*International Psychogeriatrics* (2007), 19:5, 842–858 © 2006 International Psychogeriatric Association
doi:10.1017/S1041610206004443 Printed in the United Kingdom

# Evaluation of the sustained implementation of a mental health learning initiative in long-term care

Carrie A. McAiney,[1,2] Paul Stolee,[3,4] Loretta M. Hillier,[4,5] Diane Harris,[6] Pam Hamilton,[7,8] Linda Kessler,[7,8] Victoria Madsen[1,2] and J. Kenneth Le Clair[7,8]

[1]*Department of Psychiatry and Behavioral Neurosciences, McMaster University, Hamilton, Ontario, Canada*
[2]*Geriatric Psychiatry Service, St. Joseph's Healthcare, CMHS, Hamilton, Ontario, Canada*
[3]*School of Optometry, University of Waterloo, Ontario, Canada*
[4]*Aging, Rehabilitation and Geriatric Care Research Centre of the Lawson Health Research Institute, London, Ontario, Canada*
[5]*Specialized Geriatric Services of Southwestern Ontario, St. Joseph's Healthcare, London, Ontario, Canada*
[6]*Diane Harris and Associates, Learning and Performance Consultants, Ontario, Canada*
[7]*Division of Geriatric Psychiatry, Queen's University, Kingston, Ontario, Canada*
[8]*Geriatric Psychiatry Service, Providence Continuing Care Centre, Kingston, Ontario, Canada*

## ABSTRACT

**Background:** This paper describes an innovative education program for the management of mental health problems in long-term care (LTC) homes and the evaluation of its longer-term sustainability. Since 1998, the "Putting the P.I.E.C.E.S. Together" learning initiative has been providing education sessions and related learning strategies aimed at developing the knowledge and skills of health professionals who care for older persons with complex physical and mental health needs and associated behaviors, in Ontario, Canada. A major focus of this province-wide initiative was the development of in-house Psychogeriatric Resource Persons (PRPs).

**Methods:** Evaluation of this initiative included the completion of pre- and post-education questionnaires (over three data collection time periods) assessing learner confidence (N = 1,024 and 792, for pre- and post-education, respectively) and session evaluation questionnaires gathering feedback on the session (N = 2,029 across all sessions). A survey of LTC homes in Ontario (N = 439, 79% of the homes in the province) was conducted to assess longer-term sustainability.

**Results:** Ratings of the sessions indicated that they were relevant to learners' clinical practice. There were significant increases in ratings of ability to recognize and understand challenging behaviors and mental health problems, and in ability

*Correspondence should be addressed to*: Dr. Carrie A. McAiney, McMaster-Geriatric Psychiatry, St. Joseph's Healthcare, CMHS, 100 West 5th St., Hamilton, Ontario, L8N 3K7, Canada; Phone: +1 905 522-1155; Fax: +1 905 575-3778. Email: mcaineyc@mcmaster.ca. Received 18 May 2006, revision requested 28 Jun 2006; revised version received 7 Sep 2006; accepted 7 Sep 2006. First published online 27 October 2006.



https://doi.org/10.1017/S1041610206004443 Published online by Cambridge University Press

to use a variety of assessment tools. Few homes (15%) do not have a PRP; over 50% of the staff who completed the first session in 1999 continue to serve as a PRP and to apply learned skills.

**Conclusions:** A learning initiative with supportive and reinforcing strategies can develop in-house PRPs to enhance the care of the elderly in LTC. Incorporation of PRP functions into job descriptions and management support contributed to the success of this initiative. This study highlights the importance of work environments that support and reinforce the use of learned skills to the success of continuing education and quality improvement initiatives in LTC.

**Key words:** continuing education, training, long-term care, nursing home, mental health, dementia, challenging behaviors, learning strategies

## Introduction

The prevalence of mental health problems in long-term care (LTC) is high, with some estimates as high as 90% (Tariot, 1996). In the Canadian province of Ontario, Alzheimer's disease and related dementias (ADRD) are the most common diagnoses within long-term care homes, with 53% of residents having one of these diagnoses (PriceWaterhouseCoopers, 2001). These disorders are associated with high rates of functional impairment, disability, poor health outcomes, injury, and increased utilization of acute care (American Geriatrics Society and American Association for Geriatric Psychiatry, 2003). Many LTC residents with dementia have significant behavioral and psychiatric symptoms (Devanand *et al.*,1997; Lopez *et al.*, 2003), which cause distress to residents, reduce their quality of life, complicate medical illness, and compromise their medical treatment (Beck *et al.*, 2002).

Nursing staff have been described as inadequately equipped to deal with the mental health problems faced within LTC (American Geriatrics Society and American Association for Geriatric Psychiatry, 2003; PriceWaterhouseCoopers, 2001). Lack of education and training makes it difficult for LTC staff to provide appropriate, quality care, and often results in missed diagnostic information and opportunities to intervene (PriceWaterhouseCoopers, 2001). Moreover, lack of training has been identified as an issue associated with staff turnover (Cohen-Mansfield, 1997), which, in addition to burn out, absenteeism, and injuries, occurs frequently within LTC (Beck and Shue, 1994).

There is much support for increased and innovative education and training in LTC related to the assessment and treatment of behavioral symptoms, and in particular, to non-drug interventions (American Geriatrics Society and American Association for Geriatric Psychiatry, 2003; Beck *et al.*, 2002; PriceWaterhouseCoopers, 2001). However, the long-term impact of staff training in LTC is unclear. An examination of the effectiveness of continuing education in LTC found that while some programs report significant changes in practice in the short-term, there is little evidence that these gains are sustained over time (Aylward *et al.*, 2003). Efforts are needed to ensure long-term changes

https://doi.org/10.1017/S1041610206004443 Published online by Cambridge University Press

to clinical practice, with special attention to the organizational and system factors that facilitate and maintain knowledge transfer, including strategies to reinforce the use of new care approaches within the workplace (Stolee *et al.*, 2005). These latter strategies are often neglected by training initiatives and may account for the lack of sustained transfer of knowledge into practice.

