

## In Conversation with Patricia Dykes about The Ongoing Journey to Prevent Patient Falls

December 18, 2024

Dykes PC, Sousane Z, Mossburg SE. In Conversation with Patricia Dykes about The Ongoing Journey to Prevent Patient Falls. PSNet [internet]. 2024.

<https://psnet.ahrq.gov/perspective/conversation-patricia-dykes-about-ongoing-journey-prevent-patient-falls>

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*Editor's note: Dr. Patricia Dykes is the Program Director for Research at the Center for Patient Safety Research and Practice at Brigham and Women's Hospital and a Professor of Medicine at Harvard Medical School. We spoke with her about falls and fall prevention.*

**Sarah Mossburg:** Welcome. Could you please tell us a bit about yourself, including your current role, your interest in falls and fall prevention, and how it relates to your work?

**Patricia Dykes:** I am the Program Director for Research at the Center for Patient Safety Research and Practice at Brigham and Women's Hospital and a Professor of Medicine at Harvard Medical School. I am also a nurse and have done a lot of patient safety research throughout my career, specifically related to falls and fall prevention. I am part of the team that developed the [Fall Tailoring Interventions for Patient Safety \(TIPS\) Toolkit](#), which is widely used across the United States and internationally.

**Sarah Mossburg:** Could you talk briefly about how pervasive the issue of patient falls is today?

**Patricia Dykes:** Unfortunately, falls are a pervasive problem. According to the Centers for Disease Control and Prevention, millions of older people fall each year, and fall rates increase as people age.<sup>1</sup> After age 65, about [1 in 4](#) people fall every year, but less than half of them talk about these falls with their provider. This is concerning because if you do not address fall risk, it can get worse. Once a person falls, it doubles their chances of falling again under similar circumstances. If we could get people to talk about their falls with their primary care and other healthcare providers, we would have an opportunity to identify what caused the fall and learn how to prevent another one.

**Sarah Mossburg:** Are falls more common in some healthcare settings than others?

**Patricia Dykes:** We know hospitalization increases the risk for falls, and there are many reasons for this. It could be the unfamiliar environment, the different medications patients are put on, or the treatments they receive. In the hospital, patients have decreased mobility and spend a lot of time in bed, which can lead to

muscle weakness, dizziness, and other symptoms that increase fall risk. While falls are most common in inpatient settings, they can also occur in ambulatory settings. All healthcare settings should have a program to screen patients for fall risk and develop and implement a fall prevention plan for those at risk.

**Sarah Mossburg:** Why is it important to prevent falls?

**Patricia Dykes:** Falls are a leading cause of death and disability in older people. For many older adults, a single fall can mark the beginning of a downward spiral. It can lead to fear of falling and decreased mobility, and these symptoms further increase the risk for falls and subsequent injury. Even when a patient does not have an apparent physical injury from a fall, their fear of falling can increase.

In addition to the physical and emotional cost of falls, there is also a monetary cost. Our team used electronic health record data from two large health systems to quantify the cost of patient falls and fall-related injuries. Our initial hypothesis was that falls with injury would be significantly more costly than falls with no injury. However, we found that both injurious falls and non-injurious falls are costly. The workup conducted after a fall, along with longer lengths of stay, were associated with significant costs, even when the patient did not have a documented fall-related injury. We found that the [average cost](#) for an injurious versus a non-injurious fall was approximately \$35,365 and \$36,776, respectively, which is not a big difference. From my perspective, the lesson here is that all falls are costly.

**Sarah Mossburg:** You mentioned that falling can increase an individual's fear of falling again. Is that true for falls both in and out of the hospital?

**Patricia Dykes:** Yes. Falling is a major cause of disability and death in older people. After a single fall, an older person may become worried about falling again. Their immediate reaction might be to avoid getting up or to stay seated more frequently, but that's not the answer, and it further perpetuates the problem and increases their risk for falls in the future. Even though fear isn't an injury that we can fix with a band-aid or surgery, it is still an internal injury to that person and their psyche. The associated decreased mobility and activity can lead to weakness and other physical problems.

