Preventing the next fracture

David Marsh
Kristina Åkesson
An epidemiological emergency

• The ageing population will lead to massive increase in hip fractures over next 25 years
  In Europe and USA:
  – 2X the number of cases
  – 3X the cost
• In Asia and South America – 6X increase
• Current systems will not be able to cope
• Unless we do something about it
Earlier fractures signal the hip fracture

Morbidity
Dependence

Age

50 60 70 80 90

Colles' fracture
Vertebral fracture
Hip fracture

No fractures – increasing morbidity due to ageing alone

Added morbidity from fractures

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

<table>
<thead>
<tr>
<th>Intervention</th>
<th>Target</th>
<th>100%</th>
<th>100%</th>
<th>100%</th>
<th>~70%</th>
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<tbody>
<tr>
<td>Osteoporosis assessment</td>
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<td>DXA referral (65-74 years)</td>
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<td>Supplementation with calcium + D3</td>
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<td>Treatment with osteoporosis medication</td>
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Target values for osteoporosis assessment, DXA referral, Supplementation with calcium + D3, and Treatment with osteoporosis medication are set at 100%, with a target of approximately 70% for non-hip injuries. The chart shows the percentage completion for each intervention for hip and non-hip fractures, with the red bars representing hip fractures and the yellow bars representing non-hip fractures. 

Secondary prevention

• Secondary prevention is more effective than primary prevention

• A systems approach is needed, where capture of patients is *automatic*
NEW FRACTURE

INPATIENT
ORTHO/TRAUMA WARD

OUTPATIENT
FRACTURE CLINIC

Fracture Liaison Nurse

OSTEOPOROSIS SERVICE

FALLS PREVENTION SERVICE

EDUCATION PROGRAMME

GP FOR LONG-TERM FOLLOW-UP

CAPTURE THE FRACTURE

Kristina Åkesson, MD, PhD
Chair IOF Fracture working group & Capture the fracture
Professor, senior consultant
Department of Orthopedics, Skane University Hospital
SWEDEN

www.capturethefracture.org
Today’s Discussion

- Capture the Fracture overview
- Best Practice Framework
- Best Practice Recognition & FLS map
- Evaluation methodology
- Results (initial)
All about IOF Capture the Fracture Programme

A global campaign for the prevention of secondary fractures by facilitating the implementation of Fracture Liaison Services (FLS)

www.capturethefracture.org
What we Know

The Fracture Cascade + The Care Gap

One Fracture

More Fractures

Healthcare systems around the world are failing to capture the fracture...and prevent the second fracture.

www.capturethefracture.org
A Proven Solution

Fracture Liaison Services (FLS) Coordinator-based models of care

- facilitate risk assessment
- facilitate bone mineral density testing and osteoporosis education and care
- have been shown to be cost-saving

Marsh D et al. Osteoporosis Int 2011:1642
COORDINATOR-BASED SYSTEM

IDENTIFICATION
- FRACTURE
  - Inpatient

IDENTIFICATION
- FRACTURE
  - Outpatient

INVESTIGATION
- Triage / Risk Assessment
- Bone density

INVESTIGATION
- Triage / Risk Assessment
- Bone density

INTERVENTION
- Pharmacological
- Lifestyle
- Falls
- Exercise
- Education

INTERACTION - INFORMATION
- Primary care
- Specialists

Adapted from McLellan et al OI 2003, 14:1028-1034.
Coordinator-based System

Adapted from McLellan et al. IOI 2003, 14:1028-1034.
Capture the Fracture

- An initiative of the International Osteoporosis Foundation (IOF)
- Launched in 2012
- www.capturethefracture.org
Steering Committee

- Prof Kristina Åkesson, Chair Capture the Fracture, Skåne University Hospital SWE
- Prof Cyrus Cooper, Chair IOF Committee of Scientific Advisors, MRC Lifecourse Epidemiology Unit, University of Southampton & University of Oxford UK
- Dr Alastair McLellan, Gardiner Institute Western Infirmary UK
- Paul Mitchell, Synthesis Medical Limited NZL
- Dr Kassim Javaid, University of Oxford UK
- Judy Stenmark, IOF Chief Executive Officer
- Dr Dominique Pierroz, Science Manager, IOF
- Carey Kyer, Capture the Fracture Coordinator, IOF
- Dr Muriel Schneider, Capture the Fracture Coordinator, IOF

www.capturethefracture.org

International Osteoporosis Foundation
Campaign structure

Set Standards
- Best Practice Framework
- Best Practice Recognition/application
- Showcase of Best Practices/map

Facilitate Change
- Mentorship programme
- Implementation guides & toolkits
- Facilitated grant support

Create Awareness
- Website www.capturethefracture.org
- Resources
- Communication/marketing
- Coalition of partners

Main Programme

www.capturethefracture.org
Setting the Standards

Setting standards in health care and being measured against standards are powerful tools to improve patient management.

