

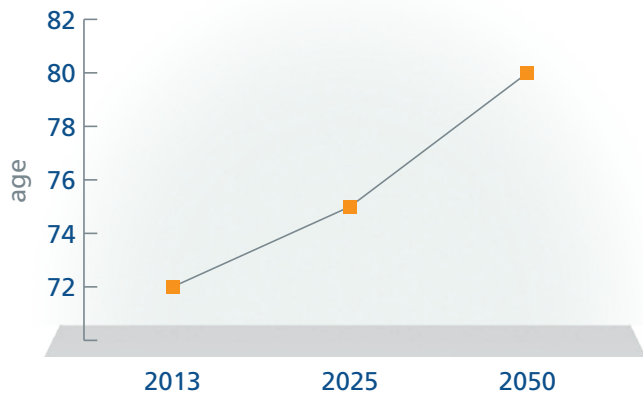


INDONESIA

COUNTRY OVERVIEW

The Indonesian population is expected to grow by 20% over the next four decades, from 251 million in 2013 to 300 million in 2050. Life expectancy is likely to reach age 80 years by 2050, an 11% increase from the current 72 years (Figure 1). The most dramatic increase is predicted to be in those aged over 50 and 70 years, with estimates showing that by 2050 the population in these age groups will grow by 135% to 113 million and by 294% to 40.8 million, respectively. By 2050, those at most risk for osteoporosis, i.e. men and women aged over 50 years, will make up over one-third of the total Indonesian population (Figure 2)¹.

FIGURE 1 Life expectancy in Indonesia



State of osteoporosis/osteopenia

One of the few studies on bone mineral density (BMD) levels and osteoporosis prevalence (T score < -2.5) in the Indonesian population was conducted in 2006. Results found that the prevalence of osteoporosis in women aged between 50–80 years was 23% and between 70–80 years was 53%². Prevalence of osteoporosis also increased in men, where BMD decreases of 10–20% between the ages of 20–39 years and 70–79 years were shown; however the risk for men was 4-times less than the risk for women².

CURRENT

- Population **251 million**
- Aged over 50 years **19%**
- Life expectancy **72 years**
- Hip fracture incidence per year **119/100,000**
- Cost per hip fracture **5,000–9,000 USD**
- Number of DXA per million population **< 0.1**
- Fracture liaison services **not implemented**

PROJECTED 2050

- Population **300 million** ↑
- Aged over 50 years **38%** ↑
- Life expectancy **80 years** ↑

