ENVIRONMENTAL CHARACTERISTICS AND STAFF RATINGS OF NEWER
AND OLDER SPECIAL CARE UNITS FOR DEMENTIA IN BRITISH COLUMBIA

by

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<u>Abstract</u>

Due to the greater availability of community resources as well as changes in admission policies, seniors are entering care facilities at an older average age and with higher levels of health needs than was the case twenty years ago. The number of dementia cases has also increased dramatically as well as Special Care Units (SCUs) to house persons with dementia. The purpose of this study was twofold. First it described the physical and operational characteristics of a sample of SCUs for dementia currently in operation in the Lower Mainland area of British Columbia (n=29) and compared those built prior to and after 1995. Second, this study determined the extent to which Directors of Care and Head Nurses believed their SCU operationalized the nine therapeutic goals identified in the Professional Environmental Assessment Protocol (PEAP). The PEAP is a post occupancy evaluation tool that was developed specifically for use in SCUs for persons with dementia. The therapeutic goals for the PEAP are: maximizing awareness and orientation; maximizing safety and security; providing privacy; regulating stimulation; providing good quality stimulation; supporting functional abilities; providing opportunities for personal control; supporting the continuity of the self; and facilitating social contact. The PEAP was also chosen for use in this study because its dimensions approximate six of the seven guidelines for SCUs frequently recommended in the literature. These include: maximizing awareness and orientation; maximizing safety and security; providing privacy; regulating stimulation; providing opportunities for personal control; and facilitating social contact.

Results indicated that SCUs built before 1995 were more likely to be purpose built than SCUs built after 1995. Newer facilities, on the other hand, were more likely to be home-like and were less institutional looking than SCUs built before 1995. A third finding was that SCUs in operation 6 years or more had more special structural characteristics such as wandering loops and railings in hallways than SCUs in operation for 5 years or less. SCUs in operation for 5 years or less had more wayfinding aids such as orientation cues than SCUs in operation 6 years or more. A fourth result indicated that newer SCUs in this sample were more likely to have a smaller number of residents living on the unit than older SCUs. Staff to resident ratios also favored SCUs in operation less than 5 years; these units tended to have a higher care aid-to-resident ratio than SCUs in operation 6 years or more. Nurse-to-resident ratios were the same for SCUs built before and after 1995. These findings indicate a trend towards the implementation of philosophy and design guidelines although differences were not significant between older and newer SCUs. Finally, Directors of Care and Head Nurses from SCUs in operation before and after 1995 offered a few examples that Norris-Baker *et al.* (1999) had originally used to define each of the 9 PEAP dimensions.

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1   INTRODUCTION

The first chapter is divided into four main sections. The first section presents the background of the study including the goal of furthering past research in the area of special care units for persons with dementia in British Columbia. The second section details the two purposes of the study: to determine the physical design and operational characteristics of a sample of special care units in British Columbia, and to determine the extent to which the Directors of Care and Head Nurses believe their unit operationalizes the therapeutic goals of the Professional Environmental Assessment Protocol (PEAP). Part three of this chapter provides an overview of the literature on the prevalence of dementia, where persons with dementia live and why, the relationship between dementia and the environment, the Environmental Docility Hypothesis, various design guidelines as well as the application of the design guidelines. Finally, the rationale and hypotheses of the present study are presented.

1.1 <u>BACKGROUND</u>

This study aimed to further previous research on special care units (SCUs) in British Columbia conducted by Gutman and Killam (1989) and Chappell (1999). Gutman and Killam (1989) conducted a broad-based study of dementia care in SCUs located in the Lower Mainland area of British Columbia, part of which focused on environmental design. Chappell's (1999) study also examined the physical features of environments occupied by dementia sufferers including wandering spaces, environmental cues, home-like atmosphere and security. Chappell's study consisted of SCUs and integrated units found in intermediate care facilities. While her study yielded some interesting results it was difficult to do an in-depth comparison with the present study as the findings were not presented separately for special care units and integrated units. The results from Chappell's study are therefore only briefly discussed (see section 4.1) while Gutman and Killam's study was used as the basis for in-depth comparison.

The study had two main purposes. First, it was designed to determine the physical design and operational characteristics of a sample of special care units currently in operation in the Lower Mainland area of British Columbia (n=29). This included determining the prevalence of specific design features such as orientation cues and the use of patient-focused care planning. For those units that were in operation when Gutman and Killam's (1989) research was conducted, this study determined if there have been any changes to the physical characteristics of the facilities such as the addition of wandering paths or orientation cues . A comparison between older and newer SCUs was also undertaken as there was reason to believe that special care units may have undergone several changes in the last decade. For example, for the past ten years the literature has

increasingly suggested that SCUs should move away from a traditional medical model to a more home-like environment. There also have been a series of specific design recommendations for SCUs (e.g., including wandering paths, door alarms and the reduction of glare from windows). It was of interest to this researcher to examine the extent to whether these recommendations have been incorporated in more recently built SCUs.

The second purpose of the study was to determine the extent to which the Directors of Care and Head Nurses believe their SCU operationalized the nine therapeutic goals identified in the Professional Environmental Assessment Protocol (PEAP). The therapeutic goals include: maximizing awareness and orientation; maximizing safety and security; providing privacy; regulating stimulation; providing good quality stimulation; supporting functional abilities; providing opportunities for personal control; supporting the continuity of the self; and facilitating social contact. There are several reasons why this aspect of the research is important. For example, greater availability of community services today means that many seniors are entering care facilities with higher levels of health care needs than was the case twenty years ago. The proportion of dementia cases is known to increase dramatically as age increases and the number of residents over age 80 is expected to quadruple in the next two decades. The proportion of long-term care facilities in the U.S. that offer dementia SCUs has increased dramatically in the last decade from 7.6% in 1987 to 22% of facilities in 1996 (Grant, 1998). In every province of Canada there has also been a proliferation of SCUs to house persons with dementia (the exact numbers or the proportion increase, however, are not available). While the construction of SCUs continues in North America, questions remain about

their effectiveness. The PEAP was chosen as an appropriate tool for this study to evaluate the effectiveness of SCUs because it approximates six of seven design guidelines that are commonly recommended in the literature. By understanding the effectiveness of critical design features of SCUs from the point of view of Directors of Care and Head Nurses, it was hoped that community and urban planners will be able to better plan for specialized environmental needs of care facility residents with dementia.

1.2 <u>LITERATURE REVIEW</u>

Below, the literature dealing with the impact of the environment on dementia is divided into eight sections. First the definition and prevalence rates of dementia are presented. This section underlines the fact that the number of people in the 85+ age group is expected to quadruple in the next 20 years. This projection is significant as the risk of dementia has been found to increase with age. The second section describes the history of the development of SCUs for persons with dementia. The importance of this section is in the description of what makes a SCU different from other care environments. The third section further discusses the relationship between dementia and the environment as research suggests that the environment can enhance the functioning and quality of life of residents with dementia. The fourth section discusses Lawton and Nahemow's (1973) conceptual model of person-environment interactions which provides a framework for understanding the impact of the environment on dementia. This model hypothesizes that as competence decreases, as in the case of persons with dementia, behavior is increasingly influenced by the external environment. The fifth section extends the conceptual discussion to the dimensions of SCUs including the philosophy, environmental design and therapeutic approaches of a unit. The sixth section describes common design recommendations and guidelines for SCU environments. The seventh section details the extent of application of these design guidelines in SCUs. Lastly, the topic of environmental assessment is discussed because it is important to determine if the environment is meeting its predetermined goals. In this section the focus is on the use of post-occupancy evaluation tools.

1.2.1 <u>What is dementia?</u>

Dementia has been defined as a syndrome characterized by intellectual deterioration severe enough to interfere with occupational or social performances (Gutman & Killam, 1989). The defining features of dementia are the development of multiple cognitive deficits that include memory impairment, deterioration of language function, impaired ability to execute motor activities, failure to recognize people and objects, and disturbances in the cognitive processes that organize complex behavior (Diagnostic and Statistical Manual of Mental Disorder [DSM] IV, American Psychiatric Association, 1994). The Canadian Study of Health and Aging (CSHA) Working Group (1994) estimated that there are currently 252,600 Canadians with a diagnosis of dementia. It is predicted that the number of Canadians suffering from dementia will triple by the year 2031, to more than three quarters of a million people. The CSHA found that 64% of cases of dementia were of the Alzheimer's type. Alzheimer's Disease is arguably the most severe and devastating of all of the different types of dementia (Cohen & Day, 1993). This disease usually renders one helpless and is one of the major reasons for institutionalization. This progressive irreversible neurological disorder increases markedly with age from a prevalence rate of 1% of people aged 65 to 74 and 7% of people between the ages of 75 to 84, to a high of 26% of people in the 85+ age group (CSHA, 1994). The number of persons in the 85+ age group is expected to quadruple by 2041 (Morgan *et al*., 1999). This age group is at the highest risk of developing dementia. As researchers have been unable to treat or prevent Alzheimer's disease and other dementias, the effective care of persons with dementia remains an important concern.

1.2.2 **Where do people with dementia live and why?**

The Canadian Study of Health and Aging found that the dementia population was almost equally divided between persons living in long-term care facilities and the community, with institutions having more severe dementia cases (CSHA, 1994). Behavioral problems were among the most common mitigating factors that led family caregivers to institutionalize a relative with dementia (CSHA, 1994). Katzman (1986) found that behavior problems such as irritability, agitation, verbal and even physical aggression towards family members may be exhibited as the dementia sufferer feels less in control of his/her environment. Long-term care facility staff have also reported difficulties in dealing with behavioral problems of dementia patients such as communication problems, memory disturbances, demanding/critical behaviors, physical violence and daytime wandering (Jackson *et al.*, 1989; Rockwood *et al.*, 1989; Sand *et al.*, 1992). As a method of managing these problem behaviors, long-term care facilities have developed Special Care Units (SCUs) to meet the therapeutic needs of dementia residents.

The history of caring for dementia sufferers has evolved dramatically in the past decades. Before the advent of specialized nursing facilities, care for the demented population was mainly the responsibility of the family. Because of the complexity of the symptoms and the behavioral problems associated with dementia, many caregivers were unable to cope. For these reasons, as well as the growth of the aged population, the deinstitutionalization of mental hospital patients and the decline of informal supports, the demand for nursing homes in caring for the demented population has increased (Weiner & Reingold, 1989).

Another shift in the care of people with dementia has been the move towards making care environments less institutional and more home-like. Many nursing homes of the past were built within the traditional medical model. Within this total institutional environment, a rationalized plan for the efficient organization of care was imposed on residents and staff (Grant, 1998). Included in this plan was that residents would be treated as patients. The patient must comply with strict rules and regulations imposed by the plan. There was little flexibility in this model. Because people with dementia often do not require extensive medical treatment, especially in the earlier stages of the disease, the traditional nursing facility is often considered inappropriate in terms of design and operation as an environment for people with dementia where more flexibility is required (Cohen & Day, 1994). At present, specialized units for persons with dementia that provide more home-like and therapeutic environments are being developed.

The purpose of most SCUs for dementia is to provide a protective, low-stimulus environment where demented individuals can interact with others who have similar problems. SCUs also aim to provide an environment safe and free from hazards --one that is predictable, secure and stable (Sand *et al.,* 1992). As well as decreased competency levels, many dementia residents experienced reduced mastery and control over their environment. Consequently, an environment that supports these functional deficits is needed.

SCUs are distinguished from other environments catering to the needs of dementia patients in five distinct ways: they 1) are typically physically separated from the facility of which they may be a part; 2) have a client population consisting mainly of individuals with dementia; 3) have special design features such as wandering paths and

visual cues; 4) have special activity and/or therapeutic programs and; 5) have staff with specialized training   (Gutman & Killam, 1989).   SCUs for dementia patients vary considerably in size. Some units house only 10 patients while others house as many as 49 patients (Ohta & Ohta, 1988).   According to Morgan and Stewart (1998), the recommended ideal size is 4 to 8 patients per unit, with a maximum of 10-20. Small group sizes are recommended throughout the design guideline literature. For example, Day *et al*. (2000) found that fewer residents on a unit reduced overstimulation and Sloane *et al.* (1998) found that fewer residents reduced agitation levels.

Reports of staff-to-patient ratio also varies considerably in the literature. Some studies found the ratio to range from a high of 1:3 to a low of 1:12 (Ohta & Ohta, 1988). Often the size and staffing of the special care unit in existing facilities is determined by practical considerations such as the availability of space and budgetary restraints rather than on sound gerontological reasoning (Ohta & Ohta, 1988).

The philosophy of SCUs changed during the decade of the 1990s. Investigators now define SCUs as a collection of special features that include design interventions, specialized staffing and flexible patient-focused care rather than a single visible intervention. Opinions are still divided about the effectiveness of special care units. Some believe that special care units improve patient outcomes, enhance family and staff satisfaction and improve the nursing home experience for the nondemented (Sloane, Lindeman *et al.,* 1995). Others feel that SCUs promote isolation and are depressing for staff and family (Gold *et al.,* 1991). In order to study the effectiveness of SCUs it is important to understand the relationship between dementia and the physical environment.

1.2.3   **Dementia and the Environment**

Understanding the relationship between the physical environment and dementia depends upon an understanding of three fundamental premises. First, it is essential to recognize that the role of the physical environment does not simply mean the provision of physical shelter for a resident. According to Cohen and Day (1993), thoughtfully designed physical environments represent potentially valuable, although underutilized, therapeutic resources in the care of people with dementia. For example, the environment can provide aid in orientation, enhance social contacts by providing small rooms and help staff monitor residents. The physical environment does not exist in isolation; it is part of an integral system that includes personal, social and organizational dimensions (Cohen & Day, 1993). Second, recent years have witnessed a shift towards the recognition that it is necessary to treat more than the condition. Facilities must cater to the whole individual particularly when some individuals may spend several years living there (Calkins, 1995). As dementia is a progressive disease some individuals may be institutionalized for many years before their death. Finally, there is thought to be great value in enhancing the physical environment to make it look more residential.   This design suggestion is articulated by many authors. For example, Cohen and Day (1994) conducted a review and analysis of 20 contemporary environments for people with dementia and found that one major trend in the majority of facilities was a move towards deinstitutionalization. Because people with dementia often do not require extensive medical intervention, especially in the early stages of the disease, the "medical model" is now often looked upon as inappropriate in the design of environments for people with dementia.   The "medical model" is based primarily on the medical and care needs of the resident. Many institutions following this model resemble a hospital setting with long corridors, nursing

stations and impersonal décor which can be disorienting and non-stimulating for persons with dementia. What is now more commonplace is the creation of more "home-like" residential settings. "Home-like" settings resemble their domestic counterparts in both physical appearance and function reinforcing the sense of home in the facility among residents (Cohen & Day, 1994). Research by Calkins (1987) indicates that the more familiar or home-like an environment, the more likely residents will be able to understand and therefore cope with it.

The physical and social environments are also important factors that can affect the functioning of persons with dementia. Kovach *et al.'s* (1997) research found that appropriate environmental interventions, such as providing meaningful wandering paths, orientation cues and objects from the past, can enhance the functioning and quality of life of dementia residents. These environmental interventions help residents compensate for disorientation, memory loss and the loss of self. Kovach *et al.'s* findings are similar to those of Boling and Gwyther (1991). Boling and Gwyther (1991) found that a well-designed, segregated area or special dementia unit, coupled with an individualized therapeutic approach (i.e., flexible and individual care plans, ongoing assessment of needs, and the preservation of dignity) by well-trained staff, had fewer restrictions, made up for cognitive and functional deficits, and provided targeted, meaningful enrichment for persons with dementia. In summary, it is evident that there is both empirical and theoretical support for the role of the physical setting in caring for people with dementia. These findings appear to be consistent with Lawton's "environmental docility hypothesis" presented below.

1.2.4   <u>Theoretical approaches</u>

Several environmental models that examine the relationship between seniors and their living environments have been developed in gerontology.   One of the most influential models is that of Lawton and Nahemow (1973).   Lawton and Nahemow developed the Competence-Press Model which led to the formulation of the Environmental Docility Hypothesis.   This hypothesis states that "outcomes are determined by the interaction of personal and situational factors".   As competence decreases, an individual's behavior becomes increasingly influenced by external or environmental factors. Planned housing for the elderly and institutions are environmental types that, being purpose-built, lend themselves naturally to the incorporation of social and physical design features that could affect competence (Lawton, 1983).   This is especially true in environments for dementia residents.   In Carp's (1994) research, individuals with dementing illnesses responded more often with disorientation and confusion to the environment than their cognitively unimpaired peers. This suggests that persons with dementia may benefit from environmental improvements such as orientation cues.

Although many people choose an environment that is most congruent to their needs, there are still many mismatches. A mismatch occurs when the needs and abilities of the resident are not being met by the living environment. In Lawton and Nahemow's theory mismatches lead to negative affect and maladaptive behaviors. In order to achieve a high level of congruence between an individual's capabilities and what the environment has to offer, the planner and designer of a living environment should understand the housing-related needs of their target population and strive to provide the best possible person-environment fit.

1.2.5 <u>**Conceptual Dimensions of Special Care Units**</u>

There appears to be a growing belief that SCUs should be established in nursing homes in order to provide specialized care for patients suffering from dementia. SCUs are considered in the literature as one of the preferred housing options to promote person-environment fit. Ohta and Ohta (1988) examined information on SCUs in published and unpublished reports, as well as policy manuals and supplemented this with personal observations. They found three dimensions where SCUs can differ: philosophy, environmental design and therapeutic approach.

1.2.5.1 <u>**Philosophy**</u>

In the philosophy dimension three issues need to be defined. First, what makes a unit special for dementia patients? According to Ohta and Ohta (1988) the answer is not the environmental and therapeutic features specifically selected for the dementia patient but the standard features of the larger long-term care facility in which the unit exists. In other words, a unit might label itself as "special" even if it provides only minimal differences in environmental or therapeutic features compared to a larger facility. The ability of a SCU to meet the needs of persons with dementia, therefore, varies considerably depending on what feature is labeled special.

The second philosophical issue discussed by Ohta and Ohta (1988) is who are the beneficiaries of the specialized environment? These researchers describe two main beneficiaries: dementia residents who receive specialized care, and staff who can segregate persons with behavior problems and/or cognitively disabilities. Specialized environments can provide safety and security for residents with dementia. Such outcomes are considered principles of good quality dementia care by Boling and Gwyther

(1991). Staff also benefit from a specialized unit as they are better able to provide targeted and meaningful enrichment programs for residents. The progressive nature of dementia also forces staff to make ongoing assessments and adjust care plans to meet the changing needs of each resident.

