

**Original Research: Anthropological Methods**

# Pressure Ulcers Among Terminally Ill Nursing Home Residents

*Jeanie Kayser-Jones, PhD, RN, FAAN; Alison E. Kris, PhD, RN; Kyung-Choon Lim, PhD, RN; Ronald J. Walent, MS, RN; Elizabeth Halifax, BA, RN; and Steven M. Paul, PhD*

## ABSTRACT

The purpose of this prospective, anthropological study was to describe and analyze the experiences and care of terminally ill nursing home residents who were admitted with or acquired pressure ulcers (PUs) after admission. Data were collected in two proprietary nursing homes. Participant observation, in-depth interviews, event analysis, and chart review were used to obtain data. A total of 64 (54.7%) of the 117 terminally ill residents in the study had PUs; 52 (81.3%) of whom died with PUs. The findings disclosed that the absence of family advocacy, inability to speak English, and inadequate staffing and lack of supervision, along with other previously reported risk factors, contributed to the development of PUs. Specifically, inadequate staffing and lack of supervision led to inadequate assistance at mealtime, infrequent repositioning, and inadequate continence care, which in turn led to weight loss, unrelieved pressure on bony prominences, and moist, irritated skin. The outcome was a high rate of residents dying with PUs. Knowledge of and attention to these risk factors can guide nurses in the prevention and management of PUs.

Pressure ulcers (PUs), often considered a measure of the quality of care in nursing homes (Bates-Jensen, Cadogan, Osterweil, et al., 2003), continue to be a major, intransigent problem in acute and long-term care facilities. Complications can be serious, and patients with PUs often experience pain and diminished quality of life (Allman, 2001; Baumgar-

ten et al., 2003; Szor & Bourguignon, 1999). The incidence and prevalence of PUs varies greatly. Estimates of prevalence rates in long-term care settings range from 2.3% to 28%, and incidence rates range from 2.2% to 23.9% (Cuddigan, Berlowitz, & Ayello, 2001). In 1987, concerned about the quality of care in nursing homes, the United States Congress passed

---

*Dr. Kayser-Jones is Professor of Gerontological Nursing & Medical Anthropology, Department of Physiological Nursing, Mr. Walent is a doctoral candidate, Ms. Halifax is a doctoral student, and Dr. Paul is Senior Statistician, School of Nursing, University of California, San Francisco, San Francisco, California; Dr. Kris is Assistant Professor, Fairfield University, School of Nursing, Fairfield, Connecticut; and Dr. Lim is Senior Researcher, The Research Institute of Nursing Science, Seoul National University, School of Nursing, Seoul, Korea.*

*Dr. Kayser-Jones was principal investigator on a grant funded by the National Institute on Aging (AG 15806), National Cancer Institute, and the National Institute of Nursing Research, National Institutes of Health. Dr. Kris' work was funded by a postdoctoral scholarship from the John A. Hartford Foundation. Dr. Lim's work was supported by the Graduate Division of the University of California, San Francisco. Mr. Walent's work was supported by a predoctoral fellowship from the John A. Hartford Foundation.*

*The authors acknowledge all of those who participated in this study, the residents, their families and physicians, and the nursing facility staff. They also thank Dr. Nancy Stotts for her ongoing consultation and for her critique of an earlier draft of this article.*

*Address correspondence to Jeanie Kayser-Jones, PhD, RN, FAAN, Professor of Gerontological Nursing & Medical Anthropology, Department of Physiological Nursing, University of California, San Francisco, Box 0610, San Francisco, CA 94143-0610; e-mail: jeanie.kayser-jones@nursing.ucsf.edu.*

federal requirements under the Omnibus Budget Reconciliation Act (OBRA) of 1987, mandating changes designed to improve the quality of care in nursing homes. However, in a 2002 study of nine nursing homes randomly selected from 22 representative states, investigators found that there was no change in PU prevalence since the implementation of OBRA 1987 (Coleman, Martau, Lin, & Kramer, 2002). In 1992, the Agency for Health Care Policy Research (AHCPR), now known as the Agency for Healthcare Research and Quality, published a series of clinical practice guidelines, one of which set forth recommendations for the prediction, prevention, and early treatment of PUs (U.S. Department of Health and Human Services [USDHHS], 1992). In 2000, the prevention guidelines were reassessed and found to still be valid (Shekelle et al., 2001). Using minimum data set data, Berlowitz, Bezerra, Brandeis, Kader, and Anderson (2000) examined risk-adjusted rates of PU development from 1991 to 1995 in 107 for-profit nursing homes and found a significant improvement in the quality of preventive PU care. However, a later study in 35 Veterans Health Administration nursing homes found that the overall adherence to PU guidelines was relatively low (Saliba et al., 2003).

Although a large body of literature exists on the incidence and prevalence, risk factors, and assessment, prevention, and management of PUs in hospitals and nursing homes (Allman et al., 1986; Bates-Jensen, Cadogan, Jorge, & Schnelle, 2003; Bergstrom & Braden, 1992; Bergstrom, Braden, Kemp, Champagne, & Ruby, 1996; Horn et al., 2004), little research on PUs in nursing homes for end-of-life care is available.

The purpose of this prospective, anthropological study was to investigate the social, cultural, clinical, and institutional factors that influence the care of terminally ill nursing home residents. This article reports on one part of the data obtained: the experiences and care of terminally ill residents who were admitted with or acquired PUs after admission to a nursing home.

## METHOD

### Setting and Participants

Data were collected in two proprietary nursing homes with 174 and 138 beds. Facilities were chosen to provide variation in resident, provider, and setting characteristics. Purposive sampling was used to select 117 terminally ill residents for inclusion in the study. This approach operates on the belief that the investigators' knowledge of the population can be used to select participants according to the purpose and theoretical needs of the study. Participants, who represent explicit predefined characteristics such as

ethnicity and cognitive status, are selected. To achieve diversity, residents of various ethnic and religious orientations, ages, levels of cognitive and functional ability, and diagnoses were included. The Committee on Human Research of the participating university approved the study.

### Data Collection

Anthropological research methods were used to obtain data. When conducting anthropological research, investigators spend extended periods of time in the research settings observing daily activities, asking appropriate questions, identifying and interviewing key informants, and taking detailed field notes. Data were collected during a 30-month period (January 1999 through June 2001) by the principal investigator (J.K.J.), a project director with a doctoral degree in gerontological nursing, and graduate nursing and medical sociology students. Participant observation; in-depth interviews with residents ( $n = 35$ ), residents' families ( $n = 52$ ), nursing staff ( $n = 66$ ), and physicians ( $n = 36$ ); and event analysis were used to obtain data.

