

# INCIDENCE OF IMMINENT SUBSEQUENT FRACTURE IN POSTMENOPAUSAL WOMEN AS CAPTURED IN PRIMARY CARE COMPARED TO HOSPITAL RECORDS IN UK AND SPAIN

Xihang Chen<sup>1</sup>, Trishna Rathod-Mistry<sup>1</sup>, Gianluca Fabiano<sup>1</sup>, Antonella Delmestri<sup>1</sup>, Alireza Moayyeri<sup>2</sup>, Joshua Warden<sup>2</sup>, Carlen Reyes<sup>3</sup>, Rafael Pinedo-Villanueva<sup>1</sup>, Eng Hooi Tan<sup>1</sup>

**Affiliations:** <sup>1</sup>Nuffield Department of Orthopaedics, Rheumatology, and Musculoskeletal Sciences, University of Oxford, Oxford, United Kingdom, <sup>2</sup>UCB Pharma, Slough, United Kingdom, <sup>3</sup>Fundació Institut Universitari per a la recerca a l'Atenció Primària de Salut Jordi Gol i Gurina (IDIAPJGol), Barcelona, Spain

## Objective

To compare the incidence of imminent subsequent fracture (ISF) among postmenopausal women with fragility fractures as recorded in primary care versus hospital setting.