The purpose of this paper is to describe an innovative education program for the management of mental health problems in LTC and the evaluation of its impact and sustainability.

## The "Putting the P.I.E.C.E.S. Together" learning initiative

The "Putting the P.I.E.C.E.S. Together" learning initiative was a province-wide initiative that was one component of a collaborative and coordinated effort by the Ontario Ministry of Health and Long-Term Care (MOHLTC) to address the mental health needs of older persons through a multi-year provincial strategy for ADRD (Ontario Ministry of Health and Long-Term Care, 1999). P.I.E.C.E.S is an acronym for Physical, Intellectual, Emotional, Capabilities, Environment, Social – the factors related to well-being, self-determination, and quality of life for older persons and the cornerstones of the philosophy behind this initiative.

The goals of the program are for participants to: (i) gain new knowledge for assessing and managing an older person's complex physical and cognitive/mental health problems and associated behaviours; (ii) increase the knowledge shared across a provincial network for improved care of these older persons; (iii) promote the growth and development of local LTC home resources and community psychogeriatric partnerships to provide the best care to residents; and (iv) promote a common vision, common approach and common language among individuals who care for those with ADRD as well as other mental health and associated behavioral issues. The focus of the program is on the immediate development of an in-house Psychogeriatric Resource Person (PRP), and in the longer term, the development of an in-house Psychogeriatric Resource Team, through which a consistent resource can facilitate a cultural change and continuous integration of best practices. It is important to note that P.I.E.C.E.S. is not a train-the-trainer program but is a learning strategy to develop the role of the in-house PRP to serve as a resource for other LTC staff. (More detailed information about P.I.E.C.E.S. and complementary programs is available as supplementary material published online at www.journals.cambridge.org/jid_IPG attached to the electronic version of this paper.)

The implementation and learning strategies used in this program are based on current knowledge of adult learning concepts, ongoing evaluation, and ongoing experience with the program. The P.I.E.C.E.S. educator team was made up of highly skilled clinicians and group facilitators. The learning initiative consisted of an 18-hour intensive program of core curriculum, which was conducted over three days and a 12-hour consolidation program conducted over two days which provided an opportunity to enhance understanding of the resources available in each community and to foster communication and networking.

https://doi.org/10.1017/S1041610206004443 Published online by Cambridge University Press

Homework assignments provided an opportunity for the practical applications of new skills from the education session to clinical practice in the time period between the three- and two-day sessions (usually a period of several months). Preceptors, who were members of specialized outreach teams, provided post-education support in the first two years of the program. In subsequent years, post-education support was provided by Psychogeriatric Resource Consultants (PRCs serve as educators, consultants and program developers to the LTC sector across the province; the development of the PRC role resulted from one of the other initiatives of the provincial Alzheimer Strategy). Preceptors and PRCs coached and mentored P.I.E.C.E.S.-trained staff in the application of learned knowledge and skills. In addition, a fax or email consultation service provided timely advice on clinical and educational problems and a program website (www.piecescanada.com) provided a wide range of materials, tools, products and resources, including a searchable database consisting of practical strategies in response to questions submitted by learners.

In accordance with the principles of adult education, this program emphasized strategies that would facilitate application and attended to the organizational factors that reinforce or enable practice change (Broad, 2005; Davis *et al.*, 1992; Rummler and Brache, 1995). The program was case-based, minimized lecture time in favor of small group work and information exchanges, and relied upon the active participation and sharing of experiences by all participants. Participants learned how to think systematically through complex situations, with a goal of enhancing the capacity of care providers to support residents with mental health problems. Leadership support was perceived to be critical to the success of the in-house PRP; senior management were provided with guidelines for the implementation and sustainability of this new role.

Funding for this program was provided by the provincial MOHLTC. Staff were reimbursed travel expenses (transportation or mileage, hotel, and meals). Initially, reimbursement was offered to LTC homes to offset the cost of replacing staff attending the program (7.5 hours each day to a maximum of $200 per day). In subsequent years, staff replacement costs were only reimbursed for those homes that did not have an in-house PRP in place.

This program was specially designed for regulated health professionals who were responsible for providing assessment, planning and direct care to persons with ADRD as well as other mental health and associated behavior problems, and who could act in a resource role for other staff. The higher level of training and background required for the PRP role resulted in Registered Nurses being the target group for this program. (A complementary program has been developed for unregulated health professionals and is currently being implemented and evaluated.) Since its inception in 1998, over 2,000 regulated health professionals from across Ontario have completed the program.

## Methods

Evaluation of the "Putting the P.I.E.C.E.S. Together" learning initiative has relied on multiple methods, including pre- and post-program surveys of

https://doi.org/10.1017/S1041610206004443 Published online by Cambridge University Press

learners and LTC home administrators, surveys to assess learner reactions to the education sessions, feedback from trainers, surveys of LTC homes, and interviews with key stakeholders.

Survey and interview methods were selected to provide information about the impact of the program on learners and their clinical practice related to the management of complex and challenging mental health issues and behaviors. More rigorous research methodologies (e.g. randomized or quasi-experimental designs) could not be employed in this evaluation for various reasons. Funding and resource allocation provided by the provincial government was targeted to province-wide implementation, which was viewed as critical to fostering change and new collaborative and interdisciplinary care processes in LTC. This widespread implementation did not allow for the use of comparison or control groups or for an in-depth evaluation of outcome variables, particularly those related to the impact on the health and well-being of residents and on the health care system. Moreover, there was no information system in place to monitor easily and consistently resident outcomes across the province.

Data from pre- and post-program questionnaires (for 1999 and 2001 – post-program questionnaires were not available for the 2002 session), from session evaluation questionnaires across various evaluation points (1999, 2001 and 2002), and from a survey of all LTC homes in Ontario (2003) are used to describe the impact and longer term sustainability of this program. To support face and content validity, all instruments were tailored to the content and objectives of the education program, and were developed with input from the clinical experts involved in providing the education.

