



## KEY POINT SUMMARY

### OBJECTIVES

This literature review analyzes what factors are associated with hospital acquired disabilities (HADs), the loss of ability to complete one of the basic ADLs needed to live independently without assistance, models to avoid HADs, and techniques clinicians can use to help patients have a better quality of life with HADs.

## Hospitalization-Associated Disability “She Was Probably Able to Ambulate, but I’m Not Sure”

Covinsky, K. E., Pierluissi, E., Johnston, C. B.  
*2011 | Journal of American Medical Association*  
*Volume 306, Issue 16, Pages 1782-1793*

### Key Concepts/Context

It is not uncommon for older patients who are hospitalized to acquire hospital-associated disabilities (HAD). An HAD is defined as losing the ability to complete one of the basic activities of daily living (ADL) needed to live independently without assistance: bathing, dressing, rising from bed or a chair, using the toilet, eating, or walking across a room. HAD patients cannot live successfully without assistance; they rely on the help of caregivers or require long-term care. Their HAD develops during the time between the start of their acute illness and their discharge from the hospital. HADs cannot be explained by a single cause, and they develop in vulnerable older patients who accumulate impairments in multiple domains. These vulnerabilities come in the form of co-morbid diseases, cognitive impairments, and psychosocial factors such as depression.

To determine if a patient has acquired an HAD, it is important to look at the level of independence and function they had before the illness, and assess changes in function that exist afterwards and that are not directly a result of the acute illness. A patient’s prognosis after treatment is strongly impacted by the presence of HADs. Some 41 percent of patients die within one year, 29 percent remain disabled at one year, and only 30 percent return to their pre-illness functionality. Age is the most potent risk factor for developing HADs. In fact, one in three patients admitted to the hospital over the age of 70 acquires an HAD, and 50 percent over the age of 85 will develop a new major HAD.

This review discusses, based on studies of acute geriatric units, the risk factors that promote HADs in older patients, the interventions that can be implemented to ameliorate them, and the practices clinicians can promote to improve the quality of life for elders with HADs. The two scenarios looked at are patients who acquire a



disability for the first time when hospitalized, as well as those who were disabled before and developed further disability after hospitalization.

The article follows the story of one patient, referred to as Ms. N, a 70-year-old woman who acquired HADs when admitted to the medical service of an urban public hospital for left labial pain and hematuria, which matured into acute renal failure while in the ER. They use Ms. N's medical history, medical treatment, and acquisition of HADs as an example of a typical patient experience.

In summary, this article advocates that core functionality measurements should be assessed for patients on admission and in daily rounds to monitor, prevent, or treat for developing HADs. Using a multidisciplinary team composed of nurses, social workers, and PTs, the staff can help assess a patient's functional status. The article recommends the completion of a mobility assessment to determine if the patient can sit up, stand, or walk independently. This should be done on admission and daily rounds, since mobility is strongly associated with HADs. The article also recommends all older patients receive a brief cognitive function assessment on admission using the MinCog test. It is suggested that it is best for ADLs to be measured by nurses and PT/OT, since patients interact with them more often than their physicians.

For HAD prevention, the article has also come up with steps that can be taken by hospital and clinicians in ACE units based on the five randomized controlled studies included in the meta-analysis.

## Methods

A literature review was conducted for all articles on PubMed, CINAHL, and EMBASE between 1990-2011 that discussed risk factors identifying older adults likely to develop HADs. The terms used to search were: aged, hospitalization or hospitals, activities of daily living or recovery of function, and prospective studies/cohort studies/longitudinal studies/odds ratios.

A meta-analysis was done of five randomized controlled studies on ACE units, categorizing the common unit characteristics.

The studies selected took one of two approaches: analyzing several variables and how they affect a single risk factor, or studying multiple risk factors looking for a way to develop an understanding and stratification of risk tools.

The study also focuses on articles that tracked patients' ADL functionality within one month of hospital admission through functionality within one month of hospital discharge.



## Findings

Pre-illness variables that risk disability (HAD)

Age, poor mobility, cognitive function, ADLs, geriatric syndromes (delirium, falls, incontinence), social functioning, depression

Hospitalization factors that risk disability (HAD)

Environment, restricted mobility, undernutrition, enforced dependence, polypharmacy, little encouragement of independence

Post-hospitalization factors that risk disability (HAD)

Environment, resources, community support, quality of discharge plans

Preventing HADs

The best way to prevent HADs is to measure an admitted patient's baseline functionality and level of independence, and to track any changes in function either cognitively or physically throughout their treatment to determine if the change is part of their acute illness or the development of an HAD. Systemic improvement cannot be made without measurement.

Hospital processes play a direct role in inhibiting recovery of functional loss through several ways: patient spending too much time in bed, accelerating muscle wasting; adverse effects of medications; infections from indwelling devices such as catheters; and a deterioration in nutritional status.

Intervention types to reduce HADs include acute care of elders (ACE) units, geriatric inpatient rehabilitation (GEM units), geriatric inpatient consultation, Hospital at Home (HAH), and Hospital Elder Life Program (HELP).

Meta-analysis shows that ACE units reduce functional loss, increase the chances of elderly patients being discharged home, shorter hospital stays, decreased hospital costs, and increased satisfaction for patients and healthcare workers.

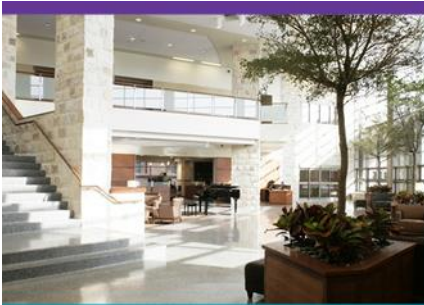
Meta-analysis shows that GEM units increase functional improvement by time of discharge and leave patients needing less nursing home care -- especially helpful for hip fractures.

Consultative inpatient geriatric assessment has shown no similar outcomes improvement (like ACE or GEM). It is believed to be less effective because it does not take a multidisciplinary and integrative approach to healing and presents physical therapy, occupation therapy, and geriatrics all separately.

## Limitations

Limitation of the acute care of elders (ACE) and geriatric evaluation management (GEM) units is that they do not use a multidisciplinary team or comprehensive geriatric assessment approach.

GEM patients are admitted with the focus on rehabilitation after they have been discharged from the hospital where they received treatment for their acute illness. This means that unless the hospital prior to rehabilitation was monitoring and measuring HADs, and then subsequently sharing that information with the rehabilitation program, it is difficult for the GEM program to have a baseline



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measurement of where the patient started, the progress of HAD development, and then subsequent HAD symptomatic improvement.

Since GEM programs are patient selective, choosing only patients who are most likely to have the most rehabilitative improvement, their programmatic efficacy is skewed.

### Design Implications

Designing hospital services needs to be reframed to include a patient's functional status before and throughout their care. Using the traditional disease-focused approach proves to overlook a vital aspect of patient prognosis and recovery. Environmental modifications can be made to geriatric units to minimize restricting patient mobility and replace with a focus on enabling safe mobility. Such modifications can include carpeting floors to increase ambulation, reducing loud noises that cause patient disorientation, avoiding restrictive functions such as IV poles and indwelling urinary catheters, or avoiding excessive bedrest orders. Patients are encouraged to continue all ADLs independently on a daily basis, and there should be a PT/OT therapy intervention for each of these daily ADLs. This may leave room for design of outpatient services or at-home services. A thorough assessment of how patients will carry out their daily ADLs, and who will be available to help carry them out, is necessary for families to manage patient dependency upon returning home.