



MONASH University

Falls prevention for people presenting to an ED with a fall: *What we don't know?*

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What we do know...

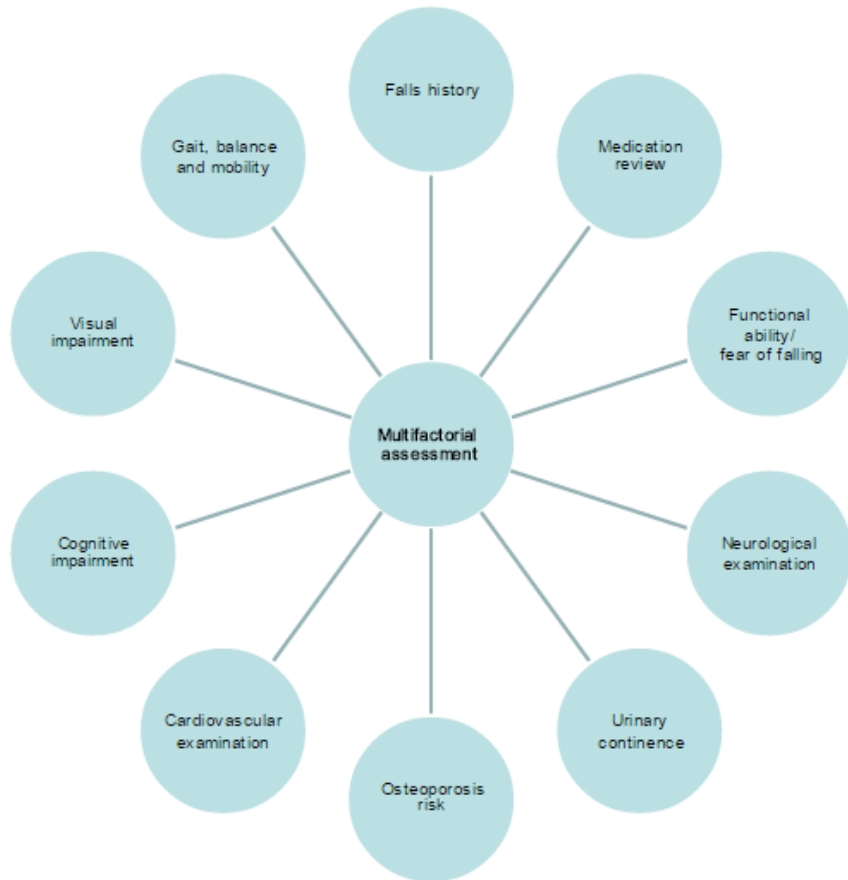
- Falls are one of the leading causes for emergency department (ED) presentations in older people (Samaras et al. 2010)
- In the six months following an ED presentation because of a fall:
 - 52% of cases experience subsequent falls
 - 49% are re-hospitalised
 - Many experience functional decline (Close et al. 1999) (Bloch et al. 2009)
- Furthermore, over 50% of people presenting to an ED for fall-related injury have fallen in the past 12 months (Russell et al. 2010)

→ This highlights a failure in secondary fall prevention in Australia



What we do know

- Best practice guidelines recommend multifactorial falls prevention interventions for older people at risk of falling including those presenting to the ED with a fall
- Multifactorial interventions consist of
 - Individual assessment → identify risk factors for falling
 - >1 intervention
 - Different combinations of interventions based risk factors



What don't we know...

- How to prevent secondary falls in older people presenting to the ED with a fall...

Multifactorial assessment and targeted intervention for preventing falls and injuries among older people in community and emergency care settings: systematic review and meta-analysis

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ABSTRACT

Objective To evaluate the effectiveness of multifactorial assessment and intervention programmes to prevent falls and injuries among older adults recruited to trials in primary care, community, or emergency care settings.

Design Systematic review of randomised and quasi-randomised controlled trials, and meta-analysis.

Data sources Six electronic databases (Medline, Embase, CENTRAL, CINAHL, PsycINFO, Social Science Citation Index) to 22 March 2007, reference lists of included studies, and previous reviews.

