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Pressure Ulcer Development and Prevention in Long-Term Care Facilities in Virginia: A Descriptive Survey

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PRESSURE ULCER DEVELOPMENT AND PREVENTION IN LONG-TERM CARE FACILITIES IN VIRGINIA: A DESCRIPTIVE SURVEY

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ABSTRACT

PRESSURE ULCER DEVELOPMENT AND PREVENTION IN LONG-TERM CARE FACILITIES IN VIRGINIA: A DESCRIPTIVE SURVEY

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The development of pressure ulcers is a common occurrence among older persons who may be temporarily immobilized or confined to a bed. An estimated 60,000 deaths annually can be attributed to complications from pressure ulcers. Guidelines recommended by the Agency for Health Care Policy and Research have been disseminated nationally and continue to be recommended as the standard of care for pressure ulcer prevention. In spite of the use of the recommended guidelines, pressure ulcer rates persist, suggesting there are other factors contributing to pressure ulcer development in long-term care facilities.

A survey was conducted to investigate which provider related factors and patient related factors most likely contribute to pressure ulcer development in residents of long-term care facilities. Questionnaires were mailed to 150 long-term care nursing facilities in Virginia. A total of 50 completed surveys were returned. The results indicated that the provider related factors of most importance were infrequent education and training in pressure ulcer prevention and the high turnover rate of CNAs. The patient related factor of most importance was the presence of more than two chronic conditions in most residents. There is a need for increased frequency of training directed at CNAs, improvement in CNA retention, frequent assessment of high-risk patients by nursing staff

and appropriate management of patients with co-morbid conditions to ensure consistent optimal care of long-term residents.

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Chapter I

INTRODUCTION

The development of pressure ulcers is a common occurrence among older persons who may be temporarily immobilized or confined to a bed at home, in a hospital, or a specialized care facility (Cervo,Cruz & Posillico, 2000). Pressure ulcer prevention is one of the greatest challenges facing caregivers and facilities. Pressure ulcers are receiving an increasing amount of attention because of a rapidly aging population, stricter government regulations and evolving reimbursement practices (Amlung, Miller & Bosley, 2001). Under current payment and regulatory guidelines, providers are expected and required to implement preventive measures for their patients (Turnbull, 2003). Pressure ulcers remain a major epidemiological problem for the growing population of frail persons in both acute and long-term care settings (Dwyer & Keeler, 1997). Therefore, a survey was conducted describing contributing factors to pressure ulcer development, which challenge pressure ulcer prevention.

NEED FOR SURVEY

The National Pressure Ulcer Advisory Panel (NPUAP) conducted a comprehensive review of the pressure ulcer incidence and prevalence data published over a ten-year period from January 1990 to December 2000. The NPUAP analyzed this data across care settings (acute care, long-term care, rehabilitation facilities, and home care) and in specific populations to include, but not limited to, individuals with spinal cord injuries, the elderly and hospice. Incidence data reported over the last decade for long-

term care ranged from 2.2 to 23.9%. Prevalence rates over the last decade for long-term care range from 2.3 to 28% (Cuddigan, Berlowitz and Ayello, 2001).

For this survey, long-term care institutions include traditional nursing homes, which house elderly and disabled residents and provide varying levels of care and services twenty-four hours a day (Ferrini & Ferrini, 1993). The evidence from large studies based on medical records or minimum data set (MDS) data suggests a nursing home pressure ulcer prevalence rate of 8.54% to 22%. However, the national average for pressure ulcer prevalence among long-term nursing home residents, based on MDS data excluding admission assessments, is 8% (Virginia Nursing Home Improvement Collaborative (VNHIC), 2004). The Minimum Data Set Plus (MDS+) is an instrument that all Medicare and Medicaid funded facilities are required to use for functional assessment of residents. Within the MDS+, 18 specific conditions are addressed through Resident Assessment Protocols (RAPs) and include a RAP for pressure ulcers. When pressure ulcer RAP items are present, a registered nurse is required to write a care plan to prevent development of a pressure ulcer in that resident (Zulkowski, 1998). Long-term care facility deficiency citations and quality indicators are derived from the MDS. Because this information is accessible to the public, the MDS may influence public perception of the adequacy of care delivered in a long-term care facility (Zulkowski, Tellez, & van Rijswijk, 2001).

In November 2002, the Centers for Medicare & Medicaid Services (CMS), an agency of the U.S. Department of Health and Human Services, began a National Nursing Home Quality Initiative (NHQI) whose twofold goals were and continue to be: 1). To provide consumers with an additional source of information about the quality of nursing

home care by providing a set of MDS-based quality measures on Medicare's Nursing Home Compare website and, 2). To help providers improve the quality of care for their residents by providing them with complimentary clinical resources, quality improvement materials, and assistance from the Quality Improvement Organization in every state (www.cms.hhs.gov, 2004).

The Virginia Health Quality Center (VHQC) is partnering with organizations that represent nursing homes and the interests of residents, as well as with individual nursing homes across the state, to improve quality of care (Virginian-Pilot, 2003). The Virginia Nursing Home Improvement Collaborative (VNHIC), sponsored by the VHQC, brings together health care professionals and organizations that share a commitment to making changes that produce significant/breakthrough results. Nursing home teams will have the opportunity to interact with statewide experts in pressure ulcers and nursing home quality improvement. The purpose of the VNHIC for Pressure Ulcer Prevention and Treatment is to decrease the prevalence of pressure ulcers and, when they occur, to improve the effectiveness and efficiency of their treatment. This new initiative, which addresses pressure ulcers as well as other quality indicators, began in April 2004. Of the 277 nursing homes in Virginia, just over 45 volunteered to participate in this new statewide quality improvement opportunity (www.vhqc.org, 2004).

In a large nationally derived sample of nursing homes, no significant improvement in pressure ulcer prevalence was detected between 1992 and 1998. One reason for this apparent lack of progress in reducing the prevalence of pressure ulcers may be that adherence to the Agency for Healthcare Research and Quality (formerly known as Agency for Health Care Policy and Research-AHCPR) practice guidelines for pressure

ulcer prevention may actually be quite low, despite widespread availability (VNHIC, 2004). The purpose of the AHCPR guideline is to help identify adults at risk of pressure ulcers and to define early interventions for prevention which must be implemented. Risk factors which should be identified upon assessment include overall physical condition, mental condition, activity, mobility, and nutrition (AHCPR, 1992). For affected individuals, pressure ulcers may be associated with an increased risk of serious infections, pain and suffering, intrusive and time consuming treatments, restrictions in daily activities, and alteration in self-image (VNHIC, 2004).

A random sample of 834 residents admitted without pressure ulcers to 35 different Veterans Health Administration nursing homes revealed that adherence to AHCPR prevention guidelines was documented in the medical record only 41% of the time when the guidelines were indicated. In another survey of clinical staff at Veterans Affairs nursing homes, AHCPR practice guidelines for pressure ulcer prevention and treatment were adopted by less than 40% of the staff (VNHIC, 2004).

There are excellent examples of nursing homes successfully and systematically reducing the incidence and prevalence of pressure ulcers through application of clinically sound guidelines and proven quality improvement methods (VNHIC, 2004). This is also true for the acute care setting. For example, the Continuous Quality Improvement (CQI) team at the University of Washington Medical Center in Seattle attributed the development of pressure ulcers to the interaction of three sets of variables: patient variables, organizational variables, and caregiver variables. Patient variables include all the physical aspects of critically ill patients that add to their risk of developing pressure ulcers-such as patient size, nutritional status, physical stability, mental acuity, comorbid

conditions and the number of available turning surfaces (overlay or mattress). Organizational variables are those factors in the care environment such as availability of appropriate supplies and equipment, and staffing ratios that allow compliance with turning schedules. Caregiver variables are those factors related to staff members providing care such as nursing staff awareness of risk factors for pressure ulcers, overlooking or underutilizing preventive therapies, and the need for a formal teaching program for nursing education and standards development. As their standards of practice, the CQI team at the University of Washington Medical Center chose the guidelines of the AHCPR for prevention and early treatment of pressure-related skin breakdown and was successful in reducing the incidence and severity of pressure ulcers in their critically ill patients (Felton, Layman, & McMahon, 1996).

Xakellis (1998) implemented an intensive pressure ulcer prevention protocol which demonstrated a reduction in the six-month incidence of pressure ulcers from 23% to 5% in a single facility. Lyder (2002) reported an 87% and 76% reduction in the incidence of pressure ulcers among high-risk residents in two nursing homes. Lesham and Skelsky (1994) reported 42% reduction in pressure ulcer prevalence over four years after implementation of a quality improvement program in a long-term care facility (VNHIC, 2004).

Effective pressure ulcer prevention and treatment is the best way nursing homes can hope to defend against legal and regulatory liability associated with poor pressure ulcer outcomes. Although effective long-term prevention of pressure ulcers is costly, adoption of AHCPR prevention guidelines may significantly reduce those costs and result in a lower mean cost of providing pressure ulcer-free days for nursing home residents

compared to prevention programs that are not based on the AHCPR guidelines (VNHIC, 2004). It is estimated that 95 % of all pressure ulcers are preventable. Prevention rather than mere treatment of established ulcers remains a top priority in the effort to reduce the incidence of this common, complex and difficult problem (Findlay, 1996).

Some patients develop pressure ulcers regardless of preventive measures. Rudman and colleagues (1993) reviewed this dilemma in a study of Department of Veterans Affairs nursing homes. They found the rate of pressure ulcers ranged from 0% to 15%. Because they could not explain this discrepancy by severity of illness alone, the authors concluded that possible environmental or undescribed factors contributed to their results (Brandeis, Berlowitz & Katz, 2001). In spite of the use of recommended clinical guidelines and programs for pressure ulcer prevention, pressure ulcer rates persist as a concern for government agencies, providers, patients and families, suggesting there are other factors influencing the occurrence of pressure ulcers in long-term care facilities. A number of factors in the categories of patient/resident, provider/caregiver, organization/environment, community involvement and government policies may have a direct or indirect influence on pressure ulcer development. However, since patient and provider related factors appear more closely associated with the resident, they were selected for investigation in this survey.

PURPOSE OF SURVEY

The purpose of this survey was to determine what factors most likely contribute to the development of pressure ulcers in residents of long-term care facilities in Virginia and to gather data related to the utilization of a pressure ulcer prevention protocol in these

facilities. The literature identifies patient and provider related factors, which might contribute to the development of pressure ulcers in residents in long-term care facilities.

The areas investigated as patient related factors included chronic medical conditions, nutritional/eating habits, activity/mobility level, previous pressure ulcers and mental status. The areas investigated as provider related factors are use of prevention protocols, direct care provider to patient ratio, staff turnover, education and training and the utilization of a team approach for pressure ulcer prevention.

The results of the survey describe which patient and provider related factors influence pressure ulcer development in residents of long-term care facilities in Virginia. The results should encourage the staff of long-term care facilities to adopt or adjust educational interventions leading to implementation of adequate preventive measures and encourage administrators to focus on improving staff retention.

DEFINITIONS

Long-term care- a variety of services that includes medical and non-medical care to people who have chronic illnesses or disability. Long-term care can be provided at home, in the community, in assisted-living or in nursing homes (www.Medicare.gov, 2004).

Pressure ulcer- any lesion caused by unrelieved pressure resulting in damage of underlying tissue. Pressure ulcers usually occur over bony prominences and are graded or staged to classify the degree of tissue damage observed. Also known as pressure sore, decubitus ulcer or bedsore (AHCPR, 1992).

Protocol- a plan for carrying out a scientific study or a patient's treatment regimen (Health and Medicine Dictionary, 1992).

Quality measures- information collected about the quality of care in nursing homes as it pertains to the resident's physical and clinical conditions and abilities. This information is readily available to consumers and caregivers to help them make more educated decisions about nursing home care (Virginia Health Quality Center, 2003).