Event analysis, a detailed description and analysis of a specific event, was the strategy used to obtain data on the care of 117 terminally ill residents. In this study, the process of dying was the event examined. The residents' care was observed from the time they were identified as being terminally ill until they died. Each resident was observed several days per week, from early morning until late evening.

This study was not initially designed as an investigation of PUs. However, early in the course of data collection, the investigators observed that many residents were admitted with or acquired PUs. Therefore, the investigators systematically collected data from medical records, and when possible, by direct observation on:

- The number, stage, and location of PUs at admission and at the time of death, as well as those acquired after admission.
- Whether PUs healed, improved (i.e., decreased in size), remained the same, or worsened (i.e., progressed from stage III to IV).

### Data Analysis

Descriptive statistics were used to describe the study sample, and statistical tests were performed to examine the differences between residents who developed PUs and those who did not. *T* tests of the differences between means were used to determine differences between these two groups on continuous variables. Chi-square tests were used to determine the difference between the two groups on categorical variables. When warranted, post hoc com-

**TABLE 1**  
**Characteristics of Residents With and Without PUs**

|                                    | Total Residents<br>(N = 117) | Residents without PUs<br>(n = 53) | Residents with PUs<br>(n = 64) |                |
|------------------------------------|------------------------------|-----------------------------------|--------------------------------|----------------|
| <b>Variable</b>                    | <b>Mean ± SD</b>             | <b>Mean ± SD</b>                  | <b>Mean ± SD</b>               | <b>p Value</b> |
| Age (years)                        | 78.8 ± 12.19                 | 76.1 ± 13.8                       | 81.1 ± 10.3                    | 0.033          |
| Length of stay (days) <sup>a</sup> | 85.63 ± 121.9                | 52.3 ± 82.7                       | 112.1 ± 140.8                  | 0.003          |
| ADL score                          | 9.9 ± 2.8                    | 9.3 ± 3.2                         | 10.5 ± 2.2                     | 0.022          |
| <b>Variable</b>                    | <b>n (%)</b>                 | <b>n (%)</b>                      | <b>n (%)</b>                   | <b>p Value</b> |
| MSQ score                          |                              |                                   |                                | 0.186          |
| No or mild impairment              | 12 (10.3)                    | 8 (15.1)                          | 4 (6.3)                        |                |
| Moderate impairment                | 17 (14.5)                    | 8 (15.1)                          | 9 (14.1)                       |                |
| Severe impairment                  | 24 (20.5)                    | 7 (13.2)                          | 17 (26.6)                      |                |
| Missing data                       | 64 (54.7)                    | 30 (56.6)                         | 34 (53.1)                      |                |
| Gender                             |                              |                                   |                                | 0.098          |
| Women                              | 63 (53.8)                    | 24 (45.3)                         | 39 (60.9)                      |                |
| Men                                | 54 (46.2)                    | 29 (54.7)                         | 25 (39.1)                      |                |
| Ethnicity                          |                              |                                   |                                | 0.134          |
| White                              | 57 (48.7)                    | 20 (37.7)                         | 37 (57.8)                      |                |
| African American                   | 10 (8.5)                     | 5 (9.4)                           | 5 (7.8)                        |                |
| Chinese                            | 33 (28.2)                    | 17 (32.1)                         | 16 (25)                        |                |
| Other                              | 17 (14.5)                    | 11 (20.8)                         | 6 (9.4)                        |                |
| Marital status                     |                              |                                   |                                | 0.031          |
| Married                            | 46 (39.3)                    | 19 (35.8)                         | 27 (42.2)                      |                |
| Widowed                            | 46 (39.3)                    | 16 (30.2)                         | 30 (46.9)                      |                |
| Never married                      | 16 (13.7)                    | 10 (18.9)                         | 6 (9.4)                        |                |
| Divorced or separated              | 7 (6)                        | 6 (11.3)                          | 1 (1.6)                        |                |
| Missing data                       | 2 (1.7)                      | 2 (3.8)                           | 0 (0)                          |                |
| Hospice                            |                              |                                   |                                | 0.090          |
| Yes                                | 47 (40.2)                    | 26 (49.1)                         | 21 (32.8)                      |                |
| No                                 | 70 (59.8)                    | 27 (50.9)                         | 43 (67.2)                      |                |
| Diagnosis                          |                              |                                   |                                | 0.081          |
| Cancer                             | 55 (47)                      | 32 (60.4)                         | 23 (35.9)                      |                |
| Cardiovascular disease             | 18 (15.4)                    | 7 (13.2)                          | 11 (17.2)                      |                |
| Pulmonary disorders                | 9 (7.7)                      | 5 (9.4)                           | 4 (6.3)                        |                |
| Musculoskeletal disorders          | 8 (6.8)                      | 2 (3.8)                           | 6 (9.4)                        |                |
| Renal or genitourinary disorders   | 8 (6.8)                      | 2 (3.8)                           | 6 (9.4)                        |                |
| Other diseases                     | 19 (16.2)                    | 5 (9.4)                           | 14 (21.9)                      |                |
| Cancer diagnosis                   |                              |                                   |                                | 0.010          |
| Yes                                | 55 (47)                      | 32 (60.4)                         | 23 (35.9)                      |                |
| No                                 | 62 (53)                      | 21 (39.6)                         | 41 (64.1)                      |                |
| Admitted from                      |                              |                                   |                                | 0.081          |
| Hospital                           | 98 (83.8)                    | 43 (81.1)                         | 55 (85.9)                      |                |
| Home                               | 5 (4.3)                      | 4 (7.6)                           | 1 (1.6)                        |                |
| Other                              | 14 (12)                      | 6 (11.3)                          | 8 (12.5)                       |                |

<sup>a</sup> Four outliers were excluded from this calculation.

Note. PU = pressure ulcer; ADL = Katz Index of Activities of Daily Living score (range = 1 to 12); MSQ = Kahn and Goldfarb Mental Status Questionnaire score (range = 0 to 10). Percentages are based on valid responses and exclude missing data. Percentages may not equal 100 due to rounding.