The third issue of philosophy is the focus on patient care. In some SCUs the focus is almost exclusively on meeting the patient's basic physical and custodial needs. Other units go beyond physical care needs and focus on promoting possibilities and growth for each patient. Lawton *et al.'s* (1984) research suggests that there is strong support for providing a treatment environment that helps compensate for cognitive and social deficits exhibited by dementia patients. Some SCUs aim to compensate for deficits in sensory and cognitive functioning whereas other facilities have autonomy and orientation as their goals. All of these issues incorporate a specialized philosophy of care for dementia patients.

1.2.5.2 <u>Environmental Design</u>

The second dimension where special care units can differ is environmental design (Ohta & Ohta, 1988). One of the most important characteristics of environmental design for dementia patients is safety and security. For example wandering is a common behaviour for dementia patients that necessitates an environment that balances the resident's safety and the right to personal freedom (Boling & Gwyther, 1991). Boling and Gwyther suggest that a well-designed unit allows residents to move about without interfering excessively with others' lives. That is, a high-quality unit should be designed with inviting public areas, places for small groups, and access to privacy. This is

especially important for families as it allows them to have the option of either privacy or public socializing when visiting.

The importance of a good environmental design was also noted in Kovach *et al.'s* (1997). In their study, six design principles were identified as essential for a SCU. These principles are: 1) non-institutional image; 2) smaller groups of residents; 3) variety of activity spaces; 4) meaningful wandering spaces; 5) positive and secure outdoor space and; 6) an environment that includes things from the past. Calkins (1987) argued that providing a familiar home-like environment helps residents to better understand and cope with their surroundings. This argument was also supported in research by Cohen and Day (1994) and Day *et al.* (2000) who suggest that the use of a non-institutional, home-like environment enhances and improves orientation, safety and security as well as intellectual and emotional well-being.

1.2.5.3   Therapeutic Approach

The third dimension in providing good quality special care suggested by Ohta and Ohta (1988) is having a therapeutic approach. This dimension focuses on the function of the SCU staff in caring for persons with dementia. This includes developing an individually tailored care plan and activities that exercise a resident's physical, cognitive and social skills. Two approaches that currently exist that address the individual needs of the resident are the Gentle Care© Approach and the Eden Alternative. The Gentle Care© Approach places the resident at the center of the care plan and encourages residents to make as many choices as possible (i.e, bath times, food choices, activities, clothing choices). Promoting a resident focused care environment is believed to lead to reduced chemical and physical restraint use, increased resident function, and higher levels of

satisfaction for both staff and family (Boling & Gwyther, 1991). The Gentle Care©

Approach utilizes a 'hush no rush' policy. This means that care tasks are completed

when a resident is ready. If a staff person is unable to do a care task at a certain time they

are encouraged to try again later when it is more appropriate for the resident. A second

approach, the Eden Alternative, encourages units to include pets, children and animals in

their programming. This kind of environment resembles their domestic counterpart and

reinforces the sense of home in residents. The Gentle Care© Approach and the Eden

Alternative have direct links to the therapeutic goals and design guidelines found in the

PEAP and the literature as they encourage a home-like environment that is flexible and

resident focused. When developing a SCU, the literature suggests that the physical

design and therapeutic approach should create comfortable, secure and identity-

enhancing surroundings. Currently, such design and therapeutic choices have been based

on the experience and shared wisdom of long-term care professionals. Although many

people have important ideas about what constitutes a good care environment for dementia

patients, there has been little systematic evaluation of the appropriateness of these ideas

to the facilities' goals (Hyde, 1989). Nehrke (1984) notes that institutionalized elderly

often are subjected to increasing person-environment incongruence due to their greater

vulnerability and changing needs. Lawton's model of competence-press, however, does

not specifically address the changing needs of residents with dementia or how residents

are often physically or politically powerless to make adjustments in their environment. In

order to avoid or minimize incongruence, it is suggested that facility staff can consciously

evaluate their own effectiveness and become aware of where changes need to be made by

conducting post-occupancy evaluations. Before such evaluations are discussed it is important to first review the general design guidelines for special care units.

1.2.6   Design Guidelines for Special Care Units

A number of authors have proposed design guidelines for SCUs (e.g. Cohen & Weisman 1990; Peppard, 1991; Calkins, 1987). Design guidelines can be grouped into seven dimensions: 1) awareness and orientation; 2) safety and security; 3) privacy; 4) stimulation; 5) autonomy and control; 6) social contact; and 7) home-like environment. Design guidelines are similar to the environmental design characteristics listed in the previous section under conceptual dimensions of a SCU. The aim of design guidelines are to provide the best possible fit between the resident with dementia and the environment. This aim is similar to Ohta and Ohta's (1988) conceptual dimension that states a good therapeutic approach should include an identity-enhancing, secure and comfortable environment for the resident.

1.2.6.1   Awareness and Orientation

The first dimension commonly discussed in design guidelines is awareness and orientation. According to Cohen and Weisman (1990) a therapeutic environment should assist people with dementia to identify their present location and follow clear paths to their desired destinations. This is important as dementia often disorients or confuses individuals with respect to time, place, personal identity or social situation. One design feature that can be incorporated to help with orientation is the use of landmarks such as room identification signs and colored canopies over washrooms. When landmarks are paired with other cues, such as auditory or olfactory, this is called redundant cueing. Redundant cueing reinforces environmental messages and increases the likelihood of

their being perceived and understood (Cohen & Weisman, 1991). A landmark or cueing device should also be personally significant to residents. For example, Day *et al*. (2000) found that display cases outside resident rooms that contained personally significant memorabilia were more likely to help residents find their rooms than displays without personal significance.   A second design issue found in the literature is visual differentiation.   People with dementia often face difficulty with color discrimination, depth perception and sensitivity to contrast (Day *et al.,* 2000). Design guidelines suggest increasing the unit's overall lighting levels and providing more color contrasts in order to improve orientation.

1.2.6.2 Safety and Security

The second dimension is that of safety and security.   One serious problem associated with persons with dementia is elopement or escape from the unit. Safety and security features are encouraged to help prevent this problem. The most frequently used physical design feature in SCUs that deals with the concern for safety and security are alarm or locking systems.   These systems are used to alert staff when residents try to leave the unit. The use of alarm systems has increased in recent years. In 1986 a study conducted by the Congress of the U.S. Office of Technology Assessment on Minnesota nursing homes with SCUs found 73% of units had an alarm system. This increased to 86% in 1990.

A second major safety concern in SCUs is falls. While residents with dementia often suffer from confusion and disorientation they are also likely to suffer from comorbid conditions that may affect muscle, knee and ankle strength, gait, balance, vision and blood pressure (Teresi *et al.,* 2000). Various design elements are suggested in

order to compensate for these impairments and to reduce the risk of falls. These include nonskid floors, sturdy handrails in hallways and the clear identification of changes in floor levels.

1.2.6.3 <u>Privacy</u>

The third dimension discussed in the design guidelines for SCUs is privacy. Cohen and Weisman (1991) recommend that persons with dementia have access to a range of public and private activities and spaces. This goal can be accomplished by clearly marking territorial boundaries of private and public areas. In order to maximize opportunities for privacy there should be ample spaces available for solitude. Such spaces should be protected from unwanted sensory stimulation and social contact. The need for privacy is fundamental for all people. Privacy is especially important for persons with dementia as it offers residents control over the desired level of social interaction and involvement in activities.

1.2.6.4 <u>Stimulation</u>

The fourth dimension in the design guidelines is stimulation. According to Cohen and Weisman (1991) sensory stimulation should be carefully regulated to avoid either deprivation or overload. There is a fine balance between what is not enough stimulation and what is too much. For persons with dementia some stimulation is needed to promote independent functioning and cognitive abilities. Too much stimulation can cause disorientation and frustration in persons with dementia. Overall it is suggested that the goal in providing a therapeutic environment for persons with dementia is sensory stimulation without stress. Regulation of stimulation can occur by providing an environment that is absent of loud, distracting noises or strong noxious odors. Lighting

levels as well as windows can be built to provide opportunities to view activities that one may partake in as well as to view the external environment. Lighting levels and windows, however, should be carefully monitored in order to eliminate glare which is a problem that can cause disorientation in persons with dementia. Design features to control lighting levels that can be added to the environment include dimmer switches, window shades and doors. Colors can also be used to stimulate or relax residents of an SCU. Colors that tend to incite anger, frustration and restlessness should be minimized. These are red, yellow, orange and stark white (Peppard, 1991).

1.2.6.5 Autonomy and Control

The fifth dimension discussed in the design guidelines for SCUs is providing residents an opportunity for autonomy and control. Design guidelines suggest that residents with dementia ought to be encouraged to make their own decisions regarding their environment as it enhances their connection to the familiar and maximizes their remaining abilities. This can be accomplished by encouraging residents to make their own choice about where and how they will spend their day. Another method to encourage autonomy and control is to provide an environment that supports the functional abilities of residents. One activity that is common among persons with dementia is wandering. In order to support the functional abilities of residents it is important to provide a variety of orienting symbols and visual pathways to help residents wander autonomously. Design guidelines suggest a continuous loop be built within a unit to provide residents with an opportunity for meaningful wandering. Wandering paths should be legible and understandable in order to reduce the dependence of residents on staff.

1.2.6.6   Social Contact

The sixth dimension discussed in the design guidelines is social contact. Prohansky *et al.* (1995) note that there is no physical environment that is not also a social environment and vice versa. Several design features can help to facilitate social contact for persons with dementia in an SCU. First separate rooms or alcoves can be built to provide an opportunity for small group and family interactions. According to Cohen and Weisman (1991) both the organizational and architectural environments should be designed to ensure that persons with dementia feel that they are part of a small group. This is essential as all people need to feel they belong regardless of cognitive disabilities. Another method to increase social contact is to place chairs around a table rather than against a wall. This simple environmental modification encourages social interaction amongst residents.

1.2.6.7   Home-like Environment

The last dimension discussed in the design guidelines is the provision of a familiar home-like environment. According to Cohen and Weisman (1991) environments for people with dementia should maintain as many links as possible with their past lives. If the environment is familiar, residents are more likely to be able to understand and, therefore, cope with it (Calkins, 1987). This philosophy is encouraged in the design and furnishings of every room on the specialized unit. One method to accomplish this goal is to allow residents to bring their own furniture and personal items from home. Memory boxes or display cases are also desirable as they allow residents to stay connected to their past. The presence of home-like furnishings in public areas also helps to reduce the institutional image of the unit. Another method of minimizing any institutional qualities

of the environment is to use moisture-resistant fabric on furnishings instead of vinyl upholstery often used in institutions. Finally, eliminating formal nursing stations and annoying intercoms also helps to reduce the institutional qualities of the care facility environment.

1.2.7 <u>Application of Design Guidelines</u>

The extent of application of the above design guidelines was examined in the current study. Findings were compared to an earlier study of British Columbia SCUs by Gutman and Killam (1989). Gutman and Killam (1989) undertook their study in order to obtain a more comprehensive picture of the environmental design, programming, staffing and residents of SCUs, as well as to identify aspects that should and should not be included in facilities in the future. They found a relatively low level of implementation of existing design guidelines. As Gutman and Killam completed their study over a decade ago, the current study sought to determine if designers and staff had become more aware of and implemented more design guidelines. While this study was a replication it was also an extension of past research because it included the use of a specialized post-occupancy evaluation tool, the Professional Environmental Assessment Protocol (PEAP), and researcher observations. Inclusion of the PEAP allowed an evaluation of the therapeutic goals of SCUs for individuals with dementia from the perspective of Directors of Care and Head Nurses. To my knowledge, this latter issue has not been addressed in the literature. Although much effort has been placed in developing post-occupancy evaluations that are conceptually based, tools that assess physical environments remain few and relatively underdeveloped. This is especially true for

assessments of dementia care environments. The development of post-occupancy evaluations is discussed in the following section.

1.2.8   Assessing a Special Care Unit

1.2.8.1   The Post Occupancy Evaluation

A post-occupancy evaluation is one method of evaluating a SCU. Zimring (1990) defines this type of evaluation as "the examination of the effectiveness of designed environments for human users" (p. 270). A post-occupancy evaluation can be an effective tool for architects, builders, housing management and other housing authorities as it can provide an objective assessment of the strengths and weaknesses of an environment. According to Zimring (1990), historically post-occupancy evaluations were developed for three reasons. First, there was a desire to understand the opinions of the user. Second, post-occupancy evaluations examine conceptual problems such as way-finding and environmental stress. Third, post-occupancy evaluations were developed to influence the views of organizations regarding the design of an existing or planned built environment. The post-occupancy evaluation attempts to create a process whereby both the setting users and environmental decision makers feel they are participating and their needs are represented. These three reasons have strong links to the competence-press model previously mentioned because they strive to look for the congruence or fit between the person and the environment.

The major problems in an evaluation often include defining the user groups, understanding the characteristics which describe them, and understanding the distinct needs of each group (Friedman *et al.,* 1978). Defining and measuring quality of special care unit environments is challenging because the target population is cognitively

impaired. This impairment may affect the ability to communicate individual views and preferences. Also, while progressive dementia such as Alzheimer's disease produce profound changes over time, a single individual will differ widely in abilities and needs over the course of the illness --thus, disease expression will vary markedly between individuals (Norris-Baker *et al.,* 1999). In addition family members are not usually asked to respond to a post-occupancy evaluation because most assessments are designed to gather information from staff and administrators. It is believed that administrators and staff have a better understanding of the rationale behind physical and operational characteristics of an environment. Of course there is always a risk of bias if the responses of one group take precedence over another. Kovach *et al.* (1997) state that discipline orientation and methodology influence the way settings are perceived by individuals. Nonetheless, even though there may some differences between responses on an evaluation there should be some degree of agreement on basic design principles of a SCU.

1.2.8.2   Assessing an environment using a post-occupancy evaluation tool

According to Lawton *et al.* (1984) living environments can be evaluated on the basis of meeting three goals. The first goal is evaluating the performance criteria in terms of how the environment helps or hinders certain behaviors. Secondly, the environment can be assessed in terms of subjective criteria. This includes the expectations and evaluations of the user and is measured by collecting subjective responses. The last goal in evaluating an environment is to assess its social criteria. Social criteria can be assessed by considering a group's social norms and cultural values. All of these criteria are represented in varying degrees throughout the history of post-occupancy evaluations.

In order to understand the history of environmental assessments it is essential to have an understanding of what is meant by "environment". For the purposes of this study the definition by Cohen and Day (1993) will be used. The environment was defined by these researchers as: "the interaction of organizational factors (i.e. policy, program, and services), the social environment (e.g. formal and informal caregivers), and the physical setting" (p. 9). The history of environmental assessments begins with the suggestion by Kleemeier (1959, as quoted in Lawton, 1980) that residences could vary along the dimensions of segregation, congregation and control. A decade later Pincus and Wood (1970) added the dimensions of privacy, freedom, resources, integration and personalization. These dimensions became the basis for the environmental assessment tools developed in the 1980s and 1990s.

The 1980s saw the development of the first multi-dimensional tool, the Multiphasic Environmental Assessment Protocol (MEAP) (Moos & Lemke, 1980) for assessing congregate housing facilities. This was followed by the Therapeutic Environmental Screening Scale (TESS) (Sloane & Mathew, 1990), the Nursing Unit Rating Scale (NURS) (Grant, 1996) and the Professional Environmental Assessment Protocol (PEAP) (Norris-Baker *et al.,* 1999). The PEAP was used in the present study as a means of evaluating the SCUs in the sample. The PEAP reflects many of the same design guidelines discussed in the previous section.

1.2.8.3   The PEAP

The Professional Environmental Assessment Protocol (PEAP) was developed to provide a standardized method of expert evaluation of SCUs for people with dementing illnesses such as Alzheimer's disease and related disorders (Norris-Baker *et al.,* 1999).

Although the PEAP is focused on the physical setting, the assessment is conducted within an understanding of the larger milieu of the social, organizational and policy environment. An understanding of the larger facility in which the SCU is located is accomplished by interviewing administrators and staff. The PEAP evaluates SCU settings with respect to eight dimensions of "the environment as experienced" that have been judged by consensus among a group of experts to be therapeutic with respect to the care of persons with dementia (Norris-Baker *et al.,* 1999). The eight dimensions included in the PEAP assessment are: 1) Maximize safety and security; 2) Maximize awareness and orientation; 3) Support functional abilities; 4) Facilitation of social contact; 5) Provision of privacy; 6) Opportunities for personal control; 7) Regulation and quality of stimulation; and 8) Continuity of the Self. According to Lawton *et al.* (2000) these eight dimensions reflect two characteristics. First, each dimension expresses a basic or derived major human need. Second, the dimension is one in which a potential environmental facilitator for the satisfaction of the need is evident. Each dimension of the PEAP is discussed below using the definition by Norris-Baker *et al.* (1999) and linked to the design guidelines previously discussed.

The first area of assessment of the PEAP is maximizing safety and security. Norris-Baker *et al.* (1999) define this dimension as the extent to which the environment both minimizes threats to a resident's safety and security and maximizes the sense of security of resident, staff, and family members. This PEAP dimension focuses on ease of monitoring residents (especially wandering behaviors), control of unauthorized exiting, support of functional abilities (i.e., reducing falls) and provision of specialized equipment. This PEAP dimension is defined in a very similar manner to the design

guidelines suggested previously --both discuss problems of elopement and the control of unauthorized exiting. Both also focus on supporting the functional abilities of residents. Design guidelines give examples of this kind of support by suggesting the use of handrails and nonskid floors.

The second area of assessment from the PEAP is maximizing awareness and orientation. Norris-Baker *et al.* (1999) define this dimension as the extent to which users (often staff and visitors as well as residents) can effectively orient themselves to physical, social, and temporal dimensions of the environment. Assessment focuses on signage, temporal and spatial predictability, visual differentiation and structural characteristics (size of unit, etc.). This dimension is also similar to the design guidelines for SCUs whereas both suggesting that the environment should assist people in identifying where they are located and how to orient themselves. Both the PEAP and the design guidelines suggest the use of landmarks and other cues to promote awareness and orientation.

