Falls and non-hip fragility fractures:
The past decade and the way ahead..

David Oliver

Regional NHFD Meeting, London September 2011
I: Epidemiology of falls and fractures in England
Falls Epidemiology

• 1 in 3 people > 65 and 1 in 2 > 80 fall yearly
• 7% of over 65s attend Emergency Department with a fall
• 40% of ambulance call-outs in over-65s due to falls
• 40% of Nursing Home residents fall twice a year or more
• Falls account for 35% of all patient safety incidents in hospital (270,000 in 2008/9)
• Predominantly a problem of ageing and frailty
Figure 5.8  Age specific hospital admission rates for accidental falls, England, 2005

Source: DH Health Episode Statistics 2005/06 ONS Mid year population estimates

(from APHO report: Indications of Public Health: Older People 2008)
Falls and Falls Injuries Account for more hospital bed days in SE region than MI, Heart Failure, Stroke Combined!

Source: DH Health Episode Statistics 2005/06 ONS Mid year population estimates

(from APHO report: Indications of Public Health: Older People 2008)
Fractures (England)

- 1 in 2 women and 1 in 5 men over 50 will fracture
- c 230,000 fragility fractures with 80,000 Hip
- 87% of direct spend on fractures is on Hip
- The typical hip fracture patient is medically complex and frail
  - Median Age 84
  - 10% die in 1 month
  - 25% die in 12 months
  - 30% need long term care
  - 70% suffer permanent new dependency in two or more Activities of Daily Living
  - 30% delirium post op
  - 30% demented pre-op
If these dates were 2009 and 2026?…a tale of missed opportunities?
Understanding falls and fragility fractures as long-term conditions

Half of hip fracture patients suffer a prior “herald” fragility fracture

Observation of the progression of osteoporosis reveals that half of hip fracture patients break another bone prior to their hip fracture occurring. Secondary preventative treatment as recommended by NICE TA161 could **prevent half of these hip fractures**.

Percentage of patients with hip fracture reporting prior fragility fracture

- **Lyles et al.** (5) n=2124, 45.3%
- **Edwards et al.** (6) n=632, 44.6%
- **Mclellan et al.** (7) n=701, 45.4%
Why falls and fractures are the unsolved epidemic of ageing and should be “the new stroke”

<table>
<thead>
<tr>
<th>The issues</th>
<th>Strokes and TIAs</th>
<th>Heart attacks</th>
<th>Fragility Fractures</th>
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<tbody>
<tr>
<td>Incidence/year (England)</td>
<td>110,000 (1)</td>
<td>146,000 (UK, 2)</td>
<td>210,000 (3)</td>
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<tr>
<td>Current trend</td>
<td>Falling</td>
<td>Falling</td>
<td>Rising</td>
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<tr>
<td>NHS bed days</td>
<td></td>
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<tr>
<td>NHS annual costs</td>
<td>£ 2.7 Billion</td>
<td></td>
<td>£ 2.3 billion (hip fracture)</td>
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DH and NHS Responses

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<tbody>
<tr>
<td>Practice</td>
<td>Acute stroke units</td>
<td>Coronary Care Units in every DGH</td>
<td>Multidisciplinary inpatient fracture services (30% trusts)</td>
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<tr>
<td></td>
<td>Telemedicine for thrombolysis</td>
<td>Primary Care QoF for vascular risk reduction – high compliance</td>
<td>Fracture Liaison Services</td>
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<td></td>
<td>Primary Care QoF for vascular risk reduction – high compliance</td>
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<td>Poor adherence to NICE</td>
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<tr>
<th>Monitoring</th>
<th>Bi-annual Stroke audit</th>
<th>Pain to needle time continuous national MINAP audit</th>
<th>Falls and Bone Health audits</th>
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<tr>
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<td>National Hip Fracture Database</td>
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<tr>
<th>Current achievements</th>
<th>Moderate but improving fast</th>
<th>Very Good</th>
<th>Poor- not improving</th>
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II: How this epidemiology translates to local services
Implications for Primary Care Trusts (PCT) of falls and fractures

In a typical PCT with 300,000 population, there may be 45,000 over 65s

- 360 hip fractures
- 1100 will have a fracture (hip, wrist, vertebrae, etc)
- 2,200 will attend A&E or MIU (a similar no. will call ambulance)
- 15,500 will fall (6,700 twice or more)
  Most will not call for help