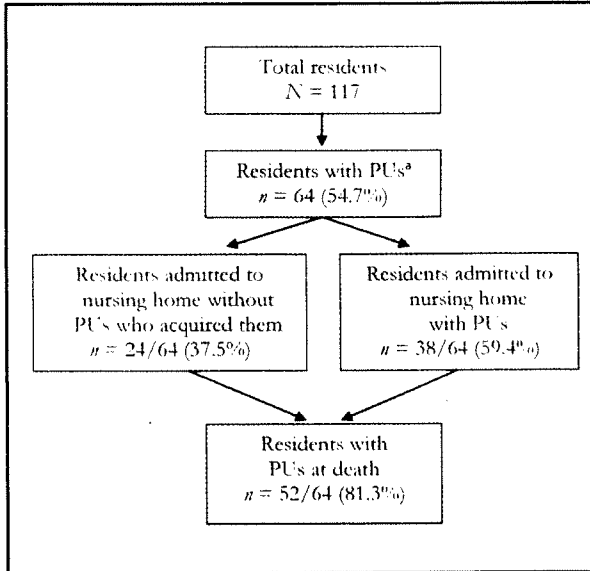


Figure 1. Incidence of pressure ulcers (PUs) in nursing home residents. <sup>a</sup> Data on the time of PU acquisition are missing for 2 residents who died with PUs.

parisons were performed using Fisher's exact test. A log transformation of the length of stay data was performed to correct for skewness. Statistical significance was set at a Cronbach's alpha coefficient <0.05 (two tailed) for all statistical tests.

The goal of qualitative data analysis was to identify the factors that influenced the prevention and management of PUs. Using content analysis, the data were systematically read and analyzed for meaningful categories. The data were examined to determine the parts, the relationships among the parts, and their relationship to the whole. Data were coded and categorized, and the number of categories was reduced through the process of selection, ordering, and clustering (Bernard, 1988; Strauss & Corbin, 1990).

**QUANTITATIVE DATA RESULTS**

Table 1 presents the demographic data of all study participants and compares the characteristics of residents with and without PUs. Although the two groups did not differ significantly on overall primary diagnosis, when diagnosis was collapsed to cancer versus noncancer, residents with cancer were less likely to develop PUs than were residents without cancer. The residents with cancer were younger (mean age = 72, SD = 12.9) than those without cancer (mean age = 84.9, SD = 7.4). The two groups also differed on marital status. Post hoc contrasts revealed that residents with PUs were significantly more likely to be married or widowed than were residents without PUs (p = 0.009).

**TABLE 2**  
**Locations of Pressure Ulcers**  
**(N = 171)**

| Location           | n (%)     |
|--------------------|-----------|
| Coccyx/sacrum      | 50 (29.2) |
| Buttock            | 22 (12.9) |
| Back               | 12 (7)    |
| Lower extremities  |           |
| Heel               | 35 (20.5) |
| Ankle              | 10 (5.8)  |
| Foot               | 10 (5.8)  |
| Hip/trochanter     | 10 (5.8)  |
| Toe                | 7 (4.1)   |
| Calf               | 5 (2.9)   |
| Thigh              | 2 (1.2)   |
| Knee               | 2 (1.2)   |
| Other <sup>a</sup> | 6 (3.5)   |

<sup>a</sup> Elbow (2), flank (2), perianal (2)

**Pressure Ulcer Rates and Characteristics**

As illustrated in Figure 1, 64 (54.7%) of the 117 terminally ill residents were admitted with or acquired a PU after admission. These 64 residents had a total of 171 PUs (mean = 2.67, SD = 1.97, range = 1 to 12). Thirty-eight (59.4%) of the 64 residents were admitted to the nursing home with at least one PU (mean = 2.21, SD = 1.74, range = 1 to 8). Thirty-four (89.5%) of these 38 residents were admitted from an acute care hospital. Nine (23.7%) of these 38 residents acquired a total of 25 additional PUs after admission (mean = 2.78, SD = 2.05, range = 1 to 6). The 24 residents admitted without PUs developed a total of 58 PUs after admission (mean = 2.41, SD = 1.32, range = 1 to 6). Fifty-two (81.3%) of the 64 residents died with at least one PU. These 52 residents died with a total of 124 PUs (mean = 2.39, SD = 1.52, range = 1 to 8). No statistically significant differences on age, gender, Katz Index of Activities of Daily Living scores (Katz, Ford, Moskowitz, Jackson, & Jaffe, 1963), Kahn and Goldfarb Mental Status Questionnaire scores (Kahn, Goldfarb, Pollack, & Peck, 1960), and diagnoses were found between residents who were admitted with PUs and those who acquired PUs after admission. Table 2 presents the location of PUs. More than half (53.1%) of the residents with PUs did not have a pressure-relieving mattress; none had a trapeze on the bed.

**TABLE 3**  
**First Recorded Stage of Pressure Ulcer and Outcome at Time of Death**

|                    | I<br>(n = 37) | II<br>(n = 47) | III<br>(n = 20) | IV<br>(n = 5) | Eschar<br>(n = 10) | Total<br>(n = 119*) |
|--------------------|---------------|----------------|-----------------|---------------|--------------------|---------------------|
| Outcome            | n (%)         | n (%)          | n (%)           | n (%)         | n (%)              | n (%)               |
| Healed             | 17 (46)       | 14 (29.8)      | 4 (20)          | 0 (0)         | 0 (0)              | 35 (29.4)           |
| Improved           | 0 (0)         | 5 (10.6)       | 3 (15)          | 1 (20)        | 3 (30)             | 12 (10.1)           |
| Remained unchanged | 7 (18.9)      | 10 (21.3)      | 7 (35)          | 4 (80)        | 7 (70)             | 35 (29.4)           |
| Worsened           | 13 (35.1)     | 18 (38.3)      | 6 (30)          | 0 (0)         | 0 (0)              | 37 (31.1)           |

\* Of 171 total pressure ulcers observed during the study, 52 were eliminated from analysis due to insufficient data for comparison.

The mean number of days from admission to acquiring a PU was 83.5 days (*SD* = 165.66); the mean number of days from the development of a PU until death was 66.86 days (*SD* = 88.9). Data on weight at admission and at time of death were available for 57 participants. No significant differences in mean weight were found between residents with or without PUs at admission or at time of death. However, significant differences were found between the two groups on mean weight change (*p* = 0.039) and mean percentage weight change (*p* = 0.043). Residents with PUs (*n* = 39) had a mean weight loss of 30 pounds (11.1% weight change, *SD* = 13.9, range = 12 to 46.6). Residents without PUs had a mean weight loss of 6.9 pounds (5.7%, *SD* = 9.6, range = 11 to 23). Healed facility-acquired PUs developed, on average, 108 days before death; those that did not heal developed, on average, 33 days before death.