- Best Practice Framework (BPF) - sets the standard
- FLS evaluation/questionnaire - measures FLS against the standard (BPF)
- Best Practice Recognition/Map- recognizes FLS and achievements on website map with a gold, silver or bronze star

www.capturethefracture.org
**Purpose of the Best Practice Framework**

13 internationally recognized & endorsed standards of care for secondary fracture prevention

1. Set the standard for FLS
2. Guidance
3. Benchmarking and fine-tuning

<table>
<thead>
<tr>
<th>Standard</th>
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</thead>
<tbody>
<tr>
<td>1. Patient Identification</td>
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<tr>
<td>5. Assessment Guidelines</td>
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<tr>
<td>7. Falls Prevention Services</td>
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<tr>
<td>Standard</td>
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<tr>
<td>-------------------------------------------------</td>
</tr>
<tr>
<td>1. Patient Identification</td>
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<tr>
<td>2. Patient Evaluation</td>
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<tr>
<td>3. Post Fracture Assessment Timing</td>
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<tr>
<td>4. Vertebral Fracture (VF) ID</td>
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<tr>
<td>5. Assessment Guidelines</td>
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<tr>
<td>6. Secondary Causes of OP</td>
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<tr>
<td>7. Falls Prevention Services</td>
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<tr>
<td>8. Multifaceted Assessment</td>
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<tr>
<td>9. Medication Initiation</td>
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<tr>
<td>10. Medication Review</td>
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<tr>
<td>11. Communication Strategy</td>
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<tr>
<td>12. Long-term Management</td>
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<tr>
<td>13. Database</td>
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</tbody>
</table>

Akesson K et al. Osteoporosis Int 2013:2135-2152
<table>
<thead>
<tr>
<th>Standard</th>
<th>Level 1</th>
<th>Level 2</th>
<th>Level 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Patient Identification</td>
<td>Patients ID’d, <em>not</em> tracked</td>
<td>Patients ID’d, <em>are</em> tracked</td>
<td>Patients ID’d, tracked &amp; <em>Independent review</em></td>
</tr>
<tr>
<td>5. Assessment Guidelines</td>
<td>Local</td>
<td>Regional</td>
<td>National</td>
</tr>
<tr>
<td>6. Secondary Causes of OP</td>
<td>50% of patients screened</td>
<td>70% of patients screened</td>
<td>90% of patients screened</td>
</tr>
<tr>
<td>7. Falls Prevention</td>
<td>50% of patients evaluated</td>
<td>70% of patients evaluated</td>
<td>90% of patients evaluated</td>
</tr>
<tr>
<td>9. Medication Initiation</td>
<td><em>50% of patients initiated</em></td>
<td><em>70% of patients initiated</em></td>
<td><em>90% of patients initiated</em></td>
</tr>
<tr>
<td>12. Long-term Management</td>
<td><em>1 year follow-up</em></td>
<td></td>
<td><em>6 month follow-up &amp; 1 year follow-up</em></td>
</tr>
<tr>
<td>13. Database</td>
<td>Local</td>
<td>Regional</td>
<td>National</td>
</tr>
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</table>

www.capturethefracture.org
Getting your FLS recognized on the Map

Submit your application at www.capturethefracture.org
The Process

Step 1
FLS submits online application

Step 2
FLS marked in green on the map while being reviewed

Step 3
BPF achievement level assigned

Step 4
FLS is scored and recognized on the map

www.capturethefracture.org
Participation

Why

• Showcase achievements
• Support FLS implementation worldwide
• Creates visual message of services & opportunities

Who

• Coordinator-based ‘systems’ of care
• Inpatient and/or outpatient facility
• At any stage in development, but need enough data
• Any size
• World wide