Review methods Eligible studies were randomised or quasi-randomised trials that evaluated interventions to prevent falls that were based in emergency departments,

or fall related injuries is limited. Data were insufficient to assess fall and injury rates.

INTRODUCTION

Falls are a major health problem for older adults, through both immediate effects such as fractures and head injuries and longer terms problems such as disability, fear of falling, and loss of independence.¹ Prevention of falls and injuries has been a major focus of research, stimulated by ageing populations and by growing awareness of the mortality and morbidity resulting from falls. Earlier reviews of randomised controlled trials of fall prevention interventions concluded that several types of intervention are

Gates 2008

- Systematic review 19 RCTs and quasi-RCTs of multifactorial assessment and intervention programs to prevent falls
 - Settings: primary care, community, or emergency care settings
 - 6 studies recruited in ED
 - 1 study included patients admitted to hospital from the ED
 - Findings: no effect on
 - Number of fallers 0.91 (0.82 to 1.02)
 - Fall related injuries 0.90 (0.68 to 1.20)
 - Admissions to hospital, emergency department attendance, death, or move to institutional care



Cochrane
Library

Cochrane Database of Systematic Reviews

Interventions for preventing falls in older people living in the community (Review)

Gillespie LD, Robertson MC, Gillespie WJ, Sherrington C, Gates S, Clemson LM, Lamb SE

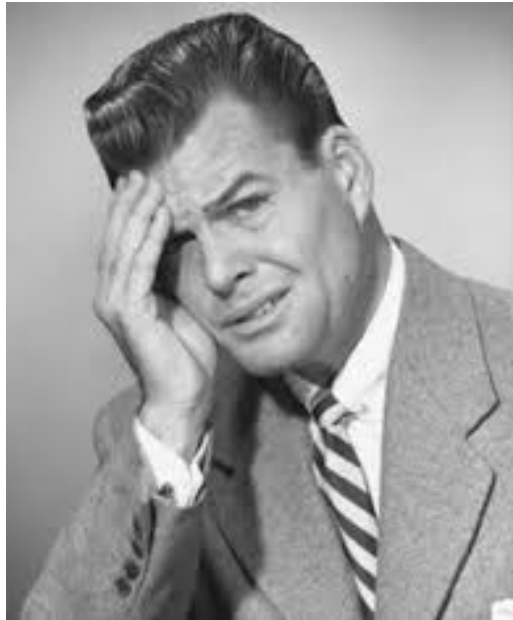
Gillespie 2012

- Systematic review of 159 trials of interventions to reduce falls in community-dwelling older people.
 - The most common interventions tested were exercise as a single intervention (59 trials) and multifactorial programs (40 trials).
 - Findings:
 - Multifactorial interventions
 - Reduced rate of falls 0.76(0.67 to 0.86) 19 trials; 9,503 participants
 - Did not reduce risk of falling 0.93 (0.86 to 1.02); 34 trials; 13,617 participants

What we don't know...

- Are the positive effects reported in Cochrane review generalisable to the ED population?
 - Frailer
 - Complex health profile
 - Older
- Is there more recent evidence about the effect of multifactorial interventions not included in these 2 prior reviews?
- Do falls prevention interventions decrease ED re-attendance?
- What differentiates successful from unsuccessful interventions?

Not another falls systematic review....