## Pre- and post-program questionnaires

A "pre" program questionnaire included questions about the characteristics of the learners (discipline, years of experience) and their confidence in various areas related to the assessment and management of persons with cognitive and mental health needs and associated behaviors. This questionnaire was completed prior to the start of the program. A "post" program questionnaire was used to gather data on confidence in their assessment and management skills and in taking on the PRP role, and on factors related to transferring knowledge into practice. This questionnaire was completed approximately six weeks following the program. A summary score was derived from four questions rating confidence in using specific assessment tools; Cronbach's $\alpha$ for these items was 0.74, which is a satisfactory level of internal consistency reliability for group comparisons (Bland and Altman, 1997). As a comparative indicator, respondents were also asked to rate their confidence regarding the use of assessment instruments in general.

Response rates for each of the surveys across all the evaluation points exceeded 93%. Some 1024 learners (94.3%) completed the pre-program questionnaire; 792 (93.1%) completed the post-program questionnaire. (Note: this survey was not administered in 2002.)

https://doi.org/10.1017/S1041610206004443 Published online by Cambridge University Press

### Session evaluation questionnaires

Following the three-day session, learners were given a questionnaire to gather feedback on various aspects of the sessions. Following the two-day education session, a questionnaire was used to gather feedback from the learners on the session and to assess their confidence in a variety of areas.

Response rates for each of the surveys across the evaluation points exceeded 94%; 1030 (94.8%) completed the three-day session evaluation questionnaire; and 990 (97.1%) completed the two-day session evaluation questionnaire.

### Survey of long-term care homes

A survey of all LTC homes in Ontario was undertaken to assess the longer-term sustainability of the P.I.E.C.E.S. education program. The evaluation survey was developed with assistance and advice from Directors of Care and in-house PRPs from LTC homes from different MOHLTC regions across the province, as well as a PRC. Questions were asked about the status of the PRPs within the home, outcomes of the P.I.E.C.E.S. learning initiative including the extent to which the core competencies from the initiative (described in the online supplement) were being achieved, and the success factors and barriers to implementing the in-house PRP role.

Surveys were distributed to 555 LTC homes through the mail. Of these, 439 (79.1%) completed the survey. The majority of surveys were completed by the home Director of Care or Director of Nursing (N = 294; 67%); 6 (1%) were completed by the Director of Care/Nursing in collaboration with another person within the home, 34 (8%) by Administrators, 96 (22%) by other staff members (e.g. registered nurses, nurse manager, social worker, in-house PRP); for nine of the surveys the respondent was not identified. Surveys were to be completed in collaboration with the PRP/team.

### Data analysis

All questionnaires were pencil and paper format. Data were analyzed using SPSS 10.0 (1999). Quantitative data were summarized using frequencies, percentages, ranges, means and standard deviations. Statistical comparisons of pre and post data were performed using paired *t*-tests. Two-tailed tests of significance were used, with $\alpha$ set at the conventional level of 0.05.

## Results

A total of 1086 learners participated in the three-day education sessions (551, 345 and 190 in the 1999, 2001 and 2002 programs, respectively) and 1020 participated in the two-day education sessions (537, 314, and 169 in the 1999, 2001, and 2002 programs, respectively).

### Learner characteristics

Across all three evaluation points, the majority of learners were Registered Nurses (N = 869; 84.8%). Other learners included Registered Practical Nurses

https://doi.org/10.1017/S1041610206004443 Published online by Cambridge University Press

(N = 157; 15.3%), social workers (N = 31; 3.0%), and professionals representing other disciplines (N = 19; 18.6%; including Administrators/Directors of Care, Special Care Coordinator, Occupational Therapist, Recreation Therapist, and Kinesiologist). Learners typically had considerable work experience across the three evaluation points, with the average amount of experience varying from 14 to 17 years in their profession, and 10 to 12 years working with persons with ADRD.

### Ratings of the session

Learner ratings (1 to 5 scale: 1 = negative extreme, 5 = positive extreme) of various aspects of the education session are presented in Table 1. Learner ratings of the relevance of the education across the three evaluation points exceeded 4.0, suggesting that the sessions were very relevant to their clinical practice. When asked if they were confident in their ability to apply what they had learned in the sessions, the average ratings ranged from 3.5 to 4.1. Mean overall ratings of the sessions ranged from 4.0 to 4.4, or "very good" (where 1 = poor, 2 = fair, 3 = good, 4 = very good, and 5 = excellent).

### Confidence ratings

Learners' confidence ratings (1 to 5 scale: 1 = not confident, 5 = very confident) are presented in Table 1. Ratings of confidence in their ability to recognize, understand, and assess challenging behaviors and mental health problems using a variety of standardized assessment tools mostly increased following the program. In 1999, learner ratings of confidence in taking on the PRP role showed a slight decrease. In 2001, learners were asked to make a second assessment related to self-reported change in their confidence level compared with prior to the program (using a 5-point scale where 1 = less confident, 3 = about the same and 5 = more confident). The average rating for self-reported change in confidence in taking on the PRP role was 4.33 (SD = 0.70), indicating that the learners felt more confident in taking on the PRP role following the program then they did prior to the program. Although there was no change in their confidence in using assessment tools in general, there was a significant increase in their confidence in using the assessment measures they learned about in the 1999 and 2001 sessions.

Analysis of data from the 1999 program found no correlation between years of experience with either baseline (r = –0.057) or follow-up (r = 0.010) confidence in taking on the PRP role. Differences between professional groups in their confidence in taking on a PRP role were not significant (F = 2.238, p = 0.083), but the data suggested that social workers may be somewhat less confident than the other professional groups (mean confidence of 2.8/5 versus overall mean of 3.4/5).

