Update on Fall Prevention

Cynthia J. Brown, MD, MSPH
Professor of Medicine and Director,
Division of Gerontology, Geriatrics and Palliative Care
University of Alabama at Birmingham
Medical Director, GRECC Fall Prevention and Mobility Clinic,
Birmingham/Atlanta VA GRECC

Disclosure Information: Dr. Cynthia J Brown

1. Under ACCME guidelines:

   a) I have received financial support or grant monies from Veterans Affairs for research in hospital mobility.

   b) I have received an honorarium from St Vincent's for giving this presentation.

AND

2. I will not discuss off label use and/or investigational use in my presentation

Objectives

After completion of this lecture, the participant will be able to:

- Identify common risk factors for falls in the hospital and community settings
- Apply new fall prevention guidelines to their older adult population
- Describe recent changes in fall prevention strategies

Defining a Fall

The Kellogg International Work Group defined a fall as:

An event which results in a person coming to rest inadvertently on the ground or other lower level and other than as a consequence of the following:

- Sustaining a violent blow;
- Loss of consciousness;
- Sudden onset of paralysis as occurs with a stroke; or
- An epileptic seizure

The prevention of falls in later life. A report of the Kellogg International Work Group on the Prevention of Falls by the Elderly. Dan Med Bull. 1987 Apr;34 Suppl 4:1-24.

Defining a Fall

A Cochrane Review found most commonly used research definition was:

- Unintentionally coming to rest on ground, floor, or other lower level; excludes coming to rest against furniture, wall, or other structure.

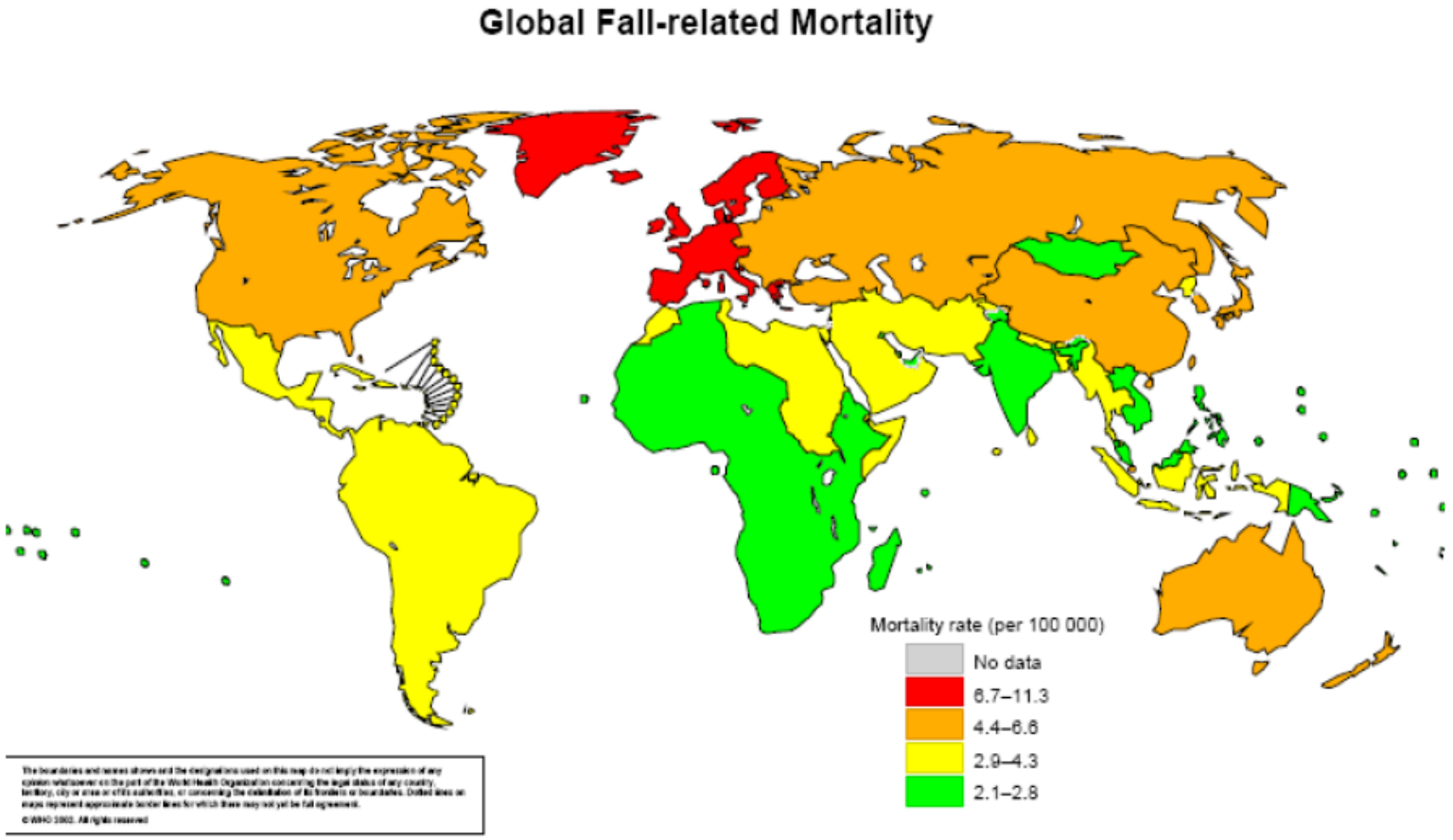
Buchner et al. Frailty and Injuries: Cooperative Studies of Intervention Techniques trials, J Am Geriatr Soc 1993

Defining a Fall

- Qualitative study of 477 older adults, average age was 70 (SD=8, range 55–92) years
- Asked: ‘‘How would you describe or define a fall?’’
- Most commonly, seniors included motor control (slip, trip, stumble), followed by loss of balance, injury, and obstacles.
- **KEY POINT:** Seniors associated falls with antecedents and consequences, whereas research studies focus mainly on description of event.

Determining the Scope of the Problem

Figure 7 Global Fall-related Mortality



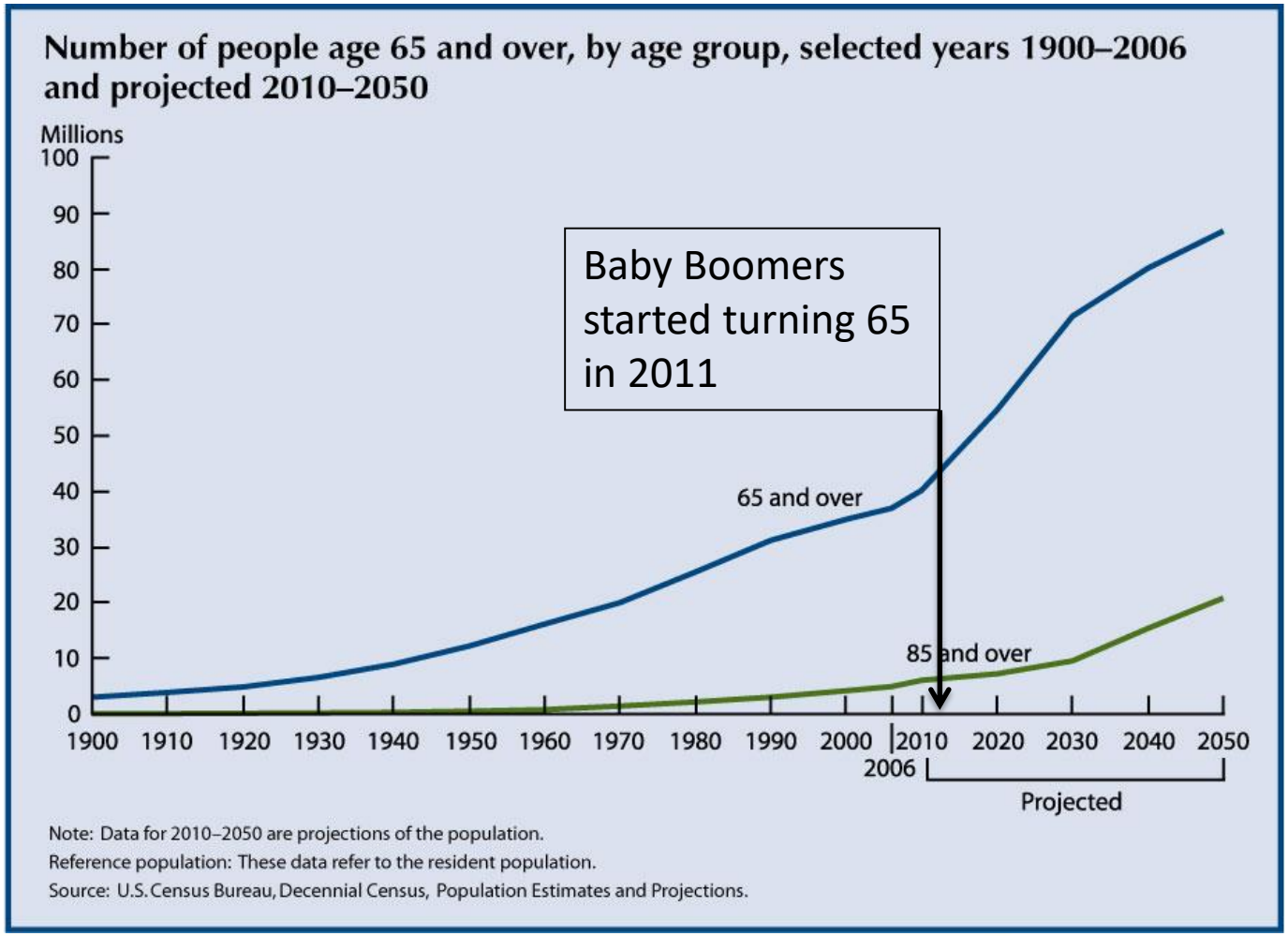
Fall-related mortality rates (per 100 000 population) in WHO regions, 2000

