

<b>Institution:</b> The University of Manchester		
<b>Unit of Assessment:</b> 3 (Allied Health Professions, Dentistry, Nursing and Pharmacy)		
<b>Title of case study:</b> Falls prevention amongst older people: increased reach and further impact of interventions, uptake and adherence		
<b>Period when the underpinning research was undertaken:</b> April 2001 - December 2007		
<b>Details of staff conducting the underpinning research from the submitting unit:</b>		
<b>Name(s):</b>	<b>Role(s) (e.g. job title):</b>	<b>Period(s) employed by submitting HEI:</b>
Chris Todd	Professor of Primary Care and Community Health	2001 - date
Dawn Skelton	Honorary Research Fellow Research Associate	2008 - 2013 2003 - 2007
Malcolm Campbell	Lecturer in Statistics	2003 - 2018
<b>Period when the claimed impact occurred:</b> August 2013 - December 2019		
<b>Is this case study continued from a case study submitted in 2014? Y</b>		
<b>1. Summary of the impact</b>		
<p>Falls are a common, costly, and often catastrophic, age-related health problem. Our research at the University of Manchester (UoM), reported in REF2014, reduced the burden of falls in the UK and worldwide. Since REF2014 additional impact includes:</p> <ul style="list-style-type: none"> <li>• Falls Management Exercises (FaME) programme is included in Public Health England (PHE), NICE, and US Centers for Disease Control and Prevention (US CDC) guidance.</li> <li>• PHE estimate FaME provides a societal return on investment of GBP2.28 for every GBP1.00 spent.</li> <li>• In the UK &gt;1,100 newly trained FaME instructors are delivering interventions.</li> <li>• In 2019 an estimated 172,000 UK older people did FaME exercises.</li> <li>• Since 2013, up to 424,554 falls and up to 21,000 fractures have been prevented in the UK.</li> <li>• FaME has been implemented as part of an exergame (fitness video game) for digital delivery.</li> <li>• &gt;260,000 booklets which include FaME exercises have been distributed during COVID-19 lockdowns in 2020, recognised as best practice by WHO.</li> </ul>		
<b>2. Underpinning research</b>		
<p>Falls are the most serious and frequent home accident. Approximately one third of people aged &gt;65yrs fall each year; 10% of falls result in major injuries/fractures. Such fractures cost the NHS GBP4,400,000,000 per year. Falls have serious psychological (fear of falling) and social consequences (admission to long-term care). Prevention is cost effective, but uptake of prevention programmes is poor.</p> <p>Much of the underpinning research was conducted as part of international collaborations led from UoM. Our large-scale multicentre epidemiological study of osteoporosis (European Vertebral Osteoporosis Study) revealed that falls better predict fractures than bone related health and lifestyle variables, giving credence to focus on falls prevention. This prompted research on falls prevention and influenced the foundation of the EC-funded ProFaNE project (Skelton DA, Todd CJ (PI); Prevention of Falls Network Europe: European Commission EUR1,950,047; 2003-2007).</p>		

1. We demonstrated that a structured group and home exercise programme (FaME strength and balance programme) gives ~31% reduction in falls [1].
2. We revealed that older people often view falls prevention advice as theoretically interesting, but not personally relevant. We showed that many older people deny the personal risk of falling, so rather than focussing on risk, it is better to focus on the positive benefits of exercises (i.e. positively framed messages) [2].
3. We devised a set of evidence-based recommendations for implementing fall prevention programmes using review and consensus methods [3].
4. We developed the FES-I (Falls Efficacy Scale International) and Short FES-I measures, providing accurate clinical and research assessment of fear-of-falling, an important issue for many older people [4,5].
5. We found that social deprivation and ethnicity are associated with poorer access to falls related services [6].

As reported in 2014, our research contributed to policy in the UK and worldwide about how falls prevention services and campaigns should focus on positive advantages of participating rather than avoidance of risk.

