



**TITLE: Programs to Manage Aggressive Behaviour in Long-Term Care Patients: A Review of Clinical-Effectiveness, Cost-Effectiveness, and Guidelines**

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**CONTEXT AND POLICY ISSUES:**

Resident physical aggression such as hitting, kicking, pushing, or hair pulling, whether intentional or not, is a concern that most long-term care (LTC) facilities share.<sup>1-3</sup> One prevalent goal is to decrease resident physical aggression through minimal use of physical restraints and pharmacologic restraints.<sup>4</sup> One way some LTC facilities are trying to handle this issue is through providing effective staff training programs that focus on non-physical and non-pharmacological restraints to reduce resident violence.<sup>4</sup>

Physical restraints include cuffs, belts, posey vests, and chairs with locking lap trays.<sup>4</sup> Pharmacologic restraint can be defined as use of neuroleptic anxiolytic, sedative, or hypnotic agents to control or manage behaviour.<sup>4</sup> Some reasons why restraints may negatively affect the resident's quality of life are:

- they may be responsible for an increase in falls;
- the immobility caused from the restraint may cause problems related to diminished muscle mass, or the development of medical issues like decubitus ulcers or constipation;
- adverse events from the drugs as well as development of conditions such as tardive dyskinesias; and,
- the improper use of restraints that may lead to injury and death or an increase in nosocomial infection.<sup>4</sup>

Behaviour problems, including physical aggression of LTC residents toward the nursing staff and other employees that provide direct contact, is not an uncommon occurrence in LTC facilities.<sup>5</sup> A large percentage of residents in LTC facilities suffer from Alzheimer's Disease (AD) or other type of dementia, with studies citing various percentages such as 67.4%,<sup>2</sup> 75%,<sup>6</sup> and 94%<sup>7</sup> and many of these patients can be aggressive.<sup>1,8,9</sup>

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In response to concerns from nursing staff in LTC facilities about physical aggression, and the wish to minimize the use of physical and pharmacological restraints, some LTC facilities want to train their nursing staff to deal with potentially aggressive patients in a manner which decreases or averts the physical aggressiveness without use of restraints. Thus, this report summarizes and appraises the evidence for programs to reduce aggression.

### RESEARCH QUESTIONS:

1. What programs exist for managing aggressive and violent behaviour in long-term care residents?
2. What clinical evidence supports the use of specific programs to manage aggressive and violent behaviour in long-term care residents?
3. What are the costs associated with implementing programs to manage aggressive and violent behaviour in long-term care residents?
4. What guidelines or recommendations exist for managing aggressive and violent behaviour in long-term care residents?

### METHODS:

A limited literature search was conducted on key health technology assessment resources, including OVID Medline, The Cochrane Library (Issue 1, 2009), University of York Centre for Reviews and Dissemination (CRD) databases, ECRI, EuroScan, international health technology agencies, and a focused Internet search. The search was limited to English language articles published between 1985 and March 2009. No filters were applied to limit the retrieval by study type.

HTIS reports are organized so that the higher quality evidence is presented first. Therefore, health technology assessment reports, systematic reviews, and meta-analyses are presented first. These are followed by randomized controlled trials, controlled clinical trials, observational studies, economic evaluations, and evidence-based guidelines.

### SUMMARY OF FINDINGS:

No health technology assessments, systematic reviews or meta-analyses, randomized controlled trials, or economic studies were retrieved. Seven observational studies<sup>5,7,9-13</sup> were included that provided information and clinical evidence on training programs for managing aggressive and violent behaviour in LTC residents. Four relevant guidelines<sup>8,14-16</sup> for managing aggressive and violent behaviour in LTC residents were retrieved. No relevant literature on the costs associated with implementing programs to manage aggressive and violent behaviour in LTC residents was retrieved.

The observational studies<sup>5,7,9-13</sup> identified assessed different educational programs and had varying findings. Two studies<sup>10,11</sup> found that there was no change in resident physical aggression even though LTC staff may have changed their behaviours following the training program. Four studies found that resident aggressive behaviour decreased after staff underwent training.<sup>5,7,9,12</sup> One study<sup>13</sup> found that residents' behaviour problems did not increase as a result of an educational program that resulted in a decrease in the use of antipsychotic medication.