Submit your application at www.capturethefracture.org
Submit Your Application

GET MAPPED
Submit your FLS and gain visibility on our Map of Best Practice at:
www.capturethefracture.org

www.capturethefracture.org
Results of CTF: forging the global movement

Kristina Åkesson
Professor, senior consultant
Department of Orthopedics, Skane University Hospital
SWEDEN

www.capturethefracture.org
Outcome Targets: Reaching for best practice

- Hip fracture in-patients: 20%
- Non-hip fracture in-patients: 30%
- Non-hip fracture out-patients: 50%
- All fragility fractures in- and out-patients: >90% 

www.capturethefracture.org
FLS Evaluation Flow Chart

- **FLS submits questionnaire**
  - **CTF project manager puts FLS on the map with a green star**
    - **Was the info provided within 1 year?**
      - **no**
        - **FLS removed from map**
      - **yes**
        - **Is the info complete?**
          - **no**
            - **CTF project manager communicates with FLS for additional info, clarifications & answers to questions**
          - **yes**
            - **CTF project manager creates summary**
              - **Clinician agrees with score?**
                - **yes**
                  - **CTF project manager sends summary sheet & score to FLS**
                    - **FLS agrees with score?**
                      - **yes**
                        - **FLS recognized on map with score**
                      - **no**
                        - **Clinician agrees with score?**
                          - **yes**
                            - **CTF project manager creates summary**
                              - **no**
                                - **CTF clinician reviews documents**

www.capturethefracture.org
Evaluation Methodology

13 standards
5 domains
1 star

<table>
<thead>
<tr>
<th>Fragility fracture domains</th>
<th>Achievement &amp; Valuation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hip</td>
<td>★ = 1</td>
</tr>
<tr>
<td>Inpatient</td>
<td>★ = .5</td>
</tr>
<tr>
<td>outpatient</td>
<td>★ = .25</td>
</tr>
<tr>
<td>Vertebral</td>
<td>★ = 0</td>
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<tr>
<td>Organizational</td>
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### FLS Overall Performance

<table>
<thead>
<tr>
<th>Star Grade</th>
<th>Calculation</th>
<th>Score</th>
<th>Map Recognition</th>
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<tbody>
<tr>
<td>Hip</td>
<td>1+1+1+0.25+0.5</td>
<td>3.75</td>
<td>3.75</td>
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<tr>
<td>Inpt</td>
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<tr>
<td>OPD</td>
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<td>Org</td>
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www.capturethefracture.org
## Evaluation Methodology: Example

<table>
<thead>
<tr>
<th>BPF Standard</th>
<th>hip</th>
<th>IP</th>
<th>OPD</th>
<th>vert</th>
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<tbody>
<tr>
<td>1. Patient Identification</td>
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<td>⭐️</td>
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<td>2. Patient Evaluation</td>
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<td>3. Post fracture assessment timing</td>
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### Overall Score

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<th>Star colour</th>
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<th>Value</th>
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### Overall rating:

3.75
Results From the First 40 Hospitals

- Catchment populations from 100,000 to 1.3 million
- Mix of private & publicly funded
- Lead clinician of FLS:
  - Orthopedic surgeon – 18
  - Rheumatology – 11
  - Endocrinology – 5
  - Geriatrics - 2
  - Gynecology, internist, radiology & rehabilitation - 4
- Fragility fracture patients/year – 26,214
  - Range - 181 to 2530

Overall FLS scores % reaching bronze, silver or gold

www.capturetherufracture.org
Results According to Fracture Type

Grading by IOF-BPF Domain Across 40 Hospitals in 6 Continents

Level 1  Level 2  Level 3  Insufficient

www.capturethefracture.org
Results on the Map

35 in review
40 complete

75 FLS

- Algeria
- Australia
- Belgium
- Brazil
- Bulgaria
- Canada
- China
- Czech Republic
- Finland
- Greece
- India
- Ireland
- Italy
- Netherlands
- New Zealand
- Portugal
- Singapore
- Spain
- Sweden
- Switzerland
- Taiwan
- Trinidad & Tobago
- UK
- USA

www.capturethefracture.org
Get Involved

Providers, politicians & patients drive change

• Visit www.capturethefracture.org to:
  ✓ Get mapped – Submit your FLS
  ✓ Join the coalition
  ✓ Sign up for the newsletter

• Be Active:
  ✓ Advocate for FLS implementation
  ✓ Encourage existing FLS to participate in Capture the Fracture
  ✓ Spread the word about FLS
Acknowledgements

Capture the Fracture Steering Committee:

- Prof Kristina Åkesson, Chair Capture the Fracture, Skåne University Hospital SWE
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- Carey Kyer, Capture the Fracture Coordinator, IOF
- Dr Muriel Schneider, Capture the Fracture Coordinator, IOF

With additional support from

- Dr Charlotte Moss, MRC Epidemiology Resource Centre, University of Southampton UK

www.capturethefracture.org
The Team

A dedicated team of stakeholders

- Lead clinician/local champion
- Senior orthopaedic surgeon
- Senior geriatrician
- Primary care physicians
- Nurses specialists
- IT Personnel (fracture database)
- Pharmacists
- Allied Health Professionals
- Public health consultants

www.capturethefracture.org