長照個案跌倒之預防與處置

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大綱

- 跌倒的流行病學、不良後果與危險因子
- 跌倒者之評估與處置
- 長照個案之跌倒風險評估
- 長照個案跌倒之預防

跌倒

- 定義：導致人體非故意的變成靠在地面、地板或其他較低處的事件。 (A fall is an event which results in a person coming to rest inadvertently on the ground or floor or other lower level.)
- 跌倒是全世界意外或非故意傷害死亡的第二大原因
- 據估計全世界每年約有64.6萬人因跌倒而死亡，其中80%發生在低收入與中等收入國家
- 65歲以上成人在致命性跌倒中所佔的比例最高
- 每年需要就醫治療的嚴重跌倒有3730萬人

(WHO 2018 Jan)

跌倒的流行病學

- 通常老人跌倒的發生率隨年齡增加而升高
- 女多於男
- 社區65歲以上老年人每年約30~40%發生跌倒，80歲以上每年約50%跌倒
- 一半以上的跌倒者不會告知醫師或就醫
- 跌倒一次者再跌倒的風險加倍
- 長照機構中每年約50%的住民跌倒
- 護理之家平均每床每年發生1.5次跌倒

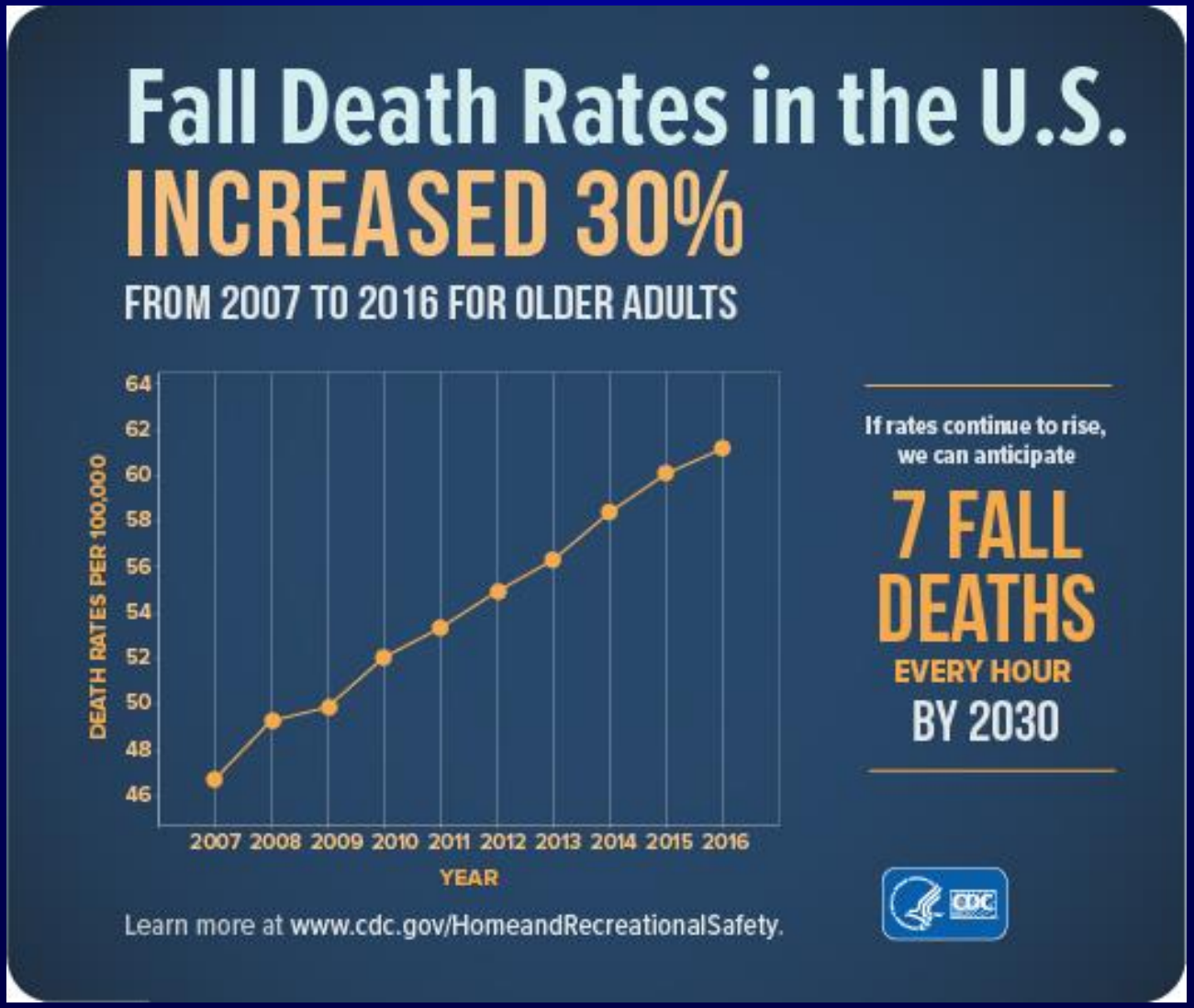
(CDC US, UpToDate)

跌倒的流行病學

- 約5~20%社區老人跌倒導致重大外傷，如骨折、頭部外傷或重大撕裂傷
- 每年有300萬老年人因跌倒傷害至急診就醫
- 每年有80萬人因跌倒傷害住院
- 跌倒是造成髖關節骨折與頭部外傷最常見原因
- 2015年跌倒的醫療費用超過500億美元
- 護理之家住民因跌倒導致重大外傷的比率約為10~30%

(CDC US, UpToDate)

跌倒的流行病學



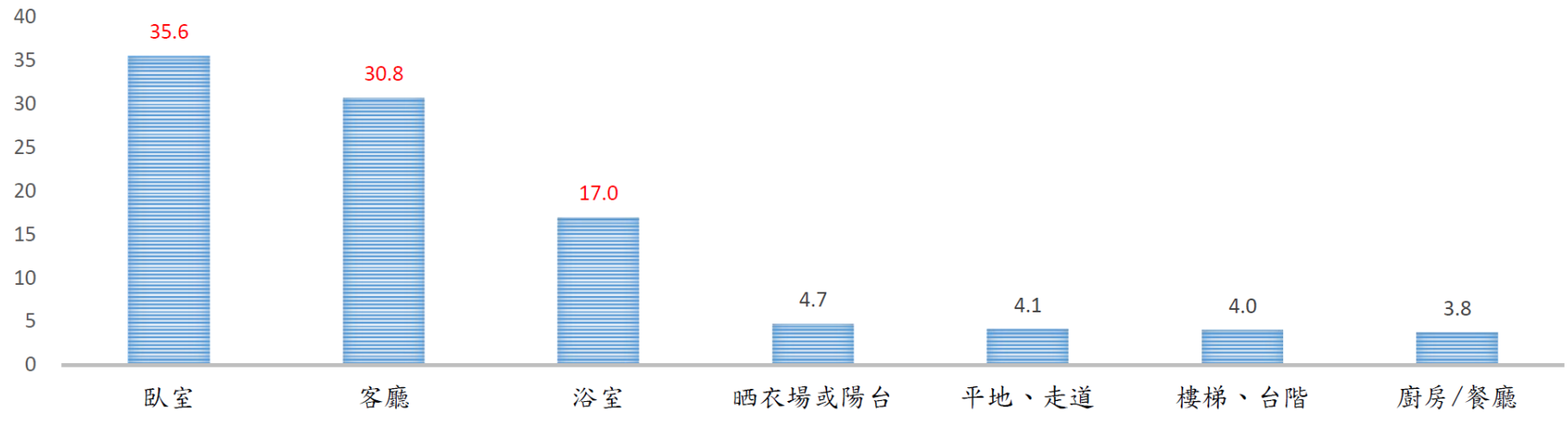
(CDC US)