### 3. References to the research

1. **Skelton D**, Dinan S, **Campbell M**, Rutherford O. Tailored group exercise (Falls Management Exercise- FaME) reduces falls in community-dwelling older frequent fallers (an RCT) *Age and Ageing* 2005; 34:636-639. doi: 10.1093/ageing/afi174
2. Yardley L, Donovan-Hall M, Francis K, **Todd CJ**. Older people's views of advice about falls prevention: A qualitative study. *Health Education Research* 2006; 21:508-517. doi: 10.1093/her/cyh077
3. Yardley L, Beyer N, Hauer K, McKee K, Ballinger C, **Todd C**. Recommendations for promoting the engagement of older people in activities to prevent falls. *Quality and Safety in Health Care* 2007; 16:230-234. doi: 10.1136/qshc.2006.019802
4. Yardley L, **Todd C**, Beyer N, Hauer K, Kempen G, Piot-Ziegler C. Development and initial validation of the Falls Efficacy Scale International (FES-I). *Age and Ageing* 2005; 34:614-619. doi: 10.1093/ageing/afi196
5. Kempen GJM, Yardley L, van Haastregt JCM, Zijlstra RGA, Beyer N, Hauer K, **Todd C**. The Short FES-I: a shortened version of the falls efficacy scale-international to assess fear of falling. *Age and Ageing* 2008; 37:45-50. doi: 10.1093/ageing/afm157
6. Yardley, L, Kirby, S, Ben-Shlomo, Y, Gilbert, R, Whitehead, S, **Todd, C**. How likely are older people to take up different falls prevention activities? *Preventive Medicine* 2008; 47:554-558. doi: 10.1016/j.ypmed.2008.09.001

### 4. Details of the impact

#### Context

In REF2014 we reported how our research had impacted policy and practice in falls prevention. That underpinning research has continued to be highly influential and has increased in reach and significance.

#### Pathways to Impact

Since 2014, the EU Prevention of Falls Network for Dissemination (ProFouND- led by UoM, 33 institutions, 14 countries) has extended the reach of impact, through the Falls Action Group: European Innovation Partnership on Active and Healthy Ageing. This group brought together 100 multi-stakeholder commitments/communities from across

the EU to promote falls prevention, bringing research evidence to innovation and procurement processes [Ai], [Aii]. Since 2015, we have organised the annual European falls conference, and help organise the Falls World Congress, first held in 2019. Todd wrote briefings for the Department of Health and Social Care and the Chief Medical Officer on fall prevention and activity promotion and attended the House of Lords Select Committee (July 2019), to which UoM also submitted written evidence. Multiple stakeholders have taken up recommendations for practice based on UoM research. We worked with PHE and the Royal Society for the Prevention of Accidents (RoSPA) to influence policy and practice, including recommendations for use of FaME, FES-I, and positively framed messages [Bi]. Similar work was undertaken with the Centre for Ageing Better, AgeUK, British Geriatrics Society and national and international guideline development bodies (e.g NICE, US CDC).

The FaME Implementation Toolkit (developed by East Midlands CLAHRC (Collaboration for Leadership in Applied Health Research and Care), endorsed by NICE and downloaded >800 times) facilitates commissioners' and providers' uptake [C].

We worked with Greater Manchester Combined Authority on the devolved falls, fractures and frailty strategies and influenced service configuration, use of FaME and the positively framed "Taking Charge" falls prevention programme [Di].

### Reach and significance of the impact

Non-UoM research (Proact65) continues to demonstrate the effectiveness of the FaME intervention at reducing falls by more than a quarter when compared with usual care at 12 month follow-up and increasing the number of participants reaching their physical activity target [E].

#### *Falls interventions*

New national and international guidance documents identifying evidence-based strength and balance exercise programmes recommend FaME, e.g NICE 2018 [Fi], US Centers for Disease Control and Prevention (US CDC) 2015 [Fii].

Leading on from the "Taking Charge" falls prevention programme, during 2020 COVID-19 lockdowns, we helped develop *Keeping Well at Home* and *Keeping Well this Winter* booklets including FaME exercises, distributed to >260,000 people and recognised as best practice by WHO [Dii].

FaME has been shown to have a financial impact, with PHE recommending the programme as a cost-effective intervention to reduce falls [Bii], estimating that FaME provides a societal return on investment for every GBP1.00 spent of GBP2.28 (1:2.28 ratio), although other estimates are much higher (1:18 and 1:50.5) [Gi], [Gii].

FaME has also been shown to be income-generating. There are 3,264 qualified FaME instructors in the UK (up from 2,000 reported in REF2014), enabling more people to participate in FaME classes, generating GBP813,837 income for Later Life Training, a not for profit training organisation [Giii].

Interim data from a survey undertaken for PHE reveals that 80% of responding falls services in England provided FaME to up to 300 participants per week during 2019-20.

In terms of patient outcomes, some 172,000 people in the UK received the FaME programme in 2019, suggesting that during 2014-2020, up to 424,554 falls and up to 21,000 fractures have been averted by participation in FaME. The Centre for Ageing Better present strong testimonial videos demonstrating FaME's effect on individuals [H], along with case studies of FaME implementation in the UK.

FaME-based exercises have been implemented in exergames, providing a new cost-effective pathway to impact [I]. The UK company MIRA-Exergaming indicates that

approximately 5,000 patients in >200 clinics worldwide have used the games in >67,000 sessions.