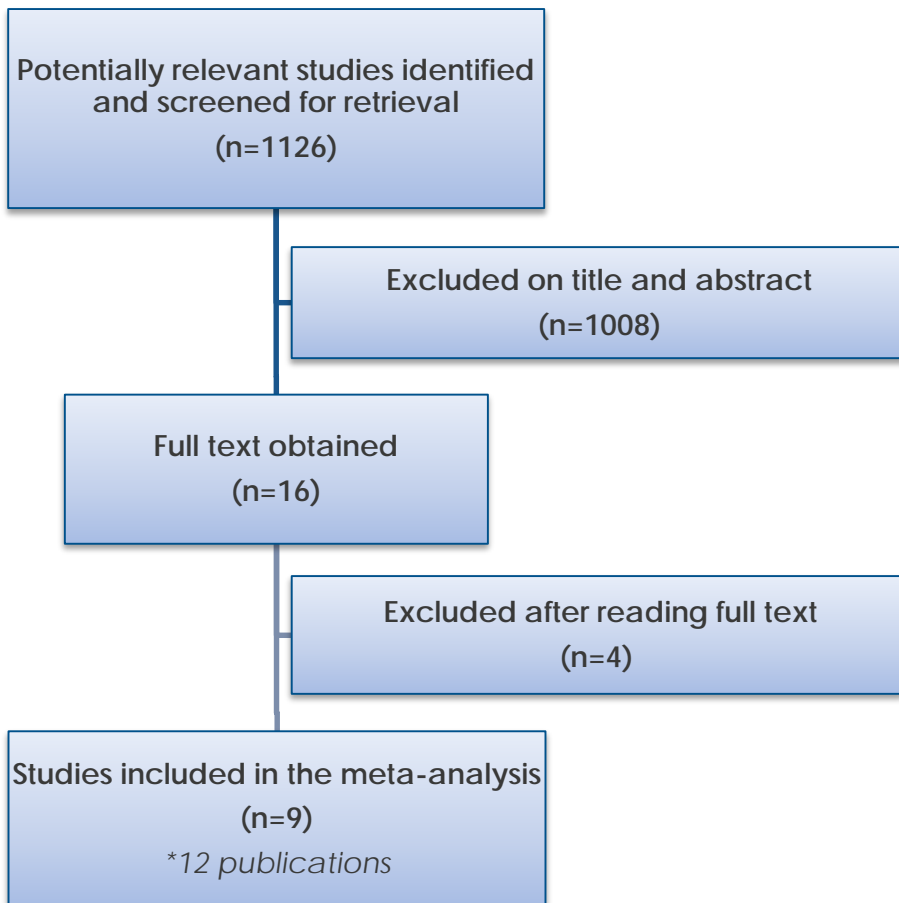
but wait,
this one's
different!

A review of previous evidence

- 9 Randomised Controlled Trials (RCTs)
 - **Population:** Older adults (≥ 60 years) presenting to an ED with a fall or fall-related injury and discharged home
 - **Interventions:** Multifactorial falls prevention programs
 - **Comparator:** Usual care
 - **Outcomes:**
 - Number of fallers
 - Rate of falls
 - Rate of fall injuries
 - Rate of ED re-presentations



Included studies



Study characteristics

	Close (1999)	Davison (2005)	De Vries (2010) Peeters (2011)*	Hendricks (2008)	Hill (2010) Russell (2010)*	Lightbody (2002)	Shaw (2003)	Vind (2009/2010)*	Whitehead (2003)
Country	UK	UK	NL	NL	AU	UK	UK	DE	AU
Participants	397	313	217	333	712	348	274	392	140
Mean Age	78	77	80	75	75	75	84	74	78
OT	✓	✓	✓	✓	✓	✓	✓		✓
Physio		✓	✓	✓	✓	✓	✓	✓	✓
Medication review	✓	✓	✓	✓	✓	✓	✓	✓	✓
Exercise			✓	✓	✓	✓	✓	✓	✓
Vision	✓	✓	✓	✓	✓	✓	✓	✓	
Education	✓		✓	✓	✓	✓	✓	✓	✓
Cardiac	✓	✓	✓	✓	✓	✓	✓	✓	
Feet and footwear		✓		✓	✓	✓	✓		

Results from previous RCTs

	Close (1999)	Davison (2005)	De Vries (2010) Peeters (2011)*	Hendricks (2008)	Hill (2010) Russell (2010)*	Lightbody (2002)	Shaw (2003)	Vind (2009/2010)*	Whitehead (2003)
Number of fallers	+	=	=	=	=	=	=	=	=
Rate of falls	+	+	=	=	=	=	=	=	=
Rate of fall injuries	= ^{SI}			=	=		=	=	
Rate of ED re-presentations	=	=			=	=	=		