### Longer-term sustainability – survey of long-term care homes

Four years following the first P.I.E.C.E.S. education session, approximately 85% (N = 373) of care homes reported having at least one active in-house PRP. Sixty-six homes (15%) reported having no one in their home who was currently serving

https://doi.org/10.1017/S1041610206004443 Published online by Cambridge University Press

**Table 1.** Ratings[a] (mean [SD]) of various aspects of the 1999 and 2001 training sessions and confidence in taking on the role of Psychogeriatric Resource Person, and in using and interpreting various assessment tools.

| | 1999 | | 2001 | |
|---|---|---|---|---|
| EVALUATION OF TRAINING SESSION QUESTIONNAIRE | 3-DAY SESSION (N=517) MEAN (SD) | 2-DAY SESSION (N=518) MEAN (SD) | 3-DAY SESSION (N=340) MEAN (SD) | 2-DAY SESSION (N=312) MEAN (SD) |
| Relevance of the training program to issues in your home | 4.3 (0.82) | 4.3 (0.77) | 4.5 (0.63) | 4.3 (0.77) |
| Overall rating of the training (poor to excellent) | 4.2 (0.76) | 4.2 (0.75) | 4.4 (0.62) | 4.0 (0.70) |

| | 1999 | | | 2001 | | |
|---|---|---|---|---|---|---|
| PRE- AND POST-PROGRAM QUESTIONNAIRE | PRE MEAN (SD) | POST MEAN (SD) | MEAN CHANGE | PRE MEAN (SD) | POST MEAN (SD) | MEAN CHANGE |
| Level of confidence in taking on PRP role | 3.53 (0.89) | 3.43 (0.73) | −0.10* (0.90) | 3.74 (0.85) | 3.54 (0.77) | −0.20*** (0.88) |
| Confidence in ability to recognize and understand: | | | | | | |
| Challenging behaviors | 3.4 (0.82) | 3.75 (0.64) | 0.35*** (0.90) | 3.76 (0.79) | 3.77 (0.73) | 0.01 (0.94) |
| Mental health problems | 3.21 (0.82) | 3.63 (0.67) | 0.42*** (0.88) | 3.42 (0.85) | 3.58 (0.74) | 0.16** (0.94) |
| Confidence in ability to use and interpret: | | | | | | |
| Folstein Mini-mental State Examination | 3.02 (1.31) | 3.88 (0.87) | 0.86*** (1.10) | 3.09 (1.27) | 3.62 (1.12) | 0.53*** (1.25) |
| Cornell Scale for Depression | 2.00 (1.19) | 3.41 (0.75) | 1.41*** (1.21) | 2.24 (1.23) | 3.25 (1.22) | 1.01*** (1.31) |
| Cohen-Mansfield Agitation Inventory | 1.87 (1.21) | 3.42 (0.88) | 1.55*** (1.13) | 2.30 (1.32) | 3.47 (1.21) | 1.17*** (1.38) |
| Behavior flow sheets | 3.60 (1.01) | 4.10 (0.76) | .51*** (1.04) | 3.45 (1.11) | 3.84 (0.99) | 0.39** (1.26) |
| Confidence in ability to use and interpret (above 4) assessment tools: Summary score | 8.86 (4.27) | 14.12 (3.07) | 5.26** (3.58) | 9.81 (4.03) | 14.81 (3.92) | 5.00*** (4.44) |
| Assessment tools, in general (comparison item) | 3.60 (0.95) | 3.71 (0.72) | 0.11 (0.98) | 3.02 (1.23) | 3.28 (1.08) | 0.27 (1.42) |

*Notes*: [a]Rating scales were all 1 to 5: 1 = negative extreme, 5 = positive extreme.
*p <0.05; **p < 0.01; ***p < 0.001.

https://doi.org/10.1017/S1041610206004443 Published online by Cambridge University Press

**Table 2.** Frequency (%, number) of PRP/team involvement in various PRP activities (N = 372)

| PRP/TEAM ACTIVITIES | NEVER | IN SOME CASES | IN MOST CASES | IN ALL CASES |
|---|---|---|---|---|
| As a resource for home staff | 3.0% (11) | 34.1% (127) | 41.7% (155) | 15.1% (56) |
| Care planning with internal resources | 51.0% (19) | 37.1% (138) | 31.2% (116) | 15.3% (57) |
| Care planning with external resources | 8.6% (32) | 38.2% (142) | 25.8% (96) | 16.7% (62) |
| | At admission with all residents | At admission with some residents | As needed when issues arise | Other[a] |
| Use of P.I.E.C.E.S. template | 14.8% (55) | 25.3% (94) | 89.0% (31) | 9.9% (7) |
| Use of assessment tools | 29.3% (109) | 27.4% (102) | 86.6% (322) | 51.1% (194) |

*Notes*: Percentages sum to more than 100% because more than one response could be provided.
[a]"Other" included: when requested by physician, PRC, or care team; annually; when residents were referred to the outreach team; or follow-up assessment. For assessment tools, "other" included: to assess impact of an intervention (41.1%).

as an in-house PRP. The average number of individuals serving as in-house PRPs was 1.7 (SD = 1.3), with responses ranging from 0 to 12. In the majority of cases, the person who attended the sessions continued to serve as an in-house PRP or as part of an in-house resource team (53%, 71% and 81%, for the 1999, 2001 and 2002 sessions, respectively). Of those who were no longer serving in this role (N = 92, 37 and 10, for the 1999, 2001 and 2002 sessions, respectively), the most common reason was that the staff member who attended the initiative was no longer employed in the home (68%, 56% and 46%, across the three evaluation time periods). Other less frequent reasons included: the staff member who attended the initiative was on leave (sick, maternity/paternity) and the home was unable to accommodate the role either due to lack of resources or staff or because the PRP was assigned to a different role.

While many respondents (N = 171; 46%) reported that the activities of the in-house PRPs were not incorporated into the individual's job description, 15% (N = 56) reported that this was planned to occur within the next few months. Thirty-three percent (N = 123) of respondents reported that the PRP role was incorporated into their job description.