The third area of assessment in the PEAP is the support of functional abilities. Norris-Baker *et al.* (1999) define this dimension as the extent to which the environment, and the rules regarding the use of the environment, support both the practice and continued use of everyday skills. These skills can be divided into activities of daily living (e.g., ambulation, grooming, bathing, toileting, and eating) and instrumental activities of daily living (e.g., using the telephone, light house work, and food preparation). Assessment of this dimension focuses on independence in self-care, independence in meals and eating, and ability to do functional activities. This PEAP dimension is reflective of the design guideline for autonomy and control, which encourages an environment that maximizes the resident's remaining abilities. For

example, the design guidelines suggests a wandering path be built to provide residents an opportunity to wander and which is legible and understandable. This supports the PEAP definition in that a clear wandering path supports a resident's functional abilities and reduces a resident's dependence on staff.

The fourth dimension of the PEAP is the facilitation of social contacts. Norris-Baker *et al.* (1999) define this dimension as the extent to which the physical environment and rules governing its use support social contact and interaction among residents. Assessment of this dimension focuses on the provision of a range of social spaces (opportunities for social contact), presence and placement of furnishings, presence of props or familiar artifacts, and social indicators (resident is alone or with others). The definition of this dimension is very similar to the design guidelines previously discussed. Both the guidelines and the PEAP suggest that separate rooms and alcoves be built to support social contacts. Placement of furniture is also a commonality. The design guidelines differ from the PEAP definition however, in that there is no mention of the use of props to increase social contacts.

The fifth dimension of the PEAP is the provision of privacy. Norris-Baker *et al.* (1999) define this dimension as the extent to which input from (e.g., noise) and output to (e.g., confidential conversations) the larger environment are regulated. Assessment of this dimension focuses on policies regarding privacy, characteristics of residents' rooms (private vs. semi-private) and the availability of space alternatives (private to public domains). This PEAP dimension is similar to the design guideline for privacy with both encouraging the availability of a range of public and private spaces for residents. Both

the PEAP dimension and design guidelines also suggest spaces be protected from unwanted sensory stimulation.

The sixth dimension of the PEAP is opportunities for personal control. This dimension is defined by Norris-Baker *et al.* (1999) as the extent to which the physical environment and the rules regarding the use of the environment provide residents with opportunities consistent with their level of ability. The definition also encourages staff to allow residents to exercise their personal preferences and to make choices about what they will do and when it is done. The assessment of this dimension focuses on policies regarding space use and resident behavior, presence of chairs and other props and control over micro environment. This PEAP dimension is similar to the autonomy and control design guideline. Both the PEAP and the guidelines encourage residents to make their own decisions and personalize their rooms. The PEAP is more explicit than many design guideline documents, however, with respect to identifying policies regarding space use and ways the environment can provide opportunities consistent with the residents' level of competence.

The seventh PEAP dimension is the regulation and quality of stimulation. Norris-Baker *et al.* (1999) state people with dementia have a decreased ability to deal with potentially conflicting stimuli and have greater difficulty distinguishing between foreground and background stimulation. Therefore, the environment must be sensitive to both the quality of stimulation and its regulation. The goal is stimulation without stress. Assessment of this dimension focuses on the regulation and quality of acoustic, visual, olfactory, and tactile stimulation. This definition is similar to that suggested in the design

guidelines with both aiming for an environment that provides a good balance of stimulation free from noxious noises or odors.

The eight dimension found in the PEAP is continuity of the self. Norris-Baker *et al.* (1999) define this dimension as the extent to which the environment and the rules regarding its use attempt to preserve continuity between present and past environments and the self of past and present. This can be expressed either through the presence of personal items belonging to the individual or by the creation of a noninstitutional ambiance. Assessment of this dimension focuses on the extent of personalization, non-institutional environment (i.e. home-like), and the continuity of familiar behavior patterns and life-style. Although there is no explicit continuity of self dimension in most SCU design guidelines, the definition provided in the PEAP is very similar to the home-like environment design guideline. Both the PEAP dimension of continuity of self and the home-like environment design guideline stress the importance of providing an environment that maintains as many links as possible to the residents' past. Some methods of making an SCU environment that is connected to the past and is home-like include the use of furnishings provided by the residents, and the removal of formal nursing stations, institutional furniture and annoying intercoms.

1.3   PRESENT STUDY

1.3.1   Rationale and Hypotheses of the Study

1.3.1.1   Rationale of the Study

The primary rationale for conducting this study was to provide a current description of SCUs in the Lower Mainland region of British Columbia, focusing on their physical design features.   There is reason to believe that there have been considerable changes in SCUs from when the Gutman and Killam (1989) study was conducted.   First, more is known about Alzheimer's Disease and related dementias now then ten to twenty years ago when the SCUs in their study were built.   We also know more about the effects the physical environment can have on the quality of life of residents (Kovach *et al.,* 1997).   Another change has been the incorporation of home-like features into the living environment.   This is a dramatic improvement from the traditional medical model units of the past (Cohen & Day, 1994).   The present study specifically aimed to compare facilities built before 1995 to those facilities built after that year to examine whether new research ideas were incorporated into the environmental design. Many people have notions of what constitutes an appropriate design for residents with Alzheimer's Disease yet despite rapid service development in caring for long-term residents with dementia, scientific study has lagged behind (Chappell, 1999).   In order to facilitate an accurate description of the units, the PEAP was used.

1.3.1.2 Hypotheses

The following hypotheses were tested in this study:

1) A greater proportion of newer special care units will be purpose built than older special care units. The rationale for this hypothesis comes from White and Kwon (1991) who found that more than one-half of their sample of Alzheimer Dementia Units were created by remodeling an existing wing or section of a facility. The typical SCU was a retrofitted nursing home wing or section. Newer units are more likely to be purpose built as we now know more about the fit between the person with dementia and the environment.

2) Newer special care units will be more home-like and less institutional than older special care units. Because people with dementia often do not require extensive medical treatment, especially in the earlier stages of the disease, the traditional medical model has been deemed inappropriate for the design and operation of environments for people with dementia (Cohen & Day, 1994). At present, care facilities that provide home-like environments are being developed. This reflects Cohen and Weisman's (1991) suggestion that environments for persons with dementia should maintain as many links as possible with their past lives. For people with dementia, familiar artifacts, activities and spaces can provide valuable personal associations and can stimulate opportunities for social interaction and meaningful activity.

3) A greater proportion of newer special care units will have special design features such as wandering loops and orientation aids than older special care units. The rationale for this hypothesis is that purpose built units are more likely to have incorporated the specific needs of residents (e.g. orientation, wayfinding, stimulation)

into its design. These units are also more likely to be flexible to the changing needs of residents with dementia and, therefore, to increase the congruence between the person and the environment. Older units might not have been built to compensate for cognitive deficits. Cohen and Weisman (1991) found that therapeutic environments, including redundant cueing, assist people with dementia in identifying their present location and in following clear paths to desired locations.

4) Newer special care units will be smaller (i.e., have a fewer number of residents on the unit) than older special care units. In the literature Cohen and Weisman (1991) recommended that to the extent possible, both organizational and architectural environments should be designed to ensure that people with dementia feel that they are part of a small (rather than a large) group. These researchers found that newer facilities are to be small in scale, with a maximum of eight to a dozen residents.

5) Directors of Care and Head Nurses will define the PEAP dimensions as the authors of the PEAP originally defined them. The rationale for this hypothesis is that many Head Nurses working in a special care unit environment have been trained in the Gentle Care© Approach and/or the Eden Alternative. These philosophies encourage the use of environmental features in order to promote a therapeutic environment. Therefore it is expected that Directors of Care and Head Nurses will find design examples in their unit that are consistent with the PEAP definitions.

2 METHODS

2.1 <u>Recruitment and Participants</u>

Thirty-six facilities in the Lower Mainland of British Columbia were identified as having a special care unit (SCU). Eligibility for inclusion in this study included having the SCU physically separated from the facility, clients have dementia, special design features present on unit, special activity and therapeutic programs and staff have specialized training. Of those, one facility did not meet criteria because it did not have a segregated locked unit. Three refused to participate because of recent negative media exposure. In the fall of 2000 a news report on a local Vancouver television station had done an exposé story on nursing homes in the Lower Mainland. Unfortunately the televisions station had gained access to incidence reports from nursing homes and reported about the so-called poor care provided by staff in many care facilities. According to one Director of Care this report failed to acknowledge that many of these incidences were minor and were dealt with appropriately as soon as the incident occurred. Because of this story many Directors of Care reported that their staff now suffered from low morale and were unwilling to speak to anyone about the care they provided in the nursing facility. The remaining three SCUs were unable to participate because they were overworked and were trying to deal with a lack of care staff in their facility. Head Nurses were unable to find a replacement on the unit while they completed the questionnaires. Appendix 1 shows the geographic location of the 36 special care units contacted and the 29 units that participated.

2.2   Instruments

2.2.1   Evaluation Tools

Four post-occupancy evaluation tools were considered for this study: the Multiphasic Environmental Assessment Protocol (MEAP) (Moos & Lemke, 1980); the Therapeutic Environmental Screening Scale (TESS) (Sloane & Mathew, 1990); the Nursing Unit Rating Scale (NURS) (Grant, 1996); and the Professional Environmental Assessment Protocol (PEAP) (Norris-Baker *et al.,* 1999).

The Multiphasic Environmental Assessment Protocol (MEAP) was developed by Moos and Lemke (1980) from examination of a representative sample of 93 sheltered care settings for older people. These sheltered care settings included skilled nursing facilities, residential care facilities and congregate apartments. Moos (1980) described the personal and social characteristics of residents then related these factors to the architectural, policy and social climate resources of their settings. From this study Moos developed a conceptual model (now called the MEAP) through which to examine the relationship between environmental resources and outcomes. The MEAP contains primarily closed-ended questions and has five parts: Physical and Architectural Features Checklist (PAF), Policy and Program Information Form (POLIF), Resident and Staff Information Form (RESIF), Sheltered Care Environment Scale (SCES) - Form R and the Rating Scale (RS). The MEAP has been used for two decades in environmental research and has received many praises and criticisms (see Billingsley & Batterson, 1986). Although the MEAP is a practical, inexpensive broad-based evaluation tool with a multi-method approach, it does have its weaknesses. Some criticisms include its use of absolute terms and its difficulty in interpretation (Billingsley & Batterson, 1986). The

MEAP was not chosen for inclusion in the current study primarily because the questionnaire does not focus on special care units and it is extremely long.

During the 1990s, the emergence of an increasing demand for special care units for dementing elders created a need for a more relevant assessment tool. The Therapeutic Environmental Screening Scale (TESS) was developed by Sloane and Mathew (1990) to meet this need. The TESS is a 12-item observational rating scale reflecting five principles: elimination of potentially noxious stimuli, enhancement of mood and self-image, promotion of safety, accommodation of a range of private and social activities, and provision of access to the outdoors (Grant, 1996). The TESS can be completed by a researcher with modest training by walking through a care unit and noting the presence of, or areas, or counts, of observable features of the environment. Research using the first two versions of the TESS showed a number of aspects of care environments that were superior in SCUs to those found in non SCUs (Lawton, 1997). The TESS subsequently led to the development of the Professional Environmental Assessment Protocol (PEAP) as a criterion against which other instruments could be compared, and has since been replaced by the PEAP.

A fourth instrument, the Nursing Unit Rating Scale (NURS) was developed in 1996 by Grant. The NURS was developed by defining six global constructs theorized to influence how people with dementia adapt to institutional environments: separation; stability; stimulation; complexity; control/tolerance, and continuity. These constructs could be linked to adaptation through theories of environmental press and/or environment stress. They have special relevance to core problems commonly faced by residents with dementia in nursing homes, and they also have the capacity to affect behavioral outcomes

in these patients (Grant, 1996). While the TESS focused on physical environmental features, the NURS taps into policy and program features that are not easily observable which require interviews with the staff. Although this rating scale focused on the care of residents with dementia, it did not focus the evaluation on a SCU, consequently it was not relevant to the current study.

While the MEAP, NURS and TESS are effective tools for assessing the physical environment of a care facility, the PEAP was a more appropriate choice for inclusion in the current study for the following seven reasons. First, the PEAP goes beyond simply documenting objective properties of the environment as a whole (e.g., enumeration of spaces, calculation of square footage). Second, the PEAP provides a global view of the dementia care setting. Third, the PEAP includes a staff questionnaire which is not found in the TESS or any of the other post-occupancy evaluation tools. Fourth, the PEAP takes approximately two hours to administer. This is considerably shorter than the MEAP which often requires multiple visits and hours of observations. Fifth, each dimension of the PEAP includes a rating scale and an open-ended question which can be interpreted variously. The open-ended question allows the respondent to give responses that may be most salient to them about each environmental dimension. This may not be the case if the questionnaire had a check-list format. Unlike tools that enumerate objective components of the environment and are relatively value free, the PEAP includes integral evaluative aspects that reflects its conceptual origins (Norris-Baker *et al*., 1999). The PEAP acknowledges that special care units vary in terms of philosophy, size and target population (i.e., some treat residents at the early stages of dementia while others treat late-stage dementia) and allows respondents to speak freely and openly about their

uniqueness. Sixth, the PEAP was developed specifically for use in a SCU.   Finally, the

PEAP has been shown to be a reliable tool to assess SCU environments. The PEAP (see

Appendix 4) assesses nine dimensions of the environment: (1) maximize awareness and

orientation; (2) maximize safety; (3) provision of privacy; (4) regulation of stimulation;

(5) quality of stimulation; (6) support of self-care; (7) opportunities for control, (8)

continuity of self; and (9) facilitation of social contact.   Although the PEAP includes

some assessment of organizational and policy features of the environment, the major

emphases are on the physical environment.   Three levels of physical setting are

considered when completing a PEAP. Fixed or structural features include those such as

overall unit area and floor plan. Semi-fixed features include less permanent architectural

elements, such as prosthetic devices or handrails.   Non-fixed features include the

presence of wall hangings and other props that decorate the environment and make it

home-like   (Norris-Baker *et al.,* 1999). The PEAP assesses the features of the

environment that are believed to be therapeutic for persons with dementia, based on the

current state of knowledge about environment-behavior relationships.   Nine

environmental features or goals were assessed by the Directors of Care and this

researcher in the first portion of the PEAP called the PEAP Scoring Page. The nine goals

are rated on a 5-point scale, with intermediate points represented by a + or a -. These

map to the 13 point scale indicated below, where 1 maps to 1, 1+ maps to 2 and so on:

  1-2 = unusually low support
  3-5 = low support
  6-8 = moderate support
  9-11 = high support
  12-13 = exceptionally high support.

The higher scores indicates a more supportive environment for persons with dementia. For example a score of 12 in the area of safety and security would indicate an environment where it is easy to monitor residents, unauthorized exiting is controlled, functional abilities are supported and specialized equipment exists to assist staff in their care tasks. A low score would indicate an absence of these design features. Field notes were also made by this researcher during observations, and information provided by the administrators and staff was used to prepare a narrative description and evaluation of the facility for each of the 9 dimensions of the environment.

The second portion of the PEAP is the Staff Questionnaire. This portion is completed by the Head Nurse of each special care unit. This section does not include a rating scale but instead asks specific close-ended questions about each of the nine therapeutic goals. The Scoring Page and the Staff Questionnaire are similar in that they both ask respondents to evaluate their environment and provide examples of each of the therapeutic goals. The two questionnaires differ as the Scoring Page evaluates the environment both quantitatively and qualitatively while the Staff Questionnaire uses only qualitative methods.

Reliability of the PEAP was tested by Norris-Baker *et al.* (1999). In their study, 20 special care units in Kansas were evaluated. Two raters completed PEAP assessments simultaneously but independently for 12 of the 20 units and provided data for assessment of reliability. Although the sample was small, results reported by Norris-Baker *et al.* (1999) indicated that the PEAP had good inter-rater reliability. Interrater agreement between these assessments was evaluated in three ways: percentage agreement, Spearman's rho, and kappa. Percentage agreement, including the percentage of ratings

for which both raters had the same score for each category ranged from 91.7% for safety and security to 58.3% for facilitation of social contact. These results indicated that more objective environmental domains are more reliably measured. Second Spearman's rho ranged from a high of .88 for continuity of self to a low of .69 for provision of privacy, although all dimensions except privacy reached or exceeded .75, and the majority exceeded .80. Finally, a weighed kappa score was calculated. Norris-Baker *et al.* (1999) also reported good kappa results that ranged from .69 for facilitation of social contact to .85 for continuity of self. A kappa above .60 is considered good agreement, and a kappa above .80 is very good (Norris-Baker *et al.,* 1999).

2.2.2 Other Questions

Directors of Care and Head Nurses were asked an additional set of questions to examine their views on the built environment and to gather demographic information.

2.2.2.1 Rivard Directors of Care Questionnaire

The Rivard Director of Care Questionnaire (see Appendix 8), was developed by this author under the supervision of Dr. G. Gutman and Dr. K. Oakley. This questionnaire asked the Directors of Care to reconsider the dimensions of the PEAP and describe how they defined each dimension. This was done in order to examine the construct validity of the PEAP. That is, were participants clear in their interpretation of each dimension or were the dimension ambiguous? Definitions given by each participant were then compared to the PEAP dimensions originally defined by Norris-Baker *et al.* (1999). Additionally, Directors of Care were asked about the presence of behavior problems, the age of the building, whether the unit was built specifically as a dementia unit, whether any renovations were made on the special care unit since it was opened, the

number of residents on the unit, and the staff to resident ratio. This information was important as it provided a larger global context to the analysis.

2.2.2.2 <u>Rivard Staff Questionnaire</u>

The Staff Questionnaire (see Appendix 10), also developed by this author under the direction of Dr. G. Gutman and Dr. K. Oakley, first asked Head Nurses to describe how they defined each dimension of the PEAP. Then Head Nurses were asked if they could think of anything that was not covered in the examples provided under each dimension in the staff questionnaire. For example under the dimension of safety and security the question asked about the availability of electrical appliances to residents. A staff member may have also conceptualized safety and security to include the use of locks on doors or the area where safe wandering behavior can occur. This additional information helps to provide a more global picture of the care environment.

2.3 <u>Design</u>

The 29 SCUs were divided into newer and older groups using 1995 as the dividing year. This year was chosen as it divided the distribution of the 29 SCUs at the median in terms of years since establishment.

2.4 <u>Procedure</u>

First, the researcher visited each facility and administered the PEAP to the Director of Care. Initially, the following lead-in sentence was read aloud to each Director of Care: "To what extent does your special care unit try to... (list 9 PEAP dimensions)." By reading this lead-in sentence it was hoped that results would be more consistent across dimensions. Second, the Rivard Directors of Care Questionnaire was administered to determine how each dimension was interpreted by each Director of Care. Other

questions were administered with the intention of providing a more global view of the unit. Third, a tour of the facility was taken and the researcher recorded her observations on the scoring page of the PEAP. Fourth, the Rivard Staff Questionnaire was administered to the Head Nurse of each of the 29 SCUs to determine how each PEAP dimension was interpreted. Lastly, the Head Nurse was asked if anything was not covered in each dimension.