Risk assessment- the starting point in preparing to treat or manage an individual with a pressure ulcer. Assessment involves the entire person, addressing physical health, common complications, nutritional status, pain level, and psychosocial health (AHCPR, 1994).

Chapter II

REVIEW OF THE LITERATURE

The elderly are at risk for developing pressure ulcers due to natural changes occurring during the aging process. Aging causes the blood flow to decrease, lessening nutrients supplied to the skin for regeneration and allowing for increased pressure on bony prominences. Elastin formation decreases due to collagen fibers stiffening and decreased levels of glutamic acid and lysine enzymes. The elderly also have decreased pain sensitivity which does not allow them to readily change body positions as needed to promote circulation and prevent pressure ulcers (Knox, Anderson, T. & Anderson, P., 1994).

Nursing home and homebound patients with restricted mobility, poor nutrition, incontinence and chronic conditions such as anemia, diabetes and dementia are at risk for ulcer formation (Spoelhof & Ide, 1993). By far one of the most incriminating intrinsic risk factors for the development of pressure ulcers is malnutrition. Many studies cite a strong link between deteriorating nutritional status and the development and delayed healing of chronic, nonhealing wounds. Up to 85 % of residents in nursing homes suffer from malnutrition. It is no wonder that this group of individuals is also at highest risk for the development of pressure ulcers (Fleck, 2002).

The recent National Pressure Ulcer Long-Term Care Study (NPULS) has confirmed the relationship between poor nutrition and pressure ulcers. In a recent study involving a sample of 2,490 residents from 109 facilities, it was found that pressure ulcer risk increased by 74 % with involuntary weight loss and by 42 % with dehydration. Other factors that were found to be related to the development of pressure ulcers included

severity of illness, incontinence and catheter use, history of pressure ulcers, diabetes, being male, and dependency in more than seven activities of daily living (ADLs) (NPULS, 2002).

Incidence and Prevalence Rates

The occurrence of pressure ulcers can be measured to analyze the success of interventions for prevention. Two main categories to measure occurrence are prevalence rates and incidence rates. Prevalence and incidence, although both measures of the frequency of a condition, provide different perspectives on the scope of the problem in a given setting. Prevalence measures the proportion of a group that has pressure ulcers at a given time. Incidence measures the proportion of a group initially free of pressure ulcers that develop them over a given time (Frantz, 1997).

The occurrence of ulcers was evaluated in 19,889 men and women over the age of 60 who resided in 51 nursing homes from 1984 to 1985. Among all residents admitted to nursing homes 11.3 % possessed a stage II through stage IV pressure ulcer. For those residents admitted to the nursing home without pressure ulcers during the study period, the 1-year incidence was 13.2%. This increased to 21.6% by 2 years of nursing home stay. People already residing in a nursing home at the start of the study had a 1-year incidence of 9.5%, which increased to 20.4% by 2 years. The overall prevalence of pressure ulcers at time of admission was 17.4 percent (Brandeis, Morris, Nash, & Lipsitz, 1990). A 1988 report by Sternberg and colleagues indicated an incidence rate of pressure ulcers upon admission to 51 National Health Corporation nursing homes of 20.7 percent (Kartes, 1996). According to the Agency for Health Care Policy and Research (AHCPR)

guidelines published in December 1994, prevalence rates in skilled care facilities and nursing homes are estimated at upwards of 23 percent (Cervo, Cruz & Posillico 2000).

Knowledge is currently available to achieve a large reduction in the rates of pressure ulcer development. Reductions in excess of 50% have been seen in individual clinical settings, yet a sustained nation wide reduction in pressure ulcer incidence is not evident currently (Cuddigan, Berlowitz and Ayello, 2001).

Nursing Home Quality

According to Shaughnessy & Kramer (1990), the prospective payment system (PPS) instituted in 1983 for acute care hospitals has placed increased demands on nursing homes. The PPS has had the effect of decreasing hospital lengths of stay and increasing the case mix intensity of patients admitted to long-term care facilities. This has effectively substituted long term for acute care and, consequently, nursing homes are increasingly caring for patients with greater clinical needs. The combination of an aging population and the substitution from hospital to nursing home has resulted in nursing home patients who are frailer, have greater clinical problems, and require more care, both skilled and unskilled (Hendrix & Foreman).

Society has attempted, through regulations, to assure nursing home quality by requiring inspections, licensure, certification, personnel regulations, and ombudsman programs. Despite these efforts, the Institute of Medicine (IOM) has reported unsatisfactory nursing home quality. In 1986, the IOM recommended that patient

outcomes should be assessed as part of quality improvements (Hendrix & Foreman, 2001).

Investigators have found that the intensity of nursing care is a significant indicator of long-term care quality (Braun, 1991; Johnson-Pawlson, 1996; Rantz et al., 1997). These studies define "intensity" as the ratio of nursing hours to resident days and has been significantly associated with a decrease in decubitus ulcers, restraint use (Braun, 1991; Rantz et al., 1997), weight loss (Rantz et al., 1997), catherizations, urinary tract infections, antibiotic use (Cherry, 1991), regulatory deficiencies (Johnson-Pawlson, 1996), and reduced mortality (Braun, 1991; Cherry, 1991; Hendrix & Foreman, 2001).

Other factors associated with nursing home outcome include ownership, occupancy rate, case mix, facility size, per capita income, percent of residents over 85, nursing home beds per capita, percent private pay (Zinn & Aaronson, 1993), and percent Medicaid (Munroe, 1990). Previous studies associating staffing to outcomes have not addressed questions of optimal staffing levels or the consequences of "inadequate" staffing (Hendrix & Foreman, 2001). Hendrix and Foreman (2001) did a study to investigate the effect of nursing inputs (staffing) on the production of quality in nursing homes using the prevalence of decubitus ulcers as a quality indicator. The results of this study will be addressed later in the section, "Prevention of Pressure Ulcers".

Possible explanations why nursing home administrators were operating at such a high degree of staffing inefficiency include:

1. Profit orientation. Nursing homes, including nonprofit nursing homes, are under pressure to show a profit. In an effort to drive profits, operators may not consider the cost of negative outcomes (Hendrix & Foreman, 2001).

2. Insufficient information. There is a paucity of research that quantifies the cost of negative outcomes in terms of facility resource requirements. Without this knowledge, the nursing home may choose its staff levels based primarily on wages (Hendrix & Foreman, 2001).

3. The inability to recruit and retain registered nurses (RNs). Nursing home RNs spend most of their time in administrative functions and less than 10% on direct resident care. Additionally, nursing home RNs are paid substantially less than their hospital-based colleagues and retention may be linked to salary (Hendrix & Foreman, 2001).

4. Regulations. The intention of staffing regulations is to set a quality floor, not an optimum. However, federal and state requirements meant to merely specify minimum staffing levels can be used by nursing homes to justify less than optimal staffing (Hendrix & Foreman, 2001).

Nursing Home Quality in Virginia

A legislative study in 2000 found that more than half of Virginia's 275 nursing homes failed to meet federal quality standards related to safety and health care concerns of the residents. The problems were most severe in eastern Virginia, where three-quarters of the homes were found to be out of compliance. Actually, more homes than that may

fall short, because the figures are self-reported by the homes and are not audited by the government (Sizemore, 2003).

Most of the shortcomings of Virginia nursing homes can be traced to inadequate staffing, poor funding by the state, and the lack of any minimum legal standard for the amount of nursing care each patient must receive (Sizemore, 2003).

Nearly 70 % of nursing home residents are covered by Medicaid. Another 10 % are covered by Medicare, the federal health insurance program for the elderly. Virginia ranks near the bottom among states in the amount it contributes to Medicaid, the federal-state medical program for low-income people, which is the primary source of payment to nursing homes. Low Medicaid payments translate into low pay and high turnover for the nurses aides (CNAs) who provide most of the patient care. Some CNAs complain of having to care for as many as three dozen patients in one night shift. State inspectors have found up to 60 patients being cared for by a single nurse and an aide (Sizemore, 2003).

A study conducted by the U.S. Department of Health and Human Services in 2001 found strong and compelling evidence of the relationship between staffing ratios and quality of nursing home care. The average nursing home patient needs a minimum of 4.1 hours of nursing care per day to avoid such common problems as bedsores, weight loss and loss of bodily functions, the 2001 federal study concluded. The ratio includes 0.55 of an hour of care by registered nurses, 1.15 hours by licensed practical nurses (LPNs) and 2.4 hours by CNAs. At last count, 37 states had established minimum legal staffing

standards, but unfortunately Virginia has not joined them. Legislation to do so has never made it out of committee (Sizemore, 2003).

For all the financial pressures facing operators, it is also true that some of the worst nursing homes in the industry have large profit margins. Nearly two-thirds of Virginia nursing homes are operated by for-profit companies. In South Hampton Roads, 23 of 35 homes are for-profit. At least one study has found a correlation between profits and poor care. The Joint Legislative Audit and Review Commission, the General Assembly's watchdog arm, found in 2000 that for-profit nursing homes were more likely to be cited for substandard care and patient abuse than nonprofit homes. There was also a size correlation: Larger homes were more likely to incur violations than smaller ones (Sizemore, 2003).

Further complicating nursing homes' staffing woes is a nationwide nurse shortage that is affecting health-care providers across the board. The Virginia Nurses Association predicts that within six years, the demand for nurses will exceed the supply in Virginia by 30 percent. According to Stephen Morrisette, president of the Virginia Health Care Association, without aggressive reforms, problems with Virginia nursing homes are expected to swell with the state's aging population (Sizemore, 2003).

Consequences of Pressure Ulcers

More than 1 million individuals develop pressure ulcers each year, and there is approximately 1.5 to 3 million adults currently living with pressure ulcers in the United States (Eckman, 1989; WOCNS, 2003). Pressure ulcers occur in up to one-third of

patients admitted to chronic care institutions and may result in infection, pain, depression, and increased health care costs (Brandeis et al, 1990). When pressure or shearing exists, there is decreased circulation to the affected area. Normal capillary pressure is 13-34 mm HG, blockage of circulation occurs at 35 mm HG, irreversible tissue damage due to ischemia occurs at 70 mm HG over two hours, and skin necrosis occurs at pressure greater than 80 mm HG over prolonged periods of time. The actual time and pressure needed to create pressure ulcers varies according to the client's risk factors (Knox et al., 1994). An elderly client's risk of death increases fourfold when the client has pressure ulcers. If the ulcers do not heal, the risk increases six fold (Pase, 1994).

As elderly individuals become the fastest-growing segment of the population, with an estimated 1.5 million people living in extended-care facilities, the problem of pressure sores has a profound influence on the American economy (Wilhelmi & Neumeister, 2002). Pressure ulcers cost the U.S. health care system approximately $1.3 billion every year (Amlung, et al, 2001). Treatment costs are estimated at twice the costs of prevention and since nosocomial ulcers are not reimbursed, savings may be realized by preventing pressure ulcers. Hospital costs to treat one pressure ulcer range from $2,000 to $40,000 (NPUAP, 1989; Rodeheaver, 1994; Andrychuk, 1998), resulting in an estimated annual cost of $2-$6.5 billion (Zanowiak, 1992; Andrychuk, 1998). In the nursing home setting, treatment for pressure ulcers monthly costs $267-$1,191 per resident (Burd, et al, 1994). An estimated 60,000 deaths annually can be attributed to complications from pressure ulcers (Zanowiak, 1992; Andrychuk, 1998).

