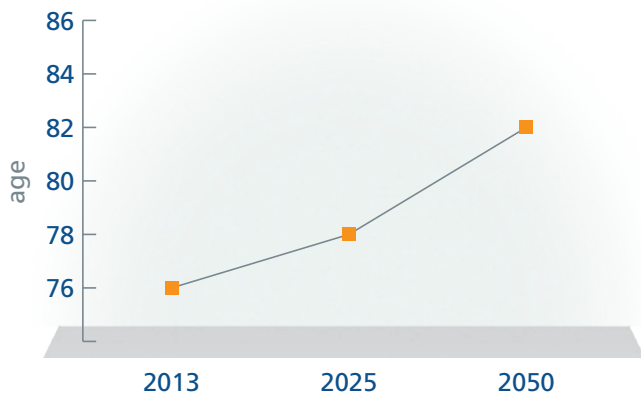


# SRI LANKA

## COUNTRY OVERVIEW


Sri Lanka's population was 21.6 million in 2013, and is expected to increase by approximately 16% between 2013 and 2050, rising to 23.5 million by 2025 and to 25.1 million by 2050<sup>1</sup>. Life expectancy will also increase from age 76 years to 82 years (Figure 1). With an ageing population, the proportion of those aged over 50 years, currently making up 24% of the population, will increase to 29% of the population by 2025 and 38% by 2050. There will be a dramatic 245% rise in those aged over 70 years by 2050, from 1.1 million in 2013 to 3.8 million (Figure 2). Thus, 15% of Sri Lanka's population will be over the age of 70 years in 2050. Although not currently well documented in Sri Lanka, the incidence of osteoporosis and related fractures are certain to increase along with the ageing population.

FIGURE 1 Life expectancy in Sri Lanka



## State of osteoporosis/osteopenia

A study of 1,642 postmenopausal women from seven of the nine provinces in Sri Lanka estimated the prevalence of osteoporosis to be 45%<sup>2</sup>. Other studies tested men for osteoporosis with one finding 5.8% prevalence in men aged over 50 years<sup>3</sup>, and another finding 4% prevalence in men aged between 41–47 years<sup>4</sup>.



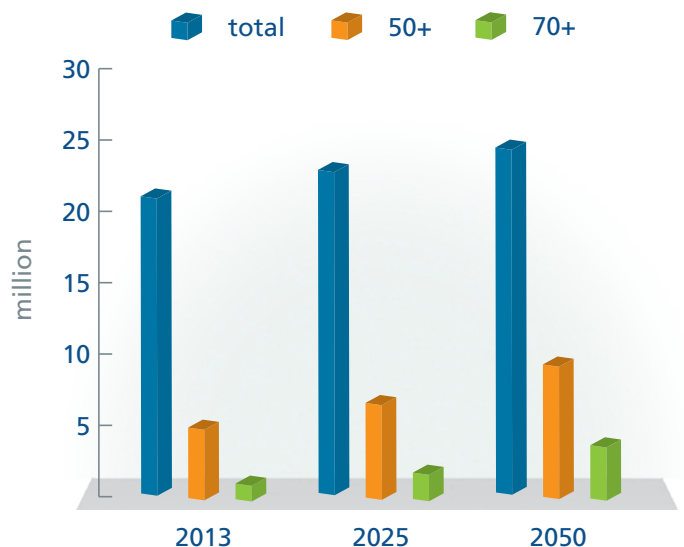
**CURRENT**

- Population **21.6**
- Aged over 50 years **24%**
- Life expectancy **76 years**
- Hip fracture incidence per year **no data**
- Cost per hip fracture **no data**
- Number of DXA per million population **0.1**
- Fracture liaison services **not implemented**

**PROJECTED 2050**

- Population **25.1 million** ↑
- Aged over 50 years **38%** ↑
- Life expectancy **82 years** ↑

FIGURE 2 Population projection for Sri Lanka



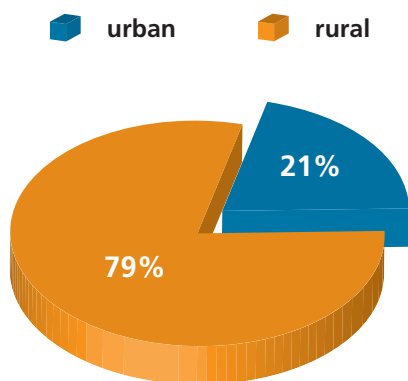
## Lifestyle

Available data is insufficient to make a firm conclusion on the adequacy of calcium (Ca) in the Sri Lankan diet. Green leaves, milk curd and small fish are the main sources of dietary Ca. In addition ground water in many parts of the country has a high Ca content and it can be a potential source of Ca in the Sri Lankan population.

Vitamin D deficiency or insufficiency, however, may be common. A recent study of 434 community-dwelling, healthy middle-aged women found severe vitamin D deficiency (<12.5 nmol/L) in 21.4% of subjects, whereas 19.1% subjects had moderate (12.5–25.0 nmol/L) and 15.7% had mild (25.1–35.0 nmol/L) vitamin D deficiency<sup>5</sup>.

Perhaps, however, low vitamin D levels may not be linked to urbanization (like they are in other Asian countries) since Sri Lanka is 80% rural (Figure 3)<sup>6</sup>, and further investigation is needed to shed light on the specific reasons.

**FIGURE 3** Urban versus rural population in Sri Lanka<sup>6</sup>



Additionally, physicians have reported that drug compliance is a serious concern as many patients discontinue medications without medical advice. Unsupervised continuation of oral bisphosphonates beyond the recommended period is also sometimes observed.

