CHARTERED SOCIETY OF PHYSIOTHERAPY

# A Falls Prevention Economic Model


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In the time it takes you to read this slide, an elderly person living in the UK will have had a fall

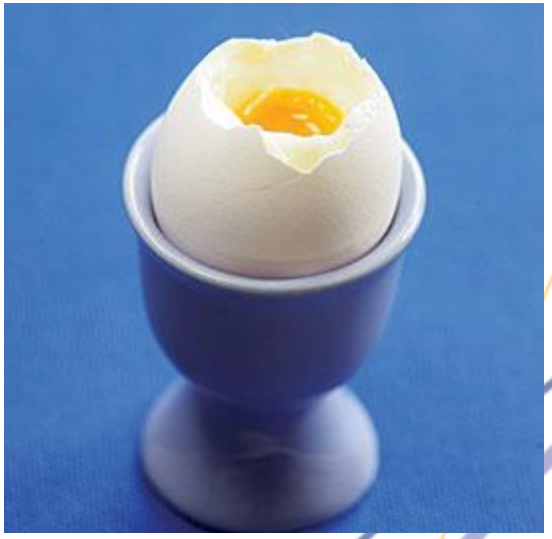
# 6.44 Seconds

O'Loughlin, Jennifer L., et al. "Incidence of and risk factors for falls and injurious falls among the community-dwelling elderly." *American journal of epidemiology* 137.3 (1993): 342-354.

# Every thirty seconds an elderly person has a fall serious enough to call out an ambulance


O'Loughlin, Jennifer L., et al. "Incidence of and risk factors for falls and injurious falls among the community-dwelling elderly." *American journal of epidemiology* 137.3 (1993): 342-354.

In the time it takes to soft boil an egg, an elderly person living in the UK will have had a fracture which was preventable with physiotherapy

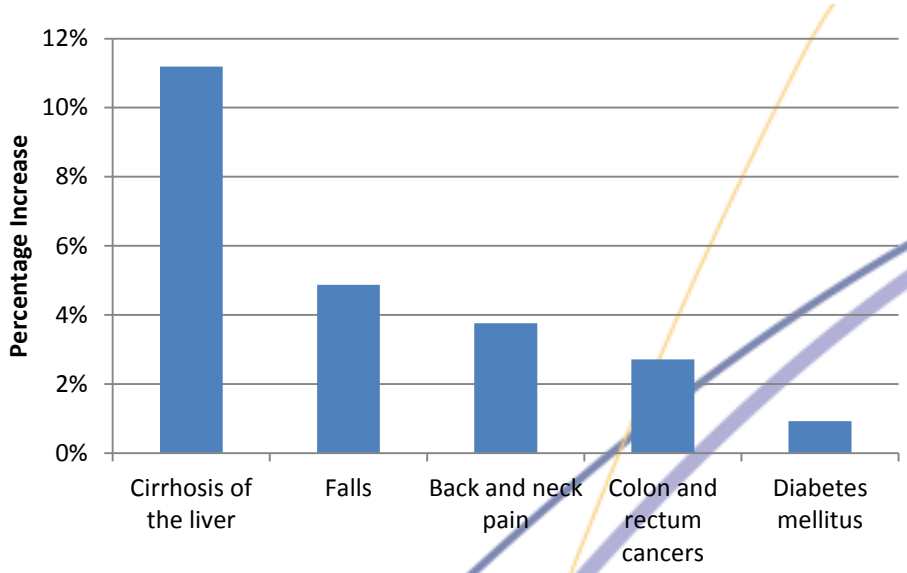


O'Loughlin, Jennifer L., et al. "Incidence of and risk factors for falls and injurious falls among the community-dwelling elderly." *American journal of epidemiology* 137.3 (1993): 342-354.