跌倒的流行病學

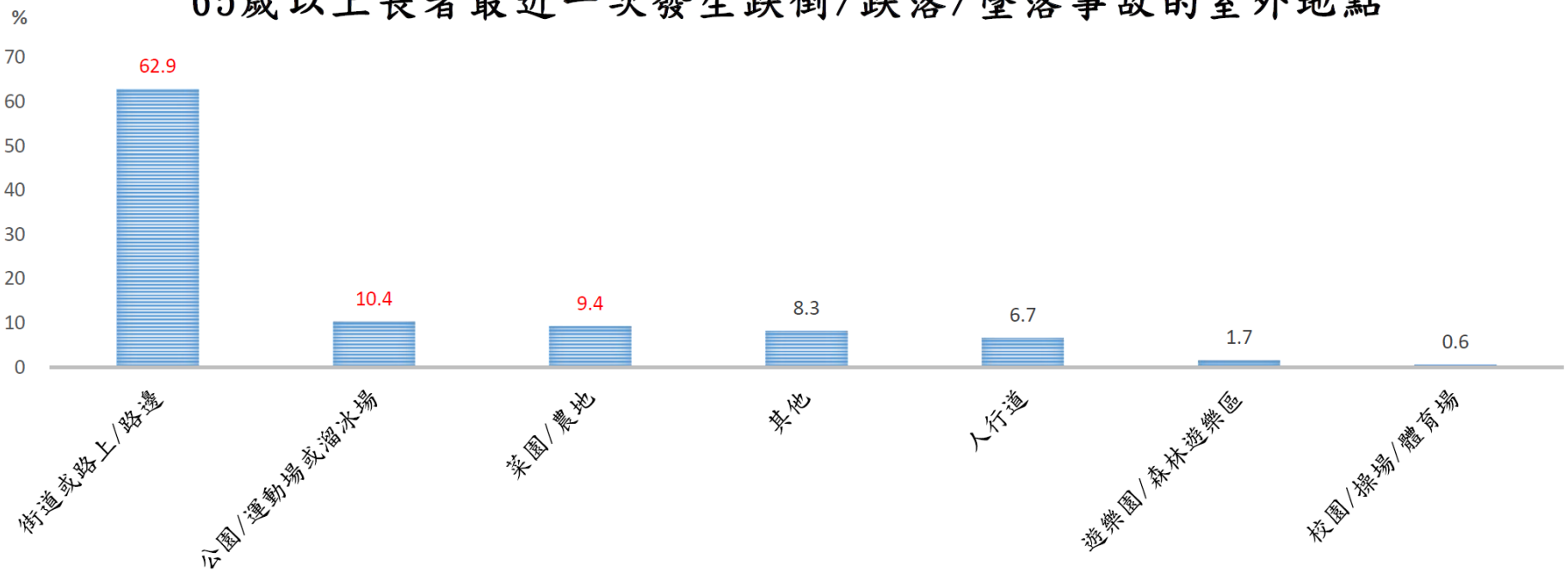
- 107年死因統計中，跌倒高居65歲以上事故傷害死亡原因第二位(每十萬人25.7人)
- 根據國民健康署106年「國民健康訪問調查」，15.5%老人在一年內有跌倒的經驗，8.4%老人曾因跌傷而就醫
- 從長者跌傷的原因來看，第一位為滑倒或絆倒(43.2%)，第二位為失去平衡或頭昏(37.1%)，第三位為碰到或撞上物品或人(11.7%)
- 跌傷就醫後僅約2成長者會注意提升居家安全，逾6成長者跌傷後未採取任何防跌措施

(國民健康署)

65歲以上長者最近一次發生跌倒/跌落/墜落事故的室內地點



65歲以上長者最近一次發生跌倒/跌落/墜落事故的室外地點



跌倒的流行病學

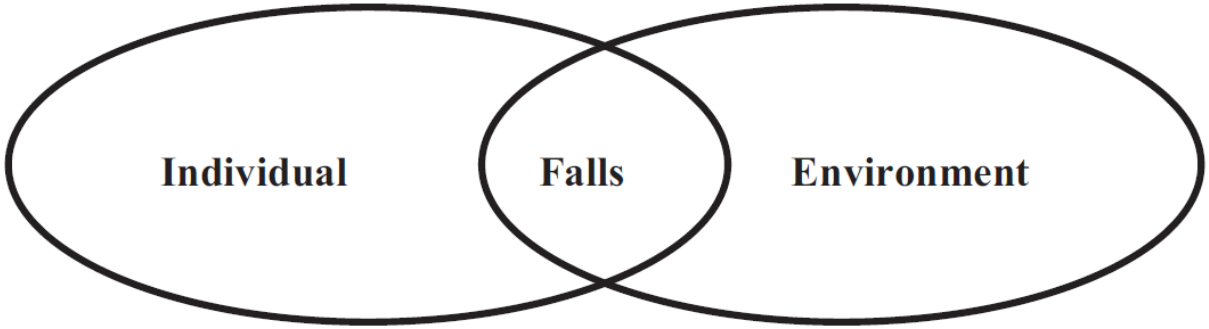
- 根據中老年調查資料分析：1999、2003及2007年老人跌倒標準化盛行率各為18.2%、19.0%及21.0%
- 老人跌倒者之跌傷比率由1999年的37.04%降至2007年的31.8%
- 推估老年跌倒髖骨骨折人數將從2007年的17,632人增加為2025年的38,404人(2.2倍)
- 老人髖骨骨折後，50%無法再恢復行走，約14~20%在一年內死亡

(國民健康署, Wang CB et al)

老年人跌倒的不良後果

- 外傷：
  軟組織、骨、頭部、…
- 精神問題：
  焦慮、憂鬱、認知功能異常
- 入住醫院/機構：
  臥床的併發症、醫源性疾病
- 失能：
  喪失行走或自我照顧能力
- 社會經濟問題：
  醫療照護費用增加、社交孤立、照顧者壓力
- 死亡

