

**Situation**

Osteoporosis is defined as a skeletal disorder characterized by compromised bone strength predisposing a person to an increased risk of fractures. The World Health Organization (WHO) defined osteoporosis as “a disease characterized by low bone mass and micro-architectural deterioration of bone tissue, leading to enhanced bone fragility and a consequent increase in fracture risk.” According to the 2011 Japanese guidelines for prevention and treatment of osteoporosis, the estimated number of osteoporotic patients aged 40 or over in Japan is 12,800,000 (3,000,000 men and 9,800,000 women).<sup>1</sup>

In order to retain their strength, bones are constantly rebuilding through a cycle of breaking down old bone (bone remodeling) and building new bone (bone formation). However, for a variety of reasons including aging, menopause, poor diet, and lack of exercise, the bone turnover balance can become disrupted, causing bone resorption to outpace bone formation, resulting in an overall decrease in bone mass. Therefore, the incidence of osteoporosis dramatically increases in women during the first half of their fifties, after menopause, and in men during the latter half of their sixties.<sup>1</sup>

In most cases, osteoporosis progresses without obvious symptoms. However, with the progression of bone mass decrease and micro-cracks, subtle symptoms, such as a slight loss of height and lower back pain, begin to appear. Decreased bone mass and micro-cracks increase the risk of fractures, even from relatively small impacts, such as from falls. Fractures due to osteoporosis mainly occur in the vertebrae, femoral neck of the hip, and radius of the arm. Due to the rapidly aging population in Japan, femoral neck hip fractures which cause elderly people to become bedridden or require nursing care are continuing to increase.<sup>2</sup> (Figure 1) Fractures due to osteoporosis are becoming

an increasing financial burden on the Japanese healthcare system. The estimated entire annual healthcare and nursing care cost is one trillion yen and about 80 percent of this cost is driven by femoral neck hip fracture.<sup>3</sup> (Figure 2) In addition to the healthcare cost burden, osteoporosis causes a severe decline in quality of life for patients. Life expectancy is markedly reduced and the chance of spending the rest of one’s life bedridden is significantly higher for elderly patients who suffer hip fractures.<sup>4,5</sup> Moreover, research shows that, once a vertebral fracture occurs due to osteoporosis, it is highly likely that subsequent fractures will occur. It is well known that the prevention of primary fractures is critical and education and awareness about the significance of early diagnosis and treatment are essential.<sup>6,7,8,9</sup>

When looking at the recent trends in hip fractures in regions around the world, North America and Europe — as well as Australia, New Zealand and Singapore — are showing a declining trend. In Asia, other than in Hong Kong, the rate of increase significantly declined. Japan, a country where the aging of the population is progressing, is still seeing an increase.<sup>10</sup> (Figure 3) While Japan needs immediate countermeasures to address this issue, the osteoporosis screening rate still hovers around five percent. The correlation between the osteoporosis screening rate and percentage of the elderly population with nursing care needs suggests that the higher the screening rate, the lower the eventual nursing care needs.<sup>11</sup> (Figure 4) For this reason, increasing the screening rate is important for Japan. Nonetheless, aggressive intervention to prevent primary fractures among at-risk patients is also crucial, including through the use of medication and improvements in their lifestyle. In the case of osteoporosis, treatment, including secondary and tertiary prevention measures from as early a stage as possible is important to prevent deterioration. Innovative medicines that have been developed provide a wide range of alternatives to treat osteoporosis,

including ones that prevent bone resorption and others that stimulate bone formation. Prompt initiation of treatment for osteoporosis is important to prevent loss of the quality of life due to bone fractures.

