

**Nothing is Traditional about Environments in a Traditional Nursing Home:  
Nursing Homes as Places to Live Now and In the Future**

**By**

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## **Nothing is Traditional about Environments in a Traditional Nursing Home: Nursing Homes as Places to Live Now and In the Future**

This paper focuses on the physical environments of typical licensed and certified nursing homes—i.e., the fixed, semi fixed, and unfixed components of the physical structure, the furnishings, fixtures, décor, and equipment, as well as the grounds and physical locations. Excluded from consideration are the backstage spaces such as laundries, central kitchens, the staff offices, and mechanical rooms. The intent is to discuss the living spaces that residents actually use in their daily lives and their clinical care. The comments on the status quo are based on the author's studies of nursing home environments in the last decade and, in large part, on detailed study of the physical environments of 1,988 residents in 40 nursing homes in 5 states.

Nearly 2 million people live in nursing homes (NHs), many for months and even years, and many others for shorter periods of post-hospital rehabilitation or terminal care. They are also places where people work and visit. With the advent of Medicare and Medicaid funding, NHs were constructed to emulate the hospitals of the 1950s with multiple-bed rooms located on long double loaded corridors. The space tended to be organized in nursing units or "halls" or "wings," housing 40 to 50 residents with a nursing station as the hub of activities. Over the next century this layout was duplicated across the country, designed to meet the minimum federal and state standards without attention to the value of the design for the residents making their homes there, how those spaces are actually used, how the designs correspond to cultural norms for living spaces, or alternatives that might better fit user preferences. Regulations and codes, particularly at state and local levels, have sustained this model, most often in the name of safety for the residents and ease of oversight for staff. (Note that the same codes that require heavy fire doors do not require automatic door openers which would greatly assist residents in venturing beyond their near environment to spaces beyond.)

### **Background**

#### Guidance for Senior Living Environments: What Theory Suggests

Ecological model. Elderly persons are subject to all the same norms and preferences regarding their living spaces as apply to others in their cultural subgroup, but those who qualify for nursing home residency typically have special housing needs that require a more supportive physical environment as the aging process continues. The Ecological theory of Lawton and Nahemow (1973) theorizes that resident behaviors are a function of the interaction of the resident's strengths and weaknesses with the physical, psychological, and social dimensions of the environment where they reside. Physical environments have the dramatic potential to contribute to a resident's functional abilities and quality of life by supporting resident strengths while reducing demands (Lawton, 1983; Lawton, Brody, & Turner-Massey, 1978). Behavior and affect (i.e. emotion) are outcomes of a person's level of competence (functional ability, mobility, cognition, biologic health) interacting with demands placed on a person by their environment (called environmental press). For example, the lower a resident's competence, the greater is his/her difficulty in counteracting the influence of a difficult environment. Higher functioning persons can adapt to environments that are not very supportive of their limitations, whereas less competent residents function at a diminished capacity. Excessive demand leads to negative outcomes while too little demand leads to lack of stimulation and limited use of the environment. As a resident's level of functioning changes the environment must respond to the different

demands if that resident is to enjoy their highest quality of life. Gerontologists rightly rely heavily on the ecological theory in environmental research, yet used in isolation, it can lead to over-emphasis on a specific population at the group level, neglect to take into account individual housing needs, and underplay the role of cultural norms and values in preferences and satisfaction. It may also emphasize how the environment stimulates competence and group social activities at the expense of considering how the environment fosters other desirable outcomes such as maintaining a sense of continuity and individuality (Cutler, 2007, p. 70).

Cultural norms. According to Morris and Winter (1991), individuals evaluate their housing conditions in terms of cultural norms and values, which in turn explains why particular types of housing fulfill individual needs, influence behavior in a person's environment, and predict housing satisfaction. Values serve as guidelines that assist the person in determining which norms are relevant to them. When some element or condition deviates from the norm or the condition has been defined as undesirable a deficit results which triggers stress of some kind. Stress can result in adaptation through changes in a person's accepted norm and/or pathology in the form of reduced well-being. The condition of one's housing must be compared with the cultural norm to ascertain the acceptability of the condition for the individual. Although considerable individual and cultural variation is found in a vision of "home," concepts such as control over who enters and what is done in the home ("my home is my castle"), freedom to arrange one's home as one pleases, privacy, ability to use personal possessions and decoration to make the home a reflection of one's identity are part of cultural norms for the home.

Most adults do not share their personal living space (especially bedrooms) with strangers, whereas most nursing home residents are required to do so, and thus the norms are challenged from the outset in most nursing homes. Privacy is a strong cultural norm in our country that has great impact on satisfaction with one's living arrangement. Such norms have become formalized by public housing agencies as they set standards for crowding, number of persons to a bedroom, maximum age for siblings of opposite sexes to share a bedroom and other space requirements. Early on, the American Public Health Association (1950) prescribed bedroom norm criteria as follows: consideration of privacy to insure rest during sleep; sex separation to maintain standards customary in our society; and age separation to eliminate friction which may result if persons of greatly different ages share the same bedroom (p.39). Although Federal regulations under Resident's Rights (4) Privacy and confidentiality, defines personal privacy as pertaining to accommodations, medical treatments, written and telephone communications, personal care, visits, and meetings of family and resident groups, nursing homes are explicitly not required to offer private room accommodations except when needed for medical reasons, including isolation. Federal and state regulations related to toilet rooms and bathing facilities offer little recognition of culture norms around the bathing and toileting functions or for norms of adults regarding consensual sexual relationships.

Norms for shared spaces, such as the common spaces in a single family home or the corridors and common spaces in an apartment complex, vary from those related to the sleeping and bathroom areas. Typically courtesy requires being fully clothed in those areas and cultural norms are such that many residents would perceive an assault on their dignity if their appearance while in these areas did not meet their standards. Many cultural and individual norms apply to preferences around choice and timing of meals, food use in general, and beverages (including alcoholic beverages, which may be excluded from some nursing home common areas by facility policy). To the extent that the resident's room in the nursing home is her home, she/he may have a strong norm to be able to entertain outside guests with food and beverages during the visit.

Maslow's Hierarchy of Needs. As nursing homes struggle to go beyond the medical model towards person-centered and person-directed care, success in that regard could be examined using Abraham Maslow's (1954) Hierarchy of Needs. The 5 levels of individuals needs are: 1) physiological needs (to eat, sleep, breathe, and be protected from the elements); 2) safety needs (feeling control over one's life and environment, and the security of an environment free from external and internal threats); 3) social needs (love, acceptance, association with other humans, being needed); 4) self-esteem needs (being accepted by others because of competence or mastery of a task, and attention and recognition from others); and 5) self-actualization (realizing one's full capabilities in terms of achievement and interpersonal relationships). Each one of those levels has environmental analogues. Ironically, because nursing homes focus so heavily on physiological and safety needs, the environments with their noise and constant light and confusion tend not to promote a strong sense of safety and residents often feel fearful. Design could also be better to help residents meet basic physiological needs for food, and physical comfort. Social needs—corresponding to our gregarious natures and tendency to form relationships could be more thoughtfully encouraged through better design and placement of congregate spaces to minimize distances traversed and to provide convenient restrooms for resident use so they dare venture from their rooms. Self-esteem is tied to sense of identify and can be affected by personalization and design of individual spaces, furnishings, access to and room for clothing and possessions, and many other features.

Environmental correlates of quality of life. Between 1998 and 2003, the University of Minnesota conducted a study to develop and test measures of quality of life (QOL) as outcomes for nursing home residents with an emphasis on psychosocial well-being (Kane, et al, 2003). We developed reliable and valid scales for resident self-reported QOL on 11 related dimensions or domains namely, physical comfort, safety, relationships, meaningful activity, enjoyment, functional competence (meaning being as independent as one wants to and can be), individuality, dignity, privacy, autonomy, and spiritual well-being. Each one of these QOL outcomes can be enhanced or harmed by the physical environment.

Near, intermediate, and distant environments. Graham Rowles (1998) has undertaken influential work on physical environments that takes into account the immediate environment and more distant environments of an individual. This is important in nursing homes where all residents experience the environment of their bed and the space around it and views from it and the bathrooms they use, and only some residents experience the full unit environment, and even fewer experience the full facility environment. Whether a given resident experiences the environment of the whole facility depends in part on facility size, resident abilities, and facility policies and practices that facilitate or hinder residents in heavy care or locked units to gain access to some of the spaces they might enjoy. Our approach to data collection described below attempts to determine which environments each individual accesses and utilized specific assessment of each resident's near environment rather than relying on average ratings of the bedrooms in a unit.

#### Approach to Paper: Sources of Information

The insights in this paper are based on the author's study of physical environments in representative samples of nursing homes over several decades, and her recent review of all federal and state regulations that pertain to nursing homes in general and the physical environment in particular. In particular, three studies have helped inform the paper.

