

Advanced Osteoporosis Triage System Shortens the Waiting Time for Osteoporosis Clinic

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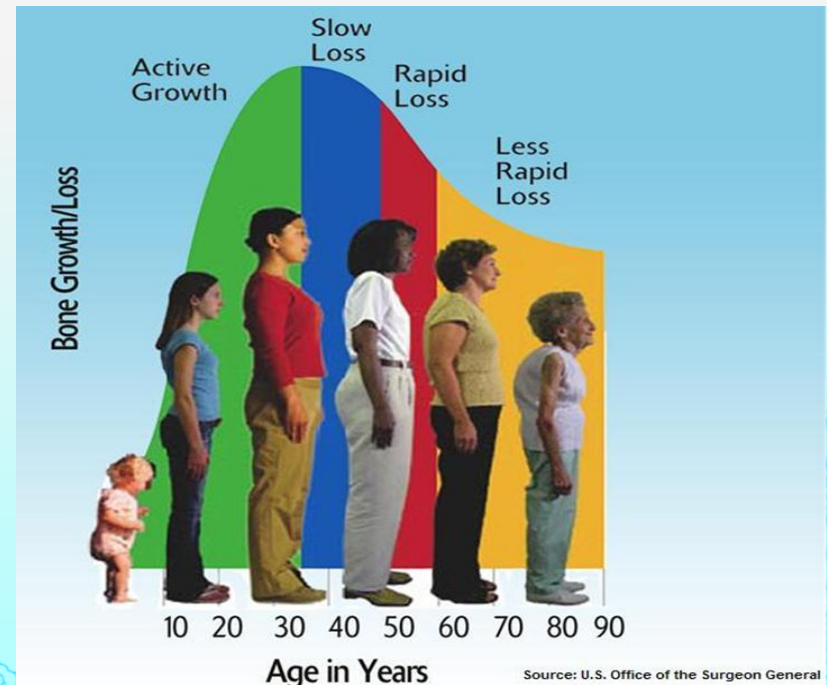
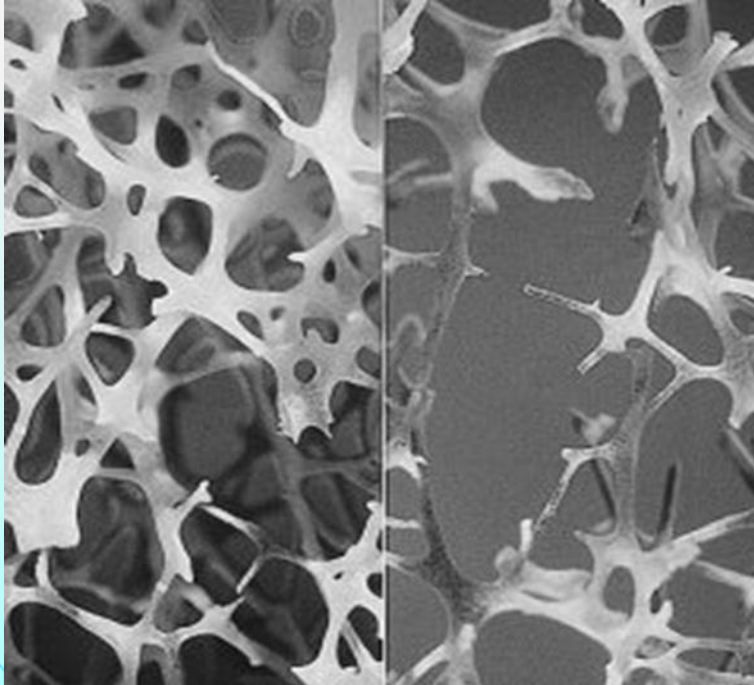
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In our Society

Ageing population are expected to

Increase the prevalence of

Osteoporosis and **associated Fractures**



International Osteoporosis Foundation ...