2.5   Testing the hypotheses

HYPOTHESES	HOW WAS THIS HYPOTHESIS TESTED?
1) A greater proportion of newer special care units will be purpose built than older special care units.	Question #4 of the Rivard Director of Care Questionnaire was used to test this hypothesis: "Was the special care unit built specifically as a dementia unit or did it serve another purpose?
2) Newer special care units will be more home-like and less institutional than older special care units.	Dimension #8: "Continuity of the Self" of the PEAP Scoring Page and of the Staff Questionnaire was used to test this hypothesis.
3) A greater proportion of newer special care units will have more special design features such as wandering loops and wayfinding aids than older special care units.	Observations made by the researcher and the "Awareness and Orientation" dimension of the PEAP Scoring Page and of the Staff Questionnaire were used to test this hypothesis.
4) Newer special care units will be smaller (i.e., have a fewer number of residents on unit) than older special care units.	Observations made by the researcher and question #6 and #7 from the Directors of Care Questionnaire were used to test this hypothesis: How many residents live in the SCU? What is the staff to resident ratio?
5) Directors of Care and Head Nurses will define the PEAP dimensions as the PEAP originally defined them.	Answers from question #1 from the Rivard Director of Care Questionnaire and question #1 from the Rivard Staff Questionnaire (i.e. How did you define the 9 dimensions of the PEAP?) were compared to the original definitions of the PEAP dimensions.

2.6   Analysis

The data collected in this study came from a variety of sources. Directors of Care responded to the Professional Environmental Assessment Protocol (PEAP) Scoring Page where they gave each of the 9 environmental dimensions a score from a low of 1 to a high of 13. On this scoring page Directors of Care also gave examples of how each of the 9 dimensions was used on their special care unit (SCU). Lastly Directors of Care

responded to the Rivard Director of Care Questionnaire. This questionnaire required Directors of Care to give their own personal definition of each PEAP dimension and answer some additional open-ended descriptive questions about the unit (e.g. number of residents on the unit, behavioral problems on the unit). This researcher also completed the same Scoring Page as the Directors of Care but did not complete a Rivard Director of Care Questionnaire.

Head Nurses were asked to respond to the PEAP Staff Questionnaire. The PEAP Staff Questionnaire differed from the Directors of Care Questionnaire in that it had specific questions that required close-ended responses. Head Nurses were also asked to complete the Rivard Staff Questionnaire; it was identical to the Rivard Director of Care Questionnaire but did not include any additional questions. Responses from questionnaires were then grouped into several themes under each PEAP dimension. These themes were based on the design guidelines from the literature and Norris-Baker *et al.'s* (1999) PEAP dimension descriptions and examples (see Appendix 3).

Once themes were developed the responses given by Directors of Care and Head Nurses were once again reviewed from each questionnaire. Themes were then dichotomized as "did" or "did not" use the PEAP dimension. That is a Director of Care or Head Nurse either used the themes under each PEAP dimension or they did not. Each theme served as a dependent variable. The independent variable for hypotheses 1 through 4 was the number of years that a SCU has been in operation. This variable was also dichotomized as in operation for 5 years or less, or 6 years or more. Crosstabular chi-square analyses were conducted for the first four hypothesis using SPSS because both

the independent and dependent variables were at the nominal level. Cross-tab analyses were conducted to calculate the Pearson Chi-Square value and significance level.

Hypothesis 5 was examined using a frequency table which compared Directors of Care and Head Nurse's definitions of the PEAP to the original PEAP definitions. Finally a comparison between the results from this study and the Gutman and Killam (1989) study was conducted. Comparisons were made regarding the residents behaviors as well as special design features found on each SCU.

3   RESULTS AND DISCUSSION

3.1   Results

Results are presented sequentially below for each of the five hypothesis tested in this study.

Hypothesis #1: "A greater proportion of newer special care units will be purpose built than older special care units".

Data testing this hypothesis consisted of yes-no responses to the direct question: "Was the special care unit built specifically as a dementia unit or did it serve another purpose?" As shown in Table 1, this hypothesis was not supported (chi-square=.358, p.>.05). Approximately two-thirds of the units built before 1995 and just over half (53.3%) of units built after 1995 were purpose built.

Table 1. **Type of unit by years of operation**

Purpose built	SCU in operation 6 years or more (1968-1994)	SCU in operation 5 years or less (1995-2000)	Total
NO	5 35.7%	7 46.7%	12 41.4%
YES	9 64.3%	8 53.3%	17 58.6%
Total (Chi-Square = .358, d.f. =1, p=.550)	14 100%	15 100%	29 100%

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Hypothesis #2: "Newer special care units will be more home-like and less institutional than older special care units."

The purpose of creating a home-like environment is to foster the continuity of the self. This hypothesis was tested by examining the responses of Directors of Care to the question: "To what extent does your SCU try to promote the continuity of the self of the residents?" Table 2 shows the proportion of responses to the three themes that were represented in the comments and examples cited by the Directors of Care. These were "physical cues on the unit that link residents to past", "philosophy of unit for continuity of the self" and, "programming linked to past".

Table 2. **Response of Directors of Care to the question: To what extent does your SCU try to promote the continuity of the self of residents? (scored as "yes" "no" re: use of the themes)**

THEMES	SCU in operation 6 years or more (1968-1994) (n= 14)	SCU in operation 5 years or less (1995-2000) (n=15)
Used physical cues that link to past (Chi-Square= .013, d.f.=1, p=.909)	10 71.4%	11 73.3%
Used philosophy of unit for continuity of care (Chi-Square= 3.027, d.f.=1, p=.082)	13 92.9%	10 66.7%
Used programming linked to past (Chi-Square=.909, d.f.=1, p=.340)	5 35.7%	8 53.3%

It is evident from Table 2 that the majority of Directors of Care in SCUs that were in operation prior to 1995 (71.4%) as well as those from SCUs built after 1995 (73.3%)

interpreted the PEAP dimension of continuity of self as including "physical cues that link to past". Some examples mentioned included the use of memory boxes, pictures on the wall, photo albums, sewing machine and seasonal décor such as Christmas trees, flower boxes and pumpkins. No significant difference was observed for physical cues based on the number of years of operation (chi-square=.013, p>.05).

The majority of Directors of Care in SCUs built prior to 1995 (92.9%) and after 1995 (66.7%) also interpreted the dimension of continuity of self as including "philosophy of unit for continuity of self". Some examples mentioned included promoting spirituality, being flexible in the resident's sleep/wake cycle, encouraging family involvement and providing resident-focused or Gentle Care©. As can be seen in Table 2, philosophy of unit also did not significantly distinguish newer and older units (chi-square= 3.027, p=.08).

Directors of Care of SCUs in operation prior to 1995 and after 1995 also differed significantly on the theme of "programming linked to past" (Chi-Square=.909, p>.05). In SCUs built prior to 1995 only 35.7% of Directors of Care cited examples reflecting the programming theme; approximately half (53.5%) of Directors of Care from SCUs built after 1995 cited programming in describing the dimension of continuity of self. Examples included playing old-time music, providing physical activities, gearing activities to the interests of residents (e.g., providing flower pots for gardeners), encouraging familiar behaviors (e.g. sleep/wake cycles) and encouraging residents in their reminiscing.

A second source of data related to continuity of self consisted of Head Nurse's responses to the question: "To what extent can and do residents bring in furniture from home?" (see Table 3 for a partial summary).

Table 3. **Response of Head Nurses to the question: To what extent can and do residents bring in furniture from home? (scored as "yes" "no" re: use of the themes)**

THEME	SCU in operation 6 years or more (1968-1994) (n=11)	SCU in operation 5 years or less (1995-2000) (n=13)
Used residents furniture on unit (Chi-Square=.015, d.f.=1, p=.902)	10 90.9%	12 92.3%

As shown in Table 3, the majority of Head Nurses from both SCUs in operation prior to 1995 (90.9%) and after 1995 (92.3%) stated that residents were allowed to bring furniture from home onto the unit (chi-square=.015, p>.05). Examples included allowing residents to bring in their favorite chair, pictures and décor from home to decorate their room and other areas of the unit. In summary, although 3 out of 4 themes were in the direction of support providing for this hypothesis, differences were small and chi-square tests yielded results that were not statistically significant.

Hypothesis #3: "A greater proportion of newer special care units (SCUs) will have special design features such as wandering loops and orientation aids than older special care units".

This hypothesis was tested using Directors of Care responses to Question #1 of the PEAP Scoring Page which asked: "To what extent does your special care unit try to

maximize awareness and orientation?" An additional data source was Question #1 of the

Rivard Staff Questionnaire, which asked "How did you define the PEAP dimension of

awareness and orientation?" The two themes represented in the comments and examples

cited by the Directors of Care and Head Nurses were "structural characteristics" (see

Table 4); and "wayfinding aids" The proportion of Directors of Care using these themes

is represented in Table 4. Table 5 shows responses by Head Nurses.

Table 4. **Directors of Care use of structural characteristics and wayfinding aids in response to the question: To what extent does your SCU try to maximize awareness and orientation? (scored as "yes" "no" re: use of the themes)**

THEMES	SCU in operation 6 years or more (>1994)	SCU in operation 5 years or less (<1995)
Used 'structural characteristics' theme (Chi-Square=.318, d.f.=1, p=.573)	8 57.1% (n=14)	7 46.7% (n=15)
Used 'wayfinding aids' (Chi-Square=.358, d.f.=1, p=.550)	5 35.7% (n=14)	7 46.7% (n=15)

Table 4 indicates that more Directors of Care from SCUs in operation 6 years or more

(57.1%) than Directors of Care of newer SCUs (46.7%) cited examples of structural

characteristics in response to the question about the extent to which their unit maximized

awareness and orientation, however the difference was not statistically significant (chi-

square=.318, p>.05). Examples of structural characteristics mentioned included the

physical layout of the unit (e.g., T-shaped design, figure-eight design), the ease of

orienting oneself around the unit without getting lost, and indoor and outdoor walking

paths. On the other hand more Directors of Care from newer SCUs (46.7%) mentioned

wayfinding aids such as memory boxes and signs than Directors of Care from older units

(35.7%), again, the differences were not statistically significant (chi-square=.358, p>.05).

Table 5. **Head Nurse use of structural characteristics and wayfinding aids in response to the question: To what extent does your SCU try to maximize awareness and orientation? (scored as "yes" "no"   re: use of the themes)**

THEMES	SCU in operation 6 years or more (>1994)	SCU in operation 5 years or less (<1995)
Head Nurses used 'structural characteristics' theme (Chi-Square=.093, d.f.=1, p=.761)	1 12.5% (n=8)	1 8.3% (n=12)
Head Nurses used 'wayfinding aids' theme (Chi-Square=.469, d.f.=1, p=.494)	1 12.5% (n=8)	3 25.0% (n=12)

Responses from Head Nurses revealed similar results to the Directors of Care.

Again although differences were not statistically significant, more Head Nurses from

older SCUs (12.5%) than newer SCUs (8.3%) used the structural characteristic theme

(chi-square=.093, p>.05). This finding was reversed for the wayfinding aids theme with

more Head Nurses from newer SCUs (25.0%) than older SCUs (12.5%) using this theme

in their response (chi-square=.469, p>.05).   As only one Head Nurse answered the

question about awareness and orientation on the Rivard Staff Questionnaire it was

difficult to compare and contrast their responses to those given by Directors of Care.

Hypothesis #4: "Newer special care units (SCUs) will be smaller than older SCUs."

In the literature special care units for persons with dementia vary considerably in their size from 10 to 50 residents. According to Morgan and Stewart (1998), the recommended ideal size is 4-8 residents per unit, with a maximum of 10-20 residents. Table 6 shows the proportion of units in this study with under and over 20 residents by number of years in operation. As can be seen, 14.3% of SCUs in operation 6 years or more had fewer than 21 residents compared with 40.0% of SCUs in operation 5 years or less.

Table 6. **Number of units with under and over 20 residents by year in operation**

	SCU in operation 6 years or more (before 1994)	SCU in operation 5 years or less (after 1995)
21+ residents	12 85.7%	9 60.0%
0-20 residents	2 14.3%	6 40.0%
Total (Chi-Square=2.397, d.f =1, p=.122)	14 100%	15 100%

These results provide support for hypothesis 4; that is, SCUs in operation 5 years or less in this sample were more likely to have a smaller number of residents living on the unit than units in operation 6 years or more. This trend, however, failed to reach statistical significance (chi-square=2.397, p>.05).

Hypothesis #5: "Directors of Care and Head Nurses will define the PEAP dimensions as the authors of the PEAP originally defined them."

In order to test this hypothesis the responses from the Directors of Care and Head Nurses were compared to the original PEAP dimensions developed by Norris-Baker et al.

(1999). Table 7 shows the percentage of Directors of Care and Head Nurses reflecting each theme.

Table 7. **Proportion of Directors of Care and Head Nurses reflecting PEAP themes**

Original Themes	% of Directors of Care reflecting theme	% of Head Nurses reflecting theme
Awareness and Orientation		
Personal cueing for residents	50.0	25.9
Orient to social environment	35.0	33.3
Challenges to physical environment	30.0	7.4
Head Nurses role in awareness and orientation	25.0	55.6
Wayfinding (signs, landmarks)	20.0	14.8
Orient to temporal environment	20.0	25.9
Structural characteristics of unit	10.0	29.6
Visual Differentiation	5.0	11.1
Families role in awareness and orientation	5.0	3.7
Safety and Security		
Reducing risk of injury to resident	65.0	66.7
Reducing problems with elopement	40.0	48.1
Safety and security of staff	20.0	40.7
Support of functional abilities, use of specialized equipment	20.0	25.9
Monitoring of residents	10.0	11.1
Challenges to safety and security	10.0	14.8
Provision of privacy		
Privacy policies	80.0	48.1
Characteristics of private spaces	30.0	48.1
Boundaries of public/private spaces	15.0	3.7
Challenges to privacy	10.0	26.9
Characteristics of public spaces	0.0	18.5
Regulation of Stimulation		
Control of stimulation	70.0	66.7
Programming involving staff	45.0	63.0
Challenges in regulating stimulation	20.0	18.5
Types of stimulation, use of 5 senses	15.0	25.9

Quality of Stimulation		
Quality/variety of programming	63.2	76.9
Variety/quality of stimulation using 5 senses	52.6	53.8
Stimulation that promotes independent functioning	15.8	42.3
Support of functional abilities		
Staff philosophy on functional abilities	63.2	88.9
Programming on unit	36.8	25.9
Challenges to supporting functional abilities	15.8	14.8
Physical environment maximizes remaining abilities	10.5	14.8
Unit supports wandering behaviors	10.5	22.2
Opportunity for personal control		
Philosophy regarding personal control	83.3	77.8
Resident's control over self (sleep, wake, eating)	33.3	44.4
Resident's control over space use	5.6	3.7
Challenges to personal control	0.0	7.4
Continuity of Self		
Philosophy of unit regarding continuity of self	71.4	63.0
Physical cues that link to past	47.6	48.1
Programming linked to past	42.9	33.3
Challenges to continuity of self/past	0.0	7.4
Facilitation of social contact		
Social contact with people, volunteers	76.2	66.7
Social contact through programming	61.9	55.6
Rooms dedicated to social contact	9.5	3.7
Challenges to social contact	9.5	11.1
Presence/placement of furniture	4.8	18.5

Hypothesis #5 was weakly supported as the majority of Directors of Care and Head Nurses used only a few distinct themes to define each PEAP dimension --indeed of 45 themes, only 5 were used by more than 70% of Directors of Care and 3 by more than 70% of Head Nurses. Some of the most interesting findings came from comparing the

responses of Directors of Care and Head Nurses. For example 30.0% of Directors of Care mentioned the theme of challenges to physical environment when describing awareness and orientation, whereas only 7.4% of Head Nurses used this theme. This finding could be due to the fact that Head Nurses have learned to adapt to their work place environment and may no longer consider it a challenge. A second interesting finding came from comparing the use of the safety and security of staff theme. Results indicate that 40.7% of Head Nurses used this theme whereas only 20.0% of Directors of Care used this theme. This finding could be due to the fact that front line staff such as the Head Nurses are more likely to deal with aggressive or abusive residents. The potential for injury is most likely why this theme is so salient for Head Nurses. The remaining themes are discussed in more detail in the following sections.

I) *Maximize Awareness and Orientation*

Norris-Baker *et al*. (1999) defined this dimension as the extent to which users (residents, staff and visitors) can effectively orient themselves to physical, social, and temporal dimensions of the environment. Assessment of this dimension focuses on: signage, temporal and spatial predictability, as well as visual differentiation and structural characteristics. Ten categories were developed in order to analyze responses as reflecting the awareness and orientation dimension (see Appendix 3). Although most of the categories were mentioned by each group of respondents, only one category was mentioned by the majority in their definitions of awareness and orientation. That is, over half (55.6%) of the Directors of Care said that the "staff's role was critical in maximizing awareness and orientation on the unit". Some respondents mentioned providing an environment founded on the Gentle Care© Philosophy. This philosophy allows residents

to do what they can for themselves. It also means that Head Nurses follow the lead of the resident. This include the staff orienting to the resident's world to help the resident feel comfortable in his or her surroundings. No one theme was reflected by the majority of staff in their definition of awareness and orientation.

II) *Maximize Safety and Security*

The dimension of safety and security is defined by Norris-Baker *et al.* (1999) as the extent to which the environment both minimizes threats to resident safety and security and maximizes the sense of security of residents, staff and family members. Assessment of this dimension focuses on: ease of monitoring residents (especially wandering behaviors), control of unauthorized exiting, support of functional abilities and provision of specialized equipment. Six categories were developed to analyze this dimension (see Appendix 3). Both Directors of Care (66.7%) and Head Nurses (65%) cited "reducing risk of injury to the resident" most frequently when queried about safety and security. Examples given for improving the environment included keeping hallways free from obstructions and tripping hazards. They also stated that hazards such as stoves and sharp objects are secured and supervised when in use in order to reduce injury to residents. Both Directors of Care and Head Nurses strive to provide an environment that is safe but not confining to residents.

