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Implementing Pain Management Best Practice in a Geriatric Rehabilitation Program: Effects of a Staff Training Program

by

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Table of Contents

List of Tables

List of Figures

List of Abbreviations

AGS	American Geriatric Society
ALC	Alternate level of care
FIM™	Functional Independence Measure
LOS	Length of Stay
MMSE	Mini Mental State Examination
NRS	Numeric rating scale
PMC	Pain Management Committee

Chapter 1

Introduction and Literature Review

Pain is defined as an unpleasant sensory and emotional experience. It is recognized as a complex phenomenon derived from sensory stimuli and modified by individual memory, expectations and emotions (AGS, 2002). Approximately 55% of community-dwelling Canadians over 70 years of age suffer from pain that interferes with their ability to function normally (Scudds & Ostbye, 2001). The prevalence of pain in the nursing home is 45-80%, with analgesics being used in 40-50% of residents (Gloth, 2001). While statistics on prevalence of pain in geriatric rehabilitation settings are not documented in the literature, based on prevalence in the community and in long-term care, it can be extrapolated to be greater than 55% (Scudds & Ostbye, 2001) and possibly much higher. Because pain is often treatable, it is thought that the high prevalence estimates of unrelieved pain in older adults may in some cases result from under-recognition, which in turn results in under treatment (Herr & Garand, 2001).

Pain can seriously undermine the overall health of older adults. However, prior to1998, most clinical pain guidelines gave little attention to pain in older adults, with the exception of cancer pain. It has been documented in the literature that most pain research has excluded older adults (AGS, 2002). This includes validity and reliability testing of pain assessment tools as well as clinical research on the safety and effectiveness of analgesic medications (Kamel, Phlavan, Malekgoudarzi, Gogel, & Morley, 2001).

In 1998, the American Geriatrics Society released guidelines for "The Management of Chronic Pain in Older Persons". The clinical practice guidelines were revised in 2002, in the document "The Management of Persistent Pain in Older Persons". Since the first guidelines were released there has been an increase in research on pain in older persons, however there remains a gap between the availability of evidence and the consistent use of evidence in practice (Stenger, Schooley & Moss, 2001). For example, there are differences in pain management practice by nurses not only between organizations but also within organizations and even between shifts within one patient care area (Wild, 2001).

The current challenge is to incorporate evidence-based guidelines into practice so that patients can benefit from advances in research. Evaluations of best practice implementation using the Agency for Health Care Policy and Research guidelines for management of post-operative pain have demonstrated improvements in outcomes, but have also noted the difficulty in fully implementing new processes due to unanticipated barriers (Stenger et al., 2001; Wild, 2001). Some examples of barriers included the lack of standards for pain assessment, staff practices that focus attention on areas other than pain management and patient concerns about reporting their pain to health professionals (Stenger et al., 2001). As a result of this work, it is suggested that implementation of best practice should address barriers to change (Merboth & Barnason, 2000; Miaskowski, 2001).

Best practice is the organizational use of evidence to improve practice (Dreiver, 2002). This includes the integration of clinical expertise with the

scientific findings from randomized control trials, observational studies, case reports, or expert opinion. It is believed that patients who receive care based on the current best evidence would have better outcomes than those receiving care based on other standards (Stenger et al., 2001). Benefits of effective pain management include earlier mobilization, decreased morbidity, shortened length of stay, and reduced health care costs (Barnason, Merboth, Pozehl & Tietjen, 1998).

Inadequate knowledge and skill to assess and manage pain effectively, fear and concern about the side effects of opioid medications, and confusion regarding tolerance and addiction to medications among some care providers indicate a need for education on best practice in pain management (Merboth & Barnason, 2000). Failure of some staff to assess and document pain routinely, lack of useful treatment protocols, and the accepted view that pain is an insignificant symptom are examples of knowledge and attitude barriers (Merboth & Barnason, 2000).

Pain Management in Canada

There is a paucity of published research on pain management in Canadian settings and in geriatric rehabilitation in particular, considering the increased risk for pain in the older adult population and the significant consequences on health status.

A review of Canadian pain management clinical guidelines showed that while there are guidelines related to use of opioid medications, cancer pain, and

post-operative pain, there is no existing Canadian guideline that brings the broad range of common issues together for pain management in older adults, in particular for those who are medically frail. The 2002 AGS clinical practice guideline, "Management of persistent pain in older adults", is written for the patient population group that is typically found in Canadian geriatric rehabilitation programs.

While the Canadian population of older adults is similar in many ways to those in American studies, there are some differences. The USA has a population ten times larger than Canada, and the life expectancy is lower in the USA (Canada m/f 77.2/82.3; USA m/f 74.6/79.8) (World Health Organization, 2004). Canada has government-funded universal health care and most health care in the USA is funded through private insurers. Total health spending per capita in the USA was $4887 in 2002, while it was $2792 in Canada (World Health Organization, 2004). These differences should not directly affect the management of pain, where interventions are relatively low-cost and knowledge of best practice is shared beyond national borders. The issue of incorporating evidence into practice is challenging regardless of location.

Pain Knowledge and Attitudes

There are several surveys and questionnaires that have been used in previous studies to assess staff knowledge and attitudes about pain management. While various names are used to describe the assessment tools, they are typically

mail survey or questionnaires. One study reports that healthcare professionals have a surprising lack of knowledge of pain management and some have attitudes that interfere with providing appropriate assessment and pharmacological management of pain (Lebovits, Florence, Bathina et al., 1997).

Lebovits et al. (1997) developed a 17-item "Pain Knowledge and Attitudes of Healthcare Providers" survey for the purpose of evaluating the knowledge and attitudes of different healthcare professionals in three hospitals on topics including addiction, assessment of pain, use of narcotics and pediatric pain. The survey results were used to determine whether there were differences based on hospital setting, years of experience, practice area and country of origin. Study participants were randomly selected from departments of nursing, medicine, surgery, pharmacy and anesthesiology. The survey used a five point Likert scale and was scored based on whether the response was concordant or discordant with best practice. Survey items were based on a review of the literature and several items were derived from other published pain knowledge and attitudes questionnaires. The authors did not examine validity and reliability of the questionnaire.

Strong, Tooth and Unruh (1999), used a 69-item questionnaire to assess pain knowledge and attitudes in occupational therapy graduates. This was a revised version of the Pain Knowledge and Attitudes Questionnaire (Unruh, 1995). The items were scored as "agree", "uncertain" or "disagree". The internal consistency of the original version was 0.65 using Cronbach's alpha, but validity and reliability were not addressed for the revised version.

"Barriers to the Assessment and Treatment of Pain" is a 13-item true/false questionnaire developed by McCaffery and Pasero (1999) for the purpose of assessing pain management knowledge and attitudes among healthcare professionals. The questions were designed to evaluate knowledge and attitudes that would affect the way pain is managed. The questions appear to be clear, but require specific knowledge about pain issues in order to answer correctly.

Barnason et al. (1998) developed the "Nursing Cognitive Assessment of Pain Management" (NCAPM) to evaluate knowledge of pain management among nurses and LPNs, as a part of a pain management training program. The NCAPM has two versions: a 12-item multiple-choice and true or false version before training, and an 18-item version after the training. The training consisted of a 77-page self-study manual and participation in a facilitated one-hour seminar. A panel of nurses with expertise in the area of pain management reviewed the 12 test items to establish content validity. Reliability was not examined. Approximately 25% (n=135) of the available nursing staff participated in the convenience sample. The mean score was 6.42 (SD=1.70) out of 12 or 54%. Post-training, 23% (n=125) of nursing staff completed a revised version of the test, with 18 items, including the original 12 questions and an additional six. After the training, the mean score was 8.34 (SD=1.26) or 70%. The difference between the pre and post-test was significant ($p<0.001$) using independent t-tests (Barnason et al., 1998).

The above four knowledge and attitudes assessment tools are similar in that they share questions that target common misunderstandings and assumptions

about individuals with pain that might affect a health professional's ability to provide appropriate care. The questionnaires differ in the reading level required to complete them in and their length. The 13-item, "Barriers to the Assessment and Treatment of Pain" (McCaffery & Pasero, 1999) questionnaire is close to a grade 12 reading level, while the others appear to require higher reading comprehension levels. They all lack testing for validity, reliability, or both. The questionnaire developed by Strong et al. (1999) has a disadvantage of being the longest, with 69-items. The NCAPM content was considered valid for its intended purpose when used by nursing staff, and most of the content focusing on analgesic use.

Pain Assessment Tools

A variety of tools for rating pain intensity are available, but it is difficult to identify the most appropriate one, particularly for patients with cognitive impairment or communication difficulties. As pain is not a stable symptom, test-retest reliability is difficult to examine. There is no gold standard per se, except for patient self-report. Although a standard stimulus of pain could be used with subjects, such as a flu shot, one could not assume that this would cause the same amount of pain in two different individuals. While validity and reliability testing has been done on various pain rating tools, the interpretation of the results is further complicated when a patient has cognitive impairment. Ferrell (2000) stated that "[b]ecause there are no objective biologic markers of pain, the validity of pain scales is based largely on face value, the concurrence with other known scales, and the experience in many populations over several years" (p.856).

Acceptability and usability of the tool are also important considerations. Older adults can have multiple barriers that affect their ability to use a pain rating scale. It is common for frail older adults to have impaired vision, hearing, cognition and communication. All of these affect the validity and reliability of pain rating scales. In addition, many older adults do not use the word "pain", but prefer instead to describe what they feel as "hurting", "aching", "burning", or other terms (Ferrell, 2000).

Responses are usually more accurate when pain assessments are referenced in the present rather than over time. For example, it is preferable to ask "How much pain are you having right now?" instead of "How much pain have you had on average in the past month?" (Ferrell, 2000). Frequent assessments of present pain intensity are likely to be more valid and reliable than assessments of average pain over a period of time (Kamel et al., 2001). Based on a comparative analysis by Ferrell (2000), the reliability of the numeric rating scale (NRS) appears to be the least affected by cognitive impairment.

Benesh, Szigeti, Ferraro and Gullicks (1997) reported internal consistency using Cronbach's alpha for the 100mm visual analogue scale (.90), the Verbal Descriptor Scale or Numeric Rating Scale (.89), and the Pain Thermometer (0-6 with verbal descriptors) (.84). For all scales, test-retest and inter-rater reliability were not reported, but it was acknowledged that they would decrease when used with subjects with cognitive impairment due to increased potential for error.

Although Benesh et al. (1997) used a 0-6 pain thermometer, a 0-10 scale would allow the scores to be viewed as quasi-interval, rather than ordinal. Perhaps

more important, consistency in the length of scales used makes it easier for patients to understand and respond to requests for pain ratings. The pain thermometer attempts to increase the ease of use and flexibility of the tool with a variety of patients by combining properties of the various scales and use of the color red to represent increasing pain intensity.

In order to improve consistency of use of various pain rating scales for which there are no manuals or instructions, McCaffery and Pasero (1999) recommended some generic instructions. The pain rating should be shown to the patient and it should be explained that the rating scale is used to help communicate about pain and to set goals for pain relief. It should be clarified that pain is not restricted to severe or intolerable sensations, but covers a full range, from 0-10. Then, the patient is asked to rate his or her present pain on the scale (0=no pain and 10=worst possible pain). The patient is also asked at what level of pain he or she could function or feel reasonably comfortable.

Functional Outcomes

Pain can limit function directly or indirectly. Functional activities become more difficult due to the actual sensation of pain and also due to the fear of increasing pain as a result of movement. This leads to a loss of function in daily activities. In older adults, this can then lead to deconditioning and an overall worsening of health status.

As a measure of function, the Functional Independence Measure (FIM™) is a widely used 18-item assessment scale that evaluates the amount of assistance required to perform basic activities of daily living (ADL). It uses a 1-7 scale to quantify levels of performance from dependence to independence. Total scores range from 18 (dependent) to 126 (independent). Data generated by the FIM™ can be used to track changes to the severity of disability and can be used to evaluate the effectiveness of rehabilitation (Evans, 2002). The FIM™ was developed to provide a standardized measure of disability or burden of care. It contains a minimal number of items and can be rated by any trained clinician, regardless of discipline (Evans, 2002).

Studies have shown that the FIM™ is able to discriminate between patients on the basis of age, co-morbidity and discharge location. Differences were also seen between certain impairment groups on specific items. The FIM™ has been shown to have high reliability. A meta-analysis of 11 studies showed a median inter-rater reliability for the total FIM™ score of 0.95, a median test-retest reliability of 0.95, and an equivalence reliability of 0.92 (Ottenbacher, Hsu, Granger & Fielder, 1996).

