

South Africa: National and Economic Health Impact Analysis of Osteoporosis

Overview

In South Africa the incidence of osteoporosis in the white, Asian (from the Indian sub-continent) and mixed-race populations, appears to be similar to that of developed countries although no fracture data exist. Like the USA, hip osteoporosis is less prevalent in the black populations, although vertebral bone mass, and possibly also vertebral fracture prevalence in black and white South Africans appear to be similar. Further research on this important topic is clearly required. Until such data exist, we are using extrapolated data from the USA, UK, Canada and Australia. As this is automated, we acknowledge the likely inaccuracy of such extrapolated data as this does not take race, genetics and the uniqueness of the South African population into consideration.

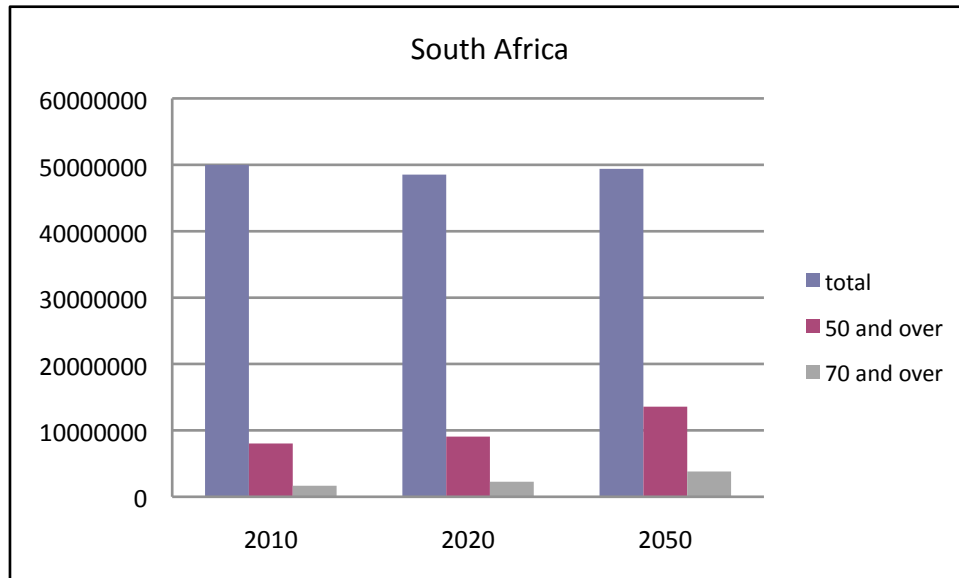
Because of the paucity of local data it would be unwise to make a 10-year fracture prediction, although based on the current population where only 7.5 million people are over the age of 50, it can be assumed that the ageing population will exponentially increase in the next decade or two and so will the occurrence of osteoporosis and osteoporotic fractures. Anti-retroviral therapy use has increased dramatically and the negative influence of these medications on bone health is known and being studied, also locally.

Osteoporosis is still not a health priority in South Africa where HIV/AIDS, tuberculosis and malnutrition are rife. The National Osteoporosis Foundation of South Africa (NOFSA) has therefore published guidelines on treatment and prevention in 2000 and rewrote these guidelines in 2010. Prevention of osteoporotic fractures and reduction in morbidity and mortality were the major considerations in the development of this guideline and although no formal economic analysis was undertaken, the cost-efficacy of diagnostic and therapeutic interventions was considered in all recommendations. All healthcare workers, general practitioners, specialist physicians and health authorities are targeted in the guidelines and ongoing discussion with our national Department of Health takes place regularly to ensure national distribution and use of said guidelines. We hope that these discussions will lead to an assessment of local fracture data, following which a health economic strategy can be developed to treat osteoporosis in this country.

Key findings

The present population in South Africa is estimated to be 50 million, of this 16% (8 million) is aged 50 and over and 3% (1.6 million) is 70 and over. By 2050, it is estimated that 28 % (13.6 million) of the population will be 50 and over and 8 % (4 million) will be 70 and over, while the total population will stay around 50 million (fig.1).

Figure 1: Population projection for South Africa until 2050



Ref US Census Bureau

* Projections are probably overestimated due to the fact that the HIV pandemic and projections were done prior to instating anti-retroviral therapy.