## Methods

**Design:** Multinational real- world cohort study

**Setting:** Primary care\* linked with hospital+ databases (Figure 1)

**Participants:** Women who met the eligibility criteria were included (Table 1)

Figure 1. Databases included in the study

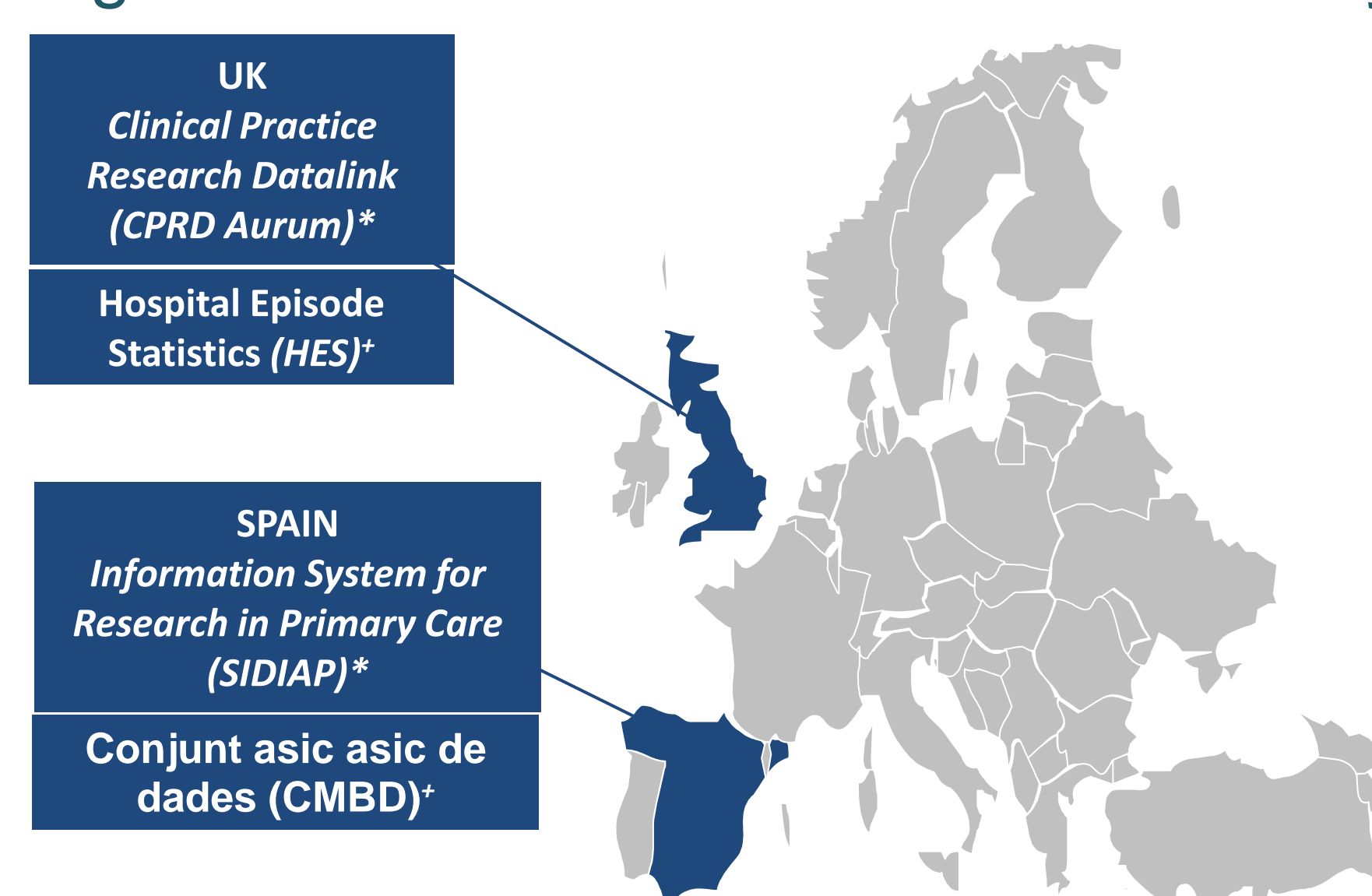


Table 1. Eligibility criteria

Inclusion Criteria	Exclusion Criteria
<ul style="list-style-type: none"> <li>Women aged <math>\geq 50</math> years</li> <li>Index fragility fracture between April 2010 to April 2018</li> <li><math>\geq 730</math> days observation period prior to index fracture</li> </ul>	<ul style="list-style-type: none"> <li>History of fracture in 730 days prior</li> <li>Cancer (except non-melanoma skin cancer), Paget's disease of the bone, or other metabolic bone diseases at any time prior to and including index date</li> </ul>

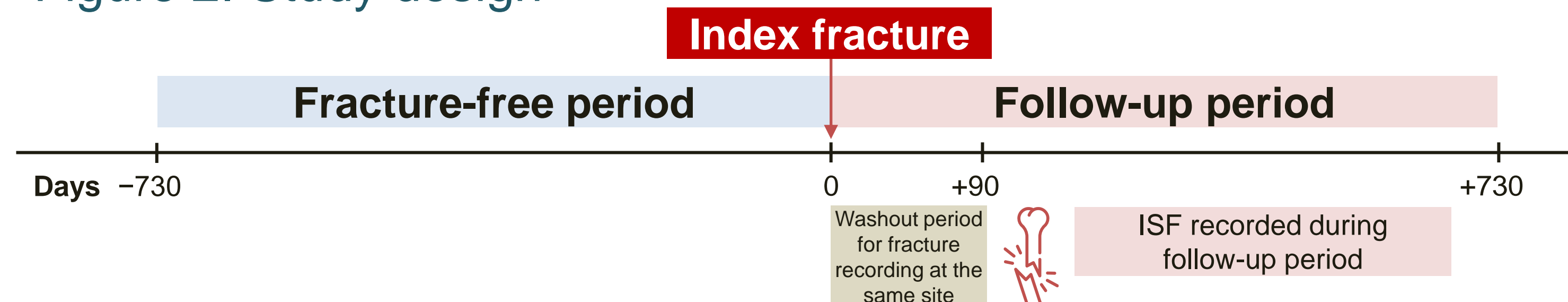
**Outcome:** Occurrence of ISF within two years of the index fracture

**Follow-up censoring events:** Cancer (except non-melanoma skin cancer), Paget's disease of the bone, or other metabolic bone diseases, death, end of data collection period

**Statistical analysis:**

- Incidence rate (IR) per 1,000 person years (PY) of ISF
- Site-specific cumulative incidence, stratified by the index fracture site, accounting for competing risk of death (Figure 2)