FIGURE 1 Population projection for Indonesia

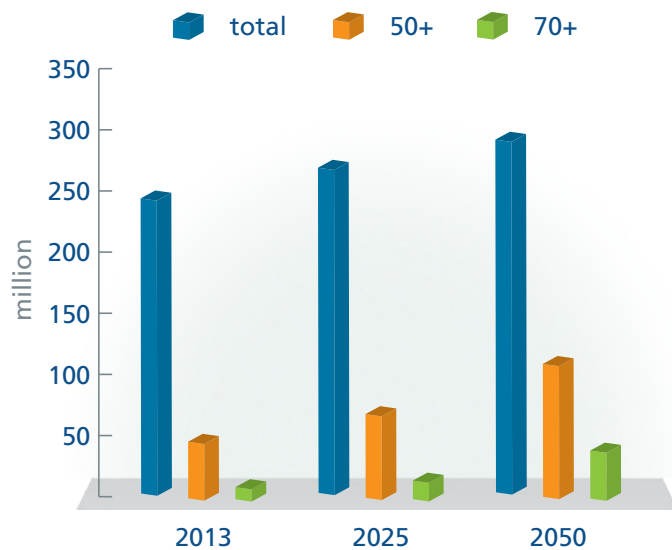
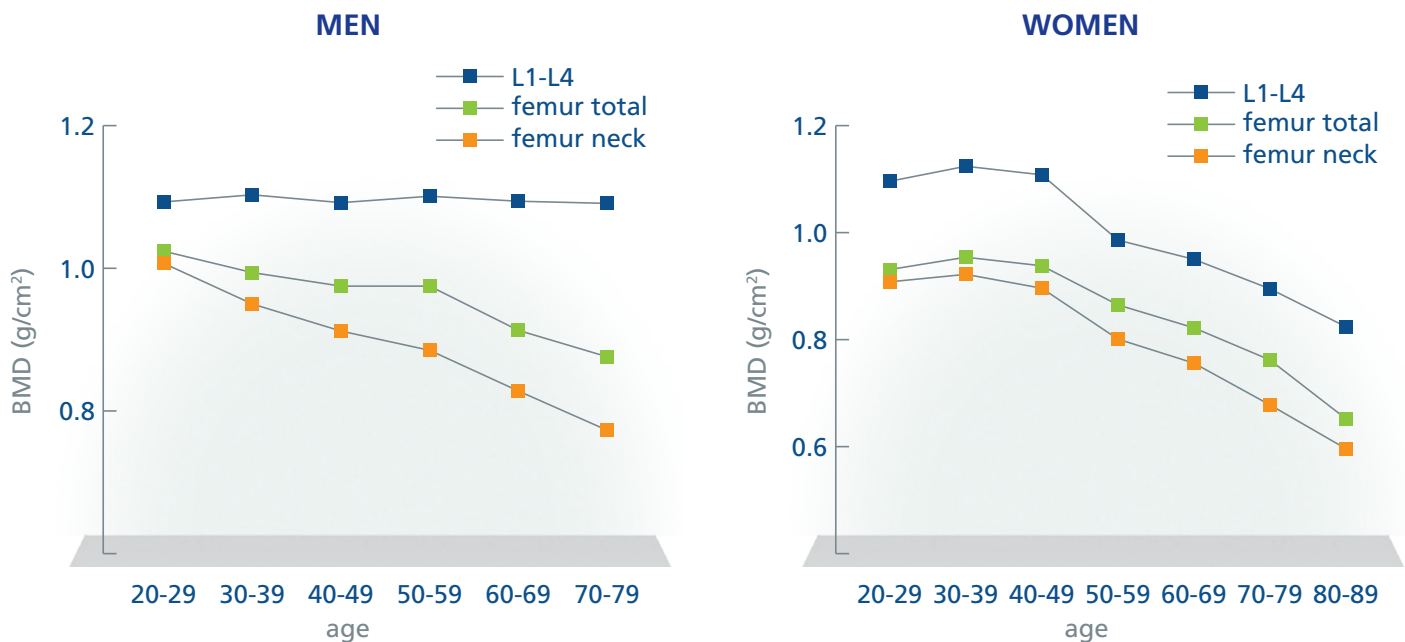


FIGURE 3 Spine and femur BMD in Indonesian men and women



SOURCE Tirtarahardja Gunawan, Setyohadi Bambang, Zhou Weynand Q. Bone Mineral Density Reference Values for Indonesian Men and Women. ASBMR presentation slide. 2006.

The graphs shown in *Figure 3* and *Figure 4* were reported in a study by Tirtarahardja et al., ‘Bone Mineral Density Reference Values for Indonesian Men and Women,’ and demonstrate the decreasing BMD values and increasing osteoporosis prevalence in Indonesians as they age².

Lifestyle

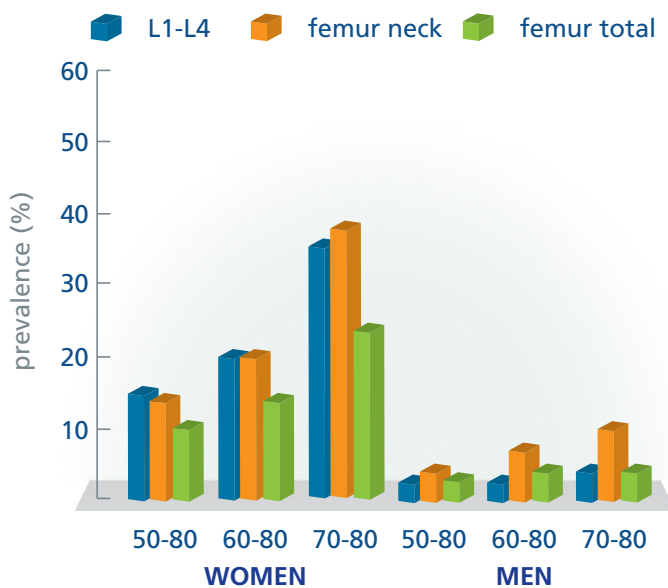
Of the 251 million people in Indonesia, slightly more than half (51%) of the people live in urban areas (*Figure 5*)³.

