

# Evaluation of the Restorative Care Education and Training Program for Nursing Homes\*

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## RÉSUMÉ

Les soins de rétablissement visent à rompre le cycle de la dépendance et du déclin fonctionnel dans les maisons de soins infirmiers en répondant aux besoins particuliers des divers résidents. Le programme RCET (Restorative Care Education and Training) comprend un atelier de cinq semaines ainsi qu'un manuel d'information destiné autant aux superviseurs qu'aux prestataires de soins directs. Ce document décrit l'approche du programme RCET et présente la mise en œuvre, les procédés et les résultats d'une évaluation quasi-expérimentale portant sur 42 résidents qui ont reçu des soins réguliers dans six lieux d'intervention différents et six établissements de « liste d'attente ». Les données de base ont permis de confirmer que le personnel mettait surtout l'accent sur les résidents qui souffraient de handicaps fonctionnels substantiels. En quatre mois, les résidents qui ont reçu des soins de rétablissement ont vu plusieurs de leurs indicateurs relatifs aux résultats fonctionnels s'améliorer de façon considérable, tandis que dans le groupe de contrôle, les sujets voyaient plusieurs de leurs fonctions décliner. Les entrevues menées auprès de la direction de l'établissement et du personnel ayant participé à l'étude ont permis de dégager certaines orientations visant à modifier le programme RCET, ainsi que certaines perspectives relatives aux possibilités et aux défis à relever afin de mettre en œuvre des activités de soins de rétablissement dans des maisons de soins infirmiers.

## ABSTRACT

Restorative care attempts to break the cycle of dependency and functional decline in nursing homes by addressing individual resident needs. The Restorative Care Education and Training (RCET) Program consists of a five-week workshop and resource manual for both supervisory and direct care staff. This paper describes the RCET approach and presents the implementation, process, and quasi-experimental outcome evaluation findings with 42 residents from six intervention sites and six "wait-list" facilities who received usual care. Baseline data supported the fact that staff primarily targeted residents with substantial functional impairments. Over four months, residents who received restorative care improved significantly on several functional outcome indicators, while the comparison sample declined in several areas of functioning. Interviews with facility directors and participating staff provided direction for modifying the RCET and insight regarding opportunities and challenges when implementing restorative care activities in nursing homes.

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## Introduction

Functioning of nursing home residents may decline by as much as 30 per cent over six months (Resnick & Simpson, 2003). Often accepted as an inevitable consequence of advanced age, frailty, and multiple health problems, the long-term care (LTC) environment itself may perpetuate resident decline and reinforce dependency through institutional policies, and staff attitudes and behaviours (Baltes, Neuman, & Zank, 1994; Morris et al., 1999). For example, it is well known that long periods of immobility (sitting or lying) have serious physical (e.g., muscle atrophy, balance impairment, orthostatic hypotension, susceptibility to pressure sores, incontinence, and urinary tract infections) and psychological (e.g., apathy, depression) consequences (Blocker, 1992). Yet research has shown that the majority of nursing home residents spend most of their waking hours either lying or sitting (MacRae, Schnelle, Simmons, & Ouslander, 1996) and that wheelchair use increases dramatically following admission (Pawlson, Goodwin, & Keith, 1986). Institutional living exacerbates immobility and associated functional decline when wheelchairs are accepted as the norm (Norman & Gibbs, 1991), residents are not given the opportunity to perform tasks independently (Myers & Huddy, 1985), and status quo exercise programming consists of limited, seated, range-of-motion routines (Lazowski et al., 1999).

To address the need for more challenging exercise programs in nursing homes, the Canadian Centre for Activity and Aging (CCAA) designed the Functional Fitness for Long-term Care (FFLTC) program. An accompanying 16-hour workshop (Functional Fitness for older Adults or FFOA workshop previously known as the Long-term Care Physical Activity Workshop or LTCPAW) was developed to educate staff on the negative effects of immobility and to provide training on specific exercises, safety, and motivational techniques. A randomized outcome evaluation of the FFLTC demonstrated that institutionalized seniors – even those who are frail, are incontinent, have mild dementia, and/or may be considered non-ambulatory – can respond positively to such a program (Lazowski et al., 1999). Over four months, the FFLTC group showed significant improvements in

mobility, self-care, and other areas, while the control group deteriorated despite range-of-motion exercise (Lazowski et al.). Other group-based exercise studies targeting frail LTC residents, however, have found mixed results (e.g., Baum, Jarjoura, Polen, Faur, & Rutecki, 2003; Nowalk, Prendergast, Bayles, D'Amico, & Colvin, 2001).

Residents who are severely de-conditioned may require more individualized exercise programs (Lazowski et al., 1999; Nowalk et al., 2001). For instance, Blocker (1992) suggested a series of bed exercises. Schnelle and colleagues (1995) showed that simple exercises (such as sit-to-stand and walking or wheeling to the bathroom) could be incorporated into prompted voiding regimens for frail, incontinent residents. MacRae, Asplund, Schnelle, Ouslander, Abrahamse, and Morris (1996) demonstrated the benefits of supervised individual walking programs for cognitively impaired, de-conditioned residents. Such individualized approaches to resident assessment and treatment fall under the umbrella of “restorative” care.

According to Atchinson (1992), restorative care focuses on what a resident can do in order to reduce the level of care required and “to eliminate or minimize the degrading features of LTC such as restraints, incontinence and supervised feeding.” Similarly, Resnick & Simpson (2003) contrast restorative care to usual nursing care (which creates dependency and learned helplessness) through focusing on “the maintenance or restoration of physical function” and helping the elder “compensate for functional impairments so that the highest level of function is obtained” (p. 83). The restorative care approach addresses the individual needs of all residents, as opposed to skilled rehabilitative services, which are normally restricted to only short-stay convalescent residents in the United States (Joseph & Wanlass, 1993) or to residents who have suffered an acute event (such as a stroke or hip fracture) in Canada. The movement away from the traditional model of custodial care in the United States has been fuelled by legislation directed at nursing homes (Coleman, 1991) and home-care providers (Tinetti et al., 2002), which mandates attention to individualized treatment and assessment to maximize functional status and quality of life.

