The orthogeriatric model in Great Britain

David Marsh
Emeritus Professor of Orthopaedics, University College London
President, Fragility Fracture Network of the Bone and Joint Decade
President, UK Arthritis and Musculoskeletal Alliance

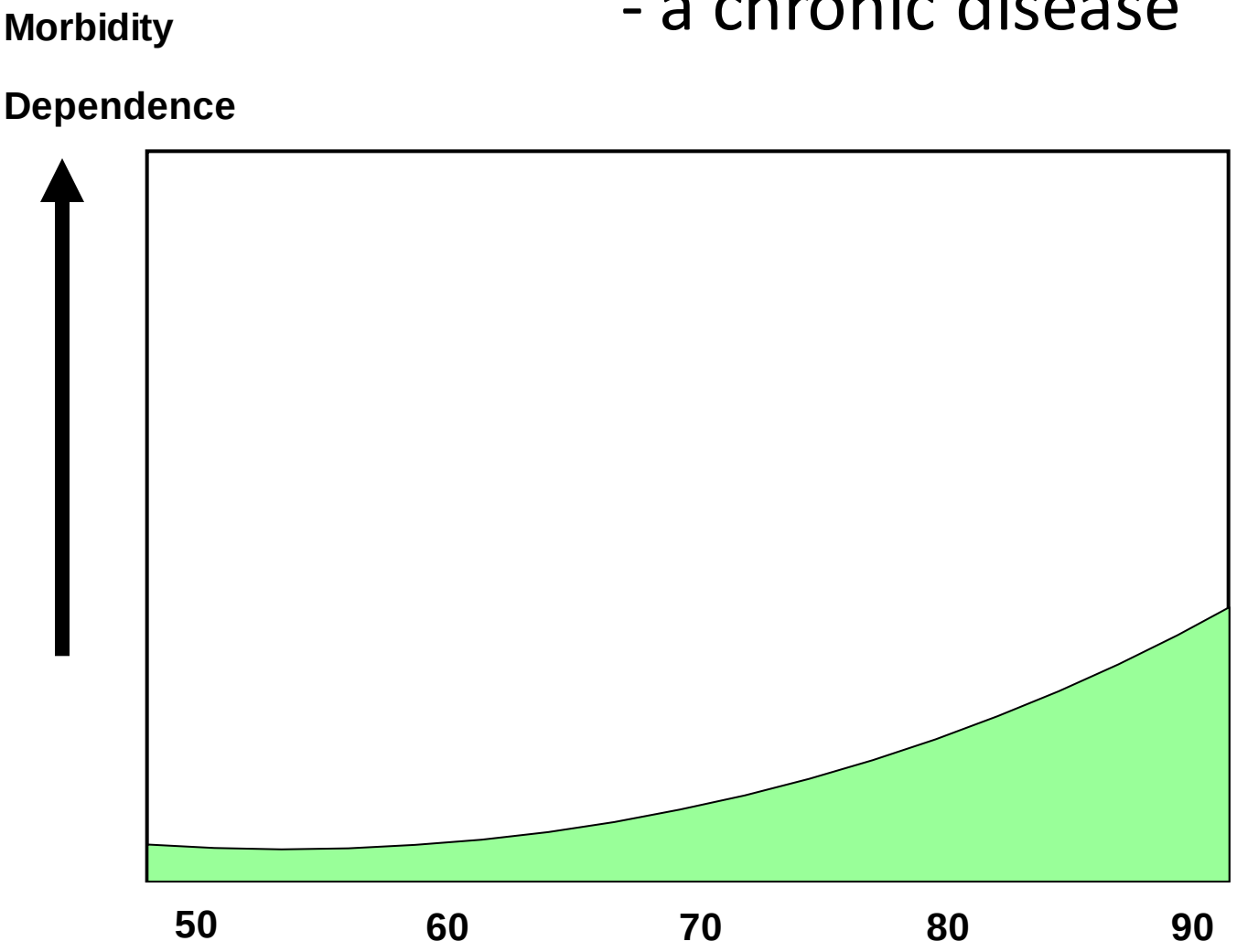
Assumptions – hip fractures

- Not all fragility fractures are hip fractures, but they are the best exemplar, index condition
- The epidemiology is frightening, with predicted increases in incidence that current systems could not handle (x2 in 25 yrs in Europe)
- Our response needs to be twofold:
  - Prevent as many hip fractures as possible
  - Efficiently manage the ones that do occur

Key features of UK progress

- Alliance between orthopaedics and geriatrics
  - Clinical and political
- National Hip Fracture Database
- Fracture Liaison Services

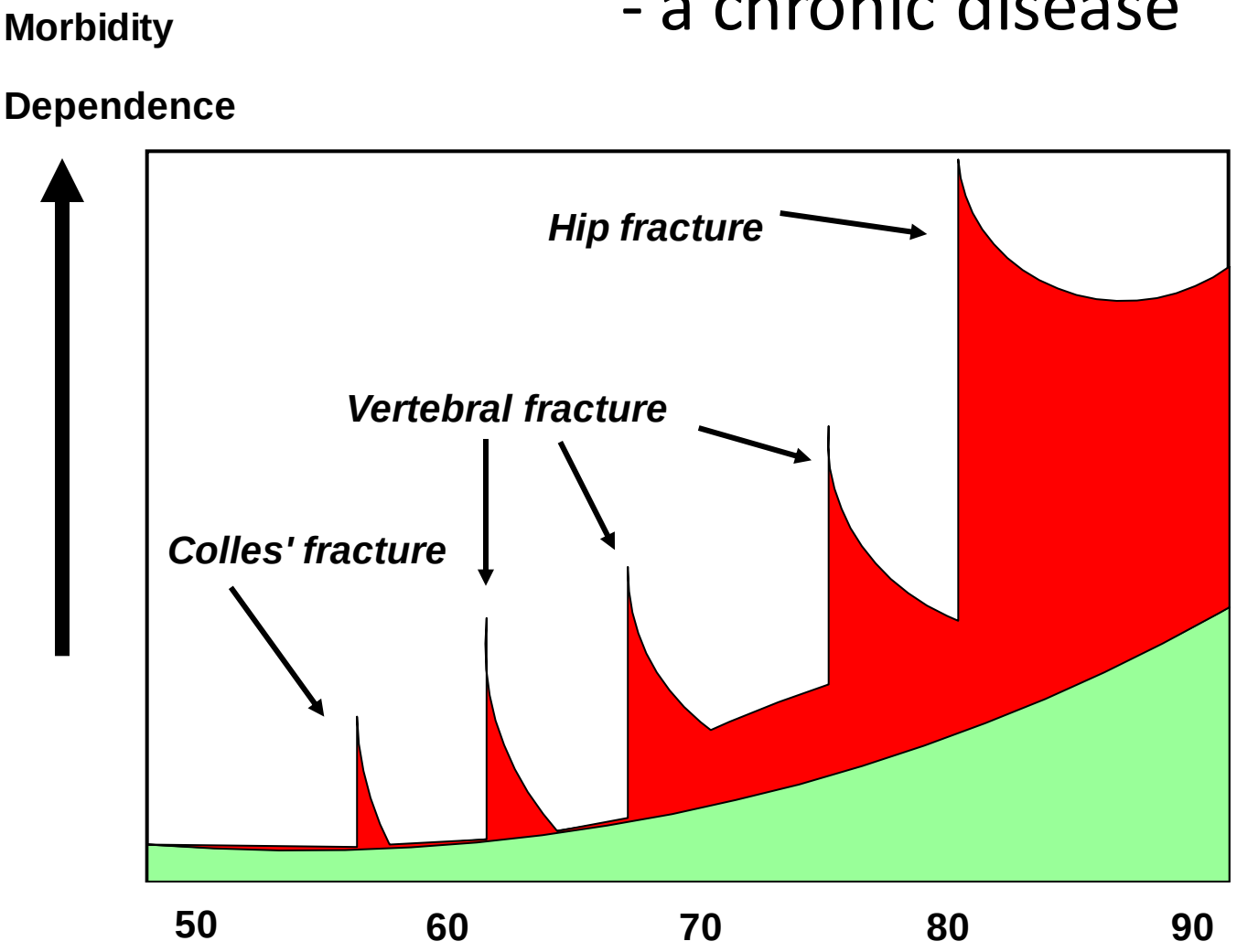
The fragility fracture 'career' - a chronic disease



No fractures – increasing morbidity due to ageing alone

Adapted from Kanis JA, Johnell O; 1999

The fragility fracture 'career' - a chronic disease



Added morbidity from fractures

No fractures – increasing morbidity due to ageing alone

Adapted from Kanis JA, Johnell O; 1999

Comparison with other priorities

Issues:	Strokes & TIAs	Heart attacks	Fragility fractures
Incidence/year	110,000	275,000	310,000
Current trend	Falling	Falling	Rising
NHS bed days	1.85m	1.15m	1.2m (hips)
Annual costs	£2.8bn	£1.7bn	£2bn

UK figures from the Department of Health

BGS

newsletter

Editor: David Beaumont

Issue 13
October 2007

Our historic alliance

with the world of orthopaedics

The BGS has established an exciting new collaboration with the British Orthopaedic Association, with the shared aim of improving the clinical care of patients with fragility fractures and promoting effective secondary prevention to reduce future falls and fractures.

Sponsored by the BOA and BGS, it has also been endorsed by the Age Anaesthesia Association, the National Osteoporosis Society, the Faculty of Public Health, the RCN, the Society for Endocrinology, the Forum of the Royal Colleges of Surgeons and the Specialist Surgical Association of Great Britain and Ireland - a vital demonstration of multidisciplinary commitment to improving hip fracture care. The Blue Book thus offers a foundation for joint training and clinical governance activities that can build on the success of two BGS/BOA national joint "Instructional Courses" for trainees and consultants held in 2006 and 2007, with a third now planned for 2008 (see 1st Stanmore Fragility Fractures Course at www.rnoh.nhs.uk/education)

Central to the strategy are the two key initiatives, the Blue Book on the Care of Patients with Fragility Fractures and the National Hip Fracture Database, which were jointly launched with widespread TV, radio and press coverage on September 19th.

Blue Book

The second edition, totally rewritten and updated, replaces a 1st edition published several years ago and is now an authoritative evidence-based clinical practice guide for the multidisciplinary team, and includes a set of six specific clinical practice standards. Geetanjalee Opinder Sahota, Antony Johansen and Colin Currie contributed greatly to the Blue Book's multidisciplinary writing group, with Colin Currie as its editor. It can be downloaded as a pdf file from www.boa.ac.uk or from www.nhfd.co.uk

National Hip Fracture Database

(NHFD, www.nhfd.co.uk) This joint BOA-BGS venture is entirely complementary to the Blue Book. It has involved the creation of an ongoing web-based database of key casemix, process and outcome indicators to monitor and improve the clinical care of hip fracture patients by enabling units to measure the care they provide against the six standards set out in the Blue Book. It has been developed from several existing audits, including the Scottish Hip Fracture Audit, which has been established for several years and has now galvanised the Scottish government into setting explicit