Level of awareness

The Indonesian Healthy Bone Foundation, known as PERWATUSI, is a not-for-profit organization promoting awareness about osteoporosis throughout Indonesia. Established in 2002, the organization has grown to 26 branches throughout the country. Programmes promoted by PERWATUSI include:

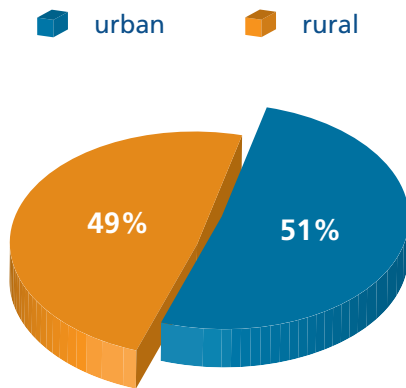
- Training of instructors in exercises for bone health
- Educating about prevention and rehabilitation
- Distributing materials and books on osteoporosis
- Conducting seminars and symposia for lay people
- Expanding reach throughout Indonesia through opening more branches

FIGURE 4 Osteoporosis prevalence in Indonesian men and women



SOURCE Tirtarahardja Gunawan, Setyohadi Bambang, Zhou Weynand Q. Bone Mineral Density Reference Values for Indonesian Men and Women. ASBMR presentation slide. 2006.

FIGURE 5 Urban versus rural population in Indonesia³



FRACTURE RATES

Hip fracture

The IOF hip fracture incidence map indicates Indonesian hip fracture rates of 119/100,000 per year in men and women⁴. Another study estimated that there were 38,618 hip fractures that occurred in 2010 with approximately half of those occurring in individuals with T-scores <-2.5 SD⁵. The large hospitals in the urban areas of Indonesia estimate that the average waiting time for surgery, after hip fracture, is about 1–2 days and approximately 75–90% are managed surgically. It is likely these figures are less favourable in the rural areas.

Other fragility fractures

Data not provided.

Vertebral fractures

Data not provided.

COST OF FRACTURE

TABLE 1 Hip fracture in Indonesia

	HOSPITAL COSTS PER HIP FRACTURE (USD)	AVERAGE HOSPITAL BED DAYS	SURGICALLY TREATED
Private	\$7,000–9,000	5–14	70%–90%
Public	\$3,000–5,000	11–16	

According to hospital data, costs of treating hip fractures vary between private and public hospitals. It costs approximately 1,000–2,000 USD less to receive treatment privately and patients spend less time in the hospital (*Table 1*).

FRACTURE REGISTRIES

Fracture registries in Indonesia are organized at the hospital level in both the public and private sector, and each hospital is required to submit a fracture report to the Ministry of Health every three months. These reports include all types of fractures in patients of all ages. Approximately 43,000 hip fractures were reported in 2010 for men and women aged over 40 years (*Table 2*).

TABLE 2 Hospital hip fracture registry in Indonesia, 2010 data

AGE (YEARS)	WOMEN	MEN
40-50	1736	1794
51-60	2925	2377
61-75	14,350	4352
75+	11,655	3813

FRACTURE LIAISON SERVICES

There are currently no fracture liaison services in Indonesia.

SPECIALISTS RESPONSIBLE FOR OSTEOPOROSIS

The primary care physicians (family doctors/general physicians/geriatricians/internists) are primarily responsible for managing osteoporosis patients in Indonesia and look after most of the patients with the disease. Speciality physicians also see osteoporosis patients and some receive special training as part of their medical curriculum including: orthopaedists, rheumatologists, endocrinologists and gynaecologists. Other physicians also take part in the management of osteoporosis including sports medicine specialists, nutritionists and clinical pharmacologists.

GOVERNMENT POLICIES

Osteoporosis as a documented national health priority

Osteoporosis is not officially a national health priority (NHP) in Indonesia. Some activity was seen in that osteoporosis was recognized by the Ministry of Health in 2006 as an NHP. However, since little action has been taken, osteoporosis was recently removed from the health priorities.

To promote the importance of osteoporosis at the government level, the ‘Indonesian Woman Leaders Roundtable’ was formed in 2005. This group of women pushes the government to include osteoporosis as a priority health problem; members include a senior journalist, a former minister, a former member of parliament, and other respected senior citizens.

Guidelines

The guidelines ‘Panduan Penatalaksanaan Osteoporosis’ were published in 2010 by the Indonesian Osteoporosis Association (Perhimpunan Osteoporosis Indonesia: PEROSI).

