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By Ann Hendrich, MSN, RN, FAAN

# Predicting Patient Falls

*Using the Hendrich II Fall Risk Model in clinical practice.*



Ed Eckstein

**Overview:** The Hendrich II Fall Risk Model is used to assess a hospitalized patient's risk of falling. Designed to be administered quickly, it focuses on eight independent risk factors: confusion, disorientation, and impulsivity; symptomatic depression; altered elimination; dizziness or vertigo; male sex; administration of antiepileptics (or changes in dosage or cessation); administration of benzodiazepines; and poor performance in rising from a seated position in the Get-Up-and-Go test. (This screening tool is included in a series, *Try This: Best Practices in Nursing Care to Older Adults*, from the Hartford Institute for Geriatric Nursing at New York University's College of Nursing.) For a free online video demonstrating the use of this tool, go to <http://links.lww.com/A111>.

**A**lvin Stewart was a healthy, independent 65-year-old when he was hospitalized for partial lung resection for a nonmalignant tumor. (This case is a composite based on my experience.) Now, three days after surgery, his recovery has been complicated by inadequate pain control and chronic urinary retention and urgency, exacerbated by the general anesthesia. When asked to rise from the side of the bed or a chair, he has to push up with both hands. As he takes the first few steps he looks unsteady, walking with a noticeable sway, and he frequently grabs objects for support. Mr. Stewart is mildly disoriented from oxycodone (OxyContin and others), and he says that it causes him to feel dizzy and “forget exactly where I am.”

The nurse discusses toileting assistance with him, and he expresses a strong desire to “go it alone and remain independent.” She believes this desire for independence may prevent him from asking for or waiting for help when he needs it. The nurse had scanned Mr. Stewart's room for factors that might increase his risk of falling, but she knows that if his risk is high, additional interventions will be needed to reduce it. To ascertain his level of risk, the nurse uses the Hendrich II Fall Risk Model.



### Web Video

Watch a video demonstrating the use and interpretation of the Hendrich II Fall Risk Model at <http://links.lww.com/A111>.



### A Closer Look

Get more information about fall risk assessment in older adults.



### Try This: The Hendrich II Fall Risk Model

This is the model in its original form. See page 55.



### Online Only

Unique online material is available for this article. Direct URL citations appear in the printed text; simply type the URL into any Web browser.

### WHY USE THE HENDRICH II FALL RISK MODEL?

Developed by nurses to assess a patient's risk of falling in the acute care setting, the Hendrich II Fall Risk Model provides a means of predicting which patients are at risk for falling. It is designed to be administered quickly and focuses on eight independent risk factors identified in 2003 by me and my colleagues<sup>1</sup>:

- confusion, disorientation, impulsivity
- symptomatic depression
- altered elimination
- dizziness, vertigo
- male sex
- administration of antiepileptics (or dosage changes or cessation)
- administration of benzodiazepines
- poor performance in the “Get-Up-and-Go” test of rising from a seated position

Each of the independent risk factors is assigned a specific score. If a factor isn't present, the patient receives a score of 0. The researchers derived the scores from the odds ratios identified in the 2003 study.<sup>1</sup> To make scoring simple, the odds ratios, which represented the likelihood of falling as a result of a particular risk factor, were converted to whole numbers, then to risk points. As a result,



## How Serious Is the Problem of Patient Falls?

*A look at the numbers.*

According to the Centers for Disease Control and Prevention, "In 2004, 14,900 people 65 and older died from injuries related to unintentional falls; about 1.8 million people 65 and older were treated in emergency departments for nonfatal injuries from falls, and more than 433,000 of these patients were hospitalized."<sup>4</sup> The *Wall Street Journal* has reported that when falls occur in hospitals, the costs of treating the resulting injuries equal \$1.08 billion annually, or approximately \$15,000 to \$30,000 per fall.<sup>6</sup> And roughly 244,500 nursing home residents suffer a serious fall injury annually, with costs estimated at \$4.9 billion in 2005.<sup>7</sup>

It's important to note that this problem isn't exclusive to older adults—a 2003 study found that half of the patients who fell were younger than age 65.<sup>8</sup> Each fall represents immeasurable suffering, for both patient and family. In addition, after experiencing a fall, patients may develop a fear of falling again; they may fear injury and embarrassment.<sup>9</sup> This can be severely restrictive.