## The PRP role in action: transfer of knowledge

Table 2 presents the frequency with which the in-house PRP/team was involved in serving as a resource to other home staff by detecting or flagging cognitive/mental health needs and associated behavioral issues, and the frequency with which they were involved in planning care with internal and external resources. (Internal resources included physicians, medical directors, Directors of Care, nurse

https://doi.org/10.1017/S1041610206004443 Published online by Cambridge University Press

managers, social workers, interdisciplinary teams, activation and dietary staff, family members, pastoral care, and other in-house PRPs; external resources included geriatric psychiatry outreach teams; PRCs; geriatric assessment programs/regional geriatric programs; and Alzheimer Society Chapters.) Over 81% of the respondents reported that the PRP undertook these activities to some degree; 55% reported that the PRP/team served as a resource to home staff "in most cases" or "in all cases." Nearly half (47%) of respondents reported that the PRP/team was involved in care planning with internal resources "in most cases" or "in all cases," and 43% reported that the PRP/team was involved in care planning with external resources "in most cases" or "in all cases."

Respondents were asked to rate the performance of their in-house PRP/team in terms of their ability to serve as a resource to other home staff (5-point scale: 1 = "poor," 5 = "excellent"). The mean rating was 3.36 (SD = 0.90), with the majority of respondents (65%) providing performance ratings of "good" or "very good."

The majority of respondents (N = 331; 89%) reported that the in-house PRP/team used P.I.E.C.E.S. templates to assess residents "as needed when issues arise" (see Table 2). Similarly, the majority of respondents (N = 322; 86.6%) reported that the in-house PRP/team used assessment tools such as the Folstein Mini-mental State Examination (Folstein *et al.*, 1975), Cornell Scale for Depression (Alexopoulos *et al.*, 1988), Cohen-Mansfield Agitation Inventory (Cohen-Mansfield, 1986), Abilities Assessment (Dawson *et al.*, 1998), and the Confusion Assessment Method (Inouye *et al.*, 1990) to collect data, primarily when problems arose and staff were unable to manage the situation. Assessment tools were often used to assess the impact of an intervention (N = 153; 41.1%). Only five (1.3%) of the respondents reported that assessment tools were never used.

Coaching other staff to develop the competencies associated with the P.I.E.C.E.S. learning initiative occurred in a number of different ways: 65% of respondents reported that the PRP/team took advantage of "teachable moments" to coach staff, 55% reported that teaching occurred by example, and 51% reported that the PRP/team worked one-on-one with staff or small groups of staff. Thirteen percent reported that the PRP/team was involved in coaching staff through in-services, care conferences/rounds, and with the PRC. Very few respondents (N = 30; 8.1%) reported that the in-house PRP/team was not involved in coaching.

The majority of respondents (N = 216; 58%) reported that their in-house PRP/team participated in local networks with in-house PRPs from other LTC homes and agencies. Of those who reported that their in-house PRP/team did not participate in local networks (N = 132), 41% reported that it was because there was no network in their area. Other reasons for not participating included: not being aware of meetings; lack of time to participate in meetings; and lack of staff to replace the PRPs attending meetings. Of those homes reporting that their in-house PRP/team participated in a local PRP network, almost one-third reported that these individuals participated on a regular basis and almost 90% reported that participating in such a network was beneficial.

https://doi.org/10.1017/S1041610206004443 Published online by Cambridge University Press

**Table 3.** Facilitating factors and barriers to the success of P.I.E.C.E.S. (N = 372)

| | PERCENTAGE (NUMBER) OF THOSE RESPONDING "YES" | | |
|---|---|---|---|
| BARRIERS | 1999 LEARNERS (N = 80) | 2001 LEARNERS (N = 345) | 2003 SURVEY OF LTC HOMES (N = 372) |
| Work and time pressures | 40% (32) | 92.5% (319) | 81.7% (304) |
| Lack of funding for the PRP role | 16% (13) | n.a. | 48.9% (182) |
| Pressure from peers to resist changes | 16% (13) | 58.3% (201) | 31.5% (117) |
| Lack of sufficient resources to implement new learning | 6.3% (5) | 6.9% (24) | 19.4% (72) |
| Insufficient authority | n.a. | 10.9% (37) | 8.9% (33) |

*Note*: Percentages sum to more than 100% because more than one response could be given.
n.a. = not administered.

## Overall success of the initiative

In light of the achievements of the core competencies of this program, LTC home survey respondents were asked to rate the overall success of the "Putting the P.I.E.C.E.S. Together" learning initiative (7-point scale: 1 = "not at all successful," 7 = "extremely successful"). The mean rating was 4.2 (SD = 1.4), or "fairly successful."

Overall ratings of success varied according to whether the functions of the PRP/team were incorporated into their job description, $F(1,357) = 32.88$, $p < 0.001$. Respondents from homes in which the PRP/team functions were incorporated into the job description had higher mean success ratings (M = 4.7, SD = 1.4) than those from homes in which the PRP/team functions were not incorporated into their job description (M = 3.8, SD = 1.4). Similarly, performance ratings of the PRP/team's ability to serve as a resource (using a 5-point scale; 1 = poor, 5 = excellent) varied according to whether the functions of the PRP/team were incorporated into their job description, $F(1,348) = 18.6$, $p < 0.001$. Respondents from homes in which the PRP/team functions were incorporated into the job description had higher mean performance ratings (M = 3.6, SD = 0.88) than those from homes in which the PRP/team functions were not incorporated into their job description (M = 3.2, SD = 0.97).

Respondents were provided with a list of factors that could potentially facilitate the successful implementation of P.I.E.C.E.S. within their care homes and were asked which one(s) were relevant for their home. The most frequently identified factors were: management support (identified by 74% of respondents); integration of learning into ongoing practice (identified by 58% of respondents); and on-the-job reinforcement of learning (identified by 52% of respondents).

LTC home survey respondents were provided with a list of potential barriers to knowledge transfer and were asked to identify which one(s) had limited the success of P.I.E.C.E.S. within their care home. The most frequently identified

https://doi.org/10.1017/S1041610206004443 Published online by Cambridge University Press

factors were: work and time pressures (identified by almost 82% of respondents); lack of funding for the in-house PRP role (identified by almost 49% of respondents); and pressure from peers to resist change (identified by almost 32% of respondents; see Table 3). These barriers are consistent with those identified by learners who participated in the 1999 and 2001 education sessions (see Table 3).

