The Journal of Geriatric Emergency Medicine is happy to present succinct expert reviews of high impact articles in GEM. Reviews are provided by members of both the SAEM Academy of Geriatric Emergency Medicine, and the ACEP Geriatric Emergency Medicine Section. This GEM Journal Club focuses on the Management of Fall Patients in the Emergency Department. We feature a patient case showing how knowledge of the featured articles can improve clinical care.

TOPIC
Management of Fall Patients - What should be done for Emergency Department fall patients?

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INTRODUCTION
Falls are the leading cause of injury-related emergency visits in older adults, translating into an estimated 3 million ED visits and 32,000 deaths from fall-related injuries annually in the United States.\(^1\) Falls subsequently result in diminished functional ability and higher risk for future falls and mortality.\(^2,3\) Despite this, ED clinicians focus primarily on injuries that result from a fall and often defer the modifiable causes of the fall and future fall prevention to outpatient providers. We review two articles that address the feasibility of performing interventions from the ED and the efficacy of a multifactorial fall intervention program.

CASE
A 78-year-old woman with multiple medical problems including atrial fibrillation, on rivaroxaban for anticoagulation, presents to the emergency department (ED) after a fall. She describes tripping over the edge of a carpet as a "silly mistake," but it caused her to fall on an outstretched hand and hit her head on the nearby coffee table. After evaluation, the ED clinician orders a computed tomography (CT) of her head and cervical spine and an X-ray of her right wrist. She has no acute intracranial injury or cervical spine injury; however, her X-ray shows a distal radius fracture. She is splinted by the ED clinician and provided with an orthopedics referral. As her discharge is being prepared, her son arrives and expresses concern that his mother has fallen several times recently. Although this is her first ED visit, he is worried about her going home.
Article 1

GAPcare: The Geriatric Acute and Post‐Acute Fall Prevention Intervention in the Emergency Department: Preliminary Data

Presenters
Katherine Selman, MD; Christine Binkley, MD, MPH

What Question Did this Investigation Aim to Answer?
Is it feasible to implement a fall prevention intervention in the Emergency Department?

What Study Design Did the Authors Choose?
The authors performed a randomized clinical trial at two urban academic EDs in Providence, Rhode Island. Patients aged 65 years and older who presented within 7 days of a fall were included if they met the following criteria: they lived in the community; they communicated in English or Spanish; they were expected to be discharged; and, if cognitively impaired, they had a legally authorized representative to provide consent. Patients were excluded if they had altered mental status, if they were undomiciled, if they did not have a phone number for follow-up, or if their fall was secondary to another cause such as a stroke. Participants were randomized in the intervention group or control group. The intervention included a consultation with a pharmacist to review their medications and a consultation with physical therapy for evaluation and recommendations. All recommendations were communicated with primary care providers (PCPs). Readers are encouraged to see the original paper for further details of selection of study participants and model interventions. Participants, their caregivers, and the ED clinicians were surveyed regarding their experience.

How did the Authors Interpret the Results?
110 individuals were enrolled and randomized. The participants in the intervention did not have a longer ED length-of-stay compared to the usual care group (5 hours vs. 5.25 hours) which indicated feasibility to complete the intervention without affecting throughput. In the intervention group, 98.2% and 83.6% of participants had the pharmacy and physical therapy consults, respectively. After the visit, 96.7% of patients and their caregivers in the intervention group reported being satisfied or very satisfied, compared with 92.3% satisfaction in the usual care arm. Additionally, ED clinicians were surveyed, and the majority approved of the pharmacy medication session and physical therapy consultation (95.8% and 97.6%). These values were interpreted as the intervention being an acceptable practice to patients, caregivers, and clinicians.

Discussion / How Might this Study Affect your Clinical Practice in the Emergency Department?
This study indicates that incorporating fall prevention interventions into ED practice is potentially achievable without prolonging length of stay by having pharmacy and physical therapy consults evaluate the patient in parallel with the emergency physician's evaluation. Advantages of this particular workflow include that it addresses two major fall prevention domains immediately after a fall and places minimal burden on busy ED clinicians and nurses. While the presence of pharmacists and physical therapy in the ED may be a limiting factor in generalizability, both study sites utilized inpatient pharmacy and physical therapy consults, which is a potential solution for departments without dedicated pharmacists. Additionally, the patients, caregivers, and clinicians involved in the intervention were overall satisfied with the care and overwhelmingly recommended the intervention for others. Importantly, the follow-up study additionally demonstrated decreased subsequent fall-related visits in participants who had received the intervention, with over half of the participants reporting adherence to the pharmacy and PT recommendations. Though this was a small study of only 110 patients (55 in each arm), the results of the study are promising. Larger scale evaluation of this program is needed and, if efficacy continues to be demonstrated, should be a model for ED-based fall prevention initiatives.
### Article 2

**STRIDE Trial Investigators. A Randomized Trial of a Multifactorial Strategy to Prevent Serious Fall Injuries.**

**Presenters**

Katherine Selman, MD; Christine Binkley, MD, MPH

**What Question Did this Investigation Aim to Answer?**

Does a multifactorial fall prevention intervention reduce the time to a serious fall injury?