The National Quality of Life (QOL) Study. This study was conducted between 1998 and 2003 as a contract with the Centers for Medicare & Medicaid Services (CMS) with the general

objectives of developing and testing measures of QOL largely based on resident-self-report, determining how physical environments including private rooms affected (QOL), and determining whether NH staff could assess resident QOL and physical environment reliably in comparison to research interviewers. Detailed environmental data were collected that pertained to the specific environments of 1,988 residents in 131 nursing units in 40 NHs located in 5 states (MM, FL, CA, NY, NJ) (Kane, et al, 2003). The NHs were randomly selected from the list of certified facilities with 50 or more beds in the geographic areas, stratified to be evenly divided between rural and urban NHs and large (100beds+) or small homes. Before this stratification was done, one home was selected per state based on peer nominations of homes that were thought to offer unusually high QOL, and, if possible, 2 homes were chosen with 75% or more residents in private rooms, and these were slotted into the rural/urban and size categories. In each home, residents were selected in random order for a stratified sample that included 50% in the poorer half and 50% in the better half for cognitive functioning, 20% (if possible) in private rooms, and as much as possible divided into up to 5 units in the facilities. If the facility had more than 5 units (a rare occurrence), units were randomly selected after inclusion of any dementia SCU or rehabilitation unit in the NF. The sample for each state included a nursing home identified as exemplary and a few with enhanced privacy standards, with the majority of the homes reflecting the typical standard in the geographic area. At the resident level, the aim was a sample of 2000 (50 residents per facility), but given less than full occupancy in some small facilities and exclusions of comatose residents and those under 65, the final sample was 1,988.

Data collection on physical environments of each of the 1,988 residents involved separate assessments at 3 levels: the resident's bedroom and bathroom space (which could be an entire room or a space in a shared room), the resident's nursing unit, and the facility as a whole. Each level resulted in a checklist of environmental features: the resident room and bath (112 items), the nursing unit (140 items) and facility level (134 items). The room and bath checklists were completed by 40 research interviewers during a 2-3 week period of general data collection in the nursing facility, during which they performed all study procedures including interviews and observations of staff-resident interactions. Prior to going into the field, the interviewers were trained by myself on the room and bath checklists using classroom teaching and a practicum experience in volunteering facilities. The checklists required no equipment other than a ruler and a walking tape measure. To pass the training, each interviewer needed to achieve at least 90% agreement with the trainer on a simultaneous assessment; inter-rater reliability was checked by a small number of duplicated room and bath checklists in each facility. Fist tests were used to determine the functionality of drawer pulls, light switches, faucets, and the like. Lois Cutler visited all 40 facilities and personally completed the unit and facility checklists. At that time, she performed elaborate lighting assessments in various locations, including a typical bedroom on each unit, and after each visit, she turned her detailed field notes about each facility into a descriptive narrative.

To reduce the data for analytic purposes, the large numbers of variables were combined to develop composite indices of relevant environment constructs. Within each index, we assigned individual items a value of one for their presence and a value of zero for their absence, and we summed items into an overall index score to measure properties such as (at the room level) personalization, visual privacy, storage, resident control, (at the unit level) function enhancing features, life-enriching features, clutter, noise, odors, bathing experience, (at the facility level) amenities, life-enriching features, function-enhancing features, and outdoor space. Dining experience was measured from unit-level and facility-level data. Using both single items

(including distances needed to be traversed within units and to facility locations) and composite indices, we were able to examine the extent of environmental variation within and across facilities.

Practical Strategies to Improve Physical Environments in Nursing Homes. With funding from the Retirement Research Foundation, the author led a Minnesota project in volunteering nursing homes that entailed their self-assessment and her assessment of the physical plants and recommendations about the kinds of changes that could be made either within normal annual budgets for maintenance or low-cost capital improvements. The study revealed the value of facilities undertaking self-assessment of their environments with “fresh eyes,” the kinds of strategies that could be readily undertaken to improve those environments, and the acceptability of or resistance to those ideas.

NHRegsPlus. In 2005, the University of Minnesota was awarded a grant from the Hulda B. and Maurice L. Rothschild Foundation, Chicago, Illinois for a searchable web-based project called: *Comparing State Regulations Affecting Nursing Homes: Implications for Culture Change and Resident Autonomy*. The impetus to this initiative arose because regulatory barriers are widely cited for failure to allow innovation in nursing homes in ways that increase resident autonomy and quality of life but no convenient repository existed for actual state regulations and the way that they are applied. Our goals for the website include: 1) create an authoritative resource for nursing home regulations that apply to nursing homes within each state; 2) create a vehicle for analyzing differences among state regulations and differences between those regulations and minimum requirements; 3) create a repository for comparative analyses of how regulations support or impede culture change directed at increasing resident autonomy and quality of life while maintaining safety standards; 4) create a resource that permits users to search state regulations according to states and topics; and 5) to study models of regulations and regulatory practices, and create a focal point for dialogue and discussion about nursing home regulations.

## **Typical Nursing Home Environments**

In the remainder of the main body of this paper, I describe typical nursing home environments in the United States at the beginning of the 21<sup>st</sup> century, drawing on all three studies described in the previous section, but particularly the QOL study of 1,988 residents' environments. The summary results are presented by topic and framed by a review of regulatory requirements on the topic. Recommendations are included in the various sections, but are also consolidated, along with some general recommendations, at the end of the paper.

### **Resident room and bath.**

#### **Bedrooms.**

As shown in the box below, federal regulations for resident bedroom spaces are minimal. Some state regulations go beyond the minimum federal scope and others move in a direction of specificity that detracts from resident flexibility.

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(d) *Resident rooms.* Resident rooms must be designed and equipped for adequate nursing care, comfort, and privacy of residents.

(1) Bedrooms must- (i) Accommodate no more than four residents; (ii) Measure at least 80 square feet per resident in multiple resident bedrooms, and at least 100 square feet in single resident rooms; (iii) Have direct access to an exit corridor; (iv) Be designed or equipped to assure full visual privacy for each resident; (v) In facilities initially certified after March 31, 1992, except in private rooms, each bed must have ceiling suspended curtains, which extend around the bed to provide total visual privacy in combination with adjacent walls and curtains; (vi) Have at least one window to the outside; and (vii) Have a floor at or above grade level.

(2) The facility must provide each resident with - (i) A separate bed of proper size and height for the convenience of the resident; (ii) A clean, comfortable mattress; (iii) Bedding appropriate to the weather and climate; and (iv) Functional furniture appropriate to the resident's needs and individual closet space in the resident's bedroom with clothes racks and shelves accessible to the resident.

(e) Toilet facilities. Each resident room must be equipped with or located near toilet and bathing facilities.

**483.15 Quality of life**

(h) Environment. The facility must provide - (1) A safe, clean, comfortable, and homelike environment, allowing the resident to use his or her personal belongings to the extent possible; (2) Housekeeping and maintenance services necessary to maintain a sanitary, orderly, and comfortable interior; (3) Clean bed and bath linens that are in good condition; (4) Private closet space in each resident room; (5) Adequate and comfortable lighting levels in all areas; (6) Comfortable and safe temperature levels; (7) For the maintenance of comfortable sound levels.

When assessing the bedroom space of a resident, whether in a single room or multi-bed room, it is useful to visually and conceptually break down the total space into the entry, resting/sleeping space, personal/social space, and the toilet area. This conceptualization facilitates assessing items specific to an individual resident in their shared portion of the room. For example, in a multi-bed room the curtain delineated the separation of the sleeping spaces making it easy to identify which portion of the room was devoted to each resident.

In the QOL study, most sampled residents resided in shared two-bed rooms (58%), with 580 residents (29%) in a private room, 178 (9%) sharing a 3-bed room, and 78 (4%) in a 4 or more bed room. Federal regulations require that bedrooms accommodate no more than four residents yet in our study we found rooms that accommodated 6 persons.

To better understand how personalized each resident space was we developed a seven item Personalization Index that included: personal photos which were present in 85% of the resident's personal space; door personalization (39%); resident's own chairs (30%); individualized bedspread (29%); individualized lamp(s) (18%); resident's own bureau (18%) and individualized drapes (08%). Other than personal photos, few resident rooms were personalized to the resident who lived in the space.

To better understand what features or items a resident had in their space that could enhance a meaningful activity, comfort, relationship, and enjoyment, we developed a 15 item Life-Enriching Features Index. The results were dismal; 23% percent did not have a single chair in their portion of the room, 13% lacked a single life-enriching item of those measured in their living space; 40% lacked a television, 1% had a bed larger than a single bed; 1.5% had a small dorm sized refrigerator and only 12.5% had a horizontal work or desk surface. With space at such a premium in resident rooms, especially shared rooms, effort should be made by the facility to provide a desk or at the least a flat surface for residents to use for hobbies, puzzles, and so on. In our study of ways to enhance existing spaces, we found that a simple fold-down shelf attached to the wall, commonly found at any home improvement store, would provide space for a private activity.

In a few facilities (very few and mostly in private rooms) resident rooms were personalized, hobbies were evident and a sense of home was prevalent. In one facility, a resident who was on her daily walk around the facility invited me to visit her “home”. It was obvious that except for the bed and mandatory night stand, the resident had brought furniture from her former home. She was especially proud of the large trunk that her ancestors had used when they came to this country.