跌倒通常是多個危險因子交互作用所造成

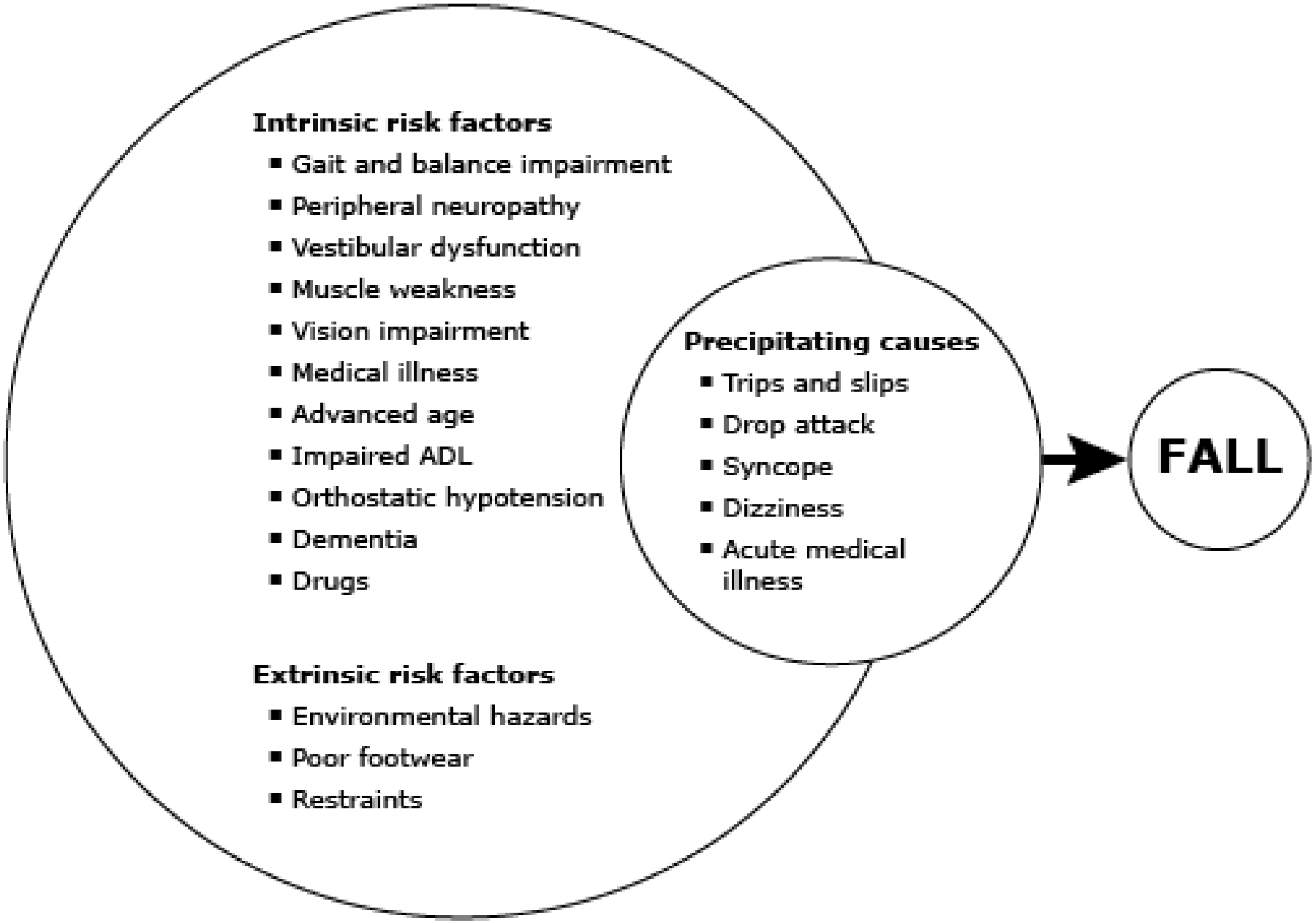


Age-related changes
Cognitive deficits
Gait, strength, or balance deficits[a]
Sensory deficits[a]
Chronic conditions
Acute illnesses
Behaviors/choices[a]

Medications[a]
Footwear[a]
Assistive devices[a]
Home/neighborhood features[a]
Alcohol/drugs[a]
Supports from caregivers[a]

Fig. 1. Falls result from an interaction between factors in the individual (intrinsic) and the environment (extrinsic). [a] Factors that may be modifiable with intervention.

(Med Clin N Am 2015)



(Med Clin N Am 2006)

器官老化增加跌倒風險

Table 1
Aging-related physiologic changes in organ systems that affect fall risk

Organ System	Physiologic Change
Muscular system	Decreased muscle strength
Nervous System	
Balance	Increased postural sway Slowed righting reflexes
Gait	Decreased step height Decreased proprioception
Vision	Reduced papillary response to light variation Thickening and loss of elasticity of lens

(Med Clin N Am 2015)

增加跌倒風險的病況

Functional Impairment	Disorder
BP regulation	Anemia
	Arrhythmias
	Cardioinhibitory carotid sinus hypersensitivity
	COPD
	Dehydration
	Infections (eg, pneumonia, sepsis)
	Metabolic disorders (eg, diabetes, thyroid disorders, hypoglycemia, hyperosmolar states)
	Neurocardiogenic inhibition after micturition
	Postural hypotension
	Postprandial hypotension
	Valvular heart disorders
Central processing	Delirium
	Dementia
	Stroke
Gait	Arthritis
	Foot deformities
	Muscle weakness

(Merck Manual)

增加跌倒風險的病況

Functional Impairment	Disorder
Postural and neuromotor function	Cerebellar degeneration
	Myelopathy (eg, due to cervical or lumbar spondylosis)
	Parkinson disease
	Peripheral neuropathy
	Stroke
	Vertebrobasilar insufficiency
Proprioception	Peripheral neuropathy (eg, due to diabetes mellitus)
	Vitamin B_{12} deficiency
Otolaryngologic function	Acute labyrinthitis
	Benign paroxysmal positional vertigo
	Hearing loss
	Meniere disease
Vision	Cataract
	Glaucoma
	Macular degeneration (age-related)

(Merck Manual)

Table 2. Risk Factors for Falls in Older Persons

Potentially modifiable	Potentially modifiable *(continued)*	Nonmodifiable
Cardiac	Neurologic	Age older than 80 years
Cardiac arrhythmias	Delirium	Arthritis
Congestive heart failure	Dizziness or vertigo	Cognitive impairment/dementia
Hypertension	Parkinson disease and other movement disorders	Female sex
Environmental hazards	Peripheral neuropathy	History of cerebrovascular accident/transient ischemic attack
Medication use (see Table 3; risk is higher when four or more medications are used simultaneously)	Psychological	History of falling
Metabolic	Depression	History of fractures
Diabetes mellitus	Fear of falling	Recently discharged from the hospital (within one month)
Low body mass index	Sensory impairment	White race
Vitamin D deficiency	Auditory impairment	
Musculoskeletal	Multifocal lens	
Balance impairment	Visual impairment	
Foot problems	Other	
Gait impairment	Acute illness	
Impaired activities of daily living	Anemia	
Limited activity	Cancer	
Lower extremity muscle weakness	Inappropriate footwear	
Musculoskeletal pain	Nocturia	
Use of an assistive device	Obstructive sleep apnea	
	Postural hypotension	
	Urinary incontinence	

Adapted with permission from Moncada LV. Management of falls in older persons: a prescription for prevention. Am Fam Physician. *2011;84(11):1267-1268, with additional information from references 6, and 11 through 15.*

(AFP 2017)

增加跌倒風險的藥物

Drugs	Mechanism
Aminoglycosides	Direct vestibular damage
Analgesics (especially opioids)	Reduced alertness or slow central processing
Antiarrhythmics	Impaired cerebral perfusion
Anticholinergics	Confusion/delirium
Antihypertensives (especially vasodilators)	Impaired cerebral perfusion
Antipsychotics	Extrapyramidal syndromes, other antiadrenergic effects
Diuretics (especially when patients are dehydrated)	Impaired cerebral perfusion
Loop diuretics (high-dose)	Direct vestibular damage
Psychoactive drugs (especially antidepressants, antipsychotics, and benzodiazepines)	Reduced alertness or slow central processing

(Merck Manual)

增加跌倒風險的藥物

Table 2
Medications that increase the risk of falls

Medication Class	Odds Ratio (95% CI)
Psychoactive Medications	
Antidepressants	1.68 (1.47–1.91)
Antipsychotics	1.59 (1.37–1.83)
Sedative hypnotics	1.47 (1.35–1.62)
Benzodiazepines	1.57 (1.43–1.72)
Other Medications	
Antihypertensives	1.24 (1.01–1.50)
Nonsteroidal antiinflammatory drugs	1.21 (1.01–1.44)
Diuretics	1.07 (1.01–1.14)

Abbreviation: CI, confidence interval.

Data from Woolcott JC, Richardson KJ, Wiens MO, et al. Meta-analysis of the impact of 9 medication classes on falls in elderly persons. Arch Intern Med 2009;169:1957.

(Med Clin N Am 2015)

Table 3. Medications Associated with Falls

Anticonvulsants*	Digoxin
Antidepressants (tricyclic antidepressants and selective serotonin reuptake inhibitors)*	Diuretics
Antihypertensives	Laxatives
Antiparkinsonian drugs	Opioids*
Antipsychotics (typical and atypical)*	Nonbenzodiazepine, benzodiazepine receptor agonist hypnotics*
Benzodiazepines (short- and long-acting)*	Nonsteroidal anti-inflammatory drugs
	Sedatives and hypnotics*

**—These medications are on the 2015 Beers Criteria list for potentially inappropriate medication use in older adults who have a history of falls or fractures.*[31]

Information from references 11 and 31.

