A systematic approach to musculoskeletal conditions: A case study from the UK

Paul Mitchell
University of Derby, UK
Synthesis Medical Ltd – UK and New Zealand

4th May 2012
NSW Agency for Clinical Innovation
2nd Annual Musculoskeletal Network Forum

Kerry Packer Education Centre Royal
Prince Alfred Hospital, NSW
or …

Turning our world upside-down for the better

Paul Mitchell  
University of Derby, UK  
Synthesis Medical Ltd – UK and New Zealand

4th May 2012  
NSW Agency for Clinical Innovation  
2nd Annual Musculoskeletal Network Forum

Kerry Packer Education Centre Royal  
Prince Alfred Hospital, NSW
Worldwide a fragility fracture occurs every 3 seconds
The British world view
The Antipodean world view

The Hobo-Dyer Equal Area Projection

This new map belongs to the family of Cylindrical Equal Area projections in which the latitude and longitude lines form a rectangular grid. Other projections in this family include the Lambert, Cylindrical, Eckert, and Peter projections. In the present case the "cylinder" is assumed to wrap around the globe and cut through it at ±35° north and south. In order to preserve the equal area property the shapes of the landmasses become progressively flattened towards the poles, but shapes between 45° north and south are well preserved.
I LIVE AT THE EDGE OF THE UNIVERSE LIKE EVERYBODY ELSE.
Fracture Liaison Services
A worldwide solution to a worldwide problem

The Hobo-Dyer Equal Area Projection

This new map belongs to the family of Cylindrical Equal Area projections in which the latitude and longitude lines form a rectangular grid. Other projections in this family include the Lambert, Cyl, Gall, Kronen, and Peters projections. In the present case the “cylinder” is assumed to wrap round the globe and cut through it at 40°/north and south. In order to preserve the equal area property the shapes of the landmasses become progressively flattened towards the poles, but shapes between 40° north and south are well preserved.
National policy and clinical guidelines in the UK
UK population and healthcare geography\textsuperscript{1,2}

As of mid-2007\textsuperscript{2}:
\begin{itemize}
\item UK population \hspace{1cm} 61.0 million
\item England \hspace{1cm} 51.1 million
\item Scotland \hspace{1cm} 5.1 million
\item Wales \hspace{1cm} 3.0 million
\item Northern Ireland \hspace{1cm} 1.8 million
\end{itemize}

Over 80s are fastest growing sub-population:
\begin{itemize}
\item 5\% of UK population
\item 2.7 million individuals
\item Grown by 1.2 million since 1981
\end{itemize}

Demography by country:
\begin{itemize}
\item England \hspace{1cm} 17M \geq 50 yrs, 4M \geq 75 yrs
\item Scotland \hspace{1cm} 1.8M \geq 50 yrs, 0.4M \geq 75 yrs
\item Wales \hspace{1cm} 1.1M \geq 50 yrs, 0.3M \geq 75 yrs
\item N.I. \hspace{1cm} 0.5M \geq 50 yrs, 0.1M \geq 75 yrs
\end{itemize}

Hip fracture care and prevention in the UK
A consensus on a systematic approach
‘Signal’ or ‘Herald’ Fractures
An opportunity to break the fragility fracture cycle

Fracture Free at Fifty

Non-hip fragility fracture

Secondary non-hip fragility fracture

Hip fracture

Secondary non-hip fragility fracture

Unrecognised vertebral fragility fracture

Fracture Free for Life

Hip Fracture Free for Life

Fracture Free Recovery

Secondary non-hip fragility fracture

Second hip fracture

Signal fractures
Patients presenting with hip fracture

Percentage of patients with hip fracture reporting prior fragility fracture

Lyles et al 1
Edwards et al 2
Mclellan et al 3

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

Glasgow Fracture Liaison Service
Service structure

New Fracture Presentation → Emergency Department & X-Ray

Orthopaedic Trauma → Orthopaedics Inpatient ward
Emergency Department → Outpatient Fracture clinic

1. FLS identifies fracture patients
2. FLS assessment

Osteoporosis treatment

Falls risk assessment*

Exercise programme

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*
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’.
Hip fracture care and prevention in the UK
A consensus on a systematic approach

Professional organisations
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

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1. BOA-BGS 2007 Blue Book
2. National Hip Fracture Database
3. NHFD Toolkit – Version 3
All available at [http://www.nhfd.co.uk/](http://www.nhfd.co.uk/)
Guidance applicable throughout UK 2007 Blue Book and National Hip Fracture Database

• The Blue Book highlights the need for consistent delivery of NHFD standards 5 and 6\textsuperscript{1,2}:

“Establishment of an integrated Fracture Liaison Service in every UK hospital, which operates in close collaboration with local general practice, offers the optimal system of healthcare delivery to implement NICE guidance consistently for all patients presenting with fragility fractures.”