Articles on restorative care are emerging with respect to both home care (Baker, Gottschalk, Eng, Weber, & Tinetti, 2001; Tinetti et al., 2002) and nursing-home populations (Morris et al., 1999; Remsburg, Armacost, Radu, & Bennett, 1999; Resnick & Fleishell, 2002; Resnick & Simpson, 2003; Schnelle et al., 1995; Schnelle, Cruise, Rahman, & Ouslander, 1998). These interventions have employed several approaches to implementing restorative care (e.g., creating specific positions versus adding restorative care activities to usual duties), involved different types of personnel (e.g., professional nurses or therapists and/or para-professional aides), and focused on different areas of resident functioning (e.g., mobility, self-care, incontinence, psychosocial, cognitive) and/or institutional policies (e.g., use of restraints or wheelchairs, feeding practices). Common elements, however, include commitment to the philosophy of optimizing individual functioning and breaking the cycle of decline and dependency; staff education; teamwork; and the importance of individualized assessment, goal-setting, and documenting outcomes.

While nursing home associations across Canada are also encouraging the restorative care approach, no Canadian studies have been published. The CCAA conducted a survey of LTC facilities to identify the extent of exercise and restorative care programming offered in Canada. Questionnaires sent to a random sample of 221 facilities (selected from the *Canadian Healthcare Facilities Directory*) were returned by 82 facilities (response rate of 37%) from nine provinces. The majority (98%) offered some type of group or individual exercise programming (mostly range-of-motion), and 90 per cent set functional goals for individual residents. Yet only five of these facilities (6%) had staff with dedicated restorative-care or physical-activity job functions (e.g., kinesiologist or activity coordinator). Overall, the survey findings indicated tremendous variability in existing physical activity/restorative care programming and a lack of specialized staff training.

To address this need, the CCAA developed the Restorative Care Education and Training (RCET) Program using our FFOA as the starting point and based on the common elements of the restorative care described above. This program was developed in consultation with the Ontario Ministry of Health, LTC Division (MOH-LTC), and in collaboration with representatives from the Ontario Nursing Home Association, the Southwestern Ontario Regional Geriatric Program, and administrators from the Community Care Access Centre and LTC facilities in the London region. This paper describes the RCET Program and presents the findings of a four-month

evaluation study involving staff and residents from 12 nursing homes in Southwestern Ontario.

### Description of the RCET

The RCET was designed as an interactive, 35-hour workshop (one day a week over a five-week period) delivered on a rotating basis in participating LTC facilities. The workshop was facilitated by a multi-disciplinary team consisting of an adult educator, a physiotherapist, a speech-language pathologist, and a dietician, using adult learning principles such as case studies, group strategizing, role playing, and practice exercises (e.g., develop mobilization strategies for someone in a wheelchair) between the weekly sessions to build and reinforce skills and promote confidence.

The workshop consisted of five modules: (1) Physical Activity, (2) Positioning, Mobility and Transfers, (3) Communication, (4) Feeding/Eating, and (5) Assessment and Evaluation. The first module, modelled after the FFOA (Lazowski et al., 1999) and adapted for very frail, de-conditioned residents, included specific exercises for bed- or chair-bound residents, those with urinary incontinence, osteoporosis, and arthritis. Similar to Schnelle et al. (1995), strategies for incorporating functional exercises into daily routines were emphasized. The second module focused on common mobility and gait impairments, correct use of gait aids, resident positioning (in bed and chairs), transfer techniques, and other strategies for fostering safe and independent ambulation. The third module addressed strategies for working with residents with communication impairments (speech, language, voice, hearing, vision, cognition) resulting from stroke, dementia, or other medical or neurological conditions (San Pietro, 1994). The fourth module addressed culturally appropriate dietary issues, hydration and aspiration problems, and strategies to promote safe feeding and independent eating practices. The final module focused on developing a restorative care plan, setting individualized goals in conjunction with the resident and family, and using functional performance measures as well as goal-attainment scaling (Gordon, Powell, & Rockwood, 1999) to document outcomes.

Throughout the sessions, team-building skills were emphasized, as were strategies for motivating residents and decreasing learned helplessness and dependency (Foy & Mitchell, 1990). Time was provided each week for participants to tour the host facility and network with personnel from different facilities. All workshop participants received a resource manual.

## Evaluation Study Methods

The study comprised an evaluation of outcome, process, and implementation. The purpose of the outcome study was to examine maintenance or improvement in resident functioning over four months. The chosen study period was based on documented improvements in resident functioning following four months of participation in the FFLTC program (Lazowski et al., 1999). The purpose of the process evaluation was to obtain feedback on the training and resource manual, while the implementation evaluation examined resident selection practices and strategies used by facilities to foster restorative care activities and associated challenges.

### *Facility, Staff and Resident Recruitment*

Information about the RCET Program, together with an invitation to take part in the evaluation study, was sent to all 111 LTC facilities in the 10 counties in Southwestern Ontario. The list of facilities, including information on operating status (profit or non-profit), number of beds, location, and contact information, was supplied by the MOH-LTC Division. Facility commitment entailed sending at least two staff members to the RCET workshop (at a cost of \$250 per participant), hosting one day of training during the five-week workshop period, devoting time and energy to program implementation over the four-month study period; and allowing researcher access to participating residents and staff, as well as follow-up site visits and interviews for evaluation purposes. While 34 facilities from six counties (31%) expressed interest, 10 indicated they preferred to wait for the study results. The 24 facilities willing to take part in the evaluation study were stratified according to size (less than or greater than 100 beds) and operating status (profit/not-for-profit). Twelve facilities were then selected from these groupings, and six were randomly assigned to either the intervention condition or the wait-list condition (i.e., offered the RCET following the four-month evaluation study).

The nursing care administrator at each facility was asked to select two to four staff members, at least one of whom provided direct resident care and one who was a supervisor. The two-person per facility minimum was established to provide mutual support and to promote teamwork between front-line service deliverers and administration. Selected staff members from the six intervention sites ( $n=21$ ) received the five-week RCET workshop, while staff in the wait-list control condition ( $n=18$ ) were asked to carry on with usual care and programming over the study period. Participating staff members were asked to identify seven residents under their care who they felt might benefit from restorative care, for a total of 42 in the

intervention and control groups, respectively. Based on sample size calculations using change data from FFLTC study, 25 participants in each condition were required (Lazowski et al., 1999). Following the first RCET module, the intervention group was encouraged to begin developing restorative care plans, setting goals, and working with selected residents.

