BUILDING A FALLS PREVENTION COMMUNITY

David Griffin, DPM
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Dyane Tower, DPM, MPH
Kyle Bruce, DPM, MPH
IT TAKES A VILLAGE

A THRIVING, INTEGRATED APPROACH TO FALLS

Dave Griffin, DPM
Co-Lead, Falls and Fracture Reduction Program
Kaiser Permanente Northwest
Building a Falls Prevention Community
April 6, 2016
Your World
Falls are not normal
Falls Are Serious and Costly

- One out of five falls causes a serious injury such as broken bones or a head injury.¹,²
- Each year, 2.5 million older people are treated in emergency departments for fall injuries.³
- Over 700,000 patients a year are hospitalized because of a fall injury, most often because of a head injury or hip fracture.³
- Each year at least 250,000 older people are hospitalized for hip fractures.⁴
- More than 95% of hip fractures are caused by falling, usually by falling sideways.⁷
- Falls are the most common cause of traumatic brain injuries (TBI).⁹
- Adjusted for inflation, the direct medical costs for fall injuries are $34 billion annually.⁸ Hospital costs account for two-thirds of the total.
88% CONCERNED
Why a Podiatrist
# Feet and footwear

## Neuropathy

Painful feet with deformities

Check for shoes, slippers, socks, barefoot

| Foot Care | 
|---|---|---|---|---|
| Select one: | Pt/CG checks feet daily | Patient unable to check feet |
| Feet assessed? | Yes | No |

Check all that apply (Specify in comments)

<table>
<thead>
<tr>
<th>Amputation</th>
<th>Dryness</th>
<th>Redness</th>
<th>Cracks</th>
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<tr>
<td>Peeling</td>
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<td>Cuts</td>
<td>Open lesions</td>
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<td>Callouses/Corns</td>
<td>Punctures</td>
<td>Deformities</td>
<td>Swelling</td>
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<tr>
<td>Nail changes</td>
<td>Decreased sensation</td>
<td>Pain</td>
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</table>
It Takes a Village

Motivated Patient

- Families
- Social Groups
- Community Partners
- Providers
- Educators
- Government
- Nonprofits
- Faith Based Groups
- Health Plans
Talking about Falls with Patients (stages of change)

Many fall prevention strategies call for patients to change their behaviors by:
- Attending a fall prevention program
- Doing prescribed exercises at home
- Changing their home environment

We know that behavior change is difficult. Traditional advice and patient education often does not work.

The Stages of Change model is used to assess an individual’s readiness to act on a new, healthier behavior. Research on the change process depicts patients as always being in one of the five “stages” of change.

Behavior change is seen as a dynamic process involving both cognition and behavior, that moves a patient from being uninterested, unaware, or unwilling to make a change (precontemplation); to considering a change (contemplation); to deciding and preparing to make a change (preparation); to changing behavior in the short term (action); and to continuing the new behavior for at least 6 months (maintenance).

The Stages of Change model has been validated and applied to a variety of behaviors including:
- Exercise behavior
- Contraceptive use
- Smoking cessation
- Dietary behavior

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<thead>
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<th>Stage of change</th>
<th>Patient cognition and behavior</th>
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<td>Precontemplation</td>
<td>Does not think about change, is resigned or fatalistic</td>
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<tr>
<td></td>
<td>Does not believe in or downplays personal susceptibility</td>
</tr>
<tr>
<td>Contemplation</td>
<td>Weighs benefits vs. costs of proposed behavior change</td>
</tr>
<tr>
<td>Preparation</td>
<td>Experiments with small changes</td>
</tr>
<tr>
<td>Action</td>
<td>Takes definitive action to change</td>
</tr>
<tr>
<td>Maintenance</td>
<td>Maintains new behavior over time</td>
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Future
Collaboration not Isolation
EXERCISE AS A VITAL SIGN
Application
APMA STATE COMPONENT PARTNERSHIPS IN FALLS PREVENTION