III) *Provision of Privacy*

Norris-Baker *et al.* (1999) define provision of privacy as the extent to which input from (e.g., noise) and output to (e.g., confidential conversations) the larger environment are regulated. Assessment of this dimension focuses on policy regarding privacy, characteristics of residents' rooms (private vs. semi-private) and the availability

of space alternatives (private to public domains). Five categories were developed to analyze this dimension (see Appendix 3). In the present study, no single category was commonly reflected in the responses of Directors of Care to define privacy. For Head Nurses, however, the majority (80%) of respondents spoke of "privacy policies" when defining the dimension of privacy. This included ensuring privacy during care, maintaining the privacy and dignity of residents at all times and respecting residents' need for private time. Many responses from Head Nurses reflected the philosophy of Gentle Care© in which the focus is resident-centered.

IV) *Regulation and Quality of Stimulation*

The PEAP dimensions of regulation of stimulation and quality of stimulation was also identified by Norris-Baker *et al*. (1999). They noted that persons with dementia have decreased ability to deal with potentially conflicting stimuli and have greater difficulty distinguishing between foreground and background stimulation. Consequently, the environment must be sensitive to the quality of stimulation as well as its regulation. The goal is stimulation without stress. Assessment of stimulation focuses on regulation and quality of acoustic, visual, olfactory, and tactile stimulation.

Each of the seven categories related to stimulation were reflected in the comments made by the Directors of Care, however, only four were reflected by the majority. Approximately two-thirds (66.7%) of Directors of Care reflected "control of stimulation" in their definition of stimulation. Examples included monitoring noise from TVs and radios as well as maintaining a balance between too much stimulation and too little. The second theme that the majority (63.0%) of Directors of Care respondents reflected was "programming involving staff". They spoke about having a regular activity scheduled

every day on the unit, including a variety of one-to-one activities as well as small group activities. One interesting response made was that programming is carefully monitored to ensure that residents find it meaningful and that it does not become over-stimulating. The majority of Directors of Care (76.9%) also spoke about the "quality/variety of staff stimulated programming" on the unit. Responses in this category included being flexible to new approaches as well as planning a variety of programs depending on the mood (i.e. quiet, stimulated) of the unit. Again a Gentle Care© focus was reflected in that many Directors of Care stated that they provide programming based on the preferences and abilities of residents. Finally, the majority of Directors of Care (53.8%) mentioned examples that reflected having "quality/variety of stimulation using the five senses" on the unit. These included providing meaningful things on the unit to touch (e.g., activity boards), to look at (e.g. pictures, murals) and to smell (e.g., using bread makers).

Head Nurses also gave a variety of responses that reflected the seven categories of regulation and quality of stimulation but the majority of respondents used only three. First, the majority (70.0%) of Head Nurses identified the theme of "control of stimulation" (i.e. stimulation without stress) and items were similar to responses given by Directors of Care. These include providing a balance between too much and too little stimulation, controlling noises, and controlling noxious smells. Second, the majority (63.2%) of Head Nurses spoke about "quality/variety of staff stimulated programming" on the unit. Examples included having a variety of programs that have various degrees of stimulation (e.g., music, pet therapy, exercise). The Head Nurses were similar to Directors of Care in terms of being very aware of residents' needs and in following a philosophy of resident-focused care. The majority (52.6%) of Head Nurses also reflected

the theme of "variety/quality of stimulation using the five senses". Examples given were also similar to those given by Directors of Care and included visual (e.g., murals, stenciling on walls), tactile (e.g., stuffed animals, activity boards) and auditory (e.g., soft old music playing on radio) stimulation. Providing a variety of stimulation using the five senses was very important to Head Nurses on the unit as the majority of residents had visual and hearing problems as well as being cognitively impaired.

V) *Support Functional Abilities*

Norris-Baker *et al.* (1999) defined supporting functional abilities as the extent to which the environment and the rules regarding the use of the environment support both the practice and continued use of everyday skills. These skills can be divided into activities of daily living (e.g., ambulation, grooming, bathing, toileting and eating) and independent activities of daily living (e.g., using the phone); these skills vary with each stage of the disease of dementia. Assessment of this PEAP dimension focuses on independence in self-care, independence in preparing meals and eating, and ability to do functional activities. Five themes were developed in analysis of this dimension (see Appendix 3).

An analysis of the data revealed only one theme reflected by the majority of both Directors of Care and Head Nurses in defining the dimension of supporting functional abilities. The theme of "staff philosophy on functional abilities" was used by the majority of Directors of Care (88.9%) and Head Nurses (63.2%). Examples given included practicing the Gentle Care© approach that promoted flexibility and allowed the resident to be as independent as possible in self-care. Many Directors of Care and Head Nurses stated that by allowing enough time for independence and choice residents were

able to preserve their dignity and self-respect. Both Directors of Care and Head Nurses stated that they relied heavily on a team approach in order to support the functional abilities of residents. Many units had extra support staff such as physiotherapists coming into the unit at least once a week to increase and support the remaining functional abilities of residents.

VI) *Opportunity for Personal Control*

The dimension of opportunities for personal control is defined by Norris-Baker *et al.* (1999) as the extent to which the physical environment and the rules regarding the use of the environment provide residents with opportunities consistent with level of acuity, for exercise of personal preference, choice, and independent initiative to determine what they will do and when it is done. Assessment of this dimension focuses on policies regarding space use and resident behavior, presence of chairs and other props and control over the micro environment. Four categories were developed in analyses of this dimension (see Appendix 3).

Only one of the four categories, "philosophy regarding personal control", was reflected in the responses of a majority of Directors of Care (77.8%) and Head Nurses (83.3%). The most frequent example given was using the Gentle Care© (or resident-focused) approach on the unit. This included involving the resident, family and consistent care staff in the planning and execution of care. Both Directors of Care and Head Nurses stated that the unit is the resident's home and, therefore, the unit philosophy should include as many choices as possible and provide programming that is flexible to the level of cognitive functioning of residents.

VII) *Continuity of the Self*

Norris-Baker *et al.* (1999) define continuity of the self as the extent to which the environment and the rules regarding its use attempt to preserve continuity between present and past environments and the self of past and present. This can be expressed in two different ways: through the presence of personal items belonging to the individual and by the creation of a noninstitutional ambiance. Assessment of this dimension focuses on the extent of personalization, a non-institutional environment and the continuity of familiar behavior patterns and life-style. Four categories were developed to analyze this dimension (see Appendix 3).

Directors of Care and Head Nurses gave responses that reflected a number of categories in this dimension but only one theme was reflected by the majority in both groups. The theme of "philosophy of unit regarding continuity of self" was used by the majority of Directors of Care (63.0%) and Head Nurses (71.4%). Examples of this theme included educating the staff about the social history of each resident and encouraging residents to decorate their own rooms with artifacts from their past. This encourages self-identity and helps residents to feel comfortable in their own personal environment. Directors of Care and Head Nurses also encourage family involvement on the unit in order to promote as many connections as possible to the resident's past.

VIII) *Facilitation of Social Contact*

The PEAP dimension of facilitating social contact has been defined as the extent to which the physical environment and rules governing its use support social contacts and interaction among residents (Norris-Baker *et al.,* 1999). Assessment of this dimension focuses on the provision of a range of social spaces, presence and placement of furnishings, presence of props or familiar artifacts, and social indicators (resident is along

wall or with others). Five categories were developed to analyze this dimension (see Appendix 3).

Two social contact categories only were reflected in the responses given by the majority of Directors of Care. The majority (55.6%) mentioned "social contact through programming". Directors of Care stressed the importance of getting to know the social styles of each resident as some individuals are naturally sociable yet others have always been shy. These social styles dictate the variety of activities that work well on the unit. The second theme reflected by the majority of Directors of Care (66.7%) respondents was "social contact with people/families/volunteers that are not from unit" and regular visits from families, community groups and volunteers are encouraged. This helps to expand the social network of residents and/or to continue the connections that some residents already possess.

Head Nurses gave a variety of responses within the five themes but only one, "social contact through programming", was used by the majority (61.9%). Examples ranged from providing residents with social opportunities such as barbeques and birthday parties to encouraging children and pets (i.e., the Eden Approach) on the unit.

4 Discussion

The first hypothesis, which assessed whether a greater proportion of newer units were purpose built, was not supported. Instead older special care units were, if anything, more likely to be purpose built than more recently constructed units. One explanation for this finding could be that these units were built at the time purpose-built units were first being described in the literature. During the late 1980s into the early 1990s, there was a tremendous growth in the knowledge of Alzheimer's Disease. According to Lacey (1999), many families began complaining about specific areas in which nursing homes needed to improve care. These areas included untrained staff, inappropriate use of physical restraints, inappropriate physical environments, and a lack of dementia-specific programming. In order to address the needs of the changing aging population many nursing homes began to develop distinct units, often called Special Care Units, for persons with dementia. As time passed, and the number of persons with dementia has increased, it has been necessary to renovate existing units in order to meet the care needs of residents with dementia. A second possible explanation for this finding could be the government cut-backs to the health care system. As funding is not available for new special care units, many intermediate care facilities have renovated an existing wing or unit in their facility and turned it into a special care unit. This solution is much cheaper than building a brand new purpose-built special care facility.

Hypothesis #2 predicted that newer SCUs would have more home-like characteristics than older SCUs, however no evidence was found to support this assumption. Home-like themes were reflected by the respondents from both newer and older SCUs and a number of examples of home-like elements were observed by this

researcher in SCUs established both before and after 1995. A common challenge mentioned by Directors of Care as well as Head Nurses in this study was the physical design of their special care unit, particularly in SCUs in operation prior to 1995. One example of a physical challenge is an L-shaped unit with rooms on each side of the hallway and a window at the end of the hall. This unit had problems with glare and the design did not support wandering. The design of meaningful wandering paths is supported in the literature and is considered an outlet for a number of needs of people with dementia. Cohen and Weisman (1991) state that wandering provides residents with a degree of stimulation and challenge and can become a meaningful activity, rather than merely physical exercise.

A second challenge mentioned by many units was the lack of social spaces or lounge areas and a small dining room. In these situations, residents were seated in chairs along a cluttered hallway or crowded into the dining area. This design did not promote continuity with the residents' past as it confined individuals to a certain area and eliminated choice. It is evident that this type of design is incongruent with the needs of the resident and consequently increases the environmental press of residents. In addition, such designs are very institutional looking in appearance and do not support residents' need for space to wander. The design is also challenging for staff as it limits the kinds of activities that can be provided because of a lack of space. Even though many staff persons complained about a lack of space, most were unable to renovate because of the location of the unit within the facility of which it was a part. For example, many SCUs were located in the center of the facility or on an upper level and did not have the option to expand or change the layout.

Many Directors of Care and Head Nurses seemed to accept the physical limitations of the unit and instead focused most of their attention on what they could change. This change most often came in the form of providing a home-like philosophy on the unit. The most common philosophy that was discussed in the interviews was the Gentle Care© Approach. Such a philosophy allows residents to make choices in their environment and in the care they receive. Choices include how to decorate their own rooms, when to sleep, eat and rise, what activities to take part in and how to spend their time on the unit. Allowing residents to make choices for themselves is one method of increasing a residents' control over their environment and therefore reducing the effects of environmental press. For future projects, many respondents suggested establishing a partnership between nursing staff and building designers in order to construct a unit that is therapeutic and home-like for residents. It may also be useful to include family members in the planning stages as they understand the needs of their family members with dementia.

A second challenge found in many special care units built prior to 1995 is the lack of programming. In the province of British Columbia and in greater Canada there have been cuts to health services, in particular to acute care. These cuts have however, generally not resulted in the promised new funds for long term care.

The third hypothesis also was not supported. Although the difference was not statistically significant, SCUs in operation more than 6 years had more special design features such as structural elements and wayfinding cues than SCUs in operation for less than 6 years. Many special care units were restrained by their physical environment and were unable to renovate. Instead they focused on what they could change on the unit

such as adding wayfinding cues such as memory boxes and signs. It should be noted, however, that many responses to the question of awareness and orientation from Directors of Care were not about how the care unit maximized awareness and orientation. Rather, responses were more concerned with how satisfied the respondents were about the design of the unit. Many of the responses were in fact complaints about the lack of social space in the unit and the lack of wandering paths. Respondents noted that these deficits or incongruence often lead to behavior problems such as agitation and restlessness among residents because wandering behaviors were constantly interrupted and they did not have any place to rest or be away from stimulation. Findings from this analysis, therefore, indicate that the question needs to be reworded in the PEAP. A more appropriate question could be 'to what extent does your SCU provide structural aids and wayfinding cues to help a resident with awareness and orientation on the unit?'

Hypothesis 4 was supported although the trend was not statistically significant as SCUs in operation less than 5 years were more likely to have fewer residents living on the unit than SCUs in operation 6 years or more. It is interesting to note, however, that 72.4% of the sample had many more residents than the recommended number of 20 (range =11 to 50 residents). This could be due to lack of government funding to build new smaller facilities and a lack of long term care facilities in the Lower Mainland that house persons with dementia. Many of the Directors of Care mentioned that they had a waiting list of residents trying to access their facility. On the other hand, it is unclear as to how 20 was selected as the ideal size. In future research it would be interesting to determine at what point the number of residents over the recommended 20 causes behavioral and staffing problems on the unit.

Support for the fifth hypothesis was weak because the majority of Directors of Care and Head Nurses used only a few distinct themes to define each PEAP dimension. The themes used by Directors of Care and Head Nurses fall primarily in the area of programming (i.e. philosophy, staff programming, and monitoring by staff) and rarely is the use of the physical environment (i.e. design of unit, placement of furniture, etc.) mentioned as a therapeutic tool.

4.1   Comparison between present study and past research on Special Care Units

One of the goals of this study was to further past research on SCUs in British Columbia. One of the two prior B.C. studes that considered the physical environment for residents with dementia is that of Chappell (1999). In Chappell's Intermediate Care Facility Survey, data were collected on some of the more salient features of the physical environment including wandering space, environmental cues, home-like atmosphere and security. While it is difficult to do a direct comparison with the present study, as findings from both SCUs and integrated units were grouped together, some of Chappell's results are similar. For example, Chappell's study found 60% of units (special care units and integrated units) had continuous indoor wandering space while the present study found 65%. Chappell's study found that over half of all facilities had landmarks and door labels as part of the environmental design. This study found 55% of units had landmarks and labels. A third similar finding is in security systems. Chappell found 93% of units had locked coded doors. This is comparable to the 100% of units in the present study with locked coded doors.

Where Chappell's study differs from the present study is in outdoor wandering space. In Chappell's study 73% of units had unimpeded outdoor wandering space while

only 44.8% of units in the present study had such wandering space. One possible reason for this finding is that many special care units in the present study stated that they did not have the funding to develop a secure outdoor wandering area. These units used any available funding that they had on the indoor environment and programming. A second difference found between Chappell's study and the present study is in orientation aids. In Chappell's study 80% of units had large faced calendars and clocks while only 10% of units in the present study had these orientation aids. Many staff persons in the present study stated that the residents on their units were too cognitively impaired to understand these orientation aids. Since Chappell's study includes integrated units, it is possible that these orientation aids are geared more to the cognitively intact or mildly impaired residents.

The second B.C. study concerned with physical space occupied by persons with dementia, by Gutman and Killam (1989), focused exclusively on SCUs. In comparing findings, three areas were considered: number and location of SCUs; resident behavioral characteristics; and the presence of special design features. Questions from the Gutman and Killam (1989) study that were used in this comparison are listed in Appendix 11.

I) *Number and location of SCUs*

Gutman and Killam (1989) examined six SCUs located in Intermediate Care facilities and Extended Care Hospitals of British Columbia -- all that were in existence in the province at the time. In their study all three of the participating units in Intermediate Care facilities were located in the Greater Vancouver Regional Hospital District (GVRHD), one of the participating Extended Care Hospitals was located in the Fraser Valley and the other two were located in the interior of the province. Within 11 years the

number of special care units in the province of British Columbia grew substantially. In the present study it was not necessary to go outside the Lower Mainland; there are currently 36 SCUs in the Lower Mainland of which 29 participated in this study. These SCUs were located in the four health regions: Vancouver/Richmond Region, Simon Fraser, South Fraser and the North Shore.

It is interesting to note, that the number of residents living in an SCU (see Appendix 2) has not changed dramatically in the last 11 years. Gutman and Killam (1989) found a mean of 27 residents per unit while the present study found a mean of 26 residents. This finding is far more than the recommended maximum of 10 to 20 residents per unit suggested by Morgan and Stewart (1998). It would be interesting to see at which point the number of residents affects the level of agitation and aggressive behaviors on the unit.

On the other hand, it appears that the staff to resident ratio (also shown in Appendix 2) has improved in the last 11 years. Gutman and Killam (1989) found a mean ratio of 1 care aid to 9.4 residents and a median ratio of 1 care aid to 9.8 residents (range = 1:8 to 1:10 residents). The present study found a mean ratio of 1 care aid to 8.9 residents and a median ratio of 1 care aid to 9 residents (range = 1:6 to 1:17). The range for care aids follows the recommended staff to resident ratio range of 1:3 to 1:12 suggested by Ohta and Ohta (1988). For nurses, Gutman and Killam (1989) found a mean ratio of 1 nurse to 28.3 residents and a median ratio of 1 nurse to 25 residents. Ratios ranged from 1 to 12.7 residents to 1 to 47 residents. The present study found a mean ratio of 1 nurse to 27.8 residents and a median ratio of 1 nurse to 25.5 residents. Ratios ranged in individual units from 1 to 16 residents to 1 to 50 residents.

Clearly the staff to resident ratio for registered nurses did not follow the recommended staff-to-resident ratio in the literature. That is, many SCUs were short-staffed and were having problems recruiting and keeping qualified registered nurses. To solve this problem, the government must increase the salary of long-term care nurses. More money is also needed for nursing education programs so that nurses will be better able to cope with the more complex care needs of today's institutionalized elderly. SCUs should also incorporate a team approach to providing care. This type of approach encourages multi-skilled care staff and takes some of the burden off registered nurses.

II) *Resident behavioral characteristics*

Directors of Care in the present study and Unit Coordinators from Gutman and Killam's (1989) study were asked to describe the behavioral characteristics of residents in their SCU. Coordinators in Gutman and Killam's (1989) study described residents as disturbing and a danger to others. They also described residents as exhibiting specific behavioral problems such as trespassing into others' rooms, eloping from the building, defecating on the floor, screaming constantly, pacing and/or being very restless. These problem behaviors were very similar to those described in the present study. In the present study, the 29 Directors of Care reported that verbal and physical aggression and agitation were the two most common problem behaviors on a SCU. One Director of Care made a interesting comment about problem behaviors on her unit. She said "Of course there are behavioral problems on the unit. It wouldn't be called special care without the presence of behavioral problems in some of our residents."