President: Prof Peter Currey President Elect: Prof Graham Hickey
Honorary Secretaries: Dr David Beaumont and Dr David Oliver Meetings Secretary: Dr Michael Vassallo
Honorary Treasurers: Dr Tom Smith and Dr David Cotter Chief Executive: Alex Weir Sub Editor: Rosie Atkins

for better health in old age

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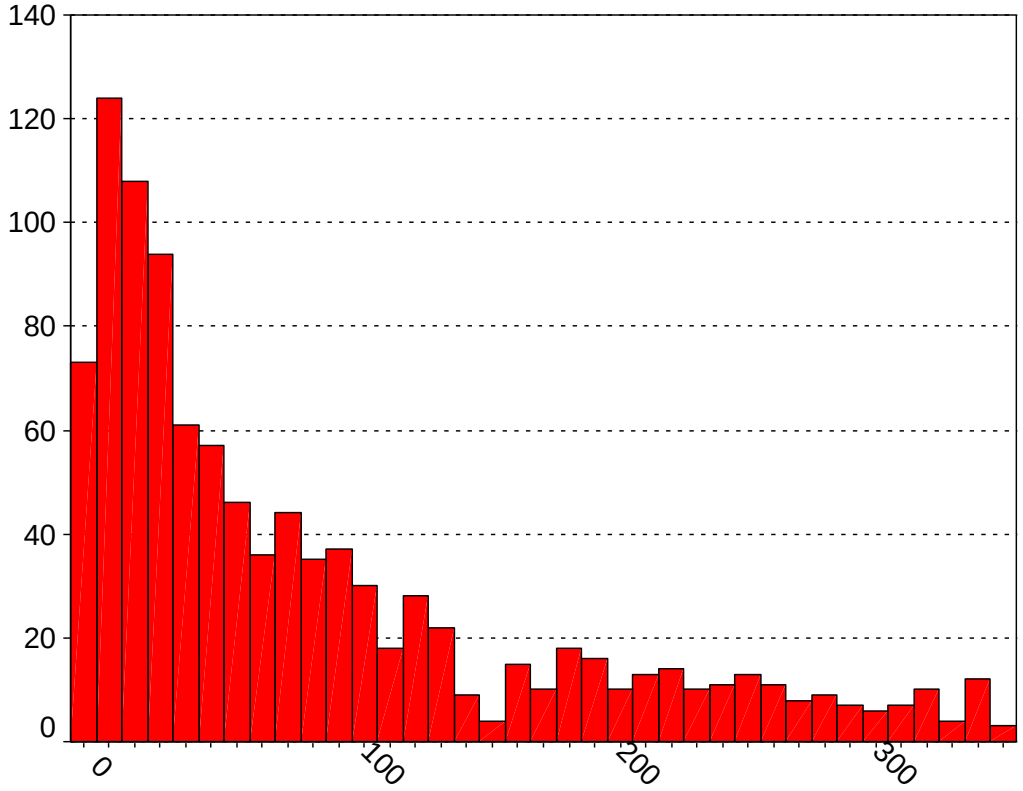
Mortality after hip fracture



days from injury to death

Royal Victoria Hospital, Belfast

5 years
1999-2003

1003 deaths by one year in 5553 patients

Complexity of elderly patients

- Mean age hip fracture = 83 yrs
- Comorbidities (median ASA 3)
  - Cardiac murmurs
  - Renal - Dialysis
  - COPD - home O_2
  - Diabetes
  - Delirium / dementia
  - Pseudo-obstruction
  - Alcohol abuse
- Impaired metabolic response to injury
  - Hyponatraemia
- Management problems
  - Consent
  - Theatre scheduling
  - Discharge planning
- Polypharmacy
  - Warfarin
  - Plavix
  - Neurotropics

Acute medical management

- Elderly hip fracture patients are among the most ***medically complicated*** patients in the hospital
  - Difficult judgement – balance between medical optimisation and prompt surgery
- Inexperienced surgical trainees not the best people to look after such people and prepare them for surgery
- Ideal solution is close supervision by senior physicians having expertise with elderly patients
  - pre- and peri-operatively, not just for rehabilitation

Senior medical backup

- Orthogeriatrics is the ideal
- Can come from different specialists, depending on health care system
  - Anaesthesia
  - Internal medicine
- But geriatric ***competencies*** are essential

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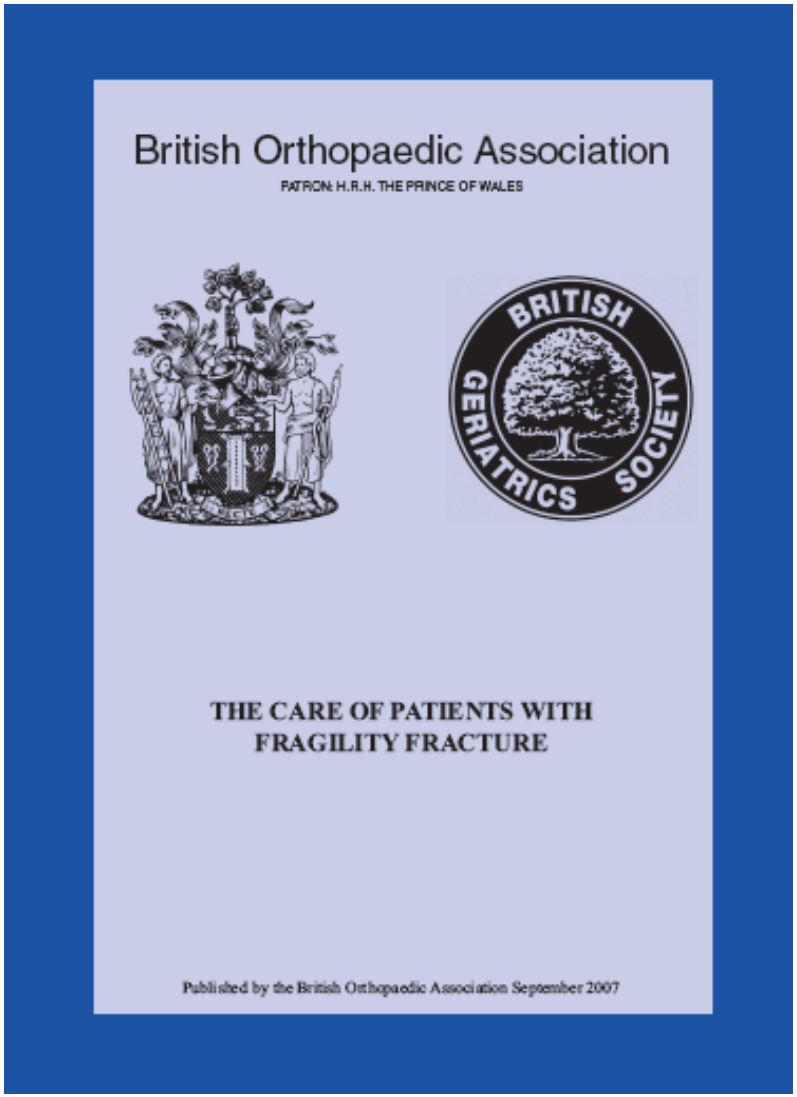
We did two things for hip fractures, in parallel:

- Define evidence-based standards of care
- Establish a ***continuous*** audit to measure compliance with those standards



2007

Four big messages

Multidisciplinary approach to the management of fragility fracture patients

Reliable secondary prevention
- osteoporosis
- falls

Chronic disease model

Quality assurance
- the NHFD

BOA-BGS Blue Book
six standards for hip fracture care

1. All patients with hip fracture should be admitted to an acute orthopaedic ward within 4 hours of presentation
2. All patients with hip fracture who are medically fit should have surgery within 48 hours of admission, during normal working hours
3. All patients with hip fracture should be assessed and cared for with a view to minimising their risk of developing a pressure ulcer
4. All patients presenting with a fragility fracture should be managed on an orthopaedic ward with routine access to orthogeriatric medical support from the time of admission
5. All patients presenting with fragility fracture should be assessed to determine their need for bone-protective therapy to prevent future osteoporotic fractures
6. All patients presenting with a fragility fracture following a fall should be offered multidisciplinary assessment and intervention to prevent future falls

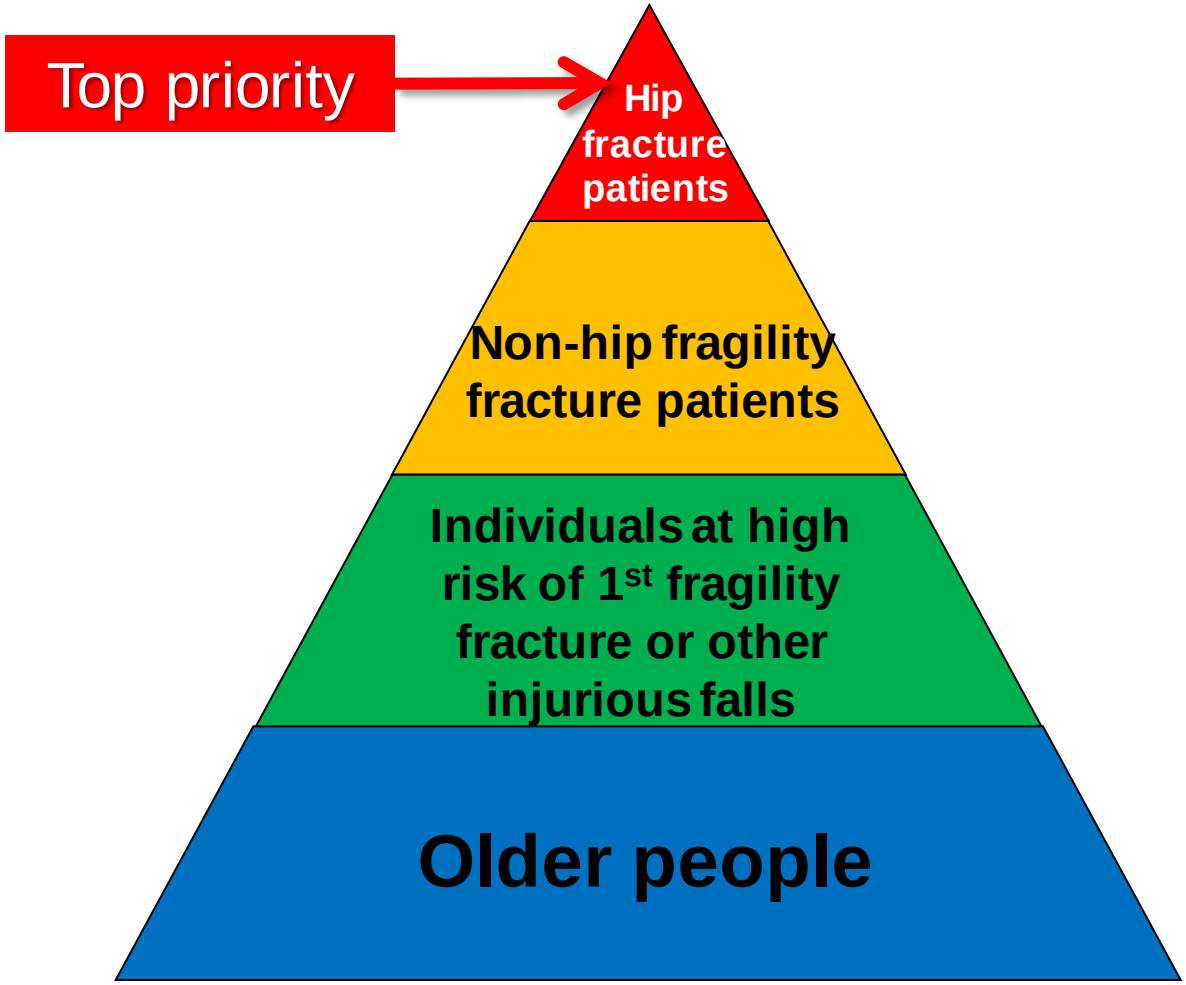
UK National Hip Fracture Database
- jointly led by BOA and BGS

- Measures compliance with Blue Book standards
- A web-based national database, modelled on MINAP, now including every fracture unit in England, Wales and N. Ireland
- Feed back to units their performance compared to national and regional peers
- A professional steering group to manage analysis of, and access to the data
- Extensile for research
- Adopted by government as a national clinical audit

Smart commissioning

- Alliance between multidisciplinary providers and healthcare commissioners can tackle fragility fractures and drive change
  - Prioritisation
  - Incentivisation

UK DoH package for older people



Objective 1: Improve outcomes and improve efficiency of care after hip fractures – **by following the 6 "Blue Book" standards**

Objective 2: Respond to the first fracture, prevent the second – **through Fracture Liaison Services in acute and primary care**