Figure 2. Study design



## Results

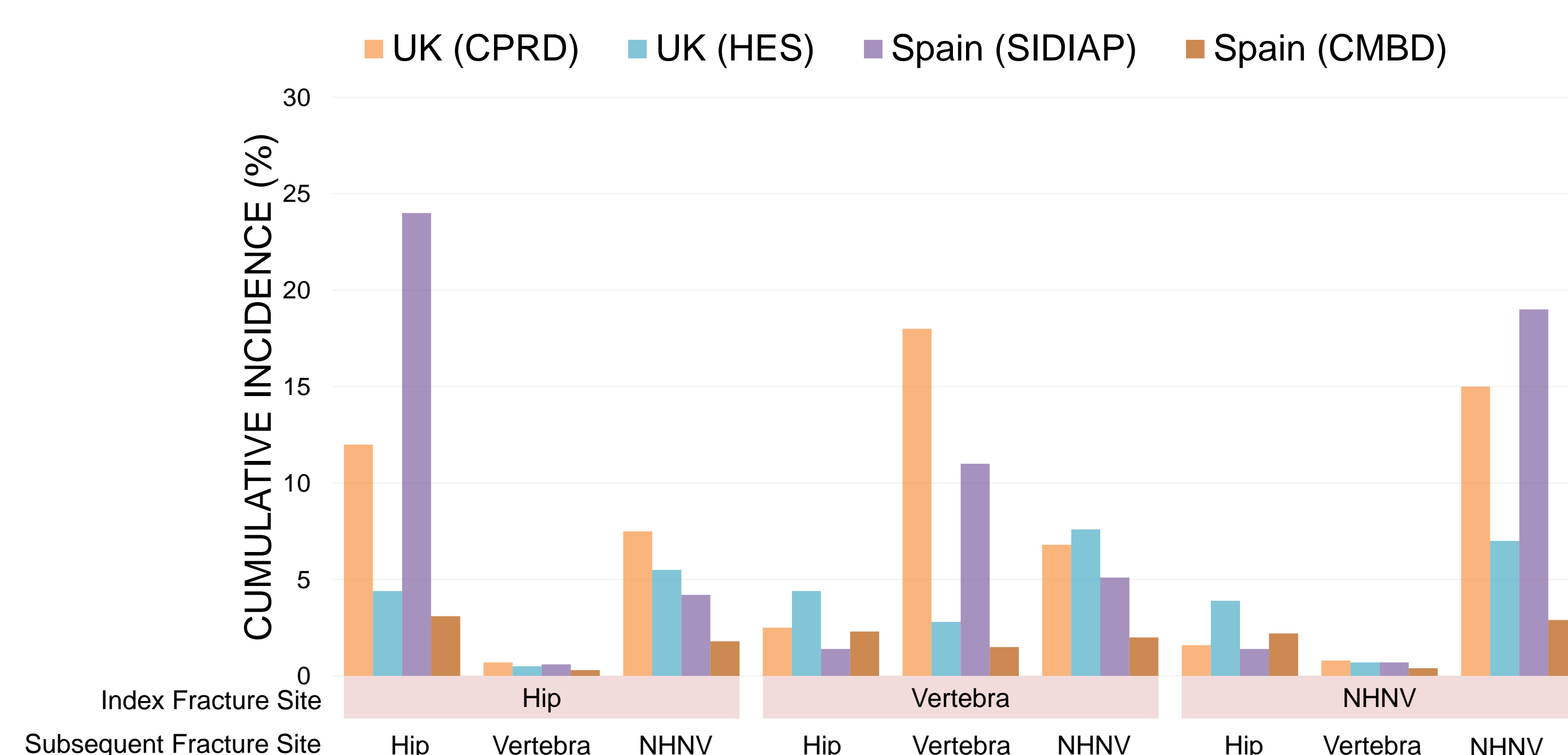
- The overall IR (per 1,000 PY) of ISF was 1.6 times higher in primary care as compared to hospital setting in the UK, and 4.5 times higher in Spain (Table 2).

Table 2. Incidence of ISF in primary care and hospital settings

Database	Setting	N	PY	ISF	IR	Lower CI	Upper CI
CPRD (UK)	Primary care	48,108	81,328	9,271	114.00	111.69	116.34
HES (UK)	Hospital	31,362	49,074	3,437	70.04	67.72	72.42
SIDIAP (Spain)	Primary care	143,992	274,003	38,904	141.98	140.58	143.40
CMBD (Spain)	Hospital	45,981	80,821	2,524	31.23	30.02	32.47

- In primary care, the cumulative incidence of ISF is highest at the same index fracture site.
- In hospitals, ISF occurs most frequently at the non-hip non-vertebral (NHNV) site in UK, and hip in Spain (Figure 3).

Figure 3. Two-year cumulative incidence of ISF



## Discussion

- As the hospital records in both countries did not include emergency room visits, most of non-hip fractures which do not need to be hospitalised are captured in primary care.

## Conclusions

- Differences in incidence of ISF may be due to a mix of the nature of fracture recording in each country/setting and possible re-recording of vertebral and NHNV fractures in primary care.
- Understanding these differences will help future research in generating reliable real-world evidence for osteoporosis.