Patient Satisfaction with Pain Management

Patient satisfaction is generally considered to be a measurable outcome of treatment effectiveness, convenience of access, and interpersonal aspects of the care provided. Higher patient satisfaction is a predictor or determinant of

improved later health and function and decreased service utilization (McCracken, Klock, Mingay, Asbury & Sinclair, 1997).

While patient satisfaction is accepted as a meaningful outcome, there are issues with measuring satisfaction. Few measures of satisfaction have known validity and reliability. Also, the definitions of "satisfaction" vary and may include items related to the environment and services of the clinical setting. According to McCracken et al. (1997), these items may not be related to a patient's willingness to return in the future or recommend the program to others.

McCracken et al. (1997) developed a 20-item instrument called the Pain Service Satisfaction Test to measure satisfaction with treatment for chronic pain for use with adults in a pain clinic. Preliminary analyses showed high internal consistency (α=.97). Validity was demonstrated through positive correlations with the Client Satisfaction Questionnaire, an eight-item measure of treatment satisfaction designed for general use.

Barnason et al. (1998) developed an 11-item satisfaction tool called "Patient's pain management interview guide" to determine patients' perceptions of pain assessment and management effectiveness after a training program for nurses. This also included items related to patients' familiarity with the pain rating scale. The authors reported that this satisfaction tool was derived from the literature on pain management and reflected practice standards in the hospital where it was used. Content validity was established by a panel of clinical nurse specialists and nurse educators with doctoral training and expertise in pain management. The items include patients' current pain and comfort goals,

perception of staff attention to pain concerns, pain assessment, whether their expectations for pain relief were met, whether non-pharmacological methods were used and overall satisfaction with pain management. A convenience sample of 47 patients, ranging from 7 to 91 years of age was interviewed about satisfaction after the staff training. Of the 47 subjects, 64% were female and 36% were male. Overall patient satisfaction received a mean rating of 3.36 (SD = .60) out of 4 (Barnason et al., 1998).

Rationale for the Study

The literature indicates that pain is a common and significant problem for older adults, which appears to be overlooked and undertreated in the frail elderly who are the most vulnerable. This may be due to issues related to knowledge and attitudes about pain in older adults (AGS, 2002).

Older adults have been excluded from most pain related research, even though prevalence of pain increases with age. Pain is not associated with aging, but it is associated with painful medical conditions, such as arthritis and heart disease, that are more common with increased age (AGS, 2002). No information is available on the prevalence or intensity of pain in geriatric rehabilitation programs, although it would be expected to be higher in this population group than any other age group.

While advances have been made with pain research, as most research is conducted with other age groups the findings may not apply for older adults. The

American Geriatric Society clinical practice guideline "Management of persistent pain in older adults" (2002) addresses this difficult issue by bringing together the best evidence available and expert opinion to make recommendations for best practice with older adults, especially frail elderly with chronic pain conditions.

Research studies on implementation of best practice guidelines have identified barriers to change that are commonly encountered and that limit the effectiveness of pain management (Wild, 2001). Based on this experience, it appears that a successful implementation of change in pain management practice requires staff training, organizational support, involvement of front line staff and an individualized, systematic approach to address anticipated barriers to change.

Effectiveness of staff training is typically evaluated with a knowledge-based test. While staff knowledge is essential, knowledge is not always reflected in actual practice, such as consistent use of a pain rating scale to assess pain. Therefore, it is also important to consider clinical practices, such as use of pain assessment and use of strategies to manage pain, as an ability to put knowledge into practice.

The literature suggests that use of best practice in pain management would lead to improved health status, increased function in activities of daily living and satisfaction with pain management, for older adults (AGS, 2002).

Purpose of the Study

The purpose of this research study was to evaluate the effect of a staff training program in pain management on the knowledge and attitudes of LPNs, RNs, OTs, and PTs in a geriatric rehabilitation program. The effects of the training program on staff use of best practice and the associated impact on patient satisfaction were also evaluated. Patient length of stay and functional outcomes were examined before and after the staff training. In addition, the prevalence and degree of pain within the sample of geriatric rehabilitation patients was determined.

Chapter 2

Methods

Implementation of Best Practice

A "Pain Management Committee" (PMC) was formed for this study with interdisciplinary representation from two geriatric inpatient units at the Glenrose Rehabilitation Hospital in Edmonton, Alberta, Canada. The PMC identified the use of a pain rating scale as a key area where clinical practice was not in accordance with best practice in this setting. As a group, they identified the following anticipated barriers to using a pain assessment: too much work/ or perception that this will make more work, time constraints, patients with language barriers or cognitive issues or both, role/responsibility for who does pain assessment, confusion about who should do pain assessment and when, remembering to do it, consistency and confidence. Training would address these areas.

Staff Training Videos

The staff training in this study was provided in the form of three 20-minute videos, which could be viewed in any order. As training needed to be provided to staff working various shifts in a 24-hour period, the method of

delivery had to be flexible, portable, and equally available to all. Two sets of three videos were made available on each unit, along with a television and VCR.

The identified barriers were addressed in the content of the training videos, which identified common misperceptions about pain in older adults and emphasized the importance of assessment and monitoring of pain. Other barriers related to remembering to ask for pain assessments and documentation were addressed through creation of assessment and monitoring forms. To inform patients, an information brochure was created. The brochure had conditional approval from the Glenrose Hospital administration for use in the post-training period, provided it had a disclaimer on it stating that it was under review (see Appendix A).

The following is a brief description of each training video:

Pain Management and Older Adults: Aging & Pain

This video gave a brief introduction on the topic of aging and the experience of pain. It reviewed the current research and expert opinion on the relationship between aging and pain, the impact of pain on a person's ability to function in everyday life, and addressed under / over treatment for pain and suggested strategies for appropriate pain management.

Pain Management and Older Adults: Pain Assessment for Older Adults

This video gave a brief overview of what pain assessments should be used with older adults and also how to deal with some of the common challenges; such as cognitive impairment, sensory impairments and expressive or language barriers.

Pain Management and Older Adults:
Clinical Practice Guideline: The Management of Persistent Pain in Older Persons (American Geriatrics Society, 2002)

This presentation provided a review the Clinical Practice Guideline for the management of persistent pain in older adults, developed and released in 2002 by the American Geriatric Society. These recommendations were based on the most current available research and expert opinion on pain management for older adults.

Subjects

There were three groups of participants: one consisting of staff and two groups consisting of patients on geriatric inpatient Units 3D and 4C (see Appendix B) which are referred to Units A and B, respectively, in this study. There were no differences between the two units in terms of patient admission criteria or staffing levels.

The targeted staff group consists of licensed practical nurses (LPNs), registered nurses (RNs), occupational (OTs) and physical therapists (PTs) on Units A and B. The participants signed an informed consent form (Appendix C) and completed a test on pain management before and after viewing at least two out of three 20-minute videos on "best practice" in pain management.

Inclusion of a separate staff control group in this study was not feasible because staff groups from the two groups intermingled. For this reason, the group receiving training served as its own control. Staffing levels and turnover were monitored throughout the study, and the training videos were made available to all staff. A sign up sheet was used on each unit to record who viewed the videos.

It was not appropriate to calculate sample size prior to conducting the study because all staff and patients on the two units were invited to participate. None were excluded from the convenience sample. The second group of subjects included geriatric inpatients on Units A and B. These patients were involved in the study indirectly during the nine-month time period of the study. Charts were reviewed at monthly intervals three times before and three times after the staff training to determine whether the clinical practice guidelines, as outlined in the videotapes, were being followed. Information on patient age, gender, cognition and pain level was collected in the chart audits to further describe the sample group. As the average length of stay was approximately 40 days, some patients may have been included in more than one chart audit.

The third group of subjects was a small purposive sample of geriatric inpatients. A satisfaction with pain management survey was completed with a

sample of 4 patients per month during the pre and post-training period (two independent groups of 12, n=24) (see Appendix D). Equal numbers of subjects were chosen from each unit. In order to participate in an interview, the subjects chosen were required to be able to communicate in English (verbal or written) and have an admission Mini Mental State Examination (MMSE) score on their charts of 24/30 or higher.

Procedures

In addition to providing staff training using videotapes, the PMC organized other initiatives. The members of the PMC were responsible for encouraging their co-workers to view the training videos and for modelling a positive attitude towards effective pain management within their teams. Obstacles to progress were discussed within the PMC and solutions generated and put into action.

Staff Knowledge and Attitudes

"Barriers to the Assessment and Treatment of Pain", (McCaffery & Pasero, 1999), a 13-item true/false test was used to measure staff knowledge before and after they viewed the pain management videos on the two units (Appendix E). A change was made to the wording of one item so that the pattern of answers was less predictable and a footnote was added with definitions to clarify the meaning

of "malingerer" and "psychogenic". Specifically, the second item was reworded so that the answer would be true rather than false.

Chart Audits and Interviews

The study design was a quasi-experimental interrupted time series (see Appendix F). There were three pre-training audits of documentation (see Appendix G) and patient interviews at one-month intervals. The first two pre-training audits served as a pilot test of the chart audit process and also provided information on patterns of practice and documentation that was incorporated into the training program. This also allowed observation of improvement that might be due to the effects of the staff being aware of a study on pain management occurring on their unit. Post-training, the chart audits and interviews occurred three times to gage change in pain management processes and to determine whether the change is sustained over a three-month interval. To analyse change in patient satisfaction with pain management, the patient data was grouped into one pre-training group and one post-training group. While the groups were not matched, descriptive data were collected to examine whether these groups were comparable with regard to age, gender, mental status and subjective pain ratings on admission.

Patient Outcomes

Functional Independence Measure (FIM™) scores from admission to discharge, length of stay (LOS), FIM™ /LOS efficiency (mean FIM™ change /mean length of stay= FIM™ /LOS efficiency) of all patients on Units A and B are accessed through hospital records to observe the possible impact of the training on patient outcomes.

Independent and Dependent Variables

The independent variable, referred to as "staff-training" was the implementation of best practice. This included three months of staff training (time to view the videos), formation and activities of a PMC, assessment of barriers to use of best practice guidelines, and then monitoring documentation and providing feedback to staff for three months post-training.

The dependent variables were staff knowledge and attitudes, compliance with best practice, and maintenance of the changes for three months, patient pain levels, and satisfaction with pain management. In addition, LOS, FIM™ change scores, and FIM™/LOS efficiency were collected.

Objective One

The first objective was to determine whether the proposed pain management training program influenced staff knowledge and attitudes, their compliance with best practice, and whether the changes to practices were maintained over three months, post-training. Below are specific questions. The first question (a) was addressed using "Barriers to the Assessment and Treatment of Pain" (McCaffery & Pasero, 1999). The remaining questions were addressed using the chart audit.

a. Were staff more accurate in their knowledge of pain in the geriatric population after receiving the training?

b. Did staff inquire or document more frequently about pain at initial assessment for 3 months after training?

c. Did staff document use of a pain rating scale with patients at initial assessment more frequently?

d. Did staff inquire or document about patients' pain comfort goals at initial assessment for 3 months after training?

e. Did patterns of analgesic usage change?

- Did frequency of use of PRN pain medication increase?
- Did patterns of analgesic orders change?

f. Did staff provide or document non-pharmacological treatment alternatives for pain management more frequently for 3 months after training?

g. Did staff monitor or document the effectiveness of pain management more frequently, based on pain ratings for 3 months after training?

Objective Two

The second objective was to determine whether the implementation of best practice guidelines in pain management affected patient satisfaction and outcomes.

a. Using the "Patient Satisfaction with Pain Management Interview," did patients with identified pain report that:

- pain management was prompt
- pain was monitored
- expectations for pain management were met
- non-pharmacological pain management strategies were offered
- they were satisfied with pain management
- pain levels were within their comfort goals?

b. Did patients have a shorter length of stay in hospital according to hospital records?

c. Was there a difference in the cost of hospitalization according to hospital records?

d. Did patients have greater functional improvement based on change in FIM™ score from admission to discharge, and on the LOS efficiency (mean FIM™ score/mean LOS)?

Outcome Measures

The following descriptive data were collected regarding the independent variable, implementation of best practice:

1. Total RNs, LPNs, OTs, and PTs on Unit A
2. Total RNs, LPNs, OTs, and PTs on Unit B
3. Percentage of total RNs, LPNs, OTs and PTs who have participated in staff training by viewing at least two of the three videos (75% minimum) on each Unit.