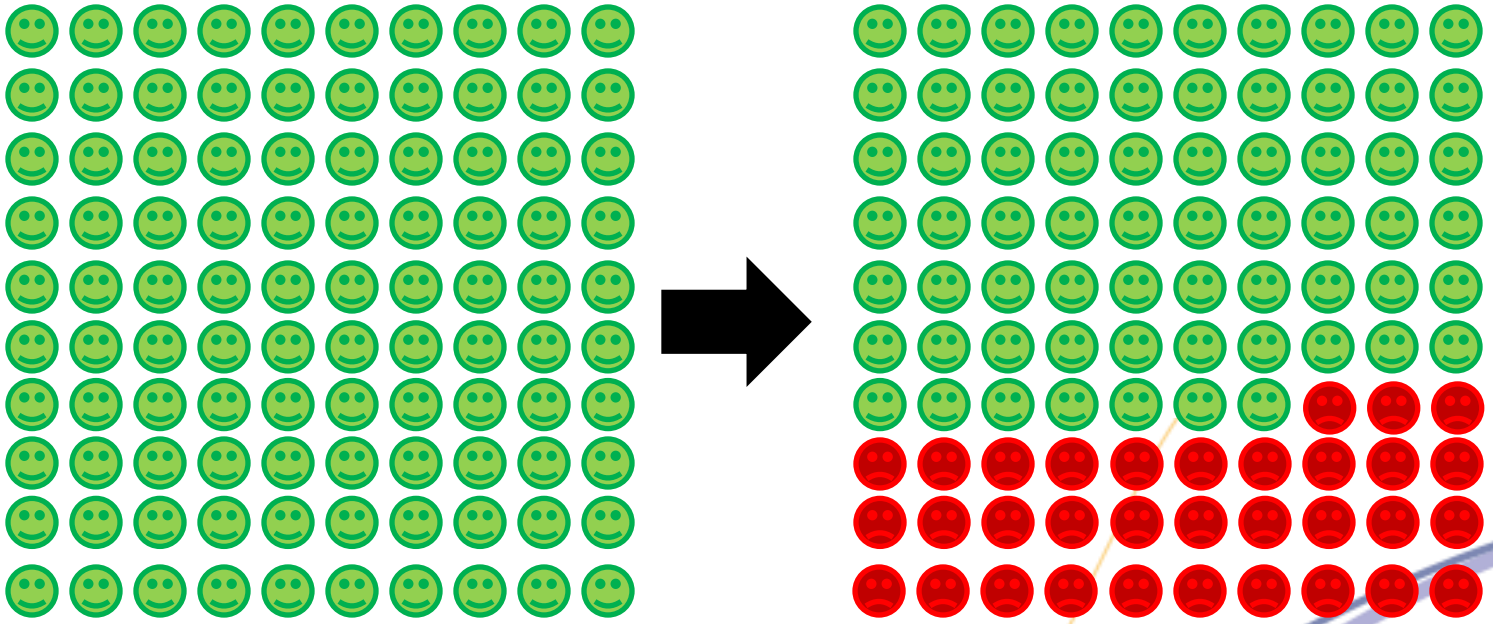
Someone in the UK dies of a hip fracture caused by a fall every hour