Ageing demography means all this will increase 50% by 2020

w/ acknowledgements to Paul Mitchell
PCT Population of 300,000

£15M p.a. for new fractures and £50 M for ongoing health and social care costs

Post-menopausal women with new fracture each year

Post-menopausal women with prior fracture history

Post-menopausal women with osteoporosis

Post-menopausal women
BMJ June 2010. “Number of Oldest Old Doubles” – now 2.1% are over 85. By 2033, 1 in 4 over 65 with biggest increase in oldest old and 3.2 million over 85 (from 53 million)

<table>
<thead>
<tr>
<th>Age group</th>
<th>Population (thousands)</th>
<th>% change 2002–26</th>
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<tbody>
<tr>
<td></td>
<td>2002</td>
<td>2007</td>
</tr>
<tr>
<td>65–69</td>
<td>2,176</td>
<td>2,245</td>
</tr>
<tr>
<td>70–74</td>
<td>1,954</td>
<td>1,972</td>
</tr>
<tr>
<td>75–79</td>
<td>1,625</td>
<td>1,647</td>
</tr>
<tr>
<td>80–84</td>
<td>1,180</td>
<td>1,220</td>
</tr>
<tr>
<td>85+</td>
<td>956</td>
<td>1,085</td>
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<tr>
<td>All</td>
<td>7,891</td>
<td>8,169</td>
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Source: Review model estimates
III: What our guidelines tell us we should be doing about falls, bone fragility and fractures

From governmental bodies and professional societies

All the guidelines & audits are free on the internet
National Service Framework for Older People (Dept Health 2001)

- Standard 6
- “By 2005, all local health systems should have established an integrated service for the prevention of falls and fractures”
- “The aim of this standard is to reduce the number of falls resulting in serious injury and ensure effective treatment and rehabilitation for those who have fallen”
National Institute for Health and Clinical Excellence (NICE) (What Fox News calls “death panels”)

- Funded by government but at “arms length” from DH
- To ensure consistency of care across the country
- Produce independent appraisals of evidence on (cost) effectiveness
- Produces guidelines on:
  - Health technologies (drugs, procedures, equipment)
  - Clinical practice (treatment of people with specific conditions)
  - Health promotion and ill-health avoidance
- Uses “cost-per-QALY” in determinations of cost-effectiveness
Relevant NICE guidelines

• Assessment and prevention of falls in older people (2004)
• Osteoporosis primary prevention in postmenopausal women (alendronate, etidronate, risedronate, raloxifene and strontium) 2011
• Osteoporosis secondary prevention of fractures in postmenopausal women 2011 (update of 2008 guidance)
• Assessment of fracture risk and prevention of osteoporotic fractures in those at high risk (in development)
• The management of hip fracture in adults 2011
NICE Falls Guidelines 2004

Periodic case finding in Primary Care:
Ask all patients about falls in past year

- No falls
  - No intervention
- Recurrent falls
  - Gait/balance problems
- Single fall
  - Check for gait/balance problem
    - No problems

Patient presents to medical facility after a fall

Fall Evaluation*

Assessment
- History
- Medications
- Vision
- Gait and balance
- Lower limb joints
- Neurological
- Cardiovascular
- Fear and Function
- Osteoporosis Risk

Multifactorial intervention (as appropriate) *(No time to summarise evidence in this talk!)*
- Gait, balance, exercise - programs
- Medication - modification
- Postural hypotension - treatment
- Environmental hazards - modification
- Cardiovascular disorders - treatment

“By professionals with appropriate skills and experience”
NICE secondary prevention of fragility fractures in postmenopausal women

- Alendronate as first line for over 75s with fracture (Bone density scan – DXA not required)
- Or for those under 75 with T score < -2.5
- Risedronate and etidronate
  - for those who cannot tolerate alendronate or contraindication
  - Or based on algorithm for T score and independent clinical risk factors
- Raloxifene and strontium
  - for those who cannot tolerate alendronate or contraindication
  - Or based on algorithm for T score and independent clinical risk factors
- Adequate calcium and vitamin D for all
The “Blue Book”

Four big messages

1. Multidisciplinary expeditious approach to the management of fragility fracture patients

2. Reliable secondary prevention for falls and bone health

3. Chronic disease model

4. Quality assurance with the NHFD
Blue book is basis of standards for National Hip Fracture Database
Items recorded in NHFD