Data related to the dependent variables were collected in the following manner:

1. Staff knowledge and attitudes were assessed with "Barriers to the Assessment and Treatment of Pain" (McCaffery & Pasero, 1999)" (See Literature Review and Appendix E).
2. Mini Mental Status Examination (MMSE)

   Cognition is considered to be an important part of an overall geriatric assessment and also has relevance for patients with pain problems (Ferrell, 2000). The MMSE is a short screening test for cognitive impairment. It is scored out of 30, with scores of 24/30 or less being considered to suggest cognitive impairment. The sensitivity of the MMSE in dementia detection is 88%. Specificity of the MMSE in distinguishing those with dementia from both normal elderly and from those with depression was 88% (Kirby, Denihan, Bruce, Coakley & Lawlor, 2001).

3. Chart Review Audit for Pain Management Documentation, modified from Medical Record Pain Management Audit, in McCaffery and Pasero, 1999, p. 727. (see Appendix G)
4. Pain Intensity- Combined numeric rating scale (0-10), pain thermometer, and faces scale.
5. Hospital Records of average length of stay and estimated average cost of hospitalization.
6. Functional outcomes (Functional Independence Measure (FIM™) on admission and discharge) (Uniform Data System for Medical Rehabilitation, 1990).
7. Patient Satisfaction with Pain Management Interview, adapted from Barnason et al. (1998) (see Appendix D).

Data Analysis

Data were entered into a computer database and the Statistics Package for Social Sciences (SPSS 11.5 for Windows) was used to generate statistics.

1. Knowledge and attitudes were analyzed using quasi-interval scores on the pre and post-training test. These were reported as mean, range and standard deviation. Paired t-test was used to assess whether there is a significant difference between the pre and post-training test scores. A separate analysis using an independent samples t-test was done for data that included staff who only completed the pre or post-training test, and for both.

Within the pre and post-training groups, the two independent groups were compared by unit, and by discipline using t-test and ANOVA to determine whether there were any differences between scores in the pre and post-training groups that might be attributed to other factors, which could potentially bias the results.

Information on practices compiled from chart audits was analysed in three large unmatched groups. The third chart audit completed in April 2003 was used to represent pre-training practice. This was compared to each of the three post-training chart audits (chart audits 4, 5, & 6) to determine if there was an initial change after training, and if it was maintained over three months. Nominal data were described using percentages, and X^2 with Yates correction was used to compare differences between distributions. Interval data were described using means, ranges and standard deviations, and Student's t-tests were used to compare differences between groups. Individual items were analyzed separately.

2. The pain management interview data was analyzed in two small (n=12) unmatched groups. Nominal data was reported as percentages and the Fisher exact test was used to compare differences in distribution. Ordinal data was reported as percentages, using X^2 to examine distribution differences. Comments before and after the training were recorded.

LOS in days, FIM™ change scores, and FIM™/LOS efficiency scores were obtained from hospital records.

Significance level was α=0.05 for all statistical tests. This is stringent enough to ensure differences found to be significant are highly likely to reflect

true differences, not random error. Where a p value was greater than 0.05, but less than 0.10, this was reported as a trend, as it may indicate an area for further study or a need for a larger sample size. The power of the study is enhanced by the use of large sample sizes and repeated measures.

Ethical Considerations

This study received ethical approval from the Health Research Ethics Board, Panel B (Health Research) in October 2002, as well as administrative approval from the Glenrose Rehabilitation Hospital. The approval letters are provided in Appendix H. Participation in this study was voluntary and subjects were informed that they could withdraw their consent at any time, without consequences. Information letters and consent forms were provided to staff (see Appendix C). Completed consent forms and tests were submitted into a sealed drop box. Patients were assisted by the researcher to read the information letter and consent form (see Appendix I). If patients reported that they were not confident in their ability to understand the information, and they had a family member authorized to sign for them in other matters, the family member was asked to provide proxy consent. If they did not have anyone designated to assist them, they were excluded from the study.

Chapter 3

Results

Implementation of Best Practice

Eighty two percent (71/86) of staff viewed all three pain management videos and 87% (75/86) viewed at least two of the videos. Staffing levels and turnover remained stable from February to October 2003, during the time of the study. The few (<10%) new staff members who started after the training had been completed were given the opportunity to view the videos and were informed about the importance of documenting pain ratings. Forty nine percent (42/86) of staff participated in a pre-test, a post-test or both.

Objective One

The main objective of the study was to determine if staff would be more accurate in their knowledge of pain management after receiving the training and to see if this would lead to changes in practice that would be maintained over three months.

Staff Knowledge and Attitudes

Knowledge and attitudes were examined using quasi-interval scores on the pre and post-training test: "Barriers to the Assessment and Treatment of Pain" (McCaffery & Pasero, 1999). A total of 42 participants completed this test (49%).

Results on the staff tests were to be reported as average, range and standard deviation for two paired groups. The expectation was that staff would participate in both pre and post-training tests, but this was not the case. A total of 11 staff members completed both tests, and 31 staff members completed one test, either pre or post training. All disciplines were represented in both groups. A t-test analysis was done for the group of staff who completed the test before and after training. For subjects who completed the test only once, their data was analyzed using an independent samples t-test. In both analyses, a statistically significant difference was found between the pre and post-training mean test scores (see Table 3.1). Subsequently, all pre-training test scores were grouped, and the post-training test scores were grouped together and an independent samples t-test was used to compare the differences between mean scores before and after training. Among the 31 subjects who completed the pre-test, the mean was 8.16, 95% CI: 7.62, 8.70, range 5-11, (SD=1.46). A total of 22 completed the post-test with a mean of 9.27, 95% CI: 8.99, 9.55, range 8-10, (SD=.63). There was a statistically significant difference between the means (t=-3.34, p=.002).

Table 3.1

Pre and Post-training Test Scores: Paired and Independent Samples

	Pre-training mean (SD)	**Post-training mean (SD)**	**t**	**p**
Paired n=11	8.09 (1.64)	9.27 (.65)	2.55	.03
Independent Samples	8.00 (1.53) n=20	9.33 (.65) n=11	2.80	.01

Table 3-2 shows the proportions of staff who completed the pre or post-training tests, and the professional disciplines of the staff working on Units A and B.

Table 3-2

Proportions of Staff Who Completed Pre or Post-training Tests by Discipline

Discipline	**Unit A**	**Unit B**	**A& B combined**	**% of respondents by discipline**
LPN	7/14	3/12	10/26	10/86
30% of total staff	50%	25%	38%	12%
RN	10/22	11/23	21/45	21/86
53% of total staff	45%	48%	47%	24%
OT	3/3	4/4	7/7	7/86
8% of total staff	100%	100%	100%	8%
PT	0/4	4/4	4/8	4/86
9% of total staff	0%	100%	50%	5%
TOTAL	20/43	22/43	42/86	42/86
	47%	51%	49%	49%

Scores on the pre and post-training tests for Unit A were compared to those on Unit B (see Table 3-3). There were no statistically significant differences between scores from the two units on pre-training and post-training test scores.

Table 3-3

Comparison between Units A & B on Pre and Post-training Test Scores

	Unit A		Unit B		
	n	**Mean (SD)**	**n**	**Mean (SD)**	**t (p value)**
Pre-training	14	7.93 (1.64)	12	9.25 (.62)	t=-7.99 (p=.246)
Post-training	17	8.35 (1.32)	10	9.30 (.68)	t=-1.81 (p=.678)

Table 3-4 presents pre and post training test scores by discipline. A one-way analysis of variance (ANOVA) showed that there were statistically significant differences in pre-training test scores between the four disciplines (F=6.00, df=3, p=.003). The post-training test scores between disciplines were not statistically significant.

Table 3-4

Pre and Post-training Test Scores by Discipline

	LPN	**RN**	**OT**	**PT**	**ALL**
Pre-training	7.38	7.58	9.57	9.00	8.16
Post-training	9.50	9.07	9.50	10.00	9.27

An item analysis of the test is presented in Table 3-5. The proportion of staff responding correctly to all but three items increased after training. For these three items (8, 9, 12) the proportion actually decreased.

Table 3-5

Item Analysis of Test Results Pre and Post-training

	Pre-training Total n=24 n (%) correct	**Post-training** Total n=23 n (%) correct
1. The best judge of the existence and severity of a patient's pain is the physician or nurse caring for the patient. (False)	22 (92)	23 (100)
2. Clinicians should use their personal opinions and beliefs about the truthfulness of the patient's true pain status. (False)	22 (92)	23 (100)
3. The clinician must believe what the patient says about pain. (True)	20 (83)	23 (100)
4. Comparable noxious stimuli produce comparable pain in different people. The pain threshold is uniform. (False)	19 (79)	23 (100)
5. Patients with a low pain threshold should make a greater effort to cope with pain and should not receive as much analgesic as they	20 (83)	23 (100)

desire. (False)		
6. There is no reason for patients to hurt when no physical cause can be found. (False)	20 (83)	22 (95)
7. Patients should not receive analgesics until the cause of the pain is diagnosed. (False)	18 (75)	23 (100)
8. Visible signs, either physiologic or behavioural, accompany pain and can be used to verify its existence and severity. (False)	6 (25)	0 (0)
9. Anxiety makes the pain worse. (False)	2 (8)	1 (5)
10. Patients who are knowledgeable about opioid analgesics and who make regular efforts to obtain them are called "drug seeking" (addicted). (False)	12 (50)	20 (86)
11. When a patient reports pain relief after a placebo, this means that the patient is a malingerer or that the pain is psychogenic. (False)	11 (46)	13 (57)

12. The pain rating scale preferred for use in daily practice is the visual analogue scale. (False)	4 (17)	2 (10)
13. Cognitively impaired elderly patients are unable to use pain-rating scales. (False)	14 (58)	17 (76)

Chart Audits

Chart audits were conducted six times, three (February, March, April) before the training and three after (August, September, October). In order to determine whether the chart audit sample was representative of typical geriatric rehabilitation patients in the same hospital, the characteristics of the sample were compared with the pre and post-training groups and with a sample of patients on Units A and B in the previous year. Table 3-6 provides descriptive data on the patients' gender distribution, unit distribution, mean age, mental status and pain rating on admission. Chi-square was used to compare patients in 2002, the pre-training group from April 2003 and each post-training group, August, September and October 2003. There were no statistically significant differences found. Thus, one can assume that the patients were similar in all of the above variables across chart audits. The chart audit sample was similar to patients in 2002 in all

except mental status and pain rating, which were not recorded in the 2002 hospital records.

Table 3-6

Characteristics of Patients in Chart Audit

Time frame	**n**	**% Male/ Female**	**% Unit A/B**	**Mean Age (SD)**	**Mean MMSE (max 30)**	**Mean (SD) Pain rating on admission (0-10)**
2002	345	35/65		82 (7.00)	Not available	Not available
Chart Audit	232	36/64	52/48	80.12 (7.32)	24.58 (4.65)	6.08 (3.50)
Feb-Oct 2003						
Pre-training:	40	35/65	50/50	80.20 (7.28)	25.05 (4.57)	6.19 (1.60)
April 2003						n=13
Post-training 1:	37	32/68	49/51	79.83 (8.52)	24.30 (4.10)	6.259 (3.01)
August 2003						n=27
Post-training 2:	33	30/70	55/45	80.42 (6.73)	24.68 (3.61)	5.395 (2.69)
September 2003					n=31	n=19
Post-training 3:	41	39/61	51/49	79.66 (6.22)	26.23 (3.48)	5.904 (2.43)
October 2003					n=39	n=26

Pain identified at initial assessment, and for three months after training

In the chart audit, data were collected on the proportion of patients whose pain was identified at the initial assessment and in each of the subsequent three months after training. Pain was identified by the patient, with or without being prompted by staff or it was identified by staff observation of pain behaviours. The staff member, either on their initial assessment or in a chart note, documented this on the patient's chart. Data was also collected on the proportion of patients whose pain was assessed using the 0-10 pain rating scale during the same time intervals. As shown in Table 3-7, in the third chart audit (Pre-training) in April 2003, 95% of patients were identified as having pain. The pre-training data were compared to the post-training data using X^2. Pre-training and post-training groups one and three were not statistically significantly different, but there was a statistically significant difference found between proportions in April, pre-training, and the second post-training group for pain identification ($X^{2=}5.66$, df=1, p=.017). The proportion of charts with pain identification actually decreased after training.