*Age, U. K. "Stop falling: start saving lives and money." Age UK (2010).*

# The increase in falls has been the second biggest of any major disease area since 2000

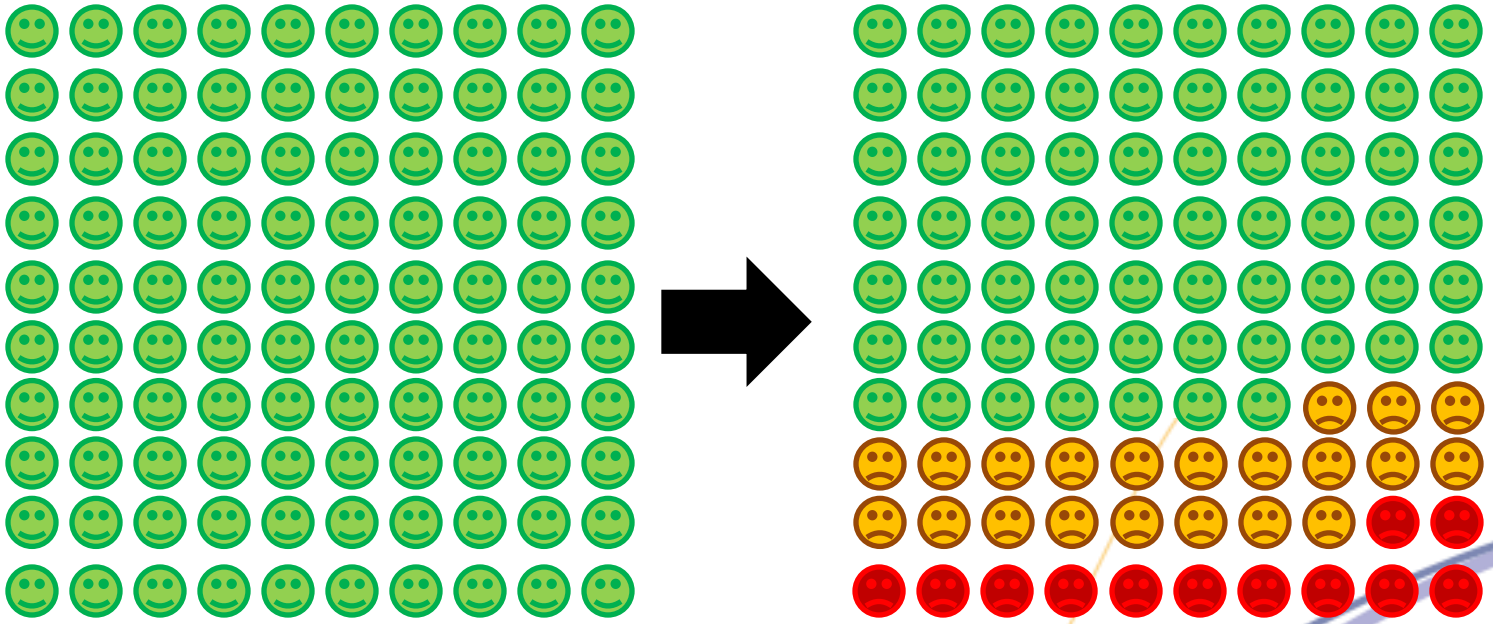



Lopez, Alan D., and C. C. Murray. "The global burden of disease." *Nat Med*4.11 (1998): 1241-3.



One third of adults aged 65 or over will have a fall this year

O'Loughlin, Jennifer L., et al. "Incidence of and risk factors for falls and injurious falls among the community-dwelling elderly." *American journal of epidemiology* 137.3 (1993): 342-354.



12.4% of adults aged 65 or over will have a fall this year which is so serious they require hospitalisation

O'Loughlin, Jennifer L., et al. "Incidence of and risk factors for falls and injurious falls among the community-dwelling elderly." *American journal of epidemiology* 137.3 (1993): 342-354.


As far as patient experience is concerned, falls are just the tip of the iceberg – the fear of falling has a QALY burden of 6.4 times the total burden of falls and fractures in the elderly

Iglesias, C. P., A. Manca, and D. J. Torgerson. "The health-related quality of life and cost implications of falls in elderly women." *Osteoporosis international*20.6 (2009): 869-878.


At £30,000 per QALY, the NHS remains cost-effective even if it spends £2067 per 65 year old to prevent their falls and fear of falling

Iglesias, C. P., A. Manca, and D. J. Torgerson. "The health-related quality of life and cost implications of falls in elderly women." *Osteoporosis international*20.6 (2009): 869-878.

# Model Purpose

Answers the question, *"Is physiotherapy a cost-effective way of preventing falls in a given elderly population?"*

Answer is a resounding, "Yes" – physiotherapy can probably prevent around **225,000** serious falls and spend of **£330m** across the UK each year. For every £1 spent on physiotherapy, around **£1.50** is returned in prevented NHS spending.