To view the segment of the online video showing a nurse discussing the issue of patient falls, go to <http://links.lww.com/A162>.

each item on the scale has its own weight. The patient either has the risk factor or doesn't; when present, the patient is given the number of points for that item.

The Hendrich II Fall Risk Model is built on intrinsic risk factors—physiologic conditions such as dizziness that may be present in both home and hospital environments. Intrinsic factors are the cause of "anticipated physiologic falls," meaning those that are predictable and preventable.<sup>2</sup> A recent study by the California Nursing Outcomes Coalition found that of the 48,485 falls that occurred in hospitals between 1998 and 2004, up to 38% were anticipated physiologic falls.<sup>3</sup> The Hendrich II Fall Risk Model doesn't address extrinsic environmental factors such as flooring conditions, assistive devices, lighting, and shoes. (See *How Serious Is the Problem of Patient Falls?* above.)

### ADMINISTERING THE HENDRICH II MODEL

Patients should be assessed for risk upon admission and routinely during each shift and when their condition changes. A nurse uses the model to complete an evaluation based on observation, interview, and

intuition. To view the segment of an online video showing a nurse administering the Hendrich II Fall Risk Model, go to <http://links.lww.com/A161>.

**Confusion and disorientation** can be assessed through taking the history, interviewing, and observing patterns of behavior. If any or all of the following are present, the patient receives a score of 4 for this risk factor:

- impulsive or unpredictable behavior
- hallucinations
- agitation
- changes in attention, cognition, psychomotor activity, level of consciousness, or sleep-wake cycles
- unrealistic, inappropriate, or unusual behavior
- disorientation to person, place, or time
- inability to follow directions or retain instructions in self-care or activities of daily living

When administering the model, it's not necessary to distinguish between acute or chronic states of confusion or disorientation; either earns the same score.

**Depression** is assigned a score of 2. A patient may be considered depressed if she or he is so described in the history or if a diagnosis of depression has been determined. But a patient with a history of depression who isn't displaying symptoms doesn't receive a positive score—the depression is considered to be under therapeutic control. Clinicians should observe for any of the following signs of depression:

- prolonged feelings of helplessness, hopelessness, or being overwhelmed
- tearfulness
- flat affect or lack of interest
- loss of interest in life events
- melancholic mood
- withdrawal
- the patient's statement of depression

A positive score for depression on the Hendrich model is not a diagnosis, which requires a complete evaluation. If a patient who is given a 2 for this factor has not received a diagnosis of depression, the physician or NP should be alerted to the need for further evaluation.

**Altered elimination** is given a score of 1. The following symptoms qualify:

- urinary or fecal incontinence
- urgency or stress incontinence
- diarrhea
- frequent urination
- nocturia

A patient with a Foley or indwelling catheter is not considered at risk for altered elimination unless the patient is concurrently experiencing one or



## Myths About Fall Risk

*Findings of one study put some misunderstandings to rest.*

more of these symptoms. When the catheter is removed, the patient could be at high risk for altered function until normal elimination is established. It's important to note, though, that any patient who receives a score of 5 or higher on the Hendrich II Fall Risk Model is particularly vulnerable when using the toilet, regardless of whether she or he scored positively for altered elimination.

**Dizziness or vertigo.** Unless previously diagnosed or recorded in the patient's history, the scoring of dizziness or vertigo is based on the patient's report. The patient may describe symptoms with statements like "The room is spinning" or "I feel like I'm spinning." Another method for assessing dizziness or vertigo is to observe for swaying when the patient stands (as part of the Get-Up-and-Go test, described below). Does the patient sway in a small circle when standing still? This sign is often observed in aging adults with poor gait and balance. (In new mothers it can be an adverse effect of epidural anesthesia causing prolonged numbness and weakness.) Patients experiencing dizziness or vertigo receive a score of 1 for this risk factor.

**Male sex.** The 2003 study by me and my colleagues found that being male was an independent risk factor for falls<sup>1</sup>; therefore, all men receive a score of 1. It may be that men are more likely than women to take risks, "go it alone," and ignore instructions.

**Medications.** Antiepileptics and benzodiazepines are the only drug classes that the model addresses directly. The adverse effects common to other medications—dizziness, altered elimination, unsteady gait, and confusion—are already represented. Antiepileptics and benzodiazepines are considered independent risk factors because they affect the central nervous system and can cause cerebellar ataxia, weakness, and gait changes. For the patient to receive a positive score, one of these drugs must be administered, not simply ordered. Patients taking an antiepileptic receive a score of 2 if the drug is administered, stopped, or changed suddenly. Patients who have been administered a benzodiazepine receive a score of 1.

