

**Screening for osteoporosis in the general population**

**Abstract**

**Background:** Osteoporosis is a systemic skeletal disease characterised by low bone mineral density (BMD) and increased bone fragility. Screening aims to identify and treat people with osteoporosis in order to avoid fractures. No generally accepted European policy for osteoporosis screening currently exists. The aim of this Rapid Relative Effectiveness Assessment was to compare the benefits and harms of population-based screening with no screening.

**Methods:** Randomised controlled trials using a “conventional” marker-based strategy design (SD-RCTs) were used as the primary information source. We also included enrichment designs (ED-RCTs) investigating drug treatment of people with a positive screening result. We first conducted a focused search for systematic reviews and health technology assessments and identified a report by the Agency for Healthcare Research and Quality (AHRQ), which was classified as suitable and included in order to identify primary studies. We then conducted an update search for recent primary studies in MEDLINE, Embase, Cochrane databases and study registries (last search: 05/2019). Risk of bias was assessed by standard tools. Data extraction and study selection were conducted by 2 reviewers independently of one another. Data were analysed using meta-analysis.

**Results:** We included 3 SD-RCTs (SCOOP, ROSE and COSHIBA) with 49,912 randomised women. All applied a 3-step intervention (mainly the FRAX risk questionnaire, DXA for BMD measurements, and treatment for test-positive persons); 5 ED-RCTs were also included (n = 8,844). The data showed that screening probably has little or no effect on the incidence of symptomatic fractures, since several (meta-)analyses investigating different outcome operationalisations and types of fractures showed no statistically significant results (moderate-quality evidence). Results on hip fractures were inconsistent. Data on mortality and health-related quality of life also showed no statistically significant differences. Furthermore, screening may have little or no difference on the incidence of serious adverse events related to zoledronic acid (low-quality evidence), since no statistically significant effects were observed.

**Conclusion:** Since the available studies of moderate quality show no effect of screening on the incidence of symptomatic fractures, screening for osteoporosis in postmenopausal women probably has little or no benefit. These findings are mainly based on studies investigating a screening strategy using FRAX for risk assessment and DXA for BMD measurement. The studies included did not allow the evaluation of screening strategies based on other screening tools. As in any screening intervention, benefits and harms are affected by multiple factors such as the type and uptake of screening and treatment. No studies were found on osteoporosis screening in men or younger women.