Africa	Americas		South-East Asia		Europe		Eastern Mediterranean		Western Pacific		
LMIC	HIC	LMIC	India	Other LMIC	HIC	LMIC	HIC	LMIC	HIC	China	Other LMIC
2.7	6.5	3.9	2.1	3.4	11.3	6.6	2.7	4.3	5.3	5.7	2.8

HIC, High-income countries; LMIC, Low- and middle-income countries.

WHO, The Injury Chart Book, 2002

The Population



Falls Incidence: Community

- One-third of community-dwelling persons age ≥ 65 years, fall each year; less than half talk to their healthcare provider about it.
- In approximately 50% of cases, falls recurrent
- Rates increase
  - With age
  - During the month after hospital discharge

Falls Morbidity and Mortality: Community

- In next 17 seconds, an older adult will be treated in hospital ED for fall related injuries.
- 10-15% of falls result in injury requiring medical attention
- Leading cause of injury-related visits to emergency departments in US
- Resulted in estimated 33,000 deaths in 2015.

National Estimates of the 10 Leading Causes of Nonfatal Injuries Treated in Hospital Emergency Departments, United States – 2017

~ 3 million

Rank	<1	1-4	5-9	10-14	15-24	25-34	35-44	45-54	55-64	65+	Total
1	Unintentional Fall 120,007	Unintentional Fall 699,107	Unintentional Fall 530,390	Unintentional Struck By/Against 451,267	Unintentional Struck By/Against 755,114	Unintentional Fall 647,408	Unintentional Fall 623,997	Unintentional Fall 828,731	Unintentional Fall 1,047,959	Unintentional Fall 2,970,720	Unintentional Fall 8,591,683
2	Unintentional Struck By/Against 23,356	Unintentional Struck By/Against 254,793	Unintentional Struck By/Against 323,525	Unintentional Fall 451,183	Unintentional Fall 671,408	Unintentional MV-Occupant 579,446	Unintentional Other Specified 436,726	Unintentional Other Specified 473,983	Unintentional Other Specified 356,187	Unintentional Struck By/Against 312,954	Unintentional Struck By/Against 3,685,012
3	Unintentional Other Bite/Sting 13,505	Unintentional Other Bite/Sting 139,941	Unintentional Other Bite/Sting 107,577	Unintentional Overexertion 222,433	Unintentional MV-Occupant 595,092	Unintentional Struck By/Against 528,104	Unintentional Struck By/Against 396,695	Unintentional Overexertion 362,246	Unintentional Struck By/Against 278,211	Unintentional Overexertion 227,817	Unintentional Overexertion 2,569,850
4	Unintentional Other Specified 9,737	Unintentional Foreign Body 121,422	Unintentional Cut/Pierce 88,488	Unintentional Cut/Pierce 99,249	Unintentional Overexertion 493,072	Unintentional Other Specified 517,628	Unintentional Overexertion 395,791	Unintentional Struck By/Against 360,767	Unintentional Overexertion 258,488	Unintentional MV-Occupant 215,666	Unintentional MV-Occupant 2,500,353
5	Unintentional Foreign Body 8,618	Unintentional Cut/Pierce 60,421	Unintentional Overexertion 65,413	Unintentional Unknown/ Unspecified 67,107	Unintentional Cut/Pierce 345,982	Unintentional Overexertion 482,430	Unintentional MV-Occupant 381,110	Unintentional Poisoning 337,444	Unintentional MV-Occupant 249,192	Unintentional Cut/Pierce 162,819	Unintentional Other Specified 2,365,891
6	Unintentional Inhalation/ Suffocation 8,518	Unintentional Overexertion 58,727	Unintentional MV-Occupant 53,791	Unintentional MV-Occupant 64,349	Unintentional Other Specified 331,389	Unintentional Poisoning 401,819	Unintentional Poisoning 321,267	Unintentional MV-Occupant 331,388	Unintentional Poisoning 245,289	Unintentional Other Specified 143,563	Unintentional Cut/Pierce 1,823,358
7	Unintentional Fire/Burn 7,567	Unintentional Other Specified 47,348	Unintentional Foreign Body 52,756	Unintentional Other Bite/ Sting 57,014	Other Assault* Struck By/Against 312,205	Unintentional Cut/Pierce 372,787	Unintentional Cut/Pierce 269,865	Unintentional Cut/Pierce 235,597	Unintentional Cut/Pierce 184,284	Unintentional Poisoning 137,849	Unintentional Poisoning 1,755,044
8	Unintentional Unknown/ Unspecified 4,618	Unintentional Fire/Burn 41,066	Unintentional Pedal Cyclist 39,388	Other Assault* Struck By/Against 54,366	Unintentional Poisoning 246,611	Other Assault* Struck By/Against 355,927	Other Assault* Struck By/Against 212,483	Other Assault* Struck By/Against 171,022	Unintentional Other Bite/Sting 115,933	Unintentional Other Bite/Sting 116,191	Other Assault* Struck By/Against 1,261,580
9	Unintentional Cut/Pierce 3,844	Unintentional Unknown/ Unspecified 38,207	Unintentional Dog Bite 33,586	Unintentional Pedal Cyclist 49,283	Unintentional Other Bite/Sting 147,861	Unintentional Other Bite/Sting 176,855	Unintentional Other Bite/Sting 131,323	Unintentional Other Bite/Sting 135,907	Other Assault* Struck By/Against 95,550	Unintentional Unknown/ Unspecified 96,304	Unintentional Other Bite/Sting 1,142,130
10	Unintentional Poisoning 3,459	Unintentional Poisoning 37,493	Unintentional Unknown/ Unspecified 32,336	Unintentional Other Transport 40,876	Unintentional Unknown/ Unspecified 122,980	Unintentional Unknown/ Unspecified 120,116	Unintentional Unknown/ Unspecified 98,759	Unintentional Unknown/ Unspecified 95,913	Unintentional Unknown/ Unspecified 78,898	Unintentional Other Transport 79,829	Unintentional Unknown/ Unspecified 755,567

*The "Other Assault" category includes all assaults that are not classified as sexual assault. It represents the majority of assaults.