1. BOA-BGS 2007 Blue Book
2. National Hip Fracture Database
Both available at [http://www.nhfd.co.uk/](http://www.nhfd.co.uk/)
A declaration of interdependence
Consensus amongst the professional organisations

We hold these truths to be self-evident, that all hip fracture sufferers are created equal, that they are endowed by their Creator with certain unalienable Rights, that among these are:

- Surgery to be conducted in an appropriate timeframe
- Effective orthopaedic – orthogeriatrician co-care to be provided
- A determined effort to be made to prevent secondary falls and fractures
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.

Royal College of Physicians national audit Falls and bone health services 2009

## RCP-CEEU national organisational audit 2009
Reported by English Region and Locality

### London Strategic Health Authority
Healthcare setting in alphabetical order

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### Domain 3: Structure and Staffing

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1. National Audit of the Organisation of Services for Falls and Bone Health for Older People. 2009. Available for download from: [http://www.rcplondon.ac.uk/clinical-standards/ceeu/Current-work/Falls/Pages/Audit.aspx#round2_audit_2008](http://www.rcplondon.ac.uk/clinical-standards/ceeu/Current-work/Falls/Pages/Audit.aspx#round2_audit_2008)
RCP-CEEU national organisational audit 2009

Recommendations

• Primary care organisations (PCOs) should develop commissioning strategies that include:
  - Case finding systems in hospital and community settings to identify high risk fallers
  - Adherence to NICE treatment guidelines with monitoring by local audit
  - Clinical leaders including a consultant with job plan commitment
  - A Fracture Liaison Service
  - Widespread and accessible evidence-based exercise programmes
  - Targeted use of validated home safety assessments

• The Department of Health should review how it can best support these developments by:
  - Provision of advice on commissioning
  - Strengthening incentives
  - Provision of useful metrics for falls prevention, fractures and osteoporosis treatments

Hip fracture care and prevention in the UK
A consensus on a systematic approach
Falls and fracture care and prevention
A road map for a systematic approach

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

Stepwise implementation - based on size of impact

1. DH Prevention Package for Older People
2011 National Hip Fracture Database Report
Fracture care & secondary prevention for 53,433 cases
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
Hip fracture care and prevention in the UK
A consensus on a systematic approach
Hip fracture care and prevention in the UK
A consensus amongst pharmaceutical manufacturers
National Osteoporosis Society & UK adoption of FLS
FLS Learning Events – October 2010

Fracture Liaison Services
Better outcomes for patients, better value for the NHS

Attend a free one day learning event to find out how Fracture Liaison Services (FLS) can:

- Improve quality and reduce costs
- Reduce unscheduled admissions
- Provide high-quality preventative care

And learn more about:

- Why FLS are effective
- What your FLS should do
- Practical steps to develop your service

National Osteoporosis Society & UK adoption of FLS
FLS Learning Events – the bottom line

• Fracture Liaison Services deliver ...

• ... innovative, preventive care ...

• ... that will improve quality and reduce costs ...

• ... through a reduction in unscheduled emergency admissions

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

Supported by Royal College of General Practitioners and National Osteoporosis Society
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
Fracture Liaison Services: A worldwide solution to a worldwide problem
Fracture Liaison Services: A worldwide solution to a worldwide problem
Hip fracture care and prevention across the world
An emerging consensus on a systematic approach
Hip fracture care and prevention
The building blocks for consensus

Molecular model courtesy of Dr. Rick Dell
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:

  - **Professionals and their organisations:** Dr. Alastair McLellan (Western Infirmary, Glasgow), Dr. Stephen Gallacher (Southern General Hospital, Glasgow), Sister Mayrine Fraser (Western Infirmary, Glasgow), Sister Carol McQuillian (Southern General Hospital, Glasgow), Dr. Eamonn Brankin (Coatbridge, Scotland), Dr. Jonathan Bayly (University of Derby), Dr. Alun Cooper (Crawley, England), Professor David Marsh (British Orthopaedic Association), Dr. Finbarr Martin (British Geriatrics Society), Dr. Colin Currie (NHFD), Dr. Robert Wakeman (NHFD), Maggie Partridge (NHFD), Professor David Reid (University of Aberdeen), Professor Roger Francis (Newcastle University), Professor Opinder Sahota (Nottingham University), Professor Cyrus Cooper (Universities of Oxford and Southampton), Professor Juliet Compston (University of Cambridge)

  - **Policymakers:** Professor Keith Willett (Oxford University and Department of Health in England), Professor David Oliver (City University and Department of Health in England), Anne Macleod (Department of Health in England), Nye Harries (Department of Health in England)

  - **Patient society:** National Osteoporosis Society – Anne Thurston, James Cooper, Juliette Brown

  - **Pharmaceutical manufacturers:** Dr. Femi Adekunle (Novartis Pharmaceuticals UK Ltd), Emma Gilbert (Amgen), Eddie Kerr (Roche Products Ltd), Mark Waker (London, England), Alan Potter (Stroud, England), Chris Boulton (Amersham, England)