### *Data Collection*

Background information was collected on the 12 facilities (e.g., size), the 39 staff members (age, gender, LTC work experience), and the 84 residents (age, gender, use of gait aids) in the evaluation study. Information for the process and implementation evaluations, respectively, was obtained via questionnaire following completion of the RCET workshop and via individual interviews with facility directors and small group interviews with staff three months after training.

Indicators for the outcome evaluation consisted of goal attainment scaling (GAS), as well as several functional performance measures, described below. Each outcome indicator was measured using standardized tools with published evidence supporting reliability and validity. For standardization, researchers from the CCAA assessed residents directly (e.g., the Timed-Up-and-Go) or obtained observational ratings from staff (e.g., for the Functional Independence Measure) at both time-points (baseline and four-month follow-up). Information was obtained from the same staff member at both Time 1 and Time 2 for each resident, and baseline results were not disclosed. To minimize bias regarding the goal attainment data (Gordon et al., 1999), a neutral researcher (who was not involved in the initial goal setting and had no access to baseline data) conducted follow-up assessments of each resident's status related to his or her pre-established goals. Data collection was staggered across sites to ensure that resident follow-up assessments occurred approximately four months after baseline assessments.

### *Goal Attainment Scaling (GAS)*

The GAS is particularly useful for evaluating the complex needs of geriatric clients, since it can accommodate multiple, individualized goals, yet still permit comparisons across clientele through a standardized scoring formula (Gordon et al., 1999; Stolee, Stadnyk, Myers, & Rockwood, 1999; Stolee, Zaza, Pedlar, & Myers, 1999). In GAS, individual goals are identified and scaled, using a follow-up guide, on expected clinical outcomes, determined a priori, from much less than expected ( $-2$ ), to much better than expected ( $+2$ ), with midpoint zero (expected outcome). Scores for each goal are then combined into a single overall

numerical score, with a mean of 50 representing an outcome at the expected level.

For the present study, researchers guided staff in both the intervention and control groups through the initial goal setting. Individual resident goals were established prior to staff training (i.e., the RCET workshop), since the intervention began immediately following the first module. Staff teams were encouraged to focus initially on a few specific functional goals for each selected resident that they felt addressed pressing needs and were realistic to accomplish in four months.

#### *Timed-Up-and-Go (TUG)*

A widely used measure of functional mobility for frail seniors (Podsiadlo & Richardson, 1991), the TUG assesses the time required (in seconds) to stand up from a seated position (from a standard armchair, seat height 46 cm), walk three metres at a safe comfortable pace (with usual gait aids), turn around, and resume the seated position. A low TUG score denotes a higher level of functional mobility. The cut-off of 20 seconds has been used to distinguish between high-mobility (capable of independent ambulation) and low-mobility (requiring gait aids or personal assistance for ambulation) nursing home residents (Lazowski et al., 1999)

#### *Functional Independence Measure (FIM)*

The FIM assesses the amount of assistance (1 = total assistance, 7 = complete assistance) required for various Activities of Daily Living (ADL) (Granger & Hamilton, 1993). The six areas addressed by the FIM are (1) self-care (feeding, dressing, and bathing), (2) sphincter management, (3) mobility/transfers (bed, chair, toilet, and tub), (4) locomotion (walking and stairs), (5) communication, and (6) social cognition. Total FIM scores can range from 18 to 126, with a higher score indicating greater functional independence. Separate motor (range = 13 to 91) and cognitive (range = 5 to 35) scores can also be examined (Granger & Hamilton).

#### *Multidimensional Observation Scale for Elderly Subjects (MOSES)*

The 40-item MOSES has been shown to provide reliable and valid staff ratings (Helmes, Csapo, & Short, 1987) on five areas of resident functioning: self-care, disorientation, depression, irritability, and withdrawal. For each subscale, scores can range from 8 to 32, with lower scores indicating higher functioning.

#### *Hierarchical Assessment of Balance and Mobility (HABAM)*

The HABAM was designed for bedside use by clinicians to track progression and recovery in a hierarchical range of abilities (MacKnight & Rockwood, 1995). This tool consists of three ordinal

subscales: balance, mobility, and transfers. Resident performance (with usual gait aids) is observed and scored as highest level attained. Total scores on the HABAM can range from 0 to 24, with higher scores indicating higher functioning (MacKnight & Rockwood).

#### *Data Analysis*

SPSS (version 11.5) was used for all statistical analyses. Independent t-tests or  $\chi^2$  analysis were used to compare group differences in sample characteristics and functional indicators at baseline. Residents without any follow-up data were not included in subsequent change analyses. Group differences in mean changes scores over four months were compared using one-way ANOVA, adjusting for baseline values where significant. Within-group change was examined via independent t-tests. Effect sizes were calculated to examine the magnitude of change (Kazis, Anderson, & Meenan, 1989). An effect size of 0.2 is considered "small," 0.5 "moderate," and  $\geq 0.8$  "large" (Cohen, 1977). Individual change was also calculated to examine the proportion of individuals in each group who improved, remained the same, or deteriorated in functioning (Lord et al., 1996; Myers, 1999). Non-parametric tests ( $\chi^2$  analysis) were used to examine proportionate group differences. Level of significance was set at ( $p \leq .05$ ) for all quantitative statistical procedures.

Content analysis was used to analyse the open-ended comments from the workshop feedback forms. Analysis of the transcribed structured interview data was used to examine and compare facility experiences in implementing and delivering restorative care activities. Analysis was conducted by one of the authors and independently verified by another.

## **Results**

### *Sample Characteristics*

The LTC facilities involved in the present study ranged in size from 60 to 170 beds. Each facility sent two to four staff to the workshop (80% of the RCET sites sent four staff members). Workshop attendees comprised 67 per cent direct care and 33 per cent supervisory staff. Supervisory staff included directors of nursing, charge nurses, directors of care, and activity directors. Direct care staff included nurses, nurses aides, health care aides, kinesiologists, and activity leaders (adjuvants). All participating staff members were female, ranging in age from 22 to 60 years (mean age =  $36 \pm 10$ ). On average, staff had  $12.5 \pm 8$  years of experience working in LTC ( $9 \pm 7$

years at the present facility). The majority (75%) were university or college educated.