Complete data on the status of PUs at the time of death were available on 119 of 171 PUs. Missing data were a result of residents being discharged prior to death, the status of PUs on admission or at time of death not being recorded on the medical record, and residents dying shortly after admission. Thus, data were inadequate for analysis. **Table 3** presents the number of PUs at each stage as first recorded and the outcome at the time of death.

### QUALITATIVE DATA RESULTS

Sociocultural (i.e., inability to speak English and absence of family), clinical (i.e., cognitive impairment), and institutional (i.e., inadequate staffing and lack of supervision) factors contributed to PU development.

#### Inadequate Staffing and Lack of Supervision

Inadequate staffing was a consistent problem throughout data collection. During typical day shifts, the RN-

licensed vocational nurse (LVN) resident ratio was 1 to 15; evening shifts, 1 to 22; and night shifts, 1 to 45. The certified nurse assistant (CNA)-resident ratio was 1 to 8 to 1 to 10 during the day, 1 to 15 during the evenings, and 1 to 23 at night. If staff called in sick, the ratios increased. For example, one evening, only one RN and two CNAs were available for 43 residents. An LVN who alone was caring for 47 residents on the day shift said, "There should be more staffing. They've [Administrators] been telling us for 2 years that they'll get us more help."

When interviewed, physicians and families repeatedly stated that staffing was inadequate. "The staff do the best they can," a physician said. "They try hard, but they're understaffed." A family member remarked, "I have admiration for the people who do this work, but there are not enough staff."

The licensed nursing staff provided little supervision. When asked how they felt about supervising the CNAs, many said they did not have time. One replied, "I hate it." Others said it was difficult and frustrating. One commented, "They tell you, 'Oh, I've got a lot of patients. I can't go in there and do that.'"

#### Inadequate Assistance with Meals

Inadequate staffing and lack of supervision had consequences. Residents were not always fed adequately, which contributed to weight loss. Many were in a supine position for hours, and when they were incontinent, their bedding was not always changed promptly.

Mrs. G., a 91-year-old, Russian-speaking resident was admitted to the nursing home after a hip fracture. She had poor vision, had cognitive impairment, and seldom had visitors. When the CNAs fed her, she ate well. Sometimes, however, the tray was left at the bedside, and Mrs. G. was

not assisted with her meal. "You have to feed her," a conscientious CNA said, "otherwise she reaches beyond the food, and she's unable to eat. We're short staffed today. It's good if the family can feed them. Otherwise, they [the staff] just leave the tray, and they [the patients] sleep through dinner." The principal investigator visited Mrs. G. at lunchtime. Mrs. G. was in a semi-reclining position. A hamburger, a bun, a small glass of juice, and a glass of milk sat on her tray. She had the hamburger, which appeared to be dry, in her hand and was breaking off small pieces of meat with her fingers to eat it. On admission, Mrs. G. weighed 92 pounds. Fifteen months later, she died weighing 73 pounds. She had lost 19 pounds, 20.6% of her body weight, and had acquired three PUs on her lower extremities.

Mr. C.'s mother was admitted to the nursing home following a stroke. Mr. C. was concerned about his mother's care and said:

It's a problem. It takes about an hour to feed her, and I don't think the staff takes the time to do that. My mother needs help to eat. She can hold a cup and she can hold a spoon to her mouth, but she can't scoop the food from the plate.

To ensure that she would get one good meal a day, Mr. C. came nearly every evening to feed his mother. However, his business took him abroad at times, leaving his mother in the inconsistent care of the staff. Some of the CNAs fed her carefully, some gave her only liquids, and some did not feed her at all.

The researchers entered Mrs. C.'s room at lunchtime. A young CNA was feeding her. She stated that Mrs. C. often says she is hungry and thirsty, and she usually eats well. "But some of the CNAs don't feed her," the CNA said. After each sip of apple juice, Mrs. C. said, "so good." She drank her juice and milk and ate about 40% of the food on her tray.

On another occasion, the researchers observed a CNA feeding Mrs. C. She fed her small portions, waited for her to swallow before giving her another bite, and conversed with Mrs. C. during the meal. However, the CNA remarked, "I don't usually have time to sit down and feed her like this."

Sometimes the staff said that Mrs. C. would not eat, and they did not take the tray into her room. One morning, the researchers visited Mrs. C. at 7:45 a.m. There was juice at her bedside, but she had not been served a breakfast tray. One hour later, the researchers asked her CNA if Mrs. C. had taken any fluids. "I haven't gotten to her yet," she replied. "I have to feed her, and I haven't had time." From admission until the day she died, Mrs. C. lost 18 pounds, 19% of her body weight. She acquired three PUs on her sacrum and lower extremities.

When families were able to visit consistently and were strong advocates for their relatives' care, residents did not lose weight and did not acquire PUs. Mrs. W. was admitted to the nursing home following a stroke. Her daughter came twice per day, morning and evening, to feed her. Each day she brought some of her mother's favorite food.

When her mother's dentures were lost and she inquired about getting a new set, her daughter was told that the facility's dentist could not fit Mrs. W. for new dentures. The daughter complained vociferously. A staff member went to the laundry room and searched through every piece of laundry until she found the lost dentures. Later, her mother's hearing aid was lost; her daughter thought that Mrs. W. was more agitated because she could not hear. Initially, the nursing home refused to pay for a new hearing aid; however, the daughter called the ombudsman, a meeting was held, and the facility agreed to pay for a new hearing aid. The daughter took a day off from work to be with her mother when the audiologist came to fit her for a new hearing aid.

Mrs. W. was frail; she had numerous skin tears and abrasions on her arms and legs. Her daughter said, "I think one person tries to turn her by herself. That's why she gets all of these skin tears." She asked the physical therapist to come to the unit to teach the staff how to reposition her mother.

Mrs. W.'s daughter established rapport with some of the CNAs. "I'll feed my mother today," she told one of the CNAs. "That will give you a break." The researchers later observed that that particular CNA took special care of Mrs. W. when her daughter was not at the facility. When Mrs. W. died, 1 year after admission to the nursing home, her weight had increased from 109 pounds on admission to 116 pounds. She had no PUs.

### **Infrequent Repositioning**

Although quantitative data on the residents' position while in bed was not collected, the researchers' field notes documented that residents were usually lying on their backs. Mr. S., a bachelor, had no family. During a period of 22 days, from the time he was inducted into the study until he died, the researchers visited him 10 times. He was always lying on his back. He died with two stage III PUs on his sacrum and back.