Xakellis, Frantz, Lewis, & Harvey (1998) conducted a study in a 77-bed long-term care facility between July and December 1994, which compared the costs of implementing an intensive pressure ulcer prevention protocol plus the calculated costs of treatment before and after implementing the protocol. The mean cost per subject of treating pressure ulcers in the preprotocol sample was $113 (+ or -) $345 (n=69), and the mean cost per subject of treating pressure ulcers in the post protocol sample was $9 (+ or -) $47 (n=63). The mean cost per subject of treating pressure ulcers was significantly lower in the postprotocol sample. The total cost in the preprotocol sample of 69 subjects was $7,789 ($0 for prevention, $7,789 for treatment) or $112.88 per subject. For the postprotocol sample of 63 subjects, total costs were $6, 314 ($5,768 for prevention and $546 for treatment) or $100.22 per subject. There was no significant difference in the combined costs of prevention and treatment between the preprotocol and postprotocol samples. As a result of the significant reduction in pressure ulcer incidence that occurred with the implementation of the intensive protocol, fewer resources were needed to treat ulcers after they occurred.

Regulations governing long-term care and the associated potential for litigation make pressure ulcer management an important issue for long-term care facilities. The development or progression of a pressure ulcer, exacerbated by the associated morbidity or mortality, may place the facility and the physician at increased risk of governmental censure, and even litigation (Taler, 1997).

The old "standard" of care was that patients who were in long-term care facilities would almost inevitably develop pressure ulcers through no fault of the facilities

in which they resided. The new "standard" imposes responsibility on the provider. If a patient develops a sore, providers have breached their duty to long-term care, causing injury or damage. Providers could be found negligent under these circumstances (Hogue, 1992).

Because advanced age is associated with delayed wound healing and repair, prevention remains the cornerstone of wound care in the older population (Reed & Weksler, 1998). Mortality and morbidity, as well as millions of dollars in treatments and extended hospital stays, could be avoided if basic principles of skin care and ulcer prevention are recognized (Levine & Totolos, 1995).

Prevention of Pressure Ulcers

The Agency for Health Care Policy and Research's 1992 clinical practice guidelines, Pressure Ulcers in Adults: Prediction and Prevention, recommend four goals for prevention measures against pressure ulcer formation:

1. Identify at-risk individuals who need preventive intervention aimed at the specific factors placing them at risk
2. Maintain and improve tissue tolerance to pressure to prevent injury
3. Protect the skin against adverse effects of external mechanical forces (pressure, friction, and sheer)
4. Reduce the incidence of pressure ulcers through educational programs (Kartes, 1996).

Established protocols have a number of positive effects on the assessment, prevention and management of pressure ulcers. Regular staff-development workshops for the nursing staff make assessments and preventive measures more reliable, and care is

reinforced through the frequency of encounters with high-risk residents (Taler, 1997). Educational programs for the prevention of pressure ulcers should be structured, organized, and comprehensive. The programs should be ongoing, presented regularly, and updated frequently (AHCPR, 1994). A study by Xakellis and colleagues (1998) found that intensive staff education and ongoing-surveillance of staff performance ensured compliance with protocols.

The AHCPR guidelines state that the educational program for prevention of pressure ulcers should include information on the following:

1. The etiology of and risk factors for pressure ulcers
2. Risk assessment tools and their application
3. Skin assessment
4. Selection and/or use of support surfaces
5. Development and implementation of an individualized program of skin care
6. Demonstration of positioning to decrease risk of tissue breakdown
7. Instruction on accurate documentation of pertinent data

The AHCPR guidelines also state that the educational program should identify those persons responsible for pressure ulcer prevention, describe each person's role, and be appropriate to the audience in terms of level of information presented and expected participation. Programs must have built-in mechanisms such as quality assurance standards and audits to evaluate their effectiveness in preventing pressure ulcers (AHCPR, 1992).

Use of assessment tools that quantify the primary risk factors for the development of pressure ulcers is helpful in predicting and preventing compromise of tissue. More than 70% of pressure ulcers occur in patients over 70 years of age. The belief that pressure ulcers are a "nursing problem", implies that they are indicative of poor nursing care. Rather, formation of a pressure ulcer is a complex and multifactorial problem. Management requires a complete health assessment of the patient and identification of pressure sources and other contributing factors. After identification of specific risk factors, measures should be instituted to reduce or eliminate these factors (Findlay, 1996).

Two of the most widely used and scientifically validated tools for assessing risk are the Norton scale and the Braden scale. These tools incorporate variables such as general state of health, mental status, activity, mobility, continence, nutritional status, oral fluid intake, and predisposing diseases such as hip fracture (Levine & Totolos, 1995).

The Braden Scale is the most commonly used pressure ulcer assessment scale in the United States. The AHCPR clinical practice guidelines on pressure ulcer prevention recommends that in long-term care, the initial assessment be done on admission, then reassessment weekly for first four weeks, monthly to quarterly after that, and whenever the resident's condition changes.

If risk assessment is not part of the everyday practice in an agency, it is likely that the pressure ulcer incidence is higher than it should be and that the quality of care is not being provided as consistently as needed to prevent this debilitating complication (Ayello & Braden, 2002).

If the patient is ambulatory, a walking schedule is an ideal nursing intervention that minimizes pressure buildup. In bedridden patients, pressure is best managed by

repositioning them on their sides at 30-degree angles at least every two hours (Spoelhof & Ide, 1993). Barnett and Ablarde (1994) suggested that repositioning the client more than every two hours may be the best method of prevention. Knox et al., (1994) support Barnett and Ablarde (1994) assumption that clients need to be repositioned more than every two hours. Knox et al. suggest that a one and a half hour turning policy be established. Turning should however be individualized. For example, if after one and one half hours redness occurs, the schedule should be shortened to one hour. If after one hour redness occurs, pressure-relieving devices should be utilized (Knox et al, 1994).

Pressure-relief devices-usually mattress overlays-should reduce pressure at bony prominences to less than 32 mmHg, the mean capillary closing pressure. Other helpful devices include chair cushion (foam, air, water or gel), splints, heel protectors and cradle boots (Spoelhof & Ide, 1993). The bottom line is that you must adopt a systematic method of pressure relief and nutrition with a strict wound care protocol employing a cost-effective formulary (Levine & Totolos, 1995). Attention to dietary intake can alert the nutrition staff to problems before they become severe (Taler, 1997). Because many studies have linked pressure ulcers with malnutrition, screening for nutritional deficiencies is an important part of the initial assessment (AHCPR, 1994).

In a study done by Hendrix and Foreman (2001) the number and mix of RNs, licensed practical nurses (LPNs) and nurses' aides (CNAs) were examined with respect to the prevalence and severity of decubitus ulcers as a measure of patient outcome and quality. The results indicate that nursing homes should increase RN and CNA hires. RNs may bring a theoretical framework and superior clinical skills to the nursing home. CNAs have the most contact with nursing home residents and are responsible for

performing any of the tasks that are essential in preventing and treating many chronic conditions, in this case, decubitus ulcers. CNAs are an efficient input of nursing home production because they provide a greater presence at relatively low cost. The LPN acts essentially as a charge nurse who passes out medications, performs treatments, and supervises CNAs . CNAs have a limited knowledge base but with proper guidance, leadership, and direction, they can positively influence patient outcomes. By reducing LPN inputs, more CNAs can be hired, increasing the total numbers of workers available to turn, reposition, walk, bathe, and feed long-term care residents.

Widby (2001), an RN and wound care coordinator at Hillcrest Medical Nursing Institute in Knoxville, Tennessee, stated "As nurses, we see each resident for about 20 minutes a day. The CNAs however, have continuous contact with the residents. This would make the CNAs a key to our successful skin-care efforts. Staff workshops were provided for the CNAs to educate them on how pressure ulcers form and how to prevent them". Widby (2002) stated that the CNAs on the skilled units are their eyes and ears - they're the key to prevention and early detection and report to nursing staff any problems or potential problems.

The prevention of pressure ulcers is a team effort involving the attending physicians, nursing staff, therapist and dietitian (Spoelhof & Ide, 1993). An interdisciplinary wound care program instituted in a Veterans Affairs hospital nursing home unit reduced the incidence of pressure ulcers from 1993 to 1994. The interdisciplinary approach to the care of these patients involved the dietitian, physical therapist, staff nurse, NP, physician, podiatry service, prosthetic service, vascular wound clinic nurse, and ET nurse. The prevalence of pressure ulcers decreased from an initial

rate of 14 % in July 1993 to 6 % in October 1994. The incidence of new pressure ulcers acquired in July 1993 was about 4 percent. In the months since the program went in effect, the incidence rate decreased to less than 1 percent. The program focused on prevention, using the Braden scale to identify patients at risk for bedsores. In addition to decreasing incidence and prevalence of pressure ulcers in this population, this collaborative team effort led to improved patient care. An important part of patient care in a long-term care setting is providing services aimed at preventing complications of immobility. Restoring and maintaining skin integrity for patients in a nursing home environment remain shared responsibilities of this health care team (Kartes, 1996).

Long-term care facilities are under increasing regulatory pressure to reduce rates of pressure ulcer occurrence. Recent studies have suggested that many facilities are not meeting basic quality of care guidelines for the prevention and treatment of pressure ulcers (Xakellis, Frantz, Lewis, & Harvey, 2001).

Xakellis et al (2001) implemented a guideline-based pressure ulcer prevention protocol in a 77-bed long-term care facility during the last 3 months of 1994. Implementation of this protocol produced an initial decrease in pressure ulcer incidence and lengthened the time of pressure ulcer development. Unfortunately, this improvement in clinical outcomes deteriorated during the following 2 years. It was concluded that implementation of a pressure ulcer prevention protocol without addressing the barriers to clinical integration resulted in a less-than-optimal long-term clinical outcome. It appears that implementation must go beyond merely creating guidelines and educating staff as to their existence.

Chapter III

METHODS

Research Methodology

A descriptive research design was chosen for this survey. Descriptive research is designed to document conditions, attitudes, or characteristics of individuals or groups of individuals. This type of design is usually structured around a set of guiding questions or research objectives to generate data or characterize a situation of interest. Surveys or questionnaires are often used to collect descriptive information from small or large groups. Often this information can be used as a basis for formulation of research hypotheses that can be tested using exploratory or experimental techniques. The descriptive data supply the foundation for classifying individuals, for identifying relevant variables, and for asking new research questions. (Portney & Watkins, 2000).

Research Questions

This research was designed to obtain the opinions of nursing staff on patient related factors and provider related factors which are likely to contribute to the development of pressure ulcers in residents of long-term care facilities in Virginia. This was achieved initially via a pilot study which led to the development and distribution of the final instrument.

Pilot Study

To address the research question, a modified version of the Delphi Technique was used to conduct the pilot study to gather opinions of a panel of experts. These experts reviewed a list of variables to determine which variables are most likely to be a factor in the development of pressure ulcers in residents of long-term care facilities. A final instrument was developed in the form of a questionnaire to solicit responses that would narrow the list of variables.

In a Delphi survey, a panel of experts is asked to complete a series of questionnaires to identify their opinions. The Delphi technique differs from typical questionnaires in several ways. The most distinguishing difference is the use of several rounds of questionnaires, typically two or three. In each round, the researcher reviews and collates the results, and then distributes these findings to the panel for their response. This process generally continues until the responses are consistent with the previous round, demonstrating consensus (Portney & Watkins, 2000).

Instrumentation for Pilot Study

After thorough review of the literature, the researcher devised a list of variables that may contribute to the development of pressure ulcers in residents in long-term care facilities. The list was divided into two categories, ten patient centered variables which are factors related to the patient and ten provider centered variables which reflect institution or provider concerns (See Appendix A).

Patient Centered Variables	Provider Centered Variables
Financial resources	Adherence to prevention protocol
Activity level/mobility	Profit/non-profit facility
Age	Size of facility
Gender	Type of staff-RN, LPN, CNA
Chronic medical conditions	Turnover of staff
Nutrition/eating habits	Turnover of administrator
Mental status	Direct care provider/patient ratio
Previous pressure ulcer	Underutilization of Team-Physician, PT, Dietitian
Lack of family support	Lack of education and training
Recent hospitalization	Assisted-living vs. Nursing home

In this pilot study, nurses with experience working in a long-term care facility were contacted to solicit their opinions regarding reasons why they think pressure ulcers develop when there is a prevention protocol. Surveys were sent to nine nurses via the administrator of the nursing home where they worked (See Appendixes B and C). Four surveys were returned completed. One survey was hand delivered to a nurse who did not currently work in long-term care but had previous experience working in a nursing home. Therefore, a total of five nurses participated in the pilot study. Each nurse was asked to choose five variables from each list that they believed to be a factor in the development of pressure ulcers in long-term care facilities. The survey allowed space for the nurse to add variables she believed to be a factor that was not listed. Also, a section for comments was available. Upon review of the responses, the most common reasons indicated became the focus of the thesis study.