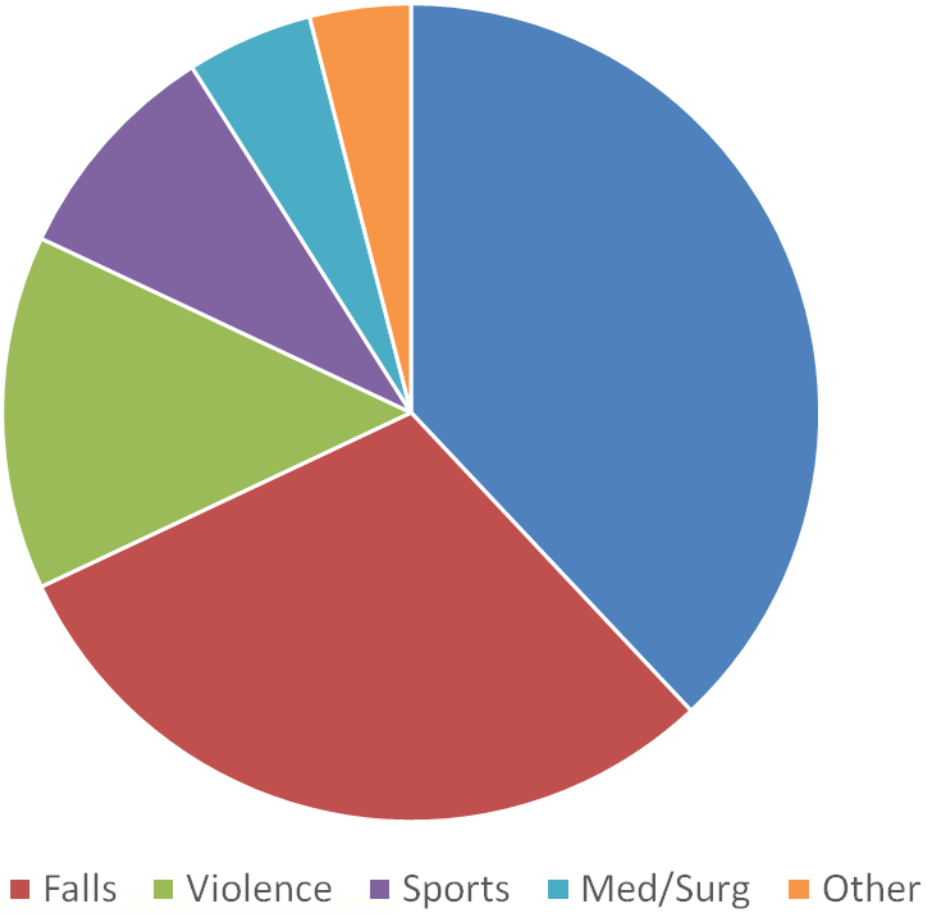
Data Source: NEISS All Injury Program operated by the Consumer Product Safety Commission (CPSC).
Produced by: National Center for Injury Prevention and Control, CDC using WISQARS™.

Centers for Disease Control and Prevention
National Center for Injury Prevention and Control

THE UNIVERSITY OF ALABAMA AT BIRMINGHAM

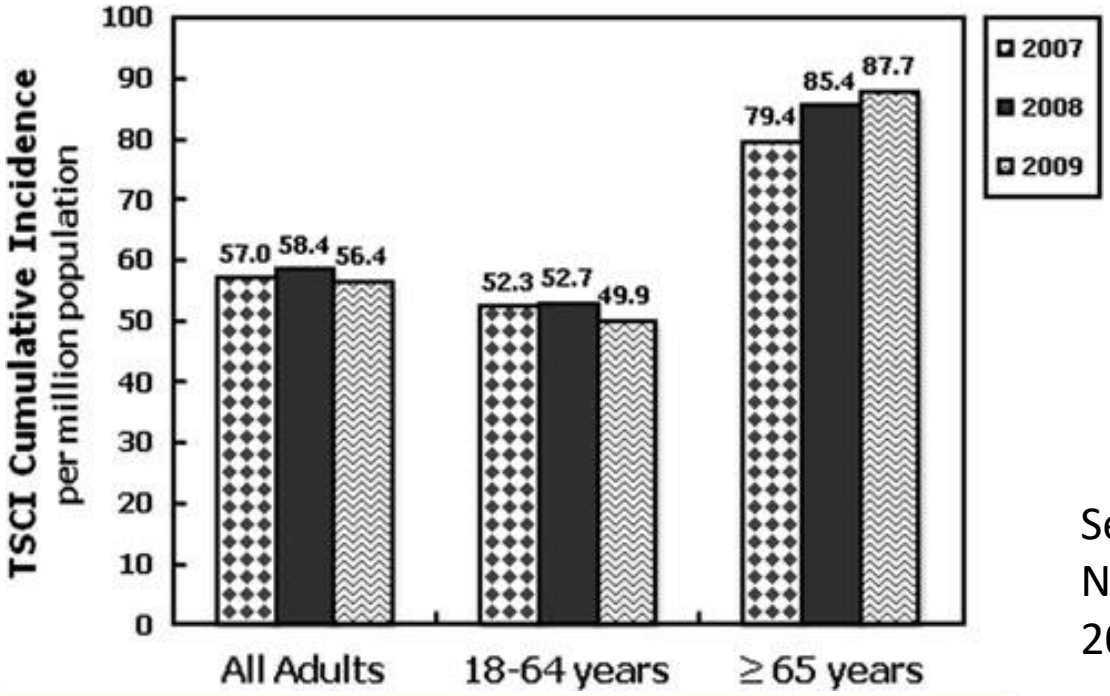
Injuries Associated with Falls: Spinal Cord Injury

- Average age at injury has moved from 29 years in 1970's to 42 years in 2015.
- Distribution of causes of SCI have changed drastically since 2010.



Injuries Associated with Falls: Spinal Cord Injury (SCI)

- Traumatic spinal cord injury after age 65 most often caused by a fall (41.5%).
- Incidence much higher than previously shown.



Selvarajah S, et al. J Neurotrauma 2014;31:228–238

Injuries Associated with Falls: Spinal Cord Injury (SCI)

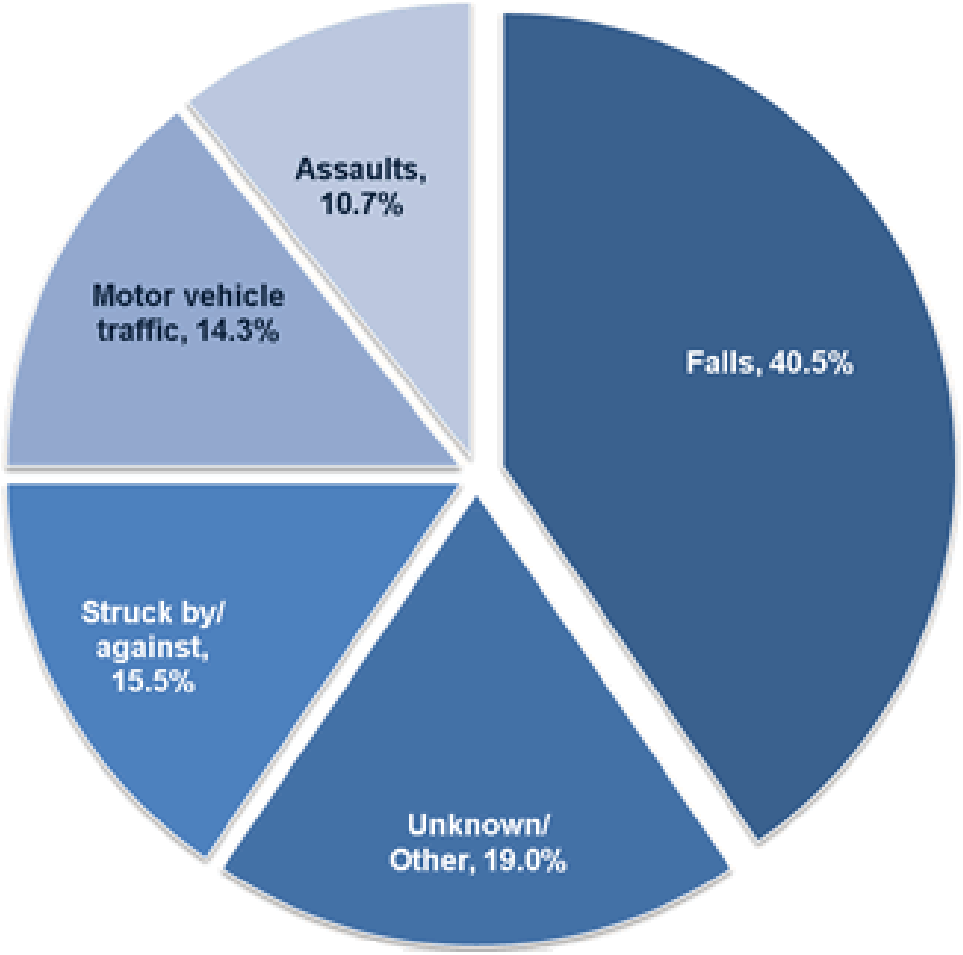
Older adults have higher adjusted odds of adverse outcomes:

- Mortality in ED (AOR = 4.4; 95% CI: 1.1–16.6),
- Mortality during hospitalization (AOR = 5.9; 95% CI:4.7–7.4)
- Discharged to chronic care (AOR = 3.7; 95% CI: 3.0–4.5).