Mr. D., a 79-year-old man, was admitted to the facility with a fractured femur. When admitted, he had a stage I PU on his sacrum. His weight decreased from 186 pounds on admission to 141 pounds at the time of his death. The researchers observed that he was always lying on his back.

In the 3.5 months he was in the nursing home, Mr. D. acquired six additional PUs: two on his buttocks and four on his feet. No evidence in his chart indicated that a clinical decision had been made to not reposition him due to possible discomfort or other reasons.

Thirteen of 25 CNAs interviewed said they had time to turn residents every 2 hours; 8 said they did not, and 4 replied "sometimes." Typical responses were "Oh, yes, that's my number one priority, to make sure everyone is turned" and "Yes, we really can. We might be off by a half hour, but we can do it." Others stated, "Quite honestly, we can't do it every 2 hours." An RN said, "We're supposed to turn patients every 2 hours, but it just doesn't happen. If I tell the CNAs that it's really important, they'll do their best." An LVN said, "I've been in nursing for 30 years, and I've never been anywhere where patients are turned every 2 hours."

Some residents, despite encouragement from the staff, preferred to lie on their backs; others wanted to lie on their sides but said that no one came to help them. A physician wrote an order to turn Mr. L. every 2 hours, but he was always lying on his back. The researchers asked him if the staff turned him on his side, to which he replied, "No, nobody comes to help me do that." When he died, Mr. L. had six PUs on his back, coccyx, and buttocks. Another resident said he wanted to lie on his side but could not turn himself without help. At the time of his death, he had two stage IV PUs on his sacrum and foot.

### Inadequate Continence Care

Families stated that residents who were incontinent were not changed promptly. The niece of a Latino resident said:

It's especially hard for patients who can't communicate in English. They are neglected. I see people lying in feces and urine for hours; there's no supervision. Residents are lying in saturated diapers. When I come in, I find my aunt in two or three diapers.

The staff were concerned about the problem of inadequate staffing. An RN said, "We end up neglecting patients. They don't get changed as often as they should." Another RN said, "Good care means a lot of nursing involvement. The CNAs would be supervised, and patients would be changed and repositioned."

Forty percent of the PUs were on residents' lower extremities (Table 2). When heel protectors were ordered, they were not always in place; the residents' heels were resting on the mattress. Because of multiple comorbidities, Mrs. R. was unresponsive. Her only son did not visit. She was admitted to the nursing home with seven PUs and acquired five more. Although her physician had ordered heel

protectors, they were seldom in place. Five of her PUs were on her feet.

### Evaluation

In summary, non-English-speaking residents, without family advocates (sociocultural), who are immobile (clinical), and were not repositioned every 2 hours because of inadequate staffing and lack of supervision (institutional) are at risk of developing PUs. Although all of these factors are important, inadequate staffing and lack of supervision were the predominant underlying factors. Because of inadequate staffing and lack of supervision, residents did not receive adequate assistance at mealtime, which led to weight loss. Residents were in a supine position for many hours, which resulted in unrelieved pressure on bony prominences, and they did not receive proper continence care, leaving their skin moist and irritated. These conditions, along with other risk factors such as age, immobility, and physical and cognitive impairment, placed these residents at high risk for the development of PUs. The outcome was a high rate of residents with PUs (Figure 2).

### DISCUSSION

This is the first prospective study to describe the rates and characteristics of PUs and the multiple factors that contribute to their development among terminally ill nursing home residents. The findings of this study are significant. The data suggest that, in addition to previously reported risk factors, the absence of family visitors/advocates, the inability to speak English, and inadequate staffing and lack of supervision contribute to the development of PUs.

PUs are a measure of the quality of care in nursing homes, and they are part of the quality indicator reports for nursing homes in the United States (Bates-Jensen, Cadogan, Jorge, et al., 2003). To address the problem of PUs in nursing homes, the Centers for Medicare & Medicaid Services (CMS) (2006) established the reduction of PUs as one of its goals for the Government Performance and Results Act in nursing homes. The CMS mandated that the Quality Improvement Organization in each state address the problem of PUs in long-term care (Lyder, 2006). Given this mandate, it is significant that more than half of the residents in this study had PUs, many which did not heal. However, 29.4% of the PUs, primarily in stages I and II, did heal, indicating that, despite terminal illness, healing can occur, especially if the PUs do not progress to stages III and IV.

A significant finding was that the residents with PUs had a mean weight loss of 30 pounds, whereas those with-

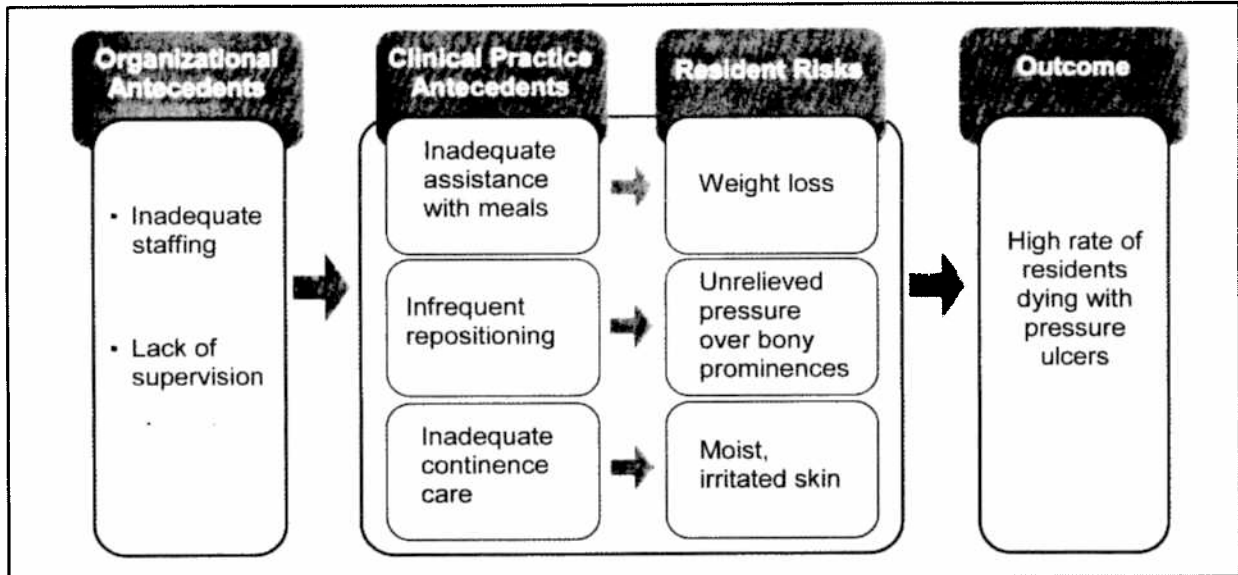


Figure 2. Schema of modifiable factors contributing to the development of pressure ulcers.

out PUs had a mean weight loss of 6.9 pounds, suggesting that weight loss may have contributed to the development of PUs. We recognize that when death is imminent, people often become anorexic. However, in the weeks and months before death was imminent, residents were hungry and thirsty but often, they did not receive assistance with their meals. Many of them asked for food and water, and when possible, the researchers assisted them with their meal and gave them something to drink (Kayser-Jones, 2000).