In another facility the design of the space was ahead of its time when it was built in the 1970’s. The rooms and baths were all private, the windows in the rooms were large and low with an oversized window sill and the doors were especially wide. A unique feature was a small alcove area outside each room off of the corridor. This alcove, complete with chair(s) and table, served as a social space where residents could entertain but more importantly it served as a buffer between the very public shared space of the corridor and the inner sanctum of the resident’s room.

### Storage in Resident Room

Storage or the lack thereof, is an issue in just about every nursing home, whether it is new construction or old construction. The Federal regulations for storage require private

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- (2) The facility must provide each resident with -
- (iv) Functional furniture appropriate to the resident’s needs and individual closet space in the resident’s bedroom with clothes racks and shelves accessible to the resident.

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- (h) Environment. The facility must provide -
- (4) Private closet space in each resident room;

closet space in each resident room and individual closet space in the resident’s bedroom with clothes racks and shelves accessible to the resident. One could quibble over the difference between “private” and “individual” space with private referring to locked storage space and individual space referring to specific space shared with nobody even a roommate, but it is difficult to question the meaning of accessible clothes racks and shelves. Although 65 percent of our QOL sample used wheelchairs, only 7 percent of the closet rods were located 36 to 48 inches (91 to 122cm) from the floor or in other words were accessible. I vividly remember a resident sitting in her wheelchair by her door waiting for a caregiver to answer her call button and retrieve a sweater for her because she could not reach the sweater. A few state regulations address rod accessibility by 1) requiring rods to be an adjustable height to provide access by resident in wheelchairs, 2) rod be adjustable to meet the needs of the resident, and 3) reasonable closet and drawer space with shelves and drawers positioned at a height that accommodates the needs of the resident. Arguably too, in shared rooms, each resident’s storage space should be in his or her own section of the room; we often found that one resident had best access to the closet whereas the other one had best access to the window. Only 37 percent of our sample had storage space that could be locked. Pennsylvania requires that a resident shall be provided with storage in resident’s room that can be locked. If locked storage is not provided in the resident room, there should be some option for secured storage elsewhere on the unit or in the facility that is easily accessible to the resident. Generally, additional out-of-room storage would be an asset, particularly if closet and drawer space is cramped in resident rooms.

Federal regulations do not address bathroom storage and most states are silent on requiring bathroom storage of any size or at the most require a shelf large enough to accommodate a resident’s personal toilet accessories unless space is provided by a suitable sink

or a counter. Less than half (41%) of our sample had any counter space available around the bathroom sink and only nine resident bathroom environments had storage space sized (at least 2'x2'x2') to accommodate incontinence products, necessitating staff to go outside the bathroom space for incontinence supplies. In 14% of resident toilet rooms, incontinence products were visible during the assessment. In one facility a resident impatiently sat at the entrance of her room waiting for someone to answer her call to assist her with retrieving a roll of toilet paper from the high shelf it was stored on. As simple as it is, accessible storage in resident rooms and bathrooms would go a long way towards resident independence, choice and autonomy in addition to staff efficiency. Providing additional storage in resident rooms and baths should be a priority of nursing facilities. With the multitude of home-improvement retailers available that sell storage components in all shapes, sizes and price ranges it would not be difficult or costly to retrofit existing rooms with additional storage.

### Resident Bathrooms

Privacy and ease of access to a bathroom is a prime consideration for residents and staff in providing care. Federal regulations require each resident room must be equipped with or located near toilet and bathing facilities. The meaning of “near” is the unknown quantity in this regulation. Our study found 251 residents (13%) needed to travel from 3 to 82 feet (0.91 to 25m) outside their immediate room to a shared bathroom down the corridor. For many of these residents commodes were placed in their immediate rooms, trading off dignity and privacy for convenience. The number of residents sharing toilets ranged from 2 to 20. Twenty five percent of the 1,988 residents had a private bathroom (although 19% of private rooms lacked a private toilet room), 42 percent shared a bathroom with one other person, 18 percent shared with 4 other residents and 9.6 percent shared with 5 to 20 other residents. Some state regulations are specific as to the ratio of toilets per bed with the range being 1 toilet per 4 beds to 4 patient toilet facilities for each 35 beds. When a facility has a mixture of private and shared bathrooms, the number of residents sharing a toilet could reach 20 when the average is taken for the entire facility. It is questionable that 20 residents using a single toilet room was the intent of a state regulation that specifies a maximum ratio of 4 beds per toilet.

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(e) Toilet facilities. Each resident room must be equipped with or located near toilet and bathing facilities.

The bathrooms varied in size, generally not in relation to how many residents used the toilet room but by when the nursing home was built with some older bathrooms not handicap accessible requiring a wheelchair transfer to be made outside the bathroom entrance. Eighty percent of the bathrooms had grab bars next to the toilet. Sixty six percent of the toilets were located at least 17 inches from the floor while the remaining 34 percent were lower to the floor making transferring from a wheelchair difficult. It was frustrating to see that less than one third of the sink hardware was of a lever style that passed the fist test. At the minimum, lever hardware, preferably single lever hardware, should be installed in all sinks that residents use.

### Nursing Unit Nursing Station

**483.70 Physical environment.**

- (f) Resident call system. The nurse’s station must be equipped to receive resident calls through a communication system from –  
(1) Resident rooms; and (2) Toilet and bathing facilities

In the Federal regulations, the nurse's station is addressed only in reference to a place to receive resident calls. In contrast many state regulations for nurse's stations are very detailed and specify minimum space requirements per beds on unit, the maximum distance from residents' bedroom door to nursing stations and visual control of corridors. The required distance range from 120 linear feet to 150 feet although Texas specifies the normal travel for nursing efficiency is considered to be not over 85 feet and must not exceed 150 feet. States differ in regulations for visual control of corridors with Illinois specifying that the location of the station shall allow visual control without the use of mirrors and in Kansas the facility may use television cameras and monitors to meet the requirement.

There were several innovative nursing stations but the majority of the stations assessed were the traditional behind-the-counter station with residents parked in front of the counter and staff stationed behind the counter. Indeed, Texas encourages this classic design by requiring an open or enclosed seating space be provided within view of the main nurse station that will allow furniture or wheelchair parking that does not obstruct the corridor way of egress. One facility with long corridors placed "satellite" desk stations with adjacent chairs for resident seating midway down the corridor (thereby reducing the corridor width) while a household model utilized a small counter and cabinet space on the wall next to the dining room table. Nursing stations as command posts will disappear with the increased use of wireless technology. The obsolete classic design should be replaced with multiple small desk stations large enough to hold a computer and placed in lounge and dining areas where staff can share the space with residents and not be isolated behind a counter.

#### Lounge/activity space.

Lounge and activity space varied from 20 units that lacked even a single lounge space for resident use located directly on the unit to 7 units that had 4 separate lounges on the unit. One facility with 3 units and all private rooms also had 4 lounges located on each unit. These lounges were used more for group activities than solo activities as residents tended to stay in their rooms throughout the day. At the other extreme, a 152 bed facility with the majority of 3 or more person rooms (including 6 person rooms (which is against CMS regulations) and no private rooms) had limited shared space. When the square footage of all shared space, including dining space, was accounted for, each resident's share would be 17 sq. ft or a space about only 2ft X 8 ft.

Sixteen life-enriching features were assessed in each lounge space. A telephone was available 88% of the time followed by television (76%), large-print reading material (50%), a daily newspaper was available to residents in 32% and a pet lived in 22% of the units. Availability of telephones for residents is addressed in Federal regulation. States differ widely in their requirements for telephone access with one state requiring the nursing home *must provide 24 hour access* to a telephone for resident use which: provides auditory privacy, is accessible to a person with a disability and accommodates a person with sensory impairment; is not located in a

#### **483.70 Physical environment.**

(c) Space and equipment. The facility must-

(1) Provide sufficient space and equipment in dining, health services, recreation, and program areas to enable staff to provide residents with these needed services as required by these standards and as identified in each resident's plan of care;

(g) Dining and resident activities. The facility must provide one or more rooms designated for resident dining and activities. These rooms must -

(1) Be well lighted;

(2) Be well ventilated with non-smoking areas identified;

(3) Be adequately furnished; and

(4) Have sufficient space to accommodate all activities.

#### **483.10 Resident Rights**

(k) Telephone which requires: the resident has the right to have reasonable access to the use of a telephone where calls can be made without being overheard.

staff office or a nurse's station; and does not require payment for local calls. Another state stipulates the resident has the right to have *reasonable access* to the use of a telephone (other than a pay phone), where calls can be made without being overheard, and which can also be used for making calls to summon help in case of emergency. The facility must permit residents to contract for private telephones at their own expense. The facility must not require private telephones to be connected to a central switchboard. It is unfortunate that in this time of high technology, access to a telephone needs to be addressed as a right not a necessity. Nursing homes should not only provide telephone jacks in each room (for those residents who do not use wireless) but should also provide cable access and internet access.