Epidemiology

If extrapolating data from international statistics, it is estimated that around 1.4 million females aged over 50 and 0.6 million males aged over 50 are suffering from osteoporosis.

Hip fracture

If extrapolating USA data, it would amount to approximately 54,890 hip fractures/year – although this is probably totally inaccurate as genetics, race etc. are not taken into consideration. We can state, with some degree of certainty based on data from local studies, that BMD values, as measured with DXA in our whites, mixed race and Indian populations are similar and not vastly different from the manufacturer's reference values. Hip fracture prevalence would therefore probably be similar in these population groups. No epidemiological data on hip fractures however exist. Unlike the Afro-Americans who have much higher BMD's than their white counterparts, local studies have shown that vertebral BMD in our blacks and whites are the same and that vertebral fracture rates appear to be similar in our black and white populations. Hip BMD values in blacks are however significantly higher.

Regarding hip fracture treatment, there is no accurate data available, but certainly the vast majority of fractures are surgically treated.

Table 1: Hip fracture costs and bed days

Direct hospital costs (per patient in private practice)	Indirect hospital costs (per patient)	Average hospital bed days
R ±170,000 (USD 24,000)	R ±20,000 (USD 2,500)	7-9 days

Vertebral fracture, other fragility fractures

In 2005 Delmas et al. suggested that approximately 12,281 vertebral fractures per year occur in South Africa when using automated extrapolation of US, European and Australian statistics.

Diagnosis

It is estimated that there are 180 DXA machines in South Africa (0.036/10,000), mostly only available in urban areas; the exam costs about R 1000 (USD 130). Approximately 30,000 DXA scans are done annually in state hospitals, at no cost to patients. It takes 1-2 weeks to get the exam in state hospital and 1-2 days in private practice. Ultrasound machines are rarely used as a diagnostic tool for osteoporosis. The exam costs R 350 (USD 50).

Reimbursement policy

South Africa does not have a Government Health plan so far, although it is planned on implementing one within the next few years. Private health care insurance reimburse these exams if BMD demonstrates severe osteopenia or osteoporosis, if fragility fractures or risk factors are present, and for patients on higher end plans Medical Aids pay for DXA and medication.

Calcium and vitamin D

Calcium and vitamin D supplements are available but very few food products are fortified with calcium or Vitamin D.

Prevention, education, level of awareness

Although osteoporosis is not yet recognized as a major health problem in South Africa, the National Department of Health has guidelines (supplied by the National Osteoporosis Foundation of South Africa - NOFSA) for the prevention and treatment of osteoporosis which are distributed at Primary care level and NOFSA supply prevention and treatment guidelines to both physicians and the general public. Lobbying at the government level and with Medical Aids is an ongoing process and there have been many meetings with both parties to discuss the new guidelines that were published in 2010.

Medical students and most allied health care workers (dietitians, physiotherapists, nurses, and radiologists) receive training in the prevention, diagnosis and treatment of osteoporosis.

In general, the level of awareness about osteoporosis among individuals is good. NOFSA tries and spreads awareness throughout the year by means of radio-talks and the written media and have a specific bone awareness month in October/November where especially community radio and other media require interviews and articles from NOFSA (from World Osteoporosis Day on October 20th to the end of November).

NOFSA is the only Foundation dealing with osteoporosis in this country and therefore the only reference centre. Articles (about 20 per year) which are written in the lay press are mostly checked by NOFSA first for factual correctness. It also hosts a Healthy Bones web-forum nationally, does about 30 radio and TV talks per year, distributes an annual newsletter to patients and physicians, runs an annual Advanced Training Course (based on the IOF-model) for physicians, and has hosted three joint training courses for physicians as well as DXA operators with the ISCD. NOFSA also has an annual media-based bone awareness month in November which is driven by NOFSA's PR company who does this pro-bono and has also co-hosted a Skippathon for children with a local dairy company.

Recommendations

There is an urgent need for South African specific prevalence and fracture statistics to lobby successfully. In a country where diseases like HIV/Aids, Tuberculosis, and malnutrition are rife and currently responsible for the most deaths, osteoporosis still has a long way to go before being recognized as a serious disease. The myth also still exists that this is a disease of old white women and a normal part of ageing, whereas we have found that black women have similar bone densities and in fact fracture their vertebrae at the same rate as white women.

Funding for epidemiologic prevalence studies are not that readily available, hence the paucity of reliable local fracture statistics.