Many residents were continuously in a supine position; more than half (53.1%) did not have a pressure-relieving mattress. An earlier study also found that pressure-reducing surfaces were not always used, and despite documentation of repositioning, residents were left for long intervals without being repositioned (Bates-Jensen, Cadogan, Jorge, et al., 2003). Although further research is needed to determine frequency of repositioning, guidelines recommend repositioning at least every 2 hours, and many investigators have stated that relieving pressure is a basic tenet in the prevention and treatment of PUs (Berlowitz, 2003; Brem & Lyder, 2004; Cullum, 2001; Thomas, 2001).

Some individuals may be inclined to place blame on individual caregivers, but the magnitude of this problem suggests that it is a systems problem (Berlowitz, 2003). Many of the staff were conscientious and worked hard to provide quality care. Some of the licensed staff realized that the CNAs should be supervised but could not find time to provide the necessary supervision.

Numerous efforts at the national level have been directed toward reducing PUs. In 1989, the National Pres-

sure Ulcer Advisory Panel set a national goal of reducing the incidence of PUs by 50% during the next decade. Ten years later, they concluded that although some positive developments had occurred, their effect on PU rates remains uncertain (Cuddigan et al., 2001).

### IMPLICATIONS FOR PRACTICE AND RESEARCH

Many nursing home residents have cognitive impairments; some are unable to speak English, and others do not have family visitors/advocates. PUs are an additional and painful burden at the end of life, and nurses have a professional and ethical responsibility to intervene in their prevention and management. Although an interdisciplinary effort is advantageous and desirable, nursing staff are with the residents 24 hours per day and are primarily responsible for their care. Therefore, the licensed nursing staff must be well informed about the most recent research on the prevention and management of PUs. In addition, they must be familiar with the PU guidelines published by the AHCPR (USDHHS, 1992).

Interestingly, the factors identified in this research (inability to speak English, lack of family advocacy, and inadequate staffing and lack of supervision) are not mentioned in the vast body of literature on PUs. An adequate number of knowledgeable nursing staff is critical, and without this, the effectiveness of most interventions will be limited. Although we did not obtain data on staff knowledge and education about the prevention and management of PUs and the application of this knowledge to practice, we hypothesize that these are additional factors to consider. The

influence of these factors on the outcomes of PU prevention and care is a topic for future research.

Nurses, regardless of practice setting (e.g., home, hospital, nursing home), must use an instrument such as the Braden Scale (Braden & Bergstrom, 1987) to identify residents who are at risk for PUs and immediately intervene. The AHCPR's guidelines (USDHHS, 1992) provide an annotated algorithm that describes the conceptual organization, procedural flow, decision points, and management path that will guide nurses in planning residents' care. By using this algorithm, nurses can greatly decrease the risk of PU development.

Because CNAs provide most of the hands-on care, RNs and LVNs must teach them the importance of nutritional care, of relieving pressure by repositioning residents and supporting their lower and upper extremities properly, and of keeping residents' skin clean and dry. When families are present, nurses can collaborate with them to achieve these same goals. Many families want to participate in their family member's care (Bowers, 1988), and there are indications that family involvement may influence quality of care (Rowles & High, 1996).

In a study of residents with dementia, Maas et al. (2001) found that meaningful partnerships that delineate cooperative role behaviors and eliminate role ambiguity between staff and residents' families can effectively resolve or prevent conflict. Nurses can help families understand that the goals of care may change when death is imminent. Because food is important symbolically, some families want to continue giving food and water, even when residents are actively dying. Nurses can explain that it is difficult for many people to swallow when death is imminent and that the resident may no longer wish to eat and drink. In addition, residents may wish to remain in a position that is comfortable; nurses can help families understand that comfort takes priority over frequent repositioning. Involving families in care that provides comfort at the end of life may help them cope with the impending loss of their loved one.

Inadequate staffing has been a problem for decades. Despite numerous studies that have demonstrated the positive relationship between nurse staffing levels and quality of care (Aaronson, Zinn, & Rosko, 1994; Bliesmer, Smayling, Kane, & Shannon, 1998; Cherry, 1991; Spector & Takada, 1991), inadequate staffing continues to be a problem in many nursing homes.

A CMS (2001) study examining the relationship between nurse staffing and quality of care at more than 5,000 nursing homes in 10 states found that among long-term residents, nurse staffing levels below 4.1 hours per resident

day (HPRD) (below 1.3 HPRD for licensed nurses and below 2.4 HPRD for CNAs) could have adverse consequences. Similarly, among short-term residents, staffing levels below 3.55 HPRD (below 1.15 HPRD for licensed staff and below 2.4 HPRD for CNAs) were more likely to have adverse outcomes. Ninety-seven percent of nursing facilities in the United States failed to meet at least one of the staffing thresholds recommended by the CMS, and 52% failed to meet all of them (CMS, 2001).

Regulations require that facilities have a licensed nurse on duty 24 hours per day, 7 days per week, and that an RN be on duty at least 8 hours per day (USDHHS, 1992). Obviously, one licensed nursing staff member cannot possibly perform all of the nursing care and leadership responsibilities, including the education and supervision of unlicensed staff, required of him or her. In California's acute care hospitals, legislation requires that each RN have no more than five patients (a 1 to 5 nurse-patient ratio) (California Code of Regulations, 2005). Often, these same patients are transferred directly from an acute care hospital to a nursing home, where the nurse-to-resident ratio changes to 1 to 15 on the day shift, 1 to 22 on the evening shift, and 1 to 45 on the night shift. Given this dramatic decline in nurse-to-resident ratio, will terminally ill nursing home residents really receive quality care?