Use of a pain rating scale at initial assessment for three months after training

The frequency of using pain ratings during an initial assessment was low (30%) prior to the training (see Table 3-7). This frequency increased after the training sessions and the differences between the pre-training frequency and each of the post-training frequencies were statistically significant ($X^2 = 12.61$, df = 1, p=.001; $X^2 = 4.62$, df = 1, p=.032; $X^2 = 3.91$, df = 1, p=.005 respectively).

Table 3-7

Pain and Comfort Goals Identified and Rating Scale used on Admission According to Chart

	Pre-Training April n=37	Post 1 August n=37	Post 2 September n=33 (1 missing)	Post 3 October n=40
Pain identified at admission	95%	87%	76%	85%
0-10 pain rating scale used at admission	30%	73%	59%	65%
Comfort Goal documented at Admission	3%	11%	15%	13%

Pain comfort goals are documented at initial assessment for three months after training

There was a trend of slightly increased use of comfort goals, as this had not been commonly used prior to the training (see Table 3-7). Compared to April, pre-training, there was a trend of increased use of comfort goals in the first post-training group, but this was not statistically significant (X^2=3.25, df=1, p=.072).

The differences between the pre-training and second and third post-training proportions were statistically significant ($X^2 = 5.13$, p=.024; $X^2 = 3.78$, p=.052).

Analgesic use: frequency of PRN orders and administration

In the chart audit, information was collected on whether there was an order for PRN medication and whether any PRN medication had been taken in the last 24 hours (see Table 3-8). It should be noted that many patients were also taking analgesics on a regular schedule. This analysis looks at PRN orders and actual use. PRN orders increased slightly from 81% in April (Pre-training), to 95% in August (Post-training 1), 91% in September (Post-training 2) and 88% in October (Post-training 3). Chi-square was used to compare the pre-training frequency with each of the frequencies in the 3 months post-training and none of the differences were statistically significant. Similarly, the statistical comparisons between frequency of patients who took PRN medication before and after the training session did not reach statistical significance. There appeared to be a trend of increased use of PRNs in the last 24 hours in September (Post-training 2) (p=.074), but this was not maintained.

Table 3-8

PRN Orders and Use

	Pre-Training April n=37	Post–training 1 August n=37	Post-training 2 September n=33 (1 missing)	Post-training 3 October n=40
PRN medication ordered	81%	95%	91%	88%
PRN taken in the last 24 hours	17%	31%	39%	31%

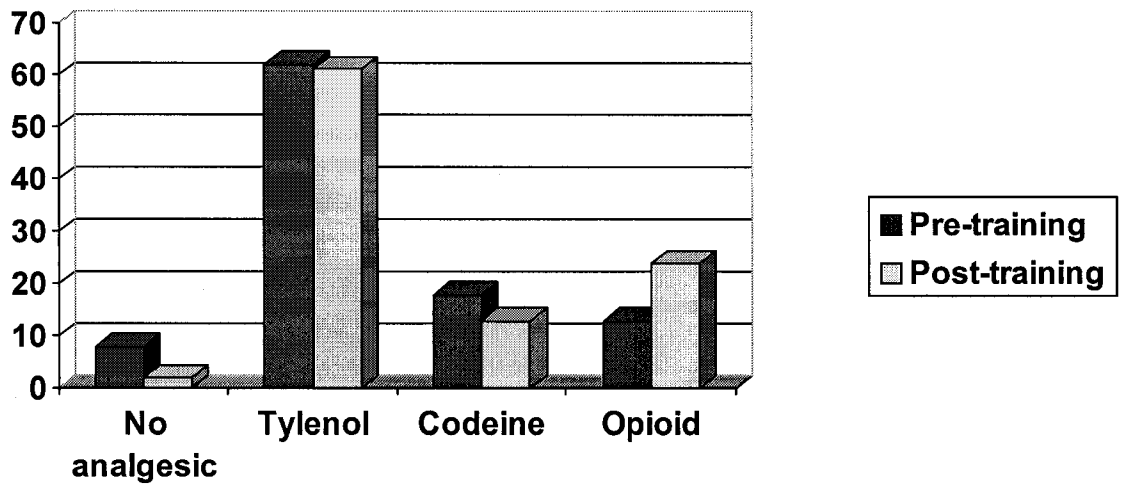
Patterns of Analgesic Use

Information was collected on the type of analgesic ordered. The information was categorized as: no analgesic, Tylenol, codeine, and opioid analgesics. There were a variety of analgesics ordered and this was a simplification into four categories for the purpose of analysis. For example, analgesic creams were categorized with Tylenol. Prednisone was categorized with codeine when used for a pain condition. It was not included if it was used for asthma or COPD. Medications to treat the cause of pain, such as nitro spray for angina pain were not included. It appeared that that there was a decrease in the use of 'no analgesic' and an increase in the use of opioid analgesics post-

training (See Figure 3-1). However, the differences between the pre-training frequency and each of the three post-training frequencies were not statistically significant. There was a possible trend of change noted in comparing analgesic use in April (Pre-training) and October (Post-training 3) ($X^2 = 6.67$, df=3, p=.083).

Figure 3-1

Patterns of Analgesic Use

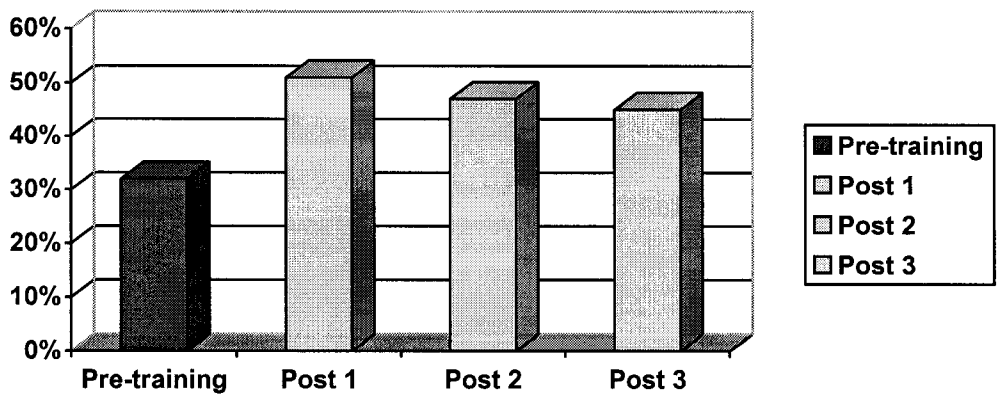


Frequency of staff using non-pharmacological approaches for pain management

According to the chart audit, there appeared to be an increase in use of non-pharmacological strategies from 33% of the time in April (Pre-training) to 51%, 50% and 46% in August (Post-training 1), September (Post-training 2) and October (Post-training 3) (see Figure 3-2). However, the differences between the pre-training frequency and each of the three post-training frequencies were not statistically significant using X^2.

Figure 3-2

Use of Non-Pharmacological Treatments



Frequency of Monitoring /Documentation of Pain Management

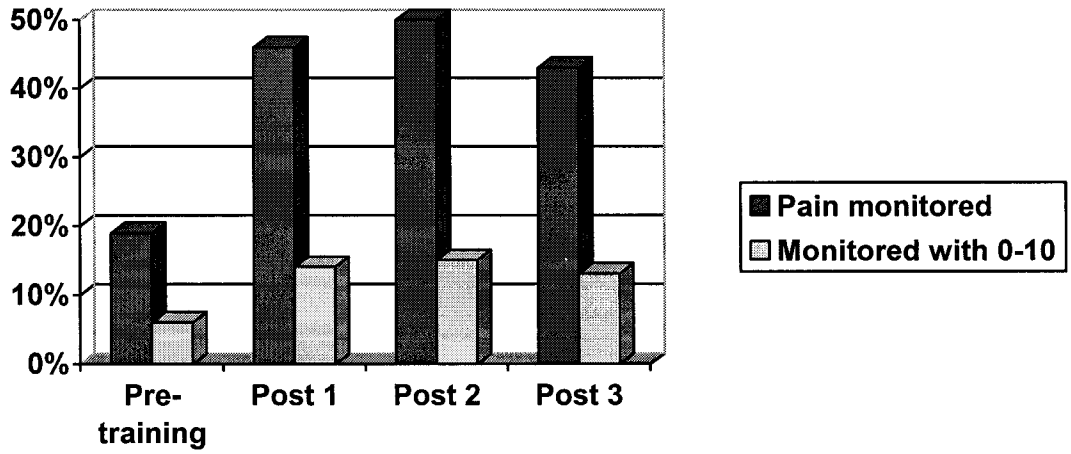
In the chart audits, information on monitoring and documentation of pain management was collected in two ways: (1) any evidence that pain was monitored, either patient report or staff observation of pain behaviour, and (2) use of a pain rating scale. This information was collected from chart notes or flow sheets of the preceding 24 hours. The results indicated that pain had been monitored 19% of the time in April (Pre-training) (see Figure 3-3). After training, pain had been monitored 46%, 50%, and 43% of the time. The differences between the pre-training frequency and each of the three post-training frequencies were statistically significantly different (X^2 = 8.79, p=.003; X^2 = 9.63, p=.002; X^2 = 8.11, p=.004).

Use of pain ratings to monitor pain occurred only 6% of the time in April before the training took place (see Figure 3-3). This increased to 14%, 15%, and

13% in each of the respective post-training intervals. When compared to the pre-training period, the differences were statistically significant for the first and second post-training intervals ($X^2 = 4.56$, p=.033; $X^2 = 3.91$, p=.048), but not for the third month after the training.

Figure 3-3

Monitoring of Pain in the 24 hours preceding Chart Audit



Objective Two

Patient Satisfaction with Pain Management Interviews

The third group of subjects was a purposive sample of 24 geriatric rehabilitation inpatients. This group was similar to the larger population of geriatric inpatients as represented by the chart audit sample. Table 3-9 shows gender, mean age and MMSE scores for the group of interview subjects before the

training session, and for the different group of interview subjects after the training session.

Table 3-9

Description of Interview Subjects before and after Staff Training

Time Frame	n	% Male	% Female	Mean Age (SD)	Mean MMSE (max 30)
Pre staff training Feb-April 03	12	17	83	78 (7.9)	27 (1.7)
Post staff training Aug-Oct 03	12	33	67	80 (7.3)	27 (2.0)

Prompt Pain Management

Prior to staff training, 7 patients (n=12) reported that their complaints of pain had been attended to promptly. This improved to 10 (n=12) after staff training. The increase was not statistically significant using Fisher's Exact Test.

Pain Evaluated by Staff

Prior to staff training, five (n=12) patients agreed with the statement, "pain was only evaluated by staff when ... the patient told them they were hurting".

After the staff training, all of the patients agreed with the statement. It is important to note that the post-training increase did not indicate that more staff asked patients about pain. Instead it shows that more patients indicated to staff that they had pain without being prompted. The proportion of patients who indicated to staff that they were experiencing pain after the staff training was statistically significantly higher than before the training (p=.005 Fisher's Exact Test).

Expected Nurses to do more to Relieve Pain

Before the training sessions, four of the patients (n=12) reported that they had expected nurses to do more to relieve their pain. After the training sessions, this remained the same.

Use of Non-pharmacological Pain Management Strategies

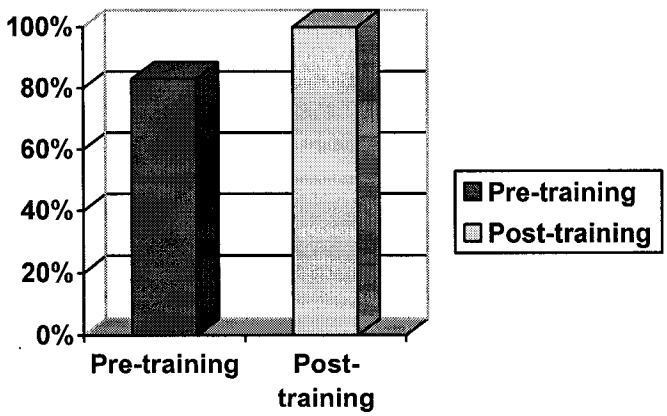
Before the staff training, 6 of the 12 patients reported that they had been shown other ways to relieve their pain in addition to taking pain medications. This decreased to 5 post-training. This difference was not statistically significant.

Satisfaction with Pain Management

Prior to the staff training sessions, 10 of the 12 patients interviewed were satisfied with the ways their pain was managed (see Figure 3-4). This increased to 12 after the training sessions. The difference was not statistically significant.