Multi-purpose rooms were common and often problematic with the space not well defined for particular leisure activities, lounging or dining. One facility solved the space problem by literally raising the 22 tables to the ceiling following each meal with the chairs remaining on the floor. Another facility simply moved the residents from lounge chairs in one corner of the room to dining chairs in the other corner of the room or just pushed wheel chairs to the table when food arrived. In this facility, absolutely no effort was made to create a separate and enjoyable dining experience - no placemats, no tablecloths, no flowers or decorations, just a tray with food on it served in a table in the opposite corner from the lounge space. Most facilities have limited shared spaces or options for residents to use beyond their room or portion of their room and multi-purpose rooms reduce the options even further. Facilities should avoid multi-purpose rooms and if unavoidable, the spaces should be delineated to specific uses such as reading space, dining space, television space, quiet space, activity space, etc. As many facilities move to a household model, I am concerned that unless concentrated efforts are made to separate the spaces into different functions the household will ultimately become a large multi-purpose room.

Resident access to toilets near lounge/dining space was a common problem in many facilities. Often the toilets were locked or were designated for visitor or staff use only. In one facility, with an incredible Town Center area, the 2 closest bathrooms were locked and even though the residents could use the bathrooms, it was necessary to travel 59 feet beyond the Center area to a concierge station to retrieve the key. In another facility, directly inside the vestibule lobby were 2 public toilets but the only way to open the doors to the toilet was by using the handle located very high up on the door. So often toilets are locked to keep residents out but in this case a visitor using a wheelchair would be unable to use the room without assistance. Time and again, residents expressed frustration over lack of access to toilets in common areas. The bathrooms in our own homes are not locked from the outside nor are signs posted on the adjacent wall that state the "use of the bathroom is reserved for visitors", yet these signs were commonplace in most facilities. Residents can read! Not only are the signs incredibly unkind and despicable but they taking away the right of a resident to use the bathroom as needed and for residents with urgency on urination the policy undoubtedly confines many residents to their room.

One innovative facility successfully created households from a former medical model unit with a double loaded corridor configuration. On each floor, the first resident rooms on both sides of the corridor were renovated into a lounge, nursing station, dining room and kitchen. The main area measured 42' by 20' with the kitchen area measuring 14' by 9'. The desk that accommodated the nursing station was along one wall. A full kitchen, including a dishwasher, supported the dining service. Hot food for meals as well as food supplies to stock the kitchen was brought up from the main facility kitchen. Meals were served family style at large tables with the

provision that residents could eat at their leisure with the option of preparing food in the kitchen. During my late morning visit, residents, staff and visitors were sitting around the table enjoying conversation and coffee.

### Dining.

Only 12% of unit dining environments were dedicated solely for dining purposes with most spaces being multi-purpose rooms accommodating dining, activities and general lounge functions. The residents on 33 units traveled to a different unit or central location for dining with the maximum distance from the entrance of a unit to the main facility dining room being 348 feet. We assessed the dining experience using the following nine items: pictures on wall, window(s) in dining room, contrast between dishes and table; table cloth or place mats, posted menu; centerpieces; kitchen appliances for resident use; room used for dining only and menu lettering more than ½ inches in height. Pictures on the wall (72%) and windows in the dining room were fairly common (70%) but amenities such as table cloth or place mats were available in only 23% of the dining rooms and contrast between dishes and table and dishes and food was available only half (49%) of the time. Mealtimes are anticipated events for most nursing home residents as evidenced by residents who routinely wait outside the often closed dining room door until the appointed time, yet little effort is made to create a varied and pleasurable dining experience. Dishes are usually monochromatic shades of pale green or pink and residents are expected to drink black coffee out of a black cup with the assumption that the “bib” the resident wears will absorb the inevitable spill of coffee. Facilities should put more emphasis on mealtimes. *Bon Appetit!* (2001) is a useful resource with ideas for changing dining from a necessity to a pleasurable experience.

The number of dining rooms within a facility differed greatly as did dining amenities. In one facility, with 2 nursing units, the residents had 6 dining location options. The residents had a choice of eating in any one of several dining rooms as well as in the cafeteria located in the adjoining main building. In addition to meals, snacks were available in the cafeteria throughout the day. Residents could eat in a different dining room for all 3 meals if they chose. The food cart came from the kitchen with the assigned meals and staff located the resident. Some facilities worked hard at creating a pleasant dining experience. In one dining room, a large grandfather’s clock, high ceiling, beautiful drapes, condiments including conveniently sized salt and pepper shakers on each table and two unlocked bathrooms within the dining room space enhanced the resident’s dining experience. In another, the administrator explained a goal of the facility is to provide a special dining experience. As such, she hires only chefs trained at the Culinary Institute of America and the wait staff wears uniforms. Another facility was very proud of its special dining room, where residents who were able to eat independently “earned” the right to dine. This room was lovely with low windows, beautiful drapes, and flower centerpieces on the tables, tablecloths, cloth napkins and even water goblets. This room had table settings for 24 residents. The other dining room for those who needed assistance, however, was larger 57 ft X 30 ft and did not include amenities such as centerpieces or tablecloths treating each group very differently from one another.

At the other extreme, capacity in the two facility dining rooms (one for independent eating and one for resident assisted dining) could only accommodate 41% of the residents for each meal so residents were required to eat from trays in their rooms or in the corridor. In the independent dining room, residents came into the room, took a chair from a stack of chairs and sat down. There was no assigned seating because different residents ate in the dining room each

day. This dining room had seating capacity for 32 persons and the other dining room had capacity for 30 more residents. Because there were 152 residents in total and only one seating at each meal accommodating 62 residents, the other 92 residents ate from trays either in the corridor or in their room. One resident said he would love to eat in the main dining room each day but on most days staff tells him he must eat off a tray in his room. Lack of dining space was a common problem in other facilities as well. The solution in one facility was to place two additional tables in the corridors for the residents to eat at. This area was right off of the elevators so the tables were an obstacle during meal time even though they were removed following each meal. Those residents who are fortunate enough to live in nursing homes that have adopted the household model and person-centered living enjoy meal times as they remember – eating food that has been prepared in their household kitchen – just like home. Unfortunately the vast majority of residents do not enjoy this luxury. To achieve a similar effect, I recommend that nursing homes decentralize their central dining service into smaller dining rooms located throughout the facility. A dining table could be located in a library, in the room with the fireplace, in the sunroom or lounge. A wonderful facility did just this and staff reported no additional effort, just increased resident pleasure.

Many nursing facilities in use today were built 40 years ago and designed for a healthier more mobile population. Today, most of the residents need assistance with transportation to the dining room. One facility in particular spent a huge amount of staff time transporting residents to the basement dining room using a single slow hydraulic elevator. Staff began lining up the residents in their wheelchairs at 11:00 am in single file along one side of the corridor near the elevator. This holding space was delineated by a red taped line on the corridor floor. The residents just sat there in single file waiting to be pushed, six at a time, onto the elevator. These same six residents were then loaded off of the elevator, pushed to the entrance of the basement dining room where a different staff member pushed them to their assigned seat. The dining room was a very large room with small windows near the ceiling that provided little light and no view. The room was designed as a cafeteria with a long steam table. Residents did not move along the cafeteria line rather, staff filled the plates and brought the food to the waiting residents. Once finished, the same six residents were pushed to the dining room entrance where a different staff person returned them to their unit. It is sad enough that these residents were forced to accept assembly line dining, but even worse that they had no opportunity to choose their own food. I recommend that nursing homes offer cafeteria style dining in at least one of their facility dining rooms. It provides residents with food choices, is cost effective, wastes less food and provides residents with an alternate to the regimented tray served meal.

### Shower/tub room.

Bathing is a common function that often is a source of agitation for both residents and staff. Federal regulations require each resident room be equipped with or located near toilet and bathing facilities. Some state regulations are quite specific as to the required number of showers and tubs per resident beds but most states allow bathtubs or showers to count interchangeably resulting in facilities that only had a shower or a tub, not both. The minimums that states require range from 1 bathtub/shower for 10 residents to 1 bathtub/shower for 30 residents. The number of shower/tub rooms on individual units in the study varied from 10 units without a shower/tub room to 5 units that had 3 such rooms. The CMS regulations require that a resident room be located “near” toilet and bathing facilities yet the distance

**483.70 Physical environment**  
(e) Toilet facilities. Each resident room must be equipped with or located near toilet and bathing facilities.

from the farthest resident room on the unit to the nearest shower or tub room ranged from 20 to 270 feet. I recommend that CMS define “near” in terms of measured distance. In addition, I recommend that in new construction or renovations, showers be located in all resident rooms and that existing nursing homes repair any inoperable shower/tub rooms, escort residents to the shower/tub room nearest to their room (not the one way down the hall that has the convenient scale), consider using a portable tub system that travels from room to room, avoid heavily used corridors if possible and provide each resident with a lovely terry-cloth bathrobe.