Janet Simon, DPM
Re: RESOLUTION NO. 13-10 (DIRECTIVE)  
PUBLIC HEALTH COMMITTEES IN PODIATRIC COMPONENT SOCIETIES

RESOLVED, that the American Podiatric Medical Association (APMA) recommend that all component state podiatric medical societies form a public health committee modeled after that of the Massachusetts Podiatric Medical Society (MPMS) to serve its membership and the public health.
RESOLUTION #4-16 (DIRECTIVE) FALLS PREVENTION – Passed by APMA HOD 2016

WHEREAS, Falls are an ever increasing public health problem in the United States;

WHEREAS, Podiatric physicians interact with people at increased risk for falls on a regular basis and have unique opportunities to encourage appropriate medical care and lifestyle changes to improve the health outcomes of people at risk for falls;

WHEREAS, The education and training of podiatric physicians allows them to understand the complexities of falls prevention beyond their manifestation in the lower extremity; and

WHEREAS, The involvement of podiatric physicians in the collaborative healthcare team treatment approach is essential to addressing the public health problem represented by falls;

RESOLVED, That APMA strongly encourages its components to join state-wide Falls Prevention Coalitions and provide education on falls prevention to their members and staff; and

RESOLVED, That APMA continue its educational outreach on the role of podiatry in Falls Risk Assessment and Prevention through established organizations such as the Falls Coalition or similar organizations.

However, few of these evidence-based interventions have been adopted in clinical or community practice because of a lack of research-to-practice data and gaps in the current guidelines regarding how to prescribe appropriate interventions or implement and integrate them into routine clinical and community practice.
Adoption of Guidelines by Healthcare Providers Is Limited

Why?

- Adoption of guidelines in clinical practice has been limited and slow. Jones and colleagues showed that only 8% of primary care physicians based their fall prevention practices on guidelines from any recognized organization.

Commonly cited barriers to adoption include:

- Lack of time
- Lack of training opportunities
- Lack of financial incentives
- Lack of coordination among healthcare providers
- The need for simpler and more easily disseminated materials and referral resources
Clinicians and Community Providers Do Not Connect

- Although it seems obvious that maximizing the impact of any intervention relies primarily on clinicians referring patients to existing community-based programs, little effort has been made to bridge the communication gap between clinicians and community service providers.
- Most communities have no coordinated system that allows clinicians to determine what specific interventions are available, which would be the best fit for a particular patient, or whether a patient has enrolled in and completed a program.

(Here’s where State Falls Prevention Coalitions play a key role.)
Increasing Physician Awareness and Adoption of Proven Exercise Interventions

- Professional organizations and the public health sector must actively campaign for, and sponsor, in-service and continuing education opportunities for healthcare providers to expose them to specific fall prevention interventions and bring available resources (e.g., referral procedures, ready-to-use pamphlets, referral pads) directly to their attention.

Increase Knowledge of Resources/Tools

The Centers for Disease Control and Prevention (CDC) Injury Center has created:

- **CDC Compendium of Effective Fall Interventions: What Works for Community-Dwelling Older Adults**
- **STEADI = Stopping Elderly Accidents, Deaths, and Injuries**
State Falls Prevention Coalitions

• 43 States – Contact List posted on APMA Public Health Resource Page
• Funded by State Departments of Health / Departments of Senior Health-Affairs
• Engage partnerships and relationships between clinicians, health insurers, and community service providers to fill gaps in converting evidence-based fall prevention interventions into practice
• Increases funding opportunities and efforts for falls prevention
• Learn more at NCOA
STEADI

Stopping Elderly Accidents, Deaths and Injuries

Dyane Tower, DPM, MPH
Falls Prevention

As we age and lose strength in our feet and ankles, and simple act of standing and walking isn’t so simple any more. Falls prevention is a major concern for the elderly population. These resources will help you address falls prevention in your practice.

- **Falls Prevention and PQRS**
  A webinar from APMA Director of Scientific Affairs James R. Christina, DPM.