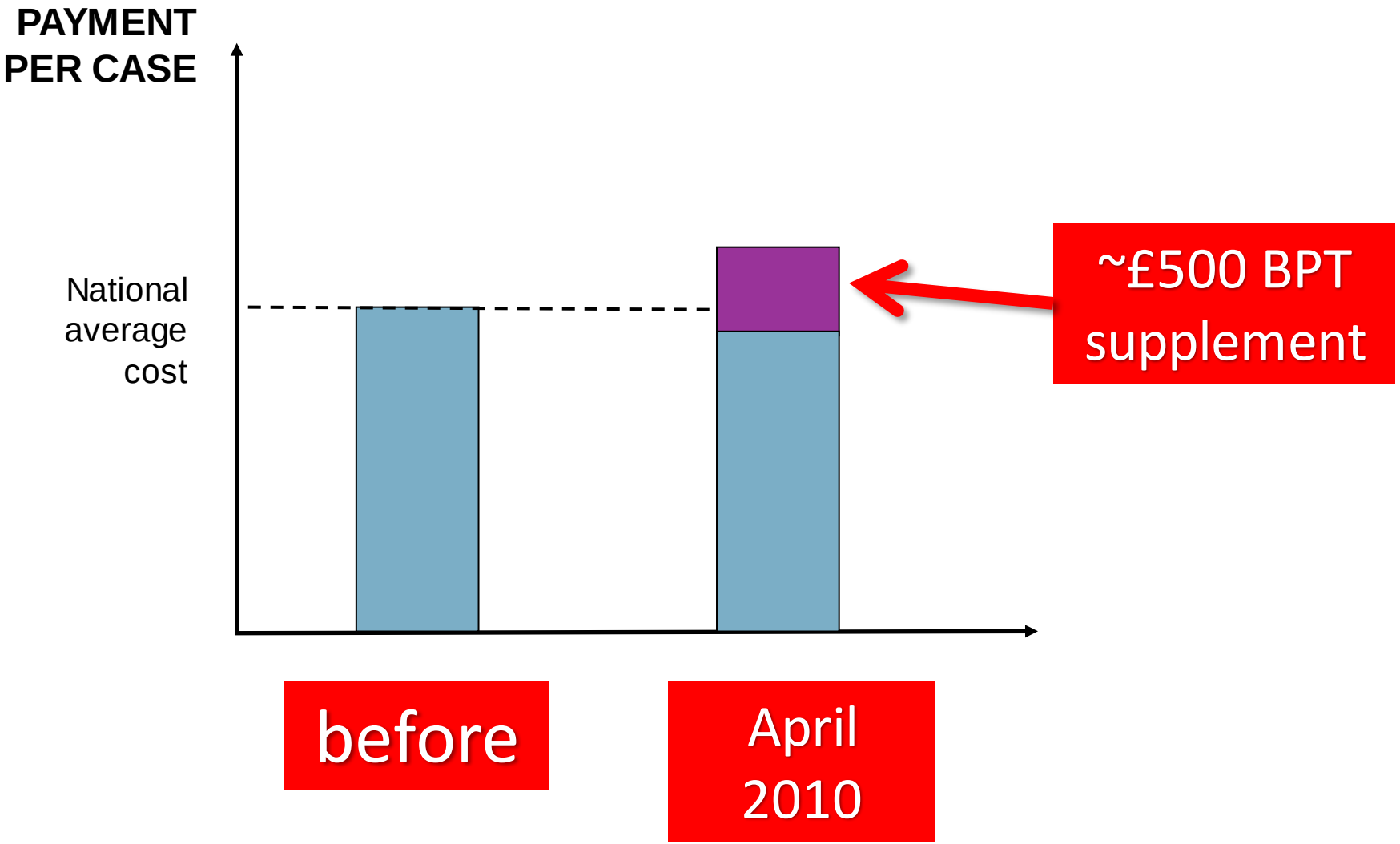
Objective 3: Early intervention to restore independence – **through falls care pathway linking acute and urgent care services to secondary falls prevention**

Objective 4: Prevent frailty, preserve bone health, reduce accidents – **through preserving physical activity, healthy lifestyles and reducing environmental hazards**

Best Practice Tariff (BPT)
From April 2010

- Reimbursement to Hospitals for each case of hip fracture varies according to the quality of care
- Two criteria used:
  - Time to theatre less than 36 hours
  - Involvement of orthogeriatrics in the acute phase
    - Including secondary prevention
- Compliance for each case determined from the record in the National Hip Fracture Database

Now the hospital CEO gives a damn



BPT attainment 2010 - 2013

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2010/11	Eligible hospitals	Hospitals achieving BPT	Number of pts submitted	Number of pts achieving BPT	Range
Qtr 1	162	92(57%)	9455	2303(24%)	2 – 81%
Qtr 2	165	105(64%)	11839	3328(28%)	2 – 74%
Qtr 3	163	111(68%)	13136	4502(34%)	1 – 83%
Qtr 4	167	118(71%)	12680	4671(37%)	1 – 86%
2011/12					
Qtr 1	170	131(77%)	13070	5210(40%)	1 – 88%
Qtr 2	166	133(80%)	13221	6170(47%)	1 - 89%
Qtr 3	166	138(82%)	14116	7193(51%)	2 – 88%
Qtr 4	168	147(87%)	14046	7654(55%)	2 – 95%
2012/13					
Qtr 1	166	149 (90%)	13998	6833 (49%)	3-93%
Qtr 2	166	150 (91%)	13753	7168 (52%)	4-95%
Qtr 3	166	154 (93%)	14158	8373 (59%)	14-97%
Qtr 4	166	156 (94%)	14317	8553 (60%)	5-95%

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2012/13	**(additional criterion applied – recording of AMT score)**				
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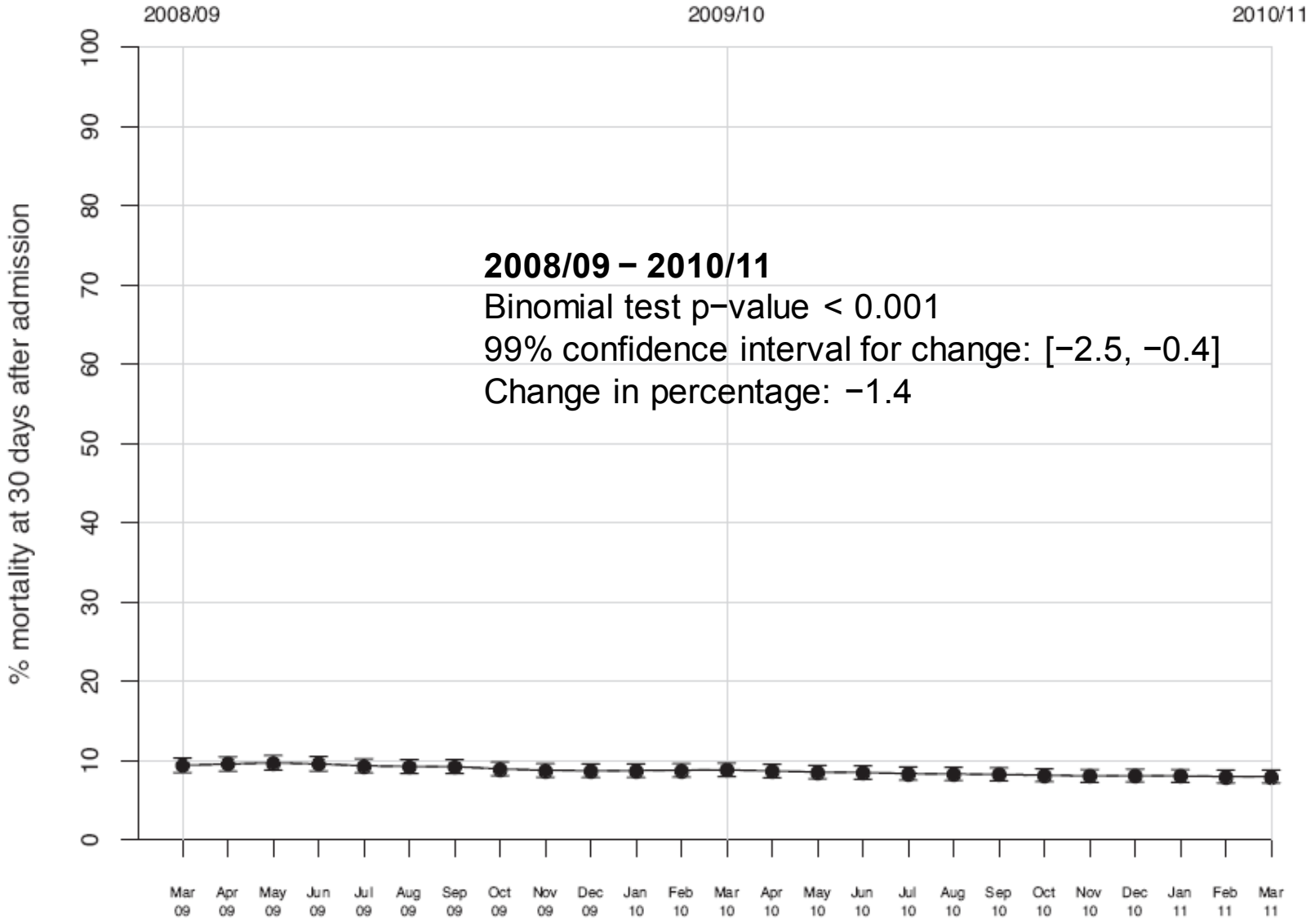
Moving average of patient mortality at 30 days from admission



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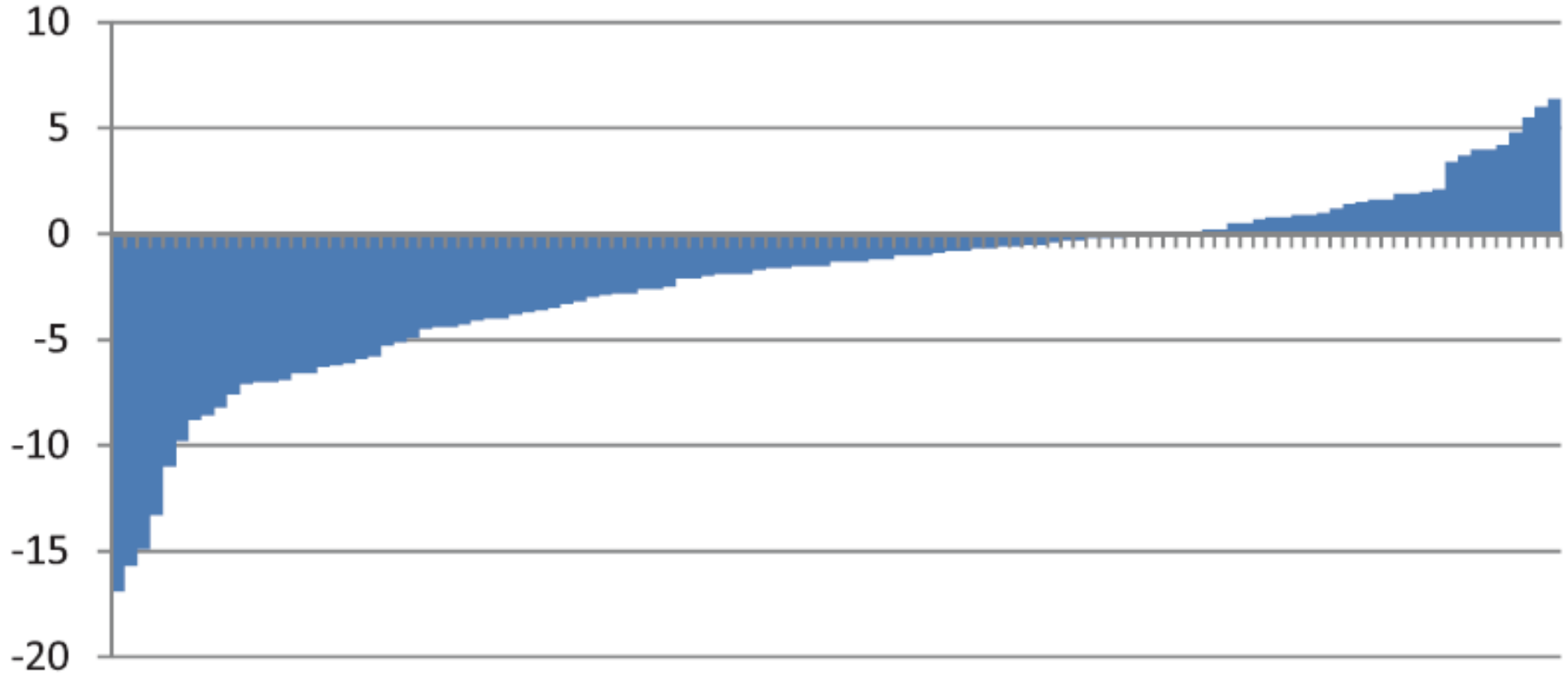
Change in Length of Stay 2010 - 2011

