FRAGILITY FRACTURE REGISTRY
IN HONG KONG

Dr. WK NGAI
COC (O&T), Hospital Authority
Osteoporosis - Silent Epidemic
Every year, 2 million fractures occur in USA that no accident, but signs of osteoporosis
‘CAST MOUNTAIN’ in 2MILLION2MANY CAMPAIGN

5500 fractures daily
WOMEN OVER 50 WILL EXPERIENCE
OSTEOPOROTIC FRACTURES. AS WILL MEN

Vertebrate fracture

Wrist fracture

Hip fracture
Fragility Fractures (UK)

- 52.1% of all fractures
- 30.1% of fractures in males
- 66.3% of fractures in females
- 34.7% of outpatient fractures
- 70.4% of inpatient fractures
Japan

Neck Fracture

Trochanteric Fracture

Women

Men

Age (years)
10 year fracture probability (HK Chinese)

Life Time Risk in Hong Kong

Men

- Hip 7.2%
- Other Fragility Fracture 15.3%

Women

- Hip 17%
- Other Fragility Fracture 34.2%

Osteoporosis International 2009 (Kung et al)
Projected hip fractures in Hong Kong

Projected Percentage of Elderly in HK

SH Wong, AWH Ho, ST Ho; HKOA 2012
Incidence of 2\textsuperscript{nd} hip fracture

1 year: 2.21%
5 year: 7.78%

80% occurs within 3 yr

Dr. AWH Ho, Dr. SH Wong, Dr. ST Ho COA 2012
Financial Impact
Geriatric Hip Fracture (2011 data)

- Acute stay
- 4500 new hip fractures
- Rehab Stay

310 Million (HK$)
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*
Known Facts

- A *prior fracture almost doubles a patient’s future fracture risk.*
- Half of patients presenting with hip fractures have suffered a prior fracture.
- Despite their risk of future fractures, the majority of fragility fracture patients are neither assessed, nor treated to reduce fracture risk.
- To achieve a significant reduction in future fracture rates and health care costs, healthcare systems must target those patients who have already suffered a fracture, as they are the ones at highest risk for future fractures.
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Earlier fractures signal the hip fracture

Morbidity
Dependence

Hip fracture
Vertebral fracture
Colles' fracture

Added morbidity from fractures
No fractures – increasing morbidity due to ageing alone

50 60 70 80 90
Age

Adapted from Kanis JA, Johnell O; 1999
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• Osteoporotic fractures increase a person's risk of dying in elderly.
• Hip fractures, there is 2X risk of death for women, 3X the risk for men.
• Premature mortality lasts for about 5 years post-fracture, except for hip fractures when it lasts for around 10 years.

Bone fractures can double or triple mortality for up to 10 years, Feb 2009, JAMA
Mortality after hip fracture

Royal Victoria Hospital, Belfast
1999-2003
1003 deaths by one year in 5553 patients
A study in 6 European countries, majority of the economic burden is shown to be related to the costs incurred during the 1st year after the fracture, while pharmacological prevention and treatment management constitutes only a marginal share of the total economic cost.

Hip fractures – 87% of total cost of all fragility fractures (UK)

New study quantifies total costs of fragility fractures in 6 major European countries; Health & Medicine; March 24, 2011
Healthy Bones Program

- 5-year study tracked more than 625,000 male and female patients over the age of 50 in Southern California who had specific risk factors for osteoporosis and/or hip fractures.

- **Proactive measures can reduce hip fracture rates by an average of 37.2 percent; and as much as 50 percent among those at risk**

Kaiser Permanente Southern California, Nov 3 2008, JBJS
2 MAIN ISSUES

- Acute multidisciplinary care
- Secondary prevention
Fragility Fracture Cycle

- **Secondary prevention**: Patients with new fracture
- **50% of hip fractures from 16% of the population**
- **Patients with prior fracture**
- **Primary prevention**: Individuals at high fracture risk
- **50% of hip fractures from 84% of the population**
- **Individuals at intermediate fracture risk**
- **Individuals at low fracture risk**
Secondary fracture prevention

An opportunity to break the fragility fracture cycle
Analogy between Myocardial Infarction & Hip Fracture

- MI and hip fracture incidence easy to measure
- Both life-threatening events carrying a secondary prevention implication
- Acute issues: time to thrombolysis needle, time to fracture fixation
- Follow-on issues: rehabilitation and secondary prevention

David Marsh, UK
International Experience on 2° Fracture Prevention
Most patients with fragility fracture are neither investigated nor treated for osteoporosis. As this group is at high risk of subsequent fracture, this is a missed opportunity to reduce fracture burden.
• Must first target those patients who have already fractured because they are the ones at highest risk for more fractures
Germany

- Although evidence of osteoporosis was observed in 62% of women and 50% of men, only 7.9% of patients were prescribed osteoporosis-specific medication.
Switzerland

- Osteoporosis remains widely underdiagnosed and undertreated in Switzerland, even in a high risk population of elderly patients with fragility fractures. This fact is even more worrisome for men.
The results of this study suggest that treatment for osteoporosis for post-fracture patients in current practice is still quite appalling
Sweden