## Discussion

There are several limitations to the evaluation of this education initiative. As mentioned earlier, the focus on widespread provincial implementation did not allow for comparison group designs, or for detailed assessment of resident outcomes. The evaluation measures used in this evaluation were not standardized tools, but measures tailored specifically to the design of the content and objectives of the program. Although clinical experts who delivered the education contributed to the development of the evaluation measures, thereby providing content and face validity, the lack of reliability data on the measures is a limitation.

The lack of a province-wide information system did not allow for a detailed assessment of resident outcomes. A comprehensive assessment system – the interRAI long-term care assessment – is currently being incorporated into the Ontario LTC system, which will allow for improved monitoring of clinical and resident outcomes in the future. Potential resident outcomes could include: use of restraints, use of psychotropic medications, and incidence of delirium and challenging behaviors. Since the focus of the program was to change clinical practice, staff outcomes were the focus of this evaluation. One of the staff outcomes was confidence in their ability to act as a psychogeriatric resource in their care home. The magnitude of positive change in confidence level appears modest, but is at levels consistent with previous research that has defined clinically important differences in ordinal rating scales (mean change in score of approximately 0.5 per item on a 7-point scale, which would equate to 0.35 per item on a 5-point scale; Jaeschke *et al.*, 1989).

Initially, learners' ratings of confidence in taking on the PRP role showed a slight decrease, perhaps reflecting an over estimation of their confidence at baseline and an increased appreciation of the challenging nature of the role following the learning session. This is consistent with experience reported in the industrial psychology literature (Muchinsky, 1993) and other educational initiatives in which we have been involved (Stolee *et al.*, 2003). As a result of this finding, in subsequent years learners were asked at the end of the program to assess their change in confidence in taking on the PRP compared with their confidence level prior to the program. These scores revealed an increase in confidence level even though the difference in pre-post scores did not reflect this finding.

A major aim of the P.I.E.C.E.S. learning initiative was the province-wide development of in-house PRPs in LTC homes. Currently, there are very few LTC homes in the province that do not have a PRP and many have more than one P.I.E.C.E.S.-trained member of staff. Over 50% of staff who attended the first P.I.E.C.E.S. education program, four years prior, continue to serve as their home's PRP and many continue to apply key PRP competencies,

https://doi.org/10.1017/S1041610206004443 Published online by Cambridge University Press

namely the use of templates and assessment tools, care planning with resources internal and external to the home, and coaching of other staff to develop the P.I.E.C.E.S. competencies. Overall, the initiative was rated as successful and ratings of the PRP/team's ability to serve as a resource were positive. Since its inception in 1998, the P.I.E.C.E.S. program has become widely accepted as a standard education program for LTC home staff. Despite the constraints and limitations of the evaluation data available, this program has been lauded for its ability to create a common language and common approach to managing challenging behaviors and mental health issues. This program is continuing to receive substantial support from the provincial government and is now being implemented in other provinces in Canada. A recent Coroner's Inquest into the deaths of two Ontario LTC residents caused by a resident with dementia recommended that all LTC staff interacting with cognitively impaired residents and all Registered Nurses working in LTC should receive P.I.E.C.E.S. education as a priority and that P.I.E.C.E.S. trained staff should have designated time on each shift to assess and record challenging and violent behaviors (Office of the Chief Coroner of Ontario, 2005).

The PRP/team role is consistent with the benefits described for consultative approaches used by geriatric mental health outreach teams (Stolee *et al.*, 1996). The PRP/team, with its capacity to consult with internal and external resources, functions in a similar fashion to a multi-disciplinary team in meeting resident needs. A recent review of the literature on consultation services in nursing homes indicated that although there is little research on the outcomes of mental health services in nursing homes, available evidence suggests that best practice for mental health service delivery in nursing homes includes interdisciplinary teams, which may function as a collaboration between specially trained in-house staff and external consultants (Bartels *et al.*, 2002). Nurse-centered consultation models have been shown to be an effective approach to evaluating LTC residents, developing interventions, and educating staff about the care of older persons with mental health problems (Joseph *et al.*, 1995; Santmyer and Roca, 1991). Joseph and colleagues (1995) found that in-house nursing specialists can effectively act as a liaison with external resources (e.g. geriatric psychiatry consultants) to ensure that bedside nursing staff have the knowledge and skills to follow recommendations.

Through the development and implementation of the PRP/team role, long-term care homes have increased their capacity to manage the complex and challenging needs of a growing population of older persons with cognitive impairment and severe mental illness. A significant change in clinical practice resulting from this education initiative was the use of assessment tools to assist in staff understanding and management of challenging situations. Similarly, Barton and colleagues (2006) found that following an education program to improve nursing staff documentation and management of LTC residents' mental status, there was increased identification and improved management of cognitive impairment. Although other programs have found improvements in LTC staff knowledge and behavior related to mental health following education and training (e.g. Bradley *et al.*, 1995; Stevens *et al.*, 1998), the program described

https://doi.org/10.1017/S1041610206004443 Published online by Cambridge University Press

here differs in that a long-term follow-up of outcomes was implemented and found that gains were sustained over time.

There is evidence that multifaceted interventions that include an education component can effectively change clinical practice (Llewellyn-Jones *et al.*, 1999). Sustained impacts over time may be a result of the various enabling and reinforcing strategies used in the P.I.E.C.E.S. program. Many of the education programs in LTC that fail to show improvements in staff knowledge and behavior tend to be lecture-based (Aylward *et al.*, 2003). Although these educational approaches can increase knowledge, they tend to have little impact on changing practice (Davis *et al.*, 1992). Similar to other education programs that have effectively changed clinical practice by incorporating different learning strategies, including didactic sessions, interactive workshops, case-based discussions, and homework assignments (Llewellyn-Jones *et al.*, 1999), the P.I.E.C.E.S. program has integrated basic principles of adult learning to ensure knowledge transfer. A key component of this program is the role of peer mentoring and coaching which is an effective strategy for educating staff and improving quality of care (Perry *et al.*, 2003). PRPs serve as mentors to provide constructive support to staff, to act as effective role models, and to assist staff in integrating new knowledge into bedside care.