It is unfortunate that regulations do not specify the expected condition of those shower/tub rooms. Possibly because visitors do not routinely see shower/tub rooms and surveyors do not often survey the shower/tub rooms, the majority of the 167 shower/tub rooms assessed were dark, dank, dismal places to bathe and work, most neglected in maintenance and void of decorations. A toilet and sink were located in the shower tub room 63 percent of the time although only 38 percent of the toilets were in a separate enclosure. Amenities such as heat lamps were found in only 15% of the rooms, sink mirrors tilted for wheelchair use were in only 12 % of the rooms and not a single towel warmer was available. I recommend that surveyors look into all spaces that residents routinely use, including shower/tub rooms, and assess the space for environmental features the same way they do for other spaces in the nursing home.

In addition to providing space for bathing, the rooms were used for other functions, most often storage. In one facility, a room that contained a functioning tub was transitioned into an office and treatment room. A sheet of plywood was used to cover the tub thereby turning the tub into a desk and taking the only bathtub in the entire facility out of commission. In several facilities, the shower/tub room was used to store recycled cans. In one facility, huge plastic bags filled with hundreds of empty pop cans, waiting for recycling, would need to be moved if a resident requested to use the toilet area in the tub room. In another, the cat resided in the tub/shower room. Litter box, toys, food and cat bed were all located in the room. A small door was cut in the lower half of the door leading to the corridor so the cat could enter and exit at will. Needless to say, this arrangement did not help to control the odor in this confined space. In another, storage of wheelchair parts along with clothes and underwear were strewn about. A hairbrush was placed on a chair within the room. Judging from the different colored hair on the brush it appeared to be a community hairbrush. In another, only one functioning tub and shower was available for 60 residents. One staff member spoke of her frustration that two residents were routinely scheduled to use the tub/shower room at the same time.

A few facilities have created pleasant, well maintained shower/tub rooms. In one facility, two identical shower/tub rooms are located on each unit. These rooms are well lighted, very clean and pleasant to be in. Radiant heat panels in the ceiling provide extra warmth and comfort. The tub is placed in the main part of the room with shower stalls towards the side of the room. There is a shampoo bowl in each room as well as a long counter with a decorative lighted mirror, hair dryer and comfortable chairs. Several family members used the space to wash and curl their family member’s hair. In contrast to the usual drab and foul smelling shower curtains, one facility created a pleasant environment using a shower curtain with a whimsical pattern of fish and shells and carrying the motif throughout the room with decorative towels, soap dispensers and wall coverings. These were not expensive items; they just required some initiative by the staff to improve the room and a few minutes of internet shopping. I recommend that every nursing home administrator take a few minutes and look behind the closed doors of their shower/tub rooms and evaluate if they would like to take a shower/bath in that room. If not, immediately take steps to improve the room.

### Corridor clutter.

Federal regulations require that a resident room have direct access to an exit corridor and corridors are to be equipped with firmly secured handrails on each side. A memo from CMS (Hamilton, 2006) which included comments regarding corridors, reiterated the Life Safety Code requirement (LSC Tag K39) of 8 foot corridors with the rationale that corridors remain a route to use in the internal movement of residents in an emergency situation which may require the full width of the corridor. Contrary to Life Safety Codes, nursing home corridors are notorious for being cluttered.

To determine if corridor clutter is simply an unsubstantiated perception or if indeed corridor clutter is quite prevalent in the corridors of nursing facilities we assessed clutter using a ten item checklist that included the following: Hoyer lifts, commodes,

medical equipment; laundry carts; housekeeping food tray/dietary

containers; incontinence product disposal bins; trash containers; weight scales; and other. In all facilities the corridor width was the required 8 feet but in most that width was greatly reduced by objects stationed in the corridors (in many cases permanently) or the handrails were totally useless because they were obstructed by large items. Only 12 units (9%) had no clutter, whereas 3 units had all 10 types of clutter. Hoyer lifts, commodes, and other medical equipments were the most common type of clutter, present in 58% of the units, followed by laundry carts (48%), housekeeping carts (48%), other clutter (47%), clean linen carts (41%) medicine carts (32%), incontinence product disposal bins (22%), trash containers (18%) and weight scales (15%).

Possibly because of lack of storage or probably because of lack of oversight the amount and types of clutter in the corridors was staggering. In one facility, the corridors were designated storage areas with instructions posted on the corridor wall for staff to place all items within the red lines which were painted on the corridor floor. Unfortunately, the red lines continued down one side of all corridors making the handrails inaccessible to residents who depended on them for their mobility. I watched the challenge that one resident, with only one functioning arm, faced as he tried to navigate his way down the corridor and then return to his room using only one side of the corridor. In another facility, signs designated storage protocol for the corridors. An example on point is laundry barrels - gray barrels are for on-site wash and white barrels are utilized for laundry that goes to the Mission Laundry. In another facility that was heavily invested in the Eden Alternative, the corridors were cluttered with accommodations for the 15 cats, 8 dogs, a multitude of bird cages and greenery planting boxes. In addition to the clutter that was intended to enrich the lives of the residents, the corridors of the main level were cluttered with extra beds, extra chairs, cleaning equipment.. Once the dishes were washed from lunch they were also stored outside the lounges in the corridor for the next use.

In a facility that was located in a wing of a hospital, the first gurney observed in our study appeared. The unfortunate part was that that there was not just one gurney but several gurneys stored in the space. In addition, the physical therapy staff used the corridors as part of its therapy space and they became very crowded. In one facility corridor, a leg prosthesis and battery charger took up residence along with the Kleenex box and box of rubber gloves balanced on the handrail.

One facility attempted to create a pleasant home-like and well decorated lobby space by removing the handrails from the walls because they appeared “too institutional”. (However, this is out of compliance with CMS regulations requiring handrails.) The redecoration of the lobby

#### **483.70 Physical environment**

(1) Bedrooms must-

(iii) Have direct access to an exit corridor;

area was quite dramatic with abundant use of floral wall-paper and brightly patterned carpet. But without the handrails, many residents were “hugging” the walls for support as they made their way to the dining room.

We noticed that staff became oblivious to the clutter. This was particularly evidenced when we performed reliability tests with staff members doing walk-throughs together with research observers and each checking a protocol for clutter, noise, and noxious smells. In debriefing for discrepancies afterwards, staff explained their failure to note the presence of clutter by saying that they knew particular things were there for a reason so they didn’t consider it to be clutter.

### **Facility-Wide Features**

Amenities found at the facility level are important to many residents because they provide a world beyond their individual rooms and units – a larger community of sorts for those who can or are allowed to take advantage of it. A chapel or meditation room was found in 16 facilities (40%), library, reading room, or book carts (62%), gift shop that was accessible to residents in a wheel chair (33%), coffee shop or snack bar (30%), children’s play area (30%), café for light meals (15%) and one facility had a child day care (which was not convenient for staff because the hours did not correspond with their shifts). It is becoming much more common for nursing homes to devote space for on-site medical and dental clinics.

In one facility an ambitious and attractive town square served as a social gathering space for some residents. But mainly it was a gathering space for staff and the community at large— i.e. those coming from assisted and independent living sections. Curious to know who used the space and how often, I spent four days behavioral mapping the town square. In the end, I charted very few residents using the space on their own. One resident who lived on the independent wing expressed a desire to use the space more frequently but his room was 365 feet from the town square and the key to unlock the bathroom in the space was located 59 feet further at the concierge desk. He said he would rather stay close to his room where he can use his bathroom as needed. Family members love the town square because it is a social outing for them. As the husband of a resident from the Alzheimer’s unit said: “I like to bring my wife to the ice cream parlor and buy her a cone. It makes me feel like I am doing something for her and I enjoy visiting with other people. I get very lonely being at home alone.” Once a year at least all residents visit the town square as it is a tradition that on a resident’s birthday staff will bring the resident down to the center for a birthday treat. If the town square area had been staffed, and escort system had been available to bring residents to it, one would expect a much greater use.

### **Lighting**

Federal regulations require adequate and comfortable light levels in all areas and specifically the dining and resident activities space be well lighted. Some state regulations are more specific and specify minimum foot candle requirements. Massachusetts uses bulb wattage rather than

**483.15 Quality of life**

(h) Environment. The facility must provide -

(5) Adequate and comfortable lighting levels in all areas;

foot-candles in its guidelines. It requires that no electric bulb under 60 watts be used for illuminations for resident’s use. Night-light for hallways, stairways and bathrooms shall have at least 15-watt bulbs. All states require lighting at the bedside but contrary to common belief, very few states specify the light be mounted over the bed on the headwall. Nightlights are a

requirement in most states but unfortunately in many cases the specifications are vague and an overhead light fulfills the state requirement of a night light. A separate night light was found in 52 percent of the 1,988 resident rooms. When an overhead light serves as a night light, I recommend that a rheostat (dimming device) be required for controlling the level of light. Rheostats were found in only 458 (23%) rooms. Iowa requires at least one recessed light fixture for night lighting installed no higher than 18 inches above the floor in each room, which shall have a switch at the entrance.