(AFP 2017)

機構跌倒危險因子

與社區跌倒的危險因子類似

- 年齡
- 曾經跌倒
- 認知功能
- 頭暈
- 藥物
- 視力不良
- 下肢無力
- 平衡功能不良
- 藥物調整(UpToDate)

- 環境因子
  - 濕滑地板
  - 家具使空間狹小
  - 光線不良、眩光
  - 床與馬桶高度不當 (Clin NursRes2008;17:50)
  - 地毯(Clin Rehab 2000;14:178)
  - 不適當鞋子
  - 過長的褲子
  - 不良輔具

台灣機構高跌倒風險老人研究

- 收案對象：跌倒高風險個案286名
- 跌倒年發生率33.9%
- 54.6%在室內、27.8%室外、17.5%皆有
- 71.1%有明顯傷害，其中17.1%骨折
- 預估因子(OR; 95%C.I.)
  - 服用止痛藥(3.75;1.4-10.0)
  - 曾服鎮靜安眠藥 (2.71; 1.3-5.6)
  - 害怕跌倒而減少活動(2.61;1.4-4.9)
  - 無運動習慣(2.17;1.0-4.8)

(台灣衛誌 2012;31(3):263-276)

護理之家住民常見跌倒原因

- **Muscle weakness and walking or gait problems**
  - the most common causes of falls
  - account for about 24% of the falls
- **Environmental hazards**
  - cause 16% to 27% of falls among residents
  - wet floors, poor lighting, incorrect bed height, and improperly fitted or maintained wheelchairs.
- **Medications**
  - drugs affecting the central nervous system, such as sedatives and anti-anxiety drugs, are of particular concern
  - risk is significantly elevated during the three days following any change in these types of medications
- **Other**
  - difficulty in moving from one place to another (for example, from the bed to a chair), poor foot care, poorly fitting shoes, and improper or incorrect use of walking aids

(CDC)

跌倒評估

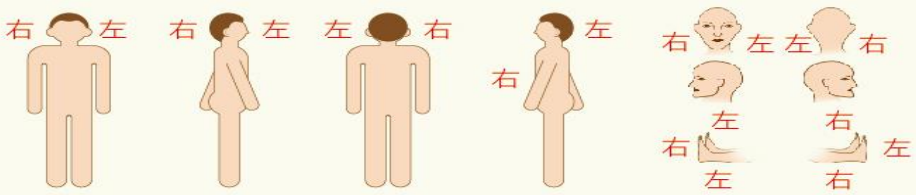
- 病史詢問 (under-reporting!)
- 一般與特殊身體診察
- 周全性老年醫學評估(CGA)
- 實驗室檢查

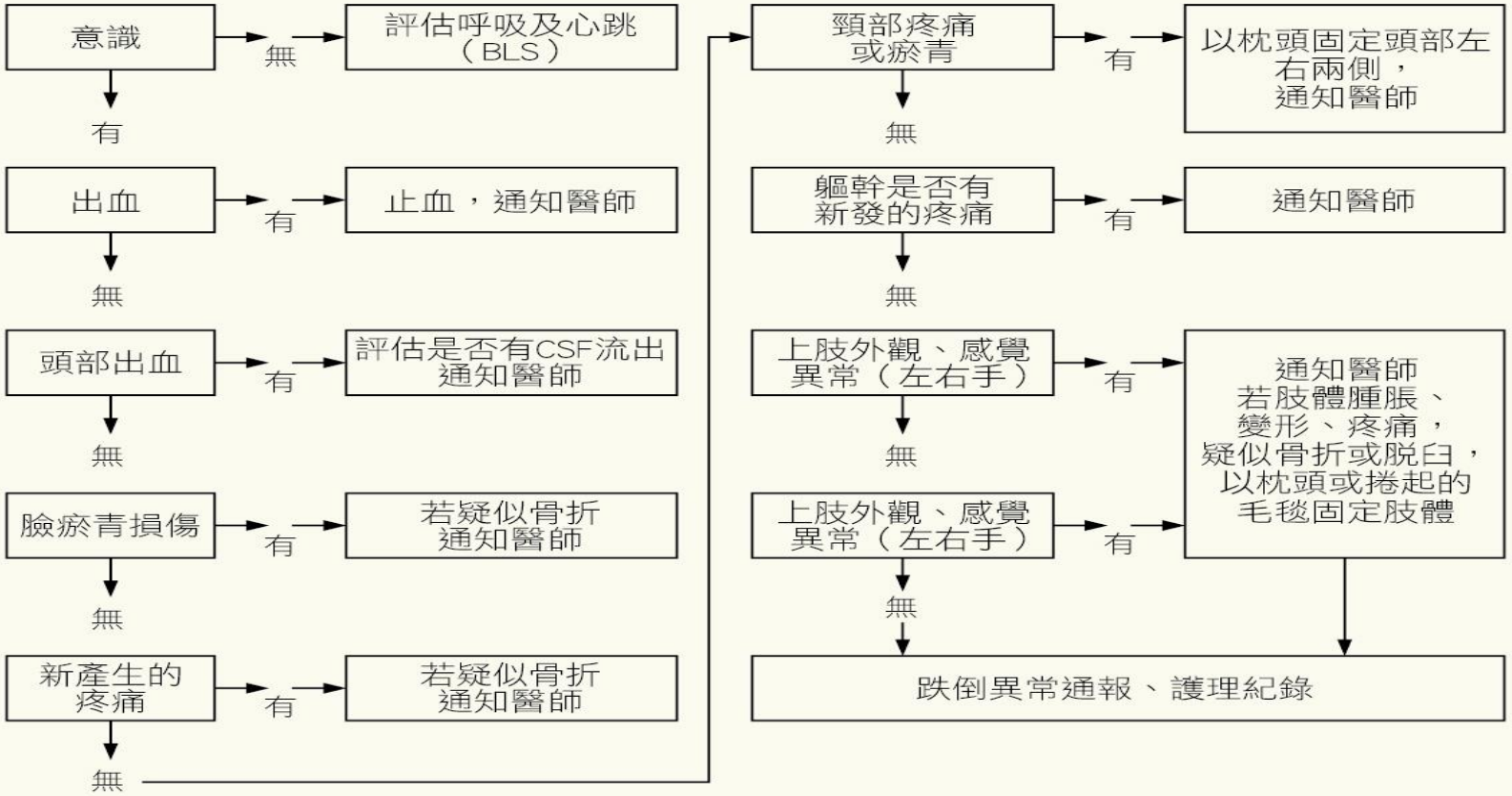
醫院/機構跌倒後處置流程

病人基本資料：

在移動病人前，先評估病人的外觀及是否有異樣的感覺？

☐ 是，部位 _____





(台灣骨質疏鬆臨床治療指引2014)

病史詢問

- SPLATT
  - symptoms跌倒前的症狀（頭暈/暈眩、心悸、胸痛/悶、無力、麻木、先兆、...）、是否失去意識
  - prior falls前次跌倒病史
  - location of the fall跌倒的地方
  - activity during the fall跌倒前正做什麼（轉頭、咳嗽、解尿、改變姿勢、...）
  - time of day the fall occurred跌倒的時間
  - length of time on the ground跌倒在地上所停留的時間
  - trauma or injury resulting from the falls是否造成傷害
- 內在與外在危險因子
- 藥物檢視

一般身體診察重點

- 生命徵象
  - 發燒、體溫過低
  - 姿勢性血壓/脈搏變化
- 頭頸
  - 視力檢查
  - 結膜蒼白
  - 頸動脈雜音
  - 眼球震顫
- 心臟血管
  - 心律不整
  - 瓣膜異常
- 下背、肢體
  - 關節外觀、活動範圍
  - 肌力
  - 足部、鞋子問題
- 神經
  - 心智狀態
  - 局部徵候
  - 感覺、體位覺
  - 肌肉力量、張力、反射
  - 步態、平衡