**Sarah Mossburg:** Could you speak to some of the individual, organizational, and environmental risk factors for falls?

**Patricia Dykes:** David Oliver conducted a meta-analysis in 2004 that identified six common risk factors for inpatient falls: gait instability, lower limb weakness, agitation/confusion or impaired judgment, urinary incontinence/frequency, fall history, and prescription of culprit drugs (especially sedatives/hypnotics).<sup>2</sup> This meta-analysis concluded that identifying these common risk factors in hospitalized patients and developing a tailored fall prevention plan should be effective in preventing falls. A lot of the falls research we conducted from 2007 on was based on this hypothesis. At that time, there weren't any successful fall prevention clinical trials, but there was this analysis. [The Morse Fall Scale](#), an inpatient fall risk assessment scale and the basis for the Fall TIPS program, addresses all these common risk factors.

There are also common organizational risk factors for falls that should be addressed for all patients. For example, if there's a spill, you clean it up. If a patient is going to get up and walk around, you ensure a clear path to walk to the bathroom and that they have non-skid socks. You inform patients of potential hazards,

such as rolling furniture that may move if they lean on it or rely on furniture as a walking aid. A patient safety mindset should be in place in hospitals where everyone is thinking about how to make sure the environment is safe for all patients.

**Sarah Mossburg:** [ECRI](#) reported ongoing challenges with preventing patient falls as a Top 10 patient safety issue for 2024. This is not a new issue. What are your thoughts on why falls continue to be a challenge in healthcare settings?

**Patricia Dykes:** Today, falls are a program adoption and implementation issue. We have the research and evidence we need to prevent falls. We have identified common risk factors and have a reliable fall risk assessment tool. When used appropriately, the Fall TIPS program provides decision support for nurses and other clinical staff to engage patients in addressing fall risk factors. The three-step fall prevention process involves doing a risk assessment, developing a tailored care plan, and then consistently implementing the plan. We conducted [clinical trials](#) in three academic medical centers that demonstrated the effectiveness of this approach.

Despite the available evidence, hospital leaders still allow their clinical staff to develop their own fall prevention programs rather than adopt the evidence.

**Sarah Mossburg:** Do you have any thoughts about why that is?

**Patricia Dykes:** There may be several reasons for this. In my experience, nurses may feel like a program developed elsewhere will not work in their hospital. They want to individualize it. The leadership in healthcare organizations needs to adopt existing evidence and do research, develop new programs, and pilot test where we don't have evidence. There is often a hands-off approach where leaders leave fall prevention to nurses. We should be implementing the evidence-based approach before trying to improve upon the existing evidence or create a new program

**Sarah Mossburg:** You mentioned that fall prevention is also an implementation issue. Do you see that as separate from adoption of the evidence? And if so, could you talk a little bit more about that?

**Patricia Dykes:** There must be a conscious decision to adopt the evidence. You cannot just stick something new in the clinical workflow and expect it to work. Implementation science is important here because we must consider the workflow. How is this new program going to fit in the context of the clinical workflow? There must be champions helping nurses understand and implement the evidence, identify unit-specific challenges, and figure out how they can be overcome. Leadership must set the standard and adopt the evidence, but then there must be the resources available for implementation in the context of the unique challenges in different clinical units.

One of the implementation issues is that any change in practice in an acute care environment requires multiple levels of leadership support. The environments are complex, the patients are sick, and the nurses have no time. In this environment, change first requires support from leadership. Leaders must be committed to implementing evidence-based programs where they exist so that patients are safe. Leadership by nurse managers is needed to support practice change at the bedside and to provide proper education and training. A lot of work needs to be done to ensure that patients are safe and that staff are

given the message that a new evidence-based practice is important and expected. I have heard time and again from nurses that when their nurse manager thinks something is important, they do it. Leadership by clinical champions who know the workflow of the unit is also needed to facilitate education, training, and problem solving in the context of the clinical workflow. Nurses need to take responsibility for providing evidence-based care, which means that they are supporting each other and implementing practices consistently.