- **Falls Prevention Awareness Day**
  Information about activities for this event from the American Public Health Association (APHA)

- **Journal of the American Podiatric Medical Association**
  JAPMA’s special Falls Prevention issue from November/December 2013

- **CDC’s Stop Elderly Accidents, Deaths, & Injuries (STEADI) program**
  Download materials from the STEADI program.

- **National Council on Aging (NCOA) contact list**
  NCOA Falls Prevention contact for each state

Related Content

- Public Health Resources
- Top Five Running Injuries
- Safety Alert: FDA Strengthens NSAIDs Warnings
STEADI - Older Adult Fall Prevention

STEADI Stopping Elderly Accidents, Deaths & Injuries

Make STEADI Part of Your Medical Practice

Falls are not an inevitable part of aging. There are specific things that you, as their health care provider, can do to reduce their chances of falling. STEADI’s tools and educational materials will help you to:

- Identify patients at low, moderate, and high risk for a fall;
- Identify modifiable risk factors; and
- Offer effective interventions.

Materials for Providers

- Tests, fact sheets, case studies, and additional resources

Videos for Providers

- How to measure patients’ functional ability

Materials for Patients

- Educational materials and brochures
STEADI - Older Adult Fall Prevention

STEADI Stopping Elderly Accidents, Deaths & Injuries

STEADI Materials for Health Care Providers

CDC > STEADI Initiative for Health Care Providers

STEADI Materials for Health Care Providers

Tools for Your Practice | Tests | Falls Information | Case Studies | Referral Form | Posters

Make fall prevention part of your practice.

Algorithm for Fall Risk Assessment & Interventions

This tool walks health care providers through assessing a patient's fall risk, educating patients, selecting interventions, and following up.

Download

Algorithm for Fall Risk Assessment & Interventions [English version]
## Fall Risk Checklist

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<tr>
<th>Fall Risk Factor Identified</th>
<th>Factor Present?</th>
<th>Notes</th>
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</table>
STEADI Materials for Health Care Providers

Tests

Use validated tests to assess your patients’ falls risk factors.

**Timed Up and Go (TUG) Test**

Use this test to assess a patient’s mobility. See our simple instructions, and watch the short video on how to conduct the test.

**Download**

[The Timed Up and Go (TUG) Test](#) (PDF - 369 KB)

**30-Second Chair Stand Test**

Use this test to assess a patient’s leg strength and endurance. See our simple instructions, and watch the short video on how to conduct the test.
The Timed Up and Go (TUG) Test

**Purpose:** To assess mobility

**Equipment:** A stopwatch

**Directions:** Patients wear their regular footwear and can use a walking aid if needed. Begin by having the patient sit back in a standard arm chair and identify a line 3 meters or 10 feet away on the floor.

**Instructions to the patient:**
When I say “Go,” I want you to:
1. Stand up from the chair
2. Walk to the line on the floor at your normal pace
3. Turn
4. Walk back to the chair at your normal pace
5. Sit down again
The 30-Second Chair Stand Test

**Purpose:** To test leg strength and endurance

**Equipment:**
- A chair with a straight back without arm rests (seat 17” high)
- A stopwatch

**Instructions to the patient:**
1. Sit in the middle of the chair.
2. Place your hands on the opposite shoulder crossed at the wrists.
3. Keep your feet flat on the floor.
4. Keep your back straight and keep your arms against your chest.
5. On “Go,” rise to a full standing position and then sit back down again.
6. Repeat this for 30 seconds.

On “Go,” begin timing.

If the patient must use his/her arms to stand, stop the test. Record “0” for the number and score.

Count the number of times the patient comes to a full standing position in 30 seconds.

If the patient is over halfway to a standing position when 30 seconds have elapsed, count it as a stand.

Record the number of times the patient stands in 30 seconds.

**Number:** _________ **Score** _________ **See next page.**

A below average score indicates a high risk for falls.