In addition to assessing the sources of light available to residents we also undertook a protocol that systematically measured the light levels in different locations in the facility. Using a light meter I took 3,053 total light meter readings. Measurements at the head of the bed were taken with drapes drawn measuring all light available to a resident reclining in bed. On units, 3 separate light level readings were taken in the shower/tub room, dining room, corridors, nurse's station and lounge. The first reading was taken between the main light fixtures in room or corridor if the area was large and there were several fixtures. If only one fixture was in the area then the reading was taken to the side of the fixture. The intent was to measure the average amount of light that the users – staff and resident – had available to them as they used a space. The highest level was taken directly under the brightest fixture. The lowest level reading was often in a corner or in the shower room where it tended to be directly under the shower head. Table 1 illustrates not only the extent of sub-optimal lighting, but also the variation in light levels. Although the lowest shower/tub reading was only 2 foot candles, one shower/tub room had a high of 505 foot candles. Considerable variation was found in corridor readings, especially in corridors without windows.

**Table 1. Light Levels**

<b>Location</b>	<b>Mean</b>	<b>Minimum</b>	<b>Maximum</b>
Head of bed	37 fc	4 fc	95 fc
Bathroom at sink	25 fc	1 fc	75 fc
Bathroom at commode	13 fc	1 fc	48 fc
Highest level tub/shower room	83 fc	7 fc	505 fc
Lowest level tub/shower room	17 fc	2 fc	85 fc
Highest level nurse's station	93 fc	10 fc	410 fc
Lowest level nurse's station	33 fc	5 fc	140 fc
Highest level unit corridor	109 fc	10 fc	3200 fc
Lowest level unit corridor	15 fc	1 fc	82 fc
Highest level unit lounge	292 fc	15 fc	3100 fc
Lowest level unit lounge	25 fc	2 fc	132 fc
Highest level unit dining room	428 fc	2 fc	10,500 fc
Lowest level unit dining room	25 fc	3 fc	130 fc

N = 3053 Light Meter Readings

The inadequacy of the light level was obvious as I watched a resident working on a crossword puzzle move her wheel chair across the room every few minutes to catch a beam of light from a window because, other than a corner lamp, that was the only source of light in the room. Another resident struggled to read in her bed where the light level measured only 14 fc. Often the nursing stations had light levels of 100+ FC while the tub room levels struggled to reach 45 FC. A dim yellow light and a burned out bulb provided a light level of 1 FC in a resident bathroom. (One wonders how many falls are attributed to low light levels.) I

recommend that a measurement of the level of light available to a resident be included in the survey process.

### Noise

Federal regulations require that the facility must provide each resident with the maintenance of comfortable sound levels. Few state regulations address sound levels with an exception being Washington which requires in new construction, the nursing homes must have walls, floor/ceiling and roof/ceiling assemblies constructed with materials that provide comfortable sound levels in all resident areas, rated at an STC 50 or greater; and utilize an alternative to the public address system for non-emergency communication that best serves the residents' needs.

**483.15 Quality of life**

(h) Environment. The facility must provide -  
(7) For the maintenance of comfortable sound levels.

We measured noxious noise using six different identifiable sounds: auditory alarms, intercom or paging, screaming by residents, Musak, and screaming by staff. We did not measure sustained high levels of noise rather, we identified what sounds were heard during the 2-4 hour span spent on a unit. The consistency of the noise or the possible resident and staff responses were not addressed. On some units an ongoing effort was made to keep the noise levels low but on others the sound of auditory alarms was constant. An auditory alarm was heard on 42 %, almost half, of the units and intercom or paging was heard on one third of the units. Musak was installed on 17% of the units, most often with no ability to turn it off or control the volume in resident rooms. Screaming by residents was heard on 20 % of the units and unfortunately screaming by staff was heard on 9 % of the units. (Screaming by staff does not necessarily entail raising voices to residents, but also includes staff calling noisily to each other.)

Noise on the units was often constant and came from many sources. In one facility, several of the nurse's stations had chirping clocks that chirped every 15 minutes - not quiet chirping clocks but chirping that was quite annoying. The chirping along with alarms, TV, and telephones ringing created a high level of noise. In another facility, Musak was played constantly over the public address system. The administrator felt that the addition of Musak had resulted in a calming effect for the residents. He also said he selected the music.

### Outdoor space

Although the benefits of sunlight and several hours of outdoor activity has been found to help promote a good night time sleep, reduce agitation in residents with dementia and greatly reduce unwanted behaviors later in the day including decreasing the use of psychotropic medications by 40 percent (Gold, 2004), there is limited information on the availability of outdoor amenities in nursing homes and the use of outdoor space by residents. Perhaps this is not too surprising considering that other than fire egress regulations Federal regulations do not address outdoor spaces in the standards although the Minimum Data Set (MDS) includes outdoor activity as an activity of choice for residents. At the state level, the few states that regulate outdoor spaces most often apply regulations to new construction or special care dementia units. An exception is Connecticut, which requires 10 square feet per resident be provided for outdoor porches or paved patio areas. Washington provides a good example of guidelines for outdoor recreation space and walkways in new construction by requiring the facility must ensure the outdoor area has: shaded and sheltered areas; accessible walking surfaces which are firm, stable and free from cracks and abrupt changes with a maximum of one inch between sidewalk and

adjoining landscape areas; sufficient space and outdoor furniture with flexibility in arrangement to accommodate residents who use wheelchairs and mobility aids; shrubs, natural foliage and trees; and if used as a resident courtyard, the outdoor area must not be used for public or service deliveries. The reality is that even if spending time outdoors is a choice of an individual resident the availability or access to the space is often extremely difficult (Cutler & Kane, 2006).

Of the 131 nursing units in the study, the majority, 55.7% (n=73) had no outdoor amenities. Twenty-one (16%) of the 131 units were designated as special care units (SCU). Of those 21 SCU units, 13 (61.9%) had direct access from the unit to outdoor space, 10 were located on the ground floor and the other 3 on a second story. Most often the direct access was locked and residents were only able to use the outdoor space when escorted by a staff or family member or when outdoor activities were scheduled. In addition to assessing outdoor space for 10 items, (access from the unit, seating, table, covered seating, covered patio, flower garden, secured areas, hard surface walking path, and raised garden planter), residents were surveyed as to how often they get outdoors and if that amount is the amount they prefer. Of 1,068 residents, 32 % responded they went outdoors less than once a month, 13.4 percent responded being outdoors less than once a week, 17% went out several times a week and 22% said they went outdoors every day. Thirty nine percent of the residents responded that they did not get outside as much as they wanted.

Outdoor spaces per beds in the facilities ranged from one outdoor space for 200 residents to three outdoor spaces for 55 residents. Of the five states in the study, New Jersey and California were tied for the most outdoor space, followed by Minnesota, New York and Florida. Climate did not determine the amount of outdoors spaces per bed, but the number of stories in the facility did. Even an abundance of outdoor spaces did not guarantee the spaces were supportive of independent use by the residents (Cutler & Kane, 2006). Automatic door openers to outdoor spaces were rarely available to residents. One facility provided a resident with a remote door bell to be used to summon staff when he wanted to come inside. I recommend that automatic door openers be required at the facility entrance, at the entrance to households or units and at the minimum to one outdoor area located on each floor.

Some facilities, often aided by volunteers or financial grants, created lovely outdoor spaces. A California facility created a “prayer path” complete with hard surface walking paths, covered benches along the path, thoughtful verses placed at seat height along the path and even a fish pond. This facility was investigating if local building codes would allow a columbarium (repository for human ashes) on their campus. A Florida facility created an outdoor butterfly garden in a central courtyard area on the second floor between two nursing units, one a SCU. Automatic doors facilitated access to this enchanted space directly from both units. A simple code was required for those returning to the skilled unit while the door automatically opened into the SCU unit. Ivy covered walls on all four sides along with abundant plantings, flowers, trees, birdbaths and fountains created an idyllic setting.

### **Lasting images**

In reflecting on my visits to the forty facilities in the QOL study some sounds and sights stand out as being unique.

- It was common to see paper messages attached to the back of a resident’s wheelchair. An example was “send Jim’s lunch with him when he goes to therapy”.
- What impressed me about one unit was the sound of laughter. Residents, staff and family were all laughing. This is a sound not often heard on Alzheimer’s units.