Figure 3-4

Patient Satisfaction with Pain Management



Patient Pain Levels and Comfort Goals

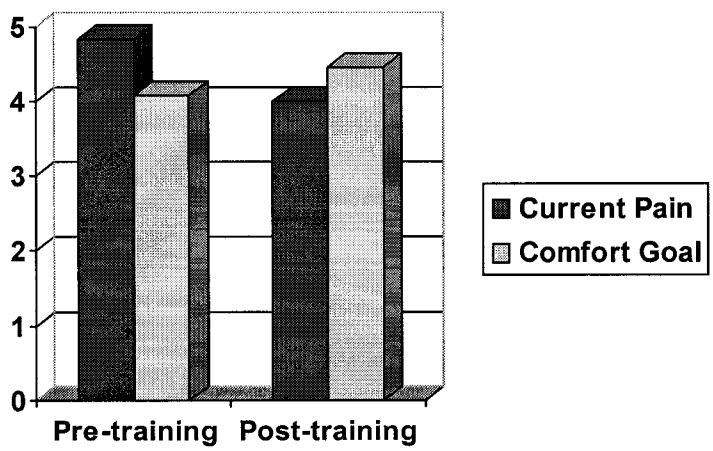
Pre-staff training, the patients' mean current pain was 4.83 (SD=3.07), with ratings ranging from 0-10 on the 10-point pain rating scale (see Figure 3-5). Post-training, the patients' mean pain rating declined slightly to 4.00 (SD=3.01), also ranging from 0-10.

Before training, the patients' mean comfort goal was 4.08 (SD=1.93), ranging from 0 to 7.5 on a 0-10 scale. After the staff training, the patients mean comfort goal 4.46 (SD= 2.03), and ranged from 2 to 8.

Although it appears that post-training pain ratings decreased and comfort goal ratings increased, the differences between pre and post training pain ratings, and between pre and post-training comfort goal ratings were not statistically significant.

Figure 3-5

Current Pain and Comfort Goal Pre and Post-training



Patient Comments before Staff Training

At the end of the interviews, patients were asked if they had any further comments about the way their pain had been managed. This was intended to provide an opportunity for comments that may not have been captured in the

interview questions. A total of 8 patients provided comments. One patient commented, "I guess they have to go and help other patients too. I'm not the only one she has to look after. The staff try and help. Seniors aren't an easy group to work with. They (staff) are very patient". Another patient stated, "Not with chronic (pain) - you can't do much with chronic... I cannot complain about the care". One patient appeared to have some fear and frustration about the risks of taking analgesic medications, when the patient stated, "I don't want more pills. It's difficult".

Patient Comments after Staff Training

Post-training, only three patients had further comments. The comments that were received reflected a level of satisfaction, but also an awareness that they had to tell staff about their pain. One patient described her responsibility, "For myself, I should report the pain earlier. I think I wait too long before I tell them anything and then it can get so bad".

Patient Outcomes: Length of Stay

Length of stay (LOS) is an indicator used to make generalizations about recovery time. Mean LOS is not stable from year to year within this program and it fluctuated in the short term. Table 3-10 shows that LOS had been increasing at a rate of two days per year from 1997 to 2002. With this background, a

projection was made about the expected LOS for 2003. If LOS was 40 days in 2002, then it was expected to be 42 days in 2003. In reality the LOS in the quarter after the training was 36 days (SD=16) (see Figure 3-6).

Table 3-10

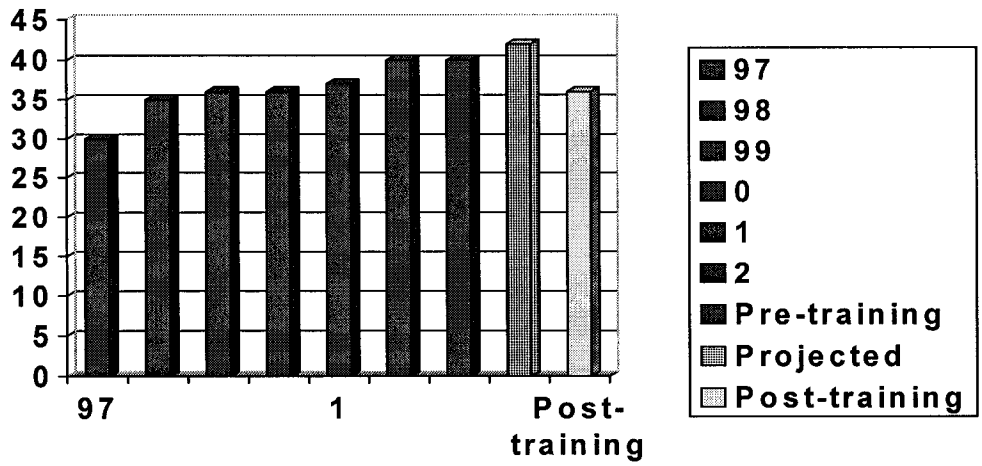
Average Length of Stay

Unit	97-98	98-99	99-00 (n=466)	00-01	01-02	2002	Projected 2003	Pre-training Apr-June 03	Post-training Oct-Dec 03
A	27.7	32.2	34.4	34.4	36.0	37 (18)	---	38	36
B	32.2	36.8	37.2	38.3	38.8	43 (21)	---	41	36
Combined	30.0	34.5	35.8	36.4	37.0	40 (20) (n=345)	42 (20) (n=345)	40 (n=86)	36 (n=91)

Note. Actual LOS *excluded days patients spent waiting for alternate level of care (ALC)*

Figure 3-6

Length of Stay



Hospital Costs

In Table 3-11, LOS and the program per diem rate are combined to calculate approximate cost of hospitalization. The difference between the mean pre-training cost in 2002 and April-June 2003 compared to post-training was $2340 savings per patient ($23,400-$21,060).

As the LOS had been following an upward trend over several years rather than remaining consistent from year to year, it may be more accurate to compare the post-training data to a projected 2003 value, based what would be expected. The difference between the projected mean cost in 2003 and actual mean cost per patient post-training would have been $3510 savings per patient ($24,570-$21,060).

Table 3-11

LOS and Hospital Costs in 2002 Compared with Pre and Post-training

Unit	2002 n/ LOS/ Mean $ cost (SD)	Pre-training Apr-June 2003 n/ LOS/ Mean $ cost (SD)	Post-training Oct Dec 2003 n/ LOS/ Mean $ cost (SD)
A	n=189	n=42	n=51
	37	38	36
	21, 766 (10, 339)	22, 230 (11,700)	21,060 (9360)
B	n=156	n=44	n=40
	42	41	36
	25, 103 (12, 204)	23, 985 (13,455)	21,060 (8775)
Combined	n=345	n=86	n=91
	40	40	36
	23,400 (11, 408)	23,400 (12,578)	21,060 (9032)

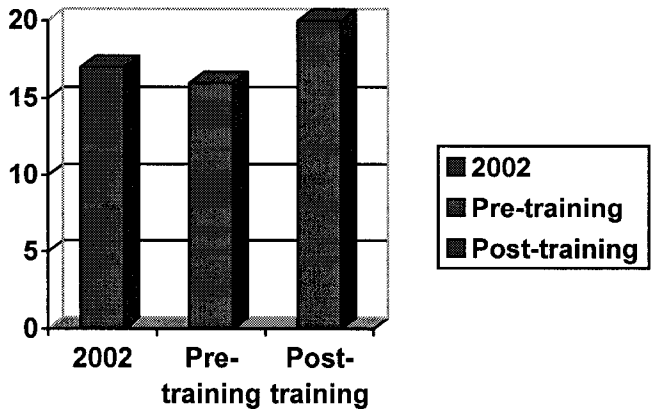
*Projected hospital charge in 2003: 42 days x $585=$24,570

Functional Outcomes

FIM™ change scores increased after staff training in pain management (See Figure 3-7). In 2002, patients gained an average of 17 points on the FIM™ from admission to discharge during their stay in the program. Before staff training, among patients who were discharged from April to June 2003, there was an average gain of 16 points on the FIM™. This improved to 20 points, post-training, for patients discharged from October to December 2003.

Figure 3-7

Change in FIM™ scores (Discharge FIM™ score – Admission FIM™ score)



Another way of looking at functional outcomes is through comparing LOS efficiency (mean FIM™ change divided by the mean length of stay). A higher figure indicates that more gains were made in functional activities in a shorter time frame. FIM™ Efficiency was compared for the two units and combined, in 2002, pre-training, and post-training (see Table 3-12).

Table 3-12

FIM™ Efficiency in 2002 Compared to Pre and Post-training

	Unit	Admission FIM™	Discharge FIM™	FIM™ Change	Length of Stay	LOS Efficiency
2002	A (n=189)	83 (15)	98 (17)	15 (14)	37 (18)	0.41
	B (n=156)	77 (17)	97 (19)	20 (14)	43 (21)	0.47
	Combined (n=345)			17(14)	40 (19)	0.44
Pre-training April-June 2003	A (n=42)	83 (12)	95 (22)	12 (19)	38 (20)	0.32
	B (n=44)	81 (12)	100 (15)	19 (12)	41 (20)	0.46
	Combined (n=86)	82 (12)		16 (16)	40	0.39
Post-training Oct-Dec 2003	A (n=40)	86 (15)	102 (15)	16 (10)	36 (15)	0.44
	B (n=51)	79 (18)	99 (19)	20 (12)	36 (16)	0.56
	Combined (n=91)			18 (11)	36 (16)	0.51

Note: LOS Efficiency is the mean FIM™ change divided by the mean length of stay (LOS)

In this chapter, the results of the study have been reported along with indicators of impact from hospital records. The staff training resulted in improvement as demonstrated by statistically significant changes in pain management knowledge and attitudes ($p<.002$) and through changes in staff practice, based on some of the indicators in the chart audits. Some practices did not change or changed briefly, but were not maintained for three months. Patient interviews about satisfaction with pain management had unexpected results on one item, and no significant change on the other items. Length of stay decreased by four to six days and functional outcomes improved, possibly indicating an improvement in efficiency of patient recovery after the staff training program. The next chapter will discuss these findings in relation to the objectives and the literature.

Chapter 4

Discussion

This study examined the effects of implementing best practice training program on staff practice. A secondary objective was to examine effects of this training program on inpatient geriatric patient outcomes and satisfaction.

Implementation of Best Practice

The literature provided some guidance based on implementing best practice guidelines to improve pain management in acute care. Specifically, this study implemented suggestions from Wild (2001) and Barnason et al. (1998) to address potential barriers to change on both individual and organizational levels and to evaluate knowledge and attitudes, documentation, satisfaction and functional outcomes.

Generally the implementation of best practice went according to plan, with valuable involvement of front line staff in the Pain Management Committee (PMC) and on the two geriatric rehabilitation units, but there were some obstacles. Unit B experienced some interruptions to their VCR access. Paradoxically, *more* staff from Unit B than Unit A viewed the videos. Possibly, knowing that the VCR was less accessible made the Unit B staff more committed to viewing the videos when the VCR was available to them. Some staff reported that they chose to borrow the videos and view them off the unit or at home, so that

they would not be interrupted while viewing them. This illustrates that some staff members were intrinsically motivated to view the videos. For those staff who did view the training videos during their shift at work, interruptions such as phone calls, patient call bells, and co-workers made concentration more difficult. If possible, it may be preferable for administration to set aside uninterrupted time during work hours to allow staff to view best practice training videos. These sessions could be organized for individual staff or for groups of staff, depending on the time of day and staff to patient ratio on a unit. In addition, staff should also be offered the opportunity (but not required) to borrow videos to view at home on personal time if that is their preference.

The time required for all of the staff to view the three training videos was longer than anticipated. This was addressed with the PMC, which tried various peer modelling methods to encourage staff to participate. The most effective strategy was a competition, which was launched between the two units, with a prize basket for the unit first to surpass 90% viewed. This provided the impetus for staff to find the time to view the videos and to support each other within their teams for doing this. It should be noted that any staff incentives for participation in the training were not in any way associated with participation in the research study, which required informed consent and completion of the pre and post-training tests. Also, while this competition between the two units provided an incentive to participate in the short term, it is not known if such a level of participation could be repeated or maintained if there were no such incentive.

Staff Knowledge and Attitudes

Participation of staff in this study was 49%, which surpassed expectations and exceeded the 25% participation level reported in the study by Barnason et al. (1998). It had been expected that staff members would complete both pre and post-training tests and the paired analyses would be used. While 11 staff members completed both tests, 20 others completed only the pre-test and 11 completed only the post-test. The author realizes that results from the data combining the two groups (paired and independent) should be interpreted with caution. As the two groups had a mix of staff who did the test during pre-training only, during post-training only, and those who did both, it was not possible to measure change over time. The groups may have been biased in that those who did poorly in the pre-test may have avoided the post-test, or those who knew the correct answers tended to take the post-test.