Baseline assessments were completed with 84 residents: 42 in the RCET intervention and 42 in the control group. The sample ranged in age from 55 to 97 years (mean =  $82.6 \pm 8.5$ ) and was primarily female (70%). The majority of residents (83%) used gait aids (typically walkers), and most (84%) had TUG scores  $\geq 20$  seconds. No significant group differences emerged in the above variables.

Four-month, follow-up assessments on at least one of the indicators were obtained for 39 individuals in the RCET (93%) and 38 in the control (91%) group,

respectively. Sample sizes for each specific outcome measure are shown in Table 1. Two residents in the RCET group were unable or unwilling to do any of the follow-up assessments, while one person died in the interim. One resident in the control group was not assessed at follow-up, while three died. Background characteristics of study completers in the intervention and control conditions were similar.

#### Goal Setting and Attainment

The number of short-term goals set for residents ranged from one to four. While more goals on average ( $p < .05$ ) were set for the RCET ( $1.69 \pm 0.98$ ) versus the control ( $1.34 \pm 0.53$ ) group, respectively, the types

**Table 1: Group change over the four-month study period**

Variables	Intervention Group				Control Group				<i>p</i>
	<i>n</i>	Pretest	Post-test	Change	<i>n</i>	Pretest	Post-test	Change	
<b>GAS</b>	37	39.6 ± 5.0	45.5 ± 8.8	5.8 ± 9.5	34	39.1 ± 1.2	40.0 ± 8.1	0.9 ± 8.2	.01
CI <sub>95</sub>		37.95–41.28	42.54–48.37	2.7–9.0		38.68–39.55	37.18–42.83	–2.0–3.8	
<b>TUG (seconds)</b>	27	66.1 ± 37.9	64.5 ± 44.0	1.58 ± 29.7	25	52.6 ± 47.2	54.0 ± 33.3	–1.41 ± 27.3	.89
CI <sub>95</sub>		51.1–81.0	47.1–81.9	–10.2–13.3		33.2–72.1	40.3–67.8	–12.7–9.9	
<b>Total FIM</b>	33	54.0 ± 21.9	66.2 ± 23.1	12.2 ± 18.7	34	72.1 ± 28.1	66.9 ± 31.2	–5.2 ± 15.9	.00
CI <sub>95</sub>		46.26–61.77	58.05–74.43	5.6–18.9		62.24–81.85	55.97–77.77	–10.7–0.36	
Motor	33	35.6 ± 17.2	44.8 ± 19.6	9.2 ± 12.4	34	46.6 ± 22.5	42.3 ± 25.1	–4.4 ± 12.8	.00
CI <sub>95</sub>		29.44–41.65	37.84–51.74	4.9–13.6		38.80–54.47	33.53–51.02	–8.8–0.11	
Cognitive	33	18.5 ± 9.1	21.5 ± 8.1	3.0 ± 1.6	34	25.4 ± 7.6	24.6 ± 9.9	–0.8 ± 7.9	.69
CI <sub>95</sub>		15.24–21.70	18.57–24.34	–0.3–6.2		22.75–28.08	21.12–28.06	–3.6–1.9	
<b>MOSES Self-Care</b>	33	23.7 ± 5.6	21.6 ± 6.2	2.03 ± 4.0	38	21.3 ± 6.9	21.9 ± 7.5	–0.6 ± 4.5	.03
CI <sub>95</sub>		21.68–25.66	19.44–23.83	0.61–3.5		19.07–23.61	19.44–24.35	–2.0–0.9	
Disorientation	33	20.0 ± 8.0	18.6 ± 7.7	1.45 ± 5.7	38	12.4 ± 6.2	13.1 ± 7.0	–0.7 ± 4.2	.65
CI <sub>95</sub>		17.21–22.85	15.85–21.31	–0.6–3.5		10.41–14.48	10.83–15.44	–2.0–0.7	
Depression	33	17.2 ± 6.3	15.8 ± 7.1	1.4 ± 6.4	37	15.0 ± 5.9	15.1 ± 6.8	–0.1 ± 6.5	.69
CI <sub>95</sub>		14.95–19.41	13.29–18.35	–0.9–3.6		13.03–16.97	12.84–17.37	–2.3–2.1	
Irritability	33	14.6 ± 5.3	13.5 ± 5.9	1.2 ± 4.6	37	11.3 ± 3.9	12.1 ± 4.4	–0.8 ± 3.9	.37
CI <sub>95</sub>		12.74–16.53	11.39–15.58	–0.5–2.8		9.98–12.57	10.63–13.54	–2.1–0.5	
Withdrawal	33	20.8 ± 5.7	20.0 ± 5.4	0.8 ± 6.0	36	14.6 ± 5.7	15.2 ± 6.4	–0.6 ± 6.2	.21
CI <sub>95</sub>		18.75–22.82	18.07–21.93	–1.3–2.9		12.71–16.57	13.06–17.39	–2.7–1.5	
<b>HABAM</b>	29	14.0 ± 6.1	15.8 ± 6.0	2.1 ± 5.4	19	13.8 ± 4.7	12.8 ± 5.4	–2.3 ± 4.8	.00
CI <sub>95</sub>		11.66–16.37	13.53–18.13	0.2–4.0		11.51–16.07	10.22–15.47	–1.3–1.6	

#### Note:

Values are the unadjusted pre and post means ± SD. *p*-values reported are adjusted for baseline differences when significant.

GSA = Goal Attainment Scaling; TUG = Timed Up and Go (seconds); FIM = Functional Independence Measure;

MOSES = Multidimensional Observation Scale for Elderly Subjects; HABAM = Hierarchical Assessment of Balance and Mobility

of goals were similar. For both groups, the majority of goals pertained to mobility (72%), transfers (16%), and ADLs (14%). Other goals consisted of communication (12%), feeding or eating (11%), and social participation (5%). As expected, specific scaling criteria varied. For instance, mobility goals were found to be scaled according to walking distance, use of gait aids, and/or level of personal assistance. Feeding or eating goals were scaled in terms of assistance or change in food consistency or texture. Communication goals, meanwhile, were scaled on vocalization, use of devices (such as pocket talker aids, boards) and extent of social interaction.

Using the standardized formula (Gordon et al., 1999), total GAS scores were calculated across goals, first for each individual, then across individuals in each study condition. As shown in Table 1, average GAS scores at baseline were similar for the two groups. Significantly more change (improvement) in GAS scores emerged for the intervention group over four months.