- The assisted dining room was located on Unit 1 as well as the facility wide dining room. What was notable about the assisted dining room was a small open box of mouse food on the floor in the corner of the room.
- Litter box, toys, food and a cat bed were all located in the small tub room. A small door was cut in the lower half of the main door leading to the corridor so the cat could enter and exit at its convenience.
- A common site in this facility was to watch the food tray carts arrive immediately followed by several cats that proceeded to jump onto the carts. The animals were especially energetic when the uncovered food trays were placed back on the carts to be returned to the kitchen.
- Along one of the corridor walls was a shelf unit with several small birdcages complete with birds. The intent was that residents would enjoy bringing the cages to their rooms. Unfortunately, few residents wanted birds in their rooms and the well intended birds and cages added to the corridor clutter.
- The choices the residents could make in one home were phenomenal compared to most facilities. The residents had choices as to what to eat, when to eat, where to eat, what activities to participate in, when to sleep and when to be awake.
- Two handicapped bathrooms located near the entrance had been turned into storage areas for office supplies. The signage remained, the bathroom fixtures had been removed but the ceramic tile was still in place on the walls. Unfortunately, there are no bathrooms available to residents in this area, which is next to the dining room.
- The limited outdoor space includes a gazebo that was originally built to house peacocks. When the current owners bought the facility, the previous owners took the peacocks with them but left behind a round structure that is in disrepair, not large enough to be used by residents but too costly to remove.
- The image of a flailing resident being transported down the corridor to the shower room clad only in a sheet.
- An administrator proudly spoke of the fleet of buses and donated private cars that were available for large group activities as well as for what her 85-year-old mother loves – a ride in the countryside. If a resident wanted a leisurely ride or transportation to go shopping, etc. they were accommodated.
- Each lounge had a smoking schedule where smoking was allowed four times a day for 30 minutes at a time. Limited efforts were made to ventilate or contain the smoke so it drifted down the corridors and into the resident rooms.
- One nursing home was located in a hospital and it looked like a hospital.
- The administrator who spent considerable time explaining to me that because the nursing home was of the medical model it is impossible for it to be home-like.

To have had the opportunity to assess the 40 facilities in such minute detail was an eye opening experience. Throughout the assessment process I wondered how the federal and state nursing home regulations and survey process could allow for the substandard conditions I found in many of the nursing homes. How could a regulation specifying racks and shelves be accessible to the resident not mean that a resident sitting in a wheelchair should be able to reach their clothes without commandeering a staff person to accomplish this simple task? Yet 65% of the residents in the study used wheelchairs but only 7% of the closet rods were located 36 to 48 inches from the floor, an area accessible from a wheelchair. How could 457 residents in the

sample not have a single chair in their portion of the room? Once back in Minnesota, I immediately started compiling all state and Federal regulations pertaining to the physical environment. This compilation of state nursing home regulations proved to be the genesis of the Website <http://www.hpm.umn.edu/NHRegsPlus/>.

State nursing home regulations differ immensely in content, sometimes to the point of being ridiculous and other times out of date with current thinking or are totally ignored which begs the question as to why they are in place anyway? Some rules are *common sense* such as: toilet paper in a suitable dispenser must be provided within reach of each toilet; the lavatory must provide hot and cold water; bathing areas must be provided with safe heating; and provisions shall be made to keep clothes dry while bathing. Some rules are *strange* such as a raccoon may not be permitted as a pet. Some regulatory wording is *ambiguous* such as: unsightliness, cheerful space; satisfactory bed-stand; comfortable interior; adequate light levels and good condition linens. Some regulations are *unusual and rare* such as: requiring a body holding room which requires a method for holding which minimizes the psychological effect on other patients in the home. The rule specifies the room may be used for other purposes when not holding a body. One state requires that a ceramic kiln must be installed in accordance with the Uniform Mechanical Code. Some rules address *resident's preference* such as: there shall be at least 3 feet between the sides and foot of the bed and any wall, other fixed obstruction, or other bed, unless the furniture arrangements is the resident's preference and does not interfere with service delivery. Some rules seem *contrary to life safety codes* such as: extension cords shall not be permitted unless they are provided by the maintenance or engineering department of the facility, inspected regularly and inventoried by the maintenance and engineering department. Some rules *forbid behavior but do not regulate alternatives* such as: staff must eat in staff dining room but yet the regulations do not require a staff dining room.

Several states have regulations that are contrary to the household model or utilizing the universal worker, and others tend to ignore regulations currently in place or rely on waivers to allow behavior that the regulations forbid. In, Mississippi, site of the first Green Houses in Tupelo (Kane, et al, 2007), dietary regulations require tables should be of a type to seat not more than four (4) or six (6) residents. The regulations further specify that personnel eating meals or snacks on the premises shall be provided facilities separate from and outside of food preparation, tray service, and dishwashing areas. These regulations are contrary to the Green House® concept where a large table that seats 12 residents and staff is the centerpiece of the dining area which has been found by CMS to be compliant with their federal long term care regulations, not to mention how families eat in a home. In Arkansas, the public, personnel, or patients shall not be permitted to eat or drink in the kitchen, dishwashing area, or store room; only dietetic services and administrative personnel shall be allowed in the kitchen; only dietetic services personnel shall be allowed to portion out food for patients or personnel; and nursing home residents will not be permitted to work in the dietetic services. If a patient is to be allowed to scrape trays, there must be a physician's order. (Imagine that, a physician's order to be "allowed" to help out something each of us does in our home.) Another state requires trays shall not be set up until the meal is ready to be served and food shall not be at the patient's place in the dining room until the patient is at the table. Texas requires an open or enclosed seating space must be provided within view of the main nurse station that will allow furniture or wheelchair parking that does not obstruct the corridor way of egress. The examples above are just a sample of the thousands of pages of state nursing home regulations currently in place, many of which are outdated or simply ignored.

## **Discussion and Conclusions**

For nursing home residents, the nursing home is where they live. They have the same housing norms as other people, as well as additional needs. They have the right to a decent standard of living. Federal regulations on Quality of Life specify a facility must care for its residents in a manner and in an environment that promotes maintenance or enhancement of each resident's quality of life including: dignity; self-determination and participation; participation in resident and family groups; accommodation of needs; activities; social services; a qualified social worker and an environment that is safe, clean, comfortable, and homelike. Yet, the descriptive findings show resident rooms, storage space and bathroom amenities sparse and often lacking common function-enhancing and life-enriching features such as accessible clothes rods, personalization, a bathroom located near the bedroom, adequate light levels and even equal allocation of space between residents in multi-bed rooms. Major expenditures are not necessary to improve the resident bedroom/bathroom space. For example, adjustable brackets to lower or raise the clothes rods are available for under \$1 at the local hardware store. Each resident in a shared room has an allocated amount of floor space that should be dedicated solely to that resident.

At the unit and facility level, lounge space was lacking, especially space where residents who shared a room could visit with some degree of privacy. Ironically, the finding of a cluster analysis showed those facilities with the most private rooms also tended to have the most shared lounge spaces (Degenholtz, et al, 2007). Shower/tub rooms were often dark, dank, dismal places to bathe and work often located a far distance from the residents' room. Even though regulations require bathing be located near a resident room the distance from the farthest resident room on the unit to the nearest shower or tub room ranged from 20 to 270 feet. Multi-purpose lounge/dining spaces did not provide residents with the simple variation of spending time in different spaces. Corridors were cluttered or movement down the corridor was limited to one side. Some homes had amenities such as elaborate Town Centers but often a resident could not use these amenities because of restricted mobility or the fear of not having access to a toilet. Some life safety codes restrict some freedom of movement within a facility with requirements such as "this door must remain closed at all times" or state regulations related to locked dementia Special Care Units but often facility policies are what prohibit or inhibit freedom of movement in the resident's home. Access to outdoor spaces is often locked or lacks assistive hardware thus thwarting ease of use, bathrooms central to shared activity or lounge space most often require a key for access or host signs declaring "for visitor and staff use only" (residents can read), doors to the dining room remain closed until a designated moment while residents gather outside the room well before the appointed time and that grandiose Town Center serves only the able bodied who can transverse the multiple obstacles needed to arrive at the Center. What is unfortunate is that except for the fire regulations requiring certain doors remain closed, the resident's freedom to move around their home is often stymied by environmental barriers and organizational policy decisions.

We must reconcile ourselves to the fact that the vast majority of our nursing homes can not suddenly be transformed into small houses. Nor can we assume that decentralizing a nursing home into households is the panacea that will make our nursing homes function as a home. Just as we do not live in isolation in our homes in a self-sufficient confined environment, nursing home residents are dependent on the larger community –beyond their designated nursing unit or household - for church services, socialization, medical treatment, outdoor activities and

on and on. Increased efforts must be made to enable and facilitate a resident to live a lifestyle – not of confinement in a nursing unit or individual household but to be able to navigate throughout their home and into the community at large.

The Federal regulations provide a framework that allows for flexibility in existing nursing home environments and the administrators of those regulations have expressed an openness to innovation in nursing homes. For the most part, state regulations differ between states, are archaic in content, voluminous in text, are often ignored or waived or are not enforced during survey. In the environmental area, it would be useful if states regulatory agencies and standard-setting organizations collaborated to develop a set of model regulations that are directed towards the underlying intent of the regulations, that promote innovation and flexibility, that and do not exceed the scope of the Federal regulations. Certainly builders and developers who work across states would appreciate such consistency. At the same time, additional Federal regulations should be approached very cautiously and be limited only to areas where state regulation would be unlikely without a federal mandate (such as for private rooms).