特殊身體診察

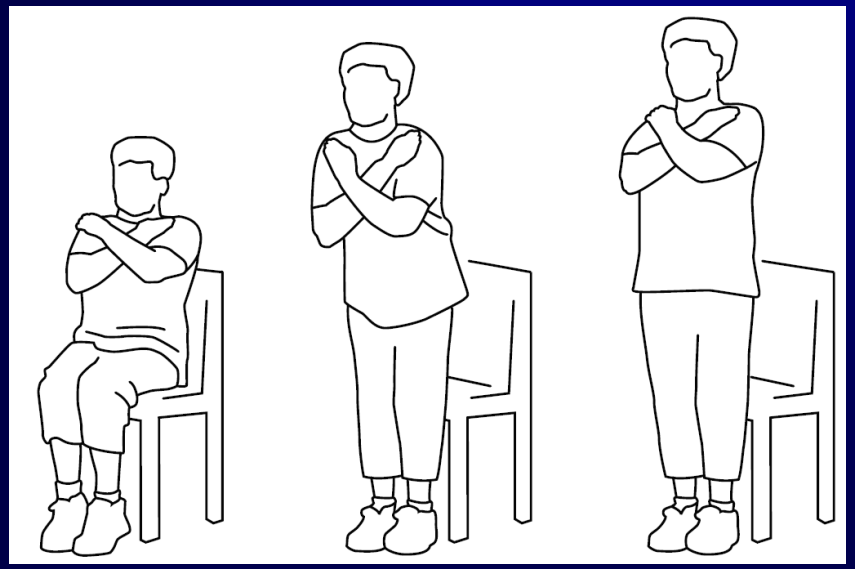
- 起身行走測試 timed get up and go test
- 30秒內由椅子起立次數測試 30-second chair stand test
- 4階段平衡測試 4-stage balance test
- 功能性前伸 functional reach
- ……

起身行走測試
Timed up and go test

- 評估行走能力
- 步驟： 準備碼錶
  - 穿平常鞋子、可用平常輔具
  - 請病人從椅子上站起
  - 向前走3公尺
  - 轉180度
  - 走回椅子
  - 坐下
- 正常人10秒內可完成
- 超過12~15秒：跌倒風險增加
- 超過20秒：需進一步評估、外出需協助
- 超過30秒：無法獨立執行日常生活功能(ADL)

30秒內由椅子起立次數測試
30-second chair stand test

- 測肌力與肌耐力
- 低於平均值跌倒風險增加



Age	Men	Women
60-64	< 14	< 12
65-69	< 12	< 11
70-74	< 12	< 10
75-79	< 11	< 10
80-84	< 10	< 9
85-89	< 8	< 8
90-94	< 7	< 4

(CDC)

4階段平衡測試
4-stage balance test

- 測靜態平衡
- 雙眼張開
- 不可使用輔具
- 每種姿勢站10秒以上為通過
- 逐步增加難度
- 無法達到tandem stance 10秒以上者跌倒風險增加

Instructions to the patient:

1. Stand with your feet side by side. **Time:** _____ **seconds**

2. Place the instep of one foot so it is touching the big toe of the other foot. **Time:** _____ **seconds**

3. Place one foot in front of the other, heel touching toe. **Time:** _____ **seconds**

4. Stand on one foot. **Time:** _____ **seconds**

(CDC)

Comprehensive Geriatric Assessment

traditional medical examination, cognition, affect, mobility, gait, balance, continence, nutrition, pain, polypharmacy, vision, hearing, speech, activities of daily living (ADL), instrumental activities of daily livings (IADL), living situation, social and economic needs and resources,……

居家環境檢核表

【廚房】	
1. 流理台上和其他工作的地方，是否有充足的照明？	□是 □否
2. 是否有將灑出來的水立刻擦乾？	□是 □否
【客廳】	
1. 所有的傢俱、電線或繩子是否都遠離走道且收納整齊？	□是 □否
2. 電話擺放的位置是否方便取得？	□是 □否
【臥房】	
1. 您是否容易上下床？	□是 □否
2. 電燈開關是否從床上就能輕易控制？	□是 □否
3. 如果您有使用助行器或拐杖，是否放置在床邊？	□是 □否

長者活動安全檢核表

【服裝和鞋子】	
1. 您穿的鞋子是否爲防滑鞋底呢？	□是 □否
2. 寬大的衣物或過長的褲管容易絆倒自己，請檢視您的衣物是否合身？	□是 □否
【助行器或拐杖】	
1. 您能在行走時，輕鬆的保持平衡嗎？	□是 □否
2. 您的助行器或拐杖是否讓您感到舒適且易使用？	□是 □否
3. 您家具擺放的方式，是否不至於造成您使用助行器或拐杖的困難？	□是 □否
【戶外環境】	
1. 階梯邊緣是否有清楚標示？	□是 □否
2. 階梯邊緣是否有防滑膠條？	□是 □否
3. 樓梯旁邊是否有堅固且易於握的扶手？	□是 □否
4. 居家附近的道路是否有良好的修繕狀況？	□是 □否
5. 道路以及進出口的地方是否有良好的照明？	□是 □否

（國民健康署 長者防跌妙招手冊）

實驗室檢查

- 依病史與身體診察結果決定
- 懷疑貧血：CBC
- 懷疑脫水：BUN、creatinine 、Na
- 懷疑高或低血糖：Sugar
- 心雜音或懷疑心輸出不足：心臟超音波
- 頸部轉動時跌倒：頸動脈超音波
- 神經學徵象、下肢強直、肌反射過強：頸或腰椎X光、電腦斷層 、核磁共振

跌倒的處置

- 評估與處理外傷
- 治療誘發、潛在病況
- 矯正危險因子
- 物理治療與衛教：步態訓練、肌力訓練、使用合宜行走輔具、穿著合腳的鞋子、採用適應性行為、練習太極
- 改變不安全的環境
- 反覆跌倒者篩檢骨質，治療骨鬆症減少骨折風險
- 衛教跌倒無法爬起時的因應措施：如何設法爬起或呼救

跌倒風險評估

- **AGS/BGS guideline:**
  - 所有65歲以上成人每年都應評估跌倒風險
  - 詢問過去一年是否跌倒2次(含)以上
  - 或走路時覺得不穩
  - 任一題答案為「是」會增加跌倒風險，需進一步評估
  - 跌倒1次以內、無外傷且無步態與平衡問題者不需深入評估

跌倒風險評估

- 美國CDC發展篩檢跌倒的流程Stopping Elderly Accidents, Deaths, and Injuries (STEADI)

Check Your Risk for Falling

Circle "Yes" or "No" for each statement below			Why it matters
Yes (2)	No (0)	I have fallen in the past year.	People who have fallen once are likely to fall again.
Yes (2)	No (0)	I use or have been advised to use a cane or walker to get around safely.	People who have been advised to use a cane or walker may already be more likely to fall.
Yes (1)	No (0)	Sometimes I feel unsteady when I am walking.	Unsteadiness or needing support while walking are signs of poor balance.
Yes (1)	No (0)	I steady myself by holding onto furniture when walking at home.	This is also a sign of poor balance.
Yes (1)	No (0)	I am worried about falling.	People who are worried about falling are more likely to fall.
Yes (1)	No (0)	I need to push with my hands to stand up from a chair.	This is a sign of weak leg muscles, a major reason for falling.
Yes (1)	No (0)	I have some trouble stepping up onto a curb.	This is also a sign of weak leg muscles.
Yes (1)	No (0)	I often have to rush to the toilet.	Rushing to the bathroom, especially at night, increases your chance of falling.
Yes (1)	No (0)	I have lost some feeling in my feet.	Numbness in your feet can cause stumbles and lead to falls.
Yes (1)	No (0)	I take medicine that sometimes makes me feel light-headed or more tired than usual.	Side effects from medicines can sometimes increase your chance of falling.
Yes (1)	No (0)	I take medicine to help me sleep or improve my mood.	These medicines can sometimes increase your chance of falling.
Yes (1)	No (0)	I often feel sad or depressed.	Symptoms of depression, such as not feeling well or feeling slowed down, are linked to falls.

