

## Clinical Data Systems and Older Adult Falls Surveillance

### Background

Falls are a significant public health concern because they are the primary cause of fatal and nonfatal injuries in adults aged 65 or older.<sup>i</sup> In 2014 alone, approximately 27,000 older adults died from unintentional fall injuries, and emergency departments treated an additional 2.8 million older adults, with 742,000 requiring hospitalization.<sup>ii</sup> In 2010, the direct medical costs for patients who experienced an unintentional fall was \$530 million for those who died, \$16.6 billion for those who were hospitalized, and \$3.7 billion for those who were treated and released from the emergency room, adding up to a total of \$20.8 billion.<sup>iii</sup> In addition, the cost of work lost due to falls for that same year was \$17 billion, for a total cost of unintentional falls equaling \$37.8 billion for 2010.<sup>iv</sup>

Nonfatal falls can range in severity, but approximately 20 percent of people who fall suffer moderate to severe injuries.<sup>v</sup> Although fall-related fractures can occur anywhere, hip fractures are the leading cause of injury and loss of independence in older adults.<sup>vi</sup> Additionally, differences in both fall rates and severity are evident among the categories of gender, ethnicity, and age. For example, men are more likely to die from a fall than women,<sup>vii</sup> but women are more likely to experience a fall-related fracture than men.<sup>viii</sup> In addition, one-third of adults aged 65 or older fall each year, but less than half discuss it with their healthcare providers.<sup>ix</sup>

Because falls are pervasive but falls reporting is low, it is important for state health departments to have a rich pool of data that accurately captures the problem, helps inform patient care, and improves population health by allowing them to target at-risk populations. In the past, hospitalization and mortality data were the primary sources of falls data. Although this data can offer useful information, it may not provide a complete picture of why or how older adult falls occur. Therefore, state health departments may want to explore a wider variety of sources for capturing falls data. Expanded clinical data may provide a potential resource for improving population-level surveillance and assist health departments in planning and implementing prevention approaches, which can lead to a reduction in falls.<sup>x</sup> This issue brief explores the methods that capture falls data, provides a broad look at the use of data systems for understanding falls surveillance, and includes examples of states utilizing this data to improve surveillance and prevention strategies.

### Falls Surveillance

The following sections (1) describe common data sources for falls surveillance, (2) present basic information about clinical data systems, such as electronic health records (EHRs) and health information exchanges (HIEs), and (3) showcase examples of how state health departments can apply clinical data and data systems to older adult falls surveillance and prevention.

#### *Claims Data*

Claims data is an abundant, standardized source of patient data offering a valuable supply of falls information. Physicians, hospitals, and other providers create this data by submitting bills to payers, such as insurance companies and Medicare. This has implications for what is included, since only services billed for are added and helps to differentiate it from other sources, such as data directly from

emergency departments or hospital settings, which may include additional information about the patient.

Claims data also use standardized billing codes that follow a consistent format of pre-established codes describing diagnoses, procedures, and drugs. This consistency helps researchers, health administrators, and policymakers understand the quality and cost of healthcare.<sup>xi</sup> It also exposes fraud and identifies patients who are overdue for recommended care.<sup>xii</sup> In addition, providers are more likely to create consistent and correct claims data because of its connection to their payment.<sup>xiii</sup>

To capture all of the data submitted to public and private payers, many states have created all-payer claims database (APCD) systems. These large-scale databases collect a range of claims data, including medical, pharmaceutical, and dental, as well as eligibility and provider files from commercial and government payers.<sup>xiv</sup> Having comprehensive multi-payer data allows states to fill in information gaps and better understand healthcare costs, quality, and utilization.<sup>xv</sup> APCDs also support state agency, consumer, and purchaser reforms by promoting transparency in healthcare.<sup>xvi</sup> Falls data that APCDs capture include services billed by everyone involved in a falls incident, including hospitals, pharmacies, and primary care physicians.

Because access to APCDs can vary widely, state health departments may partner with Medicaid and others who frequently use them to get the information they need. One possible limitation with claims data is that a provider may not code a non-serious fall-related injury, such as a sprained wrist, and thus, fail to capture the event in falls surveillance.