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<th>Women</th>
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<td>85-89</td>
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<tr>
<td>90-94</td>
<td>&lt; 7</td>
<td>&lt; 4</td>
</tr>
</tbody>
</table>

**Chair Stand—Below Average Scores**

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**Notes:**
The 4-Stage Balance Test

**Purpose:** To assess static balance

**Equipment:** A stopwatch

**Directions:** There are four progressively more challenging positions. Patients should not use an assistive device (cane or walker) and keep their eyes open.

Describe and demonstrate each position. Stand next to the patient, hold his/her arm and help them assume the correct foot position.

When the patient is steady, let go, but remain ready to catch the patient if he/she should lose their balance.

If the patient can hold a position for 10 seconds without moving his/her feet or needing support, go on to the next position. If not, stop the test.
Instructions to the patient:

is at increased risk of falling.

for at least 10 seconds

Notes:
Falls are a Major Threat for Your Patients
Chair Rise Exercise

**What it does:** Strengthens the muscles in your thighs & buttocks.

**Goal:** To do this exercise without using your hands as you become stronger.

**How to do it:**

1. Sit toward the front of a sturdy chair with your knees bent & feet flat on the floor, shoulder-width apart.
2. Rest your hands lightly on the seat on either side of you, keeping your back & neck straight & chest slightly forward.
3. Breathe in slowly. Lean forward & feel your weight on the front of your feet.
4. Breathe out & slowly stand up, using your hands as little as possible.
5. Pause for a full breath in & out.
6. Breathe in as you slowly sit down. Do not let yourself collapse back down into the chair. Rather, control your lowering as much as possible.
7. Breathe out.

Repeat 10–15 times. If this number is too hard for you when you first start practicing this exercise, begin with fewer & work up to this number.

Rest for a minute & then do a final set of 10–15.
STEADI is available for the whole health care team

**Providers** who adopt STEADI, over a 5-year period as many as:

- 6 million more patients could be screened,

$3.5 billion more in direct medical costs could be saved.

**Customize STEADI** patient materials and post them as a resource on your website, or as handouts.

**Online clinical training & Instructional videos**

**Clinical screening algorithm**

**Case studies**

**STEADI materials include:**

- Educational materials for patients, their friends and family

**COMING SOON**

Clinical decision support modules for electronic health record systems (Epic and GE Centricity).

Learn more at: [cdc.gov/steadi](https://www.cdc.gov/steadi), or contact us at: [CDC-INFO@cdc.gov](mailto:CDC-INFO@cdc.gov).
For every 5,000 health care providers who adopt STEADI, over a 5-year period as many as:

- 6 million more patients could be screened,
- 1 million more falls could be prevented; and
- $3.5 billion more in direct medical costs could be saved.

STEADI
Stopping Elderly Accidents, Deaths & Injuries
www.cdc.gov/steadi
PODIATRIST LED INVOLVEMENT IN FALLS PREVENTION

Kyle Bruce, DPM, MPH
Podiatric Risk Factors

- Severe Hallux Valgus (RR 2.36) \(^1\)

- Lesser Toe Deformities (RR 1.32) \(^1\)

- Going barefoot or in socks (OR=11) \(^2\)

- Heel height > 2.5cm (OR 1.9) \(^3\)

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Measure 155: Falls Plan of Care

Must include

- Consideration of Vitamin D supplementation
  AND
  - Balance, strength and gait training
Consideration of Vitamin D supplementation

• Document it was advised

OR

• Document that patient was referred to PCP for advice on Vitamin D supplementation
NNT=6 for Vitamin D supplementation


How much to supplement?

- A vitamin D dose of 700 to 800 IU/d reduced the relative risk (RR) of hip fracture by 26% and any nonvertebral fracture by 23% versus calcium/placebo.

- No significant benefit was observed for RCTs with 400 IU/d vitamin D.