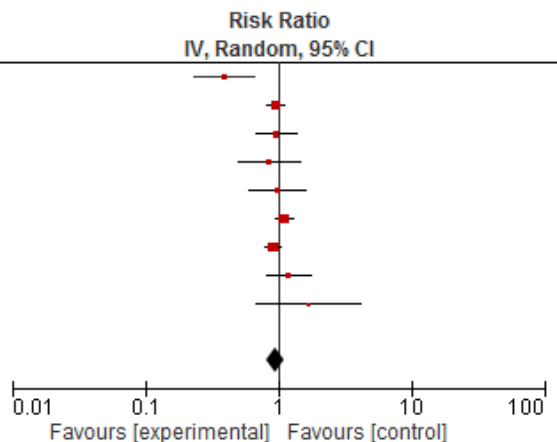
*1 trial with results reported in 2 publications

+ significant reduction in intervention group

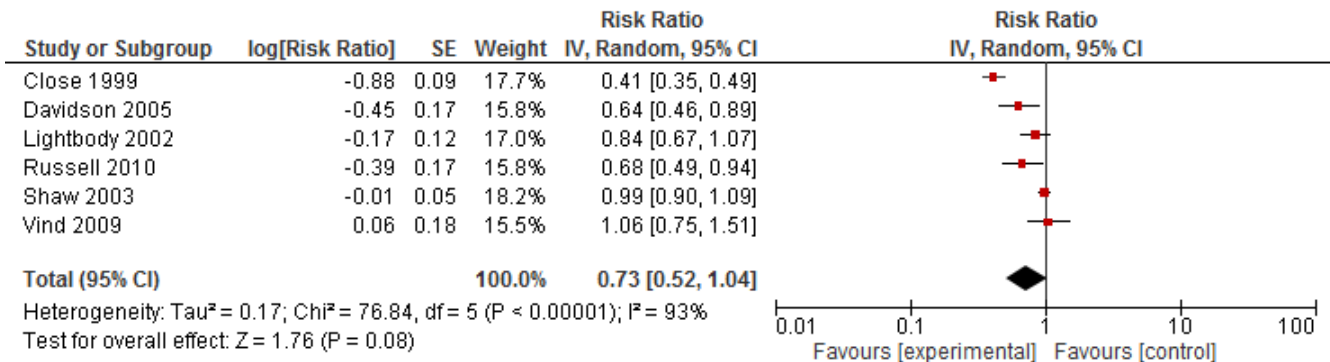
= no significant difference between groups

Number of fallers

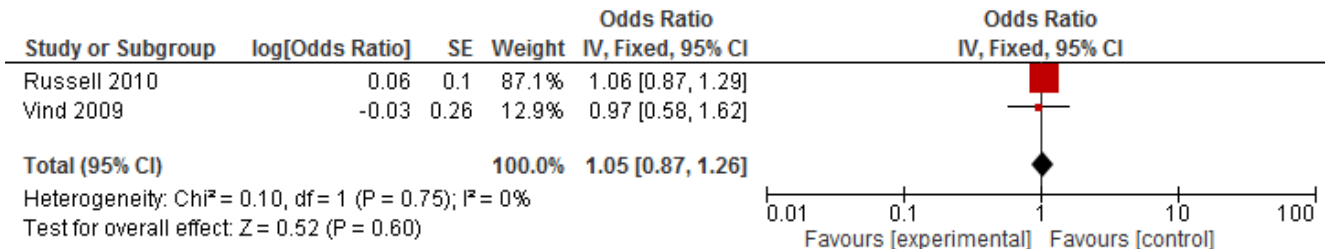
Study or Subgroup	log[Risk Ratio]	SE	Weight	Risk Ratio	
				IV, Random, 95% CI	
Close 1999	-0.94	0.27	5.7%	0.39	[0.23, 0.66]
Davidson 2005	-0.05	0.08	20.1%	0.95	[0.81, 1.11]
de Vries 2010	-0.04	0.18	10.1%	0.96	[0.68, 1.37]
Hendricks 2008	-0.15	0.28	5.4%	0.86	[0.50, 1.49]
Lightbody 2002	-0.02	0.25	6.4%	0.98	[0.60, 1.60]
Russell 2010	0.1	0.08	20.1%	1.11	[0.94, 1.29]
Shaw 2003	-0.08	0.07	21.3%	0.92	[0.80, 1.06]
Vind 2009	0.18	0.2	8.8%	1.20	[0.81, 1.77]
Whitehead 2003	0.53	0.46	2.3%	1.70	[0.69, 4.19]
Total (95% CI)			100.0%	0.96	[0.83, 1.10]
Heterogeneity: Tau ² = 0.02; Chi ² = 17.34, df = 8 (P = 0.03); I ² = 54%					
Test for overall effect: Z = 0.63 (P = 0.53)					



