Primary Care Resource Utilization and Costs of Imminent Subsequent Fractures in Postmenopausal Women: A Distributed Network Analysis using data mapped to OMOP Common Data Model from Six European Countries

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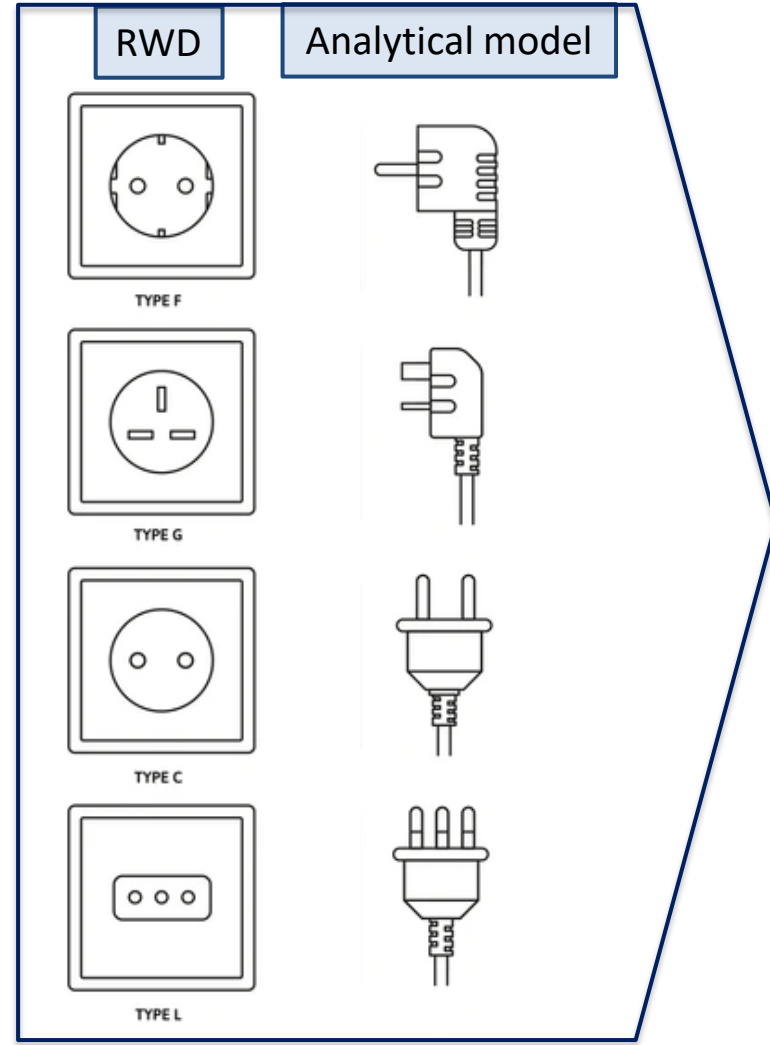[5] Erasmus MC, Rotterdam, Netherlands

Disturbances

- This project was funded by UCB and Amgen Inc.
- XC, TRM, GF, AD, EHT, CR, SFB: Nothing to declare
- RPV: has received funding from UCB and Amgen to conduct this research and other research in secondary fracture prevention.
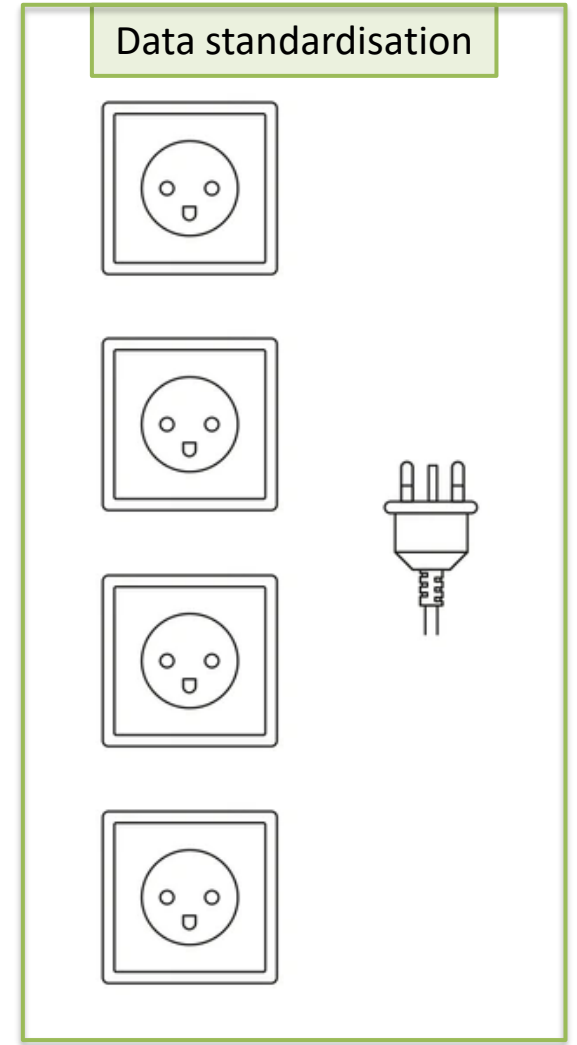- AM: Employee and shareholder of UCB;
- JW: Employee of UCB