**Get-Up-and-Go test** scores range from 0 to 4 based on the patient's ability to rise from a seated position. Although the test normally includes walking, the 2003 study found that rising alone was sufficient to predict fall risk; indeed, this single action was found to be slightly more statistically significant than the overall test score.<sup>1</sup> However, whenever possible, evaluate the patient's ability to walk a few steps after standing. A sway or abnormal gait (shuffling, falling to one side, inability to lift the feet and

The 2003 study that I conducted with several colleagues began to address some fundamental misunderstandings about fall risk.<sup>1</sup> First and foremost, the study found that age alone is not a risk factor for falls. We concluded that an elderly, hospitalized person is no more likely to fall than a younger person, unless age is paired with true fall risk factors. Though significant fall rates have been identified in older adults (see *How Serious Is the Problem of Patient Falls?* page 52), our findings confirmed that we can no longer view age as a single, independent fall risk factor.

A second finding identified the effects of medications on falls. Conventional wisdom suggests that increased fall risk results from an increase in the number of medications being given. We found this not always to be the case. Though polypharmacy (six or more medications) can produce adverse effects that increase the risk of falling, such effects are not always present. The two drug categories that proved to carry a statistically significant, independent fall risk were antiepileptic and benzodiazepine medications. Thus, a patient taking one of these drugs could be at greater risk for falling than a patient taking five or six medications from other drug categories.

The third significant finding was that a history of falls isn't necessarily predictive. A history of falling must be carefully examined to determine the factors that caused the fall. Simply put, a predictable fall always has at least one underlying risk factor; if this factor is no longer evident, the patient's risk of falling declines. But if the risk factor persists, so does the need for preventive strategies. For example, if a patient fell because of an underlying *chronic* condition that impairs her or his mobility, it could lead to another fall. In this example, the previous fall is *not* the risk factor. The *impaired mobility* is the risk factor.

walk without help) could indicate other risk factors specific to fall risk.

To evaluate the patient's ability to stand up, the nurses should have her or him sit on a chair or at the side of the bed with the hands resting flat on the thighs. A patient who is able to rise in a single movement without using her or his hands scores a 0 on the test. The patient who pushes up with the hands and rises in one attempt scores a 1. The patient who pushes up multiple times but ultimately is able to rise scores a 3. A patient who is unable to get up without assistance receives a score of 4.

**Mr. Stewart.** After introducing herself, Mr. Stewart's nurse, Bettina Gonzales, begins assessing him using the Hendrich II model. "I'd like to ask you a few questions," she says. "They may seem strange, but they'll help us care for you better." Mr. Stewart nods. "Can you tell me who you are?" she asks. Drowsy and slightly confused, he states his name. When she asks him the time and his whereabouts, he says he isn't sure. She records a score of 4



### Watch It!

Go to <http://links.lww.com/A111> to watch a nurse use the Hendrich II Fall Risk Model to screen for fall risk in an actual patient and discuss how to administer and interpret it quickly. Then watch the health care team plan preventive strategies.

View this video in its entirety and then apply for CE credit at [www.nursingcenter.com/AJNolderadults](http://www.nursingcenter.com/AJNolderadults); click on the *How to Try This* series link. All videos are free and in a downloadable format (not streaming video) that requires Windows Media Player.

in the confusion and disorientation section of the Hendrich II model.

Mr. Stewart's record doesn't show a history of depression, nor has he been prescribed any antidepressants. His manner also doesn't indicate depression; although he is clearly confused, he doesn't appear withdrawn, overwhelmed, or overly emotional. Ms. Gonzales enters a score of 0 in the depression section of the risk model.

### *Patients rousing from a drug-induced coma or unconsciousness are at particularly high risk.*

Next, Ms. Gonzales asks another nurse to assist so they can conduct the Get-Up-and-Go test. Mr. Stewart is asked to slowly turn and swing his legs to the side of the bed. Both nurses support him as he does so. He can sit with assistance, but because he uses both hands to push off the bed, he scores 1 point. While standing, he sways slightly. "How do you feel?" Ms. Gonzales asks. "I'm dizzy," he says. "It's like the room is spinning around me." He falls slightly toward the other nurse, who steadies him. Mr. Stewart clearly has dizziness and vertigo, so he receives a score of 1 in that category.