Participating hospitals

Completeness of data submitted for the 2010 National Report

Casemix

Process:

To orthopaedic ward in 4 hrs (Blue Book Standard 1)

Surgery in 48 hours and during normal working hours (Blue Book Standard 2)

Reason for no operation in 48 hours

Patients treated without surgery

Cementing of arthroplasties

Development of pressure ulcers (Blue Book Standard 3)

Preoperative medical assessment (Blue Book Standard 4)

Bone protection medication at admission

Bone health assessment and treatment at discharge (Blue Book Standard 5)

Specialist falls assessment (Blue Book Standard 6)

Secondary prevention overview

Trust length of stay

Discharge destination from Trust

Surgery in 36 hrs, with falls and bone health assessments

Casemix adjusted outcomes:

Funnel plot for return home from home at 30 days

Funnel plot for mortality at 30 days

Strategic Health Authority summary tables
Hip Fracture Best Practice Tariff (Based on Standards in NHFD)

- **Time to surgery**
  - Arrival in A&E (or diagnosis if an inpatient) to start of anaesthesia

- **Involvement of an (ortho)-geriatrician: All 4 required**
  1. Admitted under the joint care of a Consultant Geriatrician and a Consultant Orthopaedic Surgeon
  2. Admitted using an assessment protocol agreed by geriatric medicine, orthopaedic surgery and anaesthesia
  3. Assessed by a Geriatrician * in the perioperative period **
     - * Geriatrician defined as Consultant, NCCG, or ST3+
     - ** Perioperative period defined as within 72 hours of admission
  4. Postoperative Geriatrician-directed:
     - Multiprofessional rehabilitation team
     - Fracture prevention assessments (falls and bone health)
How the tariff works...

- NHFD captures compliance with clinical practice
- PCTs to monitor and make additional payments quarterly

Base tariff for each HRG
Additional payment for best practice
Reduction in base tariff for current compliance rate

2-part tariff for best practice
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
The 4 aims and how we achieve

The majority of post-menopausal women (84%*) have **not** suffered a fragility fracture. Strategies to case-find new and prior fracture patients could identify up to 50% of all potential hip fracture cases from 16% of the population.

- **Fracture liaison services**
  - 0.2 million women
    - 50% of hip fractures from 16% of the population

- **Primary care**
  - 1.3 million women
    - Post-menopausal women with **new** fracture each year
  - 3.2 million women
    - Post-menopausal women with **prior** fracture
  - 10.6 million women
    - Post-menopausal women with **silent** osteoporosis

**Public health approaches**

Advocacy/campaigning from charities and professional societies (Several parliamentary questions and meetings at all parliamentary groups. Ministerial summit and ministerial interest..)
Fragility fractures in the elderly, especially in women

4.67 The introduction of the best practice tariff for hip fracture in 2010 has proved successful in transforming the care on admission of those who suffer fragility fractures each year. PCTs are also asked to take steps to reduce incidence. The best way to prevent this transformative injury is to recognise precursor or "herald" fractures and give patients a bone health assessment and treatment when they first show clear signs of being at risk.
IV: Are we doing what these evidence-based guidelines tell us?

Service gaps, care gaps for individual patients and unwarranted variation
Services are variable in quality and many lack key evidence based components

Lack of integration between falls services and fracture services

Significant gaps along patient journey for falls and fractures

Inadequate levels of secondary prevention for both falls and bone health

Secondary prevention for non-hip fragility fracture is less good than for hip fracture
RCP 2008 falls and bone health audit (8,800 patients with hip and non-hip #. All localities)

<table>
<thead>
<tr>
<th>Multi-disciplinary falls risk assessment &amp; treatment</th>
<th>Non-Hip (%)</th>
<th>Hip (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adequate Fall history</td>
<td>19</td>
<td>14</td>
</tr>
<tr>
<td>Syncope considered</td>
<td>17 (19% yes)</td>
<td>22 (14% yes)</td>
</tr>
<tr>
<td>Medication review</td>
<td>31</td>
<td>44</td>
</tr>
<tr>
<td>Standing BP measured</td>
<td>13</td>
<td>23</td>
</tr>
<tr>
<td>CV examination</td>
<td>40</td>
<td>89</td>
</tr>
<tr>
<td>CV investigations</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>Vision assessment</td>
<td>10</td>
<td>19</td>
</tr>
<tr>
<td>Vision impaired</td>
<td>38 (most treated)</td>
<td>40 (most treated)</td>
</tr>
<tr>
<td>Gait &amp; balance assessed</td>
<td>28</td>
<td>68</td>
</tr>
<tr>
<td>Exercise programme</td>
<td>22</td>
<td>44</td>
</tr>
<tr>
<td>Home hazard assessed</td>
<td>14</td>
<td>51</td>
</tr>
</tbody>
</table>
Fracture audit RCP 2008 (8,800 fractures. All localities)