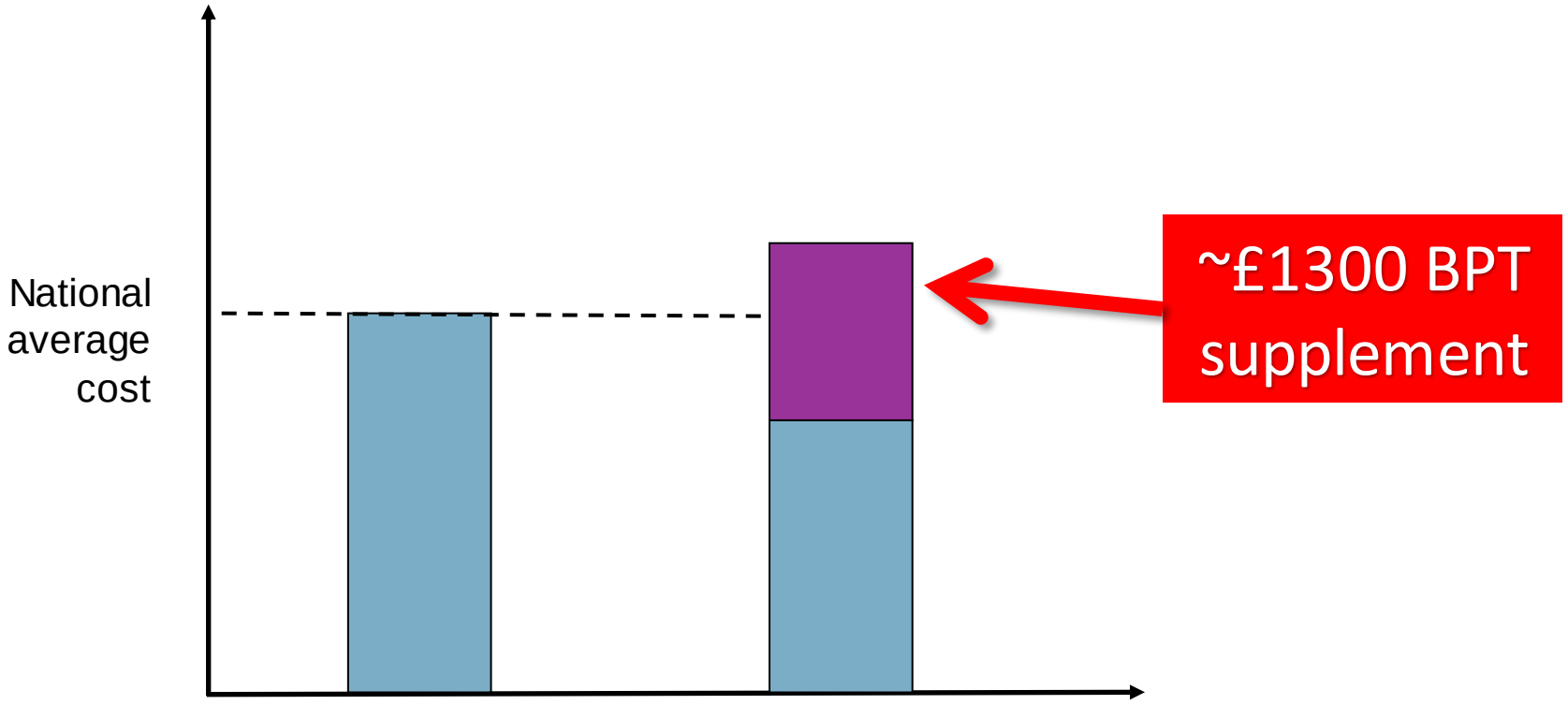


Orthogeriatric co-management of the acute episode

- Gives the patient a better quality of care with better outcomes
- Saves money by enabling
  - more efficient use of resources
  - fewer readmissions

Treating fragility fractures well is cheaper than treating them badly

Now - carrot plus stick



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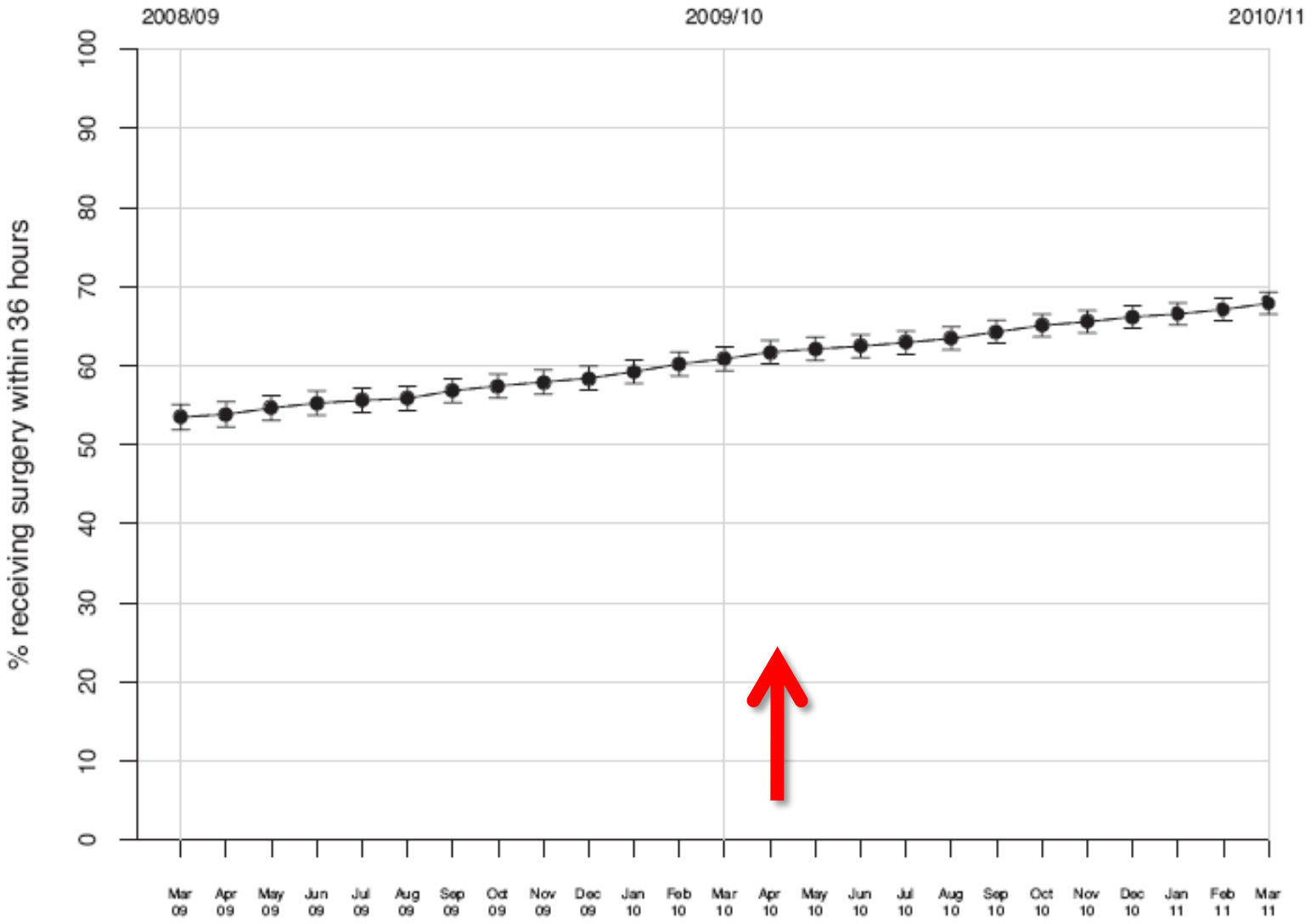
Moving average of % of patients receiving surgery within 36 hours
April 2008 – March 2011



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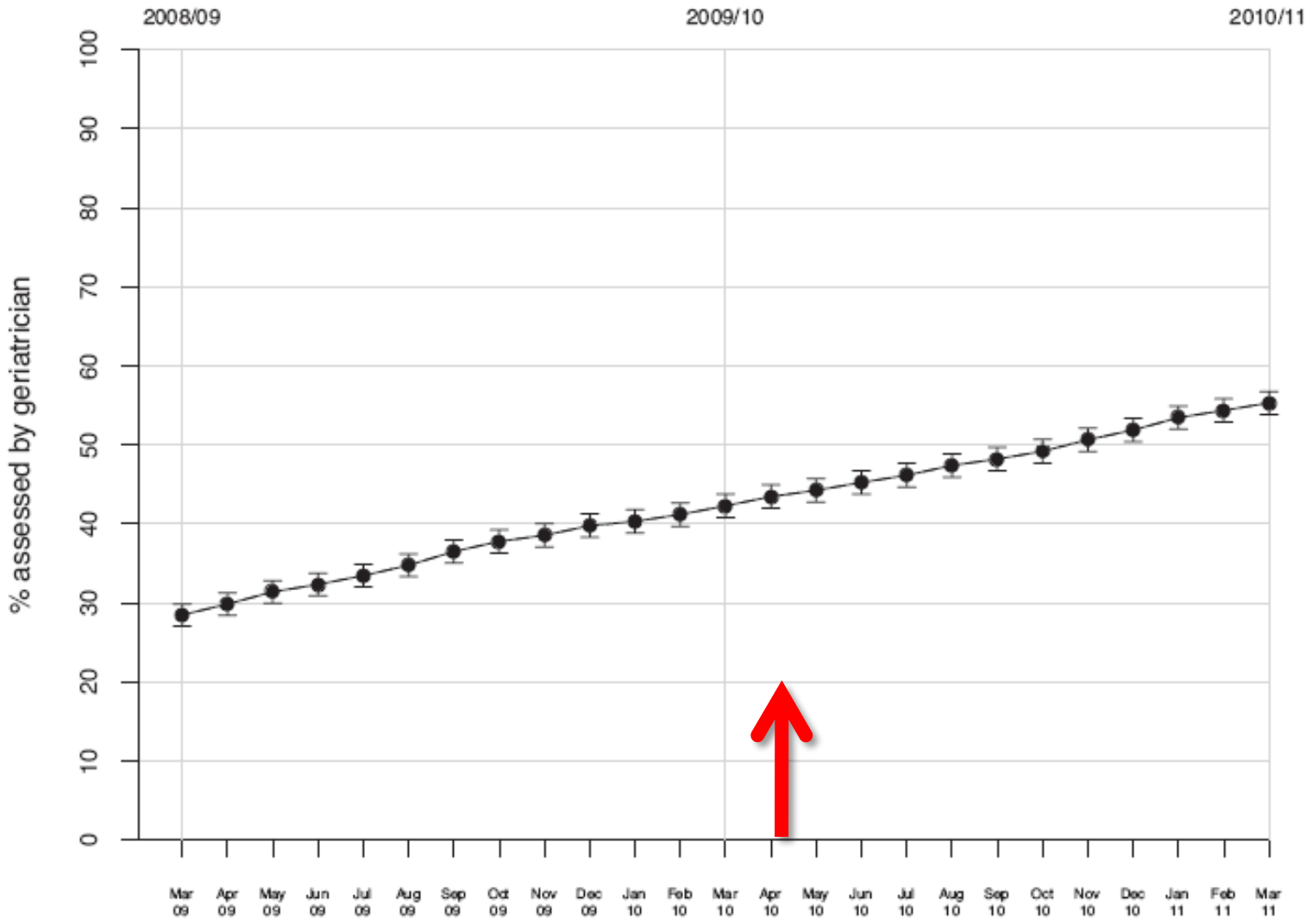
Moving average of % of patients receiving preoperative assessment by geriatrician
April 2008 – March 2011



Audit of hip fracture care, with continuous real-time feedback, is by itself a driver for change, even without financial incentives