The result of the national data is cause for both concern and an incentive for action. Clearly, some regions have been more successful than others, while all too many patients remain without treatment.
United Kingdom

- The majority of high-risk patients miss the best or only opportunity for their falls and fracture risk to be identified in the majority of hospitals and most primary care organizations lack adequate services for secondary falls and fracture prevention.
United State

- A small investment in a fracture coordinator can result in appropriate diagnostic and therapeutic management of patients who have suffered fractures. This should result in fewer fractures and perhaps fewer deaths. Surely we can do better.
Congress
Hong Kong

- >90% fragility fractures were treated in the public hospitals (Hospital Authority)
- Award winning patient data system (CMS)
- Clinical pathway
- Key Performance Indicator
- Extra resource
  - Anti-osteoporosis drugs
  - Upgrade fixation devices
• **BREAK THE WORLDWIDE FRAGILITY FRACTURE CYCLE**

• “Worldwide, there is a large care gap that is leaving millions of fracture patients at serious risk of future fractures. ‘Capture the Fracture’ hopes to close this gap and make secondary fracture prevention a reality.”
Coordinator-based post-fracture models of care

- Fracture Liaison Service
  - Europe; Australia & New Zealand

- Co-ordinator Programs
  - Canada

- Care Manager Program
  - USA
Fracture Liaison Service (FLS)

- Coordinated service where patients with fragility fracture receive osteoporosis assessment and treatment where needed, and intervention to reduce fall risk

- Significant reduction in fracture incidence and associated cost
Fracture Liaison Nurse

NEW FRACTURE

INPATIENT ORTHO/TRAUMA WARD

OUTPATIENT FRACTURE CLINIC

OSTEOPOROSIS SERVICE

FALLS PREVENTION SERVICE

EDUCATION PROGRAMME

GP FOR LONG-TERM FOLLOW-UP

Current issue

• Audit show that many patients (include HK) with fragility fractures do not receive the globally endorsed standards of secondary preventive care to reduce future fracture risk
What we need

- Coordinated, territory wide strategy or systems to managing the increasing number of older people at risk of fragility fracture
- Define evidence-based standard of acute fracture care
- Establish a continuous audit to measure compliance to these standards
• Best orthogeriatric practice have shown to dramatically improved post-hip fracture care

• Territory Fragility Fracture Registry will provide an opportunity to benchmark care against professional standards
Fragility Fracture Registry

- Set up standard of acute fracture care and secondary fracture prevention protocol
- A web-based territory wide database
- Audit compliance with the standards
- Feed back to units their performance compared to HA standard
- A professional team to manage analysis of the data
- Extensive data for research
Goal

- The aim of the **Fragility Fracture Registry** is to inform policy makers, health administrators, clinicians, researchers, patients and their families on outcomes that are relevant to them.

- Healthcare workers came together to generate a novel, relevant and feasible data bank on patients who sustain a fragility fracture.
What is the experiences of established international hip fracture registries?
Can it improve the outcomes following hip fractures.
Three big messages

Multidisciplinary approach to the management of fragility fracture patients

Reliable secondary prevention
  - osteoporosis
  - falls

Quality assurance
  - the NHFD

2007
Six standards for hip fracture care

- Admitted to an acute orthopaedic ward within 4 hours
- Patients who are medically fit should have surgery within 48 hours of admission, during normal working hours
- To minimise the risk of developing a pressure ulcer
- Patients with routine access to orthogeriatric support from the time of admission
- Patients should have bone-protective therapy to prevent future osteoporotic fractures
- Patients should be offered multidisciplinary assessment and intervention
SMART REIMBURSEMENT

- Audit of hip fracture care, with continuous real-time feedback, is by itself a driver for change, even without financial incentives
- Having established an instrument (**Fragility Fracture Registry**) for measuring quality of care,
- Financial incentives can drive change
BEST PRACTICE TARIFF (BPT)

- From April 2010
- Reimbursement to Hospitals for each case of hip fracture varies according to the quality of care
- Criteria used:
  - Time to theatre less than 36 hours
  - Involvement of orthogeriatricians in the acute phase
  - Including secondary prevention
- Compliance for each case determined from the record in the National Hip Fracture Database
## BPT attainment 2010 - 2013

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<th>Year</th>
<th>Eligible hospitals</th>
<th>Hospitals achieving BPT</th>
<th>Number of pts submitted</th>
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<td>92 (57%)</td>
<td>9455</td>
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2008/09 – 2010/11
Binomial test p-value < 0.001
99% confidence interval for change: [-2.5, -0.4]
Change in percentage: -1.4
Summary

- Fragility fractures will present an unmanageable problem all over the world unless we act now
- Secondary prevention and multi-disciplinary management are the keys to success
- Treating fragility fractures well is cheaper than treating them badly
- **Fragility Fracture Registry is the key success factor**
Aims

- Using standards, audit to improve the care of hip fractures and secondary prevention of further falls and fractures
- To change the behaviour of doctors and other healthcare workers who look after patients with fragility fractures
- To change the attitude of healthcare commissioners to musculoskeletal care

David Marsh, UK
Fragility Fracture Registry

- Efficient & effective health care policy
Thank You