Around the world:

- ◆ 1 in 3 women and 1 in 5 men
- ◆ are at risk of an osteoporotic fracture
- ◆ In fact, an osteoporotic fracture is estimated to occur every **3 seconds**

Source: IOF website - <http://www.iofbonehealth.org/what-is-osteoporosis>

Osteoporosis – Negative Outcome

Total number of hip fractures

1950 1433 million

2050 5395 million

Osteoporotic hip fractures worldwide will rise from

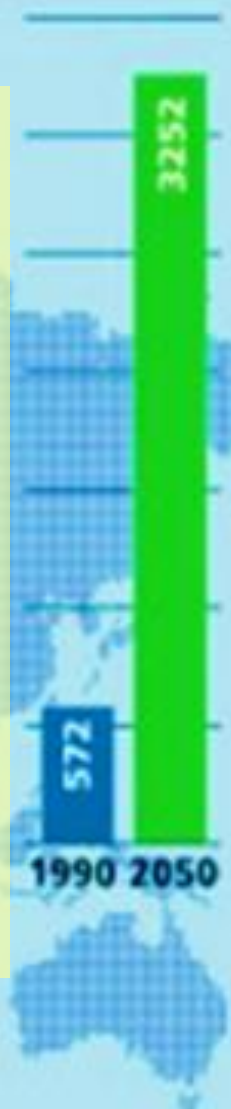
1.66 million in 1990

to

6.26 million in 2050

Information source:

Sambrook P, Cooper C. Osteoporosis. Lancet 2006;367:2010-18



Any possible ways to avoid ...?

Many **osteoporotic fractures** can be **avoided** by

2As + 2Es:

Appropriate medical treatment

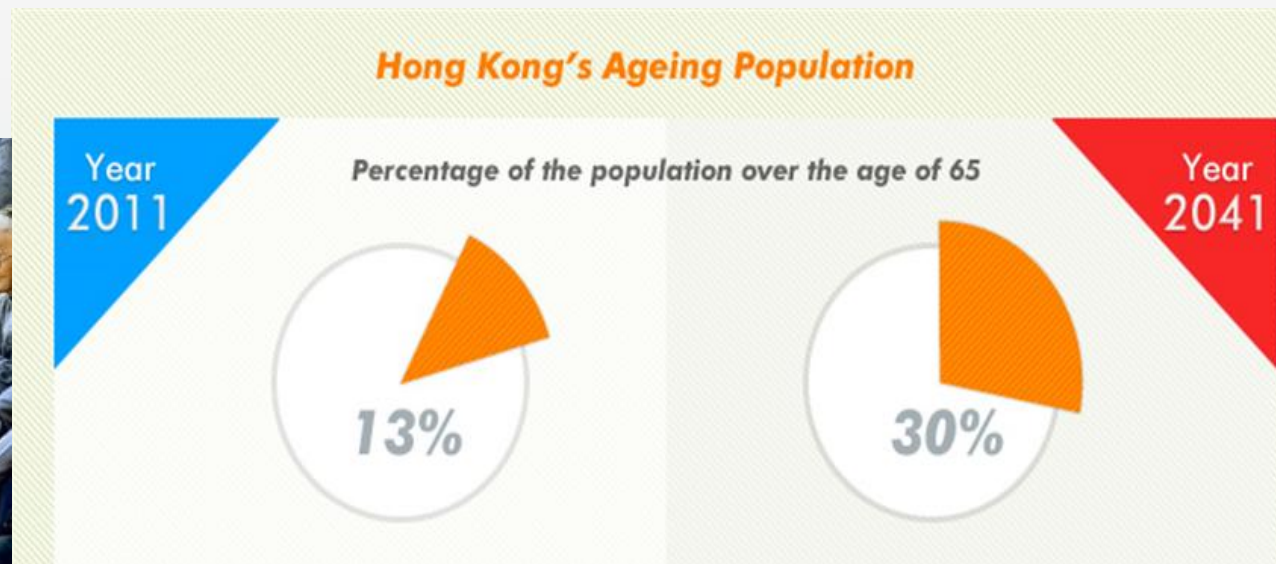
Adequate health promotion

Early diagnosis of Osteoporosis

Early identification of
primary and secondary causes of Osteoporosis

What are we facing in HKWC ?

Waiting time for Specialist Clinic has **risen** because of our aging population



Source: Mandatory Provident Fund Schemes Authority

What we need?

An **effective health care referral system**
is required to meet
the growing demand of service



What we done?

Since 2012, in Ost. Specialist Clinic, QMH:

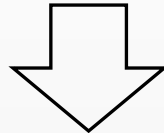
**Advanced Osteoporosis Triage System
(AOTS)**

has been commenced



What is it ?

