Fragility fracture prevention in primary care

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Why does osteoporosis matter?

because ...
Worldwide a fragility fracture occurs every 3 seconds
Why does fragility fracture prevention matter? Projected incidence of hip fractures by 2050

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

Projected to reach 3.25 million in Asia by 2050

Estimated no of hip fractures: (1000s)
Adapted from Cooper C et al, Osteoporosis Int, 1992;2:285-289

Why does osteoporosis matter in New Zealand?

- Because New Zealand’s 1 million baby boomers began to retire in 2011
- By the late 2050s, one in four New Zealanders will be aged ≥65 years
- The population aged ≥85 years is set to grow at least 3-fold, from 72,500 people in March 2011 to between 250,000 and 420,000 by 2061
- 3,803 cases of hip fracture occurred in 2007, at a cost of NZ$105 million
- The annual incidence of hip fractures in women aged >60 years in 1991 was 1,830 which had risen to 2,639 by 2007, an increase of 44%
- Audits throughout the world have shown that the majority of patients presenting with fragility fractures do not receive intervention to prevent secondary fractures
  - Studies from New Zealand identified a similar ‘care gap’ across the country

5. Pharmacoeconomics 1996;9(3):231-245 Lane A
A systematic approach to fracture prevention

- **Secondary prevention**
  - Patients with new fracture

- **Primary prevention**
  - Patients with prior fracture
  - Individuals at high fracture risk
  - Individuals at intermediate fracture risk
  - Individuals at low fracture risk

- Fracture Liaison Services
- Primary care case-finding
Hip fracture care and prevention in the UK
A consensus on a systematic approach
Signal fractures
Patients presenting with hip fracture

Percentage of patients with hip fracture reporting prior fragility fracture

<table>
<thead>
<tr>
<th>Study</th>
<th>Percentage</th>
<th>Sample Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lyles et al</td>
<td>45.3</td>
<td>n=2038</td>
</tr>
<tr>
<td>Edwards et al</td>
<td>44.6</td>
<td>n=632</td>
</tr>
<tr>
<td>McLellan et al</td>
<td>45.4</td>
<td>n=704</td>
</tr>
</tbody>
</table>

Graph courtesy of Dr. JR Bayly

Fracture risk and ease of case-finding
Effective targeting of healthcare resources

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 Service
The Glasgow Model: aims and service structure

• Offer assessment to all patients over 50 years presenting with a fragility fracture

• Glasgow FLS is delivered by a Nurse Specialist supported by a Lead Clinician in Osteoporosis

• Nurse Specialist identifies patients with new fragility fractures:
  – admitted to the orthopaedic inpatient ward, and
  – managed as outpatients through the fracture clinic

• The Nurse Specialist arranges attendance of appropriate patients at the “one stop” FLS clinic where BMD is measured by DXA to assess future fracture risk

• Treatment for secondary fracture prevention initiated by the FLS when merited on basis of future fracture risk

• Older patients, where appropriate, are identified and referred onto the falls service/falls pathway

• Long-term management plans agreed by protocol with local general practice

Fracture Liaison Service
Service structure

1. FLS identifies fracture patients
2. FLS assessment
3. Osteoporosis treatment
4. Falls risk assessment*
5. Exercise programme
6. Education programme

Comprehensive communication of management plan to GP supported by fully integrated FLS database system

(Adapted from) BOA-BGS 2007 Blue Book. http://www.nhfd.co.uk/
* Older patients, where appropriate, are identified and referred for falls assessment
NHS Quality Improvement Scotland national audit
FLS vs other models: Outcome after hip fracture by centre

NHS Quality Improvement Scotland national audit
FLS vs other models: Outcome after wrist fracture by centre

The Bone and Joint Decade in England
Hospital admissions for hip fractures

Admissions for Hip Fractures in England
(ICD S72.0, 72.1 and 72.2)

Growth 1.8% per year

Hospital Episode Statistics for England. Graph Courtesy of Dr. Jonathan Bayly
The Bone and Joint Decade in Glasgow
Hospital admissions for hip fractures

Emergency admissions with hip fracture (codes S.72.0-72.2) ↓ by 7.3%
The Glasgow Fracture Liaison Service
A cost-saving intervention

• In May 2011, a formal cost-effectiveness analysis of the Glasgow FLS was published

• This study concluded that 18 fractures were prevented, including 11 hip fractures, and £21,000 was saved per 1,000 patients managed by the Glasgow FLS versus UK ‘usual care’

Osteoporosis International 2011; 22(7):2083-98 Wolowacz SE et al
Hip fracture care and prevention in the UK
A consensus on a systematic approach
Professional consensus guidance on hip fractures
2007 Blue Book and National Hip Fracture Database