## Level of awareness

While Sri Lanka has a national health system that allows for cost-efficient access to osteoporosis treatment, many

challenges exist, including the lack of priority given to the disease. As mentioned later, limited amount of osteoporosis related epidemiologic data exists, drug compliance is low, less than half the hip fractures are treated surgically and disease management does not exist. Currently, disease education in Sri Lanka focuses mainly on heart, lung and contagious diseases. In an ageing population, the effects of osteoporosis are bound to affect Sri Lanka, and improvements are needed in overall public awareness as are educational enhancements in the medical community to ensure optimal patient care.

## FRACTURE RATES

### Hip fracture

According to the national societies, the number of patients presenting with osteoporosis-related fractures, especially hip and vertebral fractures, has increased in recent decades in Sri Lanka. Although this could partly be due to increased ascertainment secondary to improved orthopedic services, the majority of clinicians believe there has been a definite increase in fracture incidence over the years. One study using FRAX estimated the 10-year probability of a major osteoporotic fracture in Sri Lankans aged over 65 years to be 11% in men and 14% in women<sup>7</sup>. This categorized Sri Lankans as being at intermediate risk when compared to other countries<sup>7</sup>. However, the dearth of good quality epidemiological data remains a major barrier to deriving accurate estimates of disease impact.

When a Sri Lankan experiences a hip fracture they are likely to wait over 3 days for surgery, if surgery is even an option, since just 25–50% of hip fractures are treated surgically.

### Other fragility fractures

Data not provided.

### Vertebral fractures

Data not provided.

## COSTS OF FRACTURE

Information not currently available.

## FRACTURE REGISTRIES

Some of the hospitals in Sri Lanka have organized fracture registries through their individual institutions. Generally the registries capture information on hip fractures for both men and women over the age of 40 years.

## FRACTURE LIAISON SERVICES

Fracture liaison services are not part of osteoporosis management in Sri Lankan hospitals.

## SPECIALISTS RESPONSIBLE FOR OSTEOPOROSIS

Osteoporosis is mainly managed by endocrinologists and internal medicine physicians in Sri Lanka; however specific training on managing osteoporosis is also offered to the orthopaedists and rheumatologists. Other physicians who may care for patients include family doctors and rehabilitation medicine physicians.

## GOVERNMENT POLICIES

### Osteoporosis as a documented national health priority

Osteoporosis is not a national health priority in Sri Lanka. The current health-care system gives priority to non-communicable diseases (NCDs) such as those of the heart and lungs, together with diabetes and cancer. Additionally, approximately 35% of deaths are from communicable diseases and infections such as dengue and leptospirosis<sup>8</sup>. With such a large contribution to national morbidity and mortality figures from infectious diseases, resources available to focus on the silent disease of osteoporosis are scarce.

While osteoporosis is not a focus, the disease may receive some indirect benefit from the activities implemented for the other priority NCDs such as the promotion of a healthy diet, physical activity and the reduction of alcohol intake and smoking. Additionally, the Ministry



of Health recognizes falls as one of the five major categories of unintentional injuries (along with road traffic injuries, burns, poisoning and drowning)<sup>8</sup>. Again, it is possible that those with osteoporosis may benefit from programmes implemented in these areas for the population as a whole.

The national society Osteoporosis Sri Lanka targets policy makers regarding osteoporosis-related fractures and lobbies for sensible and economical ways to overcome the disease burden. The society makes significant efforts toward providing accurate information and raising osteoporosis awareness among the general public, media and health authorities.

### Guidelines

Guidelines for the management of osteoporosis were first available in Sri Lanka in 2007 and are being updated. The guidelines cover osteoporosis in postmenopausal women and glucocorticoid-induced osteoporosis. The fracture risk assessment and treatment guidance includes prior fracture, age and FRAX.

### Audit and quality indicator systems

Audit and quality indicator systems are not available in Sri Lanka for the management of osteoporosis.

### TREATMENT

Sri Lanka is one of the only developing nations to provide universal health care to its population. Coverage is provided by a combination of government and private-sector insurance and allows Sri Lankans to access services and treatments at low out-of-pocket cost (*Table 1*).

Access and cost do not appear to be an issue for osteoporosis treatment. However, drug compliance and disease management are an issue, especially in the area of secondary fracture prevention. Often, specific drugs are not routinely prescribed after the first fragility fracture, and when prescribed many patients discontinue medications without medical advice. This is mainly due to the lack of a widespread liaison service to cover this part of the patient care. Typically, bisphosphonates are the first-line treatment but a concern here is the often unsupervised continuation of treatment beyond the recommended period.

**TABLE 1** Treatments available in Sri Lanka and reimbursement levels

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

\*not available

### DIAGNOSTICS

There is limited access to bone mineral density (BMD) testing with the number of dual-energy x-ray absorptiometry (DXA) scanners at 0.1 machines per one million people<sup>11</sup>. When DXA is accessed, reimbursement is not a problem since the cost of 27 to 67 USD is covered by the government and/or private health insurance (*Table 2*).

### RECOMMENDATIONS

The national society Osteoporosis Sri Lanka believes that the introduction of a Sri Lankan FRAX model would improve patient care across the country. It would provide a way to estimate fracture risk in areas where access to DXA is limited. Country-specific intervention thresholds have been published recently and it will

**TABLE 2** Diagnostics access and cost in Sri Lanka

	DXA	ULTRASOUND
Waiting time (d)	immediate	n/a
Cost (USD)	27-67	n/a
Is it reimbursed?	yes	n/a
Is reimbursement a barrier to access to treatment?	no	n/a
N/A data not available		

provide a uniform platform for clinicians to make treatment decisions<sup>9</sup>.

Sri Lanka could benefit from a mechanism to capture all patients presenting with the first fragility fracture and offering them proper secondary prophylaxis. Additionally, improvements are needed in overall osteoporosis awareness in the general public and education needs to be improved in the medical community about proper patient care.

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