### **Current Policy**

The Ministry of Health, Labour and Welfare (MHLW) considers osteoporosis screening to be one of the pillars of its health-promotion projects for people over the age of 40. Currently, osteoporosis screenings are being conducted nationwide at five-year intervals for women between the ages of 40 and 70, but the screening rate is relatively low. In April 2013, the MHLW launched a revision to its “Healthy Japan 21” goals that included a target to increase the public awareness rate of “locomotive syndrome” to 80 percent by 2022 from the base rate of 17.3 percent in 2012. A patient with “locomotive syndrome” is defined as one who is dependent on nursing care or at a heightened risk of becoming care-dependent due to a musculoskeletal disorder. Locomotive syndrome can be caused by various kinds of disorders including osteoporosis. However, the broadness of this term may deter people from focusing on the importance of treating osteoporosis to prevent fractures due to aging and bone metabolism disorders. In addition to increasing awareness about the importance of prevention of locomotive syndrome, it is also important to increase awareness about the necessity of proactive intervention when bone density screening shows increased bone fracture risk. Leadership from both the central government and local municipal governments will be important for carrying out prompt measure for the prevention and treatment of osteoporosis.

### **Recommendations**

- Current health policy for bone health is focused on the improvement of awareness of the “locomotive syndrome.” Local governments should conduct awareness programs focusing on the importance of prevention and treatment of osteoporosis as a way to avoid serious bone fractures.
- Local governments should carry out various awareness programs for locomotive syndrome throughout Japan. It is very important for the health officials of local governments to include information on the importance of early screening and treatment of osteoporosis in such programs.
- Prevention and treatment programs for osteoporosis need to include primary, secondary, and tertiary prevention programs, including active intervention, because studies show that the existence of a vertebral fracture due to osteoporosis indicates a high probability of subsequent fractures. Comprehensive measures to prevent osteoporosis should be also incorporated into community-based healthcare programs.
- It is very important for both health care professionals and nursing care providers to improve their “health literacy” in relation to osteoporosis and to carry out smooth collaboration across the spectrum from screening to treatment in the framework of community-based comprehensive healthcare systems.

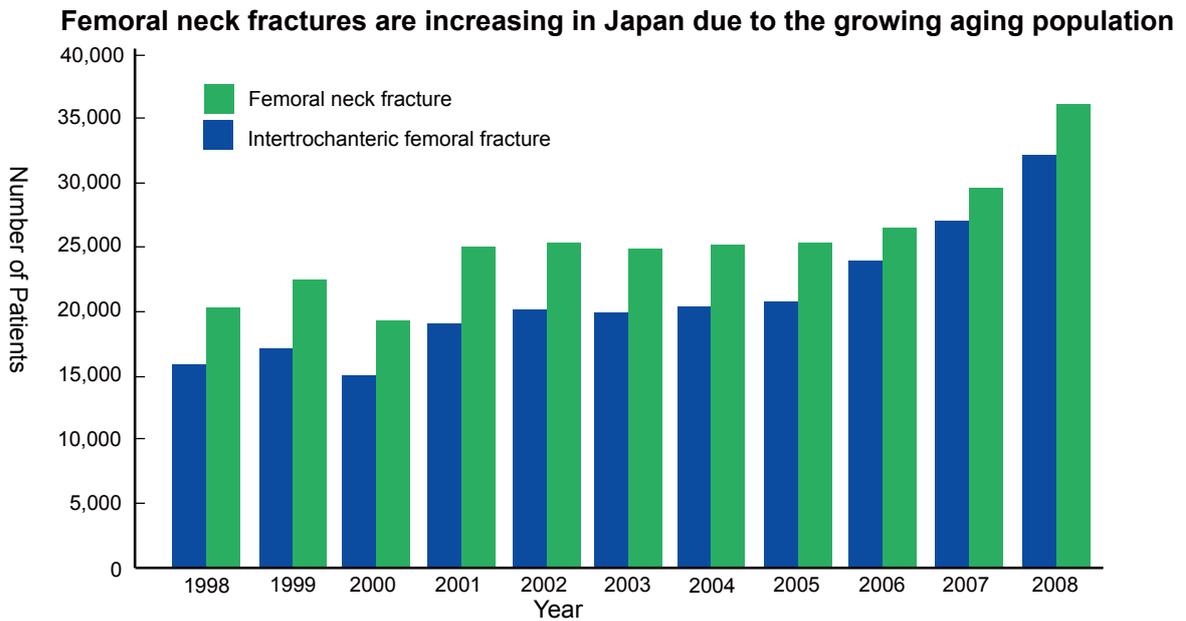
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## References