Mr. Stewart has not been administered anti-epileptics or benzodiazepines, and the nurse enters a score of 0 in each of these categories. She adds 1 point for male sex.

Finally, Ms. Gonzales asks, "How often do you feel the need to urinate?" "Often," he answers, "and when I have to go, I have to get to the toilet fast." The nurse adds 1 point for altered elimination.

**Challenges that may arise.** If the patient is unable to perform the Get-Up-and-Go test, score all the other risk factors that can be assessed. If the patient scores a 5 or above without this test and can *attempt* to get up, she or he should be considered at high risk for falls. Those who are unable to attempt even to rise but who have scored 5 or more in the other categories should be considered at high risk. Fall-prevention interventions should be implemented as soon as these patients begin to attempt rising; they can become high-risk patients within a short period, so ongoing assessment is critical. Also, patients rousing from a drug-induced coma or unconsciousness are at particularly high risk; frequent monitoring will prevent unexpected changes in fall risk.

If the patient is dizzy or exhibits poor balance, it's always best to have two caregivers present for support when the Get-Up-and-Go test is performed. Also, constant monitoring for adverse medication effects and drug-drug interactions is essential. Monitoring can also help detect subtle shifts in behavior, cognition, or gait and balance that can dramatically and rapidly increase fall risk.

### SCORING AND INTERPRETING RESULTS

When a risk factor is found, the corresponding score is recorded in the box on the right side of the page. The final score is the sum of these scores; patients with a total of 5 or higher are at high risk for falling (16 is the highest possible score). These patients will require precautionary interventions; the higher the score, the greater the precautions. The video segment discussing scoring is available online at <http://links.lww.com/A163>.

**Mr. Stewart's total score** is 8, indicating that he has a high risk of falling. To reduce his risk, the care plan is altered. For example, his confusion and dizziness are intermittent and of recent onset. And since his electrolytes are normal, the confusion and dizziness are most likely adverse effects of oxycodone. His physician is consulted to discuss alternative strategies for managing his pain. Because of challenges to his gait and mobility, his care plan incorporates increased observation: toileting rounds based on his pattern of elimination are scheduled, and a bed-exit alarm is installed. His yellow armband reflects his risk of falling and is a reminder to him and all staff. Most important, he should not be allowed to get up without assistance or be left alone in the bathroom. His family is informed of his needs and asked to assist with ambulation, toileting, and reminding him not to get up without assistance. Keeping Mr. Stewart mobile by getting him

## Fall Risk Assessment for Older Adults: The Hendrich II Fall Risk Model

By: *Deanna Gray-Miceli, DNSc, APRN, BC, FAANP, University of Pennsylvania;  
New Jersey Department of Health and Senior Services*

**WHY:** Falls among older adults, unlike other ages tend to occur from multifactorial etiology such as acute<sup>1,2,3</sup> and chronic<sup>4</sup> illness, medications,<sup>5</sup> as a prodrome to other diseases,<sup>6</sup> or as idiopathic phenomena. Because the rate of falling increases proportionally with increased number of pre-existing conditions and risk factors,<sup>7</sup> fall risk assessment is a useful guideline for practitioners. One must also determine the underlying etiology of “why” a fall occurred with a comprehensive post-fall assessment.<sup>8</sup> Fall risk assessment and post-fall assessment are two interrelated, but distinct approaches to fall evaluation, both recommended by national professional organizations.<sup>9</sup>

**BEST PRACTICE APPROACH:** In acute care, a best practice approach incorporates use of the Hendrich II Fall Risk Model which is quick to administer and provides a determination of risk for falling based on gender, mental and emotional status, symptoms of dizziness, and known categories of medications increasing risk.<sup>10</sup> This tool screens for primary prevention of falls and is integral in a post-fall assessment for the secondary prevention of falls.

**TARGET POPULATION:** The Hendrich II Fall Risk Model is intended to be used in the acute care setting to identify adults at risk for falls. The Model is being validated for further application of the specific risk factors in pediatric and obstetrical populations.