The principle underpinning the model is to use the highest-quality data publically available and – where assumptions have to be made – make the most conservative assumptions possible

# Model Design

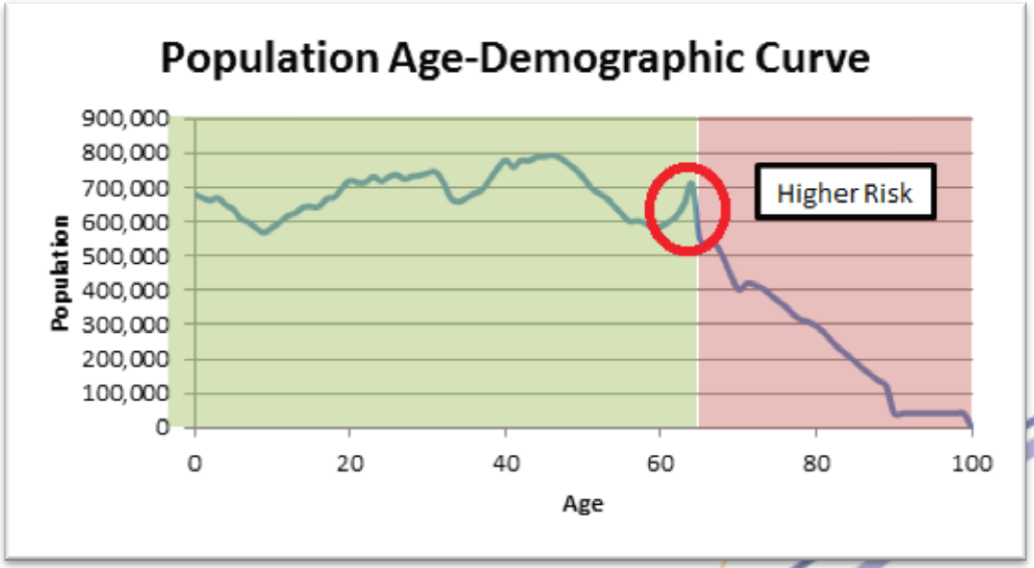
Take demographic data from National Statistical Agencies to estimate the population of the four UK countries and their respective Health Geographies…

Estimate the number of falls we'd expect from that number of people given their demographics using high-quality academic literature…

Use a meta-analysis published by the Cochrane Collaboration to identify how many of those falls could have been prevented with physiotherapy…

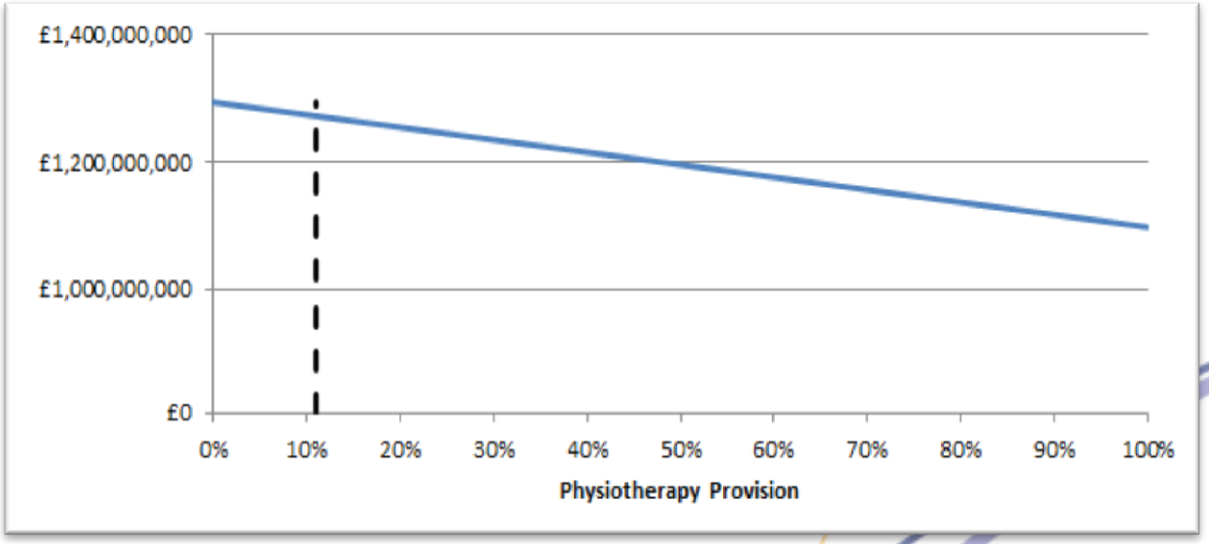
And finally use the NHS Reference Costs (and other sources such as the PSSRU) to calculate the economic benefit of preventing these falls!