**What Study Design Did the Authors Choose?**

This was a randomized control trial across 10 healthcare systems, which encompassed 86 individual primary care practices. These sites underwent cluster randomization with stratification. Participants aged 70 years or older living in the community and at increased risk for falls were recruited by mail or at clinic visits. The intervention was a multifactorial approach led by nurses trained in motivational interviewing and fall prevention. Each participant was assessed for modifiable risk factors for fall injuries (impairment of strength, gait, or balance; use of certain medications; postural hypotension; problems with feet or footwear; vision impairment; osteoporosis or vitamin D deficiency; and home safety hazards) and then developed an individual care plan to address 1-3 risk factors chosen by the participant. The control group received an informational pamphlet from the Centers of Disease Control about fall prevention. Participants reported fall-related injuries every 4 months by telephone; all fall-related injuries were reviewed by two independent physicians and verified with objective data for adjudication.

**How did the Authors Interpret the Results?**

Overall, the rate of a first adjudicated serious fall injury did not differ significantly between the intervention group and the control group. There was no significant difference in outcomes when analyzed by prespecified subgroups: age, sex, fear of falling, presence of two or more chronic coexisting conditions, and previous fracture after age 50. Over 3.5 years, the incidence of first adjudicated serious fall injury was 15% in the intervention group and 19% in the control group. The intervention was associated with a lower rate of first participant-reported fall injury, with a hazard ratio of 0.9 that favored the intervention. The most commonly identified and most prioritized risk factors were impairment of strength, gait, or balance; osteoporosis or vitamin D deficiency; and vision impairment.

**Discussion/How Might this Study Affect your Clinical Practice in the Emergency Department?**

This was an ambitious undertaking, and, on the surface, the results are disappointing. However, this pragmatic trial demonstrates the complexity of falls and fall prevention programs and the difficulty addressing all these factors in real-life scenarios. The adherence of interventions was not tracked, primary care providers likely had different methods to treat risk factors, and participants chose the risk factors they wanted to focus on. Thus, not all recommendations could be applied. Additionally, the primary outcome of time to serious fall-related injury, with strict criteria to qualify as a serious injury; other outcomes such as reduction in all falls or maintenance of independence could be significant and meaningful goals. This study was focused on interventions from a primary care perspective rather than within the ED but provides insight into the common outpatient interventions to which ED providers refer patients for follow-up. Overall, while this study showed no significant differences with their fall intervention, this does not necessarily indicate that fall prevention programs are not worthwhile, but rather suggests that we should be thoughtful in future research in using implementation strategies, in addressing the complexity of confounding factors, and in defining outcomes. A potential future direction for falls research may focus on promoting safe mobility rather than solely prevention of falls.
CASE CONCLUSION

The son of our 78-year-old patient provides additional history that she has been falling more often that she initially disclosed, although this is her first major injury. She would prefer to stay at home to maintain her independence. As noted above, this patient is a candidate for fall intervention. The ED is an ideal setting to intervene immediately after her fall and provide her with resources and education.5

A pharmacist reviewing her medications notes that she is on several medications that can cause orthostatic hypotension and has an in-depth discussion with her about the risks and benefits of anticoagulation therapy. A physical therapist recommends a home safety evaluation and home physical therapy three times a week to improve her balance. These recommendations are communicated with her primary care provider, who is now aware about her falls and will screen her for osteoporosis and follow up about the home safety evaluation at her next visit. The son and the patient feel empowered at learning these steps she can take to stay safe.

KEY WORDS

Falls, fall prevention

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ACKNOWLEDGMENTS

Authors’ Contributions: Preparation of this manuscript was by Katherine Selman, MD, Shan Liu, MD, SD, and Maura Kennedy, MD.

Financial Disclosures: No funding was provided for this work.

Conflicts of Interest: There is no conflict of interest to report.

Sponsor’s Role: There was no sponsor for this work.

REFERENCES