Objectives

1. To describe the characteristics of postmenopausal women with an imminent subsequent fracture

2. To describe the incidence of imminent subsequent fractures amongst postmenopausal women

3. To estimate the impact of an imminent subsequent fracture on healthcare **resource utilisation and direct costs** amongst postmenopausal women.

Distributed network cohort study using **electronic healthcare records** from administrative datasets **mapped to the OMOP Common Data Model**
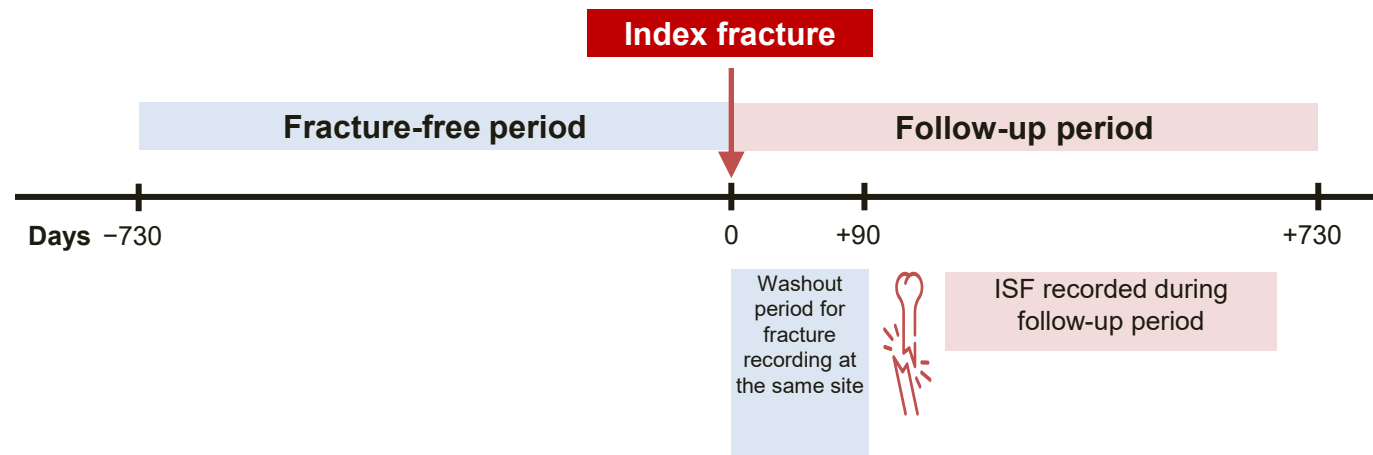
Definitions

1. Patient characteristics

2. Incidence

3. Economic burden Primary and secondary care

Postmenopausal women (>50 yrs old) with an **imminent subsequent fracture**

"A fracture occurring within 2 years of a sentinel fracture"

