

**SCORECARD FOR OSTEOPOROSIS IN EUROPE (SCOPE)**

# Epidemiology, Burden, and Treatment of Osteoporosis in Denmark

This document highlights the key findings for Denmark, published in “Osteoporosis in Europe: A Compendium of country-specific reports”<sup>1</sup>. View the complete SCOPE 2021 report<sup>2</sup> and related 29 country profiles at: <https://www.osteoporosis.foundation/scope-2021>

## BURDEN OF DISEASE

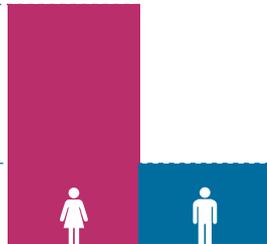
### Individuals with osteoporosis in Denmark

**328,000**

INDIVIDUALS WITH OSTEOPOROSIS IN 2019

**77.7%**  
WOMEN

**22.3%**  
MEN



The prevalence of osteoporosis in the total population amounted to 5.1%, on par with the EU27+2 average (5.6%). In Denmark, 21.1% of women and 6.5% of men aged 50 years or more were estimated to have osteoporosis.

### New fragility fractures in Denmark

**86,000**

**NEW FRAGILITY FRACTURES**

IN 2019



**236**  
FRACTURES /DAY



**10**  
FRACTURES /HOUR

The number of new fragility fractures in Denmark in 2019 was slightly increased compared to 2010, equivalent to an increment of 3.9 fractures per 1000 individuals, totalling 37.0 fractures/ 1000 individuals in 2019.

### Estimated annual number of deaths associated with a fracture event

In addition to pain and disability, some fractures are associated with premature mortality. SCOPE 2021 showed that the number of fracture-related deaths varied between the EU27+2 countries, reflecting the variable incidence of fractures rather than standards of healthcare.



**DENMARK**  
**211/100,000**  
INDIVIDUALS AGED 50+



**EU 27+2**  
**116/100,000**  
INDIVIDUALS AGED 50+

### Remaining lifetime probability of hip fracture

WOMEN

**+50**  
YEARS



MEN

**+50**  
YEARS



Hip fracture is the most serious consequence of osteoporosis in terms of morbidity, mortality and health care expenditure. The remaining lifetime probability of hip fracture (%) at the ages of 50 years in men and women was 10.6% and 22.1%, respectively, placing Denmark in the upper tertile of risk for both men and women.



“  
**THE NUMBER OF FRAGILITY  
 FRACTURES IN DENMARK IS  
 EXPECTED TO INCREASE BY MORE  
 THAN 32% BETWEEN 2019 AND 2034,  
 WITH A SUBSTANTIAL IMPACT ON  
 THE HEALTHCARE BUDGET**  
 ”

### Projected increase in the number of fragility fractures



Age is an important risk factor for fractures. The Danish population aged 50 years or more is projected to increase by 7.0% between 2019 and 2034, somewhat less than the EU27+2 average of 11.4%. The increases in men and women aged 75 years or more are more marked; 48.2% for men; 38.8% for women. Accordingly, the number and burden of fragility fractures are likely to increase.

### Healthcare cost of osteoporotic fractures

The cost of osteoporotic fractures in Denmark accounted for approximately 4.7% of healthcare spending (i.e., €1.45 billion out of €29.8 billion in 2019), which is significantly higher than the EU27+2 average of 3.5%. These numbers indicate a substantial impact of fragility fractures on the healthcare budget.

Type of costs	
Direct cost of incident fractures	€852.8 million
Ongoing cost resulting from fractures in previous years (long-term disability costs)	€548.4 million
Cost of pharmacological intervention (assessment & treatment)	€51.2 million
<b>Total direct cost (excluding the value of QALYs* lost)</b>	<b>€1.45 billion</b>

\*QALYs: Quality-Adjusted Life-Year – a multidimensional outcome measure that incorporates both the Quality (health-related) and Quantity (length) of life

In 2019, the average direct cost of osteoporotic fractures in Denmark was €250.5/person, while in 2010 the average was €209.7/person (increase of 19%).

The 2019 data ranked Denmark in 2<sup>nd</sup> place in terms of highest cost of osteoporotic fractures per capita in the surveyed 29 countries.

## POLICY FRAMEWORK

Documentation of the burden of disease is an essential prerequisite to determine if the resources are appropriately allocated in accordance with the country's policy framework for the diagnosis and treatment of the disease.

### Key measures of policy framework for osteoporosis in Denmark

Measure	Estimate
Established national fracture registries	No
Osteoporosis recognised as a specialty	No
Osteoporosis primarily managed in primary care	Yes
Other specialties involved in osteoporosis care	Endocrinology, Rheumatology
Advocacy areas covered by patient organisations	Policy, Capacity, Research & Development

Despite the lack of established national fracture registries, the national data on hip fracture rates are of high quality and include more than only hip fracture data.

In Denmark, osteoporosis and metabolic bone disease are not recognised specialties. However, osteoporosis is recognised as a component of specialty training.

Advocacy by patient organisations can fall into four categories: policy, capacity building and education, peer support, research and development. For Denmark, three of the four advocacy areas (Policy, Capacity, Research and Development) were covered by a patient organisation.