Injuries Associated with Falls: Traumatic Brain Injury (TBI)

- Falls leading cause of TBI (40%) in US
- Cause 81% of all TBIs among adults ≥ 65 years.
- Highest rates of TBI-related hospitalization and death seen in adults ≥ 75 years
  - Hospitalization: 339 per 100,000
  - Death: 57 per 100,000
- In every age group, TBI rates higher for males than for females

Leading Causes of TBI



http://www.cdc.gov/traumaticbraininjury/get_the_facts.html

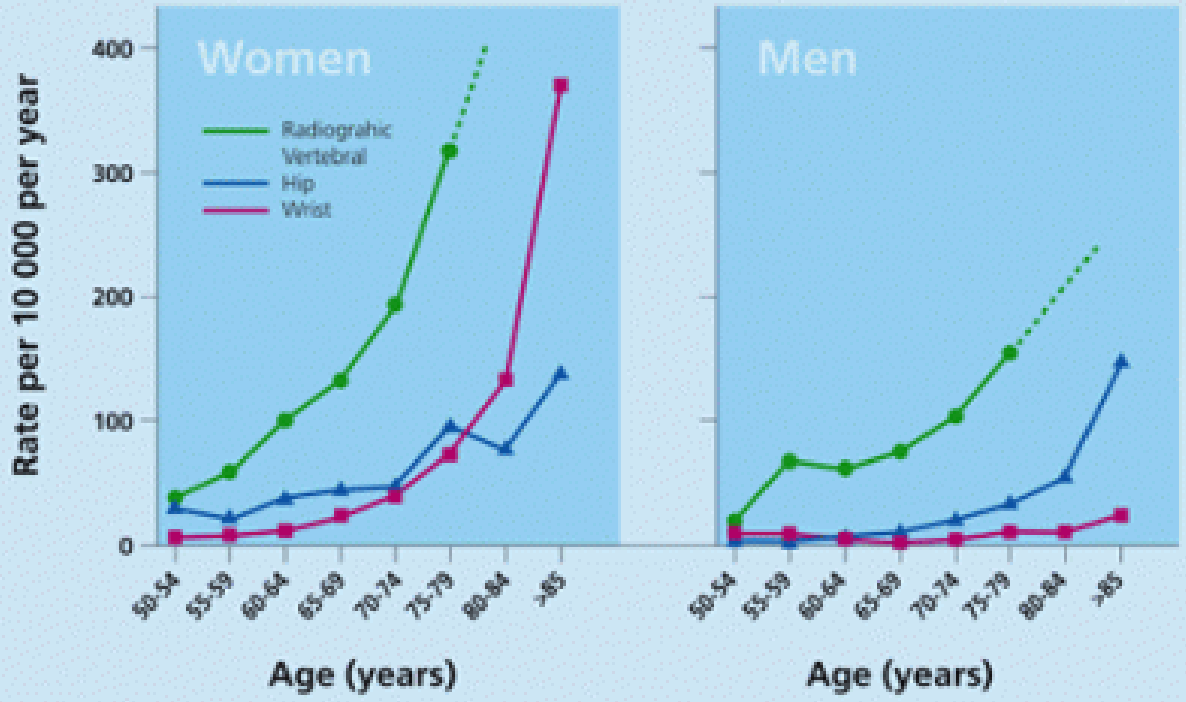
Injuries Associated with Falls: Hip Fracture

- In 2010, 258,000 hospital admissions among older adults.
- By 2030, projected to reach 289,000, a 12% increase.
- More than 95% caused by falling, most often falling sideways onto hip.
- Women sustain three-quarters of all hip fractures.
- People ≥ 85 years are 10 to 15 times more likely to sustain hip fractures than those aged 60 to 65 years.

Injuries Associated with Falls: Hip Fracture

- One in three adults who lived independently before hip fracture remains in nursing home for at least a year after injury.
- A large proportion of fall deaths due to complications following a hip fracture; 20% die within a year of injury.

Age- and gender-specific incidence of vertebral, hip and distal forearm fractures



Adapted with permission of the authors, P. Sambrook and C. Cooper

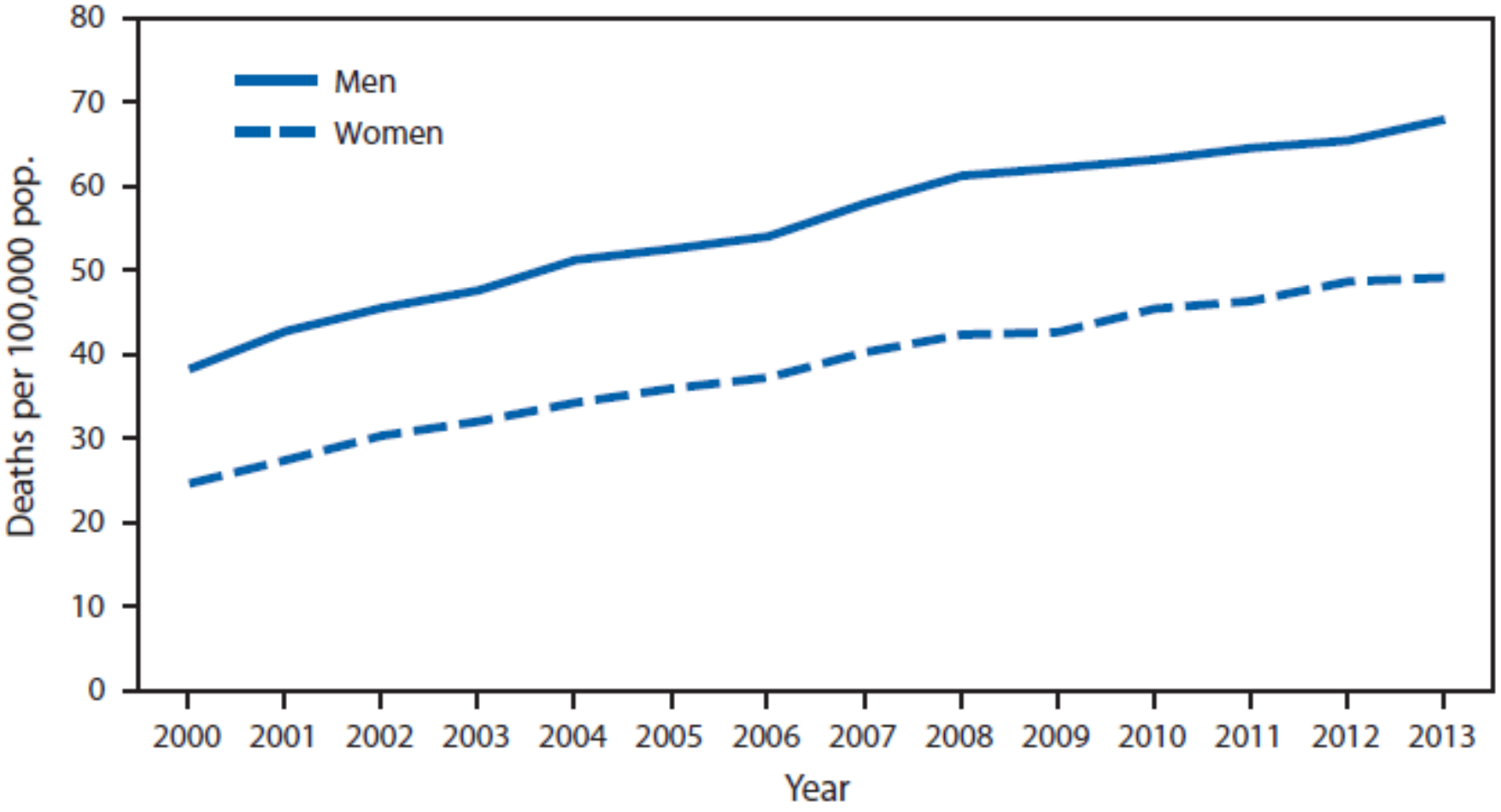
10 Leading Causes of Injury Deaths by Age Group Highlighting Unintentional Injury Deaths, United States – 2017