# Urgently Needed




The graph above shows the population of England and the ages at which you are considered to be at 'higher risk' of falls (65+). It also demonstrates that a concentration of baby boomers are about to enter this high risk zone, which commissioners are not prepared for. For example, there could be a 19.2% increase in care home admissions triggered by a fall in the next five years!

# Cost-Effective




The graph above, taken from the economic model, shows that the NHS in England could save around £275m by commissioning physiotherapy to protect people from experiencing falls. This is on top of the huge population health benefits such commissioning would bring.

# Savings

| Region | Number of falls saved | Cost Saving (£) |
|---|---|---|
| England | 186,473 | 273,039,156 |
| North Yorkshire & Humber | 6668 | 9,748,984 |
| NHS Vale of York | 1330 | 1,949,795 |
| NHS North Lincolnshire | 640 | 924,051 |
| NHS North East Lincolnshire | 612 | 902,056 |
| NHS Hull | 781 | 1,147,101 |
| NHS Harrogate & Rural District | 676 | 1,006,653 |
| NHS Hambleton, Richmondshire & Whitby | 663 | 957,620 |
| NHS Scarborough & Ryedale | 530 | 781,517 |
| NHS East Riding of Yorkshire | 1435 | 2,078,288 |

# Falls prevention economic model

## Physiotherapy commissioning support tool

Version 1.6.2 Latest Release 14/11/14

**Welcome to the CSP falls prevention economic model**
The tool allows commissioners to calculate the potential impact of falls both in terms of patient outcomes (the severity of the falls) and financial outcomes (the cost of care for these falls). It has been produced by the West and South Yorkshire and Bassetlaw Commissioning Support Unit (WSYBCSU) and was commissioned by the Chartered Society of Physiotherapists (CSP). The tool permits you to look at the cost of preventing falls through physiotherapy by drawing "cost-effectiveness" curves. For most areas for most levels of current physiotherapy provision, the tool demonstrates that employing a marginal physiotherapist is cost-effective. However it is possible to obtain more detailed interpretations for your own local area. For help in how to do this please look at the "End User Notes" at the bottom of each dashboard. You can then configure the tool to represent your local area by using the "Configuration Options" tab.

**About this tool**: The tool is supported through datasets from the Cochrane Collaboration and government statistics and functions through a deterministic decision tree. Please look at the tabs on Cochrane, Population, Fall Number Tree and Fall Outcome Tree for more information.

**IMPORTANT: You must enable macros on this spreadsheet before the model will work**

1. Select the CCG you would like to model below
(You can filter the list using the flags)

**Area:**

North Yorkshire and Humber

--- SELECT REGION ---
Arden, Herefordshire and Worcestershire
Bath, Gloucestershire, Swindon and Wiltshire
Birmingham and the Black Country
Bristol, North Somerset, Somerset and South Gloucestershire
Cheshire, Warrington and Wirral
Cumbria, Northumberland, Tyne and Wear
Derbyshire and Nottinghamshire
Devon, Cornwall and Isles of Scilly
Durham, Darlington and Tees
East Anglia
Essex
Greater Manchester
Hertfordshire and the South Midlands
Kent and Medway
Lancashire
Leicestershire and Lincolnshire
London