The strength of selections made by this group of nurses with experience are well supported by the literature and therefore explains my reason for only one round of surveys, thus the modification of the Delphi Technique.

Results of the Pilot Study

The two lists below show a number next to a variable. The number indicates how many nurses identified a particular variable which they believed to be a factor in the development of pressure ulcers in residents in long-term care facilities.

Patient Centered Variables	Provider Centered Variables
0 Financial Resources	4 Adherence to prevention protocol
4 Activity level/mobility	0 Profit/non-profit facility
2 Age	0 Size of facility
0 Gender	0 Type of staff-RN, LPN,CNA
5 Chronic medical conditions	3 Turnover of Staff
5 Nutrition/eating habits	0 Turnover of administrator
3 Mental status	4 Direct care provider/Patient ratio
3 Previous pressure ulcer	2 Underutilization of Team-Physician, PT, dietitian
0 Lack of family support	3 Lack of education and training
2 Recent hospitalization	0 Assisted-living vs. Nursing home

Additionally, variables listed by three nurses were suggested as contributing to pressure ulcer formation:

1. a. Use of support surfaces for pressure reduction and relief
   b. Accurate skin assessment for moderate to high-risk patients with documentation
2. a. Terminal illness
   b. Steroid therapy
3. Patient non-compliance

Out of the five surveys completed, only one nurse selected five variables from each list as requested. One nurse stated that five variables were not always chosen because it forces an answer not deemed to be relevant. Another nurse did not select any from the provider centered list, stating that the provider centered variables are not applicable as prevention is the best way of treating residents to ensure quality care.

Based on the opinions of this group of experts, the following variables were chosen as the focus for the thesis survey.

Patient Centered Variables	Provider Centered Variables
Chronic medical conditions	Adherence to prevention protocol
Nutrition/eating habits	Direct care provider/patient ratio
Activity level/mobility	Turnover of staff
Previous pressure ulcer	Lack of education and training
Mental status	Underutilization of team

A questionnaire was developed with questions in two categories, patient related factors and provider related factors, which might contribute to pressure ulcer development. Patient related factors were defined as chronic medical conditions, nutritional/eating habits, activity/mobility level, previous pressure ulcers and mental status. Provider related factors were defined as use of prevention protocols, direct care provider to patient ratio, turnover of staff, education and training and utilization of a team.

Upon receiving returned questionnaires, the researcher recorded the number and percentage of each response and noted the responses that stood out as the most likely risk

factors in the development of pressure ulcers and possible challenges in the area of pressure ulcer prevention.

Subject Selection

The population used for the survey was RNs or LPNs who hold positions of authority in long-term care facilities in the state of Virginia. A list of 277 nursing homes was obtained from Medicare's website. A random sampling design was used to ensure all facilities had an equal probability of being selected. A total of 150 long-term nursing facilities were selected from which the sample of nurses was obtained. This number was chosen to obtain a sufficient percentage of usable responses since the return rates of survey responses are usually low.

Final Instrumentation

The student researcher and director of the thesis committee completed the Human Participants Protection Education for Research Teams online course, sponsored by the National Institutes of Health (NIH).

After receiving approval by the College of Health Sciences Human Subjects Committee, questionnaires were mailed out to the administrators of 150 long-term care nursing facilities in Virginia. The cover letter requested that nurses who hold the position of director of nursing, assistant director of nursing or nursing supervisor complete the questionnaire and return it in the self-addressed stamped envelope provided (See Appendix D). A completed survey implied informed consent and willingness to participate in the survey.

A two page, 25-item questionnaire was developed for this survey. Five items requested demographic information and the remaining items requested information which addressed patient variables and provider variables. The questionnaire, which took approximately 15 minutes to complete, was structured to solicit responses that would narrow the list of variables to the most likely reasons why pressure ulcers develop in residents of long-term care facilities (See Appendix E).

The advantages of using questionnaires are many. They are generally more efficient than interviews because respondents complete them on their own time. Data can be gathered from a large sample in a wide geographical distribution in a relatively short time. Written forms are standardized, so that everyone is exposed to the same questions in the same way, reducing potential bias from interactions with an interviewer. Respondents to questionnaires can take time to think about their answers and to consult records for specific information. Questionnaires also provide anonymity, encouraging honest and candid responses. Questionnaires are particularly useful as a research method for examining phenomena that can be assessed through self-observation, such as attitudes, values, and perceptions. They are not as useful for studying behaviors that require objective observation. The primary disadvantages of the written questionnaire are the potential for misunderstanding or misinterpreting questions or response choices, and unknown accuracy or motivation of the respondent. In interviews, the researcher can clarify such misinterpretations (Portney & Watkins, 2000).

The questionnaire for this survey included closed-ended questions, which provided multiple response choices. This type of question is easily coded and provides greater uniformity across responses. Its disadvantage is that it does not allow respondents

to express their own personal viewpoints and therefore, may provide a biased response set. The list of choices may overlook some important responses, or they may bias answers by presenting a particular attitude (Portney & Watkins, 2000). For this survey, the number of choices provided for each question ranged from four to seven choices with a category of "not applicable (N/A)", "unsure", or "other" included for some questions. Some questions allowed for specific responses while others provided choices with a range of numbers or range of percentages (ex. 0-59 or 0-19%). The questions with ranges of numbers or percentages were chosen since there would have been too many different responses if specific answers were allowed.

Data Collection

Questionnaires mailed out to the long-term care facilities in March 2004 were marked with a code on the questionnaire and on the return envelope. The code was used by the researcher to maintain anonymity and to send follow-up letters if necessary. Questionnaires were returned to the Director of Community Health Professions at Old Dominion University and collected by the researcher each week for approximately six weeks. Some questionnaires were still coming in after the requested deadline. A total of 50 responses were received which is a 33.3 % response rate. Responses from 60% to 80% of a sample are usually considered excellent. Realistically, researchers can expect 30% and 60% for most studies (Portney & Watkins, 2000).

The data were recorded on two different Excel spreadsheets. One spreadsheet listed the facilities by numbers, 1-50 vertically and responses for each question by each facility were recorded horizontally. The second spreadsheet listed each question with the number of responses recorded next to each choice. Also, the percentage was calculated

and recorded next to each response (See Appendix F). The researcher noted the responses with the highest number and percentage and assessed which patient and provider related factors might most likely contribute to pressure ulcer development in long-term care facilities.

Chapter IV

RESULTS

Demographics

The first five questions of the questionnaire solicited information about the position and title of the respondent, how many years working in long-term care, current number of residents, and number of pressure ulcers currently being treated, if any.

The majority of the respondents, 49%, hold the position of Director of Nursing. The total number of respondents to the question regarding current position and title was 61 because some respondents checked more than one choice such as, LPN and Other (Nurse Manager) or RN and Other (Unit Coordinator). A few questionnaires were completed by the administrator and a nurse. An equal number of respondents worked in the field of long-term care for 20 plus years (26%) as those who worked in the field for 5-9 years (26%). Only 10% worked in long-term care for less than five years.

Regarding the current number of residents in the facility, 26% selected 50-99 and 26% selected 100-149. Only 6% had 200 plus residents in their facility. Forty-three respondents or 88% indicated they had residents currently being treated for pressure ulcers. Six indicated they did not and one did not answer the question. One respondent who selected yes noted that current pressure ulcers were hospital acquired, meaning the residents were admitted to the facility with the pressure ulcers they acquired while at the hospital. Of the total that selected yes, 49% had 0-4 pressure ulcers, 22% had 5-9 pressure ulcers, 15% had 10-14 pressure ulcers, 5% had 15-19 pressure ulcers and 10% had 20 plus pressure ulcers. Three respondents who checked yes to currently having

residents with pressure ulcers did not answer the questions related to how many. One of these respondents made a note that 90% of residents admitted to the 30-bed short stay unit (2 weeks) had pressure ulcers.

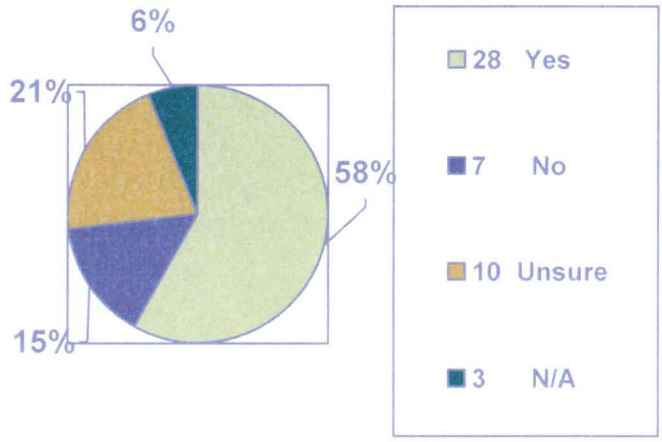
Provider Related Factors

The next ten questions of the instrument solicited information regarding the use of a pressure ulcer prevention protocol, education and training of nurse staff, ratio of direct care provider to residents, nurse staff turnover and use of a team of specialists to prevent pressure ulcers.

The majority of the respondents, 98% indicated their facility follows a pressure ulcer prevention protocol. One, 2%, did not follow a protocol and one respondent did not answer the question. Most of the respondents, 58% follow a prevention protocol based on guidelines recommended by the Agency for Health Care Policy and Research (AHCPR), 21% were not sure, 15% did not use AHCPR guidelines, 6% selected N/A. Two respondents did not answer the question (Figure 1).

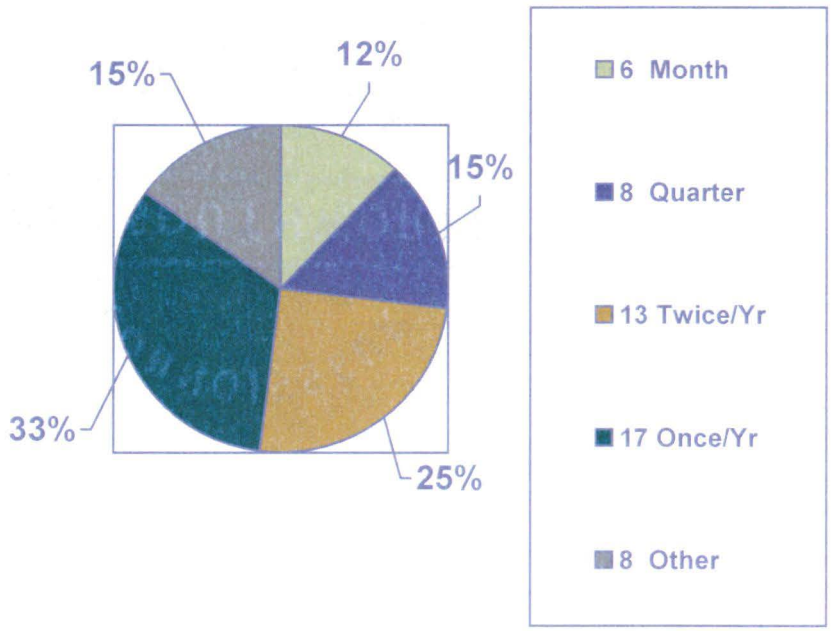
Figure 1. Protocol Based on Guidelines Recommended by AHCPR

Note: Number next to colored box represents the number of respondents.