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Figure 1

## 26. Trend of Proximal Femoral Fracture

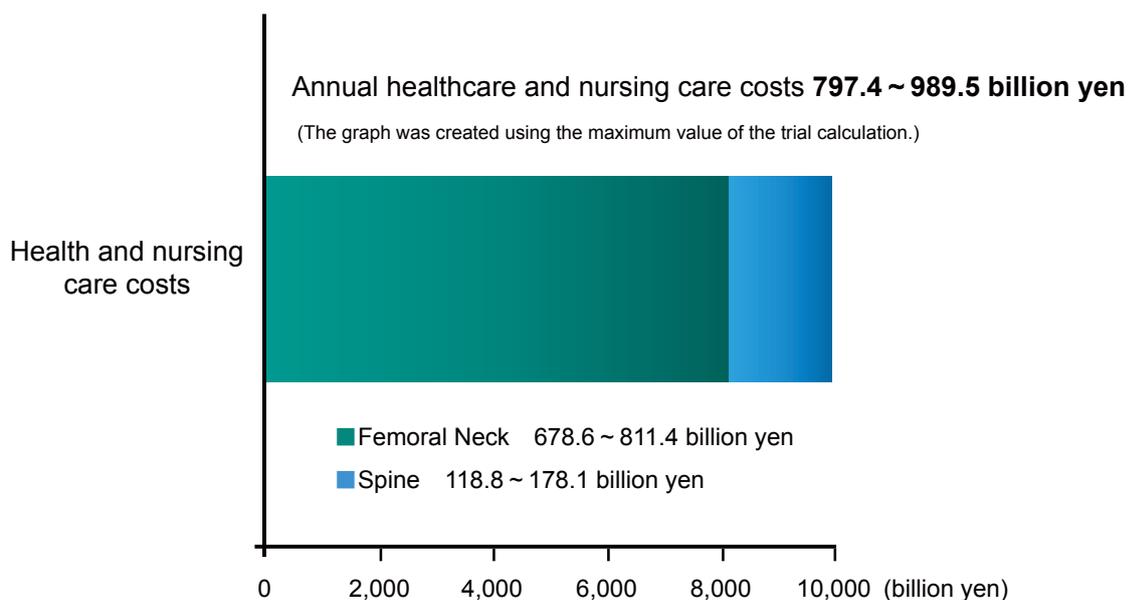


Hagino H et al. *J Orthop Sci* 2010; 15: 737-745

Figure 2

## 26. Healthcare and Nursing Care Costs of Osteoporotic Fractures

**Healthcare and nursing care costs are estimated to reach up to 1 trillion yen, about 80% of which are for proximal femoral fractures**