2. Select the level of detail you require below

Show Demographics

Show Cost-Effectiveness

Show Configuration Options

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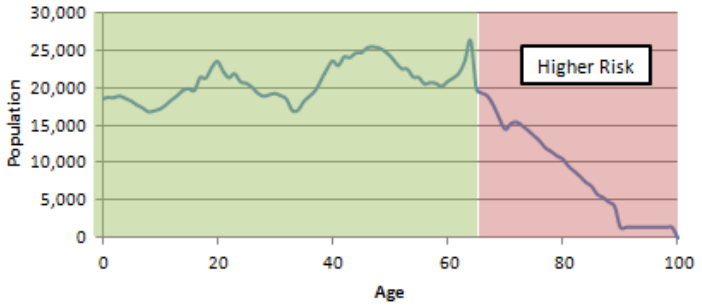
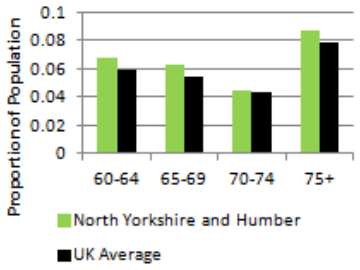
# Demographic and Healthcare Needs Assessment for North Yorkshire and Humber

## Demographic Visualisations

### Population Age-Demographic Curve




### Proportion of Population Aged...




## 5 Year Predictions

At-risk population in future:

| Year | At-risk | rowth in Care Hor |
|---|---|---|
| 2015 | 435,920 | 3.8% |
| 2016 | 447,852 | 9.2% |
| 2017 | 456,308 | 12.6% |
| 2018 | 464,297 | 15.6% |
| 2019 | 472,377 | 17.7% |
| 2020 | 480,166 | 20.6% |

NB: 'Growth in Care Homes' reports only those Care Home admissions directly attributable to falls; population growth adds roughly another 2-4 percentage points

## Age Demographics

| | | |
|---|---|---|
| Target Population | 1,661,577 | 100.0% |
| Aged 60-64 | 112,795 | 6.8% |
| Aged 65-69 | 90,477 | 5.4% |
| Aged 70-74 | 73,618 | 4.4% |
| Aged 75+ | 159,745 | 9.6% |

## Expected Annual Falls

| Actual | | |
|---|---|---|
| Actual Expected Falls | 35,325 | 100.0% |
| ...of which mild | 16,562 | 46.9% |
| ...of which moderate | 14,408 | 40.8% |
| ...of which major | 4,355 | 12.3% |

| Theoretical | | |
|---|---|---|
| Upper Bound | 36,145 | 102.3% |
| Lower Bound | 28,690 | 81.2% |

## Expected Annual Costs

| | | |
|---|---|---|
| Actual expected spend | £44,693,374 | 100.0% |
| Theoretical upper bound | £45,890,088 | 102.7% |
| Theoretical lower bound | £35,010,871 | 78.3% |

**End User Notes:**

This is a 'dashboard', which is a standard way to arrange dense information so it isn't overwhelming. Each module in the dashboard tells a slightly different story:

* In the top left is a population age-demographic curve. Along the x-axis is age, and the y-axis is population. The graph is subdivided into 'high risk' individuals (older than 65) and 'standard risk' individuals (younger than 65). The way to interpret this graph is to look at the shape of it; a high population in the high risk category is very bad, a high population in the 50-65 age band is quite bad (because they will age into high-risk patients and put pressure on the service) whereas a bulge in the 0-40 age band is not of

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# Cost-effectiveness analysis of additional physiotherapy for North Yorkshire and Humber