All 50 respondents selected yes, that their facility requires education and training of nursing staff in pressure ulcer prevention. Thirty-three percent (17) provides education and training once/year and 25% (13) provide training twice/year. Only 12% (6) provided training monthly and 15% (8) provided training on a quarterly basis (Figure 2).

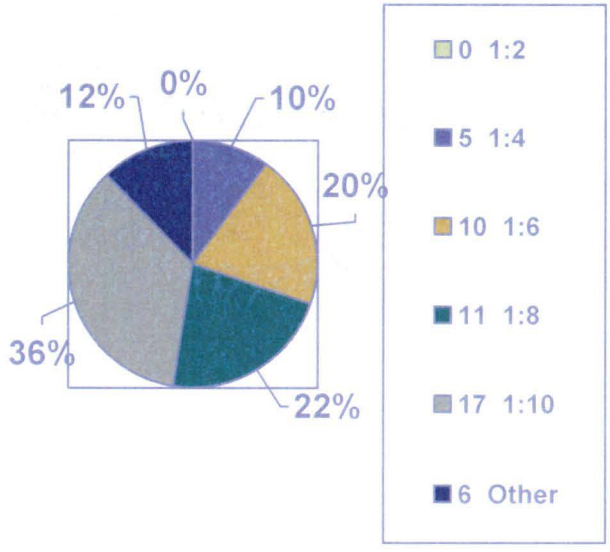
Figure 2. Frequency of Education and Training



The nurse category, which provides the most direct care for pressure ulcer prevention, is CNAs according to 49% (29) of respondents. LPNs were indicated by 34% (20) of the respondents and RNs provided the most direct care according to 17% (10) of respondents. The total number of responses for this question was 59 because several respondents selected more than one nurse category. According to 35% (17) of the respondents, the ratio of direct care provider to residents during the day shift is 1:10.

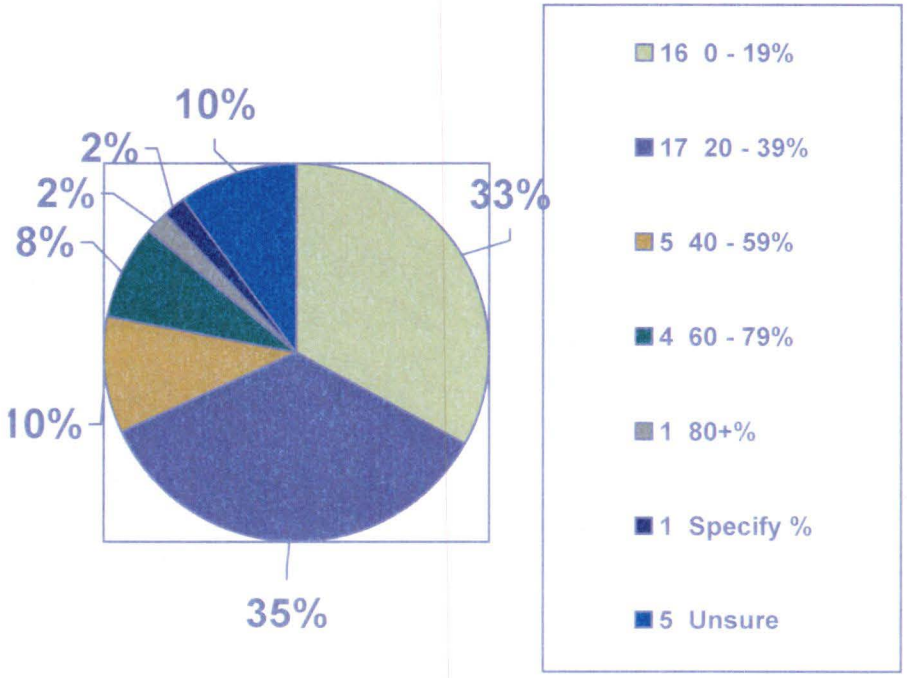
Seven facilities with a 1:10 ratio had 50-99 residents, four had 100-149 residents and four had 150-199 residents. All of these facilities reported they were currently treating residents for pressure ulcers. Most of the facilities with 50-99 residents reported treating four or fewer pressure ulcers. Facilities with 100 or more residents reported treating at least 5-9 pressure ulcers. Six respondents, 12%, checked the "Other" category for day shift. The responses included a 1:3 ratio, two for a 1:5 ratio, a 1:7 ratio, and a 1:30 ratio. The one facility with a 1:3 ratio had 0-49 residents and no pressure ulcers and the facility with a 1:30 ratio had 150-199 residents and 20+ pressure ulcers (Figure 3). The majority, 46%, indicated a ratio of 1:15 for direct care provider to residents during the night shift. Six respondents, 15%, checked the "Other" category for the night shift. The responses included two for a 1:6 ratio, a 1:20 ratio, a 1:30 ratio and two did not specify. The facilities with a 1:6 ratio had 0-49 residents and no pressure ulcers. Their ratios for the day shift were 1:5 and 1:6. The facility with a 1:30 ratio also had a 1:30 ratio for the day shift.

Figure 3. Ratio of Direct Care Provider to Residents During Day Shift.



Thirty-five percent of respondents (17) indicated a 20-39% annual turnover rate of nursing staff at their facility, 33% (16) had a 0-19% turnover rate and 10% (5) had a 40-59% turnover rate. One respondent did not answer the question (Figure 4). The category of nurses which respondents saw the most turnover was CNAs at 76%.

Figure 4. Average Annual Turnover Rate of Nursing Staff.



The majority of respondents, 56%, indicated they did utilize a team of specialists in their facility in the effort to prevent pressure ulcers. The majority of the respondents indicated they utilized a variety of health care specialists. This question allowed respondents to check all that apply. The responses checked included a physician, 92%, a physical therapist, 88%, a dietitian, 92%, and a podiatrist, 68%. The "Other" category included 18% of respondents who utilize a wound care specialist.

Patient Related Factors

The remainder of the questions on the questionnaire solicited information regarding chronic medical conditions, nutrition/eating habits, previous pressure ulcers, mental status, and mobility/activity level.

In response to the question regarding residents with more than two chronic conditions, 40% of respondents indicated that 80+ % of residents fell in this category, 25% indicated 60-79% of residents had more than two chronic conditions (Figure 5). Thirty-three percent of respondents indicated that 0-19% of residents had diabetes with complications, 27% indicated 20-39% had diabetes with complications (Figure 6). Residents requiring tube feeding or assistance eating was in the range of 0-19% according to 55% of the respondents. Forty-five percent of respondents indicated 0-19% for residents requiring special diets due to weight loss or poor nutrition and 31% of respondents selected 20-39% for this question. Residents with previous pressure ulcers were 0-19% according to 96% of respondents.

Figure 5. Percentage of Residents with More Than Two Chronic Conditions

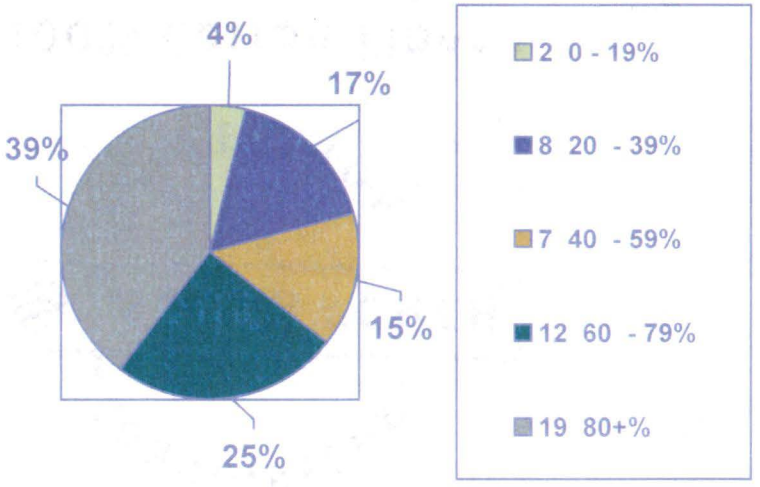
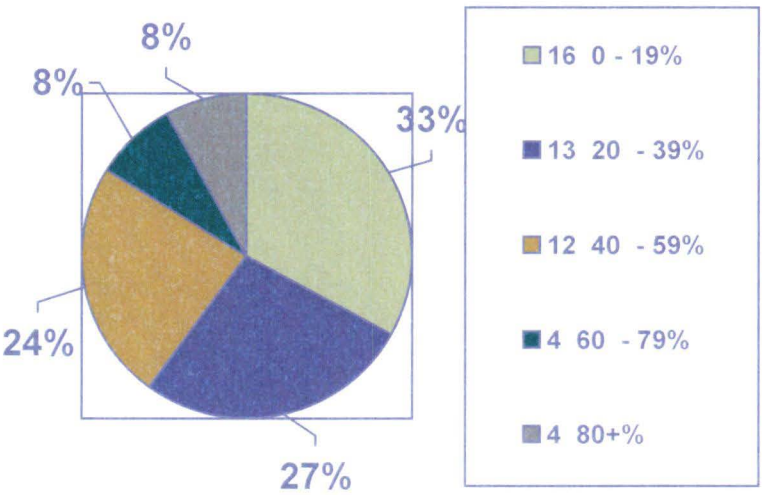


Figure 6. Percentages of Residents Who have Diabetes with Complications.



Thirty-three percent of respondents indicated 20-39% of residents had moderate to severe dementia (Figure 7). According to 31% of respondents, 0-19% of residents with dementia required a high level of nursing care and 25% of respondents indicated 20-39% required a high level of nursing care. One respondent did not answer any of the above questions stating that the information was not readily available. Several respondents did not answer one or two of the above questions but no explanation was given (Figure 8).

Figure 7. Percentage of Residents with Moderate to Severe Dementia

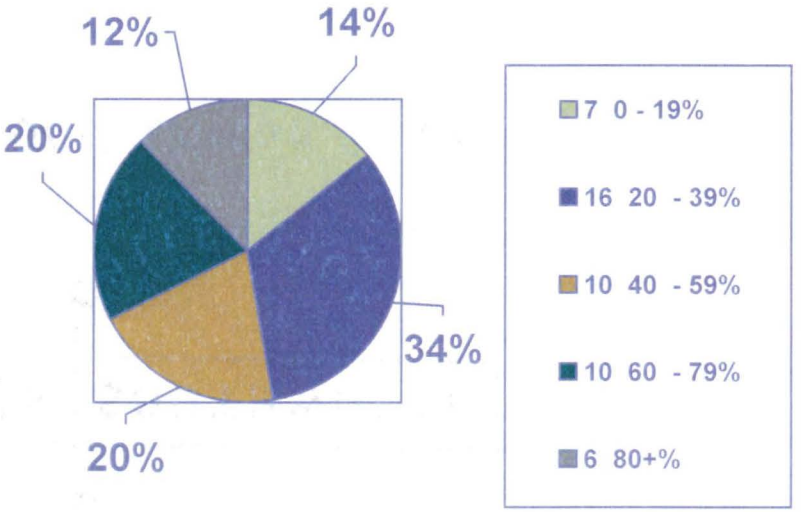
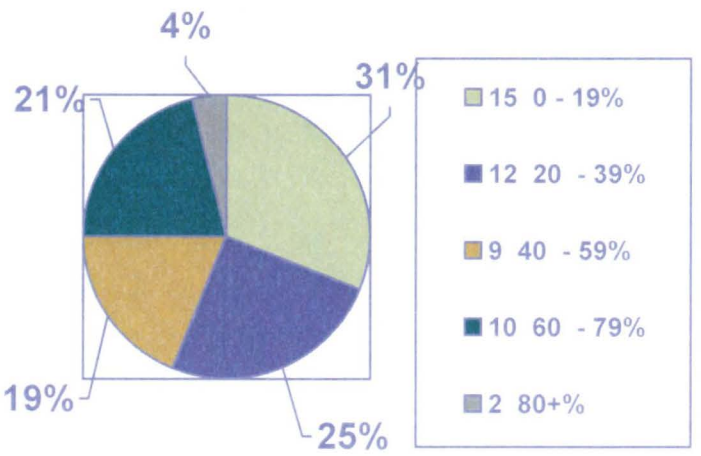
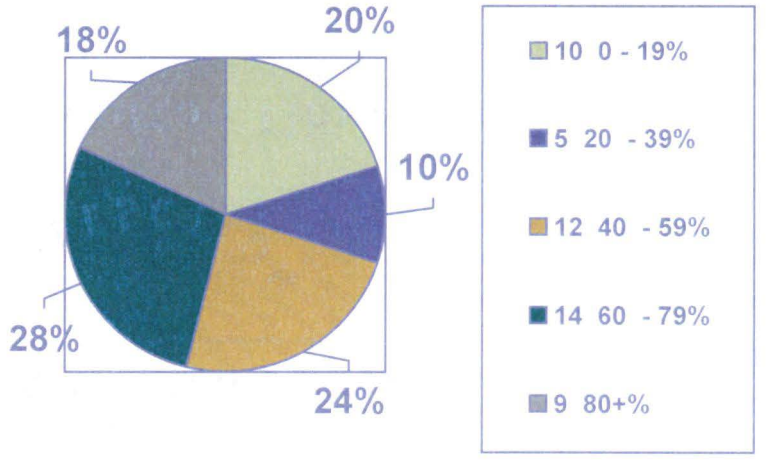