#### *Emergency Department and Hospital Data*

Another emerging area where state health departments may be able to access data is through emergency department and inpatient hospitalization databases. Many states collect emergency department data through state emergency department databases (SEDD)<sup>xvii</sup> and inpatient hospitalization data through state inpatient databases (SID).<sup>xviii</sup> These databases include all patients, including the uninsured and those covered by Medicare, Medicaid, and private insurance.<sup>xix</sup> SEDDs and SIDs contain clinical data elements that include admission, diagnosis, procedures, and discharge status. They can also contain information about demographics, patients' length of stay, and payment source and total charges.<sup>xx</sup> The databases exclude any data elements that could identify individuals and have safeguards to protect the privacy of the patients, physicians, and facilities.<sup>xxi</sup>

The data collected in SEDDs and SIDs translate into uniform format that allows for comparisons across states.<sup>xxii</sup> One limitation is that there is often a lack of standardization in how providers capture falls data. It can vary from region to region, as well as based on who is entering the data into the SEDD and SID. Access to SEDDs and SIDs can also be a challenge for state health departments due to data sharing agreements and issues around privacy.

If a state does not have SEDDs and SIDs, it is often difficult for state health departments to obtain emergency department and inpatient hospitalization data. Infrastructure differs between states, and hospitals are not always compelled to provide data to states. Even if they do provide the data, there are often delays in supplying the data and issues around quality control. In addition to the lack of

standardization in how providers enter and code the information, the data is not collected directly and has to go through a vendor. Moreover, hospital systems are all very different and often have different EHR systems, kinds of coding, and processes for assuring data quality. This can lead to confusion even after the data is collected. (L. Shields, interview, June 23, 2015).

Another limitation of using emergency department and inpatient hospitalization data is that they miss cases that receive a response but never make it to the hospital. For example, lift assists are common in many emergency medical services (EMS) systems. Lift assists occur when a person dials 9-1-1 because of an inability to get up, but EMS determines that the individual is uninjured and does not transport the person for further medical attention.<sup>xxiii</sup> By not including lift assists in the data, state health departments may miss a chance for preventative falls interventions. Therefore, EMS data could be a complementary source for falls surveillance.

#### *Electronic Health Records*

EHRs capture real-time patient data and allow providers to view multiple sources of patient information in one place. This data can include a patient's medical history, diagnosis, medications, test results, screenings, allergies, and demographic information.<sup>xxiv</sup> Although various EHR systems do not necessarily have all of these features, they can still contribute to clinical decision support by providing resources and guidance to providers on when and how to screen for falls and what to do based on the patient's risk. When this information is recorded in the EHR with the patients other medical records, it can offer a wealth of information for the public

## Oregon: Collaborating Across Sectors

In order to gain richer falls data, Oregon's health department collaborated with their syndromic surveillance team. Syndromic surveillance is the use of real-time health data systems to provide immediate analysis, feedback, and help monitoring disease outbreaks. While traditional systems use voluntary reports from providers to acquire data, syndromic surveillance relies on data continuously gained through protocols or automated routines. While syndromic surveillance is typically used for disease outbreaks, there is a possibility to explore using it for other types of surveillance. For example, this data can provide important information about older adult falls, especially when triage notes are included. If triage notes are not included in syndromic surveillance data, it may be possible to collaborate with hospitals to get the data added.

Oregon's health department now receives triage notes through syndromic surveillance from every hospital in the state. The triage notes contain a rich source of data, allowing Oregon's health department to access a more in-depth context for falls, especially when there are issues that need more clarification than discharge data can provide. Oregon's example highlights the importance of data sharing and the need to collaborate with others in order to obtain missing data.

## New York: Finding a Champion

New York chose three counties for a falls prevention pilot program based on their high burden of falls and proactive approaches to the issue. A passionate physician in one of the pilot counties helped integrate falls data into EHRs in his hospital system, bringing stakeholders together to ensure that the funding and time commitments were in place to incorporate falls screening and assessments into his practice. His work illustrated how important it is to find a fall prevention champion who values incorporating falls screenings and assessments into routine visits and promoting clinical decision support for falls risk identification and management. These processes have the double benefit of helping treat the patient and creating a robust pool of falls data. Another important discovery from the pilot was the value of having community programs already in place. Physicians were more likely to screen for falls when they could make referrals for at-risk patients. The pilot program also demonstrated the link between falls screening and surveillance and a decline in future falls and subsequent hospitalizations.

health professional. In addition, having all of the information housed in one location streamlines the process of inputting patient data for providers and increases accuracy and organization of patient information.<sup>xxv</sup>

Healthcare providers and organizations may also share EHRs if they have an integrated EHR system in place. Therefore, EHRs may house information from multiple locations including, but not limited to, current and past physicians, emergency rooms, laboratories, school and workplace clinics, and pharmacies.<sup>xxvi</sup> This provides a more complete picture of the falls landscape. In the future, EHRs may also help improve reporting and surveillance capabilities by making it easier to collect systematic, standardized data. [Ideally, more sources can aggregate falls data through these data sources, which will help health agencies better understand localized patterns, and lead to improved falls intervention and prevention.](#)<sup>xxvii</sup>