The emphasis on developing psychogeriatric resource teams by training more than one staff member per home allows trained staff to support each other and ensures adequate coverage when trained staff are on leave or no longer employed in the home. This type of workplace support may also contribute to staff satisfaction and staff retention. The types of support used in the P.I.E.C.E.S. initiative are critical in helping learners resolve both clinical issues and workplace issues (such as peer resistance to change and lack of management support). The resolution of these issues are key to implementing and sustaining change (Broad and Newstrom, 1992; Caffarella, 2002). These "reinforcing" strategies (Green and Kreuter, 1991) have been identified as important to sustained transfer of learning in LTC (Stolee *et al.*, 2005).

Survey respondents from homes in which the PRP functions were incorporated into their job descriptions and for which there was designated work time for these functions, rated the initiative as more successful and provided higher performance ratings than respondents from homes in which the PRP role was not incorporated into their job descriptions. Consistent with other studies (Aylward *et al.*, 2003; Stolee *et al.*, 2005), this finding highlights the importance of organizational support in reinforcing the use of new care approaches in LTC and in using learning and best practices to change policy and practice to make a difference. Respondents identified management support, integration of learning into ongoing practice, and on-the-job reinforcement of learning as significant in facilitating the success of P.I.E.C.E.S. Conversely, many of the identified barriers to implementing P.I.E.C.E.S. were organizational or system factors. Organizational support goes beyond the provision of continuing education to emphasizing a clear organizational priority to reinforce and sustain knowledge transfer to change clinical practice. Consistent with factors necessary for knowledge transfer as outlined by Broad (1997), respondents in this study

https://doi.org/10.1017/S1041610206004443 Published online by Cambridge University Press

emphasized the importance of resource availability including designated time for the role, and established authority and responsibility to implement PRP functions. These enabling factors (Green and Kreuter, 1991) create workplace conditions that allow staff to implement new skills and motivate them to be innovative.

Acknowledging the importance of management support, and in particular the obstacles created by lack of management support, a complementary P.I.E.C.E.S. program has recently been developed for LTC administrators and managers. Called the "Enabler Program," the goal of this initiative is to assist management to support new learners and established PRPs in their efforts to implement P.I.E.C.E.S. learning successfully. Recognizing that systems barriers such as lack of funding and resources could significantly restrict management support for this program, the provincial government supported relief time (back filling of positions) and travel expenses for staff to attend the program. The first several times that the program was offered, these expenses were paid for all who applied. In subsequent years, funding was limited to those LTC homes that did not have staff who had already received the training. Having now experienced the benefits of the program, many administrators are interested in sending additional staff for training, even though funding for relief time is no longer available to them.

This paper has described an innovative learning program related to the assessment and management of behavioral and psychiatric symptoms for LTC home nursing staff that was designed as part of a province-wide Strategy for Alzheimer Disease and Related Dementias. The results of the evaluation study highlight the importance of a supportive workplace environment and the use of enabling and reinforcing factors in the success of continuing education and quality improvement initiatives. Subjective impressions from survey respondents suggested that the PRP role in LTC has reduced behavioral and psychiatric symptoms as caregivers implement new and effective care approaches. Additional data would be helpful on the impact of the P.I.E.C.E.S. learning initiative on resident outcomes, family satisfaction, occurrence of psychiatric crises, and use of the health care system (emergency services, inpatient psychiatric services, outreach consultation). Future research efforts should also explore the role of this type of initiative on staff satisfaction, recruitment, and retention, and the evaluation of strategies to overcome identified barriers to knowledge transfer.

## Conflict of interest

None.

## Description of authors' roles

Carrie A. McAiney and Paul Stolee were responsible for evaluation design, implementation, data collection and analysis, data interpretation, and manuscript preparation. Loretta M. Hillier interpreted the data and helped write the manuscript. Diane Harris contributed to program design, data collection

https://doi.org/10.1017/S1041610206004443 Published online by Cambridge University Press

and interpretation, and helped prepare the manuscript. Pam Hamilton, Linda Kessler and Victoria Madsen were all involved in program design, data collection and interpretation, and J. Kenneth Le Clair helped design the program and prepare the manuscript.

## Acknowledgment

Financial support for the evaluation of the "Putting the P.I.E.C.E.S. Together" learning initiative was provided by the Ontario Ministry of Health and Long-Term Care.

## References

**Alexopoulos, G. S., Abrams, R. C., Young, R. C. and Shamoian, C. A.** (1988). Cornell Scale for Depression in Dementia. *Biological Psychiatry*, 23, 271–284.

**American Geriatrics Society and American Association for Geriatric Psychiatry** (2003). Consensus statement on improving the quality of mental health care in U.S. nursing homes: management of depression and behavioural symptoms associated with dementia. *Journal of the American Geriatrics Society*, 51, 1287–1298.

**Aylward, S., Stolee, P., Keat, N. and Johncox, V.** (2003). Effectiveness of continuing education in long-term care: a literature review. *Gerontologist*, 43, 259–271.

**Bartels, S. J., Moak, G. S. and Dums, A. R.** (2002). Models of mental health services in nursing homes: a review of the literature. *Psychiatric Services*, 53, 1390–1396.

**Barton, C., Miller, B. and Yaffe, K.** (2006). Improved evaluation and management of cognitive impairment: results of a comprehensive intervention in long-term care. *Journal of the American Medical Directors Association*, 7, 84–89.

**Beck, C. K. and Shue, V. M.** (1994). Interventions for treating disruptive disorders in the elderly. *Clinical Geriatrics*, 8, 26–48.

**Beck, C., Doan, R. and Cody, M.** (2002). Nursing assistants as providers of mental health care in nursing homes. *Generations*, 26, 66–71.

**Bland, J. M. and Altman, D. G.** (1997). Cronbach's alpha. *BMJ*, 314, 572.

**Bradley, L., Siddique, C. M. and Dufton, B.** (1995). Reducing the use of physical restraints in long-term care facilities. *Journal of Gerontological Nursing*, 21, 21–34.