Guidelines recommend repositioning residents every 2 hours; however, in practice, given the current staffing levels, this is impossible. As mentioned above, during one evening of this study, two CNAs were available on the night shift for 43 residents. Most of the residents in this study had severe functional impairments and required assistance with repositioning. If two CNAs working together repositioned residents every 2 hours, each resident would be repositioned four times per 8-hour shift, resulting in 172 repositioning episodes. If 3 to 5 minutes were spent on each repositioning, it would take the CNAs between 8.5 to 14.5 hours to turn residents every 2 hours. If the resident were incontinent or needed toileting assistance, it would take at least 10 minutes per resident, increasing the overall staff time to 28 hours. Given these facts, we can only conclude it is impossible for two CNAs to reposition residents every 2 hours. Nursing home administrators, corporations, professional organizations, and government agencies must be made aware of these facts.

Nurses can help to resolve the problems identified in this study by conducting research and providing data that will document the need to increase staffing levels in nursing homes. Nurses can also become more influential in helping make long-term care policy a higher priority among legislators at the state and federal levels.

Future nursing research is needed to:

- Determine the ideal frequency of repositioning.
- Identify the factors (barriers and facilitators) that influence the prevention and management of PUs in nursing homes.
- Evaluate the knowledge level of nursing staff (RNs, LVNs, and CNAs) regarding PU care and the application of this knowledge to practice.
- Examine how licensed and unlicensed staff set priorities for care to determine whether preventing PUs is a high or low priority.
- Investigate the characteristics of residents who acquire PUs and those who do not.

### STRENGTHS AND LIMITATIONS

A strength of this research is that it is a prospective, qualitative study that provides previously unreported data on the experiences and care of terminally ill nursing home residents with PUs. Limitations include the small sample and that data were collected in only two nursing homes, limiting generalizability. This study was not initially designed as an investigation of PUs, thus the data are not as complete as they would be had the investigation been designed specifically to study PUs at the end of life.

The number of residents admitted from acute care hospitals with PUs is of concern; however, in some cases, we were unable to determine from the medical records where and when the PUs first developed. It is possible that a PU existed prior to a nursing home resident's acute care hospital stay.

Despite some limitations, this study has important implications for nursing practice and research. Immobility, age, malnutrition, urinary and fecal incontinence, restraint use, bed or chair confinement, and cognitive impairment are among the identified risk factors for PUs (Brandeis, Ooi, Hossain, Morris, & Lipsitz, 1994; Smith, 1995). We add that inability to speak English, absence of family visitors/advocates, and inadequate staffing and lack of supervision are additional factors that place residents at even greater risk for PUs. Knowledge of and attention to these multiple risk factors can guide nurses in preventing the development of PUs.

### CONCLUSION

Many PUs can be prevented (Shekelle et al., 2001), but all PUs may not be preventable. In a study conducted on an acute medical ward in a Japanese hospital, some patients developed PUs, despite receiving high-quality preventative care (Hagisawa & Barbenel, 1999). However, a recent study

found that more RN direct care per nursing home resident per day was associated with less weight loss and fewer PUs (Horn, Buerhaus, Bergstrom, & Smout, 2005). The authors emphasized the need for studies to investigate the effect of improved RN staffing in nursing homes to decrease adverse outcomes (Horn, Buerhaus, Bergstrom, & Smout, 2005). Advancing Excellence in America's Nursing Homes, a coalition-based, 2-year campaign launched in September 2006, established a goal of decreasing the number of PUs by 55,000, indicating that PUs remain a significant problem.

PUs are painful (Allman, 2001; Szor & Bourguignon, 1999); they are a tragic and often unnecessary burden for residents who are dying and for families facing the loss of a loved one. To prevent PUs at the end of life, an interdisciplinary, knowledgeable approach to their prevention and treatment in hospitals and nursing homes is essential (Smith, 1995). To die without PUs is one of the final gifts nurses can give to terminally ill individuals, a precious gift for residents and their families.

### REFERENCES

- Aaronson, W.E., Zinn, J.S., & Rosko, M.D. (1994). Do for-profit and not-for-profit nursing homes behave differently? *The Gerontologist*, 34, 775-786.
- Advancing Excellence in America's Nursing Homes. (2006). *Long term care leaders call on nursing homes and consumers to join new national quality campaign*. Retrieved October 27, 2006, from <http://www.nursinghomequalitycampaign.org/files/Press%20Release%2009-28-06.pdf>
- Allman, R.M. (2001). Pressure ulcers: Using what we know to improve quality of care. *Journal of the American Geriatrics Society*, 49, 996-997.
- Allman, R.M., Laprade, C.A., Noel, L.B., Walker, J.M., Moorer, C.A., Dear, M.R., et al. (1986). Pressure sores among hospitalized patients. *Annals of Internal Medicine*, 105, 337-342.
- Bates-Jensen, B.M., Cadogan, M., Jorge, J., & Schnelle, J.F. (2003). Standardized quality-assessment system to evaluate pressure ulcer care in the nursing home. *Journal of the American Geriatrics Society*, 51, 1194-1202.
- Bates-Jensen, B.M., Cadogan, M., Osterweil, D., Levy-Storms, L., Jorge, J., Al-Samarrai, N., et al. (2003). The minimum data set pressure ulcer indicator: Does it reflect differences in care processes related to pressure ulcer prevention and treatment in nursing homes? *Journal of the American Geriatrics Society*, 51, 1203-1212.
- Baumgarten, M., Margolis, D., Gruber-Baldini, A.L., Zimmerman, S., German, P., Hebel, J.R., et al. (2003). Pressure ulcers and the transition to long-term care. *Advances in Skin and Wound Care*, 16, 299-304.
- Bergstrom, N., & Braden, B. (1992). A prospective study of pressure sore risk among institutionalized elderly. *Journal of the American Geriatrics Society*, 40, 747-758.
- Bergstrom, N., Braden, B., Kemp, M., Champagne, M., & Ruby, E. (1996). Multi-site study of incidence of pressure ulcers and the relationship between risk level, demographic characteristics, di-