The four guidelines summarized did not provide recommendations on specific staff training that should be used to help manage aggressive behaviour in residents of LTC facilities. While some

general information regarding communication tips were provided, the focus was on individual therapy. The evidence base for the guidelines was either not reported or was weak.

### Observational studies

Hoeffler et al. published an article in 2006 on training certified nursing assistants (CNAs) in a person-centered approach specifically for showering or towel bathing residents.<sup>10</sup> The goal was to decrease aggression in the residents during this routine by adapting the physical environment and communication techniques to decrease distress and discomfort. Using a towel bath technique is not common with patients with dementia; however, showering individuals with dementia is common. A towel bath is an in-bed method of bathing the resident whereby the resident is cleaned with gentle massage with no-rinse soap and warmed wet bath towels.

Three groups from fifteen different nursing homes were recruited. There were two experimental groups that employed a person-centered approach in the bathing and one control group that followed routine bathing care. One experimental group implemented the person-centered approach with showering for the first six weeks and then with towel bathing for the next six weeks. The second experimental group used the person-centered approach first with the towel bath for six weeks then with the showering for the next six weeks. The control group employed usual procedures to shower residents for the full 12 weeks. The self-reported data was analyzed from 37 CNAs (of 48 who originally agreed). Data collection points occurred during baseline, during the last two weeks of the first treatment (shower or towel bath), and the last two weeks of the second treatment (shower or towel bath). Residents were recruited from Oregon and North Carolina. Effort was made to ensure representative samples from 15 facilities (e.g., number of beds in the facility, for-profit and non-profit facilities, urban and rural). Resident's had to be at least 55 years of age, have Alzheimer's or related dementia, require assistance with bathing and show frequent agitated or aggressive behaviours during bathing. Results were based on 69 residents from the original 96 with whom family or legal guardian consent was obtained. At baseline, residents were similar with regard to age, ethnicity, gender, education, cognitive impairment [Mini Mental State Examination (MMSE) mean (M) =2.2, SD=3.0 which indicates severe cognitive impairment], agitated and aggressive behaviours (average of 38% of the time during baths). There were, however, more women in the treatment groups than in the control groups (95.7% compared to 73.9%; no statement of statistical significance was made).

Three main outcomes were measured during the bathing routine: CNAs self-reported their confidence and ease (adapted from the Care Effectiveness Scale), their gentleness and verbal support (via the Caregiver Bathing Behaviour Rating Scale as measured by an observer blinded to the study's objectives or hypotheses) and the severity of hassles from the residents, as reported by the CNAs (adapted from a behavioural subscale in the Caregiving Hassles Scale). Eight hassle items were on the list, including criticizing or complaining, yelling, or swearing, and hitting or punching. Each occurrence was rated as not a hassle (0), a small hassle (1), a medium hassle (2), and a big hassle (3). While there were statistically significant improvements in confidence and ease, and gentleness and verbal support, there were no statistically significant decreases in resident hassles.

Given the fact that the hassle rates as reported by the CNAs were quite low, the authors stated that there was little room for improvement over time. The authors suggested that these low rates could have been a bias introduced by the CNAs as they may have had trouble deciding when a behaviour could be denoted as a hassle because of social desirability bias (i.e., the CNAs were more reluctant to view behaviours as hassles because they knew what the researchers were

looking for and wanted their responses to be seen as favourable) or simply because they were used to dealing with the challenges posed by cognitively impaired residents. Another limitation in this study was that the CNAs were not randomly selected and thus may not have been representative of all CNAs. The observers completed the Caregiver Bathing Behaviour Rating Scale from a videotaped session in the morning; because of the videotaping and because it was only one point of time, behaviour may not have been representative of a typical session. In addition, there was no longer term effects measured, thus sustainability over time was not measured. Also, hassle rates may have been affected by the fact that residents may have had a preference for either a shower or a towel bath but the current study design did not allow for resident preference. The authors reported that the results were likely more generalizable because the sample was drawn from fifteen homes across two states. The authors concluded that training did not significantly improve hassle rates for the experimental group compared to the control group.