Audit and quality indicator systems

At present, there are no audit and quality indicator systems in place for osteoporosis treatment.

TREATMENT

Access to health care in Indonesia can be challenging due to the geographical dispersion of the islands, the low ratio of health-care providers to population and the concentration of health-care services in the urban areas. Coverage for care is mostly private and reimbursement is limited to treatment, and thus does not include prevention. Currently, Indonesia is working toward providing universal health-care coverage, but is not quite there yet. Until then, just over half of the population have some form of health insurance leaving the other half with difficulties accessing and paying for medical services⁶.

When treating osteoporosis, bisphosphonates are designated as the first-line treatment but are not reimbursed. In the public sector, calcium supplements only are reimbursed at 100% and zoledronic acid is

reimbursed but only for the treatment of metastatic bone disease (Table 3).

DIAGNOSTICS

Access to dual-energy X-ray absorptiometry (DXA) in Indonesia is limited especially since most machines are located in the cities and just under half of the population live in rural areas. It has been estimated that there are about 65 DXA instruments in Indonesia, which equates to less than 0.1 DXA instruments per million individuals⁷.

For those who can access DXA, the waiting time is generally 1 day and it costs approximately 54 USD. The lack of reimbursement is a barrier to access and so scans are generally limited to those who can afford private

TABLE 3 Treatments available in Indonesia and reimbursement levels

	YES	NO	IF YES, % REIMBURSED
Risedronate	x		
Alendronate	x		
Ibandronate	x		
Zoledronic acid	x		only for Metastatic Bone Disease
Clodronate	x		
Pamidronate	x		
Raloxifene	x		
Bazedoxifene		x	
Denosumab		x**	
Strontium Ranelate	x		
Teriparatide		x	
PTH (1-84)		x	
Vitamin D/Ca supplements	x		100%
Calcitonin	x		
Hormone Replacement Therapy	x		
Testosterone	x		
Alfacalcidol		x	
Calcitriol		x	

**not available

insurance. Ultrasound is slightly more accessible with no waiting time or associated cost and is mainly offered in the commercial sector by pharmaceutical companies to promote their products (*Table 4*).

TABLE 4 Diagnostics access and cost in Indonesia

	DXA	ULTRASOUND
Waiting time (d)	immediate	immediate
Cost (USD)	\$54	free
Is it reimbursed?	no	n/a
Is reimbursement a barrier to access to treatment?	yes	n/a

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3. *Rural population (% Of Total Population) in Indonesia 2013*, Trading Economics, viewed 05 September 2013, <<http://www.tradingeconomics.com/indonesia/rural-population-wb-data.html>>.
4. *Hip fracture incidence map*, International Osteoporosis Foundation, viewed 20 November 2013, <<http://www.iofbonehealth.org/facts-and-statistics/hip-fracture-incidence-map>>.
5. Odén, A, McCloskey, E, Johansson, H & Kanis, J 2013, 'Assessing the Impact of Osteoporosis on the Burden of Hip Fractures', *Calcif Tissue Int*, vol. 92, pp. 42–49.
6. Franken, J 2011, *The Jakarta Post: Oxford Business Group*, <<http://www.thejakartapost.com/news/2011/05/02/analysis-indonesia-the-health-nation.html>>.
7. *Population Division of the Department of Economic and Social Affairs of the United Nations Secretariat*, *World Population Prospects: The 2008 Revision*, viewed March 28, 2011, <<http://esa.un.org/unpp>>; Kanis, JA, data on file.

RECOMMENDATIONS

As previously stated, by 2050 the Indonesian population aged over 50 years will have grown by 135% to 113 million and those aged over 70 years will have grown by 294% to 40.8 million (*Figure 2*). These age groups will account for over one-third of the total population with a lifespan averaging 80 years. These figures are a strong indication that Indonesia will feel the burden of osteoporosis in its ageing population. Some recommendations that may bring relief to the health system and comfort to the elderly with osteoporosis include:

- Utilizing the existing fracture registry for up-to-date analysis of the actual prevalence and incidence of fragility fractures to realize the true burden of osteoporosis.
- Promoting the implementation of fracture liaison services.
- Expanding the availability of DXA and osteoporosis health care providers to the more rural areas of the country.
- Encouraging the government to increase activities promoting osteoporosis care and treatment.