Falls among Older Adults are a Serious Public Health Problem

Falls are a major threat to the well-being of older Californians, but most can be prevented. Unfortunately, in California we lack the data needed to design effective fall prevention programs. This brief describes 7 sources of falls data, how we use these sources, their limitations, and how we might improve them. This brief provides guidance to public health professionals, advocates, service providers, and researchers who use data to track and profile falls among older adults in California.

Falls among Older Adults are a Serious Public Health Problem

Nationwide, more than one-third of adults aged 65 and older fall each year. About 20 to 30 percent of older adults who fall suffer moderate to severe injuries that reduce mobility as well as independence and increase the risk of premature death (Alexander, Rivara, & Wolf, 1992). The burden of falls among older adults on health care resources is enormous. Nationally, direct medical costs totaled $19 billion for non-fatal fall injuries and $179 million for fatal fall injuries in 2000 (Stevens, Corso, Finkelstein, & Miller, 2006). These costs are projected to reach $43.8 billion by 2020 (Stevens, 2005).

Fall injuries threaten the health and quality of life of California’s 3.7 million older adults (U.S. Census Bureau, 2007). According to the California Department of Public Health, falls are the leading cause of non-fatal hospitalized injuries and the dominant injury cost in California (Ellis & Trent, 2001). Approximately one-third of older Californians fall each year. Fall-related injuries in 2004 led to almost 80,000 hospitalizations, up 43 percent since 1991 (EPICenter, 2007). Based on the national estimates cited above, non-fatal fall injuries in California cost about $2.4 billion each year in direct medical costs.

Falls, even those without injuries, can be painful and frustrating for older adults; they may lose confidence in their ability to engage in routine tasks and develop a fear of falling, both of which are likely to restrict their physical and social activities.

Importance of Accurate Falls Data

Existing data sources on falls often lack reliable, standardized reporting and collecting systems, as well as key information (e.g., location, circumstances, health care costs associated with falls). These deficiencies can compromise the development of effective policies and...
Importance of Accurate Falls Data (continued)

In health care settings such as EMS data, ED data, Trauma system (e.g., acute health and long-term care settings), as well as in community settings, depending on the severity of the injury resulting from the fall.

Non-injury falls not requiring medical attention are generally captured in surveys that ask a sample of respondents to self-report fall-related information. The California Behavioral Risk Factor Survey and the California Health Interview Survey include some questions about falls (e.g., whether a survey respondent has fallen in the past, how many times a respondent fell, or if a respondent was injured due to a fall).

Injury falls can be captured from a number of data systems in health care settings such as EMS data, ED data, Trauma programs. Better data will enhance the ability of public health professionals, advocates, service providers, researchers, and public and private decision-makers to understand the impact of falls on older Californians, to identify the characteristics of individuals who fall (hereafter ‘fallers’), and to target at-risk segments of the population.

Treatment Path for Fallers

The illustration below shows the possible ‘pathway’ of a fall: the boxes with heavy borders show points at which information is captured. Most falls do not result in injury. However, when a person falls and appears to need medical assistance, 9-1-1 may be called to summon an Emergency Medical Service (EMS) response. The faller may be transported to a trauma center or other emergency department (ED), and then treated and discharged. If the person’s condition warrants it, he or she may then be discharged to a rehabilitation, skilled nursing, or other post-acute care facility. At any point along this path, the faller might die or could be sent home. Persons whose deaths are considered to be the result of a fall (or any other injury) are referred to the coroner or medical examiner (‘coroner’ hereafter) in the county where the death occurred. The coroner then investigates the death. Some of the information is recorded on the person’s death certificate.

How to Track Falls Using California Data

Falls among older Californians can be tracked at multiple points in the health care system (e.g., acute health and long-term care settings), as well as in community settings, depending on the severity of the injury resulting from the fall.

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Recommendations for California (continued)

Linked data will also facilitate trend analysis in health care utilization. This will be particularly valuable for discussions on health care reform policies.

• Promote the collection of falls V codes in ED and HPD data. The new V code for history of falls (V15.88), developed by the CDC and CMS and implemented in October 2005, can be used to identify individuals at risk and justify health care providers’ decisions to order further evaluation and management such as referral to rehabilitation or for medication review and adjustment (Tinetti, Gordon, Sogolow, Lapin, & Bradley, 2006).

• Improve the documentation of falls in the existing collection process. Given that the computerized data from EMS are becoming more available and are collected by medical professionals who can investigate circumstances at the scene of the injury, use of EMS data to enhance the quality/accuracy of community surveillance of falls among older adults can be informative (Woford, Heuser, Moran, Schwartz, & Mittelmark, 1994). EMS paramedic records can be improved by 1) training EMS personnel on the importance of coding for falls and 2) expanding EMS data collection to include social and environmental conditions at the site of the fall.