Rate of falls



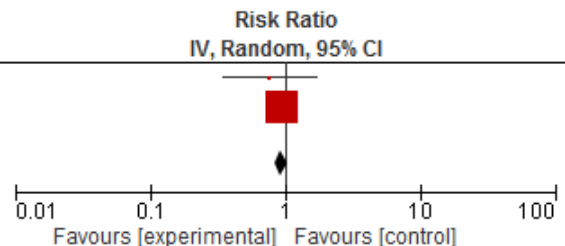
Number of injurious fallers



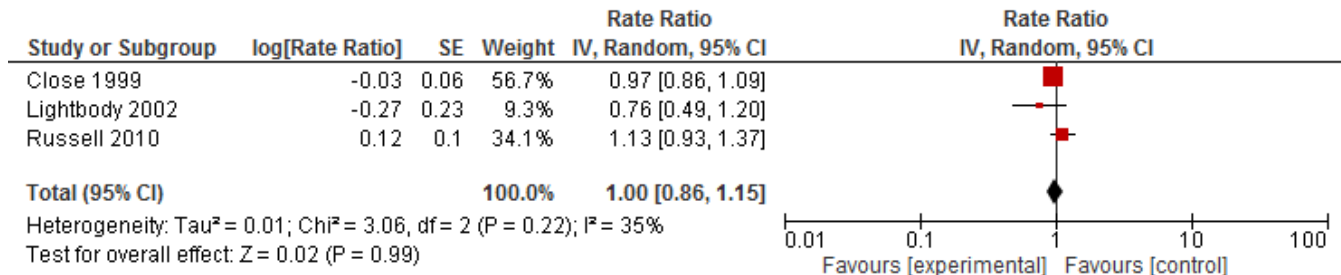
Rate of fall injuries

Study or Subgroup	log[Risk Ratio]	SE	Weight	Risk Ratio IV, Random, 95% CI
Hendricks 2008	-0.26	0.4	1.5%	0.77 [0.35, 1.69]
Russell 2010	-0.06	0.05	98.5%	0.94 [0.85, 1.04]
Total (95% CI)			100.0%	0.94 [0.85, 1.03]

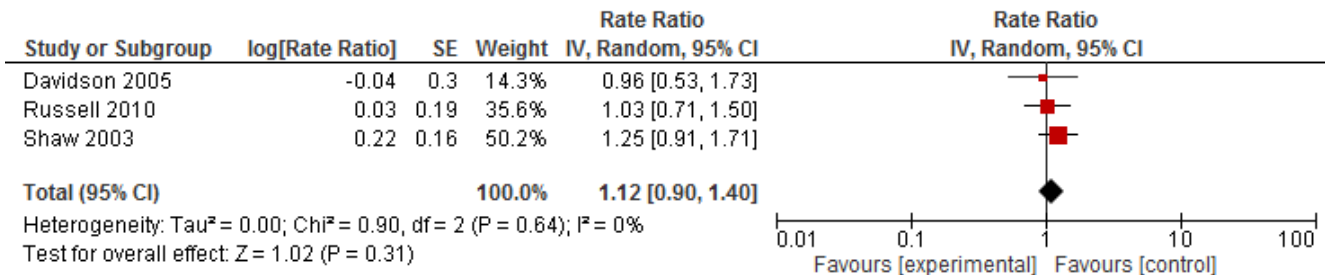
Heterogeneity: $\tau^2 = 0.00$; $\chi^2 = 0.25$, $df = 1$ ($P = 0.62$); $I^2 = 0\%$
Test for overall effect: $Z = 1.27$ ($P = 0.20$)



Rate of ED representations (all cause)



Rate of ED representations (fall-related)



What did the successful trial do differently?