The COVID-19 pandemic has given further impetus to our work because of risk of deconditioning and falls resulting from lockdown. Policy briefings to the Department of Health and Social Care on virtual delivery exercise regimens including FaME have been downloaded >1,100 times.

#### *Fear of Falling*

FES-I/Short FES-I is now more widely used as a measure of fear-of-falling. It was internationally downloaded 18,274 times in 2020. The website [www.fes-i.org](http://www.fes-i.org) alone has >18,000 page views per annum from >120 countries. FES-I is available in 35 languages, an increase of 17% since 2014.

FES-I has been added to the RoSPA “Stay Up Stand Up” core outcomes dataset for falls prevention services and it continues to be recommended by PHE [Bii] as well as by many organisations worldwide (e.g. American Physical Therapy Association, Danish Society for Physiotherapy, SRA-Lab Org USA).

#### *Uptake and adherence*

As reported in REF2014, our work published as “*Don’t mention the F-word*” resulted in a change of underlying philosophy, with a move away from emphasising the dangers of falls to emphasising positive coping. This continues to influence how services are configured, emphasising the positives of participating in exercise rather than focusing on personal risk from falls. Evidence for this continued impact in the UK is provided in the Centre for Ageing Better *Raising the Bar* 2019 publication [J], which demonstrates the sustained use and impact of FaME in the UK. Internationally the notion of focusing on the positive rather than emphasising risk, as identified by our research, continues to be a keystone of policy across the EU, North America, Australia and New Zealand and more recently across Asia.

### **5. Sources to corroborate the impact**

- A. Websites showcasing the prevention of falls schemes across Europe, such as FaME.
  - Ai. European Innovation Partnership on Active and Healthy Ageing, a European Commission website with video, one of several projects disseminated through ProFouND.
  - Aii. ProFouND website, highlighting the network’s activities carried out to disseminate and implement best practices in falls prevention across Europe.
- B. Documents demonstrating uptake of evidence-based interventions including FaME, the use of FES-I, and positive messaging about falls prevention across stakeholders.
  - Bi. Royal Society for the Prevention of Accidents. Stand up Stay up: Taking the rise out of falls, April 2019.
  - Bii. Public Health England. Falls and fractures: consensus statement and resources pack, January 2017.
- C. Falls Management Exercise (FaME) Implementation Toolkit, October 2019  
<http://arc-em.nihr.ac.uk/clahrcs-store/falls-management-exercise-fame-implementation-toolkit>  
*NIHR-funded suite of resources that commissioners can use to plan, implement and monitor the FaME programme.*
- D. Documents highlighting Greater Manchester (GM) “Taking Charge” falls prevention programme and World Health Organization’s commendation of GM booklet on providing practical advice for older people during the COVID-19 restrictions, with explicit reference to FaME.
  - Di. The Greater Manchester Population Health Plan, 2017-2021.

Dii. Keeping Well At Home, Greater Manchester Combined Authority's Ageing Hub booklet, 19 May 2020.

- E. Independent primary research demonstrating sustained reductions in falls and increase in physical activity targets among older people when comparing FaME with usual care. Iliffe S, et al. Promoting physical activity in older people in general practice: ProAct65+ cluster randomised controlled trial. *Br J Gen Pract.* 2015;65:e731-8. doi: [10.3399/bjgp15X687361](https://doi.org/10.3399/bjgp15X687361)
- F. National/international guidance documents to inform public health practitioners, senior service providers and clinicians.  
Fi. NICE Impact Falls and Fragility Fractures, 2018.  
Fii. US CDC Compendium of Effective Fall Interventions, 2015.
- G. Economic benefits – estimates of the societal return on investment that FaME provides.  
Gi. Edinburgh Leisure Steady Steps Case Study: Evaluation of an exercise programme, reports higher return on investments.  
Gii. A Social Return on Investment Report on the work of Gateshead Older People's Assembly, December 2017, reports higher returns on investments.  
Giii. Letter from Later Life Training, dated 21 January 2021, highlighting increased income generation to the company from delivering FaME to more people across the UK.
- H. Centre for Ageing Better video from November 2019, highlighting benefits of FaME from an older adult's perspective: <https://www.youtube.com/watch?v=lac4By8Yg-g>
- I. MIRA software platform <http://www.mirarehab.com/blog/older-people-s-motivation-to-use-falls-prevention-exergames>  
*Digital platform that has embedded FaME based exercises to gamify physical therapy and increase patient compliance.*
- J. Centre for Ageing Better report Raising the bar on strength and balance: The importance of community-based provision, February 2019  
<https://www.ageing-better.org.uk/publications/raising-bar-strength-balance>  
*Report demonstrating sustained use and impact of FaME in the UK.*