#### Functional Outcome Indicators

Table 1 illustrates the pre-test (study entry), post-test (four months), and change scores for each of the functional indicators. At baseline, significant group differences emerged on the motor and cognitive subscales of the FIM, as well as the disorientation,

irritability, and withdrawal subscales of the MOSES. After adjusting for the baseline scores, significant group differences in mean change scores emerged for the FIM (total and motor), the self-care subscale of the MOSES, and the HABAM. Trends towards improvement in the RCET group and decline in the control group were evident for the TUG, the cognitive subscale of the FIM, and all the subscales of the MOSES.

Based on effect size, magnitude of change for the RCET group, as a whole, was moderate for the Total FIM (.56), FIM motor (.54), FIM cognitive (.33), MOSES self-care (.36), and HABAM (.34). Effect sizes for the TUG and the psychological indicators (disorientation, depression, irritability, and withdrawal) were small, ranging from .04 to .22. In the control group, magnitude of change was small (.03 to .22) for all indicators, except the HABAM (−.48), which was moderate but negative in direction.

Table 2 illustrates the proportion of individuals showing change on the outcome indicators. Significant group differences emerged for GAS, the FIM (total, motor, and cognitive), the MOSES self-care and disorientation subscales, and the HABAM. Across these indicators, 57 to 85 per cent of those in the RCET group showed improvement or positive

**Table 2: Proportion of individuals showing change by group**

Variables	Intervention Group				Control Group				p
	n	Positive % (n)	Neutral % (n)	Negative % (n)	n	Positive % (n)	Neutral % (n)	Negative % (n)	
<b>GAS</b>	37	57 (21)	30 (11)	14 (5)	34	32 (11)	44 (15)	24 (8)	0.05
<b>TUG</b>	27	48 (13)	0	52 (14)	25	44 (11)	0	56 (14)	0.77
<b>Total FIM</b>	33	79 (26)	0	21 (7)	34	27 (9)	0	74 (25)	0.00
Motor	33	85 (28)	0	15 (5)	34	32 (11)	0	65 (22)	0.00
Cognitive	33	61 (20)	0	39 (13)	34	35 (12)	3 (1)	62 (21)	0.05
<b>MOSES</b>									
Self-Care	33	61 (20)	9 (3)	30 (10)	38	37 (14)	11 (4)	53 (20)	0.04
Disorientation	33	61 (20)	6 (2)	16 (11)	38	21 (8)	42 (16)	37 (14)	0.03
Depression	33	55 (18)	6 (2)	39 (13)	37	43 (16)	14 (5)	43 (16)	0.49
Irritability	33	55 (18)	6 (2)	39 (13)	37	32 (12)	24 (9)	43 (16)	0.24
Withdrawal	33	49 (16)	9 (3)	42 (14)	36	44 (16)	11 (4)	44 (16)	0.79
<b>HABAM</b>	33	58 (19)	12 (4)	30 (10)	27	33 (9)	7 (2)	59 (16)	0.03

#### Note:

p-values denote significance of group difference in proportions.

GSA = Goal Attainment Scaling; TUG = Timed Up and Go (seconds); FIM = Functional Independence Measure;

MOSES = Multidimensional Observation Scale for Elderly Subjects; HABAM = Hierarchical Assessment of Balance and Mobility

change, compared with only 21 to 37 per cent of the control group. On average, the RCET group improved by 13 points or 46 per cent (range 3% to 181%) on the FIM motor scale, by five points or 19 per cent (range 3% to 42%) on the MOSES self-care scale, and by 6 points or 97 per cent (range 5% to 433%) on the HABAM. In contrast, a higher proportion of the control group showed negative change or decline on several measures (e.g., 74% FIM total, 65% FIM motor, 53% MOSES self-care, and 59% HABAM).

### *Process and Implementation Findings*

The interviews revealed that two of the intervention sites were already doing some restorative care activities, albeit to a limited extent (e.g., encouraging resident walking) prior to the RCET workshop. Further analysis of resident baseline and change scores, comparing these two sites to the other four facilities, however, did not find significant differences. All staff (including those with previous training or experience in restorative care) indicated that they found the training and materials practical and useful, such as in one representative comment: "Some sections were review while others provided new information. I found that very beneficial." The communication and feeding/eating modules were found to present the most new information. With respect to the workshop format, participants particularly liked the videos, role playing, and "the opportunity to see other nursing homes and how they function." Participants suggested providing more information on in-service guidelines in future, as well as strategies for motivating residents with dementia and depression.

With respect to staff selection, administrators from two sites chose to send staff members (e.g., nurse and activity instructor) who were already doing some restorative care. The other sites tended to select staff members with greater seniority, those who showed interest, and those who "would be good teachers." Resident selection practices also varied. For instance, some staff chose residents already on their restorative care program, others reportedly selected cognitively intact residents, while others targeted residents with dementia and/or communication problems.

All the facilities adopted a team approach to implementing restorative care activities, as encouraged in the training sessions. After the workshop, three sites provided their own in-service training to colleagues. As one staff member reported, "We had a good turnout ... 8 to 10 staff for our restorative feeding in-service." The other three sites partnered with other facilities, "teaching each others in-services, so that the

staff take it more seriously." Four of the intervention sites reportedly implemented new restorative care programs, for example, wheelchair exercise, turning and position, feeding, communication, and assisted ambulation, while the sites already doing some restorative care augmented their activities (i.e., "It gave us new ideas to try").

Several staff noted that the training increased their confidence, changed attitudes (e.g., "My approach to them is different now") and clinical practice (e.g., "trying to let them feed themselves instead of feeding them and getting it over with"). Participating staff from all six facilities felt that the restorative approach was beneficial for many of their residents (e.g., "The residents were very responsive. Once we had them up and walking, they became motivated and wanted to work harder." "They can transfer better from the toilet to their wheelchair." "They mention their pain has decreased." "One lady with a stroke is now feeding herself.").

Interviews with administrators and staff also revealed a number of challenges in implementing restorative care activities. The major issues were "not enough money in the budget" and "too busy and short-handed." Changing long-standing practices (e.g., "I'm still being asked to toilet people"), and getting staff to work together (e.g., to emerge from their silos, where "nursing does their thing, activity does theirs") were mentioned as additional challenges.

