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Patient Safety Clinical Alert No. 1, March 2005

Falls in Maryland Hospitals

Since March 15, 2005, twenty falls resulting in death or serious disability have been reported to the Office of Health Care Quality (OHCQ). Half of these falls were fatal, most from traumatic brain injury, specifically subdural hematomas. Fourteen of the falls were associated with patient confusion or other mental status changes. These cases are representative of the nature of the cases in Maryland hospitals, but probably under-represent the number of serious falls occurring in hospitals. A review of these cases shows strong correlation with the known risk factors listed below, and suggests the need for better assessment and more effective fall reduction strategies.

Falls are a serious public health problem among older adults. One Australian study determined that 38% of all hospital incidents involve falls.¹ According to statistics compiled by the Center for Disease Control and Prevention (CDC), as many as 75% of nursing home residents and nearly 35% of seniors living in the community fall each year.² A literature search reveals little information regarding falls in US hospitals. Falls, wherever they occur, are the leading cause of death by injury in those 65 and older, and are the underlying cause of many traumatic brain injury fatalities.

Risk Factors

Age: Age has been associated with an increased risk of falling in most studies and correlates with a high mortality from

falls. In the US, the elderly represent 12% of the population but account for 75% of the deaths from falls. One British study showed rates of falling for women at 9% for age 65 to 74; 13% for ages 75 to 84; and 17% for age 85 and older. Rates for males are slightly lower, at 4%, 9%, and 7% respectively.³ Age related conditions predisposing patients to fall include cardiac arrhythmias, TIAs, stroke, dementing illnesses, orthostatic hypotension, visual or auditory impairments, and dehydration. In addition, a fall may be the presenting symptom of a serious acute illness, for instance, when the hypoxemia of impending respiratory failure causes agitation and confusion, leading to patient injury. **Maryland Findings:** All but four of the falls reported to OHCQ occurred in patients over 60, and all of the fatalities were in patients over 65.

Mental status: Alteration in mental status is strongly correlated with falls risk. Confused, sedated, or otherwise cognitively impaired patients do not realize their own limitations, cannot interpret their environment appropriately, and cannot remember or follow directions. **Maryland Findings:** 14 of the people who fell that were reported to the OHCQ were noted to have mental status changes. The mental status changes were either present on admission or occurred during the admission. Surprisingly, known mental status changes or cognitive impairment was not necessarily correlated with assessment of fall risk or being on fall precautions. For instance,

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one patient fell when he went to the bathroom unattended after having a procedure involving conscious sedation. This patient was neither reassessed for the risk of falling nor assumed to be at a higher risk for falling after the procedure. Two patients who were reported to OHCQ were so confused they pulled out large venous access catheters and then had unwitnessed falls associated with hemorrhage. Two other patients had acute mental status changes associated with their disease processes that caused hallucinations leading them to jump out windows.

Co-morbidities: The presence of co-morbidities as a risk factor for falls is not captured by all risk assessment tools but clearly needs to be considered. Having multiple co-morbidities also leads to prolonged hospital stays—another risk factor for falling. Frailty and deconditioning increases with length-of-stay. While this information is not always reported to us, at least three of the patients who fell had been in the hospital for seven days or longer. **Maryland Findings:** 19 of the 20 patients who fell had two or more serious co-morbidities. These chronic and acute disease states included coagulopathies, cancer, end-stage renal disease with dialysis, arthritis and other diseases that lead to weakness and difficulties with balance and gait. In particular, patients need to be assessed for the presence of coagulopathies and the use of anticoagulants. While a prolonged bleeding time is not necessarily predictive of falling,

it is associated with a high mortality. *In fact, of the ten patients reported to OHCQ who died after falling, seven had coagulopathies and died of subdural hematomas.*

Two other patient characteristics are not reported to the OHCQ, but are associated with high risk for falling. These are incontinence and polypharmacy.

Incontinence: One study determined that the risk of falling for patients who are incontinent is 12 times higher than for those who are continent.⁴ Besides the urgency and frequency involved with incontinence, there may be other self-care deficits that are indicative of weakness and general debility or deconditioning.

Polypharmacy: Polypharmacy is another aspect not always captured by falls risk assessments. Many medications cause weakness or mental status changes, contributing to falls. Drugs that may increase the risk of falling include sedative/hypnotics, anxiolytics, narcotics, benzodiazepines, tricyclic antidepressants, antihypertensives, cardiac medications, corticosteroids, hypoglycemics, NSAIDs, and any medication likely to affect balance. In addition, the initiation of a new drug therapy in the previous two weeks has also been associated with an increased risk of falling for elderly patients.⁵ This describes most hospitalized elderly. Polypharmacy is to be expected in the presence of co-morbidities and should be

considered as part of a thorough risk assessment.