Figure 8. Percentage of Residents with Dementia Requiring a High Level of Nursing Care



The percentage of residents in facilities who are wheelchair bound was 60-79% according to 28% of respondents and 40-59% according to 24% of respondents. (Figure 9). For those residents who are bedbound, 94% of respondents indicated that only 0-19% of their residents fall into this category. Forty-four percent of respondents (22) indicated that bedbound residents presented with the most pressure ulcers and 40% of respondents (20) indicated that wheelchair residents presented with the most pressure ulcers in their facility.

Figure 9. Percentage of Residents who are Wheelchair Bound



DISCUSSION

Prevalence

Pressure ulcers are a serious health problem, which affect primarily the elderly in nursing home facilities. The literature reports that prevalence rates in nursing homes may be as high as 28%.

In this survey, forty-three respondents or 88% reported they were currently treating residents for pressure ulcers. There appears to be a high occurrence rate for pressure ulcers in long-term care facilities which participated in this survey. While the exact number of residents and exact number of pressure ulcers for each facility is not known, based on the information provided, the researcher estimated the prevalence rate to be 2% - 20% for the facilities participating in the survey. The range for the estimated prevalence rate was calculated by dividing 49 (residents) into one (lowest number of ulcers reported) to get 2%, then dividing 100 (residents) into 20 (the largest number of ulcers reported) to get 20%. According to Medicare, the average percentage of high-risk residents with pressure ulcers is 16% for Virginia and 14% for the nation and the average percentage of low risk residents with pressure ulcers is 3% for Virginia and 3% for the nation.

For this survey only six respondents or 12% indicated they had no residents with pressure ulcers. Four of these facilities had fewer than 50 residents. Seventeen facilities with one to four pressure ulcers had fewer than 100 residents while nineteen facilities with five or more pressure ulcers had 100 or more residents. These findings may indicate that having a larger number of residents contributes to a higher prevalence rate of pressure ulcers (Table 1). Although a large majority of the respondents reported having

pressure ulcers in their facility, the estimated prevalence rate appears to be close to the average percentage indicated for Virginia. It also appears to be below the 28% that has been reported in the literature as a high prevalence rate for some facilities but without knowing the exact number of residents or the exact number of pressure ulcers for this survey, an accurate comparison cannot be made.

Table 1

Number of Residents In Facilities

Number of Pressure Ulcers Reported	0 – 49 Residents	50 – 99 Residents	100 – 149 Residents	150 – 199 Residents	200+ Residents
Facilities with No Ulcers	4	1	1	0	0
Facilities with 1 – 4 Ulcers	6	11	3	0	0
Facilities with 5 – 9 Ulcers	1	1	3	3	1
Facilities with 10 – 14 Ulcers	0	0	4	1	1
Facilities with 15 - 19 Ulcers	0	0	0	2	0
Facilities with 20+ Ulcers	0	0	1	2	1

Agency for Health Care Policy and Research (AHCPR) Guidelines

As previously stated in the literature, providers are expected and required to implement measures to prevent pressure ulcers in their patients. The recommended

guidelines for pressure ulcer prevention were developed under the sponsorship of AHCPR. The AHCPR guidelines help identify adults at risk of pressure ulcers and to define early interventions for prevention, which must be implemented.

In this survey, forty-eight respondents or 98% indicated their facility follows a pressure ulcer prevention protocol of some kind and 58% (28) stated they follow guidelines recommended specifically by AHCPR. Of the remaining respondents, seven did not use AHCPR guidelines, ten were not sure if they did, three selected not applicable and two did not answer. Of the 20 facilities that had one to four pressure ulcers, 10 followed the recommended guidelines, three did not and seven were not sure. Of the nine facilities with 5-9 pressure ulcers, seven followed the guidelines and two did not. Of the 12 facilities with 10 or more pressure ulcers, seven reported they followed the guidelines, two did not and three were unsure. The majority of the facilities reported they are following the AHCPR guidelines and all except one facility reported they are following some type of prevention protocol (Table 2).

Table 2

Facilities Adhering to AHCPR Guidelines

	Yes	No	Not Sure	N/A
Number of Respondents	28	7	10	3

The recommended AHCPR guidelines are widely available and should be followed by all long-term care providers to help decrease the incidence of pressure ulcers. Since 88% of the facilities are currently treating pressure ulcers despite use of a prevention protocol there may be a lack of strict adherence to the protocol. This could not be determined based on the responses to the survey however, according to the literature one reason for the apparent lack of progress in reducing the prevalence of pressure ulcers may be that adherence to the AHCPR practice guidelines may actually be quite low.

Education and Training

This survey showed that all the facilities require and provide education and training of nursing staff in pressure ulcer prevention. However, 68% provide it either on a once a year or twice a year basis. This may be insufficient since the literature recommends training be provided on an ongoing and regular basis to maintain standards and integrate new knowledge and techniques. Six respondents or 12% indicated education and training was provided monthly and 8 respondents or 15 % indicated it was provided quarterly. Only one respondent who selected "other" indicated that education and training was provided on an ongoing basis (Table 3).

Table 3

Frequency of Education and Training of Nursing Staff

	Monthly	Quarterly	Twice/Year	Once/Year	Other
Number of Respondents	6	8	13	17	8

Nurse Staffing

The majority of the respondents for this study selected CNAs as the nurse category, which provides the most direct care for pressure ulcer prevention. This is supported by the literature which states that CNAs have the most contact with nursing home residents and are responsible for performing any of the tasks that are essential in preventing and treating many chronic conditions such as pressure ulcers. This may be a challenge for those who are not adequately trained which may lead to inadequate care of the resident. According to a 2001 federal study, the average nursing home patient needs a minimum of 4.1 hours of nursing care per day to avoid pressure sores and other complications. The ratio includes 0.55 of an hour of care by RNs, 1.15 hours by LPNs and 2.4 hours by CNAs. The ratio for any given facility may vary depending on the number of residents and how many nurses are available to provide direct care.

In this survey 35% of respondents indicated the ratio of direct care provider to residents during the day shift is 1:10. For an eight-hour shift, with this ratio, a resident may receive attention for 48 minutes from a direct care provider which in most facilities would be the CNA. Over a 24-hour period this would amount to 2.4 hours which is the recommended CNA hours per resident per day. For the 1:10 ratio, the time a direct care provider spends with a resident may be less than 48 minutes depending on time for lunch and other responsibilities. Therefore, the resident may receive inadequate care due to decreased contact time with the CNA. The majority of the facilities with a 1:10 ratio had a range of 50-200+ residents and all except one reported they were currently treating pressure ulcers.

For the night shift, 46% of the respondents indicated a ratio of 1:15 for direct care provider to resident. Of the 18 facilities with this ratio, eleven had 100 or more residents and all were currently treating residents with pressure ulcers. For this question regarding direct care provider to resident ratio, the results appear to indicate that smaller facilities can provide more nurse hours per resident, as seen with the smaller ratio. These facilities are likely to have lower prevalence rate of pressure ulcers.

In this survey, the average annual turnover rate for nursing staff was 20-39% as reported by 35% of the respondents. The important finding regarding turnover rate was that 76% of respondents indicated that they saw the most turnover with CNAs. As previously mentioned, the literature states that CNAs provide most of the patient care. They are usually responsible for turning, repositioning, walking, bathing and feeding long-term care residents. Where education and training are provided, the CNAs are educated on how pressure ulcers form and how to prevent them. According to Sizemore (2003), low Medicaid payments to Virginia nursing homes, translates to low pay and high turnover for CNAs. With low staffing of CNAs, some aides have complained of caring for as many as three-dozen patients in one night shift (Table 4).

Table 4

Nurse Category with Most Turnovers

	RNs	LPNs	CNAs	Unsure	N/A
Number of Respondents	5	4	38	3	0

With a high turnover of CNAs, this may negatively affect the quality of care residents receive. There is less time spent with the resident when facilities are short staffed and more time must be spent on training and education every time a new CNA comes on board. There is loss of continuity of care and residents "fall through the cracks" resulting in complications which could have been avoided otherwise.

Team Approach

Although CNAs provide most of the direct care in prevention of pressure ulcers, the prevention of pressure ulcers should be a team effort. The team may include, but not limited to, a physician, dietitian, physical therapist and podiatrist. The majority of respondents, 56%, indicated they did utilize a team of specialists in their facility in effort to prevent pressure ulcers. The percentage of respondents who did not utilize a team of specialists was 42%. A large percentage of respondents indicated they utilize specific health care specialists in their facility. The percentage for each specialist is 92% for physician, 88% for physical therapist, 92%for dietitian, and 68% for podiatrist. In the category for "other", only 18% utilized a wound care specialist. Although the facilities are utilizing health care specialists, more should use the interdisciplinary approach to pressure ulcer prevention. Nine out of 50 facilities utilized a wound care specialist, which should be a key member of the team (Table 5).

Table 5
Healthcare Specialists Utilized

	Physician	Physical Therapist	Dietitian	Podiatrist	Other
Number of Respondents	46	44	46	34	19

Patient Related Factors

The literature states that nursing home patients with restricted mobility, poor nutrition and chronic conditions such as diabetes and dementia are at risk for ulcer development. This survey showed that 40% of respondents indicated that 80+% of residents had more than two chronic conditions. Residents with diabetes, or those who required tube feeding or special diets were in the lower percentage range. The literature states that malnutrition is by far one of the most incriminating intrinsic risk factors for development of pressure ulcers. Nutrition does not appear to be a contributory factor in this survey. Residents with moderate to severe dementia and dementia which required a high level of nursing care were found to be fewer than 40% of residents in the facilities of most respondents. Although these residents may be at risk for pressure ulcers they are not found to be a large percentage of the residents of the facilities responding to the survey. Previous pressure ulcer development does not appear to be a contributory factor since 96% of respondents stated that only 0-19% of residents had previous pressure ulcers.

Regarding mobility/activity level, 46% of respondents indicated that most of their residents (60-80+%) were wheelchair bound. At the same time, 44% of respondents indicated that most pressure ulcers were seen in bedbound residents. The percentage of respondents (40%) who indicated that wheelchair bound residents had the most pressure ulcers in their facilities was close to the percentage of the respondents (44%) who indicated that bedbound residents had the most pressure ulcers. It appears that residents who are immobile in a chair or bed are at risk for development of pressure ulcers.

Medicare: Nursing Home Compare

The Medicare website makes available to the public information about nursing homes across the United States via the link called Nursing Home Compare.