Rank	<1	1-4	5-9	10-14	15-24	25-34	35-44	45-54	55-64	65+
1	Unintentional Suffocation 1,106	Unintentional Drowning 424	Unintentional MV Traffic 327	Unintentional MV Traffic 428	Unintentional MV Traffic 6,697	Unintentional Poisoning 16,478	Unintentional Poisoning 15,032	Unintentional Poisoning 14,707	Unintentional Poisoning 10,581	Unintentional Fall 31,190
2	Homicide Unspecified 139	Unintentional MV Traffic 362	Unintentional Drowning 125	Suicide Suffocation 280	Unintentional Poisoning 5,030	Unintentional MV Traffic 6,871	Unintentional MV Traffic 5,162	Unintentional MV Traffic 5,471	Unintentional MV Traffic 5,584	Unintentional MV Traffic 7,667
3	Unintentional MV Traffic 90	Homicide Unspecified 129	Unintentional Fire/Burn 94	Suicide Firearm 185	Homicide Firearm 4,391	Homicide Firearm 4,594	Suicide Firearm 3,098	Suicide Firearm 3,937	Suicide Firearm 4,219	Suicide Firearm 5,996
4	Homicide Other Spec., Classifiable 76	Unintentional Suffocation 110	Homicide Firearm 78	Homicide Firearm 126	Suicide Firearm 2,959	Suicide Firearm 3,458	Suicide Suffocation 2,562	Suicide Suffocation 2,294	Unintentional Fall 2,760	Unintentional Unspecified 5,125
5	Undetermined Suffocation 56	Unintentional Fire/Burn 95	Unintentional Suffocation 36	Unintentional Drowning 110	Suicide Suffocation 2,321	Suicide Suffocation 3,063	Homicide Firearm 2,561	Suicide Poisoning 1,604	Suicide Suffocation 1,631	Unintentional Suffocation 3,920
6	Unintentional Drowning 43	Unintentional Pedestrian, Other 88	Unintentional Other Land Transport 25	Unintentional Other Land Transport 66	Unintentional Drowning 469	Undetermined Poisoning 887	Suicide Poisoning 1,089	Homicide Firearm 1,447	Suicide Poisoning 1,459	Adverse Effects 2,902
7	Undetermined Unspecified 37	Homicide Other Spec., Classifiable 49	Homicide Suffocation 15	Unintentional Fire/Burn 56	Suicide Poisoning 463	Suicide Poisoning 788	Undetermined Poisoning 792	Unintentional Fall 1,248	Homicide Firearm 824	Unintentional Poisoning 2,871
8	Homicide Suffocation 26	Homicide Firearm 44	Homicide Cut/pierce 14	Suicide Poisoning 39	Undetermined Poisoning 280	Unintentional Drowning 479	Unintentional Fall 522	Undetermined Poisoning 887	Unintentional Suffocation 811	Unintentional Fire/Burn 1,278
9	Unintentional Natural/ Environment 18	Unintentional Natural/ Environment 34	Unintentional Firearm 14	Unintentional Poisoning 39	Homicide Cut/pierce 266	Homicide Cut/Pierce 404	Unintentional Drowning 397	Unintentional Drowning 451	Adverse Effects 773	Suicide Poisoning 1,111
10	Three Tied 16	Unintentional Firearm 31	Two Tied 13	Unintentional Suffocation 35	Unintentional Fall 212	Unintentional Fall 351	Homicide Cut/Pierce 337	Unintentional Suffocation 441	Undetermined Poisoning 732	Suicide Suffocation 919

Data Source: National Center for Health Statistics (NCHS), National Vital Statistics System.
Produced by: National Center for Injury Prevention and Control, CDC using WISQARS™.

Centers for Disease Control and Prevention
National Center for Injury Prevention and Control

Death Rates from Unintentional Falls Among Older Adults



http://www.cdc.gov/mmwr/preview/mmwrhtml/mm6416a12.htm

Falls Cost: Community

- In 2015, estimated medical costs attributable to fatal and nonfatal falls approximately $50 billion
- Breakdown of direct medical costs:
  - Inpatient hospitalizations: 65%
  - Medical office visits: 10%
  - Home health care: 10%
  - Hospital outpatient visits: 8%
  - Emergency room visits: 7%
  - Prescription drugs: 1%

Falls Cost: Community

- Among community-dwelling older adults, fall-related injury one of 20 most expensive medical conditions.

Direct Medical Costs	2012	2015
Fatal Injuries	$616.5 million	$637.5 million
Non-fatal Injuries	$30.3 billion	$31.3 billion

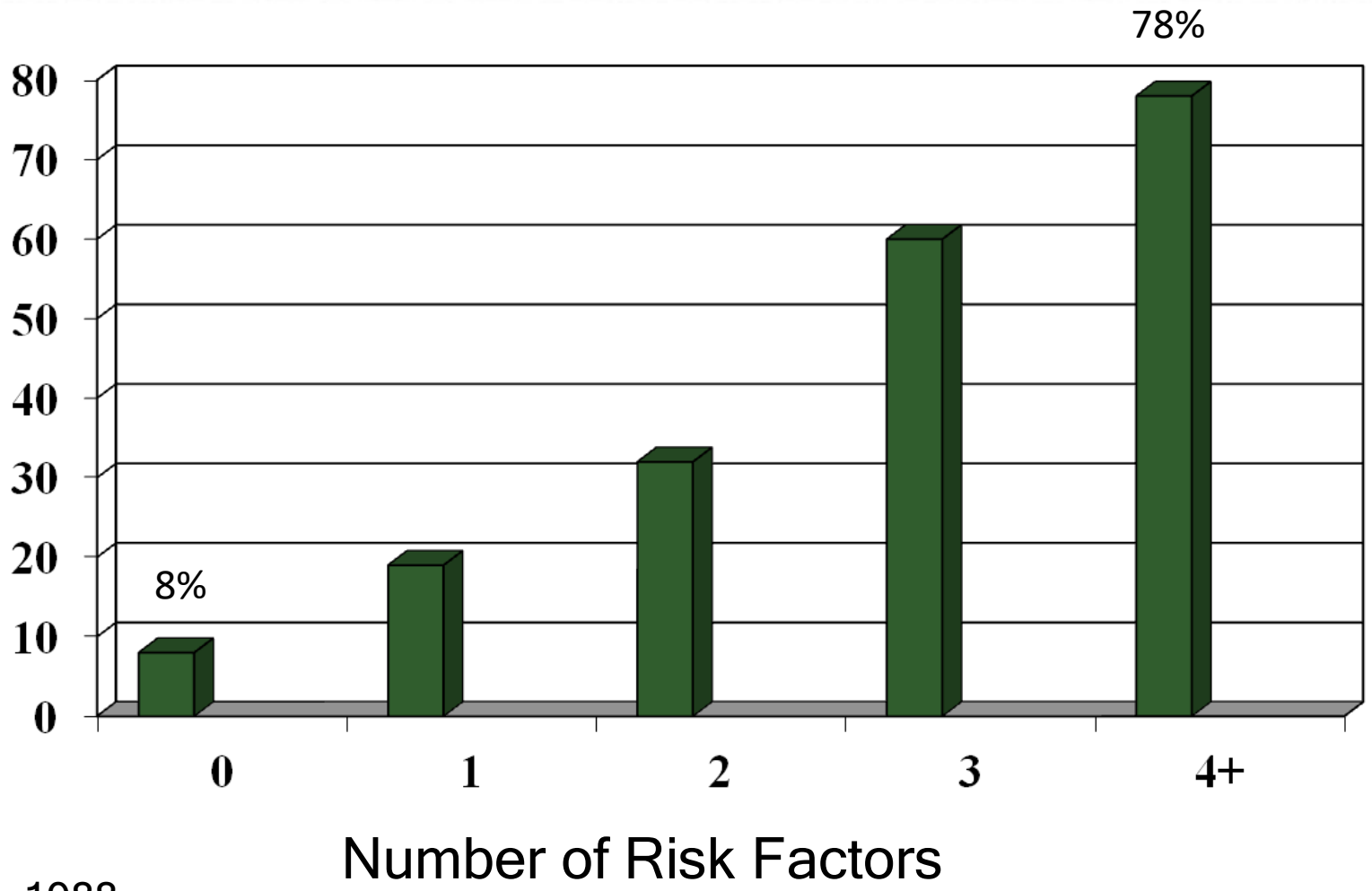
- Average hospitalization cost for fall injury is $30,000.
- Total costs increased with age and were higher among women.