- agnoses, and prescription of preventive interventions. *Journal of the American Geriatrics Society*, 44, 22-30.
- Berlowitz, D.R. (2003). Striving for six sigma in pressure ulcer care. *Journal of the American Geriatrics Society*, 51, 1320-1321.
- Berlowitz, D.R., Bezerra, H.Q., Brandeis, G.H., Kader, B., & Anderson, J.J. (2000). Are we improving the quality of nursing home care: The case of pressure ulcers. *Journal of the American Geriatrics Society*, 48, 59-62.
- Bernard, H.R. (1988). *Research methods in cultural anthropology*. Newbury Park, CA: Sage.
- Bliesmer, M.M., Smayling, M., Kane, R.L., & Shannon, I. (1998). The relationship between nursing staffing levels and nursing home outcomes. *Journal of Aging and Health*, 10, 351-371.
- Braden, B.J., & Bergstrom, N. (1987). A conceptual schema for the study of the etiology of pressure sores. *Rehabilitation Nursing*, 12(1), 8-12, 16.
- Brandeis, G.H., Ooi, W.L., Hossain, M., Morris J.N., & Lipsitz, L.A. (1994). A longitudinal study of risk factors associated with the formation of pressure ulcers in nursing homes. *Journal of the American Geriatrics Society*, 42, 388-393.
- Brem, H., & Lyder, C. (2004). Protocol for the successful treatment of pressure ulcers. *American Journal of Surgery*, 188(Suppl. 1A), 9-17.
- Bowers, B.J. (1988). Family perceptions of care in a nursing home. *The Gerontologist*, 28, 361-368.
- California Code of Regulations, Title 22, Section 70217, 2005.
- Centers for Medicare & Medicaid Services. (2001). *Appropriateness of minimum nurse staffing ratios in nursing homes: Phase II*. Retrieved November 15, 2007, from [http://www.cms.hhs.gov/CertificationandCompliance/12\\_NHs.asp](http://www.cms.hhs.gov/CertificationandCompliance/12_NHs.asp)
- Centers for Medicare & Medicaid Services. (2006). *2007 action plan for (further improvement of) nursing home quality*. Retrieved December 11, 2007, from <http://www.cms.hhs.gov/SurveyCertificationGenInfo/downloads/2007ActionPlan.pdf>
- Cherry, R.L. (1991). Agents of nursing home quality of care: Ombudsmen and staff ratios revisited. *The Gerontologist*, 31, 302-308.
- Coleman, E.A., Martau, J.M., Lin, M.K., & Kramer, A.M. (2002). Pressure ulcer prevalence in long-term nursing home residents since the implementation of OBRA '87. *Journal of the American Geriatrics Society*, 50, 728-732.
- Cuddigan, J., Berlowitz, D.R., & Ayello, E.A. (2001). Pressure ulcers in America: Prevalence, incidence, and implications for the future: An executive summary of the National Pressure Ulcer Advisory Panel Monograph. *Advances in Skin and Wound Care*, 14, 208-215.
- Cullum, N. (2001). Pressure ulcer prevention and treatment. A synopsis of the current evidence from research. *Critical Care Nursing Clinics of North America*, 13, 547-554.
- Hagisawa, S., & Barbenel, J. (1999). The limits of pressure sore prevention. *Journal of the Royal Society of Medicine*, 92, 576-578.
- Horn, S., Buerhaus, P., Bergstrom, N., & Smout, R.J. (2005). RN staffing time and outcomes of long-stay nursing home residents. *American Journal of Nursing*, 105(11), 58-70.
- Horn, S.D., Bender, S.A., Ferguson, M.L., Smout, R.J., Bergstrom, N., Taler, G., et al. (2004). The National Pressure Ulcer Long-Term Care Study: Pressure ulcer development in long-term care residents. *Journal of the American Geriatrics Society*, 52, 359-367.
- Kahn, R.L., Goldfarb, A.I., Pollack, M., & Peck, A. (1960). Brief objective measures for the determination of mental status in the aged. *American Journal of Psychiatry*, 117, 326-328.
- Katz, S., Ford, A.B., Moskowitz, R.W., Jackson, B.A., & Jaffe, M.W. (1963). Studies of illness in the aged. The index of ADL: A standardized measure of biological and psychosocial function. *Journal of the American Medical Association*, 185, 914-919.
- Kayser-Jones, J. (2000). A case study of the death of an older woman in a nursing home: Are nursing care practices in compliance with ethical guidelines? *Journal of Gerontological Nursing*, 26(9), 48-54.
- Lyder, C.H. (2006). Implications of pressure ulcers and its relation to Federal Tag 314. *Annals of Long-Term Care*, 14(4), 19-24.
- Maas, M.L., Reed, D., Specht, J.P., Swanson, E., Tripp-Reimer, T., & Buckwalter, K.C. (2001). Family involvement in care: Negotiated family-staff partnerships in special care units for persons with dementia. In S.G. Funk, E.M. Tornquist, J. Leeman, M.S. Miles, & J.S. Harrell (Eds.), *Key aspects of preventing and managing chronic illness* (pp. 330-345). New York: Springer.
- Omnibus Budget Reconciliation Act of 1987, Pub. L. No. 100-203, § 2, 101 Stat. 1330 (1987).
- Rowles, G.D., & High, D.M. (1996). Individualizing care: Family roles in nursing home decision-making. *Journal of Gerontological Nursing*, 22(3), 20-25.
- Saliba, D., Rubenstein, L.V., Simon, B., Hickey, E., Ferrell, B., Czarnowski, E., et al. (2003). Adherence to pressure ulcer prevention guidelines: Implications for nursing home quality. *Journal of the American Geriatrics Society*, 51, 56-62.
- Shekelle, P.G., Ortiz, E., Rhodes, S., Morton, S.C., Eccles, M.P., Grimshaw, J.M., et al. (2001). Validity of the Agency for Healthcare Research and Quality clinical practice guidelines: How quickly do guidelines become outdated? *Journal of the American Medical Association*, 286, 1461-1467.
- Smith, D.M. (1995). Pressure ulcers in the nursing home. *Annals of Internal Medicine*, 123, 433-442.
- Spector, W.D., & Takada, H.A. (1991). Characteristics of nursing homes that affect resident outcomes. *Journal of Aging and Health*, 3, 427-454.
- Strauss, A., & Corbin, J. (1990). *Basics of qualitative research: Grounded theory procedures and techniques*. Newbury Park, CA: Sage.
- Szor, J.K., & Bourguignon, C. (1999). Description of pressure ulcer pain at rest and at dressing change. *Journal of Wound, Ostomy, and Continence Nursing*, 26, 115-120.
- Thomas, D.R. (2001). Issues and dilemmas in the prevention and treatment of pressure ulcers: A review. *Journals of Gerontology. Series A, Biological Sciences and Medical Sciences*, 56, M328-M340.
- U.S. Department of Health and Human Services. (1992). *Pressure ulcers in adults: Prediction and prevention* (AHCPR Publication No. 92-0047). Rockville, MD: Author.