## **Discussion**

Despite evidence for the efficacy of intensive, targeted interventions (such as protocols to address incontinence, mobility impairment, or behavioural disturbances) in frail populations, clinically proven interventions will not be implemented or sustained if they are too complex, costly, or otherwise impractical (Schnelle et al., 1998). Strict research protocols are inconsistent with a client-centred approach to care (Sidani, Epstein, & Moritz, 2003), and studies often fail to examine the transfer of skills into everyday practice (Morris et al., 1999). Evaluation studies are also needed to examine interventions under real-world conditions in order to develop realistic guidelines for clinical practice (Schnelle et al., 1998; Sidani et al., 2003).

The present study constitutes a preliminary evaluation of the Restorative Care Education and Training (RCET) Program in LTC facilities. In developing the RCET, we made a conscious decision not to provide a "recipe" or advocate a specific approach for incorporating restorative care activities into LTC facilities. Consistent with the patient-centred



care approach (Sidani et al., 2003) and prior restorative care protocols (e.g., Rensburg et al., 1999), staff themselves were asked to select residents they felt would benefit from restorative care activities.

While staff training and teamwork are considered essential for changing practice, currently there is no consensus on what constitutes adequate staff preparation for restorative care. For instance, Morris et al. (1999) provided a 10-hour "Fit for Life" training course for staff and volunteers. For their "Self-Care Rehabilitation" intervention, pairs of nurses and assistants were trained (length of training unspecified) to perform bedside assessments, set goals, tailor individual protocols, and implement care plans (Morris et al., 1999). Rensburg et al. (1999), meanwhile, provided two weeks of training for the "designated" nursing assistant (NA) and a 30-minute orientation for other staff on the unit, while the 20 NAs in the two "integrated" intervention units were each given five, one-hour classes over a three-month period. Advantages found for the designated approach were more rapid enrolment of residents, higher staff compliance with restorative care, and greater staff satisfaction. A major disadvantage was that "all restorative care activities appeared to shift to the designated NA" (Rensburg et al., 1999, p. 325). Ultimately, each facility must decide whether to create specific positions (such as restorative care coordinators) or incorporate restorative care activities into routine duties of all staff.

The RCET staff training workshop is fairly intensive (total of 35 hours over five weeks) and the first to include supervisory staff, as well as direct care providers. Another innovative feature of the RCET approach, which staff particularly liked, was weekly rotation of the workshop among facilities, offering opportunities to tour the facility and exchange ideas with other providers. Regardless, the RCET workshop is simply a starting point for introducing restorative care activities and encouraging team building. After the workshop, some facilities chose to conduct their own in-service training, while others reportedly partnered with other facilities on additional staff training.

Only two studies to date have empirically examined resident outcomes of restorative care interventions in nursing homes (Morris et al., 1999; Schnelle et al., 1995). Similar to the present study, Morris et al. recruited from a pool of interested nursing homes (within a 150-km radius), randomly assigned facilities to either intervention or control conditions (two per condition), and trained staff to deliver restorative care activities. In the Schnelle et al. study, 76 incontinent

residents from four nursing homes were randomly assigned to one of two intervention groups (no control group), which were delivered by researchers. Functional outcomes were assessed at 2 months (Schnelle et al., 1995) and 10 months (Morris et al., 1999), respectively.

Our sample characteristics (predominately female, over age 80, and largely dependent on gait aids or personal assistance for ambulation) were comparable with those of Morris et al. (1999) and Schnelle et al. (1995). Compared to other nursing home samples, our RCET sample had substantially poorer functional mobility according to baseline TUG scores ( $66 \pm 38$ ) than Lazowski et al.'s (1999) FFLTC group ( $22 \pm 15$ ) and MacRae et al.'s (1996) walking group ( $24 \pm 17$ ). Over 80 per cent of our sample was classified as "low mobility," compared to only 43 per cent of the FFLTC group. Comparing FIM scores, our RCET sample was also more functionally dependent ( $54 \pm 22$ ) than residents who took part in Lazowski et al.'s FFLTC group-based exercise intervention ( $115 \pm 9$ ). Comparing MOSES scores, our RCET sample also had more problems with self-care, depression, and other aspects of psychological functioning than Helmes et al.'s (1987) sample of 970 nursing home residents. The above data supports the notion that staff targeted residents primarily with substantial functional impairments for restorative intervention.

Consistent with previous studies (Morris et al., 1999; Schnelle et al., 1995), the present findings demonstrate that restorative care interventions can not only delay decline, but may also significantly improve resident functioning. All three studies examined group change, using a combination of standardized ADL and performance measures. In addition to examining overall group change, we looked at the proportion of individuals who showed improvement. As expected, some residents improved more than others in certain areas. The next step, requiring larger sample sizes, is to examine which types of clients benefit most from restorative care.

When outcomes are documented, functional performance measures may be too difficult for many severely de-conditioned residents. Morris et al. (1999) reported that a high proportion of their residents were unable to even initiate the balance, power, or endurance tests, and we found that one-third of our residents could not complete the TUG test. Furthermore, staff may not be willing to administer such measures routinely. Regardless, generic measures alone, including the MDS approach (Resnick & Fleishell, 2002), will not capture subtle, yet potentially important, resident changes. Since restorative care is based on an individualized approach, it is surprising that prior

studies have not examined goal-setting practices or used goal-attainment scaling (GAS) as an outcome indicator.

This evaluation showed that, initially, only a few goals were set for each resident (the majority focusing on mobility, transfers, and ADLs), consistent with previous findings in geriatric settings (Gordon et al., 1999; Stolee et al., 1999). In the present study, researchers assisted staff in completing initial goal charts, since formal GAS training did not take place until the final workshop module for the intervention sites and after the study for the wait-list control sites. The goal-setting exercise, as well as interest in the RCET, may have prompted staff in the wait-list control sites to begin trying restorative care activities on their own. Together with researcher attention, this might explain why some of these residents also showed positive change. Nonetheless, total GAS scores were still significantly better for the intervention than for the control group. While it takes time for staff to become proficient using GAS (Stolee, Zaza, et al., 1999), it can be an extremely useful tool for resident care planning, monitoring progress, and documenting outcomes for each individual and across residents (using the standardized formula). Compared to generic measures, GAS is more likely to capture clinically and personally important outcomes (examples noted by staff were one person's improved ability to transfer from the toilet to the wheelchair, or another lady with stroke now feeding herself).