Burns EB, Stevens JA, Lee RL. The direct costs of fatal and non-fatal falls among older adults—United States. J Safety Res 2016:58.

Fall Risk Factors : Community

- Focus of most fall research
- Falls in community-dwelling older adults tend to be multifactorial in nature
- As number of risk factors increases, so does risk of falls

Occurrence of Falls According to Number of Risk Factors



Tinetti, 1988

Most Common Risk Factors for Falls

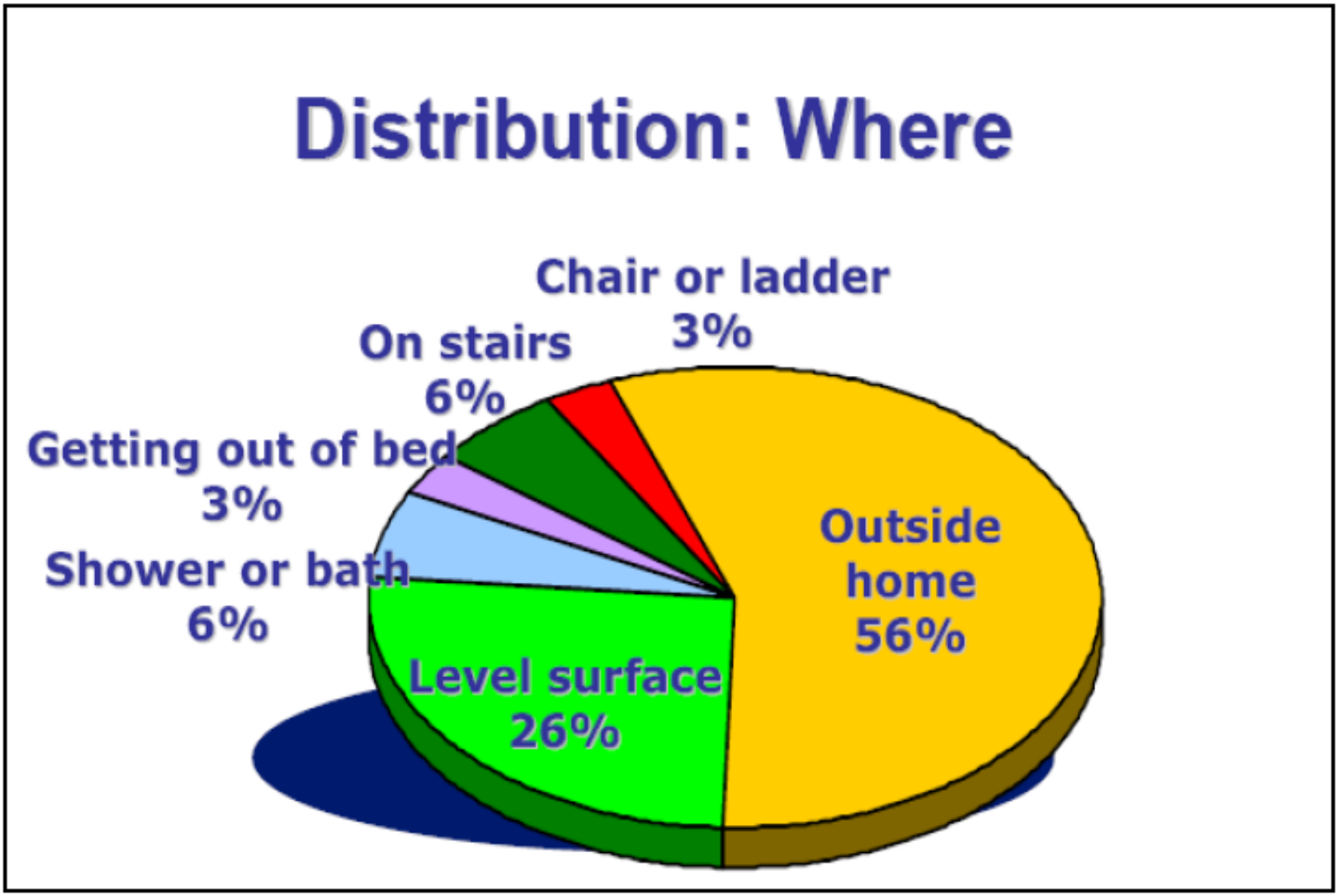
Risk factor	Significant/total	Mean RR-OR	Range
Muscle weakness	10/11	4.4	1.5-10.3
History of falls	12/13	3.0	1.7-7.0
Gait deficit	10/12	2.9	1.3-5.6
Balance deficit	8/11	2.9	1.6-5.4
Use asst device	6/12	2.6	1.2-4.6
Visual deficit	6/12	2.5	1.6-3.5
Arthritis	3/7	2.4	1.9-2.9
Cognitive impairment	4/11	1.8	1.0-2.3

AGS Guidelines, 2011

Medications and Falls

- Psychotropics, any: RR 1.73 (1.52-1.97)
  - Neuroleptics: 1.50 (1.25-1.79)
  - Sedative/hypnotics: 1.54 (1.40-1.70)
  - Antidepressants: 1.66 (1.40-1.95)
  - Benzodiazepines: 1.48 (1.23-1.77)
- Diuretics: 1.08 (1.02-1.16)
- Anti-arrhythmics (Ia) : 1.59 (1.02-2.48)
- Digoxin: 1.22 (1.05-1.42)

Figure 2 Location of falls



Single-intervention Strategies

- Community based balance or strengthening exercise program (Tai chi)
  - Estimated risk reduction 29-49%
- Professionally supervised balance and gait training and muscle strengthening exercise
  - Estimated risk reduction 14-27%
- Gradual discontinuation of psychotropic medications
  - Estimated risk reduction 39%
- Modification of home hazards after hospital discharge
  - Estimated risk reduction 19%

Multifactorial Risk Assessment with Targeted Management

- Estimated risk reduction 25-39%
- Successful components include:
  - Review and possible reduction of medications
  - Balance and gait training, muscle-strengthening exercise
  - Evaluation of postural blood pressure
  - Home-hazard modifications

USPSTF Recommendations 2018

Figure 2. Clinical Summary: Interventions to Prevent Falls in Community-Dwelling Older Adults

Population	Community-dwelling adults 65 years or older at increased risk for falls, without osteoporosis or vitamin D deficiency		
Recommendation	Recommend exercise interventions to prevent falls. Grade: B	Selectively offer multifactorial interventions to prevent falls. Grade: C	Do not recommend vitamin D supplementation to prevent falls. Grade: D

Risk Assessment: Assess for history of falls or physical function/mobility limitation problems.

Interventions: Include supervised individual and group classes and physical therapy. Multifactorial interventions include assessment of risk factors and customized interventions based on risk assessment.

Other: Found insufficient evidence on Vitamin D or Calcium supplementation to prevent fractures in men, premenopausal women, and post menopausal women at doses > 400 IU of vitamin D and > 1000mg of calcium.

Interventions to Prevent Falls in Community-Dwelling Older Adults. USPSTF Recommendations, JAMA. 2018;319:1696-1704

Hospital Falls and Fall Prevention

- Subject of significant attention.
- Inpatient falls range 2.2 – 12 falls/1000 bed days.
- Approximately 11,000 fatal hospital falls occur annually.
- 30-35% result in minor injuries; up to 15% lead to serious injury.
- On average, these injuries add 6.3 days to hospital stay.
- Cost for fall with injury about $14,056.

Rate of Falls per 1000 Bed Days on Selected Hospital Wards

	Range
Geropsychiatry	13.3-25
Rehabilitation	7.6-12.6
Geriatric Medical	7.8
Neurology	5.2
Oncology	3.5
General medical	3.0
Surgery	2.2
Obstetrics-Gynecology	1.8

Mahoney, Geriatr Clin North Am 1998

Hospital Risk Factors

- Several factors consistently reported
  - Previous history of falls
  - Confusion or agitation
  - Gait instability or altered mobility
  - Urinary incontinence/ frequency
  - Medications (e.g. sedative/hypnotics)

Risk Assessment Tools

- Numerous tools available
- Few validated in more than one population
- Similar accuracy provided with:
  - St. Thomas' Risk Assessment Tool in Falling Elderly Inpatients (STRATIFY)
  - Morse Fall Scale
  - Nursing clinical judgment
- However, remains standard of care

Key point: Intervention must follow assessment

Importance of Hospital Fall Prevention

CMS Never Events

- Errors in medical care that are clearly identifiable, *preventable*, and serious in consequences for patients.
- Patient death or injury associated with a fall while being cared for in a healthcare facility considered a “never” event since 2008.

