# **Appendix 3: Calculations for overdiagnosis**

## **Definition:**

In the setting of screening to identify risk, we defined overdiagnosis as the identification of high risk in individuals who, if not screened, would never have known that they were at risk and would never have experienced a fracture. This calculation describes the extent of overdiagnosis in the screened population (compared to no screening).

## **Calculation:**

**W** = proportion (%) of individuals deemed at high risk (based on threshold) or shared decision making **y** = mean % risk in this high risk population **100** – **y** = % who would theoretically not fracture

### Extent of overdiagnosis = W x (100-y) / 100

### **Overdiagnosis using trial data:**

Trials	SCOOP (Shepstone, 2018)		SALT (Merlijn, 2019) <sup>a</sup>
	Females 70-80 years		Females 65-90 years
	10-year risk of hip fracture		10-year risk of MOF
	Offer-to-screen in	Screened as high-risk	Offer-to screen in
	"select population"	with clinical FRAX	"select population"
		and referred for BMD	
Number offered	6233	3064	5575
screening			
Number above the	898	898	1417
treatment threshold			
% above the treatment	14.4%	29.3%	25.4%
threshold (W)			
Mean risk in high risk	17.9%	17.9%	23.9%
group (y) <sup>ь</sup>			
Calculation of	14.4 x (100-17.9) / 100	29.3 x (100-17.9) /	25.4 x (100-23.9) / 100
overdiagnosis		100	
% overdiagnosed	11.8%	24.1%	19.3%

MOF = major osteoporotic fracture

<sup>a</sup> This study included only women with at least one risk factor, so the proportion above the treatment threshold would be expected to be higher than the general population

<sup>b</sup> Calculated using clinical FRAX (without BMD); note that the trials did not use clinical FRAX for treatment thresholds

Appendix 3, as supplied by the authors. Appendix to: Thériault G, Limburg H, Klarenbach S, et al. Recommendations on screening for primary prevention of fragility fractures. *CMAJ* 2023. doi: 10.1503/cmaj.221219. Copyright © 2023 The Author(s) or their employer(s). To receive this resource in an accessible format, please contact us at cmajgroup@cmaj.ca.