Even before utilizing EHRs for surveillance, health systems need to decide to incorporate falls screening and assessments into EHRs because it is not a requirement currently and the process can take a considerable amount of time and resources. Adding new falls screenings is sometimes very time-consuming for physicians who are already facing many changes in their practice. Moreover, there is a lack of clarity on how to conduct falls screening and assessment and how to reimburse those services. Finding a champion within the state health department who is

willing to tackle these issues can help ensure that states are able to more accurately report the numbers and costs of falls and the enormity of the problem, which should increase the state and national incentive to seek out means of falls prevention. (H. Moss, interview, June 25, 2015).

### *Health Information Exchanges*

HIEs are one type of clinical data system that can aggregate data from different types of EHRs and could provide a promising system for falls surveillance. HIEs permit the movement of a patient's health information electronically across organizations, allowing for interoperability between clinical settings. Ideally, this makes it easier for healthcare providers to access and retrieve clinical health information, which will lead to faster, safer, and higher-quality patient-centered care.<sup>xxviii</sup> For example, some chronic disease prevention initiatives demonstrated that sharing data between community and clinical settings helped them build more cohesive systems consisting of strong partnerships, comprehensive screening and referral protocols, data-driven action, and coordinated financing for hypertension.<sup>xxix</sup>

Some states find that focusing on clinical data sources and sharing real-time information through HIEs is advantageous because it increases communication, ensures that people are not falling through the cracks, and utilizes a systems approach that helps the community at large. It also provides an opportunity to use community-clinical linkages as a way to improve population health. State health departments can utilize these rich resources and levers of change for falls prevention and conduct their work more efficiently.

There are challenges to pursuing HIE as a method of surveillance for falls. A quality HIE needs a comprehensive EHR system, but there are many different EHR vendors and platforms available. Only providers and regions in the same health system, or with the same EHR, can share data. If a commonly agreed upon interface was created, it would take time and resources to sift through the data and link each person's records from different locations, but the richness of personal data then available would be invaluable for falls prevention and a wide variety of critical health issues.

## New Jersey: Testing Your Program

To create a more robust HIE, the New Jersey Department of Health awarded a grant to the Trenton Health Team to pilot a program aimed at managing the care of patients with diabetes and hypertension using health information technology. They created a set of guidelines for collecting and analyzing data and managing care to improve surveillance and clinical decision-making. With a uniform process in place, the Trenton Health Team was able to share information across the entire system, including hospitals, federally qualified health centers, local health departments, health clinics, behavioral health centers, and homeless shelters. The pilot program does not involve creating a new EHR system, but instead streamlines the process, so that no matter where a patient presents for care, their information is shared regionally. While the pilot program is still in its initial stages and will need formal evaluation, it provides a concrete example of how state health departments could potentially use an EHR system for treatment, surveillance, and clinical decision support for falls.



## Take Home Messages for State Health Departments

This issue brief highlights the importance of the following roles for state health departments:

- Increasing collaboration within and across health department sectors.
- Working toward interoperability between clinical settings.
- Determining ways to track data between clinical and community settings.
- Expanding communication between stakeholders.
- Using data to actively work toward falls prevention.

These aspects of falls surveillance are critical features of quality improvement for state health departments to take if they want to enhance their falls prevention efforts. By paying attention to the needs of the aging population in their states, using data to inform clinical and population health, and collaborating with payers and providers, state health departments have the opportunity to help improve the quality of care that falls patients receive.

## Helpful Resources

### **A CDC Compendium of Effective Fall Interventions: What Works for Community-Dwelling Older Adults**

This CDC report includes evidence-based prevention interventions that reduce falls in older adults.

The compendium includes both single interventions addressing a specific fall risk factor and multifaceted interventions addressing multiple fall risk factors. Categories include exercise, home modification, and clinical interventions.

[http://www.cdc.gov/homeandrecreationalafety/pdf/falls/cdc\\_falls\\_compendium-2015-a.pdf](http://www.cdc.gov/homeandrecreationalafety/pdf/falls/cdc_falls_compendium-2015-a.pdf)

### **Stopping Elderly Accidents, Deaths, and Injuries (STEADI)**

STEADI is a CDC falls prevention program that provides tools and educational materials for both patients and providers. The STEADI algorithm helps providers identify patients as low, moderate, or high risk of falls and equips them with effective interventions to help modify risk factors. <http://www.cdc.gov/steady/>

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