• A systematic approach to hip fracture care and prevention$^{1-3}$

• Hip fracture care
  – Blue Book Chapter 1
  – Effective ortho-geriatric services for hip fracture patients
  – Universal National Hip Fracture Database participation

• Hip fracture prevention
  – Blue Book Chapter 2
  – An FLS for every hospital to identify all new fragility fracture patients
  – Pro-active case-finding of all unassessed prior fragility fracture patients

1. BOA-BGS 2007 Blue Book
2. National Hip Fracture Database
3. NHFD Toolkit – Version 3
All available at http://www.nhfd.co.uk/
Adoption of FLS across the UK
The National Osteoporosis Society Manifestos

1: The management of falls, fragility fractures and osteoporosis

The challenge:

We want a Fracture Liaison Service linked to every hospital that receives fragility fractures, to ensure that every fragility fracture patient gets the treatment and care they need.
Falls and fracture care and prevention
A road map for a systematic approach

Stepwise implementation - based on size of impact

- **Hip fracture patients**
  - Objective 1: Improve outcomes and improve efficiency of care after hip fractures – by following the 6 “Blue Book” standards

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

- **Individuals at high risk of 1st fragility fracture or other injurious falls**
  - Objective 3: Early intervention to restore independence – through falls care pathway linking acute and urgent care services to secondary falls prevention

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

1. DH Prevention Package for Older People
2011 National Hip Fracture Database Report
Fracture care & secondary prevention for 53,433 cases

The National Hip Fracture Database National Report 2011

In partnership with:

The Information Centre


Towards a National Hip Fracture Registry
Enhancing Outcomes for Older People

Who are we?
In October 2011 a group of clinicians representing all Australian States and New Zealand gathered in Sydney with the shared goal of improving care of hip fracture patients.

As a first step toward this goal it was agreed that a National Hip Fracture Steering Group be set up to drive the establishment of a National Hip Fracture Registry. In the absence of any current funding, members were selected based on willingness to roll up their sleeves and undertake the groundwork needed to make it happen.

Over the coming months we will introduce all the members of the Steering Group as well as reporting on progress with development of the Registry.

Steering Group
Jacqueline Close – Co-Chair (ANZLSIM)
Ian Harris – Co-Chair (AOA)
Laura Ahmed
Paul Mitchell
Stewart Fleming
Hannah Seymour
Mellick Cheah (OA)
Roger Harris
Rebecca Mitchell
Betty Ramsay
Richard Hallwell (ANZCA)

Why a National Hip Fracture Registry
Hip fracture is the most serious and costly fall-related injury suffered by older people. The study has estimated 18,318 hip fractures among Australians aged 65 years in 2000-07 and 3,803 among New Zealanders in 2007. As 450 million baby boomers begin to retire, healthcare systems throughout the world must prepare to develop systematic approaches to hip fracture care and prevention.

The quality of care provided those who sustain a fractured hip has been shown to be dependent upon orthopaedic and geriatric service configurations. In the absence of effective systems of care, key markers of quality - including time to surgery, complication rates, re-admission rates and length of stay - have been demonstrated to vary considerably.

Furthermore, a growing body of published literature suggests that provision of secondary preventative care post hip fracture (osteoporosis assessment/treatment and falls prevention strategies) is not routinely delivered. This secondary prevention care gap leaves hip fracture patients needlessly exposed to risk of subsequent falls and fractures.

As stated previously on more than one occasion:
"It costs less to provide high quality care"
2011 National Hip Fracture Database Report
Blue Book core standards

1. 58% admitted to an orthopaedic ward within four hours
2. 87% receive surgery within 48 hours
3. 3% reported as having developed pressure ulcers
4. 37% assessed preoperatively by an ortho-geriatrician
5. 66% discharged on bone protection medication
6. 81% received a falls assessment prior to discharge
ABSTRACT

closing the osteoporosis management gap in primary care: a secondary prevention of fracture programme

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Keywords: Biphosphonates – Fracture – Osteoporosis – Hip fracture

Background: Failure of current treatment and secondary prevention to reduce fracture risk in patients with osteoporosis. Identification of osteoporosis risk and the implementation of appropriate treatment will improve the overall mortality and quality of life.

Aims: To undertake a study into the current management of osteoporosis in Lanarkshire, to determine the current management gap in terms of appropriate osteoporosis management, and to evaluate the secondary prevention of hip fracture.

Methods: A diagnostic team consisting of a locum medical registrar and a nurse in primary care, visited 13 GP practices in Lanarkshire. Within each practice, patients with osteoporosis were identified by collating information from their medical records. Current treatment was determined and treatment was reviewed and prescribed according to current practice guidelines.