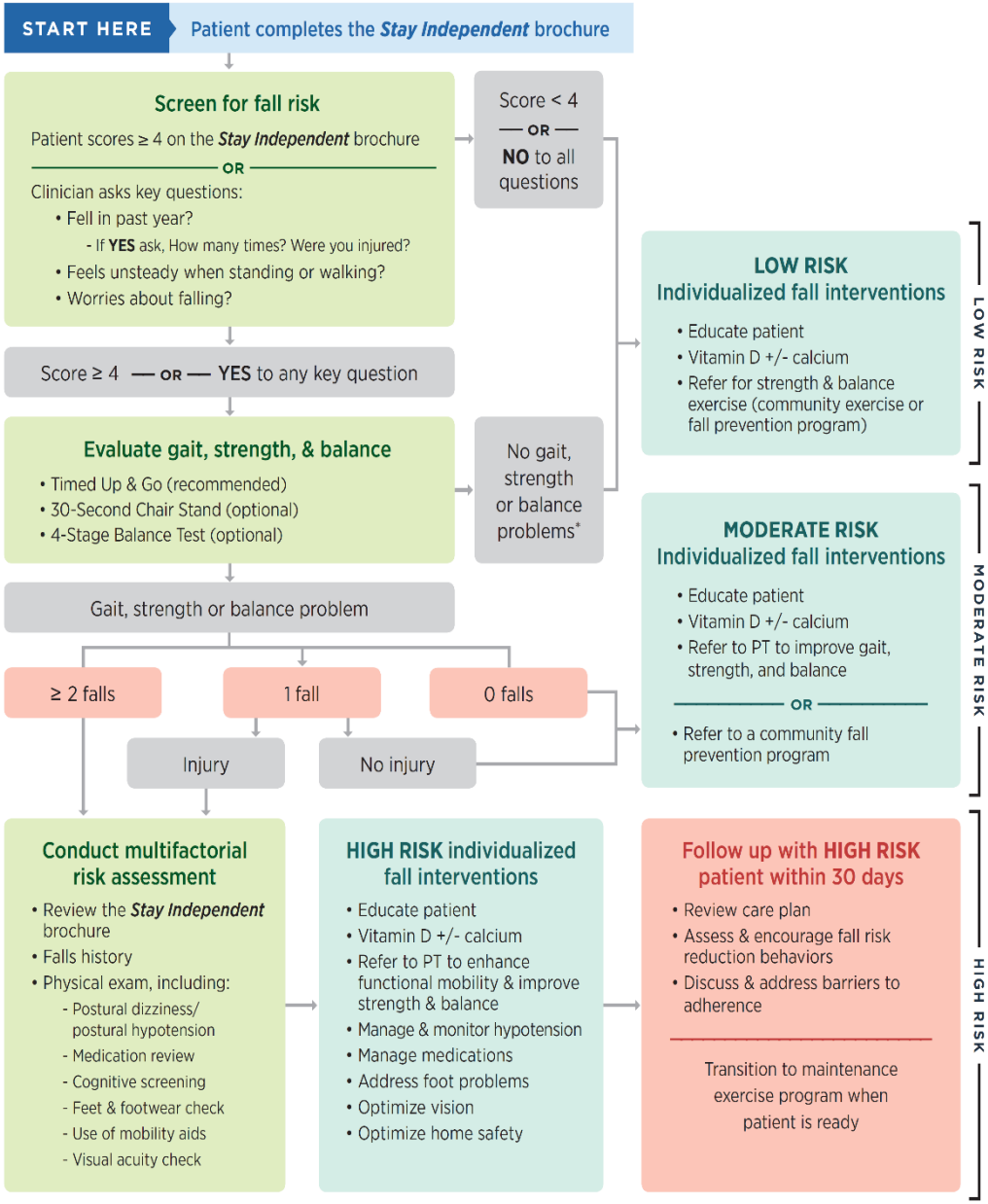
Total _____

Add up the number of points for each "yes" answer. If you scored 4 points or more, you may be at risk for falling. Discuss this brochure with your doctor.

This checklist was developed by the Greater Los Angeles VA Geriatric Research Education Clinical Center and affiliates and is a validated fall risk self-assessment tool (Rubenstein et al. J Safety Res; 2011: 42(6)493-499). Adapted with permission of the authors.

(CDC)

Algorithm for Fall Risk Screening, Assessment, and Intervention



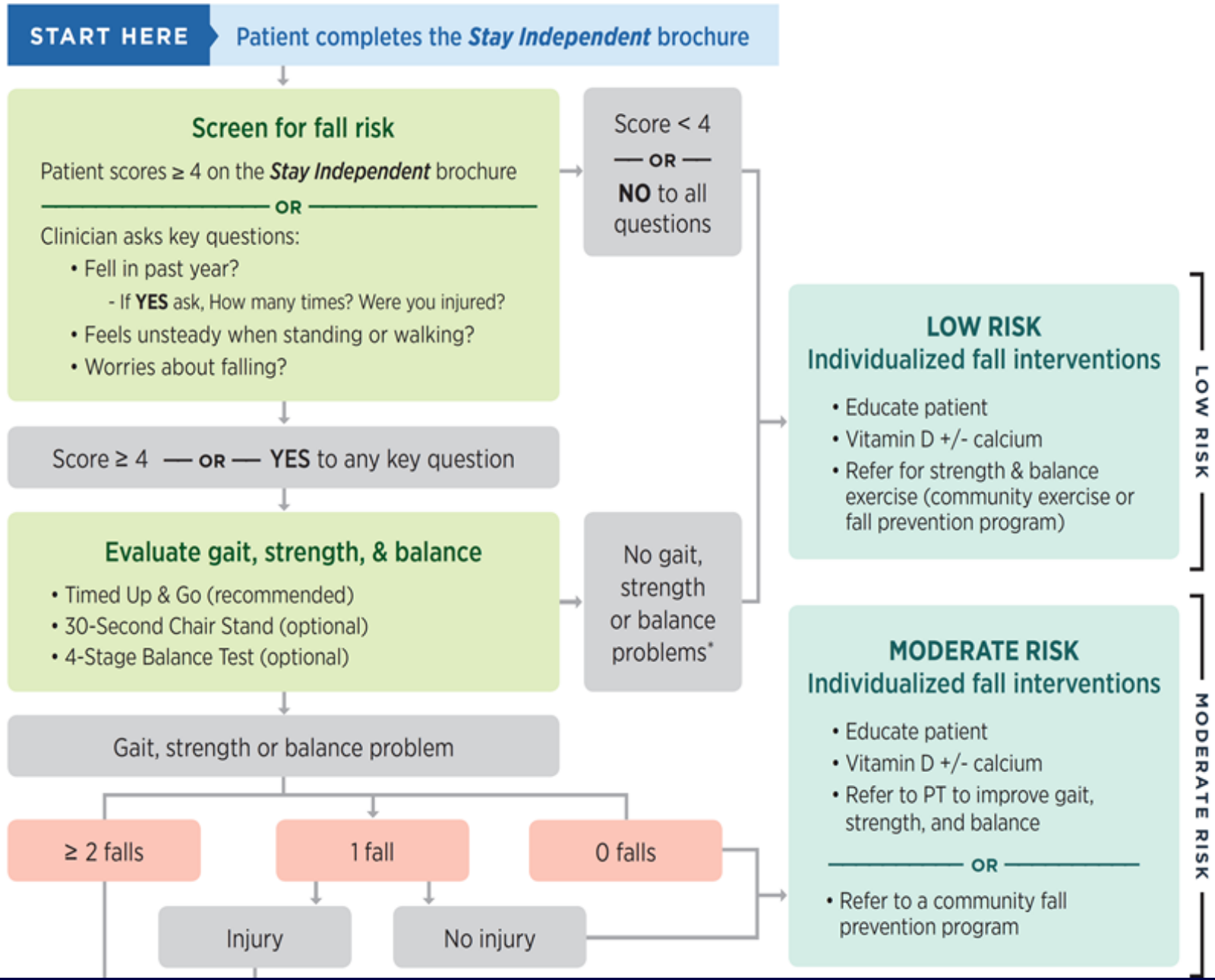
*For these patients, consider additional risk assessment (e.g., medication review, cognitive screen, syncope).