One barrier to fall prevention is measurement. Traditionally, hospitals report falls and fall-related injury rates quarterly. Nurses often find these data meaningless because they are shared months after the data are collected. At that time, staff do not attribute the high fall rates to their own practice. We have recommended and tested several approaches to improve measurement and communication with staff, including a [fall prevention knowledge test](#) for clinical staff, which is available for free on our Fall TIPS website.<sup>3</sup> In the past, we developed the fall prevention efficacy scale, which measured nurses' confidence in their ability to prevent falls. We found that this scale had a high ceiling effect; nurses routinely thought that they were good at fall prevention. Their scores would start high and end high, and even nurses on units with high fall rates thought they were good at fall prevention. This was not effective in evaluating a program. There was no validated fall prevention knowledge test at that time, so we developed one. Most nurses who take this [fall knowledge test](#) before training fail it. After training, they usually pass it. When administering the fall prevention knowledge test in combination with the efficacy scale, we found that even when individuals fail the knowledge test, they still score high on the efficacy scale. The lesson is that nurses should take the fall prevention knowledge test to identify gaps in their knowledge, which can help us design an effective education and training program.

Another critical piece of fall prevention is patient and family engagement. It is not enough just to say we are engaging the patient; we must be able to measure that. We found that by integrating the patient and family into the fall prevention process and measuring for that, we were able to decrease rates of falls and falls with injury. Engaging patients and families can be done in the context of the routine workflow. For example, any fall champion entering a patient's room can look to see if the patient has a completed fall prevention plan and a Fall TIPS sign posted. It's important that the patient know their risk factors for falls, as well as their personal fall prevention plan. As patients' knowledge of their fall risk factors and plans improves, fall rates decrease. I look at this as a process measure. Falls rates are outcome measures. These take longer to get enough data to make an impact. Process measures like patient engagement in the three-step fall prevention process are a good way to have an intermediate measure of how well we are doing with fall prevention.

**Sarah Mossburg:** In terms of the patient and family engagement and how you measure those process outcomes, you mentioned things like signage in the room and patient knowledge. Can you speak more about that?

**Patricia Dykes:** With the Fall TIPS poster, a nurse answering a call light can look up and see if the patient has their poster up with their personal risk factors and the plan that was agreed upon between the patient and nurse to keep them safe. The idea is that each day, if nothing changes, the nurse reinforces the plan with the patient so they and their family members can be part of the team to prevent a fall. Champions can

also go into a patient's room, look at the poster, ask the patient if they've discussed fall prevention, see if they know their risk factors, and ask about the fall prevention plan. You could also do that in the context of everyday activities, such as giving the patient a bedpan, walking them to the bathroom, or setting up their dinner tray. This becomes a valuable metric. In our clinical trial, we found that when patients on a nursing unit did not know their risk factors and their plan, fall rates increase.

**Sarah Mossburg:** It also provides a just-in-time opportunity for intervention on the part of the nurse asking those questions. If the patient is unaware of their risk factors and prevention plan, this is a chance to reinforce that information.

**Patricia Dykes:** Yes. This information needs to be reinforced throughout hospitalization. We must also make sure that we educate families. Many nurses have reported that patients fell because the family didn't know the plan and didn't realize that they, for example, put the bed rail down or helped the patient up when they weren't supposed to. The family wants to help the patient. If they don't know the plan, they can't participate.

**Sarah Mossburg:** You mentioned the importance of champions within units. Who is a good candidate for a champion with this type of fall program?

**Patricia Dykes:** Many hospitals have clinical ladder programs. There are nurses interested in improving practice on their units. Nurses will pick a topic that interests them, and for nurses who are interested in patient safety, fall prevention is a good topic. Lately there's better infrastructure in hospitals around identifying nurse champions. Because of the Magnet Program, many hospitals have unit-based councils. My strategy has always been to meet with the unit-based council and find out who is interested in patient safety. Those individuals make very good candidates. It is good to have nurses who have experience and are well-respected on the unit serve as champions. They need to be able to provide leadership support and provide coaching. There are formal and informal leaders; if you can get informal leaders to help with this, that is half the battle.

**Sarah Mossburg:** You mentioned the Fall TIPS Toolkit. Could you tell us about the motivation for developing the toolkit, what is included, and who is the target audience?