**VALIDITY AND RELIABILITY:** The Hendrich II Fall Risk Model was validated in a large case control study in an acute care tertiary facility with skilled nursing and rehabilitation populations. The risk factors in the model had a statistically significant relationship with patient falls (Odds Ratio 10.12-1.00, .01 > p <.0001). Content validity was established through an exhaustive literature review, use of accepted nursing nomenclature and the extensive experience of the principal investigators in this area.<sup>11</sup> The instrument is sensitive (74.9%), specific (73.9%) with interrater reliability measuring 100% agreement.

**STRENGTHS AND LIMITATIONS:** The major strengths of the Hendrich II Fall Risk Model are its brevity, the inclusion of “risky” medication categories, and its focus on interventions for specific areas of risk rather than on a single, summed general risk score. Categories of medications increasing fall risk as well as adverse side effects from medications leading to falls are built into this tool. Further, with permission, the Model can be inserted into existing documentation forms or used as a single document. It has been built into electronic health records with targeted interventions that prompt and alert the caregiver to modify and/or reduce specific risk factors present.<sup>11</sup>

### REFERENCES:

Best practice information on care of older adults: [www.ConsultGerIRN.org](http://www.ConsultGerIRN.org).

- Ooi, W.L., Hossain, M., & Lipsitz, L.A. (2000). The association between orthostatic hypotension and recurrent falls in nursing home residents. *American Journal of Medicine, 108*(2), 106-11.
- Davies, A.J., Steen, N., & Kenny, R.A. (2001). Carotid sinus hypersensitivity is common in older patients presenting to an accident and emergency department with unexplained falls. *Age and Ageing, 30*(4), 273-274.
- Heittrachi, E., Lord, S.R., Meyerkort, P., McCloskey, I., & Fitzpatrick, R. (2002). Blood pressure changes on upright tilting predict falls in older people. *Age and Ageing, 31*(3), 181-186.
- Stolze, H., Klebe, S., Zechlin, C., Baecker, C., Friege, L., & Deuschl, G. (2004). Falls in frequent neurological diseases-prevalence, risk factors and etiology. *Journal of Neurology, 251*(1), 79-84.
- Leipzig, R.M., Cumming, R.G., & Tinetti, M.E. (1999). Drugs and falls in older people: A systematic review and meta-analysis: Cardiac and analgesic drugs. *JAGS, 47*(1), 40-50.
- Gray-Miceli, D., Waxman, H., Cavalieri, T., & Lage, S. (1991). Prodromal falls among older nursing home residents. *Applied Nursing Research, 7*(1), 18-27.
- Tinetti, M.E., Williams, T.S., & Mayewski, R. (1986). Fall risk index for elderly patients based on number of chronic disabilities. *American Journal of Medicine, 80*(3), 429-434.
- Gray-Miceli, D., Johnson, J., & Strumpf, N. (2005). A step-wise approach to a comprehensive post-fall assessment. *Annals of Long-Term Care, 13*(12), 16-24.
- American Geriatrics Society, British Geriatrics Society, & American Academy of Orthopaedic Surgeons Panel on Falls Prevention. (2001). Guidelines for the prevention of falls in older persons. *JAGS, 49*, 664-672.
- Hendrich, A.L., Bender, P.S., & Nyhuis, A. (2003). Validation of the Hendrich II Fall Risk Model: A Large Concurrent CASE/Control Study of Hospitalized Patients. *Applied Nursing Research, 16*(1), 9-21.
- Hendrich, A., Nyhuis, A., Kippenbrock, T., & Soga, M.E. (1995). Hospital falls: Development of a predictive model for clinical practice. *Applied Nursing Research, 8*, 129-139.

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**CASE EXAMPLE:** Fall Risk Assessment with prior falls history

An 80 year old woman with new onset confusion, anxiety and urinary incontinence who has fallen repeatedly at home in the past 2 months is hospitalized for further observation and possible long-term care placement. On admission she is anxious and confused, and unable to move. Medications include Haldol 0.5 mg PO BID and Ativan 0.5 mg PO BID both started 1 week prior to admission. Admission laboratory work shows a normal CBC and SMA-12. The urinalysis has 50 WBC per high power field and +2 Bacteria. The Hendrich II fall risk score was 9. A comprehensive post-fall evaluation and review of the high risk parameters led to a presumptive diagnosis of the underlying cause of the fall: acute confusion due to urinary tract infection. Haldol and Ativan were stopped and Bactrim DS BID was started. Two weeks later, the urinary incontinence, confusion and anxiety lessened and the falling stopped. She was discharged home to live with her daughter.

