

ABSTRACT TITLE: “Secular trends in the initiation of therapy in secondary fracture prevention: widening treatment gaps in Denmark and Spain”

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Purpose: There is a recognised gap in the initiation of anti-osteoporosis therapy for secondary fracture prevention. We used population-based databases in Spain and Denmark to quantify the *treatment gap* amongst fractured patients in 2005-2015.

Methods: Data were extracted from primary care records in Catalonia (SIDIAP) and the national hospital database from Denmark, linked to pharmacy dispensation/s from 2005 (2007 for SIDIAP) to 2016. Patients with an incident fracture (any but skull/face/digits) in 2005-2015 and aged over 50 years were eligible. Those with prostate, breast, or bone cancer were excluded, as were users of anti-osteoporosis therapy in the year before fracturing. Numbers and % with at least one prescription of anti-osteoporosis treatment in the year following fracture were reported, and treatment gap (those not starting any such therapy) over calendar years depicted. Analyses were stratified by country and fracture site.

Results: A total of 131,959 (31,908 wrist, 9,773 hip, 7,664 spine, and 13,230 proximal humerus) and 284,375 (74,911 wrist, 46,171 hip, 8,331 spine, and 29,367 proximal humerus) fracture participants were included from Spain and Denmark respectively. Overall, secondary fracture prevention was more often started after clinical spine (S 18.3%, DK 15.7%), followed by hip (S 11.5%, DK 10.1%), wrist (S 8.1%, DK 4.4%) and proximal humerus (S 6.9%, DK 3.5%) fractures. Hence treatment coverage was similar for clinical spine and hip, but halved for wrist and proximal humerus in Denmark compared to Spain.

Already large treatment gaps increased further in the study period in Spain, from 89.6% for all fractures (80.5% for spine, 89.6% for proximal humerus) in 2007 to 94.7% (86.0% for spine, 94.9% for proximal humerus) in 2015. In Denmark, treatment gaps widened for spine (81.1% in 2005 to 87.6% in 2015), and remained stable for other fractures [Figure 1].

Conclusions: Despite the known imminent fracture risk following a first fracture, unacceptable treatment gaps remain, and have widened in Spain, from 80% to 86% for clinical spine and from 90% to 95% for proximal humerus between 2007 and 2015 respectively. Data from DK suggest a similar trend in treatment gap for clinical spine, but not for other fracture/s. This compares to a 76% treatment gap overall in the 2017 UK Fracture Liaison Service audit. Effective secondary fracture prevention services that can demonstrate closing the treatment gap are urgently required in Europe.

Figure 1. Treatment gap following fracture/s over time in Spain (solid) and Denmark (dash) for all (black), spine (orange), hip (red), proximal humerus (blue), and wrist/forearm fractures (green).