CALL DON'T FALL!

Typical Hospital Fall Prevention Programs

- Assessment of all patients
- Universal Fall Precautions
  - Call bell in reach
  - Bed locked in low position
- Identification bracelets
- Bed alarms
- Using two side rails, not four
- Low beds

THE UNIVERSITY OF ALABAMA AT BIRMINGHAM

Evidence for Fall Prevention

Bed and Chair Monitors – Examples

AirPro Alarm

Locator Alarm

Chair Sentry

Floor Mat Monitor

Keep Safe

QualCare Alarm

Safe-T Mate Alarmed Seatbelt

Bed or Chair Alarms

- One uncontrolled 12-month before and after study among patients after hip fracture.
  - Reduced odds of being a faller (Odds Ratio (OR) 0.55, 95%CI 0.32-0.94) but no reduction in fall rate.

- Cluster randomized trial showed no difference in either risk of being a faller or fall risk despite good use of devices on intervention wards.

Sahota O, et al. Age Aging, 2013 and Shorr RI, et al. J Am Geriatr Soc, 2007.

Technology Interventions

- Study used in-room webcams; resulted in decrease in fall rate per 1000 admissions, but no difference in fall rate per 1000 patient days.[1]

- Wireless technology used to improve nurse communication to facilitate response time; alerted nurses early but did not result in a decrease in falls.[2]

1 Hardin SR, et al. J Patient Sat, 2013; 2 Guarascio-Howard L. HERD, 2011

Fall Prevention Room

- Idea pilot tested among 11 older patients
- Room included various fall prevention devices:
  - Low beds
  - Shower mats
  - Floor cushions
  - Hip protectors
  - Bed alarms
  - Non-skid socks/slippers
- Saw 4 falls; 3 in control and 1 in intervention group
- No statistically significant difference seen

Introducing,

The LOWEST Bed On The Market.

DO AWAY WITH RESTRAINTS!

With a deck height of just 3", no other bed quite *measures* up.

Low Beds

- Concept of reduced injury with fall from bed and more difficult to get up unassisted.
- Single cluster randomized trial of low height beds, included 22,036 participants.
- Found no significant reduction in frequency of patient injuries.
- However, no injuries reported in either group and choice of using bed required by nursing staff.

Haines TP, et al. J Am Geriatr Soc, 2010

Patient Rounding

- In one study of 27 units in 14 hospitals, nurses rounded every 1-2 hours with specific interventions recommended.
  - Found decreased call bell use, increased patient satisfaction.
  - Found significant decrease in falls with one hour but not two-hour rounds.
- Reduction not sustained over time.
- Other studies have not found a reduction in falls with nurse rounding; but weak study designs.

Meade CM, et al. AJN, 2006;
Tucker SJ, t al. Worldviews Evid Based Nurs, 2012.

Increased Ambulation

- Growing evidence that limiting patient's mobility in an effort to reduce falls may be wrong approach.
- Fisher, et al. showed patient falls more likely to be associated with cognitive and hospital environmental issues than time spent walking.
- vonRenteln-Kruse et al. showed 18% reduction in falls with program that included fall risk assessment, assistance with transfers/use of toilet, provision of ambulatory aids prn and early mobilization strategies.
- Hospital Elder Life Program includes scheduled toileting, provision of PT, and early mobilization; shown to reduce fall rates as well as delirium.

Fisher SR, et al, Arch Phys Med Rehabil, 2011; vonRenteln-Kruse W, J Am Geriatr Soc, 2007; Inouye SK, J Am Geriatr Soc, 2000.

Multifactorial Interventions

- Multifactorial interventions included:
  - risk assessment
  - risk factor assessment
  - care planning
  - medical/diagnostic approaches
  - changes in physical environment
  - medication review
  - hip protectors
  - removal of physical restraints
  - exercise

Results of Meta-Analysis

- A meta-analyses of 13 studies showed rate ratio of 0.82 (95% CI 0.68-0.997) for falls but no significant effect on number of fallers or fractures
  - Study included historical controls

- A second study that used only prospective controlled trial designed studies found no conclusive evidence that fall prevention programs reduced falls.

Coussement J, et al. J Am Geriatr Soc, 2008

6-PACK Programme

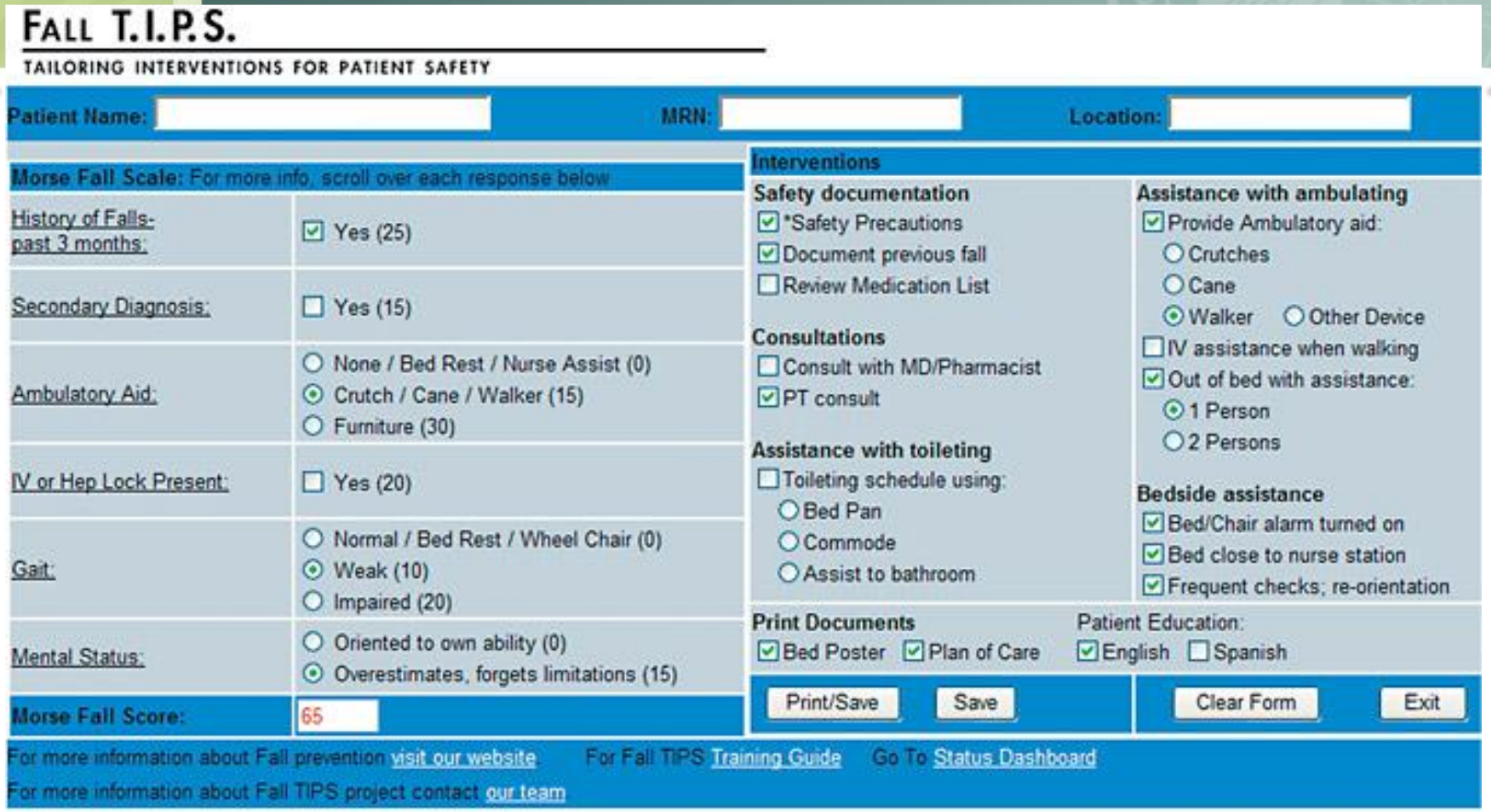
- Design: Cluster randomised controlled trial.
- Setting/Participants: Six Australian hospitals; 46,245 admissions to 16 medical and 8 surgical wards; represented 31,411 individual patients
- Interventions: Usual care or nurse led 6-PACK program.
- Results: Use of 6-PACK components higher on intervention than on control wards ($P<0.001$).
- 1831 falls and 613 fall injuries occurred, and the rates of falls ($P=0.796$) and fall injuries ($P=0.766$) were similar.
- Positive changes in falls prevention practice occurred but no difference seen in falls or fall injuries between groups.