The Centers for Medicare and Medicaid Services (CMS), an agency for the U.S. Department of Health and Human Services, believes that one way to improve the quality of care is to provide quality measures consumers can use to compare nursing homes (The Virginian-Pilot, 2002). The quality measures are calculated on residents at specified intervals during their nursing home stay. Critical issues like pressure ulcers (bedsores), pain management, the resident's ability to conduct daily activities and other medical conditions are addressed with quality measures (The Virginian-Pilot, 2003).

In addition to reviewing results from respondents participating in this survey, the researcher accessed the Medicare: Nursing Home Compare site to obtain information about the nursing homes that responded to the survey. The information from Medicare showed that most facilities reported having residents with pressure ulcers and also, in most facilities, the CNAs provided more hours per resident. This information was

consistent with the findings in this survey. What was different from the survey results was that most of the facilities (68%) reported to Medicare that 10% or fewer residents spent most of their time in a bed or chair. Over 50% of the respondents to the survey reported that 40% or more of their residents are wheelchair bound.

The data provided by Medicare: Nursing Home Compare is self-reported by the nursing home. Consumers should not be guided by the data alone. Some nursing homes serve specialized populations or may have legitimate explanations when numbers appear skewed (Carpenter, Addis & Hartig, 2002). Inspection and data collection by Medicare occurred at different times throughout the year so their results may not correlate with findings seen in this survey since changes are likely to occur over a period of time. Some of the questions on the survey required nurses to select responses which included a range of numbers or percentages. Therefore, some of the results from the survey do not provide exact figures and may explain why there's a difference in Medicare's data and the survey results regarding residents confined to a bed or chair.

LIMITATIONS

In this survey, the participants were provided with a 25-item questionnaire which requested information addressing provider related factors and patient related factors that are likely to contribute to pressure ulcer development in residents in long-term care facilities.

The disadvantages of the written questionnaire are the potential for misunderstanding or misinterpreting questions or response choices, and unknown accuracy or motivation of the respondent (Portney & Watkins, 2000). It was noted that

some respondents left at least one or a few questions blank. Possible reasons for this could be that the information was not readily available, they did not want to answer the question, or missed a question in a hurry to complete the questionnaire. All questionnaires received were used for the survey even if a question was left blank. It is likely that some respondents guessed some of the answers instead of investigating the question for a more accurate response thus, the disadvantage of unknown accuracy. In addition, questions that do not allow for a definitive response will affect the accuracy of the results.

The survey was limited to investigating provider related factors and patient related factors which are likely to contribute to pressure ulcer development. These factors were selected for investigation because they appear to be more closely associated with the resident. There are other factors not investigated which may have an indirect effect but should be considered. Those factors include, unsatisfactory or inefficient government regulations, lack of funding to facilities, lack of consumer (resident) involvement or consumer advocacy (Ombudsman), lack of community interest or involvement and lack of support from elected officials.

Chapter V

CONCLUSIONS

The main focus of this survey was to describe the provider related factors and patient related factors most likely to contribute to pressure ulcer development in residents as reported by long-term care facilities in Virginia. Infrequent education and training and high turnover rate of CNAs appear to be the most likely provider related factors and residents with more than two chronic conditions appear to be the most likely patient related factors.

The findings in this survey showed that pressure ulcers occurred in the majority of long-term care facilities participating in this survey. The majority of these facilities reported that they do follow the pressure ulcer prevention guidelines recommended by AHCPR. The survey does not show if there is strict adherence to the guidelines. These guidelines have been disseminated on a national level and continue to be recommended as the standard of care for pressure ulcer prevention (Saliba, et al, 2003).

All of the facilities reported that they require and provide education and training. Most of them indicated they provide it on a once a year or twice a year basis. It is not known what the training entails, if the training is adequate, or how it complies or follows the AHCPR guidelines. The literature reports that educational programs for the prevention of pressure ulcers be structured, organized, and comprehensive. The programs should be ongoing, presented regularly, and updated frequently.

The results of the survey indicate that CNAs provide most of the direct care for pressure ulcer prevention, which is consistent with the literature. However, this category

of nurses was reported to have the highest turnover rate. There is reason for concern since a high turnover rate would affect the direct care provider to resident ratio, therefore, resulting in less attention given to the residents for pressure ulcer prevention. The literature reports that CNAs receive low wages and are at times overwhelmed by the number of residents they have to care for due to short staffing.

The important finding regarding patient related factors was that the majority of residents had more than two chronic conditions. Other conditions such as diabetes, dementia, nutrition deficiencies and previous pressure ulcer did not appear to be a major factor individually. It is not known from this survey if long-term care facilities are doing enough to ensure adequate assessment and proper management of residents with several co-morbid conditions. The literature reports that if risk assessment is not part of the everyday practice in an agency, it is likely that the pressure ulcer incidence is higher than it should be.

Mobility and activity level are important in pressure ulcer prevention since prolonged pressure to vulnerable areas of the body can lead to pressure ulcers. Twenty-eight percent of respondents indicated that 60-79% of residents were wheelchair bound. The survey showed that most pressure ulcers were seen in bedbound residents according to 44% of respondents, which is close to the number of facilities (40%) that indicated wheelchair bound residents had the most pressure ulcers. It appears wheelchair bound and bedbound residents are almost equally at risk for pressure ulcers due to confinement and lack of mobility. These residents require frequent repositioning and pressure relieving devices to prevent pressure ulcer development.

Long-term care facilities are faced with challenges, which make it difficult to minimize the occurrence rate of pressure ulcers in their residents. The primary focus for decreasing pressure ulcer development should be factors which can be addressed. The following chapter will discuss recommendations to achieve this goal.

RECOMMENDATIONS

Recommendations to long-term care facilities for decreasing pressure ulcer development include strict adherence to the AHCPR guidelines, improvement of frequency and content of education and training, improve retention of CNAs, perform frequent assessment of high risk residents and utilize the team approach.

Although some pressure ulcers are unavoidable, education and training in pressure ulcer prevention is highly recommended. Since there is a high turnover rate of CNAs, it would be necessary for education and training to be provided on an ongoing basis to ensure new CNAs are educated shortly upon arrival and current staff are receiving regular review and updates in pressure ulcer prevention protocol. It is not clear from the literature what the exact frequency is for ongoing training but I would recommend that training be provided to all nursing staff at least twice a month while offering several days and different time slots to accommodate staff that work different shifts. Attendance at training sessions should be mandatory with close monitoring of performance and compliance with protocols.

The facility should appoint a professional staff member as educational coordinator to structure, organize, and present various topics as it relates to pressure ulcer prevention. Since CNAs provide the most direct care, the training programs should be directed primarily at this nurse category with emphasis on activities which CNAs perform.

To address the high turnover of CNAs, nursing home administrators need to investigate the reasons such as low wages and inadequate staffing. It may be beneficial to conduct regular staff meetings and do individual counseling to allow staff to express

problems and concerns or reasons for leaving. The administrator can use this information to make necessary changes to improve staffing and retention.

Residents with more than two chronic conditions are considered high risk and should have frequent encounters by nurse staff and regular evaluations by the physician managing the conditions. Although a team approach was utilized by most of the facilities in effort to prevent pressure ulcers, more of them should utilize this approach and include a wound care specialist on the team which few reported utilizing.

If facilities are serious about the well-being of their residents they will commit to following the suggested recommendations and participate in state sponsored programs when offered. The Virginia Nursing Home Improvement Collaborative (VNHIC), sponsored by the Virginia Health Quality Center (VHQC) provides information and resources for facilities interested in nursing home quality improvement.

A significant decrease in pressure ulcer development not only improves the quality of life for the resident but would also reduce treatment costs which may increase funds and resources for pressure ulcer prevention.

Recommendations for Further Study

The descriptive findings for this survey are meaningful as a basis for explaining what trends exist in long-term care facilities as relates to pressure ulcers and provides essential information to pursue significant studies later. For improving this survey, future studies should examine each of the provider related factors and patient related factors discussed as part of this survey. Experimental research evaluating a cause and effect relationship should be performed to determine what is actually significant in contributing

to pressure ulcer development in residents of long-term care facilities. Other recommendations include making the sample size larger to increase the chances of improving response rate and participation, and develop an instrument, which would improve the accuracy of responses. In addition, those factors not investigated but mentioned in the limitations section as possibly being indirectly related to pressure ulcer development, should also be considered for further studies.

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APPENDIX A

Although long-term care facilities may have protocols in place to prevent the development of pressure ulcers, I am trying to identify reasons why pressure ulcers develop anyway. The following lists are variables, which may have some effect on the development of pressure ulcers in residents in long-term care facilities. Patient centered variables are factors specifically related to the patient, which may encourage development of pressure ulcers. Provider centered variables reflect institution or provider concerns which may encourage pressure ulcer development.

Based on your professional experience working in a long-term care facility, please identify 5 variables from each list that you believe in general to be a factor in the development of pressure ulcers in long-term care facilities.

Patient Centered Variables

___ 1. Financial resources
___ 2. Activity level/mobility
___ 3. Age
___ 4. Gender
___ 5. Chronic medical conditions
___ 6. Nutrition/eating habits
___ 7. Mental status
___ 8. Previous pressure ulcer
___ 9. Lack of family support
___10. Recent hospitalization

Provider Centered Variables

___ 1. Adherence to prevention protocol
___ 2. Profit/non-profit facility
___ 3. Size of facility
___ 4. Type of staff-RN, LPN, CNA
___ 5. Turnover of staff
___ 6. Turnover of administrator
___ 7. Direct care provider/Patient ratio
___ 8. Underutilization of Team-physician, PT, dietitian
___ 9. Lack of education and training
___10. Assisted-Living/Nursing home

If there are variables not listed that you believe to be a factor in the development of pressure ulcers, please list below.

1._____
2._____
3._____

Comments:_____
_____
_____

Thank you very much for taking the time to participate in this pilot study.

APPENDIX B

Dear Administrator:

I am a graduate student at Old Dominion University pursuing a Master's Degree in Community Health with emphasis in Long-Term Care. My thesis project involves studying the reasons why pressure ulcers develop in residents in long-term care facilities even though protocols are in place to prevent these ulcers. I need your help in gathering information about these reasons.

I am conducting a pilot study and your nursing home is one of five I have chosen to participate. If you approve of this study being conducted in your facility, please pass the enclosed survey on to the Director of Nursing at your facility and ask her to complete the survey. The purpose of this initial study is to solicit the opinions of head nurses of long-term care facilities regarding reasons why they think pressure ulcers develop when there is a protocol. Upon review of the responses, the most common reasons indicated will be the focus of the thesis study. This study is being conducted under the supervision of my advisors, Dr. Gail Grisetti at (757) 683-6111 and Dr. Colin Box at (757) 683-3830. Please contact them if you have any questions regarding this study.

The survey responses are anonymous and will not identify respondents in any way. I am requesting that the survey be returned in the stamped envelope provided by December 20, 2002. If you choose not to participate in this study, please return this cover letter with a notation at the bottom so that I can contact another nursing home administrator.

If you choose to participate, I thank you in advance for your cooperation with this pilot study. Your responses will be extremely helpful in allowing me to proceed with the thesis study. A better understanding of why pressure ulcers develop in spite of a protocol will help long-term care facilities make necessary steps to decrease pressure ulcer development.

Sincerely,

Audrey D. Arthur

APPENDIX C

Dear Director of Nursing:

I am a graduate student at Old Dominion University pursuing a Master's Degree in Community Health with emphasis in Long-Term Care. My thesis project involves studying the reasons why pressure ulcers develop in residents in long-term care facilities even though protocols are in place to prevent these ulcers. I am seeking your assistance in helping to identify these reasons.

Your nursing home was chosen as one of five long-term care facilities to participate in a pilot study. Your administrator has given her approval and I am requesting that you complete the attached survey. The purpose of this initial study is to solicit the opinions of head nurses of long-term care facilities regarding reasons why they think pressure ulcers develop when there is a protocol. Upon review of the responses, the most common reasons indicated will be the focus of the thesis study.

