

# Predictors of a Fall Event in Hospitalized Patients With Cancer

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**F**all prevention for hospitalized patients is an important nursing quality indicator. About 23%–42% of inpatient falls result in injury, with 2%–9% resulting in serious events including fractures, subdural hematoma, excessive bleeding, and death (Chelly et al., 2008; Enloe et al., 2005; Fisher et al., 2005; Hitcho et al., 2004). Wong et al. (2011) found that patients who fell and sustained serious injuries incurred \$13,806 more cost and had a 6.9-day longer length of stay compared to matched patients who did not fall. Fall-related lawsuits generated against facilities and healthcare providers also can increase costs. In addition, fall injuries have cost implications for hospitals because Medicare reimbursement is eliminated for secondary diagnoses related to hospital-acquired fall injuries (Centers for Medicare and Medicaid Services, 2012).

Among hospitalized patients, those being treated for cancer have higher fall frequencies and injury rates than patients without cancer (Alcee, 2000; Hitcho et al., 2004; O'Connell, Baker, Gaskin, & Hawkins, 2007). In addition to general fall-risk factors, people with cancer have cancer-specific fall-risk factors, including neurologic and nutritional deficits as a result of cancer treatments, polypharmacy, and deconditioning from cancer-related fatigue (Dean et al., 1995; Holley, 2000; Holley & Borger, 2001). Cancer care is a highly prevalent reason for hospitalization; therefore, nurses need to understand evidence-based fall predictors so that processes and interventions can be developed and implemented to decrease patient risk.

Based on a review of the literature and previous research conducted by the authors, some characteristics of hospitalized patients with a cancer diagnosis who fell were similar to those of general medical-surgical hospitalized patients who fell. For example, mean age

**Purpose/Objectives:** To determine predictors of fall events in hospitalized patients with cancer and develop a scoring system to predict fall events.

**Design:** Retrospective medical record review.

**Setting:** A 1,200-bed tertiary care hospital in northeastern Ohio.

**Sample:** 145 patients with cancer who did not have a fall event were randomly selected from all oncology admissions from February 2006–January 2007 and compared to 143 hospitalized patients with cancer who had a fall event during the same period.

**Methods:** Multivariable logistic regression models predicting falls were fit. Risk score analysis was completed using bootstrap samples to evaluate discrimination between patients who did or did not fall and agreement between predicted and actual fall status. A nomogram of risk scores was created.

**Main Research Variables:** Fall episodes during hospitalization and patient characteristics that predict falls.

**Findings:** While patients were hospitalized for cancer care, their predictors of a fall episode were low pain level, abnormal gait, cancer type, presence of metastasis, antidepressant and antipsychotic medication use, and blood product use (all  $p < 0.02$ ); risk model c-statistic was 0.89.

**Conclusions:** For hospitalized patients with cancer, predictors reflecting greater fall episode risk can be assessed easily by nursing staff and acted on when the risk is sufficiently high.

**Implications for Nursing:** Understanding specific risk factors of falls in an adult oncology population may lead to interventions that reduce fall risk.

of adult patients with cancer who fell was 62.4 years (Capone, Albert, Bena, & Morrison, 2010) and mean age of adult medical-surgical inpatients in academic and nonacademic hospitals was 62–72 years (Krauss et al., 2007). Weakness was a prominent general characteristic in 80% of patients with cancer (Capone et