**CASE DISCUSSION:** This woman possesses several “red flag” areas of a dynamic nature, e.g., falls occurring on an acute, potentially reversible basis, acute urinary incontinence, urinary tract infection, poly-pharmacy and delirium. Falling is related to these dynamic events and once the underlying causes of the fall were identified and managed, the falling stopped. Note that the review of fall related risk factors surfaced no past or static events associated with falls, such as dementia or Parkinson’s disease, but use of the Hendrich II Fall Risk Model captured significant risk factors including confusion (4 points), administered benzodiazepines (1 point) and inability to rise (4 points). These risks elicited from the Hendrich II Fall Risk Model along with information from a comprehensive post-fall assessment informed the nursing interventions and overall plan of care.

**Hendrich II Fall Risk Model™**

Confusion Disorientation Impulsivity		4	
Symptomatic Depression		2	
Altered Elimination		1	
Dizziness Vertigo		1	
Male Gender		1	
Any Administered Antiepileptics		2	
Any Administered Benzodiazepines		1	
<b>Get Up &amp; Go Test</b>			
Able to rise in a single movement – No loss of balance with steps		0	
Pushes up, successful in one attempt		1	
Multiple attempts, but successful		3	
Unable to rise without assistance during test (OR if a medical order states the same and/or complete bed rest is ordered) * If unable to assess, document this on the patient chart with the date and time		4	
<b>A Score of 5 or Greater = High Risk</b>		<b>Total Score</b>	
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## Online Resources

**For more information on the Hendrich II Fall Risk Model** and other geriatric assessment tools and best practices, go to [www.hartfordign.org](http://www.hartfordign.org), the Web site of the John A. Hartford Foundation–funded Hartford Institute for Geriatric Nursing at New York University College of Nursing. The institute focuses on improving the quality of care provided to older adults by promoting excellence in geriatric nursing practice, education, research, and policy. Download the original *Try This* document on the Hendrich II Fall Risk Model by going to [www.hartfordign.org/publications/trythis/issue08.pdf](http://www.hartfordign.org/publications/trythis/issue08.pdf).

At [www.hartfordign.org/links/geriatric\\_links.html](http://www.hartfordign.org/links/geriatric_links.html) on the Hartford institute's Web site you'll find Links to Aging Institutions and Associations. The site also lists many gerontology-related journals and resources, curriculum guides, education centers, and listservs.

For a discussion of **what to do when a fall occurs**, go to <http://links.lww.com/A180>. 

And go to [www.nursingcenter.com/AJNolderadults](http://www.nursingcenter.com/AJNolderadults) and click on the *How to Try This* link to access all articles and videos in this series.

up and seated in a chair or on the side of the bed and going out for short walks in the hallway and gradually reducing his pain medication (if that's appropriate) should help to stabilize him and eventually reduce his overall risk of falling.

**Other considerations.** Because men are seen to be at greater risk, the nurse should discuss with male patients the need to accept help to avoid a fall. Inquire into the patient's preferences: for example, would he prefer to have a man help him while using the toilet? A frank discussion about harm and fractures from falls may help to reduce risk-taking behaviors.

**Translations.** The model is currently undergoing pilot testing in Italy, Portugal, and Canada. It's available in English and Spanish at [www.hartfordign.org/publications/trythis/issue08\\_spa.pdf](http://www.hartfordign.org/publications/trythis/issue08_spa.pdf).

### COMMUNICATING THE RESULTS

For a fall-prevention program to be successful, employees must be able to communicate clearly with one another. This includes consistently using wristbands and other signs that indicate risk, including in reports at shift changes and in interdepartmental reports during testing and transfers, and maintaining good documentation. Even employees who don't have direct patient contact can contribute by keeping the environment safe. All health care employees must work as a team to ensure that all six elements of a fall risk reduction program are in place:

1. Assessing and reassessing fall risk in all patients.
2. Maintaining a safe environment.
3. Monitoring gait and mobility.
4. Enabling safe toileting.
5. Educating the patient and family.
6. Using interdisciplinary team management.

To view the segment of online video on how to communicate the results of the fall risk assessment before discharge, go to <http://links.lww.com/A164>. 