A study on a caregiver training program for preventing and managing aggressive behaviour in Korean nursing home residents was published by Oh et al., in 2005.<sup>11</sup> The training program for the caregivers was based on the belief that aggressive behaviour can be managed through reducing environmental stress and modifying caregiver approaches.

Four, one hour weekly educational sessions on managing aggressive behaviour were taught to the caregivers. The sessions focused on understanding cognitive impairments and aggressive behaviour, improving communication and interactions with the residents, as well as teaching strategies for reducing internal and external stimuli construed as negative. Reinforcement sessions were conducted over eight weeks. The nursing staff's ability to manage aggressive behaviours was measured at baseline with the Aggressive Behaviour Management Scale (ABMS). A score of 40 or higher indicated better management skills. There was no comparison group.

Inclusion criteria for the LTC residents included an age of at least 65 years, MMSE < 24, and at least one demonstrated aggressive behaviour per month [measured by having three employees assess each resident on aggressive behaviours using the retrospective measure, Resident Aggression Score (RAS) I]. The residents were mostly women and all were Korean. Nursing staff measured aggressive behaviours using the RAS II for three day periods at baseline, at week 12 (upon completion of the intervention) and at the end of the 16<sup>th</sup> week. The RAS I and RAS II measure resident aggression.

Thirty-two of 39 eligible residents were included for analyses and 36 of 46 nursing staff were included for analyses. The mean RAS II score at baseline was 3.09 [standard deviation (sd)=3.11], 2.94 (sd=2.72) at the first post-training testing point, and 2.56 (sd=2.66) at the second and final post-training testing; not a statistically significant decrease ( $p=0.066$ ). This was in contrast to the nursing staff's management skills that showed statistically significant improvement ( $p<0.001$ ). The most common aggressive behaviour was physical, followed by verbal, and then sexual.

Thus, aggressive behaviours were not reduced as a result of the training. The authors noted that a major limitation to the training was that they only trained a sample of the nursing staff so untrained nursing staff came in direct contact with the residents. Also, no other staff was trained who might directly interact with the residents, which could contribute to the lack of reduction in aggressive behaviours.

In 2005, van Weert et al. published a study on whether CNAs trained in Snoezelen®, a multi-sensory approach that actively stimulates the senses with smell, taste, sound, and light, could affect resident's behaviour.<sup>9</sup>

The training was four weekly sessions of 4 hours each where the CNAs were taught how to provide resident-oriented care (e.g., how to observe sensory preferences, how to adapt care plans). The caregivers were taught to show empathy and gain knowledge of the resident's needs, history, and personality so it could be applied in Snoezelen®. Each Snoezelen® plan was individually tailored to each resident based on a detailed history of that resident. This was done through offering various sensory stimuli to determine resident preference.

This study selected 12 psychogeriatric wards for AD patients in six Dutch nursing homes. Each ward had both an experimental and control ward. Staff selected a minimum of 15 residents for a control ward and another 15 for an experimental ward. There were 117 CNAs in the study and dropouts were replaced. CNAs completed the Dutch Behaviour Observation Scale for Psychogeriatric In-patients (BIP) that consisted of 82 items measured on a four point scale (included items like non-social behaviour, loss of decorum, and rebellious behaviour). Three syndromes of agitation (including aggressive behaviour) were measured with the Cohen-Mansfield Agitation Inventory (Dutch version) (CMAI-D) and depression was measured using the Cornell Scale for Depression in Dementia (Dutch version) (CSDD-D).

Aggressive behaviour and rebellious behaviour both decreased significantly in the experimental group compared to the control group ( $p < 0.05$ ). However, at baseline, there were more aggressive behaviours, on average, in the experimental groups than in the control groups (5.36 compared to 3.73; no statistical analysis were reported). It is unknown why this difference existed but it may be due to selection bias. The authors concluded that 24-hour Snoezelen® care was effective; however, the actual part(s) that make it effective were unknown.