Similar to prior restorative care outcome studies (Morris et al., 1999; Schnelle et al., 1995), the quasi-experimental approach (random assignment but not random selection) used in the present study has a number of inherent limitations. For instance, it was not possible to blind staff or researchers to study condition or prohibit contact between service providers (resulting in the possible contamination of the "wait-list" sites). In addition, some of the facilities were already doing some (albeit minimal) restorative care (although resident data were comparable). These limitations must be viewed in light of the importance of evaluating restorative care under real-world conditions, with interested facilities (willing to invest in staff training) and staff (versus researchers) actually delivering the intervention under examination (Sidani et al., 2003).

The most important limitation of the present study was the inability to quantify the dose of intervention and examine the dose-response relationship. While we asked staff in each site to document newly implemented restorative care activities and extent of resident compliance with these activities, it was very difficult to get complete or accurate information, as

found by Morris et al. (1999) and Rensburg et al. (1999). Similar problems were experienced in attempting to get the control sites to document "usual" practice over the study period. Future studies can benefit from lessons learned by Schnelle et al. (1998) in tracking and quality control checks to foster more consistent implementation of prompted voiding protocols in LTC.

While the present sample size was sufficient for examining group differences on the chosen outcome indicators, future studies with larger samples are needed to examine the influence of various facility, intervenor, and client characteristics on resident outcomes of restorative care (Schnelle et al., 1998; Sidani et al., 2003). For instance, potentially important facility (or unit) characteristics include staff-to-resident ratio, approach to staff training and implementation of restorative care activities, and physical design (e.g., walking paths). Intervenor characteristics that might be important are staff experience, education level, and training (e.g., kinesiologists versus nursing assistants). Preliminary work by Resnick & Simpson (2003) suggests that measuring staff level of self-efficacy for performing restorative care activities in the face of challenges (such as problems motivating residents or when staffing issues arise) may be useful. Multiple resident characteristics that may be important in adherence and level of improvement are length of stay, and extent of physical and cognitive impairments, depression, and fear of falling. As noted, substantially larger sample sizes, however, are needed to permit comparisons at the facility, unit, and individual resident levels.

The RCET Program, however, is simply a starting point for introducing restorative care activities or enhancing their use in nursing homes. Furthermore, this study examined delivery in the early stages of implementation. It takes time for staff to become confident with restorative care activities (Rensburg et al., 1999) and proficient using GAS for resident care planning and monitoring (Stolee, Zaza, et al., 1999). Ideally, residents themselves and families should also be involved in goal setting. Further evaluation is required to monitor subsequent efforts to involve additional staff members and residents in restorative care activities in these facilities. Clinical practice guidelines, including rules for starting (selecting residents) and stopping (decided when residents are not responding) should also be developed and evaluated (Schnelle et al., 1998).

Based on the process evaluation findings, the RCET has evolved since the completion of this study. For instance, the manual now includes additional illustrations of possible restorative activities, exercise

diagrams, strategies for team building, working with specific groups (e.g., post-stroke), and GAS guidelines. A 19-minute introductory video (*Restorative Care: The Best You Can Be*) has been developed for use in the RCET workshop and as a resource for in-service training. In addition, the CCAA has developed a four-day trainer course for graduates of the RCET or FFOA workshops and more experienced health professionals.

The demand for restorative care training in Canadian nursing homes is evident in the fact that over 200 LTC facilities and 800 staff from across Ontario have taken the RCET course. Subsequently, LTC facilities in some regions have independently formed their own restorative care support groups or networks, which meet regularly to conduct in-service training, solve problems, and share ideas. Follow-ups are underway to document similar initiatives.

Clearly, restorative care is a desirable alternative to the traditional, custodial model of nursing home care in attempting to break the cycle of functional decline and dependency. Creating a restorative care culture, however, requires time as well as the full commitment and support of all key stakeholders (facility administrators and medical directors, politicians, and funding bodies). Even with the passage of legislation, it is still extremely difficult to change long-standing policies, practices, and funding formulas (Joseph & Wanless, 1993). In the United States, reimbursement by Medicare requires rigorous documentation of restorative care activities, resident reassessment (every 6 to 12 months), and demonstrated functional improvements or progress towards goals (Resnick & Fleishell, 2002). In Canada, current funding formulas for LTC facilities (e.g., using the case mix index and a general funding envelope for general "recreational activities") provide little incentive for attempts to improve resident functioning. Potential cost-savings cannot be the only driving force, since, as noted by Schnelle et al. (1998), it is nearly impossible to make effective care (e.g., for incontinence) more time or cost efficient. Rather, focus on demonstrated functional improvements and enhanced quality of life for residents is needed to convince funding bodies to support restorative care activities (Schnelle et al., 1998).

In conclusion, this is the first Canadian study to evaluate restorative care education and training for LTC staff. Their impact on resident function is very encouraging. In only four months, over half the RCET intervention group improved on almost all functional outcome indicators, while a substantial proportion of the control group declined. Further evaluation studies are required in other Canadian jurisdictions to

identify the most effective strategies for initial and ongoing staff training, implementation, delivery, and sustainability of restorative care activities.