III) *Special Design Features*

In the Gutman and Killam (1989) study, Unit Coordinators and staff persons were asked if their unit had special design features that prevented unauthorized exiting; accommodated wandering; accommodated wayfinding and orientation; and reduced sensory overload to calm residents. These feature categories are similar to four of the nine PEAP dimensions (i.e., safety and security; functional abilities; awareness and orientation; and regulation of stimulation).

It should be noted that participants in Gutman and Killam's study were given a questionnaire using a fixed checklist of items (i.e., respondents were asked whether certain elements from a preconstructed list existed on the SCU). The PEAP, used in the present study, uses only open ended questions (i.e., respondents were asked to list any element that came to mind under a certain dimension). One could argue that the PEAP is a more effective tool for recording what physical characteristics are most salient to respondents but the cued-recall method may be more accurate in determining what features are actually on a unit and easier for the overburdened healthcare worker to answer.

(1) *Preventing unauthorized exiting*

In Gutman and Kilam's (1989) study the SCU coordinators were asked which methods, from a preconstructed list, were present on the unit to prevent unauthorized exiting. These methods included: multiple latching mechanisms, alarmed doors, masked doors at the unit exit, locked exit door, electronic sensors and personal restraint devices. Results indicated that none of the units in their study had a multiple latching mechanism, two units had alarmed unit doors and one unit had masked the exit door. Five of the six

units had the unit door locked at all times. In addition, on two units the door could only be opened with a number code; in three units a key was needed. In the present study, respondents were asked "to what extent does your SCU promote safety and security". Two thirds (65%) of facilities in the present study had multiple latching mechanisms such as key pads on their special care units. This is a major difference from Gutman and Killam (1989) finding where none of the units had multiple latching mechanisms. In 100% of the units the respondents indicated they had locked unit doors. Comparing this to findings reported by Gutman and Killam of 83%, the percentage is a third larger. It appears that SCUs are acknowledging the elopement risk of wandering residents with dementia and implementing design guidelines to reduce this risk. Two methods that were not discussed in Gutman and Killam's study were commonly used by the majority of SCUs in the present study to restrict unauthorized exiting. These were locking and fencing outdoor courtyards (59%) and installing key pads on elevators (53%) to restrict unauthorized exiting and elopement from the unit. Other mechanisms for restricting unauthorized exiting from the unit (observed by this researcher and mentioned by some but not all respondents) were signs educating staff and visitors about elopement risks, remodeling outdoor patios with higher fences, securing windows and locking stairwells. Personal restraint devices were not used in any of the units as many facilities saw these devices as cruel and unnecessary. While fences were observed by this researcher they were not mentioned by respondents as a means of restricting unauthorized exiting. The percentage of use of each of the methods to restrict unauthorized exiting is shown in Table 8. The design features that were not discussed in Gutman and Killam's (1989) study are marked with a N/A.

(2) *Managing Wandering*

In the Gutman and Killam (1989) study, SCU coordinators were asked whether their facility had secured wandering space within the building and/or outside. Half of the units were reported to have indoor wandering space and all units reported having secured outdoor areas. If we compare these findings to the present study we find that approximately two-thirds of units had secure indoors wandering space. This finding suggests that SCUs are becoming more aware of the wandering needs of residents with dementia. One surprising finding in the present study was that less than half (48%) of SCUs had secured outdoor wandering space. Many facilities stated that they would like to include a secure outdoor wandering path but unfortunately were lacking the appropriate funds for such a project.

One method to manage wandering not mentioned in Gutman and Killam's (1989) study but commonly used by the majority (79%) of SCUs in the present study was the use of railings along indoor wandering paths. Of this 79%, a third was observed by the researcher but not mentioned by the respondents. Railings helped residents wander independently and reduced the risk of falls. Other possibilities for managing wandering were to place seats along the wandering path and to limit the use of wheelchairs and gerichairs to encourage residents to be independent and mobile. The percentage of use of each of these methods to manage wandering is displayed in Table 8 also.

(3) *Facilitating wayfinding and orientation*

In Gutman and Killam's (1989) study, coordinators were asked if their unit facilitated wayfinding and orientation by employing either extra large signs, picture signs, color coding, textured walls, special landmarks, picture(s) on residents' doors,

clocks and calendars, or a reality orientation board. Findings indicated that five of the six units had clocks and calendars, 3 of the 6 had extra large signs, 3 of the 6 had reality orientation boards (i.e., boards that include the date, season, weather forecast and activities of the day) but only one unit had pictures on residents' door. A comparison of these results to the present study reveals that only one method mentioned by Gutman and Killam (1989) was used by the majority of SCUs. In the present study nearly two-thirds of SCUs had pictures on the resident's door. These pictures were most likely to be of the resident. Only a minority of SCUs in the present study used extra large signs (21%), clocks/calendars (10%) and reality orientation boards (7%). Many staff persons stated that signs were rarely used on the unit because many of the resident on their unit were too cognitively impaired to read and understand. No units used color coding or textured walls as a means to facilitate wayfinding and orientation because many units felt this would make the environment look institutional.

One method to facilitate wayfinding and orientation not mentioned in Gutman and Killam's (1989) study but used by the majority (55%) of SCUs in the present study is placing the name of each resident on their bedroom door. Other features designed to facilitate wayfinding and orientation were the use of memory boxes, leaving bathroom doors open and visible to residents, using flooring aids such as painted arrows on the floor, placing residents furniture and familiar objects in and around their room and using room numbers on each resident's bedroom door. The percentage of use of each of these methods to facilitate wayfinding and orientation is displayed in Table 8.

(4) *Reducing sensory overload*

In Gutman and Killam's (1989) study, the coordinators of each unit were asked if they used pastel colors, background music or any other environmental design features to reduce sensory overboard and/or calm residents. Results showed that four units used background music, three were decorated in pastel colors, two used small rooms for individual activities or to isolate noisy residents, and one unit used reduced lighting. Only a small minority of the SCUs in the present study used the methods described by Gutman and Killam to reduce sensory overload (see Table 8). One interesting finding when comparing Gutman and Killam's results to the present study is the use of background music. In Gutman and Killam's study, 66.7% of units used background music. In the present study not one unit mentioned using background music. In fact many staff persons found that background music was irritating for residents and caused aggression and agitation.

Three methods used in the present study but not mentioned by Gutman and Killam (1989) to reduce sensory overload were keeping noises to a minimum (93%), reducing or eliminating paging systems (55%) and controlling noxious smells (69%). Of the 93% of units that kept noise to a minimum, a third were observed by this researcher but were not mentioned by respondents. The same is true for controlling noxious smells. Of the 69% of units that used this method, more than half (55%) were observed solely by this researcher and not mentioned by the participants. Other methods found to reduce sensory overload were: offering programs that provided controlled stimulation without stress, using blinds to control glare, maintaining regular housekeeping to control odors, and using mobile phones to reduce overhead paging.

Table 8: Number of units using selected physical design features compared to Gutman and Killam (1989) study results

Physical Design Feature	% of units	% of unit in Gutman and Killam (1989) study
To restrict unauthorized exiting		
Locked unit doors	100.0	83.3
Multiple latching mechanisms (key pads)	65.5	0.0
Locked, fenced outdoor courtyard	58.6	N/A
Coded elevator	52.6	N/A
Signs educating staff, visitors about elopement risks	24.1	N/A
Exterior windows secured, can be opened in emergency	17.2	N/A
Alarmed doors	13.8	33.3
Electronic devices	10.3	16.7
Locked stairwells	10.3	N/A
Masked unit exit doors	6.9	16.7
Patio remodeled, higher fences put up	6.9	N/A
Personal restraint device	0.0	0.0
Fences	0.0	N/A
To manage wandering		
Railings along wandering path	75.8	N/A
Secure wandering spaces in building	65.5	50.0
Secure wandering space outside building	44.8	100.0
Places to sit along wandering path	13.8	N/A
Limit use of wheelchairs and gerichairs, encourage residents to walk	13.8	N/A
To facilitate wayfinding and orientation		
Picture of resident on door	62.0	16.7
Name of resident on resident's door	55.1	N/A
Picture signs	41.3	0.0
Memory boxes	24.1	N/A
Extra large signs	20.7	50.0
Special landmarks	20.7	0.0
Room number on resident's door	20.7	N/A
Residents have own furniture, pictures, dolls	17.2	N/A
Clocks/calendars	10.3	83.3
Reality orientation board	6.9	50.0
Bathroom door left open	6.9	N/A
Flooring aids to help with orientation	6.9	N/A
Color coding	0.0	0.0
Textured walls	0.0	0.0
To reduce sensory overload		
Unit kept quiet	93.1	N/A

No noxious smells	69.0	N/A
No PA system	55.1	N/A
Program of stimulation without stress	44.8	N/A
Regular housekeeping to keep unit clean	44.8	N/A
Head Nurses in tune with resident mood, stimulation needs	27.6	N/A
Head Nurses separates noisy residents	20.7	33.3
Head Nurses use mobile phones to reduce overhead paging (decrease calls)	20.7	N/A
Lighting controlled	17.2	16.7
Shades/blinds to control glare	17.2	N/A
Floors not waxed to control glare	10.3	N/A
Use pastel colors	3.4	50.0
Garbage not kept in resident's room	3.4	N/A
Dining room is locked at mealtimes to reduce stimulation from outside	3.4	N/A
Yellow strip placed in doorway to prevent unwanted entry, reduce traffic	3.4	N/A
Background music	0.0	66.7

As can be seen from the above comparison, many special care units have implemented methods described by Gutman and Killam (1989) as well as various different and creative design features to restrict unauthorized exiting, manage wandering, facilitate wayfinding and orientation and reduce sensory overload. All of the SCUs were found to be using the above-mentioned special design features in order to meet the goal of providing a safe and therapeutic environment for residents with dementia. It is hoped that these environmental modifications will reduce the environmental press. As suggested by Lawton's Environmental Docility Hypothesis, persons with dementia living in an institutional setting have less reserve to cope with press, and are more at the mercy of an unfriendly environment. Research by Cohen and Day (1993) suggests that modifications of traditional room and unit layout, along with complementary modifications in the organizational environment, can slow or in some cases even reverse the declines expected over time in the behaviors of people with dementia.

5 SUMMARY, CONCLUSIONS AND LIMITATIONS OF THE STUDY

5.1 Summary

Findings from this study indicate that older special care units were, if anything, more likely to be purpose built than more recently constructed units. Upon review of the sample it should be noted that many of the older special care units (SCUs) were the original units built in their health region. For example many of these units were the test sites for the new design features such as figure-eight wandering paths. Private rooms for each resident and providing a home-like environment were also new ideas being tested in these sites. This fact could bias the sample and skew the results.

A second finding indicated that both older and newer SCUs used physical cues to link residents to the past. Both older and newer SCUs also had a philosophy on the unit that fostered the continuity of the resident's self. Units also encouraged residents to bring furniture from home to the unit in order to promote the continuity between the present and the past. This finding indicates that philosophy and design guidelines recommended in the literature are being implemented in both newer and older SCUs.

Although not statistically significant, one surprising finding was that SCUs in operation more than 6 years tended to have more special design features than SCUs in operation for less than 6 years. These design features include structural elements and wayfinding cues. It is possible that many older SCUs, located in pre-existing buildings are limited by their poor unit design and, therefore, focused on things they could change on the unit. These changes included building outdoor wandering paths and adding memory boxes and cueing devices to the unit. It should be noted though that many

respondents in this study misinterpreted the original question and spoke of their satisfaction with the design of the unit rather than how the unit maximized awareness and orientation. Rewording the original question may help to clear up this misunderstanding.

Again, not statistically significant, a fourth finding was that SCUs in operation less than 5 years were slightly more likely to have fewer residents living on the unit than SCUs in operation 6 years or more. Newer SCUs also tended to have lower care aide to resident ratio and registered nurses to resident ratio. It appears that newer SCUs are beginning to implement the staffing guidelines recommended in the literature. It is interesting to note however that many SCUs had more than the recommended 20 residents per unit. This finding may be directly related to the cutbacks in health care that are being experienced in the province of British Columbia and in Canada as a whole.

A fifth finding was that Directors of Care and Head Nurses tended to use only a few themes to define each Professional Environmental Assessment Protocol (PEAP) dimension. The most common themes were related to programming. This finding suggests that Head Nurses in the present study have different ideas than the PEAP designers, of what environmental features they consider to be therapeutic. It would be useful for SCUs to determine which environmental features are most important to Head Nurses and what they think needs to be improved on the unit.

Finally, data from this study were compared to findings from Chappell's (1999) and Gutman and Killam's (1989) study. Six interesting results came from the later comparison. First, the number of special care units has grown substantially in British Columbia in the last 11 years. This finding likely follows from the increase in the number of old-old seniors and in the number of persons diagnosed with a form of

dementia. Second, the number of residents living on a SCU has not changed dramatically in the last 11 years and most units still house more than the recommended 20 residents per unit. Third, the staff to resident ratio has improved in the last 11 years. Many units are acknowledging the heavier care needs of persons with dementia and, therefore, are staffing their SCUs accordingly. Despite the fact that the staff to resident ratio has improved, this study found that the nurse to resident ratio continues to be problematic. The fourth finding indicates that nurses are looking after more residents than recommended. Many units are short-staffed and have problems recruiting and keeping good registered nurses. Fifth, problem behaviors described on SCUs have not changed in 11 years. Both the Gutman and Killam (1989) and the present study found that many residents exhibit disruptive/destroying behaviors, agitation and aggression on the unit. This finding indicates that the behavior manifestation of the disease of dementia has not changed in 11 years despite environmental changes. Lastly, more SCUs are using special design features to prevent unauthorized exiting, to accommodate wandering, to accommodate wayfinding and orientation and to reduce sensory overload. Many SCUs are using new and unique physical design features such as memory boxes and special cueing devices to improve the quality of life of residents. This finding indicates that SCUs are understanding the benefits of the therapeutic environment and are implementing design guidelines from the literature.

5.2 <u>Conclusion</u>

Due to the change in health care policy and the availability of community resources, many seniors are entering an institutional environment at a much later age. Many seniors enter these facilities with heavier care needs than was the case twenty years

ago. The number of dementia cases and the number of special care units to house

persons with dementia has also increased in the last few years. Consumers are

demanding quality care and a therapeutic environment for their loved ones. Evaluation

tools are needed to ensure that units are implementing design guidelines and providing a

therapeutic environment. The Professional Environmental Assessment Protocol (PEAP)

is one tool that evaluates a special care unit environment. The PEAP has benefits and

drawbacks. First the free-recall technique allowed respondents to list any element that

came to mind under a certain dimension. This technique allowed this researcher to

understand the key elements of the environment that the respondent considers most

salient on the unit. Second, the PEAP was easy to use and did not take much time to

administer. However, there were two drawbacks to using the PEAP. First, the PEAP did

not include any questions about the demographics of the unit. This researcher instead

created a few additional questions to find out about staffing patterns, the number of

residents on the unit, the number of years the unit has been in operation and whether or

not any behavioral problems existed on the unit. In the future it may be useful to

combine tools such as the MEAP, which includes demographic questions, and the PEAP

to get a more global picture of the environment. Secondly, the rating scale of the PEAP

was challenging. Many respondents did not know how to use the scale with its pluses

and minuses. A more effective scale might have been an ascending scale from 1 to 13,

where 1 is a low score and 13 is a high score.

5.3   **Limitations of Study**

There were three limitations to this study. First, the small size was small. In future studies it would be ideal to include all the special care units in the entire province and not just the Lower Mainland. With a larger sample size it might be possible to see larger differences between newer and older special care unit that reach statistical significance. The second limitation was the wording of the PEAP. Many respondents had problems understanding what the questions were asking. While it is important to have open-ended questions it is also important for respondents to understand what is being asked of them. Some staff persons commented that some questions would be better answered by the recreational staff, especially questions about programming and activities. Lastly, nursing homes received a lot of bad press during the data collection for this study which limited the number of participants. Many staff persons were reluctant to speak to this researcher and many refused outright.

5.4   **Future Research**

In the future it would be interesting to do the same study on a larger sample including all special care units from the entire province. It would also be interesting to include questions about programming in the questionnaire as the environment and the programs provided are fundamental to providing a therapeutic environment. Third, future studies should include the entire staff as respondents and not just registered nurses and care aides. Fourth, a study considering the impact of resident density on aggression and agitation would be interesting. At what point is the number of residents on a special care unit too much? Lastly this researcher believes that the PEAP will need to be modified in order to reflect the population found in special care units. For example, one

question in the staff questionnaire of the PEAP asks if any cooking facilities are available to residents. This question is not applicable in many special care units because most residents are not cognitively and physically able to safely cook for themselves. With seniors entering special care units at a much later age and stage of dementia many questions of the PEAP will need to be reworded.