Burgio et al.<sup>5</sup> published an article in 2002 where they evaluated the effectiveness of a four-week behaviour management skills training program delivered to CNAs in two nursing homes. Follow-up assessments occurred three and six months after training. Registered nurses (RNs) and licensed practical nurses (LPN) were also trained but not asked to complete the questionnaires. One group's supervisors were asked to then implement formal staff management (FSM) which was designed with the goal of maintaining training effects over time. The other supervisor group were asked to implement the conventional supervisory routine (labeled the CSM group). The details of the CNA training and the results of the skills on which they were assessed [e.g., frequency of communication skills (e.g. announcing single activities)], are presented in Appendix A.

The residents selected to be part of the study were those who received a minimum score of 1 (mildly troubled) on the Reisberth's BEHAVE-AD global rating item. Analyses were performed on 79 residents (of 146 residents who gave consent). Residents were, on average, over 89 years on average, mostly female (77%), and the majority were white (67%). Over 50% had AD or another dementia. There were no significant differences on age, global cognitive functioning (measured by the MMSE), or self-care ability between the residents in the two nursing homes.

Resident behaviour during care interactions with staff was captured through the use of the computer-assisted behavioral observation systems (CABOS) where the frequency of agitated behaviour was recorded. Four care interactions per resident were measured at baseline, and two per resident were measured at each three month follow up and six month follow up.

Measurement was completed in 72 of 79 residents. CABOS was a time-sampling procedure that observed CNAs and resident behaviours throughout the day. Residents were the focus and were observed for two 30 minute periods between 8:00 a.m. and 8:00 p.m. It was attempted to get 24 observations per resident at baseline and at the two follow-up times.

The per cent of time a resident was agitated during care routines showed a statistically significant decrease from baseline and all post-intervention periods ( $p < 0.05$ ) for both FSM and CSM. Thus, the decreases were sustainable to six months post intervention. There was no impact on agitation reduction throughout the day (time periods other than care routines) for either group. Agitation behaviours were not broken down or specified, thus the actual impact on physical aggression was unknown. The authors concluded that the decreases in agitation at six months were the same with or without the experimental supervisory routine, although the decrease in agitation was specific only to the care routines.

Fitzwater et al. published the results of a pilot study in 2002.<sup>12</sup> One of the primary goals of the study was to determine if CNAs who participated in an educational intervention program would experience a reduction in resident assaults compared to CNAs who did not receive any training. The intervention group attended two, 2-hour assault prevention education classes that were comprised of lectures, role-playing, discussion, videotapes, self-protection techniques, and simulations.

For the study, two nursing homes of similar approximate size were selected from a Midwestern metropolitan area and were randomly assigned as the intervention (120 beds) group that received the training or the control group (100 beds) that received no training. Dementia was diagnosed in 45% to 60% of the residents and these residents were typically involved in the assaults. Ten CNAs from each site volunteered. To volunteer, the CNA had to work the day shift and provide direct care for the residents.

Assault was recorded if it occurred while providing care. These included those formally and not formally reported. An assault included biting, kicking, hitting with the body or other object, spitting, and scratching. The assault was logged in a daily CNA-reported tool that included information such as type of caregiving activity, type of physical assault, injury, and time of day. The authors stated that previous studies had shown the log to be useful and valid.

The assaults significantly decreased in the intervention group. There were 13 assaults logged during the pre-training two week period compared to 6 assaults in the post-training two week period, ( $p = 0.02$ ). No significant differences emerged for the control nursing home. However, the assaults logged in the baseline period were 3.4 (and dropped to 2.4 in the post-training phase). No statistics were reported on this difference. The authors stated that it was unknown why this between group difference in baseline assaults occurred.

Another difference between the two nursing homes was noted. The intervention group had a ratio where one CNA was responsible for 10 to 24 patients and the CNAs in the control group were each responsible for 8 to 16 residents. The authors concluded that training had a positive effect on decreasing physical assault on CNAs.

The results of an educational program on preventing and managing behavioural problems in a nursing home in Kamloops, BC was published in 1995 by Hagen et al.<sup>7</sup> In this specific nursing home, 90% of the residents suffered from moderate or severe dementia, the average age was 80 years, and approximately 70% were female. All of the residents required considerable nursing assistance (the term considerable was not defined).