There were differences between disciplines in their pre-training test scores, with the OTs and PTs scoring higher than the LPNs and RNs. After the training, these differences in scores between the disciplines did not exist.

The pre- and post-training scores differed most for the LPN group, even surpassing the RNs' scores on the post-training test. This suggests that other non-professional front line staff could also benefit from training in best practice for pain management. The pre and post-training scores of the OTs did not appear to differ, however their pre-training test scores had been high to begin with.

The higher post-training score on staff knowledge and attitudes ($p<0.001$) was very similar between this study and the results reported by Barnason et al. (1998). However, the training program in this study was offered through three 20-minute videos, rather than a 77-page self-study manual and one hour seminar used by Barnason et al. (1998). The advantage of using videotapes is that staff members can view them at times and locations convenient to them.

In the item analysis of the test, most questions were effective showing improvement in scores after training. However, as mentioned above, there were some questions that did not reflect improvement. Specifically, the eighth question regarding whether visible signs can be used to verify the existence of pain was correct 25% of the time before the training and 0% after training. This test was designed to test knowledge and attitudes about pain in all age groups. However, older adults tend to be reluctant to report pain to health professionals. The older adult might deny pain initially, but then based on the way s/he moves, a caregiver may suspect pain is there and ask again in different words. While self-report remains the gold standard, it is common with older adults for physical signs or behaviours to provide complementary information (Ferrell, 2000). In the training, staff members may have mistaken this information to mean that the use of behaviours or physical signs can be used to identify existence of pain over self-report. If it is used in the future, this item should be reworded to prevent misunderstanding. The ninth question was also problematic. It falsely states "anxiety makes the pain worse". While research has shown that anxiety does not directly affect pain intensity on a 0-10 scale, it significantly affects quality of life

(McCaffrey & Pasero, 1999). The statement is not clear in differentiating "pain", as a multidimensional experience, from pain intensity. This may be why the majority of staff completing the test answered incorrectly. The addition of the word "intensity" may clarify the meaning of this statement. With regard to the 12th question, which falsely states that the preferred pain rating scale for use in daily practice is the visual analogue scale (VAS), it seems to reflect some misunderstanding about what constitutes a VAS. The pain rating scale used in this study was a combined VAS, numeric rating scale and pain thermometer. While research suggests that a numeric rating scale is preferred (Ferrell, 2000), a combined approach allows comprehension of the scale by the largest number of patients. Staff members may have believed that the combined scale that they were using was a VAS. These statements that were answered incorrectly might suggest either problems with the specific items on the test or perhaps they identify areas where more staff training is indicated.

While the change in knowledge and attitudes was found to be statistically significant using "Barriers to the Assessment and Treatment of Pain", it should be noted that this scale might not evaluate all kinds of knowledge relevant to the management of pain.

Validity should be confirmed for this tool by assembling an expert panel, which would discuss and validate that each item is assessing an important aspect of pain management knowledge or attitudes. While there might be other questionnaires in the literature that this could be compared to, none of them have

emerged as the "gold standard" in terms of validity, making such comparisons to determine validity of questionable value.

Further study on the reliability of the "Barriers to the Assessment and Treatment of Pain" would be recommended if it is to be used again in future research, particularly with the recommended revisions.

Pain Management Practices

Following the training, staff used a 0-10 rating scale when asking patients about their pain more often than before training (p=.001). While it had been hoped that use of a pain rating would become routine and consistently documented, the consistency based on the chart audits was less than anticipated. The improvement could have reflected the emphasis in the training videos on the importance of proper assessment of pain. While it appeared that awareness and communication about pain had made substantial gains, the use of the pain rating scale could still improve further.

Although not statistically significant, there was a trend of increased prescription and use of PRN analgesics (p=.074) in the second post-training chart audit which may reflect improved communication about pain. It should be noted that use of PRNs is usually in addition to any regularly scheduled analgesics the patient might be receiving. Therefore, if a patient's pain were constant, it would be managed with regular dosing or time-release analgesics, rather than PRN use.

PRNs would be specifically for breakthrough pain, uncomfortable procedures, or intermittent pain.

There was no statistically significant change in the type of analgesics ordered, but a trend of change appeared to be occurring by the third post-training chart audit (p=.083). There appeared to be a slight decrease in the number of patients receiving no analgesics and an increase in the number receiving opioid analgesics. Possibly, physicians revised their pharmacological approach with the use of pain assessment and as more patients communicated about pain. Patients were receiving appropriate pain management without an apparent increase in unmanageable side effects.

There was also a trend of increased use of non-pharmacological strategies to manage pain (p=.094) initially after the training, but this diminished over time. Non-pharmacological strategies are an important and often unrecognized part of overall pain management. It was noted, based on charting practices and patient interviews that both staff and patients sometimes failed to recognize certain strategies as being to manage pain. For example a patient with severe osteoarthritis might benefit from exercise, walking and pacing of activities to decrease joint pain and increase function. While both the staff and patient may be aware of the increase in function as a result of exercise and activity, they are more likely to attribute pain reduction to analgesic use. Similarly, OTs and PTs take care with ensuring that patients requiring wheelchairs are seated comfortably. This was rarely reflected in the chart documentation, unless the patient's skin was at risk. While it is hopeful that non-pharmacological strategies are perhaps being

used that are not reflected on the charts, this also opens the door for variation between practitioners as to the level of attention and use of interventions geared towards patients' comfort. There may be a need for further standardization of practice in this area.

This study showed that training in pain management for LPNs, RNs, OTs, and PTs (n=53) led to significant improvement in staff knowledge and attitudes (p=.002). Chart audits monitoring staff practices showed more frequent use of a rating scale to assess (p=.001) and monitor pain (p=.033), and increased documentation (p=.003). Changes were maintained for three months. There appeared to be trends of increased use of patient-set comfort goals, use of non-pharmacological interventions, and use of PRNs, which did not reach statistical significance.

Patient Satisfaction with Pain Management

The "Patient Satisfaction with Pain Management Interview" was completed with a small sample of patients (n=24). Based on the patient interviews and comments, patients found the staff to be more prompt with attending to complaints of pain (Pre: 7, Post: 10), although this was an area that still could be improved. Patients were concerned because the staff members were busy and they were concerned that their reports of pain might be perceived as complaining by others.

Patient satisfaction with pain management increased from 10, pre-training, to 2 post-training. This was not statistically significant, but it compared well with the satisfaction results in the study by Barnason et al. (1998), where post-training, satisfaction was 3.36/4.

Patients interviewed reported a range of pain levels and comfort goals. Current pain decreased and comfort goals increased.

On certain variables, the results were different from what had been expected. In the interview, five patients in the pre staff training group agreed that staff only evaluated their pain when the patient told them they were hurting. This increased to 12 patients after the intervention. It would be expected to be the opposite because staff had been trained to ask patients about pain on a regular basis. On further discussion with the patients, it became clear that due to the educational materials provided to patients, (several patients showed the interviewer the pain management brochure and explained what it said about reporting pain to staff), they were taking personal responsibility for reporting their pain to staff. As this was new learning, they were very conscious of the fact that they had to tell staff if they had pain, and paid less attention to who initiated asking or reporting about pain. Although the literature supports use of patient education, it was encouraging to see the brochure used in this study had such a positive impact on patient behaviour. In the study by Barnason et al. (1998), the same question was asked and 61% of patients indicated that staff evaluated their pain only when they reported having pain. Ultimately, having pain evaluated is helpful to overall pain management, regardless of who initiates the conversation.

Patients also responded that they expected nurses to do more to relieve their pain and that they received less non-pharmacological interventions, post-staff training. These differences were not significant however and did not seem to diminish the patients' overall satisfaction with pain management.

The effects of patient education about pain management emerged as an interesting and important topic within this study. It was not a focus here, but in the future, it would be important to evaluate the effect of patient pain management education on content and style of communication between patients and health professionals about pain, and its impact on patient satisfaction and functional outcomes.

LOS and Functional Outcomes

It is in everyone's best interest for patients to be able to participate in rehabilitation without undue pain and to be able to be discharged home as quickly as possible. There has been a trend of patients being transferred from acute care to rehabilitation earlier, often with a higher level of medical acuity on admission (Slaughter, Cartwright & Chang, 2000). There has been an associated gradual increase in the length of stay in rehabilitation, based on Glenrose Rehabilitation Hospital records of LOS from 1997-2002. In this study, it was assumed that pain is one of the factors contributing to length of stay and functional outcomes, and it was believed to be modifiable through low cost changes in staff practices.

While it is acknowledged that multiple patient, environmental and organizational factors influence the length of stay, the length of stay did decrease after changing staff pain management practices. The decrease in length of stay was four to six days, from 40 days in 2002 or 42 projected for 2003 to 36 days after the implementation of best practice in pain management. This reflects a savings of $2340-$3510 per patient. In the post-training time period from October to December 2003, this was a cost savings of $212,940 to $319,410 based on 91 patients and using the 2002 rate of $585/diem, which might be a low estimate of costs.

Decreasing the length of stay reduces costs, but this may not reflect quality of care or efficiency. Therefore, indicators of functional outcomes, such as FIM™ change scores and length of stay efficiency demonstrate whether the rehabilitation program is achieving meaningful goals in an efficient manner. This study showed improvement on both of these variables, in addition to decreased length of stay. Possibly, the patients made functional gains more quickly when their pain was managed effectively. This could have led to patients being ready to be discharged home, up to six days sooner.

Prevalence of Pain in Geriatric Rehabilitation

Through chart audits (n=232), it was revealed that 85% of patients had pain on admission, with a mean intensity (n=84) of 6/10 (0=no pain, 10=worst pain). This is a very high number of patients with a moderate to severe pain

intensity. As some patients (16%) were not experiencing pain, the mean of 6/10 suggests that there are patients with inadequately managed severe pain. The majority of patients admitted to geriatric rehabilitation were being transferred from acute care facilities. There was no evidence to suggest that the patients had received better pain control in acute care. Some patients suggested through their comments that pain control had actually improved for them in the rehabilitation setting. Therefore, this data identifies the scope of the problem in geriatric rehabilitation, but the results may also be of interest to acute care and other settings where frail older adults receive health care services.

Limitations of the Study

There are limitations in this study related to the tools and sample sizes. The pre and post-training staff test lacked information on validity and reliability. Three test items did not reflect improvement and appeared to be misunderstood by staff completing the test. The same knowledge and attitudes test was used before and after training. To address the possibility of a learning effect it would have been preferred if two different, but equivalent, tests were used for the pre- and post training conditions. Another limitation of the test was that it was not clear which items examined "knowledge" versus "attitude" or both. As mentioned, the use of mixed groups of staff who did not all take the test pre and post-training, did not allow examination of change.

The tools used to complete the chart audits and patient interviews were based on a sample in McCaffery and Pasero and an interview used in a previous

study (Barnason et al., 1998), however, they both lack information on validity and reliability. While the chart audits had a sufficient sample sizes, the interview sample was too small to show differences on several items.

While there were statistically significant differences in performance between disciplines on the "Barriers to the Assessment and Treatment of Pain" test before training, these differences did not exist after the training. The pre-training differences may have been confounded by variables that were not examined in this study. These include years of experience and whether or not the staff member was foreign trained.

Future Research

This study was unique because it utilized the (2002) American Geriatric Society Clinical Practice Guideline, "The Management of Persistent Pain in Older Persons" in a geriatric rehabilitation setting. The implementation process followed recommendations from previous studies on other clinical practice guidelines in acute care settings, by addressing anticipated barriers and facilitating individual and organizational change (Wild, 2001). There is an ongoing need for health professionals and organizations to learn about current best practice and change their practices, not only related to pain management. This is an important, yet ultimately challenging responsibility that must be shared between individuals and organizations. More literature is needed on facilitating this process effectively in healthcare settings.

Validity and reliability should be determined for the test of knowledge and attitudes used in this study, "Barriers to the Assessment and Treatment of Pain" (McCaffery & Pasero, 1999). Consideration should also be given to managing the pre and post-training groups in a manner to encourage participation in both pre and post-training tests, while maintaining confidentiality. If videos are used there should be uninterrupted time allocated for staff to view the videos at work. Future research should also examine other effective methods of delivering best practice knowledge to practitioners.