**Broad, M. L.** (1997). Overview of transfer of training: from learning to performance. *Performance Improvement Quarterly*, 10, 7–21.

**Broad, M. L.** (2005). *Beyond Transfer of Training: Engaging Systems to Improve Performance*. San Francisco: Pfeiffer.

**Broad, M. L. and Newstrom, J. W.** (1992). *Transfer of Training. Action Packed Strategies to Ensure High Payoff from Training Investments*. Reading, MA: Perseus Books.

**Caffarella, R. S.** (2002). *Planning Programs for Adult Learners. A Practical Guide for Educators, Trainers, and Staff Developers*, 2nd edn. New York: Jossey-Bass.

**Cohen-Mansfield, J.** (1986). Agitated behaviors in the elderly. II. Preliminary results in the cognitively deteriorated. *Journal of the American Geriatrics Society*, 34, 722–727.

**Cohen-Mansfield, J.** (1997). Turnover among nursing home staff: a review. *Nursing Management*, 28, 59–64.

**Davis, D. A., Thomson, M. A., Oxman, A. D. and Hayes, R. B.** (1992). Evidence for the effectiveness of CME: a review of 50 randomized controlled trials. *JAMA*, 268, 1111–1117.

https://doi.org/10.1017/S1041610206004443 Published online by Cambridge University Press

**Dawson, P., Wells, D. L., Reid, D. and Sidani, S.** (1998). An abilities assessment instrument for elderly persons with cognitive impairment: psychometric properties and clinical utility. *Journal of Nursing Measurement*, 6, 35–54.

**Devanand, D. P. *et al.*** (1997). The course of psychopathologic features in mild to moderate Alzheimer disease. *Archives of General Psychiatry*, 54, 257–263.

**Folstein, M. F., Folstein, S. E. and McHugh, P. R.** (1975). "Mini-mental state": a practical method for grading the cognitive state of patients for the clinician. *Journal of Psychiatric Research*, 12, 189–198.

**Green, L. W. and Kreuter, M. W.** (1991). *Health Promotion Planning. An Educational and Environmental Approach*. 2nd edn. Toronto: Mayfield Pub. Co.

**Inouye, S. K., van Dyck, C. H., Alessi, C. A., Balkin, S., Siegal, A. P. and Horwitz, R. I.** (1990). Clarifying confusion: the confusion assessment method. A new method for detection of delirium. *Annals of Internal Medicine*, 113, 941–948.

**Jaeschke, R., Singer, J. and Guyatt, G. H.** (1989). Measurement of health status: ascertaining the minimal clinically important difference. *Controlled Clinical Trials*, 10, 407–415.

**Joseph, C., Goldsmith, S., Rooney, A., McWhorter, K. and Ganzini, L.** (1995). An interdisciplinary mental health consultation team in a nursing home. *Gerontologist*, 35, 836–839.

**Llewellyn-Jones, R. H., Baikie, K. A., Smithers, H., Cohen, J. and Tennant, C.** (1999). Multifaceted shared care intervention for late life depression in residential care: randomised controlled trial. *BMJ*, 319, 676–682.

**Lopez, O. L. *et al.*** (2003). Psychiatric symptoms vary with the severity of dementia in probable Alzheimer's Disease. *Journal of Neuropsychiatry and Clinical Neurosciences*, 15, 346–353.

**Muchinsky, P. M.** (1993). *Psychology Applied to Work: An Introduction to Industrial and Organizational Psychology*. 4th edn. Pacific Grove, CA: Brooks/Cole.

**Office of the Chief Coroner of Ontario** (2005). *Inquest into the Death of Ezz-el-dine El-Roubi and Pedro Lopez. Jury Recommendations, April 18, 2005*. Retrieved 19 April 2006 from http://www.advocacycentreelderly.org/pubs/nursing/Jury_Recommendations_Restyled.pdf.

**Ontario Ministry of Health and Long-Term Care** (1999). *Ontario's Strategy for Alzheimer Disease and Related Dementias – Preparing for our Future*. Toronto: Queen's Printer for Ontario.

**Perry, E., Swartz, J., Kelly, G., Brown, S. L. and Swartz, R. D.** (2003). Palliative care in chronic kidney disease: Peer mentoring program personalizes advance directives discussion. *Nephrology News and Issues*, 17, 28–31.

**PriceWaterhouseCoopers** (2001). *Report of a Study to Review Levels of Service and Responses to Need in a Sample of Ontario Long-term Care Facilities and Selected Comparators*. Woodbridge, Ontario: Ontario Association of Non-Profit Homes and Services for Seniors.

**Rummler, G. and Brache, A.** (1995). *Improving Performance: How to Manage the White Space on the Organizational Chart*. San Francisco: Jossey-Bass.

**Santmyer, K. S. and Roca, R. P.** (1991). Geropsychiatry in long-term care: a nurse-centred approach. *Journal of the American Geriatrics Society*, 39, 156–159.

**Stevens, A. B. *et al.*** (1998). Teaching and maintaining behaviour management skills with nursing assistants in a nursing home. *Gerontologist*, 38, 379–384.

**Stolee, P., Kessler, L. and Le Clair, J. K.** (1996). A community development and outreach program in geriatric mental health: four years' experience. *Journal of the American Geriatrics Society*, 44, 314–320.

**Stolee, P. *et al.*** (2003). An enhanced role in comprehensive geriatric assessment for community-nurse case managers. *Canadian Journal on Aging*, 22, 177–184.

**Stolee, P. *et al.*** (2005) Factors associated with the effectiveness of continuing education in long-term care. *Gerontologist*, 45, 399–405.

**Tariot, P. N.** (1996). General approaches to behavioural disturbances. In W. F. Reichman and P. R. Katz (eds.), *Psychiatric Care in the Nursing Home*. New York: Oxford University Press.

https://doi.org/10.1017/S1041610206004443 Published online by Cambridge University Press