Feedback from the NHFD

- Online monthly reports showing each fracture units their process and outcome measures, in comparison with regional and national peers
- Annual reports, naming hospitals and identifying outliers

www.nhfd.co.uk

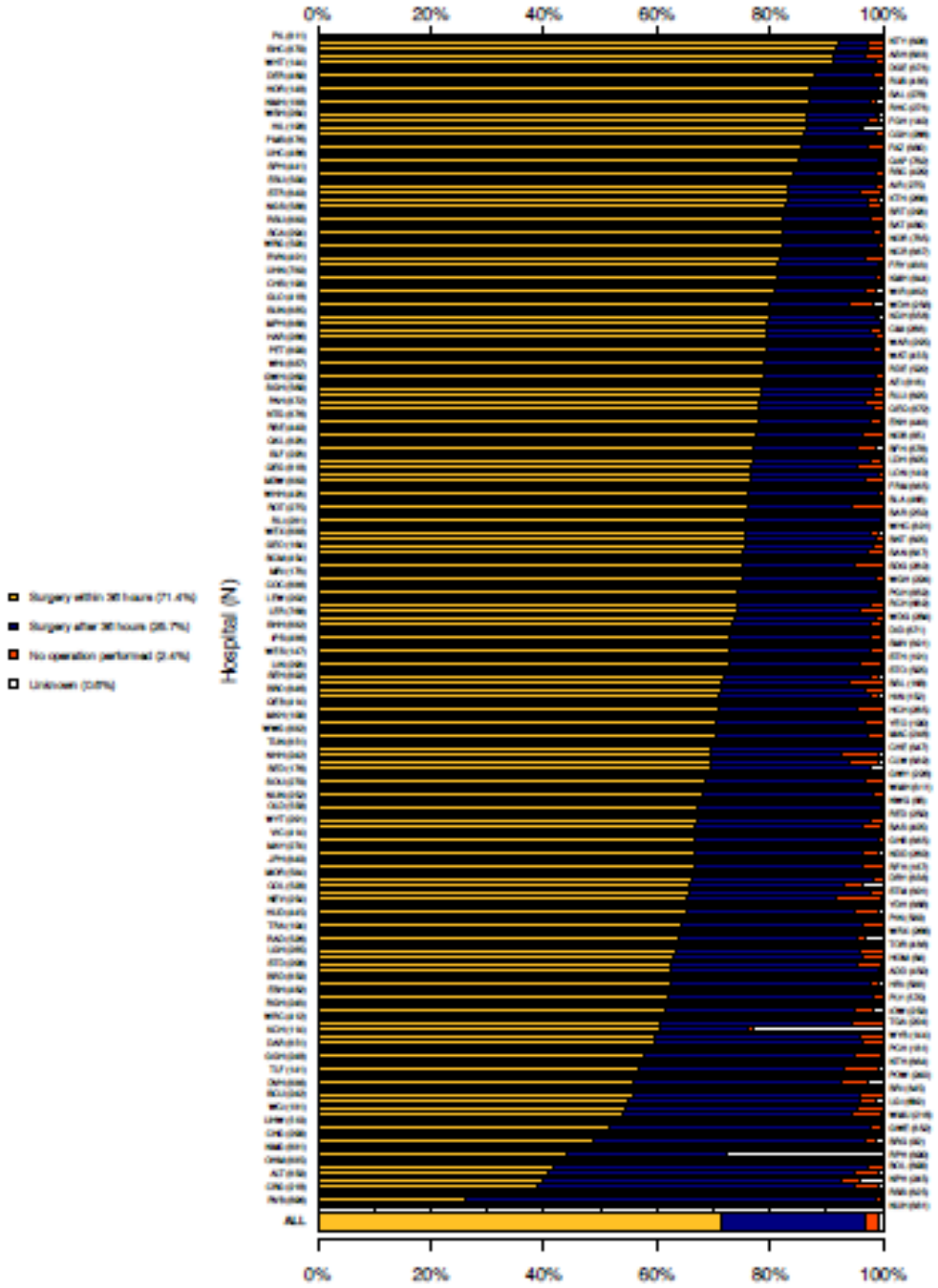
National Hip Fracture Database

National report 2013

- Based on 61,508 cases submitted between 1 April 2012 and 31 March 2013 by 180 hospitals

- Over quarter of a million cases recorded since its launch in 2007
- 95% of all cases occurring annually being documented by the NHFD
- 5,500 records being added every month

Chart 6 – Surgery within 36 hours of admission



Hospitals that get 95% of their patients to surgery within 36 hours ***must*** have something to teach hospitals who can only manage 40% !!

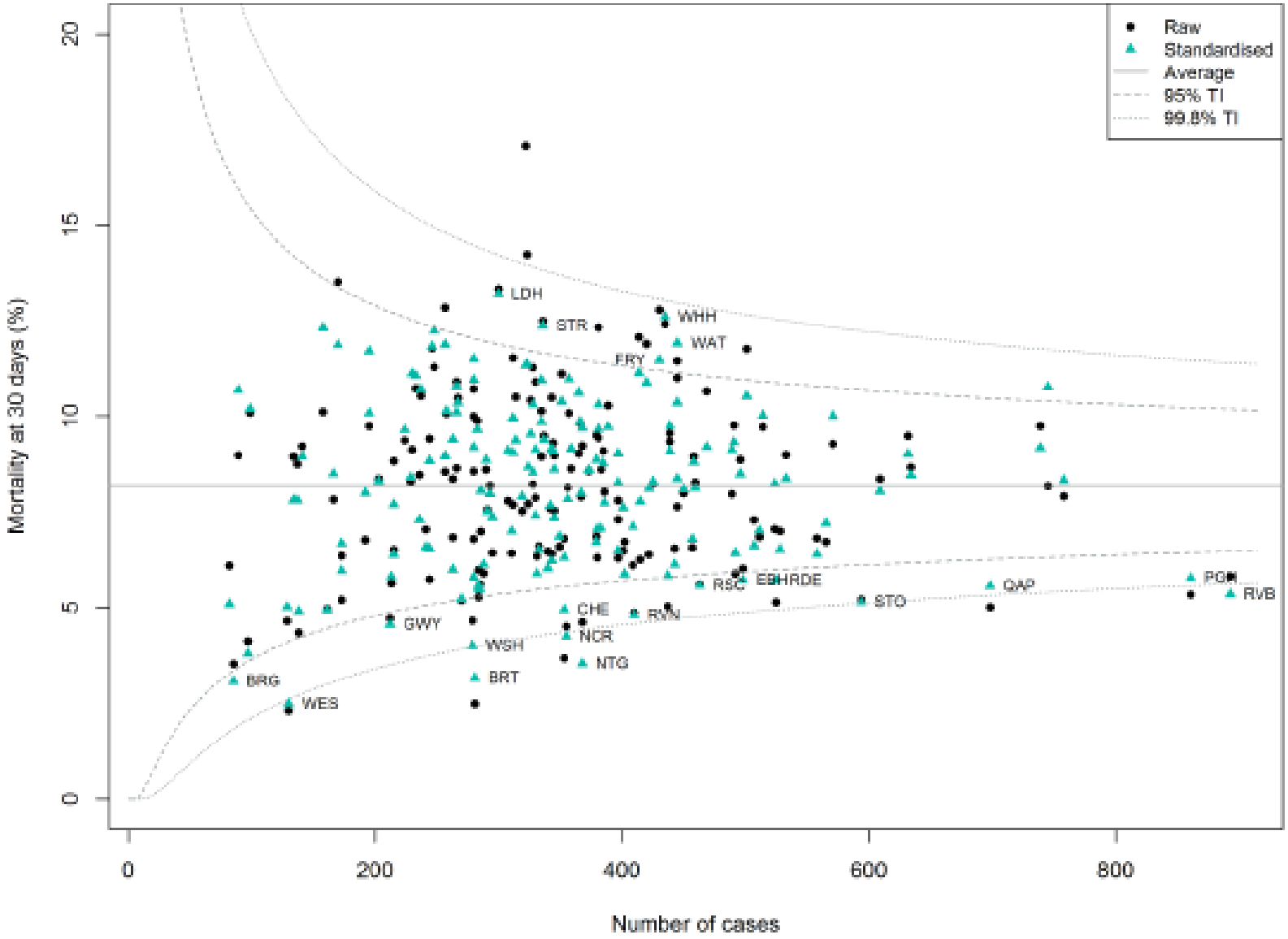


Chart 29 : Funnel plot for 30 day mortality based on 2012–13 data

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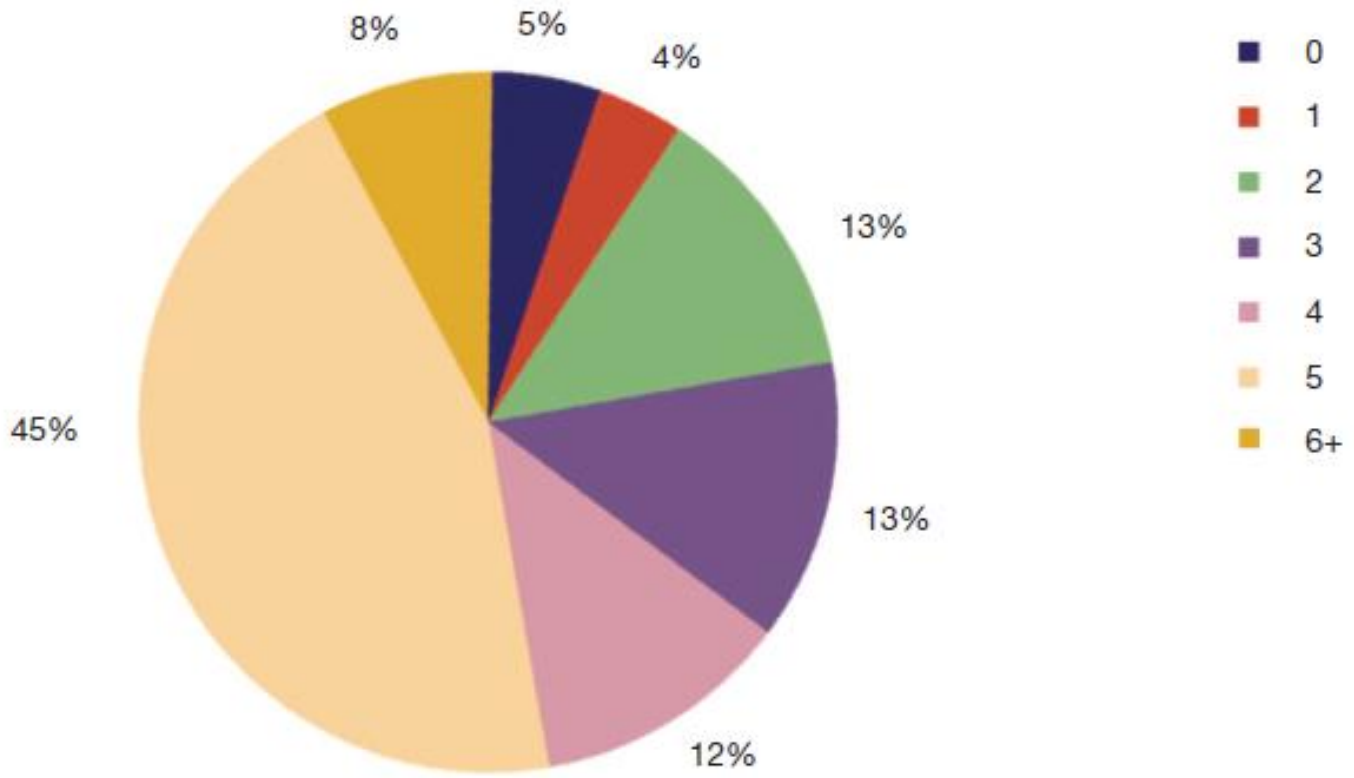
Facilities Audit Chart 1

Number of orthogeriatric ward rounds each week



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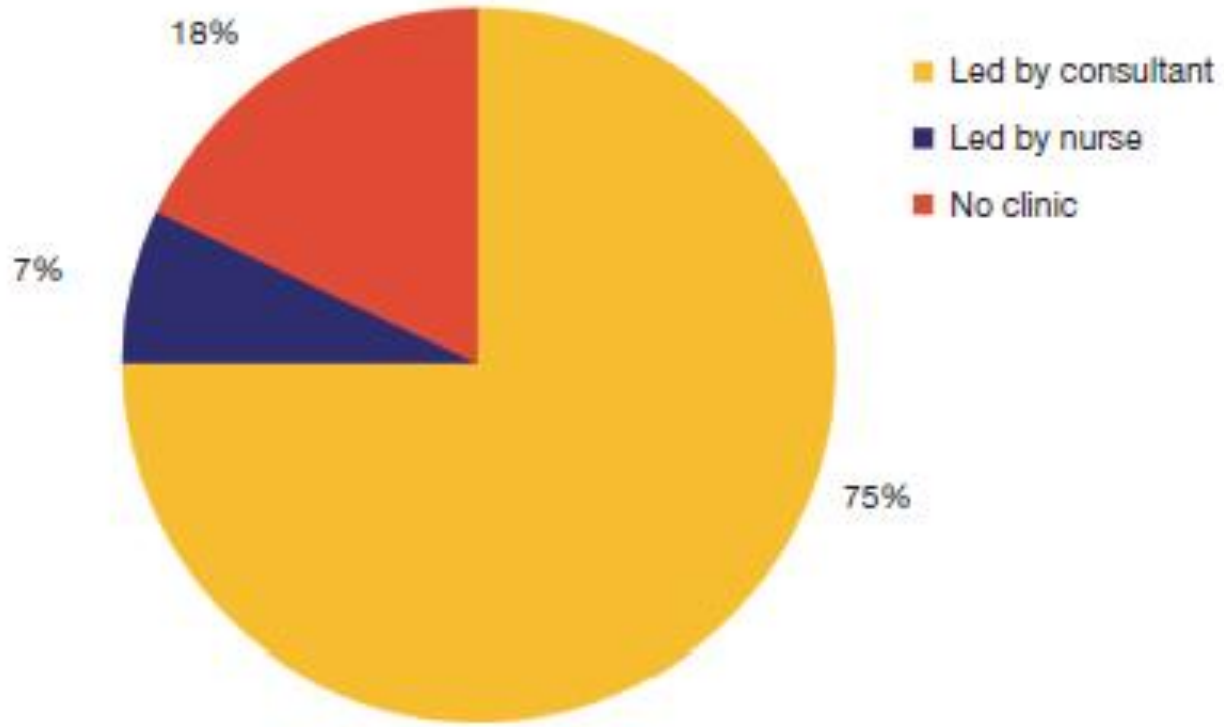
Facilities Audit Chart 2