While patient education was not the focus of the study, information from the patient interviews suggested that it had more effect than expected. This was not well addressed due to the number of other variables being monitored. Creating patient information materials for older adults within the design restrictions and extended timelines for approval in healthcare corporations is challenging. With more literature on creating effective patient education materials for older adults, the most effective content and style of communication could be used for the benefit of the patients. With this information, organizations might adapt their policies to support the creation and distribution of appropriate patient education materials, thereby truly including the patient as a member of the healthcare team.

Conclusion

In conclusion, after staff training in pain management staff scores on a knowledge and attitudes test were higher, as were their use of pain assessment,

monitoring and documentation. Chart audits showed trends of improvement on other variables, including use of comfort goals, PRNs, and non-pharmacological strategies to manage pain, not reaching statistical significance. Based on interviews, after the staff training, all 12 patients reported satisfaction with pain management and their mean pain intensity was within their goals. Patients gained greater awareness of their own role in reporting pain levels and comfort goals to staff, so that pain could be managed effectively.

Results of this study emphasize the importance of clinical use of best practice. In particular, the introduction of consistent use of pain assessment and monitoring led to improved communication about pain between staff and patients, and this, in turn appeared to lead to improved outcomes.

It was observed that patients' functional outcomes improved, length of stay decreased, and combined together these variables reflected improved efficiency. Possibly, this is a reflection of better use of time spent in rehabilitation when pain was managed more effectively, however, the study was not designed to test this hypothesis. It is also possible that this reflects improved staff knowledge and attitudes and pain management practices, however, this is not conclusive because of the mixed groups of staff participants.

This study is unique and original in that it examined the effects of applying the 2002 American Geriatrics Society Clinical Practice Guideline, "Management of persistent pain in older persons" in a Canadian geriatrics rehabilitation program. The study increases awareness of issues related to inadequate pain management in older adults and supports the clinical use of best

practice guidelines towards improving the quality of care provided to older adults experiencing pain. The study demonstrated specific strategies associated with improved pain management within an interdisciplinary environment. It also fills an existing gap in the literature on best practice and pain management within a Canadian rehabilitation setting and provides some preliminary data to contribute to future research.

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APPENDICES

Appendix A

Patient Brochure:

"I'm in pain but I don't want to complain"

Capital Health

Glenrose Rehabilitation Hospital

Keeping pain within your level of tolerance allows you to participate fully in rehabilitation and to get better faster.

Pain scale

Your health care providers will ask you to rate your pain (or discomfort, soreness, aching, etc) on a scale of 0, no pain, to 10, the worst possible pain.

worst possible pain
10
9
8
7
6
5
4
3
2
1
0
no pain

Please be patient with our questions. There is no right answer. You are the best expert about the pain you are feeling. That's why we are asking you.

Thank you for helping us to provide the best care possible! We wish you good health!

From the NARG program staff

2003 G0509/03(1)

"I'm in pain but I don't want to complain."

We know that many patients don't like to complain about pain.

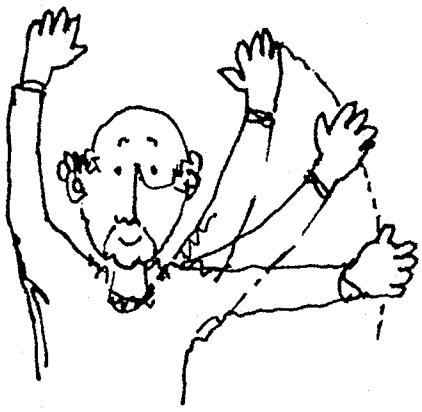
If this sounds like you please read on.

If you have pain we would like to know about it.

We can try to do something about your pain in several ways:

- through treating the cause

- offering you pain medication



- through physical and occupational therapy

- providing equipment to make things easier for you

- sometimes it's as easy as adjusting your position or adding a cushion

Appendix B

Northern Alberta Regional Geriatric Program

Description of Program

The Northern Alberta Regional Geriatric (NARG) Program is an interdisciplinary program for the assessment and rehabilitation of frail older adults located at the Glenrose Rehabilitation Hospital in Edmonton. Admission to the 71-inpatient medical beds is reserved for older adults who have complex medical problems and significant recent changes in function (Slaughter, Cartwright, & Chang, 2000). Interdisciplinary assessment and rehabilitation efforts are provided with the goal of improving function and recommending supports when needed, so patients are able to return home at their optimal level of independence.

Geriatric Medicine Admission Criteria (3D & 4C)

The individuals must:

- have impaired function - changes in activities of daily living (ADL) which prevent older adults from remaining in their current living situations, and/or
- have complex medical problems – there must be more than two active, interacting medical conditions (symptoms, syndromes or diagnoses) in which the treatment of one condition can complicate another condition

Admission decisions also take into account the following:

- cognitive impairment which prevent older adults from remaining in their present living situations
- psychological needs or maladaptive behaviors, which result from physical illness
- social needs - stress or conflict within the present living situation
- polypharmacy
- age over 65

Exclusion Criteria:

- outpatient services would best respond to the need
- a previous NARG Program assessment has been completed and no new problems have arisen since that assessment
- patient exhibited significant and ongoing disruptive behaviors, such as physical aggression, should be referred to the Alberta Hospital Edmonton
- the patient requires specialized care which is offered through other programs, such as Palliative Care
- the patient refuses to participate in treatment and rehabilitation programs – with the exception of those patients who due to cognitive impairment are unable to make judgments regarding treatment.

Appendix C

Staff Information Letter

Title: Implementing Pain Management Best Practice in a Geriatric Rehabilitation Program

Investigator: Bonnie Zimmerman BScOT(c), MSc(OT) student
University of Alberta
Telephone: (780) 424-6226

Supervisory Committee Members: Lili Liu, PhD, OT(c)
Department of Occupational Therapy
University of Alberta
Telephone: (780) 492-5108

Sharon Warren, PhD
Faculty of Rehabilitation Medicine
University of Alberta
Telephone: 492-7856

Darryl Rolfson, MD, Faculty of Medicine
University of Alberta
Telephone: 474-8800

Background: In older people, pain can affect one's mood, social life, sleep, eating, activity level and walking. Pain can slow down a person's recovery from an illness or injury. If staff follow a guideline, patients with pain may recover sooner

Purpose: Staff will learn how to use a guideline for treating patients with pain. We want to see if this will help patients recover function sooner.

Procedure: If you agree to participate, you will be asked to complete a short true/false test of knowledge and attitudes about pain, before and after participating in three one-hour training sessions. Your employer will provide the training as a series of in-services for which you will be expected to attend whether or not you choose to participate in this aspect of the study. You have the right to refuse to answer any question(s) on the test.

Benefits/Risks: This study will provide information to help improve the way pain is managed. Participation in this study is not a requirement of your employment. There are no anticipated risks related to your participation in this study. The information collected for this study may be used in the future for secondary analyses. These analyses will be submitted for separate ethical review.

Confidentiality: Only the researcher will have access to the test forms to protect the privacy of individuals participating in the study. Consent and test information will be stored in a secure location for five years. No names or identifying information will be sited in any publications arising from the research, as all information will be presented in summary form.

Freedom to Withdraw: You can choose not to participate in this project at any time without consequences.

If you have questions about the study, please call Bonnie Zimmerman at (780) 424-6226.

If you have any concerns, you may contact Dr. Paul Hagler at (780) 492-9674. Dr. Hagler is not directly involved in the project and is independent of the investigators.

_____

Initials

Staff Consent Form

Title: Implementing Pain Management Best Practice in a Geriatric Rehabilitation Program: Effect of a Staff Training Program on Outcomes

Investigator: Bonnie Zimmerman BScOT(c), MScOT student
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Telephone: (780) 424-6226

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Telephone: 492-7856

Darryl Rolfson, MD, Faculty of Medicine
University of Alberta
Telephone: 474-8800

Purpose: Staff will learn how to use a guideline for treating patients with pain. We want to see if this will help patients recover function sooner.

Do you understand that you have been asked to be in a research study?
Yes No

Have you received and read a copy of the Information Letter?
Yes No

Do you understand the benefits and risks involved in taking part in this research study?
Yes No

Have you had an opportunity to ask questions and discuss this study?
Yes No

Do you understand that you are free to withdraw from the study at any time without any consequences?
Yes No

Do you understand that your information will be kept confidential?
Yes No

I agree to participate in this study,

Participant's Signature	Date
Printed Name	
Witness' Signature	
Investigator's Signature	Date

Appendix D

Patient Satisfaction with Pain Management Interview

Date: Hospital #: Age:
MMSE:

Gender: ___Male ___Female

Primary Diagnosis:

Type of Pain: ____Acute ____Chronic
Pain Etiology: ___Post op ___Post Procedure ___Disease related

---

Directions: Interview a patient who has been on the nursing unit a minimum of one week and has experienced pain.

1. Has someone described the pain rating scale to you?
   (Show the patient the pain rating scale as you ask this question)
   ____Yes ____No

2. How would you rate your pain if:
   a) you had no pain:_____ (O-10 scale)
   b) you had the worst pain you could imagine:_____ (0-10 scale)

3. What is your acceptable level of pain? _____ (0-10 scale)

4. What is your current level of pain? _____ (0-10 scale)

		Strongly Disagree	Disagree	Agree	Strongly Agree
5.	My complaint of pain was attended to promptly.				
6.	My pain was evaluated by the nurse or therapist only when I told her/him that I was hurting.				
7.	I expected nurses to do more to relieve my pain.				
8.	The nurse or therapist showed me other ways to relieve my pain in addition to taking pain medications.				
9.	Overall, I was satisfied with the ways my pain was managed.				

10. Other comments:

(Adapted from Barnason, Merboth, Pozehl & Tietjen, 1998)

Appendix E

Barriers to the Assessment and Treatment of Pain

(Adapted from McCaffery & Pasero, 1999)

Please indicate whether the following statements are true or false (T/F):

1. The best judge of the existence and severity of a patient's pain is the physician or nurse caring for the patient.

2. Clinicians should use their personal opinions and beliefs about the truthfulness of the patient's true pain status.

3. The clinician must believe what the patient says about pain.

4. Comparable noxious stimuli produce comparable pain in different people. The pain threshold is uniform.

5. Patients with a low pain tolerance should make a greater effort to cope with pain and should not receive as much analgesics as they desire.

6. There is no reason for patients to hurt when no physical cause for pain can be found.

7. Patients should not receive analgesics until the cause of pain is diagnosed.

8. Visible signs, either physiologic or behavioral, accompany pain and can be used to verify its existence and severity.

9. Anxiety makes pain worse.

10. Patients who are knowledgeable about opioid analgesics and who make regular efforts to obtain them are called "drug seeking" (addicted).

11. When the patient reports pain relief after a placebo, this means that the patient is a malingerer[1] or that the pain is psychogenic[2].

12. The pain rating scale preferred for use in daily clinical practice is the visual analogue scale.

13. Cognitively impaired elderly patients are unable to use pain-rating scales.

[1] Malinger: one who deliberately feigns or exaggerates the symptoms of illness or injury to attain a consciously desired end.