An in-service training was provided to the staff; of which, 87% of nursing staff (approximately 25% were nurses and 75% nursing aids), 67% of the housekeeping staff, and 100% of the recreation staff completed. The program consisted of three 30 minute in-service sessions and took three months to complete. The training was a mix of case studies, group discussions, role playing, videotaped vignettes, and short lectures developed by Feldt and Ryden in 1992.

The first session briefly reviewed dementia and the various losses a patient may be experiencing. The second session discussed the five basic goals of care with demented elderly from Ryden (1992), role-played the goals, as well as watched videotaped vignettes. The five goals were for the patient to: feel safe, be physically comfortable, have a sense of control, have optimal stress, and experience pleasure. The third session focused on strategies to de-escalate aggression once it has occurred through case studies and videotaped vignettes. These strategies were:

- accepting instead of contradicting a confused patient's reality,
- validating the feelings of a confused patient,
- a cooling off period, and
- using distraction.

In addition, the staff members were taught techniques for non-violent management of physical aggression. These techniques were demonstrated and practiced.

The staff had checklists to track physical aggression (included shoving or pushing, throwing an object, pinching or grabbing, hitting or punching, kicking, spitting, scratching, and biting). The checklist also had space where it could be noted whether the staff member was injured as well as when the assault occurred (feeding, transfer or turning, bathing).

Results were compiled eight days prior to training to establish the baseline and eight days post training (after the three months was complete). It was noted that most (48%) of the aggressive incidents occurred when the nursing staff were dressing or changing a resident, followed by transfer or turning (21.9%). There were a total of 275 incidents over the 16 day period. Of the 275 incidents, 182 were during the pre-training and 93 were during the post-training period, which was a statistically significant decrease ( $t=3.24$ ,  $p=0.04$ ).

The staff felt that the 275 reported incidents were a realistic reflection of the aggression in their nursing home. However, the authors do consider other possible sources of bias such as under-reporting after the training (i.e., social desirability bias), the possible effects of a season change, and staff turnover. The authors concluded that in order to know where to focus nursing interventions to reduce aggression, an important first step is to determine when the majority of aggression occurs, along with an analysis of the nursing actions associated with the aggression.

Ray et al. published "Reducing Antipsychotic Drug use in Nursing Homes" in 1993.<sup>13</sup> The researchers trained nursing home care providers, physicians, nurses, nursing assistants, and other direct care staff in the use of structured guidelines with the goal of improving the management of behaviour problems and minimize use of antipsychotic drugs on residents.

Four rural nursing homes in Tennessee were selected. Two were selected as the study homes ( $n=228$ ) where the prevalence of patients on antipsychotic drugs was at least 25% and the usage was stable for six months. The two control homes ( $n=218$ ) were matched for number of beds and antipsychotic usage and dosage. The majority of residents in all four homes were female (>75%), white (>90%), and had a mean age of over 80 years. There were no statistically

significant differences in medications administered (antidepressants, sedatives, or antipsychotics) or in the rate of physical restraint utilization.

The training program lasted four months and nursing staff attended six, 1-hour in-service sessions over the four month period. There was a 95% participation rate. Four weeks after the in-services were completed, one follow-up session was conducted. Data was collected at three time points: six months prior to training, four months during the educational program, and three months following the end of the program. Similar time periods were used for the control homes.

Data was abstracted from each participating resident's chart. If either a physical restraint or antipsychotic drug was used during any point in a 24 hour period, it was abstracted. Results were calculated on those residents who were in the home for the duration of the study, which were 94 residents in the study homes and 184 residents in the control homes. There was a statistically significant decrease in days of antipsychotic drug use in the study homes compared to the control homes (72% versus 13%,  $p < 0.001$ ). The study home residents also benefited from a statistical reduction of days in physical restraints compared with the control home residents. (59% compared to 36%,  $p < 0.001$ )

Frequency of behaviour problems were measured using the Nursing Home Behavior Problem Scale (NHBPS), a 29-item checklist developed specifically for nursing home residents. The NHBPS focuses on the behaviour problems, such as physical aggression, agitation, inappropriate behaviour, and dangerous behaviour which are the behaviours severe enough to warrant sedative drugs or physical restraints. The mean score was calculated from four raters over three days at baseline and three days immediately after the program was completed. There was no increase in problematic behaviors with the residents in the study homes. Also, there were no statistically significant differences in the behaviour scores in patients between the study and control homes.