Centers for Disease Control and Prevention
National Center for Injury

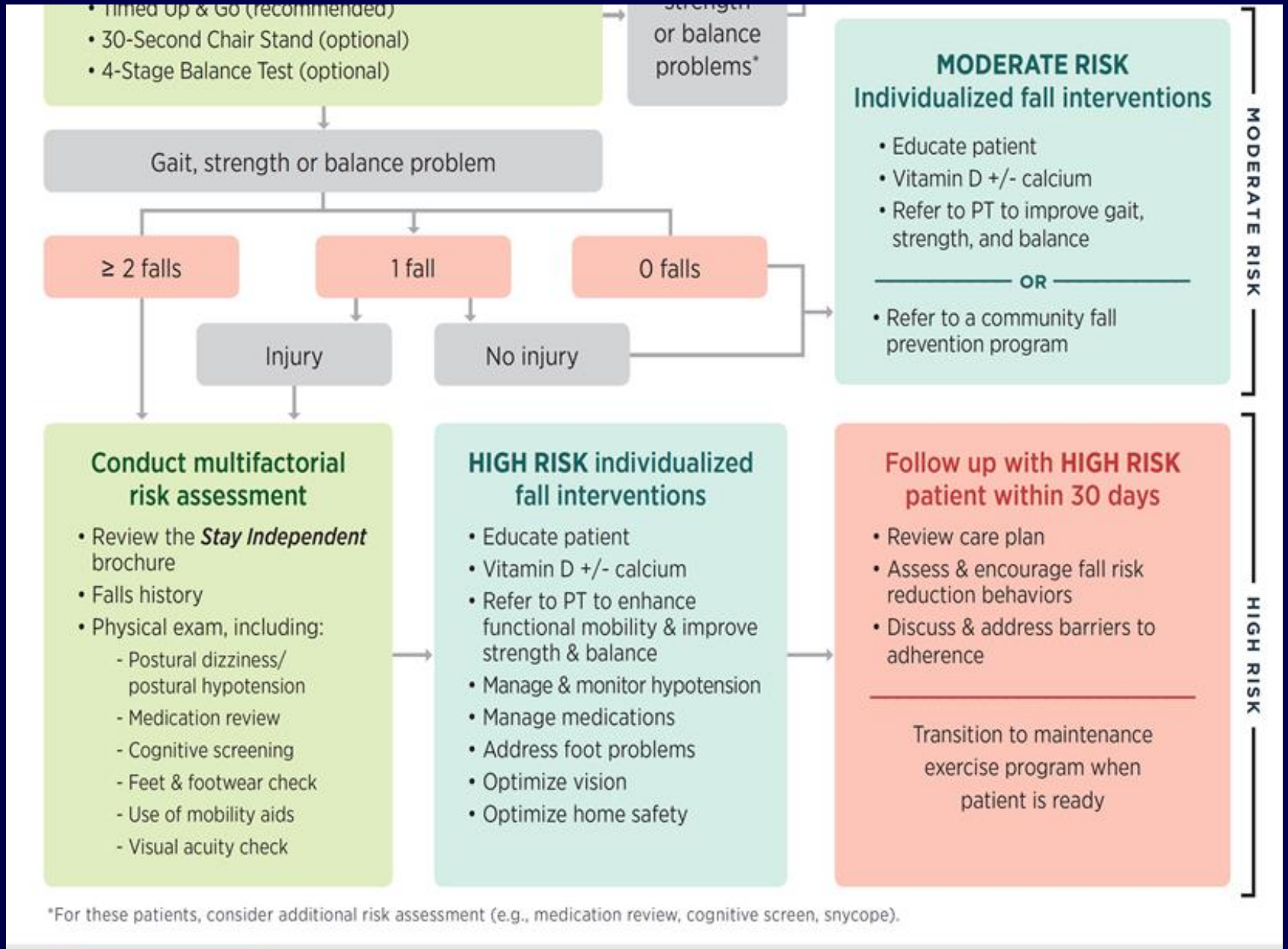
STEADI Stopping Elderly Accidents, Deaths & Injuries

(CDC)

Algorithm for Fall Risk Screening, Assessment, and Intervention



(CDC)


• Timed Up & Go (recommended)
• 30-Second Chair Stand (optional)
• 4-Stage Balance Test (optional)
or balance problems*
Gait, strength or balance problem
≥ 2 falls
1 fall
0 falls
Injury
No injury
MODERATE RISK
Individualized fall interventions
• Educate patient
• Vitamin D +/- calcium
• Refer to PT to improve gait, strength, and balance
OR
• Refer to a community fall prevention program
MODERATE RISK
Conduct multifactorial risk assessment
• Review the Stay Independent brochure
• Falls history
• Physical exam, including:
- Postural dizziness/ postural hypotension
- Medication review
- Cognitive screening
- Feet & footwear check
- Use of mobility aids
- Visual acuity check
HIGH RISK individualized fall interventions
• Educate patient
• Vitamin D +/- calcium
• Refer to PT to enhance functional mobility & improve strength & balance
• Manage & monitor hypotension
• Manage medications
• Address foot problems
• Optimize vision
• Optimize home safety
Follow up with HIGH RISK patient within 30 days
• Review care plan
• Assess & encourage fall risk reduction behaviors
• Discuss & address barriers to adherence
Transition to maintenance exercise program when patient is ready
HIGH RISK
*For these patients, consider additional risk assessment (e.g., medication review, cognitive screen, snycope).
CDC
Centers for Disease Control and Prevention
National Center for Injury
STEADI
Stopping Elderly Accidents, Deaths & Injuries

(CDC)

Downton index

- 長照機構內多數住民timed up and go test為異常或難以施測
- Downton index總分大於或等於3分為跌倒高危險群
- 敏感度高(91%)、特異度不高(27%)

(臺灣醫學2012;16:538-44)

表一：道頓跌倒風險指標(Downton Fall Risk Index)[10]

項目	評分	得分
跌倒史		
無	0	
有	1	
藥物	0	
鎮靜劑/安眠藥	1	
利尿劑	1	
降血壓藥物(非利尿劑類)	1	
抗巴金森氏病(症)藥物	1	
抗憂鬱劑	1	
其他藥物	0	
感官缺損		
無	0	
視覺障礙	1	
聽覺障礙	1	
肢體感覺障礙	1	
意識狀態		
清楚	0	
紊亂(簡易智能量表MMSE<24/30)	1	
步態		
正常(不需輔具)	0	
藉輔具可安全行走	0	
不安全	1	
無法行走	0	
總分		

摩爾斯跌倒測試表(Morse Fall Scale)

表二：摩爾斯跌倒測試表(Morse Fall Scale, Mandarin Version)[11]

項目	評分	得分
跌倒史	無 0 有 25	
第二診斷	無 0 有 15	
行走輔助 無/臥床休息/護士輔助 拐杖/手杖/助行器 扶靠家具行走	 0 15 30	
靜脈治療/肝素鎖(heparin lock)	無 0 有 20	
步態 正常/臥床休息/輪椅 無力 損傷失全(impaired)	 0 10 20	
精神狀態 量力而爲 高估/忽略能力限度	 0 15	
總分		

總分超過45分為跌倒高風險

(臺灣醫學2012;16:538-44)

Falls and fall risk in the long-term care setting

- **Recognition**
  - 1) Dose the patient had history of fall?
  - 2) Is the patient at risk of falling?
- **Assessments**
  - 3) Has the patient just fallen?
  - 4) Evaluate the factors associated with falls.
    - *Identifying the Causes of a Fall*
    - *Performing a Post-Fall Evaluation*
  - 5) Identify the patient's actual and potential complications of falls.

(AMDA 2011)

Falls and fall risk in the long-term care setting

- **Treatment**
  - 6) Develop a plan for managing falls and fall risks.
  - 7) Manage the cause(s) of falling.
  - 8) Implement relevant general measures to address falling and fall risks.
- **Monitoring**
  - 9) Monitor falling in patients with a fall risk or fall history.
  - 10) Establish quality improvement activities related to fall risk and falling.

(AMDA 2011)

護理之家如何預防跌倒

- a combination of medical treatment, rehabilitation, and environmental changes
- implemented at the organizational, staff or patient levels
- The most effective interventions address multiple factors or use a multidisciplinary team

(CDC)

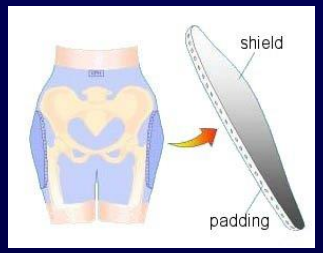
護理之家如何預防跌倒

- Assessing patients after a fall to identify and address risk factors and treat the underlying medical conditions.
- Educating staff about fall risk factors and prevention strategies.
- Making changes in the nursing home environment to make it easier for residents to move around safely. Such changes include putting in grab bars, adding raised toilet seats, lowering bed heights, and installing handrails in the hallways.