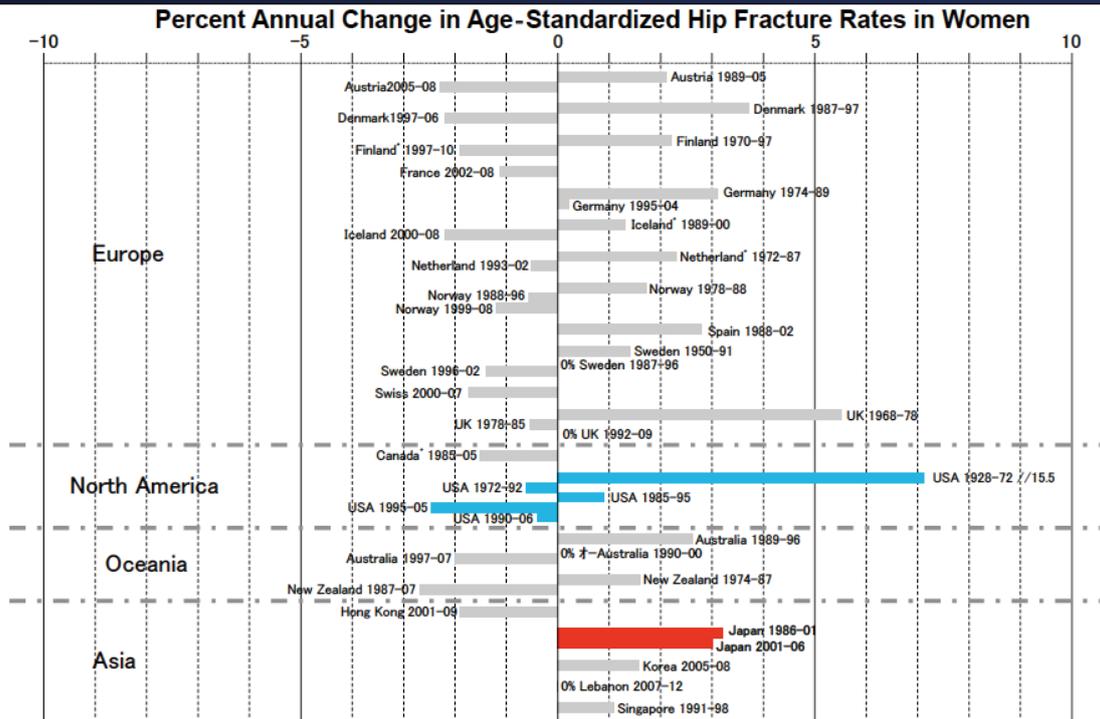


Atsushi Harada et al. *Japanese journal of Geriatrics* 2005; 42: 596-608

## 26. Incidence of Proximal Femoral Fractures by Nation

Figure 3

There is already a downward trend in US and EU but still an upward trend in Japan

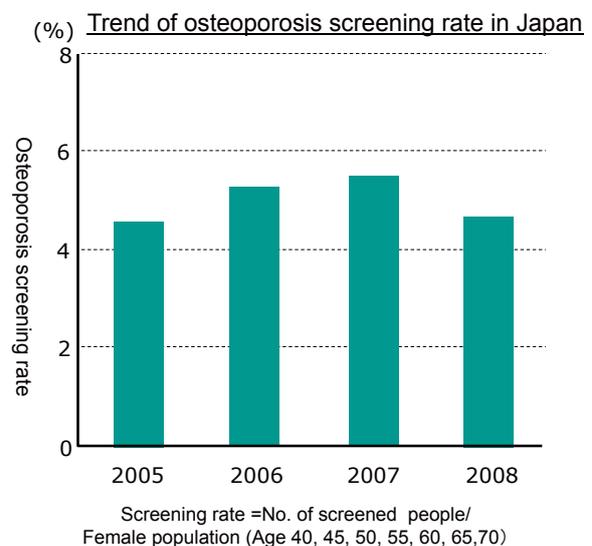
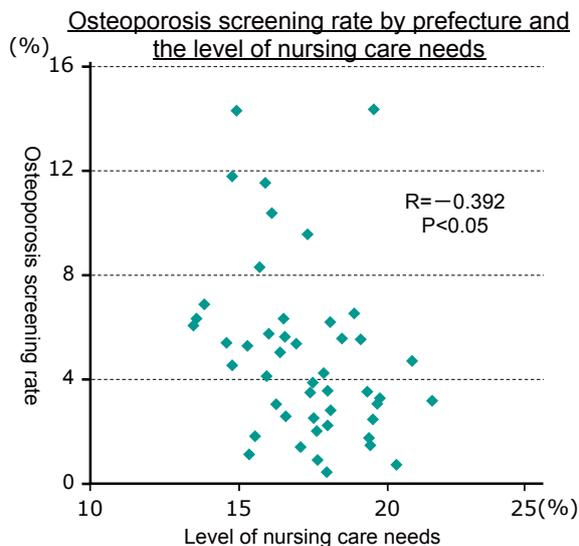


Ballane G et al. *J Bone Miner Res* 2014; 29(8): 1745-1755.

## 26. Osteoporosis Screening

Figure 4

The higher the osteoporosis screening rate, the lower the nursing care needs.  
Osteoporosis screening rate is still low and is not improving in Japan.



Hirose Yamauchi et al. *Nippon Rinsho* 2011; 69; 1300-1304