## References

- Atchinson, D. (1992). Restorative nursing: A concept whose time has come. *Nursing Homes*, 41(1), 9–12.
- Baker, D.I., Gottschalk, M., Eng, C., Weber, S., & Tinetti, M.E. (2001). The design and implementation of a restorative care model for home care. *Gerontologist*, 41(2), 257–263.
- Baltes, M., Neuman, E., & Zank, S. (1994). Maintenance and rehabilitation of independence in old age: An intervention program for staff. *Psychology and Aging*, 9, 179–188.
- Baum, E.E., Jarjoura, D., Polen, A.E., Faur, D., & Rutecki, G. (2003). Effectiveness of a group exercise program in a long-term care facility: A randomized pilot trial. *Journal of American Medical Directors Association*, 4, 74–80.
- Blocker, W.P. (1992). Maintaining functional independence by mobilizing the aged. *Geriatrics*, 47, 42–56.
- Cohen, J. (1977). *Statistical power analysis for the behavioral sciences*. New York: Academic Press.
- Coleman, B. (1991). *The Nursing Home Reform Act of 1987: Provisions, policies, prospects*. Boston: University of Massachusetts Gerontological Institute.
- Foy, S., & Mitchell, M. (1990). *Factors contributing to learned helplessness in the institutionalized aged: A literature review*. Binghamton, NY: Haworth Press Inc.
- Gordon, J., Powell, C., & Rockwood, K. (1999). Goal attainment scaling as a measure of clinically important change in nursing home patients. *Age and Ageing*, 28, 275–281.
- Granger, C., & Hamilton, B. (1993). The uniform data system for medical rehabilitation report of first admissions for 1991. *American Journal of Physical Medicine and Rehabilitation*, 72(1), 33–38.
- Helmes, E., Csapo, K., & Short, J. (1987). Standardization and validation of the multidimensional observation scale for elderly subjects (MOSES). *Journal of Gerontology*, 42, 395–405.
- Joseph, C., & Wanlass, W. (1993). Rehabilitation in the nursing home. *Clinics in Geriatric Medicine*, 9(4), 859–871.
- Kazis, L., Anderson, J., & Meenan, R. (1989). Effect sizes for interpreting changes in health status. *Medical Care*, 27, 178–189.
- Lazowski, D., Ecclestone, N., Myers, A., Paterson, D., Tudor-Locke, C., Fitzgerald, C. Jones, G., Shima, N., & Cunningham, D.A. (1999). A randomized outcome evaluation of group exercise programs in long-term care institutions. *Journal of Gerontology: Medical Sciences*, 54(12), M621–M628.

- Lord, S., Lloyd, D., Nirui, M., Raymond, J., Williams, P., & Stewart, R. (1996). The effect of exercise gait patterns in older women: A randomized trial. *Journal of Gerontology*, 51A, M64–M70.
- MacKnight, C., & Rockwood, K. (1995). A hierarchical assessment of balance and mobility. *Age and Ageing*, 24, 126–130.
- MacRae, P.G., Asplund, L., Schnelle, J., Ouslander, J., Abrahamse, A., & Morris, C. (1996). A walking program for nursing home residents: Effects on walk endurance, physical activity, mobility, and quality of life. *Journal of the American Geriatrics Society*, 44(2), 175–180.
- MacRae, P.G., Schnelle, J.F., Simmons, S.F., & Ouslander, J.G. (1996). Physical activity levels of ambulatory nursing home residents. *Journal of Aging and Physical Activity*, 4, 264–278.
- Morris, J.N., Fiatarone, M., Kiely, D.K., Belleville-Taylor, P., Murphy, K., Littlehale, S., Ooi, W.L., O'Neill, E.O., & Doyle, N. (1999). Nursing rehabilitation and exercise strategies. *Journal of Gerontology: Medical Sciences*, 54(10), M494–M500.
- Myers, A.M. (1999). *Program evaluation for exercise leaders*. Champaign, IL: Human Kinetics.
- Myers, A.M., & Huddy, L. (1985). Evaluating the physical capabilities of the elderly: The relationship between ADL self-assessments and basic abilities. *Canadian Journal on Aging*, 4, 189–200.
- Norman, G., & Gibbs, J. (1991). Why walk when you can ride? Clinical ambulation incentives for the immobile elderly. *Journal of Gerontological Nursing*, 17, 28–33.
- Nowalk, M.P., Prendergast, J.M., Bayles, C.M., D'Amico, F.J., & Colvin, G.C. (2001). A randomized trial of exercise programs among older individuals living in two long-term care facilities: The FallsFREE program. *Journal of American Geriatrics Society*, 49, 859–865.
- Pawlson, L.G., Goodwin, M., & Keith, K. (1986). Wheelchair use by ambulatory nursing home residents. *Journal of the American Geriatrics Society*, 34, 860–864.
- Podsiadlo, D., & Richardson, S. (1991). The timed "up and go": A test of basic functional mobility for frail elderly persons. *Journal of Geriatrics Society*, 39(2), 142–148.
- Remsburg, R.D., Armacost, K.A., Radu, C., & Bennett, R.G. (1999). Two models of restorative care in the nursing home: Designated versus integrated restorative nursing home assistants. *Geriatric Nursing*, 20(6), 321–326.
- Resnick, B., & Fleishell, A. (2002). Developing a restorative care program: A five-step approach that involves the resident. *American Journal of Nursing*, 102(7), 91–95.
- Resnick, B., & Simpson, M. (2003). Restorative care nursing activities: Pilot testing self-efficacy and outcome expectation measures. *Geriatric Nursing*, 24(2), 82–89.
- Santo Pietro, M. (1994). Assessing the communicative style of caregivers of residents with Alzheimer's disease. *Seminars in Speech and Language*, 15(3), 236–254.
- Schnelle, J., Cruise, P., Rahman, A., & Ouslander, J. (1998). Developing rehabilitative behavioral interventions for long-term care: Technology transfer, acceptance, and maintenance issues. *Journal of the American Geriatrics Society*, 46(6), 771–777.
- Schnelle, J.F., MacRae, P.G., Ouslander, J.G., Simmons, S.F., & Nitta, M. (1995). Functional incidence training, mobility, performance, and incontinence care with nursing home residents. *Journal of the American Geriatrics Society*, 43, 1356–1362.
- Sidani, S., Epstein, D.R., & Moritz, P. (2003). An alternate paradigm for clinical nursing research: An exemplar. *Research in Nursing and Health*, 26, 244–255.
- Stolee, P., Stadnyk, K., Myers, A.M., & Rockwood, K. (1999). An individualized approach to outcome measurement in geriatric rehabilitation. *Journal of Gerontology: Medical Sciences*, 54, M641–M647.
- Stolee, P., Zaza, C., Pedlar, A., & Myers, A.M. (1999). Clinical experience with goal attainment scaling in geriatric care. *Journal of Aging and Health*, 11(1), 96–124.
- Tinetti, M.E., & Ginter, S.F. (1990). The Nursing Home Life-Space Diameter: A measure of extent and frequency of mobility in nursing home residents. *Journal of the American Geriatric Society*, 38, 1311–1315.
- Tinetti, M.E., Baker, D., Gallo, W.T., Nanda, A., Charpentier, P., & O'Leary, J. (2002). Evaluation of restorative care vs usual care for older adults receiving an acute episode of home care. *Journal of the American Medical Association*, 287(16), 2098–2105.