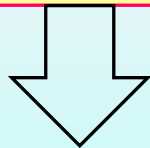
Patients with Osteoporosis referred to us



Case Manager: Nurse



Clinical Management Protocol:
Advanced Osteoporosis Triage System
(AOTS)



**High-risk
Group**



**Non-high-risk
Group**

Advanced Osteoporosis Triage System

We assess



Presence of
Fracture



Recent Fall



Drug
History

Advanced Osteoporosis Triage System

We calculate

The screenshot shows the FRAX WHO Fracture Risk Assessment Tool interface. The header is red with the text "FRAX® WHO Fracture Risk Assessment Tool". Below the header is a navigation bar with links for "Home", "Calculation Tool", "Paper Charts", "FAQ", "References", and a language dropdown set to "English". The main content area is titled "Calculation Tool" and contains a questionnaire. The questionnaire includes fields for "Country" (set to "Hong Kong"), "Name/ID", "Age", "Date of Birth", "Sex", "Weight (kg)", "Height (cm)", "Previous Fracture", "Parent Fractured Hip", "Current Smoking", "Glucocorticoids", "Rheumatoid arthritis", "Secondary osteoporosis", "Alcohol 3 or more (units/day)", and "Femoral neck BMD (g/cm²)". There are "Clear" and "Calculate" buttons. On the right side, there are "Weight Conversion" and "Height Conversion" sections, each with a "Convert" button. At the bottom right, there is a counter showing "00040007" and the text "Individuals with fracture risk assessed since 1st June 2011". A watermark "www.shef.ac.uk" is visible across the form.

WHO Fracture Risk Assessment Tool (FRAX) score
<10-year probability of fracture>

Advanced Osteoporosis Triage System

We identify

Possible secondary cause of Osteoporosis:

1. Vitamin D deficiency
2. Hyperparathyroidism
3. Thyrotoxicosis
4. Cushings' Syndrome
5. Rheumatic Diseases
6. On long-term steroid

Does it work !?



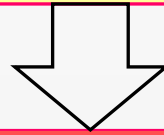
How we measured the outcome ...?

Waiting time for a medical consultation in the Osteoporosis Specialist Clinic, QMH, were compared among:

1. High-risk group
2. Non-high-risk group
3. A historical control group
 - patients being seen in the Clinic before the implementation of the Advanced Osteoporosis Triage System (AOTS)

Between 1.2012 and 1.2014 ...

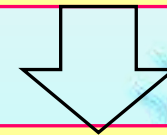
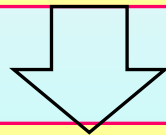
1,689 patients were referred to
Osteoporosis Specialist Clinic



Case Manager: Nurse



Advanced Osteoporosis Triage System
(AOTS)



High-risk Group
325 patients (20%)

Non-high-risk Group
1,364 patients (80%)

Among the High-risk Group (n=325)

	Clinical Risk Factors for Osteoporotic Fracture	n	%
1	Secondary causes of Osteoporosis :	164	50%
	① Vitamin D deficiency	131	
	② Thyroid disease	26	
	③ Primary hyperparathyroidism	7	
2	Comorbid medical conditions :	121	38%
	① Impaired renal function	61	
	② Intolerance to anti-osteoporosis drug	46	
	③ Diabetes	14	
3	Recent history of fracture	28	9%
4	FRAX score: High fracture risk	7	2%
5	Recurrent fall	5	1%

After Group Stratification the Case Manager further arranged ...

High-risk Group

1. Individual counselling and education
2. Baseline assessment:
 - ◆ Bone mineral density measurement, blood test, daily oral calcium intake etc ...
3. Further investigations:
 - ◆ Specific blood test
4. Early appropriate referral to:
 - ◆ Diabetes Clinic
 - ◆ Rheumatology Clinic
 - ◆ Endocrine Surgery
5. Post Osteoporosis Clinic Nursing follow-up

Non-high-risk Group

1. Group education
2. Baseline assessment:
 - ◆ Bone mineral density measurement, blood test, daily oral calcium intake etc
3. Post Osteoporosis Clinic Nursing follow-up



**Waiting time for Medical Consultation
before and after the implementation of
Advanced Osteoporosis Triage System
(AOTS)**



Waiting Time for Osteoporosis Specialist Clinic

High-risk Group (n=325)	Control Group (n=1,218)	<i>p</i>
15 ± 3 weeks	28 ± 2 weeks	< 0.05

Non-high-risk Group (n=1,364)	Control Group (n=1,218)	<i>p</i>
28 ± 1 weeks	28 ± 2 weeks	0.17

Conclusion

The Advanced Osteoporosis Triage System (AOTS) demonstrates:

- ◆ An **effective model** which enhances the provision of specialist service to the most appropriate patients in a more timely way
- ◆ Not only can shorten the clinic waiting time but also help in **early identification** of underlying disease



Acknowledgement

Division of Endocrinology and Metabolism
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Thank you