Index fracture

Fracture-free period

Follow-up period

Days −730   0   +90   +730

Washout period for fracture recording at the same site

ISF recorded during follow-up period

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Setting and data sources
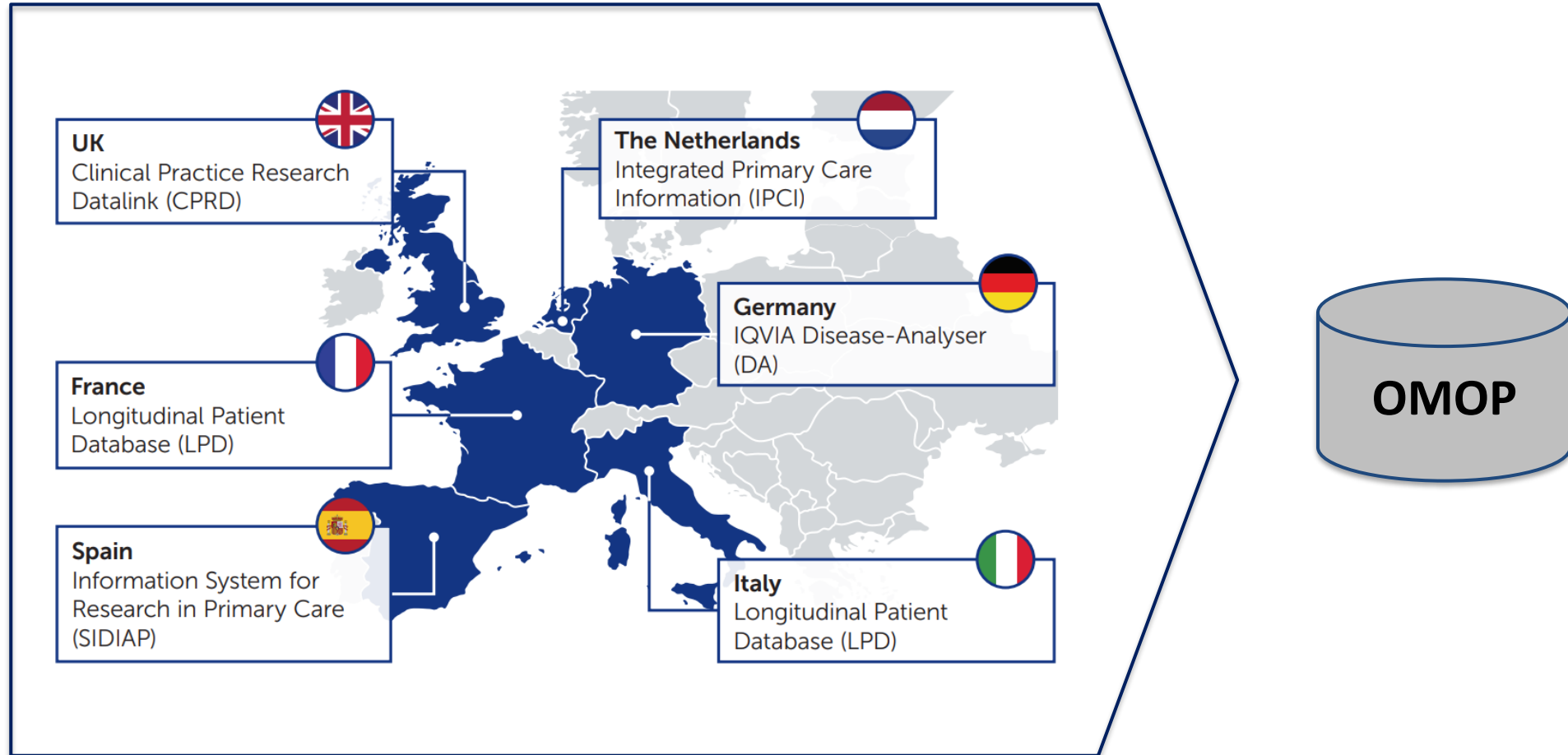
Study design

Participants: postmenopausal women (>50 years old) divided into three cohorts

Target cohort

Patients who had an **imminent subsequent fracture** within 2 years of their initial fracture

PS matching

Comparator cohort 1 (C1)

Patients with an index **fracture** and no history of other fracture in the prior 2 years

PS matching

Comparator cohort 2 (C2)

Patients with **no** history of **fracture** ever

Comparison 2

Comparison 1
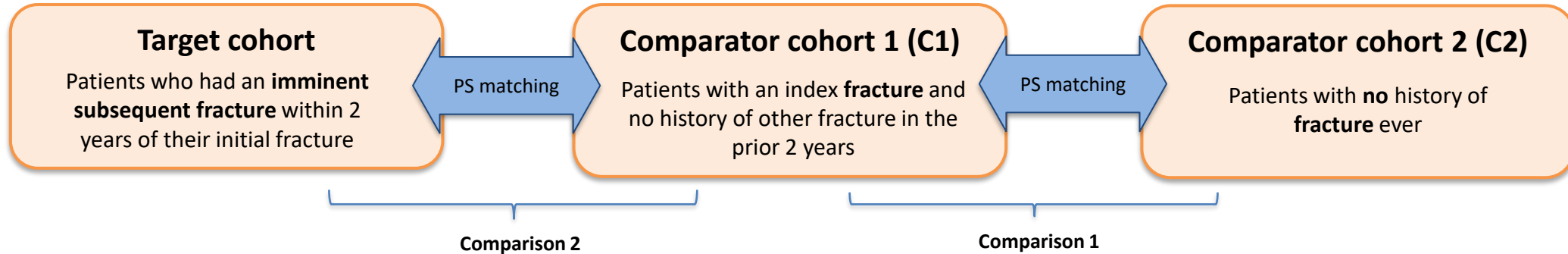
Study period: 01 April 2010 to 31 March 2018, divided into 6-month periods to account for seasonality of fracture occurrence