The authors stated that while there was a possibility that there were important differences that may have affected the results such as, differences in staff turnover rates, and staff experience, the authors did not feel that these were factors in their study. The authors concluded that the educational program led to a reduction in the use of antipsychotic drugs and that behaviour problems did not increase as a result.

### **Guidelines and recommendations**

The Scottish Intercollegiate guidelines Network (SIGN) published guidelines in 2006 on the "Management of patients with dementia." The evidence for the guideline was based on a systematic review along with a consultation and peer review that included open meetings and specialist involvement. The authors stated that there was no robust evidence on treatments for aggression.<sup>15</sup> For agitation, however, two guidelines were stated. One stated that aromatherapy was not recommended for reduction of behavioural problems. The evidence behind this was given a "1-" which indicated, "meta-analyses, systematic reviews, or RCTs with a high risk of bias." The second guideline debated effectiveness of recreational therapy. The evidence for this recommendation was given a "1+", which indicated it was based upon "well conducted meta-analyses, systematic reviews of RCTs, or RCTs with a low risk of bias."

In 2006, the National Institute for Health and Clinical Excellence (NICE) published recommendations for the support of people who care for and treat people with dementia.<sup>16</sup> A

guideline development group reviewed the evidence and developed recommendations. An independent guideline review panel oversaw the development of the guidelines.

The guideline development group (GDG) comprised of clinical and academic experts as well as related professionals in the field and one person with dementia. This group met 20 times, where they assessed the evidence and made recommendations along with guidance from special advisors and other experts. The literature search was described as systematic however it is unclear how often more than one reviewer selected articles, as the authors indicated that more than one reviewer selected articles, “where possible.”

The authors concluded that there was no standardized approaches (e.g., validation, reminiscence) to reduce challenging behaviours. Challenging behaviours included aggression, wandering, hoarding, as well as other behaviours. The authors stated that there was little evidence on light therapy, multi-sensory stimulation, and music therapy for challenging behaviours. Two controlled trials studied the effects of aromatherapy and found that agitated behaviour was decreased. The authors could not locate any cost-effectiveness information for non-pharmacological interventions.

Among the several recommendations, three were specific recommendations for training to reduce challenging behaviors. These were:

- There should be individually tailored care plans including, aromatherapy, multi-sensory stimulations, therapeutic use of music and/or dancing, animal-assisted therapy, and massage. No grading or statements regarding the evidence base was stated.
- Because some residents may pose a threat to safety (to either themselves and/or health or social care staff) due to violence, aggression or extreme agitation, health and social care staff should be trained to anticipate behaviour that challenges, and trained how to manage violence, aggression, and extreme agitation through de-escalation techniques and methods of physical restraint. No further information was provided.
- A third recommendation was that health and social care staff be trained on interventions that are effective for people with dementia. No further information such as suggestions for interventions was provided.

A guideline for managing agitated behaviours in people with dementia, including AD, was published in 2004.<sup>14</sup> The objective was to provide evidence-based recommendations for decreasing the frequency of agitated behaviours through nonpharmacologic interventions with the goal of increasing the quality of life of the person with dementia. While the guidelines stated they used a systematic approach, there was no statement of number of reviewers who included studies or performed data extraction on studies. It was internally and externally peer-reviewed and the recommendations were formulated through expert consensus. Recommendations were given a letter (A through D) to represent the evidence-base.