**Patricia Dykes:** We started our fall prevention research in 2007, when I received a grant from the Robert Wood Johnson Foundation. At that point, there had been about 30 years of research and clinical trials looking at interventions to prevent falls in hospitals, and they were all negative trials. Robert Wood Johnson had a call for proposals, and they were looking for a nurse and a multidisciplinary collaboration to try to improve a nursing-sensitive problem. Our proposed research was based on Oliver's hypothesis that we should look at patient-specific fall risk factors and then tailor a fall prevention plan. We proposed using the electronic health record to develop clinical decision support to identify patients' personal risk factors and link them to interventions most likely to prevent a fall. We initially did some qualitative work by interviewing a broad range of healthcare professionals, including nurses, physicians, physical therapists, occupational therapists, pharmacists, and nursing assistants. We also talked to patients who had fallen in the hospital and their family members to understand what they thought went wrong and what was feasible regarding an effective fall prevention program.

Based on their feedback, we thought that existing fall prevention programs may have been too difficult to implement in the hospital. When I first started practicing, we would do a risk assessment and then have three standard care plans: high risk, medium risk, and low risk. Nurses we interviewed called these “dead documents.” Nurses had to do these plans for the Joint Commission but never referred to them, so they were not informing care. We wanted to develop something feasible that made sense for the patient.

We selected the [Morse Fall Scale](#) to assess fall risk because it represents the six most common reasons patients fall in the hospital. Through focus groups, we analyzed the qualitative data and identified the interventions perceived to be both effective and feasible in acute care settings. For example, while hip protectors are effective in preventing fractures, nurses in orthopedic units are unlikely to be able to pull those on and off every time the patient goes to the bathroom. Instead, we developed a core set of simple yet effective interventions and then developed the decision support that linked those interventions to each risk factor.

We conducted a clinical trial in four hospitals in Boston and saw the first significant decrease in falls. We published [our results](#) in the Journal of the American Medical Association (JAMA). Through this clinical trial, we created a simple personalized plan for each patient and posted it in the patient's room so that anyone going into the room could see the plan to prevent a fall for this patient. There was also a patient education piece. This clinical trial yielded a reduction in falls of 25%. However, given that 90% of falls are preventable, we questioned why we didn't see a larger decrease. We did a case control study and found the most common reason patients on the intervention unit fell in the hospital was that they did not follow their plan. Interviews with patients who had fallen revealed that their nurse did tell them they were at risk, but the patients thought nurses said that to everyone. Nurses might explain it when they're rushing out of the room and direct the patient to call before getting up because they are at risk of falling. Nurses might not state explicitly, for example, that a specific medication could make the patient dizzy or that other personal fall risk factors increased their risk of falls while they were in the hospital. That's when we got our first grant to develop a more patient-centered way of doing Fall TIPS. The Fall TIPS Toolkit that we developed is available on our website for free in several languages and used in hospitals around the world.

Using the Fall TIPS Toolkit, we can work with nurses to integrate fall prevention into the clinical workflow. The Fall TIPS poster is first hung at the side of the patient's bed. When the patient is admitted, the nurse takes it down, does the risk assessment with the patient and family, and identifies, based on the risk factors, the personalized interventions that make sense for that patient. Nurses reinforce the risk factors, plan with the patient, and hang the tool back up each day. If nothing changes, they reinforce it and change the date. If anything changes, they make adjustments and teach the patient and family. Fall TIPS can be integrated into the electronic health record, or hospitals can use the laminated paper poster. We developed the laminated paper poster version because, in some hospitals, nurses told us that they did not have the technology to integrate the Fall TIPS tool into the electronic health record. Now, Epic includes Fall TIPS as their standard content so that any hospital with Epic can access it. Cerner also integrated it with the adoption by the Veterans Administration and the Department of Defense. This means Fall TIPS is now widely available in the two most-used electronic health records. Additionally, all the requirements are available on our website, so really anyone can use them to get that evidence out there.

**Sarah Mossburg:** Can you briefly describe your work to prevent falls among community-dwelling adults?

**Patricia Dykes:** We received a grant a few years ago to explore how we could integrate fall prevention evidence into primary care. I was a site Principal Investigator (PI) for the Strategies to Reduce Injuries and Develop Confidence in Elders (STRIDE) study, which was funded by the Patient-Centered Outcomes Institute (PCORI) and the National Institute on Aging (NIA).<sup>4</sup> The study sought to incorporate interventions related to the six common risk factors among community-dwelling older adults being seen in primary care. We found that addressing all six risk factors was challenging in the context of a primary care visit. We received additional funding from AHRQ to look at what risk factors were most amenable to intervention from primary care providers and then the feasibility of addressing these risk factors in a primary care setting. In that study, called ASPIRE, we focused on three areas after doing a series of interviews and looking at the strength of evidence for different interventions. We settled on interventions addressing fall risk-increasing drugs, osteoporosis, and exercise regimen benefits.