APPENDICES

APPENDIX 1:

LIST OF PARTICIPATING SPECIAL CARE UNITS

HEALTH REGION AND FACILITIES	PARTICIPATED	DID NOT PARTICIPATE
North Shore Health Region		
1) Cedarview Lodge Intermediate Care Facility	Yes	
2) Inglewood Private Hospital Lodge and Manor	Yes	
Simon Fraser Health Region		
3) Cascade Residence		No
4) The Fair Haven United Church Home	Yes	
5) George Derby Long Term Care Centre		No
6) New Vista Society Intermediate Care Home	Yes	
7) Normana Rest Home	Yes	
8) Dufferin Care Centre	Yes	
9) Foyer De Maillard	Yes	
10) Creekside Manor		No
11) Haney Intermediate Care Centre		No
12) Holyrood Manor	Yes	
13) Buchanan Lodge Rest Home	Yes	
14) Kiwanis Care Centre		No
15) Royal City Manor		No
16) Hawthorne Care Centre	Yes	
17) Burquitlam Lions Care Centre	Yes	
South Fraser Health Region		
18) Delta View Habilitation Centre	Yes	
19) Kinsmen Retirement Home	Yes	
20) Northcrest Care	Yes	
21) Langley Lodge		No
22) Zion Park Manor	Yes	
23) Evergreen Baptist	Yes	
24) Jackman Manor	Yes	
Vancouver/Richmond Health Board		
25) Richmond Lions Manor	Yes	
26) Central City Lodge	Yes	
27) German Canadian Benevolent Society	Yes	
28) Haro Park Centre Society	Yes	
29) Icelandic Care Home	Yes	
30) Kopernik Lodge	Yes	
31) Lakeview Care Centre		No
32) Little Mountain Place		No
33) Louis Brier Home and Hospital	Yes	
34) St. Jude's Anglican Home	Yes	
35) Villa Carital	Yes	
36) Yaletown House Society	Yes	

APPENDIX 2:

STAFFING PATTERNS AND UNIT DEMOGRAPHICS

Staffing Patterns

		#1	#2	#3	#4
No. of residents in SCU		22	17	23	22
Ratio of Direct Care/Nursing Staff to Residents*	Day	1 staff for 7.3 res.	1 staff for 5.7 res.	1 staff for 5.8 res.	1 staff for 6.3 res.
	Evening	1 staff for 7.3 res.	1 staff for 5.7 res.	1 staff for 5.8 res.	1 staff for 6.3 res.
	Night	1 staff for 22 res.	1 staff for 11.3 res.	1 staff for 11.5 res.	1 staff for 14.7 res.
Staff Breakdown a) Regularly on duty in SCU	Day	2 CA 1RN	2 CA 1 RN/LPN	3 CA 1RN 1 bathing person	2.5 CA 1RN
	Evening	2 CA 1 RN	2 CA 1/2 RN/LPN	3 CA 1 RN	2.5 CA 1 RN
	Night	1 CA shared RN	1 CA 1/2 LPN	2 CA shared RN	1.5 CA shared RN

* Note: Staff-resident ratios are approximate as they vary between weekends and weekdays. Also, some workers overlap the three standard shifts.

		#5	#6	#7	#8
No. of residents in SCU		25	18	23	34
Ratio of Direct Care/Nursing Staff to Residents*					
	Day	1 staff for 1.5 res.	1 staff for 6 res.	1 staff for 8.6 res.	1 staff for 7.5 res.
	Evening	1 staff for 6.3 res	1 staff for 6 res.	1 staff for 7.7 res.	1 staff for 8.5 res.
	Night	1 staff for 12.5 res.	1 staff for 18 res.	1 staff for 11.5 res.	1 staff for 17 res.
Staff Breakdown a) Regularly on duty in SCU	Day	4 CA 1 RN	2 CA 1 RN 1 activity person	3 CA 1/2 RN	3.5 CA 1 RN
	Evening	3 CA 1 RN	2 CA 1 RN 2 hrs activity person	2 CA 1 LPN, shared RN	3 CA 1RN
	Night	2 CA shared RN	1 CA shared RN	2 CA shared RN	2 CA shared RN

* Note: Staff-resident ratios are approximate as they vary between weekends and weekdays. Also, some workers overlap the three standard shifts.

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		#9	#10	#11	#12
No. of residents in SCU		25	39	23	16
Ratio of Direct Care/Nursing Staff to Residents*	Day	1 staff for 5 res.	1 staff for 5.6 res.	1 staff for 5.8 res.	1 staff for 5.3 res.
	Evening	1 staff for 6.2 res.	1 staff for 7.8 res.	1 staff for 15 res.	1 staff for 4 res.
	Night	1 staff for 12.5 res.	1 staff for 39 res.	1 staff for 11.5 res.	1 staff for 16 res.
Staff Breakdown a) Regularly on duty in SCU	Day	4 CA 1 RN	8 CA 1 RN	1 CA 1RPN, 2LPN 1 recreational therapist	1.5 CA 1.5 RN
	Evening	3 CA 1 RN	4 CA 1 RN	1/2 CA 2 LPNs	2 CA 2 RN
	Night	2 CA shared RN	1 CA shared RN	1 CA 1 LPN	1 CA shared RN

* Note: Staff-resident ratios are approximate as they vary between weekends and weekdays. Also, some workers overlap the three standard shifts.

		#13	#14	#15	#16
No. of residents in SCU		14	24	18	28
Ratio of Direct Care/Nursing Staff to Residents*	Day	1 staff for 7 res.	1 staff for 6 res.	1 staff for 6 res.	1 staff for 7 res.
	Evening	1 staff for 9.3 res.	1 staff for 6.9 res.	1 staff for 6 res.	1 staff for 7 res.
	Night	1 staff for 14 res.	1 staff for 24 res.	1 staff for 18 res.	1 staff for 14 res.
Staff Breakdown a) Regularly on duty in SCU	Day	2 CA ? RN	3 CA 1 RN	2 CA shared RN 1 LPN	2.5 CA 1 RN 1/2 LPN 1/2 activity person
	Evening	? CA shared RN	2.5 CA 1 RN	2 CA shared RN 1 LPN	2.5 CA 1 RN 1/2 LPN 1/2 activity person
	Night	1 CA shared RN	1 CA shared RN shared CA	1 CA shared RN	1 CA 1 LPN

* Note: Staff-resident ratios are approximate as they vary between weekends and weekdays. Also, some workers overlap the three standard shifts.

		#17	#18	#19	#20
No. of residents in SCU		27	17	26	44
Ratio of Direct Care/Nursing Staff to Residents*	Day	1 staff for 6.8 res.	1 staff for 6.8 res.	1 staff for 4 res.	1 staff for 5.5 res.
	Evening	1 staff for 10.8 res.	1 staff for 5.7 res.	1 staff for 4 res.	1 staff for 8.8 res.
	Night	1 staff for 17.7 res.	1 staff for 17 res.	1 staff for 26 res.	1 staff for 22 res.
Staff Breakdown a) Regularly on duty in SCU	Day	3 CA 1 RN	1 CA 1/2 RN 1 LPN	3 CA 1 RN	6 CA 1 RN 1 LPN 1 recreation person
	Evening	2 CA 1/2 RN	1 CA 1 RN 1LPN	3 CA 1 RN	4 CA 1 RN
	Night	2 shared CA shared RN	1 LPN shared RN	1 CA shared RN	2 CA shared RN

* Note: Staff-resident ratios are approximate as they vary between weekends and weekdays. Also, some workers overlap the three standard shifts.

		#21	#22	#23	#24
No. of residents in SCU		38	28	50	18
Ratio of Direct Care/Nursing Staff to Residents*	Day	1 staff for 8.4 res	1 staff for 7 res.	1 staff for 7.1 res.	1 staff for 6 res.
	Evening	1 staff for 10.8 res.	1 staff for 14 res.	1 staff for 8.3 res.	1 staff for 6 res.
	Night	1 staff for 38 res.	1 staff for 14 res.	1 staff for 20 res.	1 staff for 18 res.
Staff Breakdown a) Regularly on duty in SCU	Day	3.5 CA 1 RN 1activity person	3 CA 1 RN	6 CA 1 RN	2 CA 1 RN
	Evening	2.5 CA 1 RN	1 CA 1 RN	4.5 CA 1.5 RN	2 CA 1RN
	Night	1 CA shared CA shared RN	1 CA 1 RN	2 CA 1/2 RN	1 CA shared RN

* Note: Staff-resident ratios are approximate as they vary between weekends and weekdays. Also, some workers overlap the three standard shifts.

		#25	#26	#27	#28
No. of residents in SCU		26	30	40	22
Ratio of Direct Care/Nursing Staff to Residents*	Day	1 staff for 6.5 res.	1 staff for 7.5 res.	1 staff for 6.7 res.	1 staff for 7.3 res.
	Evening	1 staff for 8.7 res.	1 staff for 7.5 res.	1 staff for 8 res.	1 staff for 7.3 res.
	Night	1 staff for 13 res.	1 staff for 20.3 res.	1 staff for 20 res.	1 staff for 7.3 res.
Staff Breakdown **a) Regularly on duty in SCU**	Day	3 CA 1 RN	3 CA 1 RN	5 CA 1 RN 1 activity person	2 CA 1 RN
	Evening	2 CA 1 RN	3 CA 1 RN	4 CA 1 RN	2 CA 1 RN
	Night	2 CA shared RN	2 shared CA shared RN	1 CA 1 RN	2 CA 1 RN

* Note: Staff-resident ratios are approximate as they vary between weekends and weekdays. Also, some workers overlap the three standard shifts.

			#29
No. of residents in SCU			17
Ratio of Direct Care/Nursing Staff to Residents*		Day	1 staff for 5.7 res.
		Evening	1 staff for 5.7 res.
		Night	1 staff for 8.5 res.
Staff Breakdown a) Regularly on duty in SCU		Day	2 CA 1 RN
		Evening	2 CA 1 RN
		Night	1 CA 1 RN

* Note: Staff-resident ratios are approximate as they vary between weekends and weekdays. Also, some workers overlap the three standard shifts.

APPENDIX 3:

THEMES USED IN ANALYSIS

THEMES USED IN ANALYSIS

I. Awareness and Orientation
1) personal cueing for resident (e.g., name and picture of resident on each resident's door)
2) structural characteristics of unit (e.g., physical layout of the unit such as T-shaped or L-shaped, ease of getting around unit)
3) wayfinding (e.g., landmarks, signs)
4) orient to social environment (e.g., items that make unit a home-like environment such as plants and familiar artifacts)
5) visual differentiation (e.g., color contrast, lighting levels and types of flooring)
6) Head Nurses's role in awareness and orientation (e.g., re-direction and re-orientation by Head Nurses)
7) orient to temporal environment (e.g., reality orientation, orient residents to time and place)
8) orient to physical environment (e.g., rooms are very distinct from each other, rooms are decorated purposively)
9) challenges to awareness and orientation (e.g., high level of care needs on unit)
10) family's role in awareness and orientation (e.g., use of family to help residents adjust to unit)

II. Safety and Security
1) reducing elopement risks, control of unauthorized exits (e.g., locked/coded doors, coded elevators)
2) reducing risk of injury to resident (falls) (e.g., flooring, storage of equipment)
3) safety/security of Head Nurses (e.g., use of portable phones, call bells)
4) support of functional abilities/use of specialized equipment (e.g., railings, bed rails, special equipment)
5) monitoring of residents (e.g., use of cameras)
6) challenges to safety and security (e.g., hard to monitor residents because of layout of unit)

III. Privacy
1) characteristics of private spaces (e.g., spaces used for solitude, away from stimulation)
2) characteristics of public spaces (e.g., stimulating areas, activity rooms)
3) privacy policies (e.g., closing doors during care)
4) boundaries of public/private spaces (e.g., use of privacy curtains)
5) challenges to privacy (e.g., small unit with no space alternatives)

IV. Regulation of Stimulation
1) control of stimulation (e.g., stimulation without stress, no TVs or PAs)
2) programming involving Head Nurses (e.g., music programs, one to one programming)
3) challenges in regulating stimulation (e.g., annoying PA system present, glare present)

4) types of stimulation (e.g., soft music played on unit, bread maker used on unit)

V. Quality of Stimulation
1) stimulation that promotes independent functioning/cognitive abilities (e.g., Head Nurses encourages residents to do activities of daily living as much as possible)
2) quality/variety of programming (staff stimulated) on unit (e.g., exercise and music programs)
3) variety/quality of stimulation using 5 senses on unit (e.g., artwork, variety of things to touch on unit)

VI. Functional Abilities
1) physical environment maximizes remaining abilities (e.g., grab bars on unit)
2) unit supports wandering behaviors (e.g,. wandering paths)
3) Head Nurses philosophy on functional abilities (e.g., resident encouraged to do for themselves even if it takes longer)
4) programming on unit (e.g., flexible eating, sleeping and activity schedule)
5) challenges to supporting functional abilities (e.g.,   functional abilities of residents on unit is low)

VII. Personal Control
1) philosophy regarding personal control (within control of unit) (e.g., Gentle Care, resident-focused care)
2) resident's control over self (e.g., control over sleep, eat, activity schedule)
3) resident's control over space use (e.g., choice in décor of resident room, and where to spend day on unit)
4) challenges to personal control (e.g., very demented resident population is challenging)

VIII. Continuity of Self
1) physical cues that link to past (e.g., memory boxes, personal décor in resident room)
2) programming linked to past (e.g., activities geared to residents interests)
3) philosophy of unit regarding continuity of self (e.g., resident centered care, use of resident's personal history when planning care)
4) challenges to continuity of self/past (e.g., lack of family involvement)

IX. Social Contact
1) social contact through programming (e.g., bus trips, social functions)
2) rooms dedicated to social contact (e.g., courtyards, alcoves)
3) presence/placement of furniture (e.g., lounge chairs in living room area are placed together)
4) social contact with people, families, volunteers (e.g., residents sit near nurses station for social contact with Head Nurses)
5) challenges to social contact (e.g., lack of social spaces on unit)

APPENDIX 4:

THE PROFESSIONAL ENVIRONMENTAL ASSESSMENT PROTOCOL

THE PROFESSIONAL ENVIRONMENTAL ASSESSMENT PROTOCOL

OVERVIEW

The goal of the Professional Environmental Assessment Protocol is the focused evaluation of specialized dementia care facilities (Special Care Units) with respect to eight dimensions of the environment as experienced (e.g., Environmental Awareness & Orientation) judged to be therapeutic with respect to the care of persons with Alzheimer's disease or related dementias.

What is Professional Environmental Assessment?

This approach differs from other commonly employed approaches to environmental description and assessment. It goes beyond the simple documentation of objective properties of a setting (e.g., enumeration of all spaces comprising an SCU, calculation of square footage of each, etc.). Thus indicators included in discussion of each of the 8 attributes of the PEAP are just that -- indicators -- and are not meant to constitute a checklist. At the same time the PEAP is meant to be more focused than totally global evaluations (e.g., everything else being equal is this a good or bad environment for dementia care?).

What aspects of the environment are being evaluated?

The primary focus of the PEAP is the physical setting and the extent to which it supports the needs of people with dementia. At the same time it is recognized that the physical world does not exist in isolation. It must be understood and evaluated within the larger context of Unit philosophy of care and program, level of resident capability, constraints of budget and regulations, etc.

One can usefully differentiate 3 levels of the physical setting, all of which are potentially important in completing a PEAP:

> **Fixed or Structural Features:** Such features include overall unit area and floor plan, presence or absence of windows, etc.

> **Semi-Fixed Features:** These include less permanent architectural elements – e.g., presence or absence of handrails, wall and floor surfaces.

> **Non-Fixed Features:** The presence of wall hanging, activity supplies and endless other 'props' can play a critical role in the life of a setting.

5.4.1.1.1 RATINGS/RANKING OF THERAPEUTIC GOALS

The 9 goals often characterized as therapeutic with respect to dementia care are rated on a 13 point scale. Five points are defined, and the intermediate points are represented by a + or a -. Indicate on the line below the way(s), if any, in which each of these goals is currently operationalized in your SCU.

PROFESSIONAL ENVIRONMENTAL ASSESSMENT PROTOCOL
SCORING PAGE

Unit I.D. _____

[1] Maximize Awareness and Orientation
    (HIGH) 5 5- 4+ 4 4- 3+ 3 3- 2+ 2 2- 1+ 1 (LOW)

_____
_____
_____

[2] Maximize Safety and Security
    (HIGH) 5 5- 4+ 4 4- 3+ 3 3- 2+ 2 2- 1+ 1 (LOW)

_____
_____
_____

[3] Provision of Privacy
    (HIGH) 5 5- 4+ 4 4- 3+ 3 3- 2+ 2 2- 1+ 1 (LOW)

_____
_____
_____

[4] Regulation of Stimulation
    (HIGH) 5 5- 4+ 4 4- 3+ 3 3- 2+ 2 2- 1+ 1 (LOW)

_____
_____
_____

[5] Quality of Stimulation
    (HIGH) 5 5- 4+ 4 4- 3+ 3 3- 2+ 2 2- 1+ 1 (LOW)

_____
_____
_____

[6] Support Functional Abilities
               (HIGH) 5 5- 4+ 4 4- 3+ 3 3- 2+ 2 2- 1+ 1 (LOW)

_____
_____
_____

[7] Opportunity for Personal Control
               (HIGH) 5 5- 4+ 4 4- 3+ 3 3- 2+ 2 2- 1+ 1 (LOW)

_____
_____
_____

[8] Continuity of the Self
               (HIGH) 5 5- 4+ 4 4- 3+ 3 3- 2+ 2 2- 1+ 1 (LOW)

_____
_____
_____

[9] Facilitation of Social Contact
               (HIGH) 5 5- 4+ 4 4- 3+ 3 3- 2+ 2 2- 1+ 1 (LOW)

_____
_____
_____

PROFESSIONAL ENVIRONMENTAL ASSESSMENT PROTOCOL
Head Nurses Questionnaire

Unit I.D. _____

Maximize Awareness and Orientation

To what extent do you try to have a consistent daily program every day? So similar types of activities occur at roughly the same time every day?

_____
_____

How many of the social spaces have a clear identity for specific types of activities -- vs. rooms that are used for multiple purposes, and it's hard to tell what's going to take place?

_____
_____

Maximize Safety and Security

If there is equipment like stoves, coffee-maker, etc., to what extent are they available to residents vs. secured?

_____
_____

Provisions of Privacy

How is room-mate selection made? Resident choice, Head Nurses opinion about who would suit each other, what's open, etc.?

_____
_____

Being honest, about what % of the time to Head Nurses (CNAs and RNs) knock on doors and wait for a response before entering a bedroom?

_____
_____

Are residents encouraged to be out of their rooms every day, or can they choose where they want to be?

_____
_____

If a resident chooses to be in their bedroom, are they allowed to keep the bedroom door closed?

_____

_____

Simulation and Coherence

Over the course of the day, would you say there's a lot of noise from TVs, radios, PA systems, etc.? Includes both level and frequency.

_____

_____

Do you consciously plan when you have more physical activities, vs. more quiet and calming activities?

_____

_____

Support Functional Abilities

To what extent do you encourage residents to do things on their own (like dressing and grooming) even when it takes substantially longer?

_____

_____

Are cooking facilities available to residents? How available?

_____

_____

Are wardrobes routinely locked? For all residents or just some?

_____

_____

To what extent can residents keep personal grooming supplies and toiletries in their rooms?

_____

_____

Opportunities for Personal Control

How often are multiple and simultaneous activities taking place on the unit? i.e - do residents have much a choice about what they're doing?

_____

_____

Do all residents get up at the same time for breakfast? Are they encouraged to go to bed at a set time?

_____

_____

Continuity of the Self

To what extent can and do residents bring in furniture from home?

_____

_____

Facilitation of Social Contact

Can residents sit near the nurses station or other area where they can easily talk with others - particularly Head Nurses?

