
<td>There is insufficient evidence to support the effectiveness of melatonin in managing the cognitive and noncognitive manifestations of dementia.</td>
</tr>
</tbody>
</table>

TCA, tricyclic antidepressant.
the numerous areas of uncertainty. Second, for these areas of uncertainty, we did not perform a formal evaluation by an expert panel using structured appropriateness evaluation methods. Expert-based advice has well-known limitations, even though it likely improved the acceptability of the recommendations to practitioners. Finally, the panel of professionals who developed these recommendations did not represent all health professionals involved in the care of older nursing home residents. In particular, there was no nursing staff involved, a factor that might limit the integration of these recommendations in routine care.

These algorithms were presented in an interdisciplinary education symposium on nursing home care in Fribourg in 2007, and will be disseminated in 2008 to the 42 nursing homes of the canton. A follow-up evaluation of the implementation and impact of these recommendations will be conducted by the pharmaceutical care service and its associated research group. In order to ensure good quality and reliable recommendations, these algorithms will need repeated updating, currently planned at 3-year intervals.

To conclude, BPSD are common in patients with dementia, as most will present these manifestations over the course of their illness. Agitation, sleep disturbances, and depression result from complex interactions between many factors that affect the patient in nursing homes, such as comorbid conditions, the environment, and medications. Management of these manifestations in nursing home residents suffering from dementia needs a structured interdisciplinary approach, and requires the pharmaceutical care service to optimize treatment safety and efficiency. Even though many areas of uncertainty remain, the developed recommendations appear to be a useful tool for practitioners facing these challenging conditions.

REFERENCES


Fig 3. Recommended algorithm for sleep disturbances management in residents with dementia, canton of Fribourg nursing homes.