Secondary bone assessment and treatment

<table>
<thead>
<tr>
<th></th>
<th>Non-Hip (%)</th>
<th>Hip (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>OP risk assessed</td>
<td>19</td>
<td>35</td>
</tr>
<tr>
<td>DEXA 65-74 y (TAG87)</td>
<td>19</td>
<td>18</td>
</tr>
<tr>
<td>50% showed OP</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Calcium/ Vit D at 16 w</td>
<td>23</td>
<td>52</td>
</tr>
<tr>
<td>Bisphosphonate (or other)</td>
<td>20</td>
<td>43</td>
</tr>
</tbody>
</table>

Patient Involvement

Documented rates of information sharing and goal setting with patients/carers was very low
Falling standards, broken promises

Report of the national audit of falls and bone health in older people 2010
“Falling standards, broken promises”

- All 147 acute hospitals and 90% of PTCs
- 9,500 patients (6,083 with non hip fractures and 3084 hip fractures)
- “For non-hip fractures, only 37% of local services provided a formal fracture liaison service for case finding, investigation and follow up
- Only 32% of patients with non hip fractures have a multidisciplinary falls risk assessment (as opposed to 68% of hip fracture patients)
- only 32% of non-hip fracture patients and 67% hip fracture patients had a clinical assessment for osteoporosis and fracture risk.
- There has been a modest improvement since the 2008 audit in bone health treatment, with 33% of non hip fracture and 60% of hip fracture patients receiving NICE guideline-recommended treatment with bone protective agents.
- Only 34% of non hip fracture patients are receiving a gait and balance
- “despite some modest improvements, major variations between organisations persist and deficiencies in care remain widespread
Lessons from all of this...

- Change requires multiple approaches and concerted/sustained effort and takes time
- Good clinical leadership from individuals and colleges/societies collaborating
- Good practice guidance
- Dissemination/mentorship to spread and embed
- Advocacy and momentum from charities etc
- On the radar of politicians and policy-makers
- Power of national audits and transparent data & comparison between sites
- Financial system incentives and penalties
V: The new policy landscape in the “reforming” English NHS

And relevance to falls, bone fragility and fractures
Flat funding of NHS from 2011-14. We need to make efficiency savings of £15-20bn or 4% each year just to stand still.
To achieve the efficiencies

- 46% of acute care spend. 37% of primary care spend. 60% of social care spend
- Is in people over 65
- We have to target the group with the biggest activity, biggest variation, biggest care gaps, highest use of multiple services
  - i.e. Older people with complex needs, frailty, multiple long term conditions
- A good time to be a specialist in care of older people?
National Hip Fracture Database

Chart 21

Surgery in 36 hrs, with falls and bone health assessments

- Surgery in 36 hours with falls and bone health assessments
- Surgery > 36 hours or without falls or bone health assessments
3 fold variation

Variation in the number of emergency admissions of 65+ patients per 10,000 population, 2009/10 (England)

Minimum: 1,145
Maximum: 2,805
Mean: 1,881
Median: 1,821

NB Excludes admissions where PCT is unknown; mid-2009 PCO population estimates used
Variation in the number of emergency bed days for 65+ patients per 10,000 population, 2009/10 (England)

Minimum: 9,869
Maximum: 33,551
Mean: 18,381
Median: 17,622

NB Excludes admissions where PCT is unknown; no data for one PCT; mid-2009 PCO population estimates used
May 2010 All Change...
The Political Context
The Coalition: our programme for Government (May 2010)

• We will establish a commission on long-term care.
• We will break down barriers between health and social care funding to incentivise preventative action.
• We will put patients in charge of decisions about their care
• We will extend the greater roll-out of personal budgets to give people and their carers more control and purchasing power.
• We will use direct payments to carers and better community-based provision to improve access to respite care.
• We will help elderly people live at home for longer through solutions such as home adaptations and community support programmes.
• We will prioritise dementia research.
• We will improve access to respite care
• We are committed to an NHS that is free at the point of use and available to everyone based on need, not the ability to pay
• We will improve discharge on leaving hospital and focus on support and reablement to prevent readmission
Equity and excellence: Liberating the NHS
White Paper – “Liberating the NHS”