At the same time as they strive for consensus, states should develop a convenient and transparent way to grant waivers of environmental regulations so as to create new ways to maximize quality of life in nursing homes. Technology will always outstrip old regulations and new ideas will deserve a trial. (Transparency of the waiver process is enhanced in states such as Minnesota that record all waivers on a website.) It would be useful if state waivers were tied to post-occupancy evaluation (POE) studies and the data from such POEs were made widely available. In updating the Website NHRegsPlus, we learned that many states are currently doing a complete overhaul of their nursing home regulations in a variety of areas. Some cross-state collaboration would surely be useful. We also identified one state that is not only overhauling its general regulations but is also developing a second set of regulations applicable only to Green House® projects and other small-house nursing homes approved by the state. The additional regulations will address household kitchens, dietary regulations to permit residents in kitchen and laundry areas, universal workers, and the like. The state believes that the two sets of rules will protect it from problems that might occur if all nursing homes allowed nursing staff to perform other housekeeping, cooking, and laundry tasks. Arguably, however, it might be better to develop a single uniform set of regulations that would allow even the larger nursing homes that don't conform to small-house criteria to improve their care by creating households and using permanently assigned direct care workers with broader roles.

Regulations for physical environments in nursing homes are unfortunately minimal, and do not live up to the evidence about human need for privacy, association among intimates, and stimulation. Notably inadequate are regulations that permit 4-bedded rooms and a general standard for 2-bedded rooms in new construction, the inadequacy of square footage minimums (100 square feet for a private room and 160 for a two-bedded room), the lack of expectation for an adequately sized en suite full bathroom with each bedroom, and the minimalist approach to closet and storage spaces making a mockery out of the idea that a room that allows for so few possessions could really be considered home.

On the matter of private rooms, I believe that the evidence now justifies that in new nursing homes or new construction, the standard should be a single-occupancy room for all residents unless by choice. The IOM committee that preceded enactment of OBRA '87 (Institute of Medicine, 1986) recommended that CMS (then HCFA) conduct an immediate study to determine the benefits and costs of private rooms with the intent of identifying a proportion of private rooms for new construction. This study was not conducted until CMS incorporated

issues of privacy into the study of quality of life done at the University of Minnesota. We identified substantial benefits in many of 11 QOL domains for residents who were in private rooms or (as occurred in two of the 40 nursing homes) in shared rooms that were characterized by two distinct areas with floor to ceiling walls and entirely separate windows and heating and cooling controls. By that time, other evidence had been amassed about the advantages of private rooms (Lawton & Bader, 1970; Kane, Baker, Salmon, & Veazie, 1998) and the strong preferences of consumers for private rooms, the lack of which has made consumers of means turn to assisted living (Jenkins, 1997; Kane & Wilson, 1993). Most recently Calkins and Cassella (2007) presented additional evidence about the advantages of private rooms, not only for QOL but also for infection control. Inevitably discussions about reform in this area lead to counter arguments about low state reimbursement rates, and no changes are made; the voluntary AIA standard-setting groups have not been able to advance private rooms as standard for that reason. It would be preferable to create this standard based on normative human requirements and apply it to new construction. Fortunately, the operational expenses of private rooms and private bathrooms can even be less than for shared occupancy and the increased construction expenses are easily amortized across the life of a loan. Thus the costs of doing the right, evidence-based and decent change are not likely to be exorbitant.

## **Recommendations**

Recommendations growing out of this discussion have been scattered through all the previous text, but are consolidated here. Recommendations can be addressed at several levels: to federal regulatory agencies; to state regulatory and reimbursement agencies; to state culture change coalitions; to long-term care providers and trade associations; to architects, builders, and interior designers.

### **Recommendations for Federal Regulators**

- 1) Create a standard that in new construction, all residents should have a private room unless by choice.
- 2) Consider expressing maximum distances that residents should need to traverse from X to Y.
- 3) Consider whether it is time to increase minimum square footage of resident rooms, including closet space.
- 4) Take a parsimonious approach to modifying Federal regulations on physical environments.
- 5) Generally speaking the lack of specificity serves innovation well. Reserve Federal standards to areas where it is clear states are unlikely to act (e.g. a privacy standard or an enlarged room standard).
- 6) Consider an approach to environmental regulation and interpretative guidelines that is geared to the functional requirements of the space.

7) Survey instructions should be amended so that surveyors look into all spaces that residents routinely use, including shower/tub rooms, and assess the space for environmental features the same way they do for other spaces in the nursing home. If shower and tub rooms are used for storage they are obviously not available for the purposes intended.

8) Surveyors should link their examination of environmental features to their actual use. In private resident room and bath areas, similarly they should inquire about whether the resident actually uses that tub or shower for his/her bath. They should inquire how many and which residents use various facility spaces such as dining rooms for fine dining, and other amenities.

9) A measurement of the level of light available to a resident should be included in the survey process.

10) Change regulations that permit 4 people to a rooms and the general standard for 2 people in a room at least in new construction.

#### Recommendations for State Regulators and Officials

1) State regulatory agencies and standard-setting organizations should collaborate to develop a set of model regulations that are directed towards the underlying intent of the OBRA regulations that promote innovation and flexibility, and do not exceed the scope of the Federal regulations.

2) States should develop a convenient and transparent way to grant waivers of environmental regulations so as to create new ways to maximize quality of life in nursing homes. Technology will always outstrip old regulations and new ideas will deserve a trial. (Transparency of the waiver process is enhanced in states such as Minnesota that record all waivers on a website.)

3) States should consider tying state waivers of construction standards to post-occupancy evaluation (POE) studies and the data from such POEs should be made widely available.

4) In revising regulations, States should strive to develop a single uniform set of regulations rather than a separate set of regulations applicable to only a subset such as Green House<sup>®</sup> nursing homes or “culture change nursing homes.” Even larger and older nursing homes can improve their care by creating households and using permanently assigned direct care workers with broader roles.

#### Recommendations for builders and owners related to new construction or renovating old facilities.

1) If locked storage is not provided in the resident room or if general storage space in resident rooms is inadequate, there should be some option for secured storage at the facility level that is easily accessible to the resident.

- 2) Providing additional storage in resident rooms and baths should be a priority of nursing facilities. With the multitude of home-improvement retailers available that sell storage components in all shapes, sizes and price ranges it would not be difficult or costly to retrofit existing rooms with additional storage.
- 3) At the minimum, lever hardware, preferably single lever hardware, should be installed at all sinks that residents use.
- 4) The obsolete classic design for nursing stations should be replaced with multiple small desk areas large enough to hold a computer and located in lounge and dining areas where staff can share the space with residents and not be isolated behind a counter.
- 5) Access to wheelchair-accessible and disability-accessible telephones should be addressed as a right not a necessity. Nursing homes should not only provide telephone jacks in each room (for those residents who do not use wireless) but should also provide cable access and internet access.
- 6) Facilities should avoid multi-purpose rooms and if unavoidable, the spaces should be delineated to specific uses such as reading space, dining space, television space, quiet space, activity space, etc.
- 7) The bathrooms in public spaces in nursing homes should not be locked nor should signs be posted on the adjacent wall that state “use of the bathroom is reserved for visitors.”
- 8) Nursing homes should decentralize their central dining service into smaller dining rooms located throughout the facility. A dining table could be located in a library, in the room with the fireplace, in the sunroom or lounge. Cafeteria style dining should also be considered as a dining option.
- 9) When an overhead light serves as a night light, a rheostat (dimming device) should be required for controlling the level of light.
- 10) Automatic door openers should be required at the facility entrance, at the entrance to households or units, and at a minimum to one outdoor area located on each floor.
- 11) Knobs, drawer pulls, light fixtures and levers should pass the “fist test”—i.e. residents should be able to open them with a closed fist.
- 12) Resident rooms should minimize wall installations, such as over the head-board light fixtures, to enhance flexibility in resident choice for room arrangement.
- 13) Rooms should have ample wall outlets and even floor outlets so that bed and lamp arrangements are not dictated by inadequate supply of outlets.
- 14) Outdoor space requirements should follow Washington state regulations which require the outdoor area has: shaded and sheltered areas; accessible walking surfaces which are firm, stable and free from cracks and abrupt changes with a maximum of one inch between sidewalk and

adjoining landscape areas; sufficient space and outdoor furniture with flexibility in arrangement to accommodate residents who use wheelchairs and mobility aids; shrubs, natural foliage and trees; and if used as a resident courtyard, the outdoor area must not be used for public or service deliveries.

#### Recommendations for administrators and staff leaders

- 1) Consider ways to make mealtimes more pleasurable and varied experience.
- 2) Develop an approach to nursing home self-assessment. Conduct a walk-through to look for clutter. Remove or discard extraneous items and develop different approaches to corridor clutter caused by dishes, cleaning supplies and the like.
- 3) Consider developing a storage shed or off-site storage.
- 4) The best environmental features (exercise equipment, outdoor gardens, town squares) may be underutilized by most residents unless programs and staffing are developed to accentuate their use. Administrators should consider ways to enhance the use of various spaces.
- 5) Consider purchasing furniture and decorative materials from atypical places as opposed to established vendors that specialize in nursing homes.

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