<table>
<thead>
<tr>
<th>Intervention</th>
<th>Rate of falls*</th>
<th>Risk of falling*</th>
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<td></td>
<td>Rate ratio (95% CI)</td>
<td>No. of participants</td>
</tr>
<tr>
<td>Vitamin D supplementation</td>
<td>1.00 (0.90–1.11)</td>
<td>9 324</td>
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<tr>
<td>Vitamin D supplementation in people with low vitamin D levels</td>
<td>0.57 (0.37–0.89)</td>
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</tbody>
</table>

Balance, strength and gait training

• Referral to physical therapy for BGST

OR

• Referral to exercise program

OR

• Documentation that BGST instructions were provided
Exercise to prevent falls in older adults: an updated meta-analysis and best practice recommendations

- Meta-analysis of 54 studies

- “Exercise for falls prevention should provide a moderate or high challenge to balance and be undertaken for at least 2 hours per week on an ongoing basis”

- The pooled estimate of the effect of exercise on the rate of falls indicates a 16% reduction

\[
\text{NNT}=6 \text{ for Balance, gait, strength program}
\]

<table>
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<th>Component</th>
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<td>Exercise that aims to provide a moderate or high challenge to balance</td>
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<td>Exercise that aims to provide a high challenge to balance</td>
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<tr>
<td>Total exercise dose more than 50 hours</td>
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<td>Inclusion of walking training</td>
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<tr>
<td>A high risk study population</td>
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“The programs that included balance training, a higher dose of exercise and did not include walking training had the greatest effect on reducing falls”

<table>
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<tr>
<th>Intervention</th>
<th>Rate ratio (95% CI)</th>
<th>No. of participants</th>
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<th>Relative risk (95% CI)</th>
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<tr>
<td>Tai chi</td>
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<td>Risk of fall-related fracture: 0.34 (0.18–0.63)</td>
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</table>

Tai Chi

• Soft and slow movements with breathing, movement and awareness exercises and meditation

• Specifically targets:
  • Balance
  • Transfer of weight
  • Muscle strength
  • Coordination and mobility

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<tr>
<td>Tai chi</td>
<td>0.72 (0.52–1.00)</td>
<td>1,563</td>
<td>5</td>
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TAI CHI PRINCIPLES FOR FALLS PREVENTION IN OLDER PEOPLE – CDC.GOV

(Photo: Bethany Clarke/Getty Images)
FORM 1. OPENING FORM

FORM 2

FORM 3

FORM 4

FORM 5

FORM 6

FORM 7

FORM 8

FORM 9

FORM 10
A CDC Compendium of Effective Fall Interventions:
What Works for Community-Dwelling Older Adults
Multicomponent Exercise Programs

- Home based program with 5 physical therapist visits
  - Lower extremity exercises with ankle weights
  - Tip-toe walking
  - Near tandem standing
  - Gentle ROM exercises
  - 30 minute sessions 3x weekly + 2x weekly walk outside

Falls rate reduced by 35%
Multicomponent Exercise Programs

Falls Team Prevention Program
Logan, et al. (2010)

• OT and PT led group sessions lasting 2 hours, biweekly x 6 weeks
• PT instructed patients in home exercises based on Postural Stability program
• OT conducted home hazard assessment
• RN reviewed medications and assessed blood pressure

Falls rate reduced by 55% after 12 months
Multi-target Stepping Program
Yamada, et al. (2013)

- Color coded stepping course
- 7 minute sessions, biweekly

This picture illustrates the progression of the 24-week MTS course.
Effectiveness of the Podiatrist Led Program

- 305 community dwellers (Mean age 74) with foot pain
- Intervention Group:
  - Pre-fab inserts with callus offloading
  - Shoegear recommendation, voucher for safe shoes
  - Falls prevention education
  - Exercise program (30 minutes, 3x per week)

Effectiveness of the Podiatrist Led Program

- The mean number of falls per person per year was 1.06 for the control group (range 0-15) and 0.67 for the intervention group (range 0-6).

Falls rate decreased by 36%

Podiatrist Led Program

- Adherence rates:
  - foot orthoses (69%)
  - footwear (54%)
  - home-based exercise (72%)

By integrating screening, reviewing and modifying medications, and recommending Vitamin D supplementation, physicians can reduce fall risk by 25% 

Am J Lifestyle Med. 2016 Jan-Feb;10(1)
THANK YOU