_____

_____

APPENDIX 5:

LETTERS OF SUPPORT FROM HEALTH REGIONS

SIMON
FRASER
HEALTH
region

Continuing Care
Integrated Client Services
33 Blackberry Drive
New Westminster, B.C.   V3L 5S9
Tel (604) 519-8500 Fax (604) 519-8550

Facsimile Transmittal

From:	Sherry Park	**Date:**	July 17, 2000
Re:		**Pages:**	1

☐ Urgent   ☑ For Review   ☐ Please Comment   ☐ Please Reply   ☐ Please Recycle

To:

Rita Ratzlaff	Buchanan Lodge	(604) 522-7033
Pauline Stott	Burquitlam Lion's Care Centre	(604) 939-6485
Linda Todd	Dufferin Care Centre	(604) 552-3116
Hilda Li	Fair Haven	(604) 435-7031
Doreen Gilbride	Foyer Maillard	(604) 937-7133
Rita Steeple	George Derby Centre	(604) 521-0220
Mike Krabbendam	Haney Intermediate Care Centre	(604) 467-2203
Dianne Miller	Hawthorne Care Centre	(604) 941-5829
Carol Meldrum -sick leave	Holyrood Manor	(604) 467-8262
Alice Choi	New Vista Care Home	(604) 527-6001
Arif Padamshi	Normanna	(604) 522-5803

I am writing to introduce you to Annie Rivard, a masters student at Simon Fraser University. Annie is completing a project on environmental characteristics in Special Care Units for dementia. She has plans to assess 35 facilities in 5 regions in the Lower Mainland and Fraser Valley.

She will be contacting you in mid to late August to gain your interest and participation. Her assessment includes:

- 45 minute interview with Director of Care and completion of professional environmental assessment protocol.
- Physical tour of Special Care Unit.
- Questionnaire to one identified staff member.

While individual facilities will not be identifiable, Annie will provide us with the summary of the completed project and will provide direct feedback on request.

I hope that you find, participation in this project, as worthwhile as I have in reviewing the project outline

**South Fraser
Health Region**

Healthy Individuals
Healthy Communities

September 1, 2000

Annie Rivard
3031 Hamilton Hall
Simon Fraser University
8888 University Drive
Burnaby BC V5A 1S6

Re: Research Project

Dear Ms. Rivard:

Thank you for providing me with a copy of the Ethics Review Committee approval letter for your
research project titled:

      Environmental Characteristics and Staff Ratings of Newer and Older
      Special Care Units for Dementia in British Columbia.

I would like to confirm on behalf of the South Fraser Health Region, that you have permission to
conduct your research in our health region.

You have been provided you with a list of the 7 special care units in our contracted residential
care facilities. You will contact these facilities directly and they have received a letter of
introduction and request for support from me. Their participation will be voluntary and without
penalty if they choose not to participate. You will provide them with sufficient information to
make an informed choice and provide them with information on how you will handle the
information to maintain confidentiality and anonymity in the final report.

Please let me know if there is anything further that I can do to facilitate your success with a
timely and important project. I can be reached at 507-5475.

Sincerely,

Wendy MacKinnon, Director
Residential Services

cc: Betty Ann Busse, Chief Operating Officer, Langley Health Services
       Kathy Kinloch, Chief Operating Officer, White Rock/South Surrey

APPENDIX 6:

LETTER OF INTRODUCTION TO SPECIAL CARE UNITS

LETTER OF INTRODUCTION AND INFORMATION TO SPECIAL CARE UNITS

Annie Rivard
c/o Gerontology Research Centre
Simon Fraser University
2800 - 515 W. Hastings St.
Vancouver, B.C. V6B 5K3
Tel. (604) 291-8448

[DATE]
[CONTACT NAME]
[SPECIAL CARE UNIT]
[ADDRESS]
[TELEPHONE NUMBER]

Dear [SPECIAL CARE UNIT CONTACT],

My name is Annie Rivard and I am a student in the Master of Arts in Gerontology program at Simon Fraser University at Harbour Centre in Vancouver. As part of my M.A., I am required to conduct a major project. This project, being conducted under the supervision of Dr. Gloria Gutman, Director of Gerontology at Simon Fraser University, includes visits to all special care units (SCUs) in the Vancouver/Richmond , Simon Fraser, North Shore and Fraser Valley Health Regions and interviews with the Directors of Care. The interview will take approximately 45 minutes. Topics it will cover include the extent to which your SCU has implemented design guidelines for: awareness and orientation, safety and security, privacy, stimulation, functional abilities, personal control, continuity of self and social contacts. I will also ask questions regarding the history and development of the unit such as the number of years it has been opened, the number of residents living on the unit and the Head Nurses to resident ratio. I would also like to interview one member of your Head Nurses from the SCU. This interview will cover similar topics to your interview but will also ask the Head Nurses member to identify specific examples of how the aforementioned design guidelines are implemented on the SCU. This interview will also take approximately 45 minutes. All information provided will be kept confidential and all data will be reported without identifying the specific unit. You do not need to answer any questions you do not wish to answer and may terminate the interview at any time. Lastly, I would also like to tour the unit in order to complete a checklist of physical features.

I will be contacting you in approximately one week to arrange a meeting at your convenience. I am hoping to visit the facilities during the months of August and September. I would very much appreciate your input into my project. Your experience and expert advice in responding to my interview will help to develop future SCUs that are maximally responsive to the needs of residents with dementia.

Please do not hesitate to contact me at 291-8448 if you should require any additional information about the project. I look forward to meeting with you soon.

Sincerely,

Annie Rivard
M.A. Candidate, Gerontology

APPENDIX 7:

LETTERS TO DIRECTORS OF CARE

DIRECTORS OF CARE QUESTIONNAIRE
_____
SPECIAL CARE UNIT DESIGN PROJECT

INTRODUCTION

Thank you very much for agreeing to participate in this study. This questionnaire will help to collect information relating to the design of special care units. Specifically, it will examine the extent to which you believe the special care unit operationalizes the 9 therapeutic goals identified on the Professional Environmental Assessement Protocol (PEAP). The PEAP is a post-occupancy evaluation instrument that assesses nine dimensions of the environment such as privacy and stimulation. Your assistance in filling out this questionnaire is greatly appreciated. The information collected from this study will be used to further research into the area of special care unit design.

This questionnaire is divided into two sections. The first section comprises of the Professional Environmental Assessment Protocol (PEAP). Section two is the Rivard Directors of Care Questionnaire. The questionnaire asks you to describe how you defined each dimension of the PEAP. This questionnaire is designed to determine if you were clear in the interpretation of each dimension or whether you found this dimension ambiguous. Other topics in this questionnaire will include: the presence of behavior problems, the age of the building, whether the unit was built specifically as a dementia unit, and whether any renovations were made on the special care unit since it was opened.

If you have any questions or concerns regarding this questionnaire or the overall study, please do not hesitate to contact me at (604) 291-8448.

Sincerely,

Annie Rivard, Researcher.

APPENDIX 8:

DIRECTORS OF CARE QUESTIONNAIRE

PROFESSIONAL ENVIRONMENTAL ASSESSMENT PROTOCOL
SCORING PAGE (for Directors of Care)

Unit I.D. _____

[To what extent does your special care unit try to:]

[1] Maximize Awareness and Orientation
       (HIGH) 5 5- 4+ 4 4- 3+ 3 3- 2+ 2 2- 1+ 1 (LOW)

_____
_____
_____

[2] Maximize Safety and Security
       (HIGH) 5 5- 4+ 4 4- 3+ 3 3- 2+ 2 2- 1+ 1 (LOW)

_____
_____
_____

[3] Provision of Privacy
       (HIGH) 5 5- 4+ 4 4- 3+ 3 3- 2+ 2 2- 1+ 1 (LOW)

_____
_____
_____

[4] Regulation of Stimulation
       (HIGH) 5 5- 4+ 4 4- 3+ 3 3- 2+ 2 2- 1+ 1 (LOW)

_____
_____
_____

[5] Quality of Stimulation
       (HIGH) 5 5- 4+ 4 4- 3+ 3 3- 2+ 2 2- 1+ 1 (LOW)

_____
_____
_____

[6] Support Functional Abilities
        (HIGH) 5 5- 4+ 4 4- 3+ 3 3- 2+ 2 2- 1+ 1 (LOW)

_____
_____
_____

[7] Opportunity for Personal Control
        (HIGH) 5 5- 4+ 4 4- 3+ 3 3- 2+ 2 2- 1+ 1 (LOW)

_____
_____
_____

[8] Continuity of the Self
        (HIGH) 5 5- 4+ 4 4- 3+ 3 3- 2+ 2 2- 1+ 1 (LOW)

_____
_____
_____

[9] Facilitation of Social Contact
        (HIGH) 5 5- 4+ 4 4- 3+ 3 3- 2+ 2 2- 1+ 1 (LOW)

_____
_____
_____

RIVARD DIRECTORS OF CARE QUESTIONNAIRE

Questions:

1) How did you define each dimension of the PEAP? Where you clear in your interpretation of each dimension or did you find the dimensions ambiguous?

(i) Maximize Awareness and Orientation:

_____
_____

(ii) Maximize Safety and Security:

_____
_____

(iii) Provision of Privacy:

_____
_____

(iv) Regulation of Stimulation:

_____
_____

(v) Quality of Stimulation:

_____
_____

(vi) Support Functional Abilities:

_____
_____

(vii) Opportunity for Personal Control:

_____
_____

(viii) Continuity of the Self:

_____
_____

(ix) Facilitation of Social Contact:

_____
_____

2) Are there any behavioral problems on the unit?

3) How old is the building?

4) Was the special care unit built specifically as a dementia unit or did it serve another purpose? If it served another purpose please explain what that was.

5) Have there been any renovations to the special care unit since it was opened? If yes please explain what renovations took place.

6) How many residents live in the special care unit?

7) What is the staff to resident ratio?   Do you have records of this? Is this the same for day and night?

APPENDIX 9:

LETTER TO STAFF

STAFF QUESTIONNAIRE

_____

SPECIAL CARE UNIT DESIGN PROJECT

INTRODUCTION

Thank you very much for agreeing to participate in this study. This questionnaire will help to collect information relating to the design of special care units. Specifically, it will examine the extent to which you believe the special care unit operationalizes the 9 therapeutic goals identified on the Professional Environmental Assessment Protocol (PEAP).   The PEAP is a post-occupancy evaluation instrument that assesses nine dimensions of the environment such as privacy and stimulation. Your assistance in filling out this questionnaire is greatly appreciated. The information collected from this study will be used to further research into the area of special care unit design.

This questionnaire is divided into two sections. The first section comprises of the Head Nurses questionnaire of the Professional Environmental Assessment Protocol (PEAP). Section two is the Rivard Staff Questionnaire. The questionnaire asks you to describe how you defined each dimension of the PEAP. This questionnaire is designed to determine if you were clear in the interpretation of each dimension or whether you found this dimension ambiguous. A second question will ask you to think of anything that is not covered in the examples provided under each dimension in the Head Nurses questionnaire. This section will also gather any suggestions or recommendations that you may have on the future design of special care units.

If you have any questions or concerns regarding this questionnaire or the overall study, please do not hesitate to contact me at (604) 291-8448.

Sincerely,

Annie Rivard, Researcher.

APPENDIX 10:

STAFF QUESTIONNAIRE

PROFESSIONAL ENVIRONMENTAL ASSESSMENT PROTOCOL
Head Nurses Questionnaire

Unit I.D. _____

Maximize Awareness and Orientation
To what extent do you try to have a consistent daily program every day? So similar types of activities occur at roughly the same time every day?

_____
_____

How many of the social spaces have a clear identity for specific types of activities -- vs. rooms that are used for multiple purposes, and it's hard to tell what's going to take place?

_____
_____

Maximize Safety and Security
If there is equipment like stoves, coffee-maker, etc., to what extent are they available to residents vs. secured?

_____
_____

Provisions of Privacy
How is room-mate selection made? Resident choice, Head Nurses opinion about who would suit each other, what's open, etc.?

_____
_____

Being honest, about what % of the time to Head Nurses (CNAs and RNs) knock on doors and wait for a response before entering a bedroom?

_____
_____

Are residents encouraged to be out of their rooms every day, or can they choose where they want to be?

_____
_____

If a resident chooses to be in their bedroom, are they allowed to keep the bedroom door closed?

_____

_____

Simulation and Coherence

Over the course of the day, would you say there's a lot of noise from TVs, radios, PA systems, etc.? Includes both level and frequency.

_____

_____

Do you consciously plan when you have more physical activities, vs. more quiet and calming activities?

_____

_____

Support Functional Abilities

To what extent do you encourage residents to do things on their own (like dressing and grooming) even when it takes substantially longer?

_____

_____

Are cooking facilities available to residents? How available?

_____

_____

Are wardrobes routinely locked? For all residents or just some?

_____

_____

To what extent can residents keep personal grooming supplies and toiletries in their rooms?

_____

_____

Opportunities for Personal Control

How often are multiple and simultaneous activities taking place on the unit? i.e - do residents have much a choice about what they're doing?

_____

_____

Do all residents get up at the same time for breakfast? Are they encouraged to go to bed at a set time?

_____

_____

Continuity of the Self
To what extent can and do residents bring in furniture from home?

_____

_____

Facilitation of Social Contact
Can residents sit near the nurses station or other area where they can easily talk with others - particularly Head Nurses?

_____

_____

RIVARD STAFF QUESTIONNAIRE

Questions:

1) How did you define each dimension of the PEAP? Where you clear in your interpretation of each dimension or did you find the dimensions ambiguous?

(i) Maximize Awareness and Orientation:

_____
_____

(ii) Maximize Safety and Security:

_____
_____

(iii) Provision of Privacy:

_____
_____

(iv) Regulation of Stimulation:

_____
_____

(v) Quality of Stimulation:

_____
_____

(vi) Support Functional Abilities:

_____
_____

(vii) Opportunity for Personal Control:

_____
_____

(viii) Continuity of the Self:

_____
_____

(ix) Facilitation of Social Contact:

_____
_____

2) Is there anything that is not covered in the examples provided under each dimension in the Head Nurses questionnaire?

APPENDIX 11:

QUESTIONS FROM GUTMAN AND KILLAM (1989) STUDY

Questions from Gutman and Killam (1989) Special Care Units Study
to be used in comparison to present study

Head Nurses Interview Schedule Questions

The following questions will be used from the Head Nurses Interview Schedule

Questions:

B. Patient Behaviours: Question #9
9) I'm now going to read you a list of behaviors commonly shown by Special Care Unit patients. Considering the patients you work with, for each behavior I mention, please tell me:

     i)   whether most, some or few patients exhibit the behavior.
     ii)   whether you find the behavior very difficult, moderately difficult or not difficult to manage

[RECORD ON CHART]

	No. showing behavior			Difficulty of management		
	Most	Some	Few	Very difficult	Mod. Difficult	Not Difficult
a) Elopement/ unauthorized exiting	3	2	1	3	2	1
b) Difficulty wayfinding	3	2	1	3	2	1
c) Trespassing	3	2	1	3	2	1
d) Resistance to care	3	2	1	3	2	1
e) Inappropriate voiding or defecating	3	2	1	3	2	1
f) Smearing feces	3	2	1	3	2	1
g) Verbal aggression toward -other residents	3	2	1	3	2	1
-Head Nurses or volunteers	3	2	1	3	2	1

-visitors	3	2	1	3	2	1
	No. Showing Behavior			Difficulty of Management		
	Most	Some	Few	Very difficult	Mod. Difficult	Not Difficult
h) Physical aggression toward other residents	3	2	1	3	2	1
-Head Nurses or volunteers	3	2	1	3	2	1
-visitors	3	2	1	3	2	1
i) Repeated banging	3	2	1	3	2	2
j) Repeated chattering	3	2	2	3	2	2
k) Screaming or yelling	3	2	1	3	2	1
l) Anguish or crying	3	2	1	3	2	1
m) Other inappropriate verbalizations (specify)	3	2	1	3	2	2
n) Public sexual behaviors	3	2	1	3	2	1
o) Sexual behaviors toward Head Nurses	3	2	1	3	2	1
p) Spitting	3	2	1	3	2	1
q) Inappropriate eating behaviors	3	2	1	3	2	1
r) Trying to get out of bed or wheelchair	3	2	1	3	2	1
s) Unsafe smoking	3	2	1	3	2	1
t) Other (specify) 1.	3	2	1	3	2	2

2.	3	2	1	3	2	1

Coordinator's Interview Schedule Questions

The following questions will be used from the Coordinator's Interview Schedule:

I. Hospital Description and Demographics: Questions #1, 2, 4c, 11
1) In what year did your Special Care Unit open? _____

2) How many patients do you currently have on the Unit? _____

4c) What are the behavioral characteristics of patients in your Special Care Unit?

_____ (a) persons who are a danger to themselves
_____ (b) persons who are a danger to others
_____ (c) persons disturbing to those around them
_____ (d) persons with psychiatric problems (i.e. disturbed)
_____ (e) for assessment of causes and/or management of behavioral problem
_____ (f) ambulatory
_____ (g) other (specify)

_____
_____

11) What is the ratio of direct care staff to patients in the special care unit? _____

II. Special Design Features: Questions # 18, 19, 20, 21
18) What special design features does your hospital and unit employ to restrict exiting/elopement (a) activities; (b) unit floor/wing; (c) hospital?

	(a) From activities	(b) From unit, floor, unit	(c) From the hospital
a) None			
b) Multiple latching mechanisms			
c) Alarmed doors			
d) Masked door at unit exit			
e) Locked unit door			
f) Locked building door			
g) Personal restraint devices			

h) Electronic sensors			
i) Fences			
j) Other (specify)			

19) Does your hospital/unit provide secure wandering space?

     (a) within the building

           _____ (1) yes (specify)   _____
           _____ (2) no

     (b) outside the building

           _____ (1) yes (specify)   _____
           _____ (2) no

20) What specific design features does your hospital/unit employ to facilitate wayfinding and orientation?

   _____ (a)   none
   _____ (b)   extra large signs
   _____ (c)   picture signs
   _____ (d)   color coding (specify)   _____
   _____ (e)   textured walls
   _____ (f)   special landmarks (specify)   _____
   _____ (g)   picture of resident
                         on his/her room door
   _____ (h)   clocks/calendars
   _____ (i)   reality orientation
                         board with date, place,
                         weather
   _____ (j)   other (specify)   _____

21) What special design features does your hospital/unit employ to reduce sensory overload?

   _____ (a)   none
   _____ (b)   use pastel colors
   _____ (c)   background music
   _____ (d)   other (specify)   _____

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