Techniques for general communication approaches were provided. The recommendations were evidence grade of “C” or “D” (C = observational studies, controlled trials with inconsistent results, D = expert opinion or multiple case reports). Thirteen example tactics were provided, these were:

- Identify self with each interaction
- Approach the resident slowly from the front while verbalizing what you are going to do

- Maintain voice volume at an appropriate level
- Maintain a normal speech rhythm
- Use gentle and reassuring voice to maintain a calm manner that is also accepting
- Provide face-to-face communications, ensure use simple, concrete, positive statements
- Provide directions or ask questions slowly and one at a time
- Distract the resident with questions about the problem and then gradually change activities, move to another room, or discuss a more pleasant subject
- Match the language with the comprehension ability of the resident, including asking questions or giving directions one at a time
- Talk with the resident, not at the resident
- Actively listen by allowing the resident to express their feelings and share your understanding of the situation
- Do not attempt to argue or reason
- When a resident is responding, listen carefully

Non-verbal techniques also had grades of “C” or “D”. These techniques included using non-threatening postures during interactions, avoiding sudden emphatic movements, and using touch judiciously.

This guideline did not outline staff training but did provide specific examples of interventions that have been shown to reduce the frequency of or severity of agitated behaviours. See Appendix B, Table 1 for more information.

The Royal College of Psychiatrists published a guideline on managing people with dementia pharmacologically and non-pharmacologically in 2005.<sup>8</sup> This guideline is based on other recent publications such as those by the Scottish Intercollegiate Guidelines Network. However, there were no statements regarding the quality of evidence or other methodology. The authors suggested that staff education should be provided regarding reducing the use of neuroleptic medication in residents with AD. Also recommended, based on “suggestive evidence”, was the use of audio tapes of familiar voices to improve mood, and reduce aggression, and/or agitation. The authors also stated that bright light therapy might reduce behaviour disturbances (no stated evidence) and that there were fewer problem behaviours with patients who were provided with music, and choices (especially during meals and bathing), or the chance to walk or engage in other light exercise.

### **Limitations**

There was a lack of rigorous studies on programs to manage aggressive behaviour, such as well-designed RCTs, which provides a challenge in confidently summarizing the effectiveness of programs for reducing resident aggression.

Another limitation to this literature is that each study investigated a different training program (although there may have been some overlap), making it difficult to assess the effectiveness of each program. In addition, the training programs often failed to have specific names in which to search for more information.

Other known programs exist for training staff in LTC facilities (e.g., P.I.E.C.E.S), however, they were not identified in the literature results of published peer-reviewed literature.

No costing or economic evaluations were provided for the staff training programs.

### **CONCLUSIONS AND IMPLICATIONS FOR DECISION OR POLICY MAKING:**

LTC providers are faced with the challenge of handling recurrent physically aggressive episodes from a significant portion of their residents, however, it is unclear from the literature what staff training program is the most effective at managing aggressive behavior. Since there are no specific names for training and some well known training programs were not identified in the published literature, it is unlikely that a decision for or against a staff training program can be made confidently. In addition, since no costing information was identified, it is not feasible to draw conclusions of the cost of a training program.

The guidelines support staff training to help manage aggressive resident behaviour, however, no specific training program was suggested by any of the guidelines.

Due to the lack of consistent evidence on managing aggressive behaviour in residents, LTC facilities may have to assess which training program is most appropriate for their staff and residents through assessing criteria other than published evidence.

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### **APPENDIX A: Details on the skill management measures given to the CNAs in the Burgio, et al. article entitled, “Teaching and Maintaining Behavior Management Skills in the Nursing Home”<sup>5</sup>**

The training program’s curriculum focused on helping CNAs identify environmental factors that might affect resident behaviour, increasing effective nonverbal and verbal communication skills, decreasing communication skills that are not effective (e.g., using multiple verbal prompts), increasing antecedent and consequent behavioural techniques like distraction and diversion, and decreasing ineffective responses such as arguing with the residents. The first week included lecture, videotaped examples, vignettes, and workbook exercises. In addition, individualized behavioural programs were created for the most problematic behaviours and entered into the specific resident’s chart. The CNAs were tested on their behavioural management skills knowledge by completing a paper and pencil test before and after the training. The knowledge tests showed a statistically significant ( $p < 0.001$ ) increase between baseline and post-training. Weeks two through four were hands-on training where feedback was provided on one care interaction per day Monday through Friday.