**Mr. Stewart.** Given Mr. Stewart's confused state, Ms. Gonzales speaks slowly as she informs him of the results of his assessment. She very clearly expresses the dangers: "Mr. Stewart, if you try to get up without help you could hurt yourself or even break a bone. Do you understand?" She attaches an exit alarm to the bed and demonstrates how it works. She plans the schedule for toileting rounds for the rest of the shift and informs her peers of it; she documents her findings and actions, and at the end of her shift, tells incoming staff about the schedule to ensure that it continues after the shift change.

Mr. Stewart's recovery progresses, and he is discharged home six days later. During his stay, his care plan and the interventions prevent a fall.

### CONSIDER THIS

**What evidence supports using the Hendrich II Fall Risk Model?** The widely used Hendrich II Fall Risk Model is an easy-to-use predictive model. Since it was developed in 2003, hundreds of hospitals have incorporated it into their practices. Although it hasn't been widely studied, initial informal reports are positive, especially when the model is used consistently.

There have been two versions of the Hendrich Fall Risk Model. The first was based on retrospective chart analyses and pilot studies. While the risk factors changed little between the first and second versions, the Hendrich II study, a large, concurrent, randomized, case-control study, increased the tool's reliability and specificity.<sup>1</sup> Age and having a history of falls or a cancer diagnosis became statistically insignificant when the predictive model was employed in a much larger sample size of cases and controls. (A study of the first version of the model, the Hendrich Fall Risk Model, found it to have low internal consistency or reliability for use in long-term care, although the researchers supported its use for hospitalized patients.<sup>5</sup>) Psychometric testing of the tool is in progress, and reports are forthcoming.

Data on psychometric properties of the Hendrich II Fall Risk Model are as follows (for more information on interpreting psychometric aspects of tools, see "Define Your Terms," October):

- **Reliability.** No data on reliability have been reported for acute care patients.
- **Validity.** Odds ratios for each risk factor, which range from 1.67 (altered elimination) to 7.43 (confusion and disorientation), support the validity of the tool. Odds ratios tell you the odds that a risk

factor is predictive of a fall, with ratios greater than 1 indicating a positive relationship. The higher the number, the greater the predictive value of the factor.

- *Sensitivity.* Of high-risk patients, 74.9% were correctly identified as being at risk for falls.
- *Specificity.* Of patients not at high risk for falling, 73.9% were correctly identified as not being at risk. ▼

*Ann Hendrich is vice president of clinical excellence operations at Ascension Health in St. Louis. Contact author: ahendrich@ascensionhealth.org. Hendrich was awarded a 2007 patent for the method and system for assessing fall risk that are discussed in this article.*

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Routine use of a Try This tool may require formal review and approval by your employer.

### REFERENCES

1. Hendrich AL, et al. Validation of the Hendrich II Fall Risk Model: a large concurrent case/control study of hospitalized patients. *Appl Nurs Res* 2003;16(1):9-21.
2. Hendrich AL. Inpatient falls: lessons from the field. *Patient Safety and Quality Healthcare* 2006;May-June 2006. <http://www.psqh.com/mayjun06/falls.html>.
3. Donaldson N, et al. Leveraging nurse-related dashboard benchmarks to expedite performance improvement and document excellence. *J Nurs Adm* 2005;35(4):163-72.
4. National Center for Injury Prevention and Control. Division of Unintentional Injury Prevention. *Falls among older adults: an overview. Centers for Disease Control and Prevention.* 2007. <http://www.cdc.gov/ncipc/factsheets/adultfalls.htm>.
5. Heinze C, et al. Psychometric evaluation of the Hendrich Fall Risk Model. *J Adv Nurs* 2006;53(3):327-32.
6. Landro L. The informed patient: hospitals aim to curb injuries from falling; risk for young patients. *Wall Street Journal* 2005 Mar 23;D1, D7.
7. ECRI Institute. A snapshot of falls in healthcare settings. In: *Falls prevention strategies in healthcare settings.* Plymouth Meeting, PA: the Institute; 2006. p. 1-4.
8. Hitcho EB, et al. Characteristics and circumstances of falls in a hospital setting: a prospective analysis. *J Gen Intern Med* 2004;19(7):732-9.
9. Yardley L, Smith H. A prospective study of the relationship between feared consequences of falling and avoidance of activity in community-living older people. *Gerontologist* 2002;42(1):17-23.



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- use the Hendrich II Fall Risk Model.
- explain the various factors that help define a patient's risk of falling.

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