• Endorse the use of more detailed falls questions on a regular cycle in surveys such as the CBRFS and CHIS. More complete, detailed information about falls (e.g., circumstances surrounding falls, fall-related risk factors) will lead to better understanding of the magnitude and characteristics of falls among older Californians.

Concluding Remarks

Falls among older adults are a significant and growing problem. Comprehensive data on falls and fall-related injuries - along with cost and morbidity information - are needed to document the frequency of falls, the characteristics of older adults who fall, and the cost of falls and fall-related injuries among older Californians. Developing a better system for reporting and collecting data on falls will help monitor the incidence of fall among older Californians. It will also help justify programs and services designed to reduce falls among older Californians. Similarly, understanding the costs associated with acute health and long-term care can help policy makers assess the need for more resources dedicated to falls research and prevention activities.
Overall Data Limitations

• Some of the data sources described earlier in this brief lack standardized, fully defined requirements for reporting to the State, although a standardized reporting system has been created for some of them (e.g., EMS and ED data). Moreover, data are often collected by different agencies - under different mandates and assumptions - thereby complicating comparisons among data sources. It is difficult to link records from different sources to describe how fallers move along the treatment pathway described on page 2.

• Most data sources used for falls surveillance research were not designed for that purpose. Hence, they generally lack crucial information about falls such as location, circumstances, and risk factors specific to falls (e.g., medication use, physical fitness).

• Current medical data sources are useful for tracking falls that are serious enough to require medical attention. However, a large percentage of falls among community-dwelling older adults do not result in injuries that require medical attention. Survey data, such as the CBRFS that can be used to monitor non-injurous falls among community-dwelling older adults, have the potential to ask more detailed questions about the fall incident but are often limited by the survey’s length and time constraints. Moreover, falls questions are not asked on a fixed cycle.

Recommendations for California

Some national efforts have been undertaken to improve the quality and meaningfulness of falls data. In August 2006, the Injury Surveillance Workgroup on Falls (ISW4) generated a report, “Consensus Recommendations for Surveillance of Falls and Fall-Related Injuries.” Supported by the CDC and the State and Territorial Injury Prevention Directors Association, the ISW4 examined over 20 healthcare and related data sources useful for monitoring falls and fall-related injuries, and made 5 recommendations.

Based on the report’s recommendations, advice from experts, and our assessment of California sources, we recommend the following to improve the collection of falls surveillance data in California:

• Support the development of standardized, statewide reporting requirements for EMS and medical care. Leadership at the state level is needed to establish standards for data collection (e.g., using E-codes from the ICD-9, establishing a standard set of data elements in medical records) and policies for consistent collection of fall-related injury data (ISW4, 2006).

• Develop methods to link population-based state data records from all medical treatment sources. Linked data will provide a more accurate description of the treatment path for fallers through various health care systems.

How to Track Falls with California Data (continued)

Registry (TR) data, and Hospital Patient Discharge (HPD) data. Licensed long-term care facilities providing post-acute care maintain a patient monitoring record system (e.g., Minimum Data Set-Nursing Home). TR data may be less valuable than other sources because they may over-represent serious falls that require transport to a trauma center (e.g., a fall from roof), which account for a relatively small fraction of falls among older adults.

Fatal falls information can be captured from coroner investigation files or death certificates. Coroner data are available at the county level and used to complete death certificates.

Existing California Sources of Data on Falls

![Table showing existing California sources of data on falls]

The following seven data sources are potentially the most useful for falls surveillance research in California:

• California Behavioral Risk Factor Survey (CBRFS)

Conducted by the California Department of Public Health in collaboration with the Centers for Disease Control and Prevention (CDC), the CBRFS is an annual telephone survey of 5,000 (formerly 4,000) California residents aged 18 years and older. The CBRFS asks respondents about their health status, risky behaviors, and use of health-related services. In some years, the survey asks respondents about falls. In 2003, the CBRFS asked survey respondents “In the past 3 months, have you had a fall?” and “Were you injured?” The 2006 survey asked, “In the past 3 months, how many times have you fallen?” Unfortunately, fall-related questions are not included on a fixed cycle, complicating trend analyses.

• California Health Interview Survey (CHIS)

Conducted every 2 years since 2001, the CHIS is a large-sample telephone survey that asks Californians about their...
Falls among Older Adults in California: Public Health Surveillance Issues
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Existing California Sources of Data on Falls (continued)

health status, health behaviors, and health care usage. In 2003, the survey posed a single question to older adults on whether they had fallen to the ground more than once in the past 12 months. Thus, nothing was learned about why the respondent fell or whether an injury resulted. More falls-related questions have been included in the 2007 survey.