Barker AL, et al. BMJ 2016

Fall Prevention Toolkit

- Objective: to investigate whether a fall prevention toolkit using health information technology decreased patient falls in hospitals.
- 6-month study comparing fall rates in 4 urban US hospitals that got usual care (4 units; 5104 patients) or the intervention (4 units; 5160 pts)
- Nursing fall risk assessment triggered fall prevention interventions to address patient specific issues.
- Produced bed posters with icons, patient education materials, and plans of care that communicated patient-specific alerts to key stakeholders.

Figure 1. Fall Prevention Tool Kit User Interface



Dykes, P. C. et al. JAMA 2010;304:1912-1918

JAMA
THE UNIVERSITY OF ALABAMA AT BIRMINGHAM

Table 1. Fall Prevention Tool Kit (FPTK) Protocol in Control and Intervention Units

	Control Units (Usual Care)	Intervention Units (FPTK)
Fall risk assessment (at admission, daily, and with change in status)	Complete Morse Falls Scale (MFS)[16,17] using existing paper or electronic forms.	Complete MFS using FPTK. Evidence-based/feasible interventions are automatically selected and tailored by nurse based on knowledge of patient.
Bedside alert to all stakeholders	Place generic "high risk for falls" sign above bed for patients scoring >45 on MFS.	Tailored bed poster automatically prints and is placed above bed for all patients at risk; updated with change in status.
Patient education (control and intervention materials available in English and Spanish)	Educate patient/family members, providing booklets or other handouts as needed.	Educate patient/family members using tailored handout (automatically prints, updated with change in status).
Documentation of fall prevention plan	Document plan manually in paper or electronic record.	Tailored plan is automatically generated by FPTK from fall risk assessment.

Dykes, P. C. et al. JAMA 2010;304:1912-1918

Results

- Dykes found reduction in fall rate (3.15 vs. 4.18 per 1000 bed-days) with rate difference of 1.03/1000 bed-days.
- In subgroup analysis, patients > 65 years benefitted most with adjusted rate difference of 2.08 (95% CI 0.61 – 356/1000 bed-days)
- Number Needed to Treat (NNT) to reduce one fall during a typical 3-day hospital stay was 287.

Transforming Healthcare

- Transforming Healthcare Preventing Falls with Injury project reduced rate of patient falls by 35% and rate of patients injured in a fall by 62%.
- If approach translated to typical 400-bed hospital could reduce falls with injury by 133 and expect to save $1.9 million annually.
- Organizations identified causes and developed solutions to prevent patient falls.
- Info available at: http://www.centerfortransforminghealthcare.org/tst_pfi.aspx

TARGETED…TO YOUR ORGANIZATION'S UNIQUE NEEDS

The NEW Preventing Falls Targeted Solutions Tool® (TST®) is a unique online application that guides an organization through a robust falls project by:

Measuring the current state

Analyzing and discovering causes

Implementing targeted solutions

Sustaining and spreading improvements

Joint Commission Center for Transforming Healthcare®

Creating Solutions for High Reliability Health Care

centerfortransforminghealthcare.org

now available

Preventing Falls

tst®

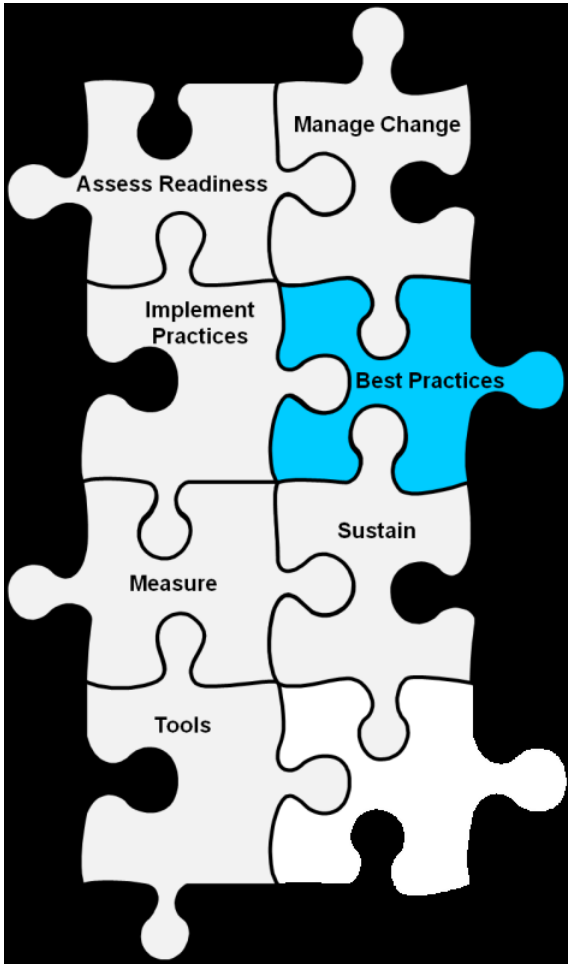
TARGETED SOLUTIONS TOOL®

THE UNIVERSITY OF ALABAMA AT BIRMINGHAM

AHRQ Toolkit for Hospital Fall Prevention

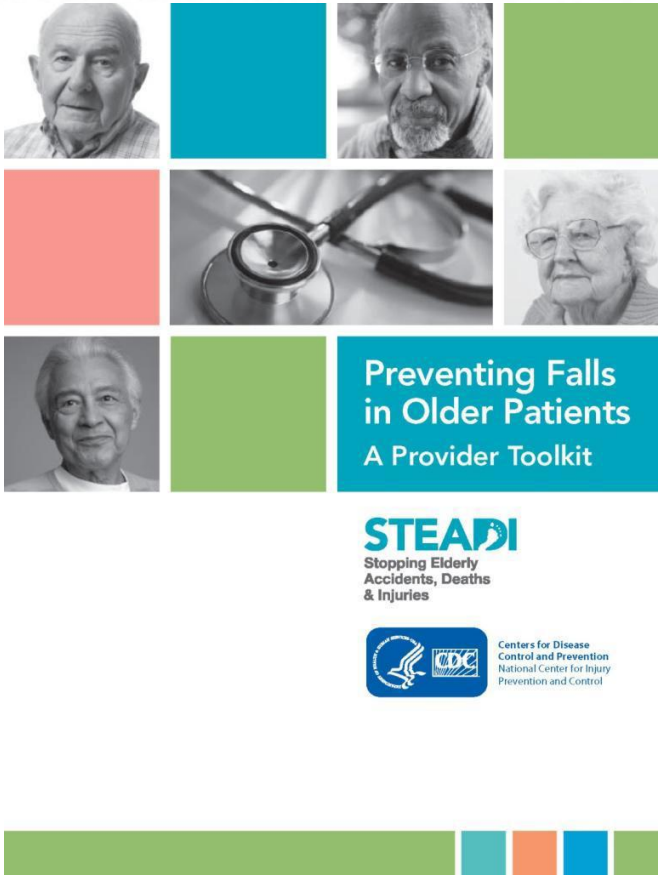
Consensus should be reached on the following:

1. Which fall prevention practices should you use?
2. Which universal fall precautions should be applied throughout the hospital?
3. How should a standardized assessment of fall risk factors be conducted?
4. How should identified risk factors be used for fall prevention care planning?
5. How should you assess and manage patients after a fall?
6. How can your hospital incorporate these practices into a fall prevention program?



STEADI: Stopping Elderly Accidents, Deaths & Injuries

Sponsored by CDC



http://www.cdc.gov/homeandrecreationalsafety/Falls/steadi/about.html

Summary

- Falls among older adults are common and are clearly a public health problem
- Risk factors well described
- Interventions developed and tested
- Major challenge remains implementation and dissemination