The survey responses are anonymous and will not identify respondents in any way. Please return the completed survey in the stamped envelope provided by December 20, 2002.

Thank you in advance for your cooperation with this pilot study. Your responses will be extremely helpful in allowing me to proceed with the thesis study. A better understanding of why pressure ulcers develop in spite of a protocol will help long-term care facilities make necessary steps to decrease pressure ulcer development.

Sincerely,

Audrey D. Arthur

APPENDIX D

Dear Administrator,

I am a graduate student at Old Dominion University pursuing a Master's Degree in Community Health with emphasis in Long-Term Care. My thesis project involves studying reasons why pressure ulcers develop in residents in long-term care facilities even though protocols are in place to prevent these ulcers. I need your help in gathering information about these reasons.

A recent pilot study was conducted with five nurses who have experience working in long-term care facilities. They identified provider and patient related variables they believed to be factors in the development of pressure ulcers in long-term care facilities. I am now conducting a study to solicit responses from 150 long-term care facilities in Virginia that will narrow the list of variables to the most common reasons why pressure ulcers develop in residents of long-term care facilities. If you approve of this study being conducted in your facility, please pass the enclosed survey on to the Director of Nursing or Assistant Director of Nursing for completion.

The survey responses are anonymous and will not identify respondents in any way. The completed survey implies informed consent and willingness to participate in the study. I am requesting that the survey be returned in the stamped envelope provided by March 26, 2004. This study has been approved by the College of Health Services Human Subjects Committee and is being conducted under the supervision of my advisors, Dr. Gail Grisetti at (757) 683-6111 and Dr. Colin Box at (757) 683-3830. Thank you in advance for your cooperation with this important study. Your responses will make a significant contribution to understanding why pressure ulcers develop in spite of a protocol and help long-term care facilities make necessary steps to decrease pressure ulcer development. A summary of my findings will be provided to those who choose to participate in the study.

Sincerely,

Audrey D. Arthur

APPENDIX E

SURVEY

This study is being conducted to identify reasons why pressure ulcers develop in residents in long-term care facilities when prevention protocols are in place. Please answer the following questions. Your responses will be strictly confidential.

1. What is your current position and title?
   DON ___ADON ___RN ___LPN ___Other (specify)_____

2. How many years have you worked in the area of long-term care?
   1-4___ 5-9___ 10-14___15-19___20 +____

3. What is the current number of residents in your facility?
   0-49___ 50-99___100-149___ 150-199___ 200+____

4. Do you have residents currently being treated for pressure ulcers?
   Yes___ No___ Unsure___ N/A ___

5. If yes, how many?
   0-4___ 5-9___ 10-14___ 15-19___ 20+___

6. Does your facility follow a pressure ulcer prevention protocol?
   Yes___ No___ Unsure___ N/A____

7. Is your protocol based on guidelines recommended by The Agency for Health Care Policy and Research (AHCPR)? Yes___ No___ Unsure___ N/A___

8. Does the facility require education and training of nursing staff in pressure ulcer prevention? Yes ___ No___ Unsure___ N/A____

9. If yes, how often is education and training provided?
   Monthly___ Quarterly____ Twice/year____ Once/year____ Other_____

10. In your facility, which nurse category provides the most direct care for pressure ulcer prevention to residents? RNs___ LPNs ___ CNAs ___Unsure____ N/A ____

11. What is the ratio of direct care provider to residents in your facility during the day shift? 1:2___ 1:4___ 1:6___ 1:8___1:10___ Other_____
    During the night shift? 1:5___1:8___1:10___1:12___1:15____Other____

12. What is the average annual turnover rate of nursing staff at your facility?
    0-19%___20-39%___40-59%___60-79%___80+%___Specify %____Unsure__

13. Which category of nurses do you see the most turnover?
RNs____ LPNs ____ CNAs____ Unsure____ N/A____

14. Does your facility utilize a team of specialists in the effort to prevent pressure ulcers in residents? Yes____ No____ Unsure____ N/A____

15. Which health care specialists does your facility utilize? Check all that apply.
Physician ____Physical therapist ___ Dietitian ____ Podiatrist____
Other_____

16. What percentage of residents in your facility have ...

	0-19%	20-39%	40-59%	60-79%	80+%
More than two chronic conditions?	____	____	____	____	____
Diabetes with complications (i.e. insulin, PVD, neuropathy, kidney disease)?	____	____	____	____	____
Require tube feeding or assistance eating?	____	____	____	____	____
Special diets due to weight loss or poor nutrition?	____	____	____	___	____
Repeat (previous) pressure ulcers?	____	____	____	___	____
Moderate to severe dementia?	____	____	____	____	____
Dementia requiring a high level of nursing care?	____	____	____	____	____

17. What is the percentage of residents in your facility who are...

	0-19%	20-39%	40-59%	60-79%	80+%
Wheelchair bound?	____	____	____	____	____
Bedbound?	____	____	____	____	____

18. Which activity level presents with the most pressure ulcers in your facility?
Ambulatory/Assisted____ Wheelchair ____ Bedbound ____ N/A____

Thank you very much for taking the time to participate in this study.

APPENDIX F

SURVEY RESULTS

150 Questionnaires mailed, 50 responses received

1 What is your current position and title?

49%	30	**DON**
3%	2	**ADON**
11%	7	**RN**
8%	5	**LPN**
28%	17	**Other (specify)**
100%	61	

2 How many years have you worked in the area of long-term care?

10%	5	**1 - 4**
26%	13	**5 - 9**
24%	12	**10 – 14**
14%	7	**15 – 19**
26%	13	**20+**
100%	50	

3 What is the current number of residents in your facility?

22%	11	**0 – 49**
26%	13	**50 – 99**
26%	13	**100 – 149**
20%	10	**150 – 199**
6%	3	**200+**
100%	50	

4 Do you have residents currently being treated for pressure ulcers?

88%	43	**Yes**
12%	6	**No**
0%	0	**Unsure**
0%	0	**N/A**
100%	49	

5 If yes, how many?

49%	20	**0 - 4**
22%	9	**5 - 9**
15%	6	**10 – 14**
5%	2	**15 – 19**
10%	4	**20+**
100%	41	

6 Does your facility follow a pressure ulcer prevention protocol?

98%	48	**Yes**
2%	1	**No**
0%	0	**Unsure**
0%	0	**N/A**
100%	49	

7 Is your protocol based on guidelines recommended by The Agency for Health Care Policy and Research (AHCRP)?

58%	28	**Yes**
15%	7	**No**
21%	10	**Unsure**
6%	3	**N/A**
100%	48	

8 Does the facility require education and training of nursing staff in pressure Ulcer prevention?

100%	50	**Yes**
0%	0	**No**
0%	0	**Unsure**
0%	0	**N/A**
100%	50	

9 If yes, how often is education and training provided?

12%	6	**Monthly**
15%	8	**Quarterly**
25%	13	**Twice/year**
33%	17	**Once/year**
15%	8	**Other**
100%	52	

10 In your facility, which nurse category provides the most direct care for pressure ulcer prevention to residents?

17%	10	**RNs**
34%	20	**LPNs**
49%	29	**CNAs**
0%	0	**Unsure**
0%	0	**N/A**
100%	59	

11a What is the ratio of direct care provider to residents in your facility during the day shift?

0%	0	**1:2**
10%	5	**1:4**
20%	10	**1:6**
22%	11	**1:8**
35%	17	**1:10**
12%	6	**Other**
100%	49	

11b During the night shift?

8%	3	**1:5**
10%	4	**1:8**
10%	4	**1:10**
10%	4	**1:12**
46%	18	**1:15**
15%	6	**Other**
100%	39	

12 What is the average annual turnover rate of nursing staff at your facility?

33%	16	**0 - 19%**
35%	17	**20 – 39%**
10%	5	**40 – 59%**
8%	4	**60 – 79%**
2%	1	**80+%**
2%	1	**Specify %**
10%	5	**Unsure**

100%	49

13 Which category of nurses do you see the most turnover?

10%	5	**RNs**
8%	4	**LPNs**
76%	39	**CNAs**
6%	3	**Unsure**
0%	0	**N/A**
100%	51	

14 Does your facility utilize a team of specialists in the effort to prevent pressure ulcers in residents?

56%	28	**Yes**
42%	21	**No**
2%	1	**Unsure**
0%	0	**N/A**
100%	50	

15 Which health care specialists does your facility utilize? Check all that apply.

92%	46/50	**Physician**
88%	44/50	**Physical therapist**
92%	46/50	**Dietitian**
68%	35/50	**Podiatrist**
20%	19/50	**Other**

16 What percentage of residents in your facility have...

	0 - 19%	20 - 39%	40 - 59%	60 - 79%	80+%	Totals
More than two chronic conditions?	2	8	7	12	19	48
Diabetes with complications	16	13	12	4	4	49
require tube feeding or assistance eating?	27	9	7	3	3	49
special diets due to weight loss or poor nutrition?	22	15	7	4	1	49
Repeat (previous) pressure ulcers?	46	2	0	0	0	48
Moderate to severe dementia?	7	16	10	10	6	49
dementia requiring a high level of nursing care?	15	12	9	10	2	48

16 What percentage of residents in your facility have...

	0 - 19%	20 - 39%	40 - 59%	60 - 79%	80+%	
More than two chronic conditions?	4%	17%	15%	25%	40%	100%
Diabetes with complications	33%	27%	24%	8%	8%	100%
require tube feeding or assistance eating?	55%	18%	14%	6%	6%	100%
special diets due to weight loss or poor nutrition?	45%	31%	14%	8%	2%	100%
Repeat (previous) pressure ulcers?	96%	4%	0%	0%	0%	100%
Moderate to severe dementia?	14%	33%	20%	20%	12%	100%
dementia requiring a high level of nursing care?	31%	25%	19%	21%	4%	100%

17 What is the percentage of residents in your facility who are...

	0 - 19%	20 - 39%	40 - 59%	60 - 79%	80+%	Totals
Wheelchair bound?	10	5	12	14	9	50
Bedbound?	45	3	0	0	0	48

Wheelchair bound?	20%	10%	24%	28%	18%	100%
Bedbound?	94%	6%	0%	0%	0%	100%

18 Which activity level presents with the most pressure ulcers in your facility?

4%	2	**Ambulatory/Assisted**
40%	20	**Wheelchair**
44%	22	**Bedbound**
12%	6	**N/A**
	50	

VITA

AUDREY D. ARTHUR
School of Community Health Professions
Old Dominion University
Norfolk, Virginia

Objective: Interested in making a career adjustment from geriatric foot care to focusing on the general well-being of the elderly adult. To be employed in the field of long-term care, working to maintain or improve the quality of life of older adults who need assistance.

Education and Professional Experience

Sept. 1979- May 1983	Virginia State University Petersburg, VA Degree: Bachelor of Science in Biology
Sept. 1983- May 1987	New York College of Podiatric Medicine New York, New York Degree: Doctor of Podiatric Medicine
July 1987- June 1998	Norfolk Community Hospital, Norfolk, VA Residency: Podiatric Medicine & Surgery
Sept. 1988- Oct. 1989	Sumner Medical Center, Brooklyn, N.Y. Podiatrist
Feb. 1990- Jan. 1993	Beaufort Naval Hospital, Beaufort, S.C. Branch Medical Clinic, Parris Island, S.C. Staff Podiatrist/Lieutenant/United States Navy
April 1993- Present	Private Podiatric Practice, Norfolk, VA (1993-1999) Virginia Beach, VA
June 1993- June 1998	Norfolk Community Hospital, Norfolk, VA Staff Podiatrist
Jan. 1995- Present	U. S. Naval Reserves LCDR/Medical Service Corps
Sept. 1997 Dec. 2004	Old Dominion University, Norfolk, VA Degree: Master of Science in Community Health Emphasis: Long-term care