[2] Psychogenic: having an emotional or psychological origin

Appendix F
Diagram of Study Design

	Pre	Pre	Pre	Training	Training	Post	Post	Post
Month	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**
Documentation	Chart Review Audit (Pilot) FIM MMSE LOS	Chart Review Audit (Pilot) FIM MMSE LOS	Chart Review Audit FIM MMSE LOS			Chart Review Audit FIM MMSE LOS	Chart Review Audit FIM MMSE LOS	Chart Review Audit FIM MMSE LOS
Patients	Patient Satisfaction with Pain Management Interview (4 pts)	Patient Satisfaction with Pain Management Interview (4 pts)	Patient Satisfaction with Pain Management Interview (4 pts)			Patient Satisfaction with Pain Management Interview (4 pts)	Patient Satisfaction with Pain Management Interview (4 pts)	Patient Satisfaction with Pain Management Interview (4 pts)
Staff	Organize Pain Management Committee (PMC)	PMC identifies barriers to best practice and plans how to minimize these barriers	PMC prepares to implement best practice	3 x 20 min inservices available on videotape PMC reminds and encourages staff to view the videos Pre-tests on knowledge & attitudes about pain	3 x 20 min inservices available on videotape PMC coordinates incentives for staff to view the videos Post-tests on knowledge & attitudes about pain	PMC encourages use of pain rating scales	PMC encourages use of pain rating scales	PMC encourages use of pain rating scales

Appendix G

Chart Review Audit for Pain Management Documentation

Review database, and flow sheets, medication record sheets and clinical notes for a 24-hour period to obtain the following information:

1. Date of audit: _____
2. Audit start time: _____
3. Hospital number: _____
4. Admission date: _____
5. Diagnoses (if post-operative, include surgical procedure):
   _____
   _____
6. Gender: (1) Male _____ (2) Female: _____
7. Age: _____
8. Clinical unit: _____
9. Was pain identified on admission? Yes ____ No _____
10. Was a 0-10 pain rating documented on admission? Yes ___ No ___
11. Initial pain rating on 0 to 10 scale _____
    (0=no pain, 10=worst pain)
12. What was the patient's comfort goal? _____ Not recorded _____

In the past 24 hours:

13. What was the highest pain rating recorded? _____
14. What was the lowest pain rating recorded? _____
15. What was the pain rating recorded most often? _____
16. What analgesic was ordered? _____
17. Was the analgesic regularly scheduled ____ or PRN ____ or both ____
18. Based on the chart documentation, were non-pharmacological strategies used to manage pain? This can include heat, cold, physiotherapy modalities, positioning, education on pain management, provision of equipment with the effect of increasing comfort or decreasing pain, relaxation strategies, etc. Yes ____ No_____
19. Is there evidence that the treatment was being monitored for its effect on pain intensity? Yes _____ No _____

Modified from *Medical Record Pain Management Audit*, in McCaffery & Pasero, 1999, p.727

Appendix H

Approval Letters:

Health Research Ethics Approval, December 2, 2002

Health Research Ethics Approval Renewal, December, 2003

Glenrose Rehabilitation Hospital Site Approval, December 16, 2002

Northern Alberta Clinical Trials and Research Centre Administrative Approval, January 15, 2003

Health Research Ethics Board biomedical research health research

2J2.27 Walter Mackenzie Centre
University of Alberta, Edmonton, Alberta T6G 2R7
p.780.492.9724 f.780.492.7303
ethics@med.ualberta.ca

3-48 Corbett Hall, University of Alberta
Edmonton, Alberta T6G 2G4
p.780.492.0839 f.780.492.1626
ethics@www.rehabmed.ualberta.ca

UNIVERSITY OF ALBERTA HEALTH SCIENCES FACULTIES, CAPITAL HEALTH AUTHORITY, AND CARITAS HEALTH GROUP

HEALTH RESEARCH ETHICS APPROVAL

Date of HREB Meeting:	October 4, 2002
Name of Applicant:	Bonnie Zimmerman
Organization:	University of Alberta
Department:	Occupational Therapy
Project Title:	**Implementing Pain Management Best Practice in a Geriatric Rehabilitation Program: Effect of a Staff Training Program on Outcomes.**

The Health Research Ethics Board (HREB) has reviewed the protocol for this project and found it to be acceptable within the limitations of human experimentation. The HREB has also reviewed and approved the subject information letter and consent form.

The deliberations of the HREB included all elements described in Section 50 of the *Health Information Act*, and found the study to be in compliance with all the applicable requirements of the Act. The HREB determined that consent be obtained for the disclosure of the health information to be used in the research from the individuals who are the subjects of the information.

The approval for the study as presented is valid for one year. It may be extended following completion of the yearly report form. Any proposed changes to the study must be submitted to the Health Research Ethics Board for approval. Written notification must be sent to the HREB when the project is complete or terminated.

William Johnson FOR
Dr. Sharon Warren
Chair of the Health Research Ethics Board
(B: Health Research)

December 2/02
Date of approval release

File number: B-101002-REM

University of Alberta
Capital Health
CARITAS HEALTH GROUP

Health Research Ethics Board

2J2.27 Walter Mackenzie Centre
University of Alberta, Edmonton, Alberta T6G 2R7
p.780.492.9724
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ethics@med.ualberta.ca

UNIVERSITY OF ALBERTA HEALTH SCIENCES FACULTIES, CAPITAL HEALTH AUTHORITY, AND CARITAS HEALTH GROUP

HEALTH RESEARCH ETHICS APPROVAL

Date:	December 2003
Name of Applicant:	Bonnie Zimmerman
Organization:	University of Alberta
Department:	Occupational Therapy
Project Title:	**Implementing Pain Management Best Practice in a Geriatric Rehabilitation Program: Effect of a Staff Training Program on Outcomes**

The Health Research Ethics Board (HREB) has reviewed the protocol for this project and found it to be acceptable within the limitations of human experimentation. The HREB has also reviewed and approved the subject information letter and consent form, if applicable.

The approval for the study as presented is valid for one year. It may be extended following completion of the yearly report form, which will be sent to you in your renewal month. Any proposed changes to the study must be submitted to the Health Research Ethics Board for approval. Written notification must be sent to the HREB when the project is complete or terminated.

Glenn G. Griener

Dr. Glenn Griener
Acting Chair of the Health Research Ethics Board
(B: Health Research)

File number: B-101002-REM

UNIVERSITY OF ALBERTA

Capital Health

CARITAS HEALTH GROUP

Capital Health

Community Care and Public Health

Healthier people in healthier communities

Glenrose Rehabilitation Hospital

Research Services

10230 - 111 Avenue
Edmonton, AB
Canada T5G 0B7

Tel: (780) 471-8212
nowsians@cha.ab.ca

Our File Number: ***02-Z-241***

Zimmerman, B.
Occupational Therapy, U of A
2-64 Corbett Hall
University of Alberta
Edmonton, AB T6G 2G4

December 16, 2002

Re: ***Implementing pain management best practice in a geriatric rehabilitation program: Effect of a staff training program on outcomes.***

This letter is to inform you that your application to conduct research at the Glenrose Rehabilitation Hospital Site for the above mentioned project has been approved and registered. You have received approval to conduct research in the following program(s)/clinic(s):

Northern Alberta Regional Geriatric Program (NARG) – Units 3D & 4C

If there are any changes to the programs/clinics from which subjects will be recruited, please notify us in writing as soon as possible. We also ask that you inform our office when you have completed your project so that your file can be closed.

If you have any questions, please contact Nathan Owsianski at 471-8212.

Thank you,

V. James Raso, MASc
Office of Research Services

Cc: Nathan Owsianski
Shanie Maharaj

Glenrose Rehabilitation Hospital Site

The Northern Alberta clinical trials and research centre

January 15, 2003

Bonnie Zimmerman
2-64 Corbett Hall
Faculty of Rehabilitation Medicine
Occupational Therapy

RE: Research Project: Implementing Pain Management Best Practice in a Geriatric Rehabilitation Program: Effect of a Staff Training Program on Outcomes

Please retain the attached administrative approval for the referenced study for your records.

Thank you for your cooperation and patience with providing this office with the required information prior to granting you administrative approval.

Good Luck with your study, if you require further assistance from this office please contact me at 407-6041.

Sincerely,

S. Maharaj

Shanie Maharaj
Research Administration

A **joint venture** of
Capital Health and
The University of Alberta

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Capital Health

Regional Research Administration
Clinical Trials Centre
1800 College Plaza
8215 - 112 Street
Edmonton, AB T6G 2C8
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NOTICE OF ADMINISTRATIVE APPROVAL FOR PROPOSED RESEARCH

Site: GRH

Project Title: Implementing Pain Management Best Practice in a Geriatric Rehabilitation Program: Effect of a Staff Training Program on Outcomes

Project Number: Z-1366

Investigator Name: Zimmerman, Bonnie Ms.

Department / Faculty: Faculty of Rehabilitation Medicine

Division: Occupational Therapy

Supporting Documents

Ethics Appoval Date: 02-Dec-02 **Ethics File #:** B-101002-REM

Study Protocol

Sponsor: Canadian Occupational Therapy Foundation

CRO:

Type of Funds:

Overhead rate: 0%

Legacy Account: U of A Account **Oracle Account:**

Contract Finalized Date:

Project Approved: 15-Jan-03 **Comment:**

Kathy Brodeur-Robb
Regional Research Administration

Copies to: Finance and Administartion

Wednesday, January 15, 2003

Appendix I

Patient Information Letter (Chart Audit)

Title: Implementing Pain Management Best Practice in a Geriatric Rehabilitation Program

Investigator: Bonnie Zimmerman, BScOT, OT(c), MSc(OT) student,
University of Alberta
Telephone: (780) 424-6226

Supervisory Committee Members: Lili Liu, PhD, OT(c)
Department of Occupational Therapy
University of Alberta
Telephone: (780) 492-5108

Sharon Warren, PhD
Faculty of Rehabilitation Medicine
University of Alberta
Telephone: 492-7856

Darryl Rolfson, MD, Faculty of Medicine
University of Alberta
Telephone: 474-8800

Background: In older people, pain can affect one's mood, social life, sleep, eating, activity level and walking. Pain can slow down a person's recovery from an illness or injury. If staff follow a guideline, patients with pain may recover sooner.

Purpose: Staff will learn how to use a guideline for treating patients with pain. We want to see if this will help patients recover function sooner.

Procedure: If you consent, your chart will be reviewed for information about pain treatment and results.

Benefits/Risks: This study will provide information to improve the way pain is managed. There are no anticipated risks to you as a result of your participation in this study.

The information collected for this study may be used in the future for secondary analyses. These analyses will be submitted for separate ethical review.

Confidentiality: Only the researcher will have access to information from your chart. Consent and data collected will be stored in a secure location for five years.

No names or identifying information will be cited in any publications arising from the research, as all information will be presented in summary form.

Freedom to Withdraw: You can choose not to participate in the project at any time. This will not affect your care.

If you have questions about the study, please call Bonnie Zimmerman at (780) 424-6226.

If you have any concerns, you may contact Dr. Paul Hagler at (780) 492-9674. Dr. Hagler is not directly involved in the project and is independent of the investigators.

_____

Initials

Patient Information Letter (Interview)

Title: Implementing Pain Management Best Practice in a Geriatric Rehabilitation Program

Investigator: Bonnie Zimmerman BScOT, OT(c), MScOT student
University of Alberta
Telephone: (780) 424-6226

Supervisory Committee Members: Lili Liu, PhD, OT(c)
Department of Occupational Therapy
University of Alberta
Telephone: (780) 492-5108

Sharon Warren, PhD
Faculty of Rehabilitation Medicine
University of Alberta
Telephone: 492-7856

Darryl Rolfson, MD, Faculty of Medicine
University of Alberta
Telephone: 474-8800

Background: In older people, pain can affect one's mood, social life, sleep, eating, activity level, and walking. Pain can slow down a person's recovery from an illness or injury.

Purpose: Staff will learn how to use a guideline for treating patients with pain. We want to see if this will help patients recover sooner.

Procedure: If you agree to participate, you will be asked to complete a 10-minute interview on your experiences with pain management while you have been a patient in this rehabilitation program. You have the right to refuse to answer any question(s).

Benefits/Risks: This study will provide information to improve the way pain is managed. There are no anticipated risks to you as a result of your participation in this study.

The information collected for this study may be used in the future for secondary analyses. These analyses will be submitted for separate ethical review.

Confidentiality: Only the researcher will have access to information provided during your interview. Consent and interview information will be stored in a secure location for five years. No names or identifying information will be cited

in any publications arising from the research, as all information will be presented in summary form.

Freedom to Withdraw: You can choose not to participate in the project at any time. This will not affect your care.

If you have questions about the study, please call Bonnie Zimmerman at (780) 424-6226.

If you have any concerns, you may contact Dr. Paul Hagler at (780) 492-9674. Dr. Hagler is not directly involved in the project and is independent of the investigators.

_____

Initials

Patient Consent Form

Title: Implementing Pain Management Best Practice in a Geriatric Rehabilitation Program

Investigator: Bonnie Zimmerman, BScOT(c), MScOT student
University of Alberta
Telephone: (780) 424-6226

Supervisory Committee Members: Lili Liu, PhD, OT(c),
Department of Occupational Therapy
University of Alberta
Telephone: (780) 492-5108

Sharon Warren, PhD
Faculty of Rehabilitation Medicine
University of Alberta
Telephone: (780) 492-7856

Darryl Rolfson, Faculty of Medicine
University of Alberta
Telephone: (780) 474-8800

Purpose: Staff will learn how to use a guideline for treating patients with pain. We want to see if this will help patients recover sooner.

Do you understand that you have been asked to be in a research study?
Yes No

Have you received and read a copy of the Information Letter?
Yes No

Do you understand the benefits and risks involved in taking part in this research study?
Yes No

Have you had an opportunity to ask questions and discuss this study?
Yes No

Do you understand that you are free to withdraw from the study at any time without any consequences?
Yes No

Do you understand that your information will be kept confidential?
Yes No

I agree to participate in this study,

Participant's Signature	Date
Printed Name	
Investigator's Signature	Date