- **putting patients first** through more information and greater choice and control over their care – ‘no decision about me without me’
- **improving healthcare outcomes** by ensuring professionals are free to focus on improving health outcomes so that these are amongst the best in the world. Improving the quality of care will become the main purpose of the NHS
- **autonomy and accountability** involving giving power back to NHS professionals and healthcare providers, giving them more autonomy and, in return, making them more accountable to patients and the public
- **cutting bureaucracy and improving efficiency** by continuing to reinvest savings of up to £20bn in front-line services by 2014 in line with the Quality, Innovation, Productivity and Prevention (QIPP) agenda.
The new system

**Department of Health**

- NHS Commissioning Board
- GP commissioning consortia

**NHS**

- Monitor (economic regulator)
- CQC (quality regulator)
- Providers

**Social care**

- (in local authorities)

**Public Health England**

- (part of DH)

**Local authorities (via health & wellbeing boards)**
How will the NHS Commissioning Board breathe life into the NHS Outcomes Framework?

NHS OUTCOMES FRAMEWORK

1. Domain 1: Preventing people from dying prematurely
2. Domain 2: Enhancing the quality of life for people with LTCs
3. Domain 3: Recovery from episodes of ill health / injury
4. Domain 4: Ensuring a positive patient experience
5. Domain 5: Safe environment free from avoidable harm

NICE Quality Standards
(Building a library of approx 150 over 5 years)

Commissioning Outcomes Framework
Commissioning Guidance
Provider payment mechanisms
- tariff
- standard contract
- CQUIN
- QOF

Commissioning / Contracting
NHS Commissioning Board - Specialist services and primary care
GP Consortia – all other services

NICE Quality Standards. 5-10 short statements on crucial parts of care pathway, each backed by “measureables”
Relevant outcome indicators e.g.: 

- Life expectancy in people over 75
- Health-related quality of life for carers
- Emergency admissions for conditions not usually requiring hospitalisation
- Emergency readmissions within 28 days
- For fragility fracture, the proportion returning to their previous level of mobility at 30 and 120 days
- Proportion of people over 65 who are still at home 90 days after discharge to rehab services
- Patient experience of care measures?
- Percentage of people attending hospital with falls who have fallen in the previous year
Proposed National Quality Standards e.g.

- Falls prevention and treatment
- Fracture prevention and treatment
- Hip fracture
Comprehensive Spending Review for 2011-14

- Settlement for NHS just above inflation (compared to 4-5% yearly increases for past decade) c£104bn per annum
- Up to £300 m for re-ablement
- Additional £162m to social care for “winter pressures”
- Up to £1bn to local government via the NHS
- Further £1bn to social care services
- 26% cuts in grants to local government over 3 years
GP Contract Quality and Outcomes Framework proposed standards (*pilot now completed*)

- All patients with previous fragility fracture to be on a register
- All patients over 75 with previous fragility fracture to be on bone-protective therapy (unless contraindication)
- All patients on bone protective therapy to be on co-prescribed calcium and Vitamin D (unless contraindication)
- All patients under 75 with previous fragility fracture or at risk of osteoporosis offered DXA Scan
- Those diagnosed with osteoporosis to be offered bone protective therapy (unless contraindication)
Health and Wellbeing Boards

- Health and wellbeing boards will bring together locally elected councillors with the key commissioners in an area, including representatives of clinical commissioning groups, directors of public health, children’s services and adult social services, and a representative of local Healthwatch.

- By involving democratically elected representatives and patient representatives, and bringing them together with local commissioners across health, public health, and social care; we will significantly strengthen the democratic legitimacy of commissioning decisions, as well as providing a forum for challenge, discussion, and the involvement of local people.

- Hopefully, falls and fractures will be a focus
In wake of Dilnot Commission and Futures Forum

• Focus on integration, prevention, early intervention
For all of this

- Much of the change has to be delivered by clinical leaders (i.e. us) – not waiting to be told to do it and given the money
- At the bedside
- In our units and trusts
- At board/organisational level
- Via colleges, specialist societies, professional associations
- Via full involvement of patients and carers
Thank you

- Questions.....?
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- David.Oliver.1@city.ac.uk