The FSM began during the training. The five elements of the FSM were adapted from the Behavioural Supervision model by Burgio and Burgio (1990). The model described behavioural skills, CNA self-monitoring, LPN monitoring of CNA skill performance level, verbal and written performance feedback, and incentives to CNAs achieving performance criteria. All nursing staff were made aware of FSM.

The CNAs were assessed through the Behavior Management Skills Checklist (BMSC) as well as two computer-assisted behavioural observation systems (CABOS). The BMSC measured communication skills and behaviour management techniques during care interactions. There were seven communication skills. Five communication skills were such that increases in usage were hypothesized; such as announcing single activities and providing positive statements. Two communication skills were counter-therapeutic responses and decreases were hoped to be seen; such as, announcing multiple activities at one time. Overall, five of the seven communication skills showed statistically significant and therapeutically beneficial increases. One did not show a significant change (prompting multiple activities) and one item (announcing multiple activities) had a statistically significant increase when it was expected to decrease.

At the three and six month assessments, communication skill variables between the FSM and CSM groups were all different. For example, FSM increased the use of announcing single activities at six months and the CSM group decreased the announcements ( $p < 0.05$ ) but there was no between group differences ( $p = 0.06$ ) with regard to increasing positive statements. Total certified nursing staff that entered the study was 106 and 85 completed the post-training period.

The checklist also measured eight effective and three ineffective behaviour techniques to respond to resident agitation. For the behaviour techniques, there was a statistically significant decrease in the use of ineffective strategies ( $p < 0.05$ ) but no significant increase in effective strategies. The decreases in ineffective strategies were not maintained over time

The CABOS were used to measure staff and resident behaviours during care interactions. These were distinct from the BMSC. Four care interactions per resident were measured at baseline, and two per resident at three months follow up and at six months follow up. This was completed in 72 of 79 residents. A time-sampling procedure that observed CNAs and resident behaviours throughout the day was also used. Residents were the focus and were observed for two, 30 minute periods between 8:00 a.m. and 8:00 p.m. It was attempted to get 24

observations per resident at baseline and at the two follow-up times. However, CNAs verbal interactions with the resident's during these times were also noted. Results post training showed that CNAs statistically increased positive statements to the residents. At six months, the FSM group were more successful in maintaining their positive statements compared to the CSM group ( $p=0.06$ ) and the same change was also seen in the time-sampling technique ( $p<0.01$ ), in favour of the FSM group.

**APPENDIX B: Examples of Staff Interventions that May Reduce the Frequency of or Severity of Agitated Behaviours in LTC Residents.<sup>14</sup>**

The guideline, “*Non-pharmacologic management of agitated behaviors in persons with Alzheimer disease and other chronic dementing illnesses*” provided six areas of specific interventions that function as alternatives to pharmacologic agents and restraint use.<sup>14</sup> The selected interventions and their examples are the ones that have been demonstrated to reduce the frequency and or severity of agitated behaviours.

**Table 1. Specific Interventions that Reduce Frequency of or Severity of Agitated Behaviours in Persons with Dementia.<sup>14</sup>**

Specific Intervention	Example	Grade
Sensory enhancement/relaxation	– Slow-stroke massage protocol	– C
	– Five-minute hand massage protocol	– C
	– Ten minute therapeutic touch protocol	– C
	– Individualized music	– B
	– White noise	– C
	– Massage/touch and auditory stimulation – Aromatherapy, aromatherapy in combination with massage and or music – Snoezelen®	– C – C – C
Social contact	– Individualized social contact	– C
	– Pet therapy	– C
	– One-to-one interaction	– C
	– Simulated interaction/family videos	– C
Behaviour therapy	– Differential reinforcement	– C
	– Stimulus control	– C
Structured activities	– Recreational activities	– C
	– Outdoor walks	– C
	– Physical exercise	– D
Environmental interventions	– Wandering areas	– C
	– Natural/enhanced environments	– C
	– Reduced stimulation	– C
	– Light therapy	– D

B = well-designed controlled trials (randomized or not) with consistent supporting results; C = observational studies, controlled trials with inconsistent results; D = expert opinion or multiple case reports.