• Emergency Medical Services (EMS) Data

EMS refers to the full spectrum of emergency care, including recognition of an emergency condition, request for emergency medical aid, pre-hospital care, and transport to a hospital ED. All EMS runs are recorded on some kind of pre-hospital care form, which is usually computerized. The availability of computerized data from emergency medical transport systems may provide information suitable for community surveillance of falls among older adults that are the most clinically significant (Wofford, Heuser, Moran, Schwartz, & Mittelmark, 1994). However, although the paramedic record can be used to identify the mechanism of an injury (e.g., fall), this information, if accurately recorded, constitutes the bare minimum needed for surveillance. In addition, each county in California has its own database without any requirements for reporting to the State.

The California Emergency Medical Services Authority is promoting a new system to standardize reporting throughout California and create a statewide database. Called the California Emergency Medical Services Information System (CEMSIS), it will produce information comparable to other states that are part of the National Emergency Medical Services Information System. The new system will be tested in selected counties in 2008. Additional information provided by local EMS agencies will help describe falls among older adults with data not available from other sources, such as hospital records. Therefore, the CEMSIS has great potential for improving falls surveillance.

• Emergency Department (ED) Data

Non-federal hospitals in California are required to file an Emergency Care Data (ECD) record for each patient visit in a hospital ED. Information on patients admitted to the ED is collected via a discharge record, unless patients are later admitted to the same hospital. ECD records, like HPD data (see below), include information about the patient’s demographic characteristics, diagnoses, care received, and disposition. The records also document the external cause of injury codes (E-codes), describing the type of fall (e.g., “fall on same level from slipping, tripping, or stumbling” and “fall on or from stairs or steps”), which are valuable for falls surveillance. E-codes, diagnosis codes, and procedure codes are found in the International Classification of Disease, Ninth Revision, Clinical Modification (ICD-9-CM) (National Center for Health Statistics, 2007). Standardized reporting of ED data to the State began in 2005, and is now publicly available.

• Hospital Patient Discharge (HPD) Data

HPD files contain information on patients discharged from all non-federal acute care hospitals licensed to provide inpatient services in California. Hospitalization charges, length of stay, and expected source of payment are included, along with information on patient characteristics (e.g., age, gender, race/ethnicity), medical information (e.g., diagnoses and procedures coded to the ICD-9-CM), and a principal E-code. California requires an E-code only for the first ED or hospital admission. This helps identify unique cases and avoids the common problem of double-counting. In HPD systems in some states, however, patients who have been readmitted or transferred from one hospital to another – and in some instances, even transferred between units within the same hospital – for treatment of the same injury may be recorded more than once. This may lead to overestimation of the true hospitalized falls incidence rate, if a study assumes that each discharge refers to a single episode of injury (Boufous & Finch, 2005).

• Minimum Data Set (MDS)

Established by the Centers for Medicare and Medicaid Services (CMS), the MDS is part of the federally mandated process for clinical assessments of residents in Medicare- or Medicaid-certified nursing homes. Assessments are conducted at admission, at quarterly intervals thereafter, and when there is a significant change in the patient’s condition. Designed to assess multiple aspects of each resident’s functional status, MDS information is transmitted electronically by each nursing home to the central MDS database in its state. There are two quality indicator questions on the MDS-Nursing Home assessment that identify fall cases. The resident is asked whether (s)he has sustained a hip fracture or other fracture in the past 180 days (or since the last assessment) and if the resident has fallen in the past 30 days. These two questions are useful for tracking the number of falls in nursing homes. Unfortunately, they provide little detail beyond simple counts.

• Death Certificates

California death certificates contain an E-code that identifies persons who die as a result of a fall injury. Unlike morbidity data captured in EDs and in hospitals, mortality data are coded according to the 10th revision of the International Classification of Disease (ICD-10). Ascertainment of fall-related deaths can be inaccurate, according to recent research (Koehler et al., 2006). For example, deaths are not always referred to coroners or coded as falls, although falls sometimes trigger a downward spiral in health status that can lead to death weeks or months later. Also, some deaths may be coded as fall-related when coding other causes would be more accurate.

Note: Data from the HPD and death certificates can be accessed in the “Senior Fall Injuries” section of a web site maintained by the California Department of Public Health. The site, called EPICenter, permits flexible on-line table construction, with breakdowns by variables such as age, gender, race/ethnicity, and county. In 2007, ED data will be added to EPICenter (www.dhs.ca.gov/epicenter).
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Recommends for California

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