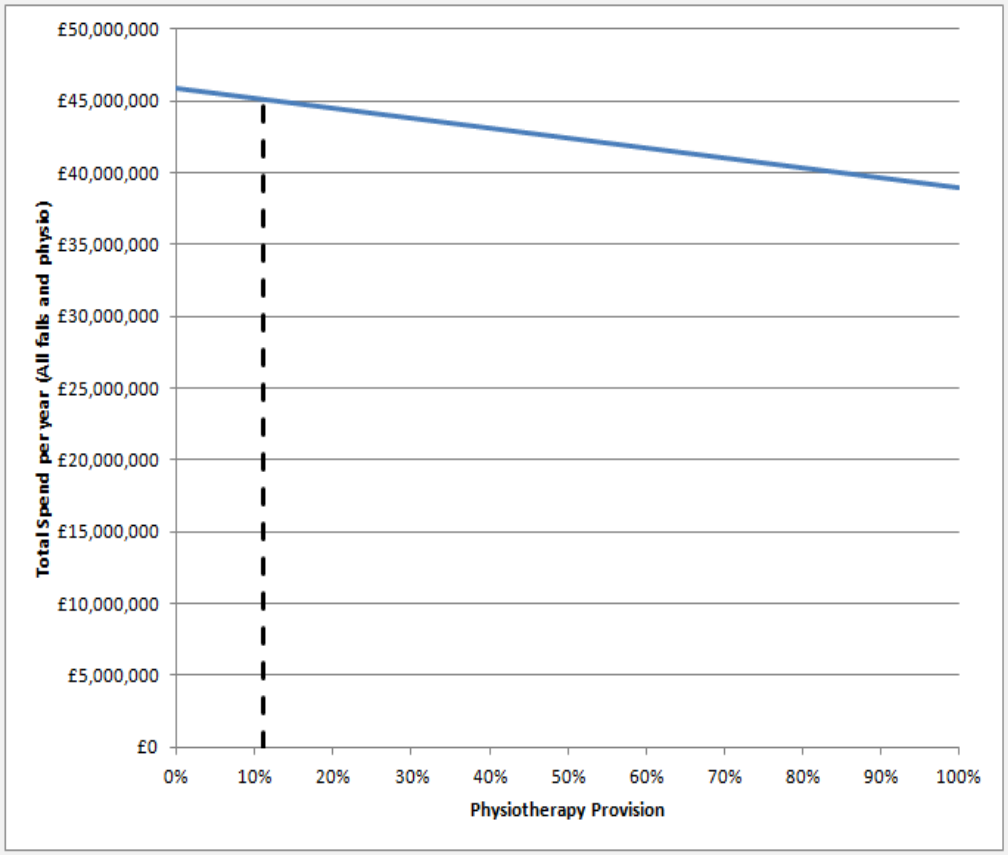
## Key Conclusions

| | Theoretical Lower Bound | At current levels | Theoretical Upper Bound |
|---|---|---|---|
| **Total Spend** | **£45,890,088** | **£45,129,676** | **£38,977,250** |
| ... on treatment | £45,890,088 | £44,693,374 | £35,010,871 |
| ... on prevention | £0 | £436,302 | £3,966,379 |

| | Theoretical Lower Bound | Average value in selected area | Theoretical Upper Bound |
|---|---|---|---|
| Value of £1 marginal investment | £3.22 | £1.50 | £0.63 |

| Spend by age: | Theoretical Lower Bound | At current levels | Theoretical Upper Bound |
|---|---|---|---|
| 60-64 | £1,414,217 | £1,434,629 | £1,599,774 |
| 65-69 | £1,624,295 | £1,630,211 | £1,678,074 |
| 70-74 | £2,851,628 | £2,827,562 | £2,632,849 |
| 75+ | £39,999,947 | £39,237,274 | £33,066,553 |

| Net annual savings: | | | |
|---|---|---|---|
| Compared to do nothing | £0 | £760,412 | £6,912,838 |
| Compared to now | N/A | £0 | £6,152,426 |




**Detailed Spending Breakdown:**

| | 60-64 | | 65-69 | | 70-74 | | 75+ | |
|---|---|---|---|---|---|---|---|---|
| | Cost | Falls | Cost | Falls | Cost | Falls | Cost | Falls |
| Theoretical Lower Bound | £1,414,217 | 3,227 | £1,624,295 | 3,296 | £2,851,628 | 3,115 | £39,999,947 | 19,052 |
| At current levels | £1,434,629 | 3,973 | £1,630,211 | 4,059 | £2,827,562 | 3,836 | £39,237,274 | 23,458 |

# Web Links

Falls Economic Modelling Tool – web link

http://www.csp.org.uk/professional-union/practice/your-business/evidence-base/cost-falls

**CSP Resources**

Physiotherapy Works: Falls and Frailty

http://www.csp.org.uk/professional-union/practice/evidence-base/physiotherapy-works/falls-and-frailty

We're Talking About Your Generation

http://www.csp.org.uk/publications/were-talking-about-your-generation