(CDC)

護理之家如何預防跌倒

- Reviewing prescribed **medicines** to assess their potential risks and benefits and to minimize use.
- Providing patients with **hip pads** that may prevent a hip fracture if a fall occurs.
- **Exercise programs** can improve balance, strength, walking ability, and physical functioning among nursing home residents. However, such programs do not appear to reduce falls.
- Teaching residents who are not cognitively impaired behavioral strategies to **avoid** potentially **hazardous situations** is a promising approach.



(CDC)

機構住民跌倒預防
多因子介入

- 工作人員教育
- 環境調整
- 個人化住民保護
- 適當輔具選擇與使用指導
- 運動課程
- 失禁治療
- 用藥回顧與調整
- 骨質疏鬆防治
- 維生素D補充
- ……

AGS/BGS機構跌倒預防建議

There is insufficient evidence to recommend for or against multifactorial or multicomponent interventions in long-term care settings. [C]

Exercise programs should be considered for a variety of benefits to reduce falls in older persons living in long-term care settings (with caution regarding risk of injury), although their effect on fall risk in these settings is unproven. (C)

(2010 AGS/BGS)

AGS/BGS機構跌倒預防建議

Vitamin D supplements of at least 800 IU per day should be provided to older persons residing in long-term care settings with proven or suspected vitamin D insufficiency. [A]

Vitamin D supplements of at least 800 IU per day should be considered in older persons residing in long-term care settings who have abnormal gait or balance or who are otherwise at high risk for falls. [B]

There is insufficient evidence to recommend for or against multifactorial or single interventions to prevent falls in older persons with known dementia living in the community or in long-term care facilities. [I]

(2010 AGS/BGS)

What works to prevent falls in older adults dwelling in long term care facilities and hospitals? An umbrella review of meta-analyses of randomised controlled trials

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[b] *Competence Centre of Geriatrics and Aging Research Ulm/Alb-Donau, Zollernring 26, 89075 Ulm, Germany*
[c] *AGAPLESION Bethesda Clinic, Geriatrics Ulm University, Zollernring 26, 89073 Ulm, Germany*

Preventing falls in long term care facilities (LTCF) and hospitals is an international priority. Many interventions have been investigated and summarised in meta-analyses (MA) and there is a need to synthesise the top of the hierarchy of evidence in one place. Therefore we conducted an umbrella review of MA of randomised controlled trials (RCTs) of falls prevention interventions LTCF and hospitals. Two independent reviewers searched major electronic databases from inception till October 2014 for MA containing ≥3 RCTs investigating any intervention to prevent falls in LTCF or hospitals in older adults aged ≥60 years. Methodological quality was assessed by the AMSTAR tool and data were narratively synthesised. The methodological quality of the MA was moderate to high across the 10 included MA. Nine MA provided data for LTCF and only two considered hospital settings. Only one MA defined a fall and two reported adverse events (although minor). Consistent evidence suggests that multifactorial interventions reduce falls (including the rate, risk and odds of falling) in LTCF and hospitals. Inconsistent evidence exists for exercise and vitamin D as single interventions in LTCF, whilst no MA has investigated this in hospitals. No evidence exists for hip protectors and medication review on falls in LTCF. In conclusion, multifactorial interventions appear to be the most effective interventions to prevent falls in LTCF and hospital settings. This is not without limitations and more high quality RCTs are needed in hospital settings in particular. Future RCTs and MA should clearly report adverse events.

(Maturitas 2015)

約束與跌倒

- Routinely using restraints does not lower the risk of falls or fall injuries. They should not be used as a fall prevention strategy. **Restraints can actually increase the risk of fall-related injuries and deaths.**
- Limiting a patient's freedom to move around leads to muscle weakness and reduces physical function.
- The average rate of physical restraint use in nursing homes has fallen from more than 40% in the 1980s to approximately 10%.
- Some nursing homes have reported an increase in falls since the regulations took effect, but most have seen a drop in fall-related injuries.
- Direct injury from bedrails appears to be due to outmoded design or incorrect assembly; **bedrails do not appear to increase the risk of falls or fall injuries.**

(CDC)

長者防跌妙招

王英偉、謝至鏗編

出版機關：衛生福利部國民健康署
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您為什麼不可以跌倒(二)

- 跌倒會造成：
  - 受傷
  - 骨折
  - 瘀血
  - 生活品質變差
  - 關節脫臼
  - 頭部外傷
  - 疼痛

- 嚴重跌倒會造成：
  - 顱內出血
  - 長期臥床
  - 死亡

- 因害怕再次跌倒而產生對家人生活上的更加依賴，反而造成家人在照顧上的困難、人力與花費的增加。

為什麼會跌倒？（一）

- 身體功能下降
  - 視力
  - 聽力
  - 平衡感
  - 肌力

- 生病

- 使用鎮定藥物或合併多種藥物

- 穿著不合腳與鞋底容易滑倒的鞋子

防跌運動動作處方

肌力訓練-1：

4 **平躺抬臀**：雙腳屈膝，將腰部往上抬起，並維持10秒，重覆10次。

5 **平躺抬腿**：單腳屈膝，輪流將雙腳往上抬起，每個動作維持5秒，重覆5次。

6 **坐姿抬腳**：坐在椅上，輪流將雙腳抬起，每個動作維持10秒，重覆10次。

7 **坐姿踏步**：坐在椅上，做踏步動作，重覆10次。

居家環境檢核表

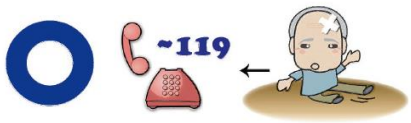
【燈光】	
1. 室內燈光是否明亮？	□是 □否
2. 樓梯是否有足夠的照明？	□是 □否
3. 電燈的開關是否接近門口，並且能很輕易的接觸到？	□是 □否
4. 是否能從床上輕易的切換燈的開關？	□是 □否
【樓梯和踏階】	
1. 樓梯的上方和底部是否都各有一個電燈開關？	□是 □否
2. 階梯的邊緣是否都有加裝止滑條？	□是 □否
3. 樓梯旁邊是否有堅固的扶手？	□是 □否
【浴室和淋浴間】	
1. 浴室是否放置防滑墊？	□是 □否
2. 肥皂、洗髮精和毛巾是否放在離你較近的地方，以防走太遠或需要彎腰？	□是 □否
3. 在浴室或馬桶旁是否有裝設扶手？	□是 □否

發生跌倒的反應與處理

※ 自己跌倒了該怎麼辦？

- 不慎跌後應保持冷靜，不要亂動，同時檢查傷勢和高聲呼救。

- 若受傷部位有劇烈疼痛或血腫時，可能已發生骨折，應靜候救援。
- 附近無人可提供幫助時，不要直接站起，應以在地上滑動的方式，到最近的電話求救。



醫師在跌倒預防扮演的角色

- 發現高風險病患
- 評估造成跌倒的風險因子
- 協助調整增加跌倒風險藥物
- 提高病患預防跌倒措施之遵醫囑性
- 評估介入措施有效性
- 跌倒發生時評估原因
- 減少可預防之醫療支出與醫療糾紛

結 論

- 跌倒是一種常見的老年病症候群，通常不是單一原因造成，往往伴隨不良的預後，甚至可以是許多急症共同的非典型徵象
- 長照機構住民跌倒的發生率高於社區老人，也更容易因跌倒造成傷害
- 許多造成跌倒的危險因子是可以事先預防的，故需篩出高危險群以適時介入
- 各種預防跌倒的措施常在不同研究中得到不一致的結論，尤其長照機構內的觀察，目前較建議團隊多因子介入方式預防機構內的跌倒

主要參考資料

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Thank You For Your Attention!

(From: hw-driver.nctu.edu.tw/pub/ slime/sharedMail/picture/20040427-1.htm)