## SERVICE PROVISION

The provision of medical services for osteoporosis was reviewed with certain key components, including reimbursement elements which may impair the delivery of healthcare.

### Service provision for osteoporosis in Denmark



Denmark is one of the 12 (out of 27) countries that offered full reimbursement for osteoporosis medications.

The number of DXA units expressed per million of the general population amounted to 17.4 which puts Denmark in 14<sup>th</sup> place among the EU27+2. Furthermore, the availability of Trabecular Bone Score (TBS), which measures bone quality, was third highest.

In Denmark, the estimated average waiting time for DXA amounted to 90 days (24<sup>th</sup> rank). The reimbursement for DXA was unconditional for those patients who fulfil criteria (based on BMD and risk factors).

National fracture risk assessment models such as FRAX® were available in Denmark, as well as guidance on the use of fracture risk assessment within national guidelines. Guidelines for the management of osteoporosis were available in Denmark with a focus on different specificities; postmenopausal women, osteoporosis in men, secondary osteoporosis including glucocorticoid-induced osteoporosis.

Fracture Liaison Services (FLS), also known as post-fracture care coordination programmes and care manager programmes were reported for 10-25% of hospitals in Denmark.

National quality indicators allow to measure the quality of care provided to patients with osteoporosis or associated fractures. Systematic use of national quality indicator was reported for Denmark regarding hip fractures.

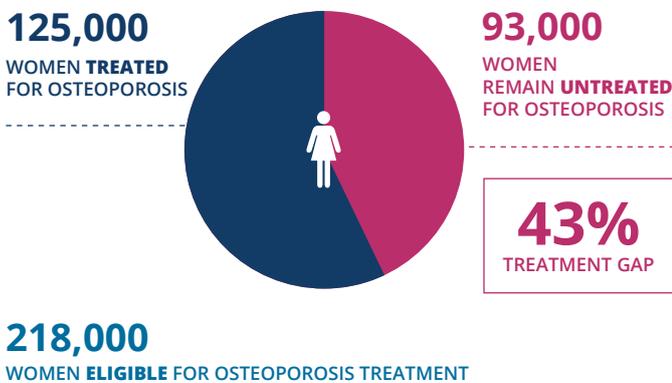
Service uptake for osteoporosis in Denmark

The condition of service uptake was evaluated with metrics that reflect fracture risk assessment, treatment gap, and management of surgery for hip fractures.

Measure	Estimate	Rank among EU27+2
Number of FRAX® sessions/ million people/year	319	25
Treatment gap for women eligible for treatment	43%	2
Proportion of surgically managed hip fractures	>90%	

There was considerable heterogeneity between the countries in web-based FRAX® usage. The average uptake for the EU27+2 was 1,555 sessions/million/year of the general population with an enormous range of 49 to 41,874 sessions/million. For Denmark, the use of FRAX® amounted to 319 sessions/million in 2019 with a 66% decrease since 2011.

Do women at high fracture risk receive treatment?



Many studies have demonstrated that a significant proportion of men and women at high fracture risk do not receive therapy for osteoporosis (the treatment gap). For Denmark, the treatment gap amongst women **decreased to 43%** in 2019, compared to 54% in 2010. In the EU27+2 the average gap was 71% but ranged from 32% to 87%.

For Denmark, the average waiting time for hip fracture surgery after hospital admission was reported to be 1-2 days. The proportion of surgically managed hip fractures was over 90%.

Burden of Disease		Policy Framework	
Hip Fracture Risk	Red	Quality of Data	Yellow
Fracture Risk	Red	National Health Priority	Red
Lifetime Risk	Red	Care Pathway	Green
FRAX® Risk	Red	Specialist Training	Yellow
Fracture Projections	Red	Society Support	Yellow

Service Provision		Service Uptake	
Treatment	Green	FRAX® Uptake	Red
Availability of DXA	Yellow	Treatment Gap	Green
Access to DXA	Green	Δ Treatment Gap	Green
Risk Models	Green	Waiting Time for Hip Fracture Surgery	Yellow
Guideline Quality	Red		
Liaison Service	Yellow		
Quality Indicators	Green		

The elements of each domain in each country were scored and coded using a traffic light system (red, orange, green) and used to synthesise a scorecard.

Denmark scores resulted in a 1<sup>st</sup> place regarding Burden of Disease. The combined Healthcare Provision (Policy Framework, Service Provision, and Service Uptake) scorecard resulted in a 10<sup>th</sup> place for Denmark. Accordingly, Denmark represents one of the high-burden high-provision countries among the 29 European surveyed countries.

Since the previous SCOPE study in 2010, scores for Denmark were somewhat improved. Overall, they had improved in 15 countries, remained constant in 8 countries and worsened in 3 countries.

Acknowledgments

SCOPE Corresponding National Society based in Denmark

- Danish Bone Society  
www.danskknogleselskab.dk

References

1. Willers C, et al. Osteoporosis in Europe: A compendium of country-specific reports, Arch Osteoporos, 2022
2. Kanis JA, et al. SCOPE 2021: a new scorecard for osteoporosis in Europe, Arch Osteoporos, 2021