On-site falls clinic



The percentage of hospitals providing on-site falls clinics has not changed since 2012

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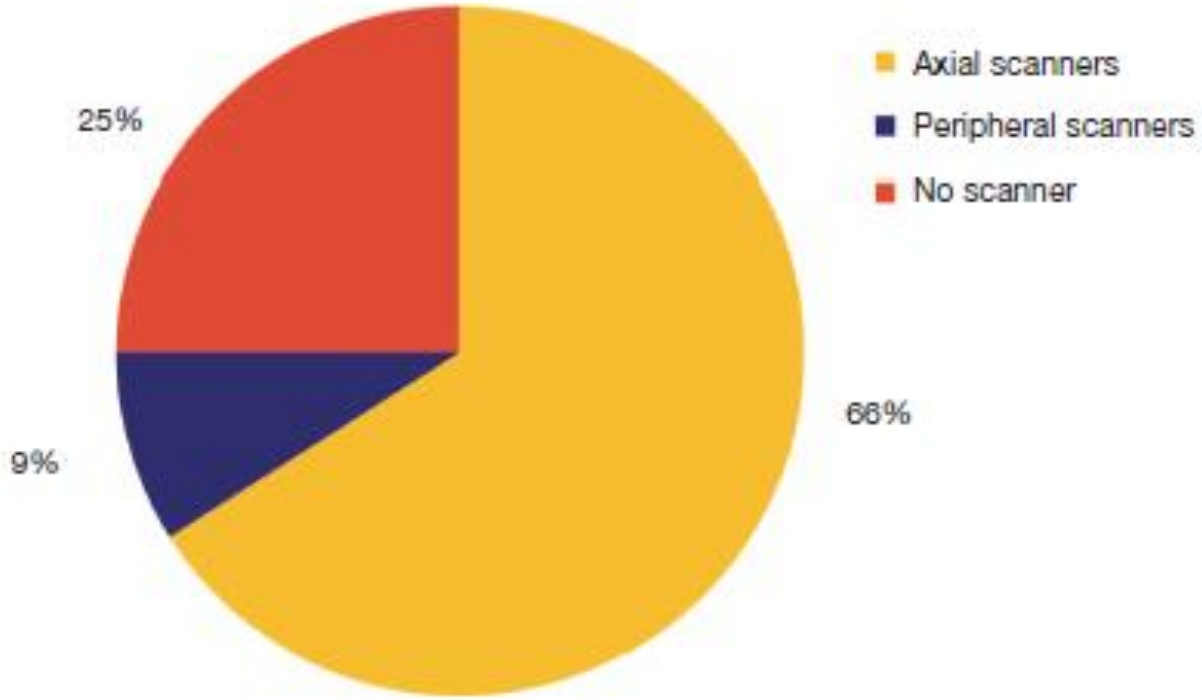
On-site DXA scanners



The gradual rise in the provision of on-site scanners continues with the total percentage increasing to 75% compared with 68.2% in 2011.

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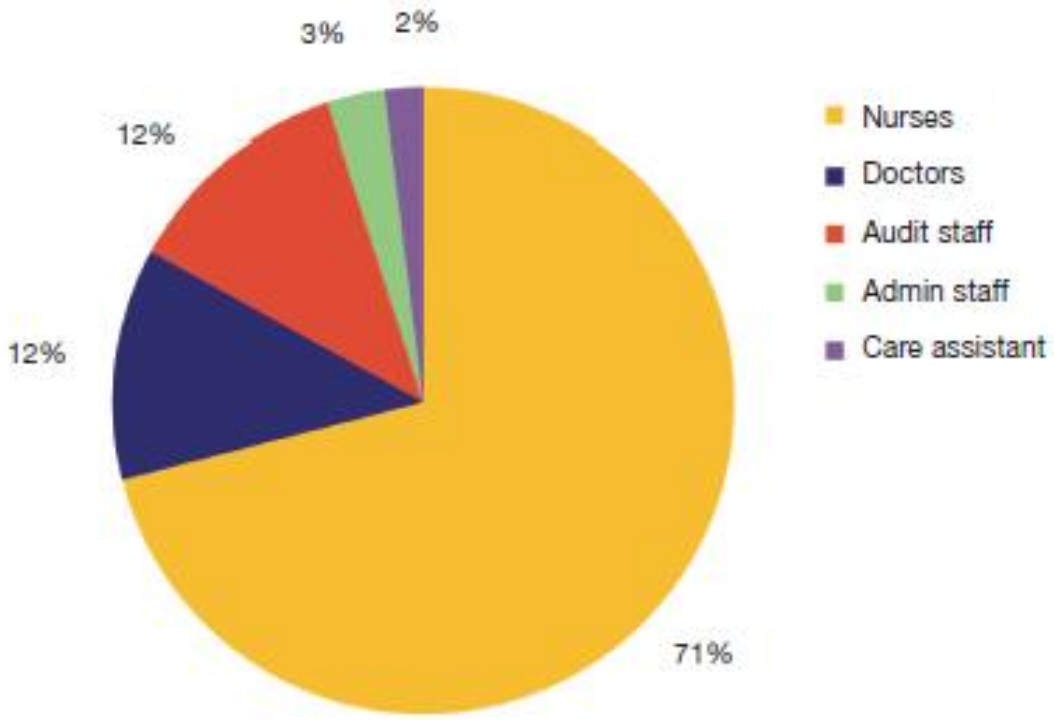
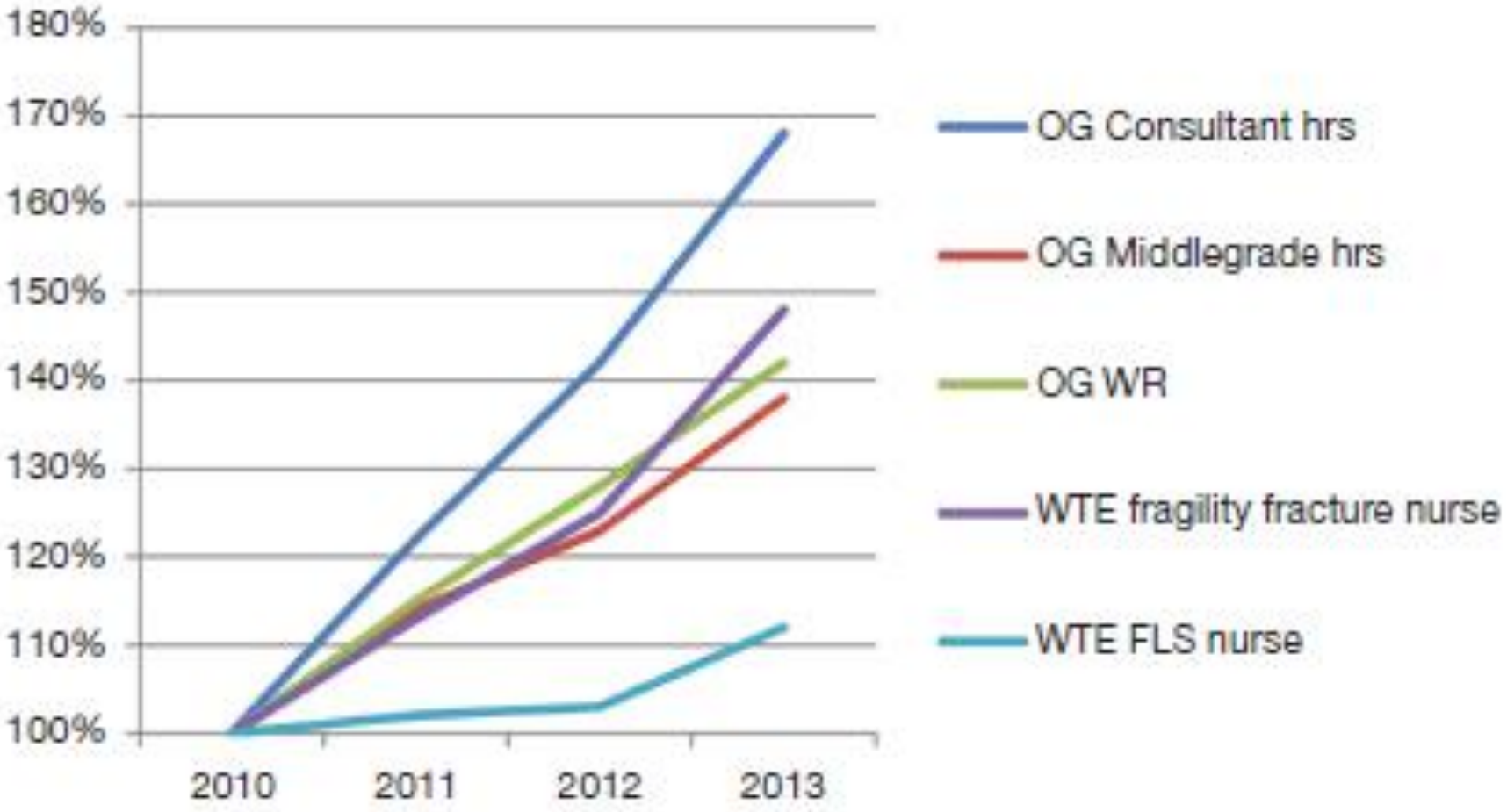
Facilities Audit Chart 4

Data collectors

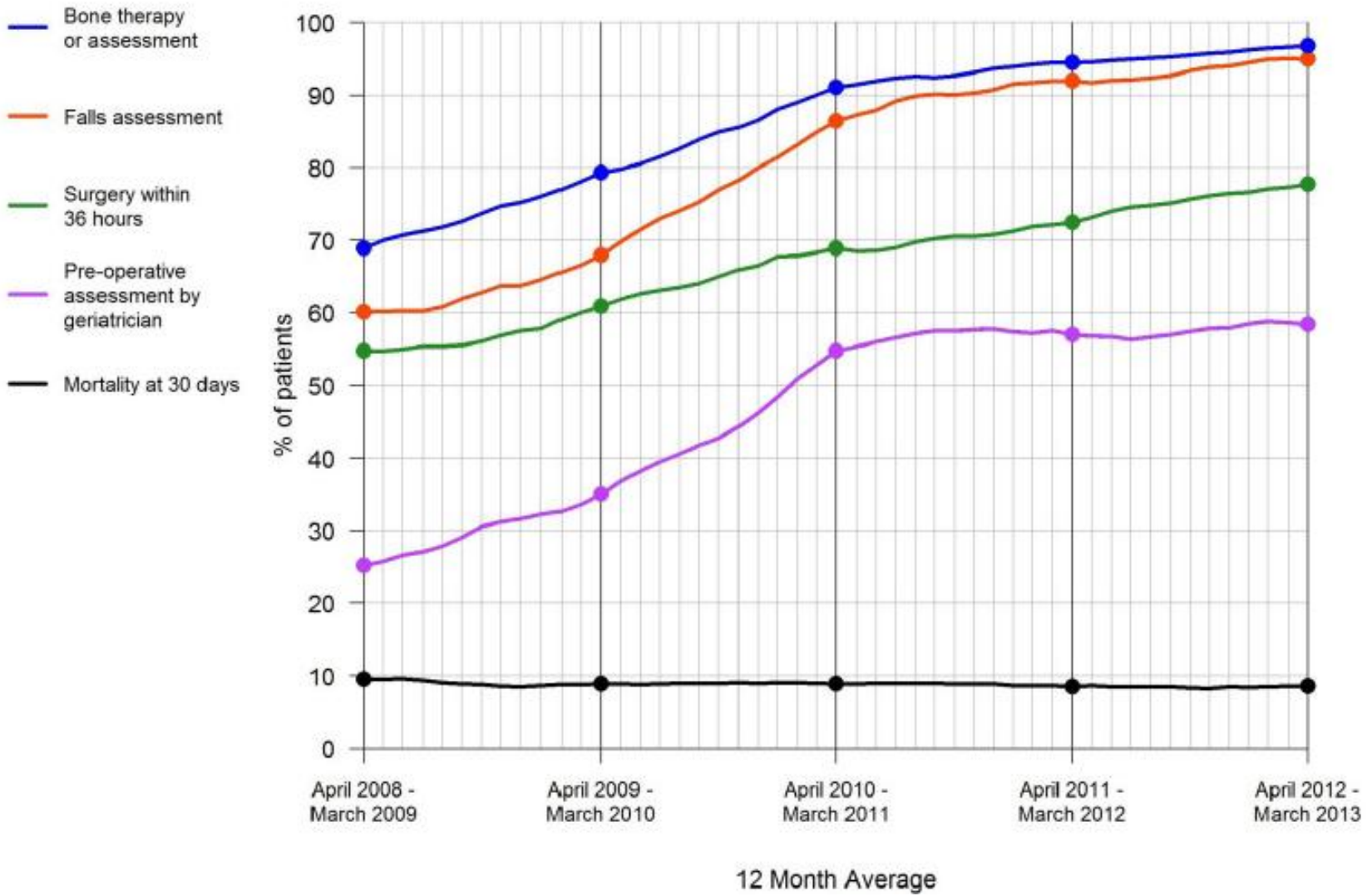


There has been a marginal increase in the percentage of data collection by nurses, up from 66.5% in 2011 to 71%. In many cases the nurses act as fragility fracture nurses, co-ordinating the care of the hip fracture patients. They are therefore in a position to collect the data concurrent to the episode of care.