When it came to drugs that increase fall risk, providers valued the information and liked the decision support but said it was too much for them to do in one visit. A fall risk-increasing drug might be something like a benzodiazepine that a patient has been taking for a long time and is not willing to give up in one visit. Providers thought it took more time than allowed in a single visit to support these conversations. When primary care patients come in, they have a lot of other challenges going on. Many of them have multiple comorbid conditions.

When it came to decision support for osteoporosis, we looked in the system for a diagnosis of osteoporosis or osteopenia. If the patient had either of those diagnoses and did not have a prescription for a bone-strengthening medication, we suggested that. For patients who needed it, providers thought that it was useful because it gave them information to give to the patient to think about. However, patients usually had to think about it, wanted to talk to their family, or feared side effects. It is not something that they wanted to start right away.

With the exercise intervention, we found that providers routinely felt they could discuss exercise with patients. For patients who have lower limb weakness or any kind of gait instability, we would provide [very simple exercise instructions](#) based on the Otago program, which is an evidence-based exercise program that increases strength, gait, and balance. We found that providers thought that it was feasible to implement this in the context of a visit.

We are currently conducting another clinical trial funded by an NIA grant called eSTEPS, where we can take that clinical decision support that we developed with ASPIRE and provide personalized exercise prescriptions for community-dwelling older adults. The way it works is if a patient fails their fall screen, Epic provides access to a smart order set, which allows the provider to order exercises for the patient. They then review the exercises, available as handouts in their after-visit summary. In their after-visit summary, the patient also gets a QR code to our eSTEPS app and our website where they can access the exercises that were ordered for them by their doctor. Exercise is one of those interventions that reduces fall risks by 23%, so it is a good one to encourage for community-dwelling older people. Currently, we often tell people to do physical therapy or exercise a few times a week. We are trying to change that message; just like you should eat well every day, you should exercise every day, and these are simple exercises. Even if your

doctor orders physical therapy, on the days you are not doing physical therapy, you should be exercising.

**Sarah Mossburg:** Why is it important to address falls across the care continuum rather than just in the hospital or inpatient setting?

**Patricia Dykes:** Falls are one of the most common reasons for people to be hospitalized. For older adults, falling can mean a loss of independence. Falls have big consequences, especially in older adults, and we need to take the initiative to prevent that first fall. People also very often question whether we can do anything about falls. We are trying to show through our research that, yes, we *can* do something about it. Inpatient fall prevention is simpler because healthcare staff are right there, and the patient is a captive audience in a setting where we are actively working to reduce risk factors. Once people are back home, they are living their lives, and the number of risk factors expands. The answer is not to tell them to avoid exercise or to stay home. We want people to live their lives and have a good quality of life. The right exercise program (gait, strength, balance training) can increase people's safety by preventing falls and making them more able to do what they want to do.

**Sarah Mossburg:** What do you see as the future directions for preventing falls?

**Patricia Dykes:** It is important to use both patient-reported and electronic health record data to identify people who are at highest risk to make sure that we routinely intervene. For example, in primary care, the widely accepted practice for fall risk is to use a screening tool. This type of tool does not help the provider think about a plan. If the person fails a screening, then the provider must have enough knowledge of fall prevention to know what to do next. We have enough data available where we do not have to have providers take the time to screen. We can do better; our team published a machine-learning model that we developed and tested in primary care.<sup>5</sup> We found that it was much more accurate than the screening tool, and it would help us plan interventions because we know which factors go into the person's score, and we can use that to inform a care plan. Any new intervention takes time, and primary care is in a tough place right now. There is a shortage of primary care staff and a lot of turnover. Any unnecessary work we can take away would be beneficial. A lot of the manual screening that is done in primary care, could be improved with EHR data and other kinds of artificial intelligence. The machine learning screening is more accurate and could mean more time with the patient and less time filling out paperwork or typing into their computer.

**Sarah Mossburg:** Thank you for your time today. This has been an interesting conversation

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