Results: 2180 (44%) women returned the questionnaire and were evaluated, 50% were correctly identified as at risk for osteoporosis. Of these, 20% had sustained 1 fracture, of whom 45% had previously had BMD testing and 16% (4%) were receiving treatment. There were 45% women with no history of fracture that had a high risk for fracture. Of those who had sustained 1 fracture, 43% had not received treatment that had a high risk for fracture. The majority (50%) of women who had sustained 1 fracture had not received treatment that had a high risk for fracture. Of the 10 women who had sustained 1 fracture, 45% had 1 at risk factor (30% had 2 and 27% had 3 risk factors). Of the 10 women who had sustained 1 fracture, 45% had 1 at risk factor (30% had 2 and 27% had 3 risk factors). Of the 10 women who had sustained 1 fracture, 45% had 1 at risk factor (30% had 2 and 27% had 3 risk factors).

Conclusions: A simple manual identified patients with prior fractures and with osteoporosis. Prior treatment was confirmed to be a strong predictor of subsequent fractures. 50% of women with a fracture history had low BMD and 50% had no prior bone mineral density (BMD) testing. Of the 10 women who had sustained 1 fracture, 45% had previously had BMD testing and 16% (4%) were receiving treatment. There were 45% women with no history of fracture that had a high risk for fracture. Of those who had sustained 1 fracture, 43% had not received treatment that had a high risk for fracture. Of the 10 women who had sustained 1 fracture, 45% had 1 at risk factor (30% had 2 and 27% had 3 risk factors). Of the 10 women who had sustained 1 fracture, 45% had 1 at risk factor (30% had 2 and 27% had 3 risk factors).

9 Presented at the National Osteoporosis Society, Tramore Conference, 28 November–1 December 2004, Haymstow, UK
### Secondary prevention in primary care

**The Lanarkshire experience**

- 617 women with 1 fracture: 53 on treatment
- 161 women with 2 fractures: 12 on treatment
- 50 women with 3 fractures: 11 on treatment
- 15 women with 4 fractures: 4 on treatment
- 9 women with 5 fractures: 1 on treatment
- 852 women with ≥1 fracture: 81 on treatment
Secondary prevention in primary care
The Lanarkshire experience

Key Findings

• 21% of women ≥ 65 had suffered a prior fracture
• 86% had low bone mass
• 52% were osteoporotic
• 70% of women ≥ 75 with fracture are osteoporotic
• Before programme, 9% of fracture patients treated
• After programme, 64% of fracture patients treated
• National guidance implemented

The final piece of the UK policy puzzle
The UK GP Contract 2012-13

- **OST1**: The practice can produce a register of patients:
  
  - Aged 50-74 years with a record of a fragility fracture after 1 April 2012 and a diagnosis of osteoporosis confirmed on DXA scan
  
  - Aged 75 years and over with a record of a fragility fracture after 1 April 2012

- **OST2**: The percentage of patients aged between 50 and 74 years, with a fragility fracture, in whom osteoporosis is confirmed on DXA scan, who are currently treated with an appropriate bone-sparing agent

- **OST3**: The percentage of patients aged 75 years and over with a fragility fracture, who are currently treated with an appropriate bone-sparing agent
Clear, concise information on all aspects of osteoporosis management

How to implement QOF, and much more

Keep updated by joining our email list
The 7 I’s of osteoporosis management:

- **Introduction**: An introduction to osteoporosis, its causes and the impact it has on society
- **Identification**: Case-finding individuals that are at high risk of fractures or an injurious fall, or who have already suffered a fragility fracture
- **Investigation**: Using diagnostic and risk assessment tools to assess those older people that will benefit most from treatment
- **Initiation**: Treatment options, lifestyle changes and other interventions to reduce fracture risk
- **Information**: Effective communication between healthcare professionals and with patients to deliver optimal long-term care
- **Incentives**: How the Quality and Outcomes Framework and other incentives reward good management of fracture risk
- **Implementation**: Putting best practice into every practice
Osteoporosis Resources for Primary Care
www.osteoporosis-resources.org.uk

Launched February 2012

Supported by
Royal College of General Practitioners
National Osteoporosis Society
Osteoporosis is a long-term condition\textsuperscript{1}
Only General Practice can deliver long-term solutions

\textbf{‘Hip fracture is all too often the final destination of a thirty year journey fuelled by decreasing bone strength and increasing falls risk’\textsuperscript{2}}

Whilst we have been talking,

342 people have had a fragility fracture,

60 people have broken their hip

30/60 let us know they were coming
Acknowledgements

• The work from the UK described in this presentation represents the efforts of numerous colleagues and their respective organisations over the last decade

• Major contributions from the following individuals should be highlighted:

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