Orthogeriatric staff



Orthogeriatric care



These changes were achieved ….

- By local clinical champions using the data from the NHFD to convince their managers that resources/changes were needed
- By having regional multidisciplinary meetings based on data from the NHFD
- By spreading stories of local ideas and successes to inspire others
- By sharing the insights from the NHFD with national health service leaders

Projected Hip Fractures Worldwide

Total number of hip fractures:
1990 = 1.66 million
2050 = 6.26 million

Adapted from Cooper C et al, Osteoporosis Int, 1992; 2:285-9

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The
Fragility Fracture Network
of the Bone and Joint Decade

***Mission*: To promote globally the optimal multidisciplinary management of the patient with a fragility fracture, including secondary prevention**

Aims

- to disseminate globally the best ***multidisciplinary practice*** in preventing and managing fragility fractures
- to promote ***research*** aimed at better treatments for osteoporosis, sarcopenia and fracture
- to drive ***policy change*** that will raise fragility fractures higher up the healthcare agenda in all countries

Global dissemination of best practice

- Obviously, conditions differ between countries
- But there is much in common and all countries can learn from each other
- There is no time to rediscover the wheel a hundred times

Membership

- Open to professionals in any field relevant to fragility fractures, eg:
  - Orthopaedic surgeons
  - Geriatricians
  - Osteoporosis doctors
  - Nurses and allied health professionals
  - Industry

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- Madrid 4-6 Sep 2014
- Emphasis on:
  - Orthogeriatric comanagement
  - Rehabilitation and falls prevention, including sarcopenia
  - Health economics and advocacy
- Spanish and Italian geriatricians have similar challenges

FFN Special Interest Group on Hip Fracture Audit

- Has defined a global common dataset
- Is creating a database system that can be introduced in any country with minimum modification
- Will support countries introducing it
- Interest from Australia/NZ, Japan, Spain, Ireland, Canada, Hong Kong, Germany so far

WARNING

- Setting up the database is the easy bit!!
- A national network of advisors is necessary to support people putting in the data
- Information governance issues have to be overcome
- National and local champions are essential
- Bad data is worse than no data
- If you're going to do it, let's do it together
  - At least use the same dataset

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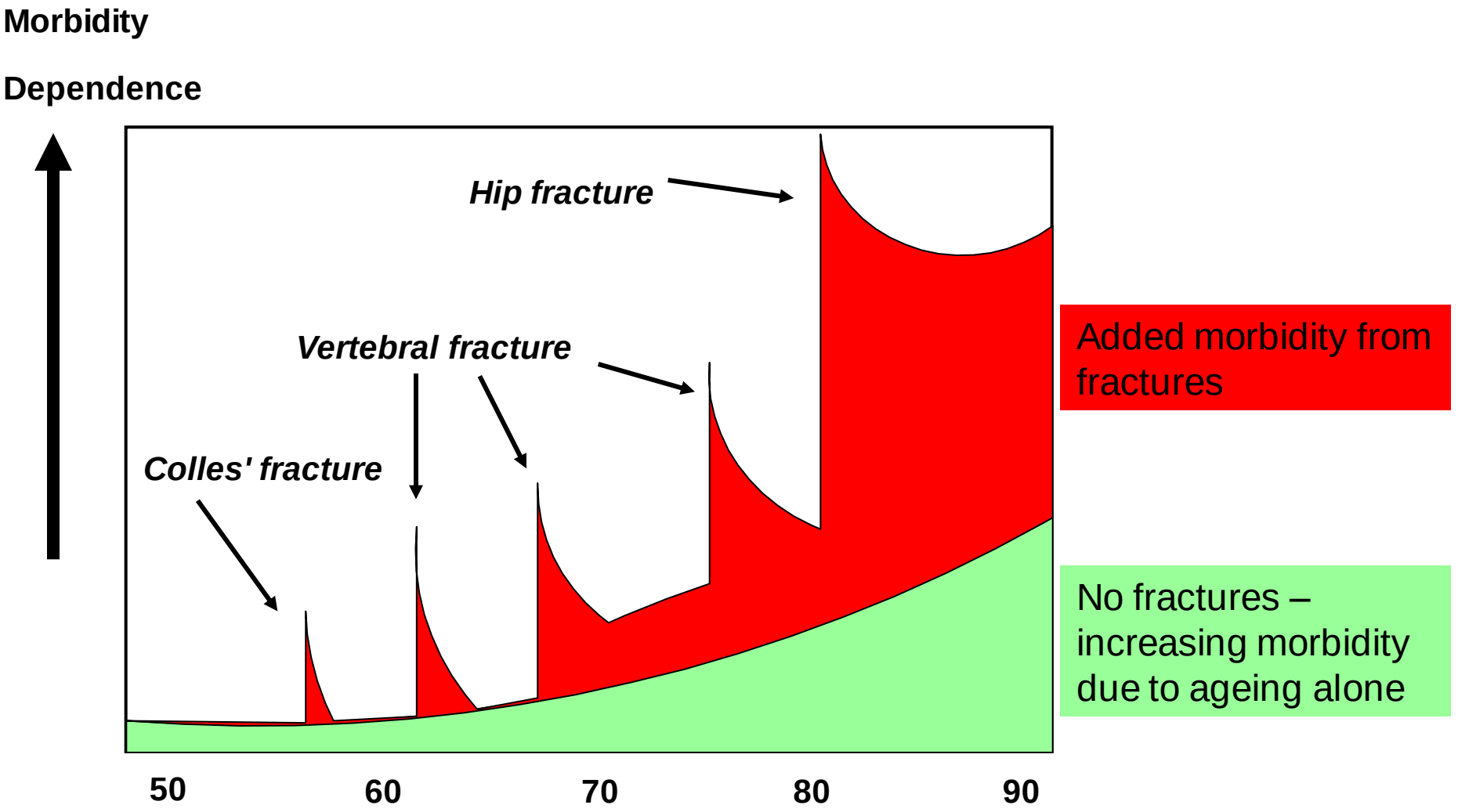
Secondary prevention

Earlier fractures signal the hip fracture

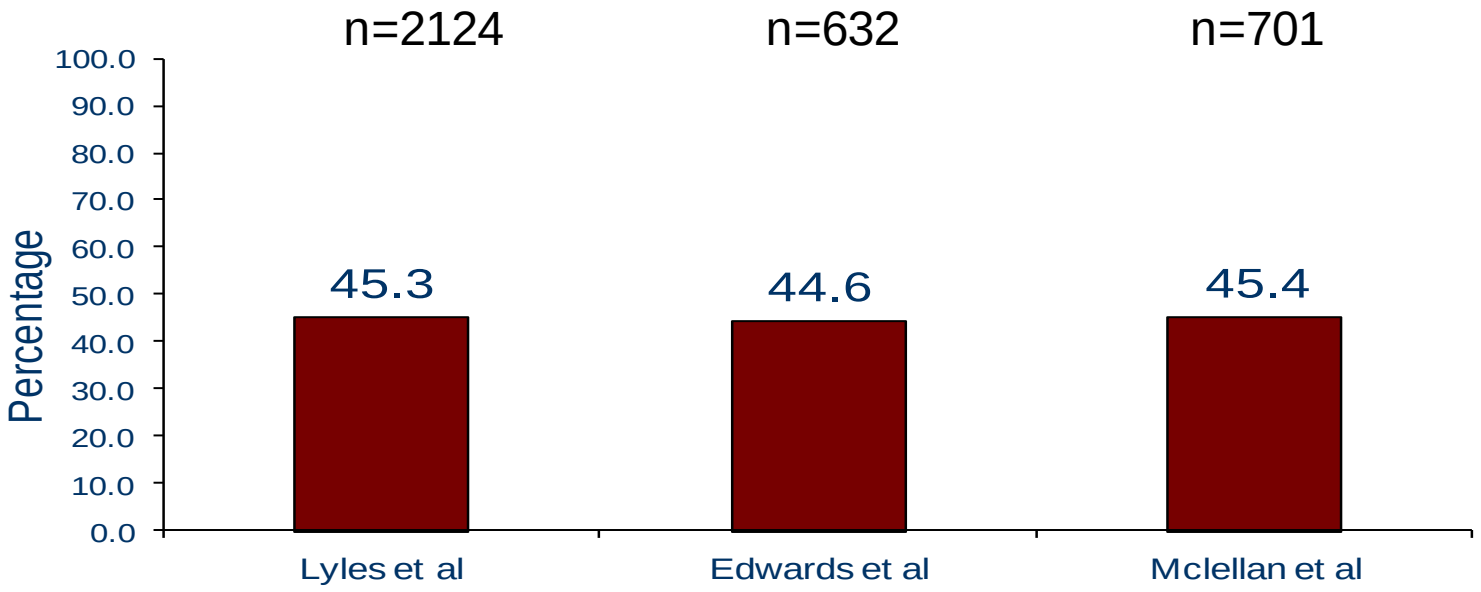


Adapted from Kanis JA, Johnell O; 1999

Secondary prevention

- Secondary prevention is more cost-effective than primary prevention

Prevalence of prior fractures among patients presenting with hip fracture

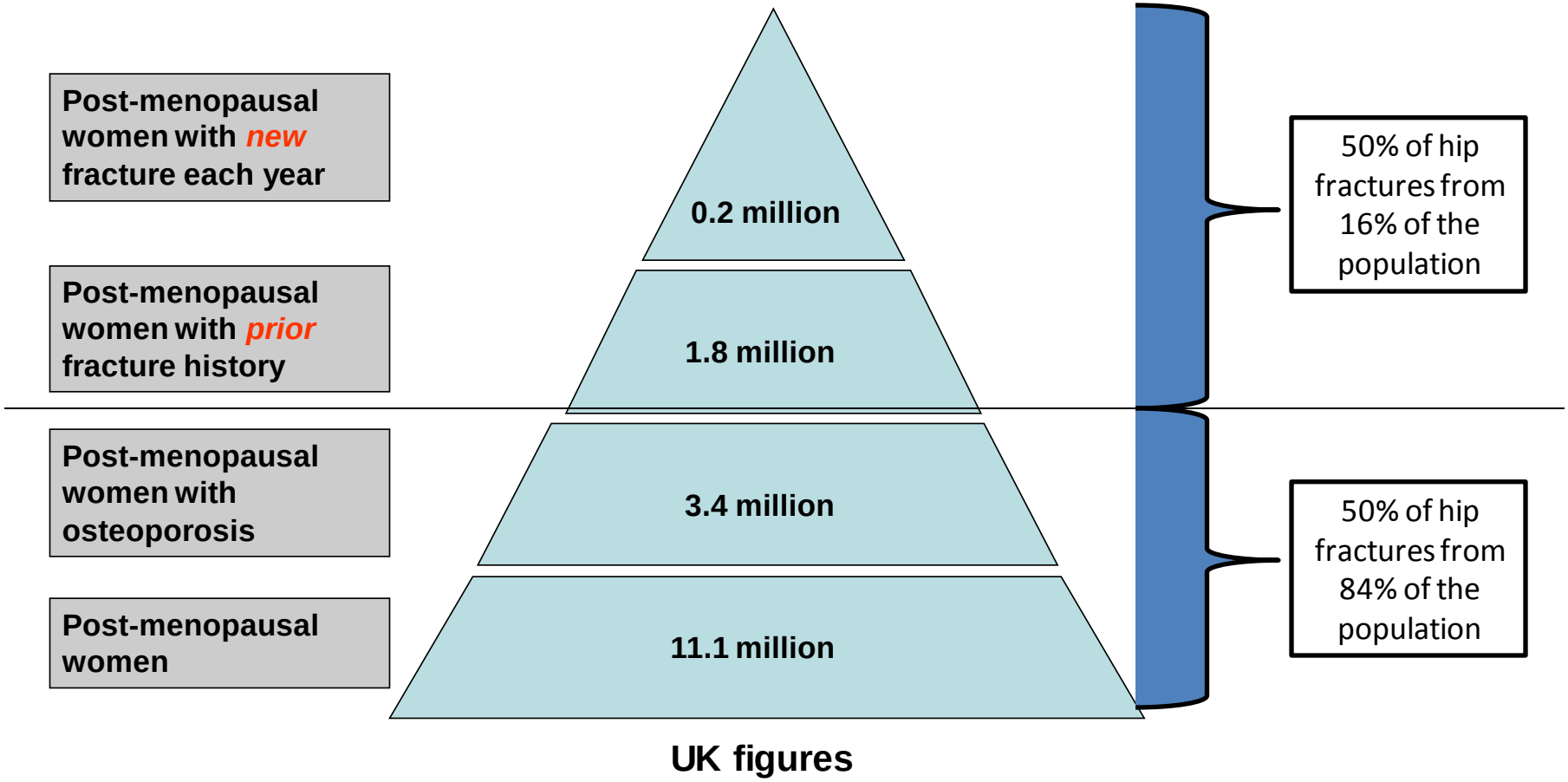


Lyles KW et al. The Horizon Recurrent Clinical Fracture after Recent Hip Fracture Trial (RFT) Study Cohort Description. ASBMR 2006