1. Timely
 - Provided intervention within 30 days of ED discharge.
2. Intensity
 - Included provision of intervention by research staff rather than referral based
3. Participation
 - Higher levels of uptake of recommendations

Time to initial assessment

- Russel 2010
 - Service access
 - 4 months for falls clinics
 - 2 months for physiotherapy
 - 3 months for occupational therapy
- Davison 2005
 - Delivered services within one month of ED discharge

Intensity

- Review paper
 - Participation in falls prevention strategies highest in studies that offered moderate home visit support and intervention via telephone contact
 - moderate support >1 home visit or telephone call per month and >2 home visits in total.
 - » ([Simek, McPhate et al. 2012](#))

Participation

- Russell 2010
 - Uptake of referrals
 - <5% falls clinics
 - <30% physiotherapy
 - <17% occupational therapy

Patient centred?

- Older people see relevance in falls prevention strategies that adopt a patient-centred approach by including education and involvement in decision-making
 - » [\(Mead and Bower 2000\)](#)
- Guidelines to increase uptake of falls prevention strategies have also suggested older adults choose activities that have personal meaning and are compatible with their social norms.
 - » [\(Bunn F 2008\)](#)
- Presenting information as positive health messages or as 'life enhancing' rather than 'at risk' may also improve participation.
 - » [\(BUNN, DICKINSON et al. 2008\)](#)

Patient centred?

- Patient-centred care models have been successfully trialled in chronic disease and secondary prevention of cardiovascular events. ([Barlow, Wright et al. 2005](#), [Redfern, Briffa et al. 2009](#))
 - Clinic visit and telephone support → improvement in cardiac risk profiles compared to profiles of patients receiving standard care
 - » ([Redfern, Briffa et al. 2009](#))
 - Maintained favourable changes in coronary risk profile at four years compared with controls
 - » ([Neubeck, Freedman et al. 2011](#)).

Acceptable?

- What do older people prefer?
 - Specific to people presenting to ED with a fall

What we don't know...

- Does Incorporating patient-centred care principles and telephone support into falls prevention programs improve participation in falls prevention strategies?

We see there is a failure of secondary fall prevention....but what's the solution?



Key ingredients?

Timeliness

Intensity

Patient-centredness

Participation



So, where to from here?



A patient-centred post-discharge program (RESPOND)


- 3 components:
 1. Home-based risk factor assessment
 2. Education on risk factor management, goal setting, coaching and follow-up telephone support for management of risk factors
 3. Healthcare provider communication and community linkage into existing community services
- Targets 4 risk factors with evidence of effective intervention:
 1. Poor balance and/or loss of strength
 2. Vision impairment
 3. Poor bone health
 4. Long-time use of benzodiazepines

The RESPOND trial

- **Study design:** Single-blind, multi-centre randomised controlled trial
- **Primary aim:** To investigate the impact of the RESPOND program on fall and fall injury rates in fallers presenting to the ED
- **Participants:** 528 community-dwelling persons aged 60 to 90 years who present with a fall to the EDs of the Alfred and Royal Perth hospitals, and are planned to be discharged home within 72 hours.
- **Outcomes (follow-up period 12 months):**
 - Falls
 - Fall injuries
 - ED re-presentations
 - Hospitalisations
 - Fractures (confirmed by radiological investigation)
 - Deaths
 - Change in falls risk status, falls self-efficacy and QoL


RESPOND be your best examples

Be Your Best
Active - Energetic - Independent



Better Strength & Balance
An important part of enjoying life and remaining independent

Be Your Best
Active - Energetic - Independent



Better Bones
An important part of enjoying life and remaining independent

Be Your Best
Active - Energetic - Independent



Better Eyesight
An important part of enjoying life and remaining independent

Be Your Best
Active - Energetic - Independent



Better Quality Sleep
An important part of enjoying life and remaining independent



■ “Be Your Best”

- Recognising and valuing the “Be Your Best” ethos:
 - Positive health messages
 - Healthy aging
 - Focus on wellness, not falls
- RESPOND modules and corresponding education leaflets
- RESPOND: a broad appeal



WATCH THIS SPACE!

RESPOND



Respond to the first fall to prevent the second

The Falls and Bone Health Team

*We aim to improve the quality of clinical practice by
generating new knowledge through clinical research projects*



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Anna Barker
Falls and bone health team



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