Interventions

Falls Risk Assessment: At least seven of the 20 patients who fell were on falls precautions. Another seven patients should have been on falls precautions based on mental or physical status changes that occurred in the hospital, but were not. These changes included being on narcotics, medication regimen changes, confusion, and sedation following procedures. The falls assessment is normally done only on admission. This may miss some important new information as the patient's condition changes. The falls risk assessment needs to be a multi-dimensional assessment of causes and consequences.⁶ As stated above, polypharmacy, length of time in the hospital, age, and presence of co-morbidities are patient characteristics associated with fall risk. Falls risk assessment should be done on a routine basis while in the hospital and should be done with any change in the patient's condition. One patient who was not on falls precautions fell twice—the second time just a few minutes after the first while the nurse was attempting to get a restraint order. Another patient was on falls precautions and had a sitter ordered which could not be provided due to short staffing. The patient fell and died. One of the patients who should have been on falls precautions (for escalating narcotic use) and

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was not, fell three times in 12 hours and fractured her hip on the third fall. In this case, a sitter had been ordered after the second fall, but the order was missed for several hours and then could not be implemented due to staffing constraints.

Most of the falls precautions incorporate increased vigilance by staff, moving the patient to a room closer to the nurse's station, and reducing the amount of environmental hazards. These were ineffective and/or inadequate interventions in the falls reported to this office. For instance, two patients who fell did so after procedures done off the unit. In both cases, the transporters who brought them back to the rooms were not aware of the falls precautions and failed to notify the staff that the patients were back in bed. While hospitals may not feel free to post large signs at the bedside about a patient's condition due to HIPAA, they must develop a system for alerting all staff to each patient's care issues.

The Veteran's Administration has developed a very extensive Falls Toolkit⁷ which takes an interdisciplinary approach to falls prevention. Interventions included in the Toolkit include:

- Assessing risk on admission and at regular intervals.
- Fully engaging patient and family in prevention activities.
- Placing both side rails up on the patient's weaker side, thus encouraging the patient to exit the bed on his or her stronger side.
- Ambulating as early and as frequently as possible.
- Every 1, 2, or 3 hour comfort and toileting rounds, depending on the needs of the patient.
- PT consult for balance, strength, and exercise program.
- Patients at high risk may be placed on a concave mattress and may have an absorbent, non-slip mat placed on the floor next to the side they exit.
- Use of bedside commodes.
- Pharmacy review of medications.

Another resource for fall prevention strategies is the American Medical Directors Association (AMDA), which, along with the American Health Care Association (AHCA), published clinical practice guidelines⁶ for understanding fall risk and reducing the severity of injury and the rate of falls. AMDA recommends having a minimum set of universal precautions, then individualizing interventions based on risk assessment. Most hospitals have universal precautions, such as keeping beds in the low position and reducing environmental hazards, but if the events reported to this office are any indication, the individualized interventions lack effectiveness for a variety of reasons. Hospitals may have to define what "high risk" means based on the patient population of each unit.

While the Office of Health Care Quality is not advocating that every hospital in Maryland follow the VA or the AMDA model, these resources contain many useful suggestions and "outside the box" ideas that may help your hospital decrease the rate and staggering cost, in dollars and lives, of patient falls. While not every fall warrants a root cause analysis, the Office of Health Care Quality recommends that hospitals quickly analyze individual falls for correctable issues and closely monitor fall rates in the aggregate.

1. Evans et al, *Falls in Acute Hospitals: A Systematic Review*, The Joanna Briggs Institute for Evidence Based Nursing and Midwifery, 1998
2. <http://www.cdc.gov/ncipc/factsheet/fallcost.htm>, 2000
3. <http://www.official-documents.co.uk/documents/deps/doh/survey01/nfa/nfa11.htm>, 2003
4. Stevenson et al, *Falls Risk Factors in an Acute Care Setting*, Canadian Journal of Nursing Research, 1998
5. <http://www.aafp.org/afp/2000401/2159.html>, 2000
6. *Falls and Fall Risks*, Clinical Practice Guideline, American Medical Directors Association, 1998
7. <http://www.patientsafety.gov/SafetyTopics/fallstoolkit/index.html>, 2004

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Clinical Alert

is published periodically by the
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and Mental Hygiene

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