Edwards, B. J. et al (2007) Prior Fractures Are Common in Patients With Subsequent Hip Fractures. Clinical Orthopaedics & Related Research, 461, 226-230

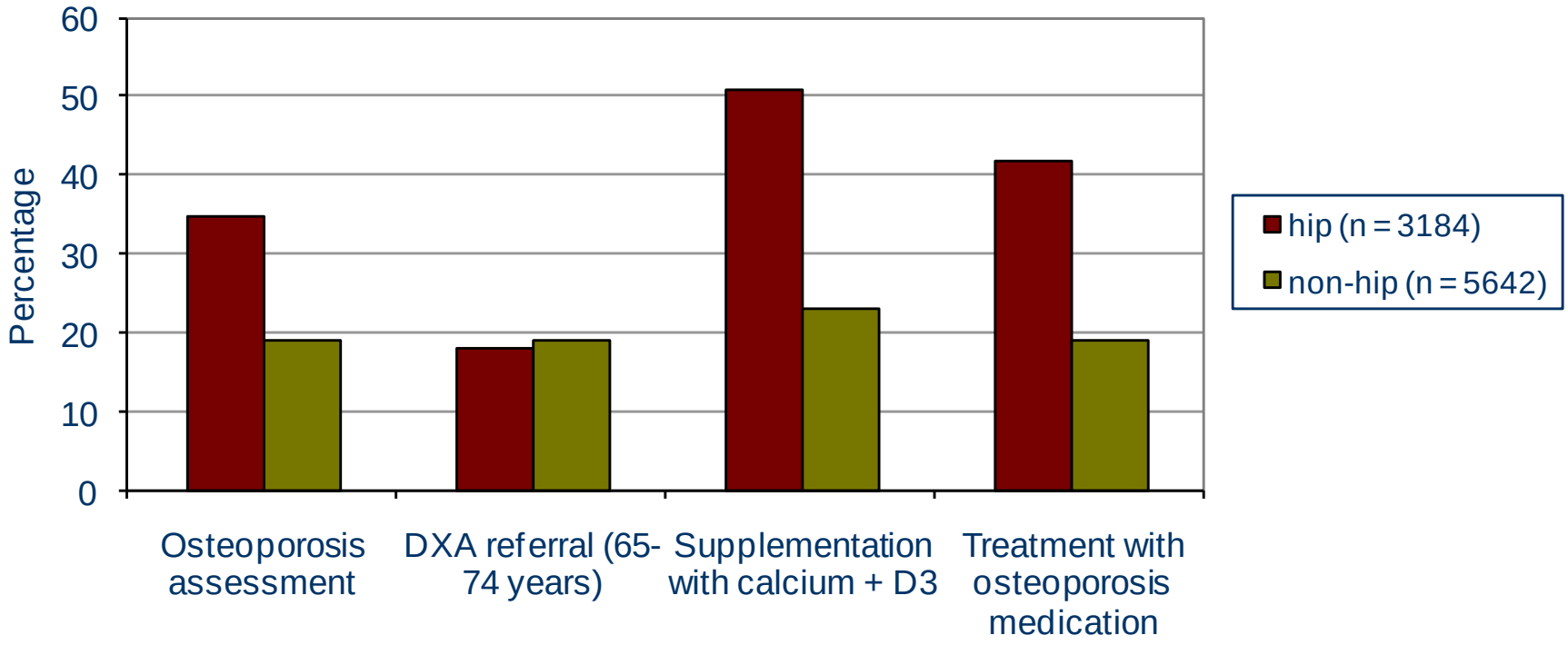
McLellan Alastair R. et al.(2004) Effectiveness of Strategies for the Secondary Prevention of Osteoporotic Fractures in Scotland (CEPS 99/03). NHS Quality Improvement Scotland.

16% of women over 50 have had at least one low trauma fracture



Interventions after low trauma fracture

Target	100%	100%	100%	~70%



National Clinical Audit of Falls and Bone Health (2007) Clinical Effectiveness and Evaluation Unit, RCP, London

Secondary prevention

- Secondary prevention is more effective than primary prevention
- A systems approach is needed, where capture of patients is ***automatic***

Capturing patients reliably

Osteoporos Int
DOI 10.1007/s00198-011-1642-x

POSITION PAPER

Coordinator-based systems for secondary prevention in fragility fracture patients

D. Marsh · K. Åkesson · D. E. Beaton · E. R. Bogoch · S. Boonen · M.-L. Brandi · A. R. McLellan · P. J. Mitchell · J. E. M. Sale · D. A. Wahl · IOF CSA Fracture Working Group

Received: 31 January 2011 / Accepted: 13 April 2011
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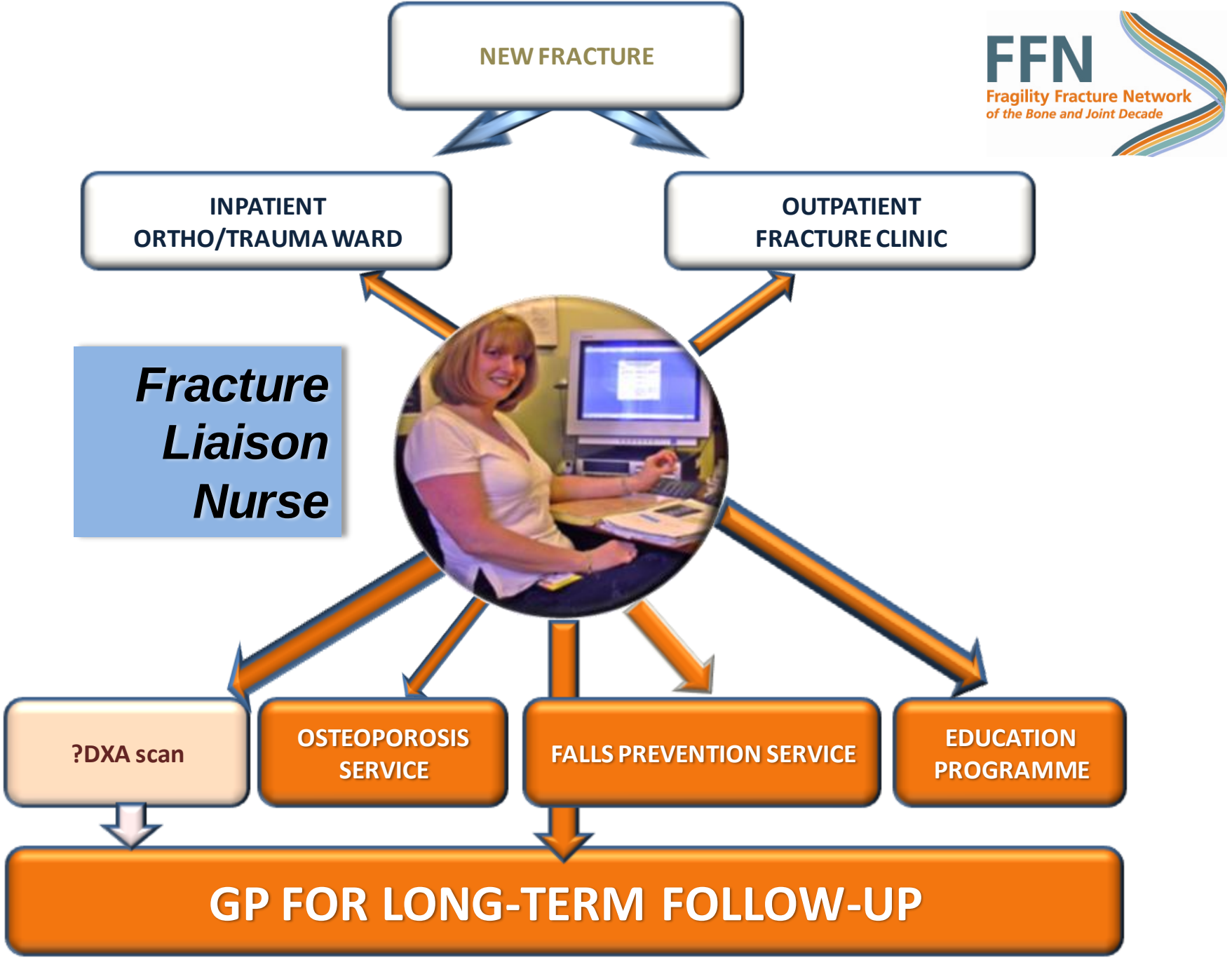
- Employment of a dedicated coordinator in the fracture service is the most effective system



modified from McLellan et al 2003. Osteoporosis Int, 14:1028-1034.

Secondary prevention

- Secondary prevention is more effective than primary prevention
- A systems approach is needed, where capture of patients is automatic
- When it is done vigorously, it is ***cost-saving***

Cost-saving

Osteoporos Int
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ORIGINAL ARTICLE

Fracture liaison services for the evaluation and management of patients with osteoporotic fracture: a cost-effectiveness evaluation based on data collected over 8 years of service provision

A. R. McLellan · S. E. Wolowacz · E. A. Zimovetz · S. M. Beard · S. Lock · L. McCrink · F. Adekunle · D. Roberts

- Per 1000 fragility fracture patients, 18 fractures (11 hip) prevented – ***net saving £21,000***

Secondary prevention

- Anti-osteoporosis treatment reduces the incidence of further fractures by ~50%
- If universally applied, coordinator-based systems in fracture units could
  - Prevent ~25% of the burden of disease from hip fractures
  - Save money

Risk of fragility fracture

FFN
Fragility Fracture Network
of the Bone and Joint Decade

Bone Strength

- Bone Density
- Bone Turnover
- Bone Architecture
- Skeletal Geometry
- Mineralisation

- Postural Instability
- Slow Responses
- Frailty
- Environment
- Lack of Padding

Falls Risk

FFN
Fragility Fracture Network
of the Bone and Joint Decade

SARCOPENIA

FRAILTY

FFN
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SARCOPENIA

FRAGILITY

OSTEOPOROSIS

Sarcopenia, frailty, rehabilitation

- Falls really are as important as osteoporosis
- Rehabilitation after fracture is inadequate
- Drug companies are more excited about anti-sarcopenic drugs than anti-osteoporotic
  - Except bone anabolics

But fractures will still occur

- So efficient, high quality care of the acute episode remains crucial
- FFN is the only international organisation that gives equal importance to prevention and treatment
- Although the FFN is multidisciplinary, the strongest professional group in it is orthopaedics – also unique

Summary

- Fragility fractures will present an unmanageable problem all over the world unless we act now
- Secondary prevention and multidisciplinary care in the acute episode are the keys to success
- The alliance between orthopaedics and geriatrics is powerful
- Continuous audit of hip fracture care, with real-time feedback to fracture units, empowers local champions to drive positive change