Outcomes
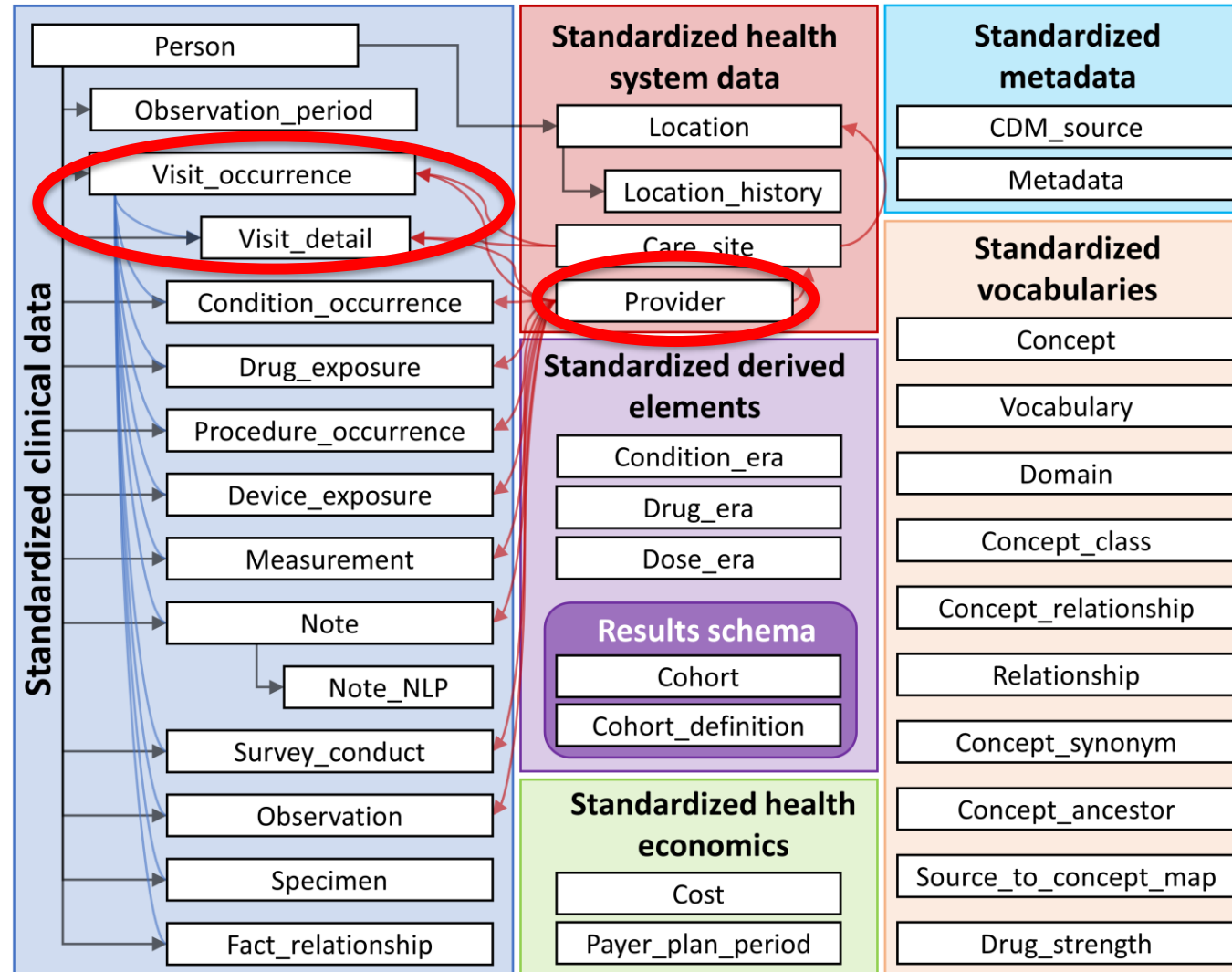
Healthcare Resource Utilisation (HCRU):

- Staff role (UK)
- Type of visit (Netherlands)
- Staff specialty (All other countries)

Cost:

- National reference unit cost (UK, France, Germany)
- Regional reference cost (Spain)
- Literature (Italy)

Key OMOP tables

- Variables reporting source values (as they appear in the source dataset), UK

- Linkage between tables (Netherlands)

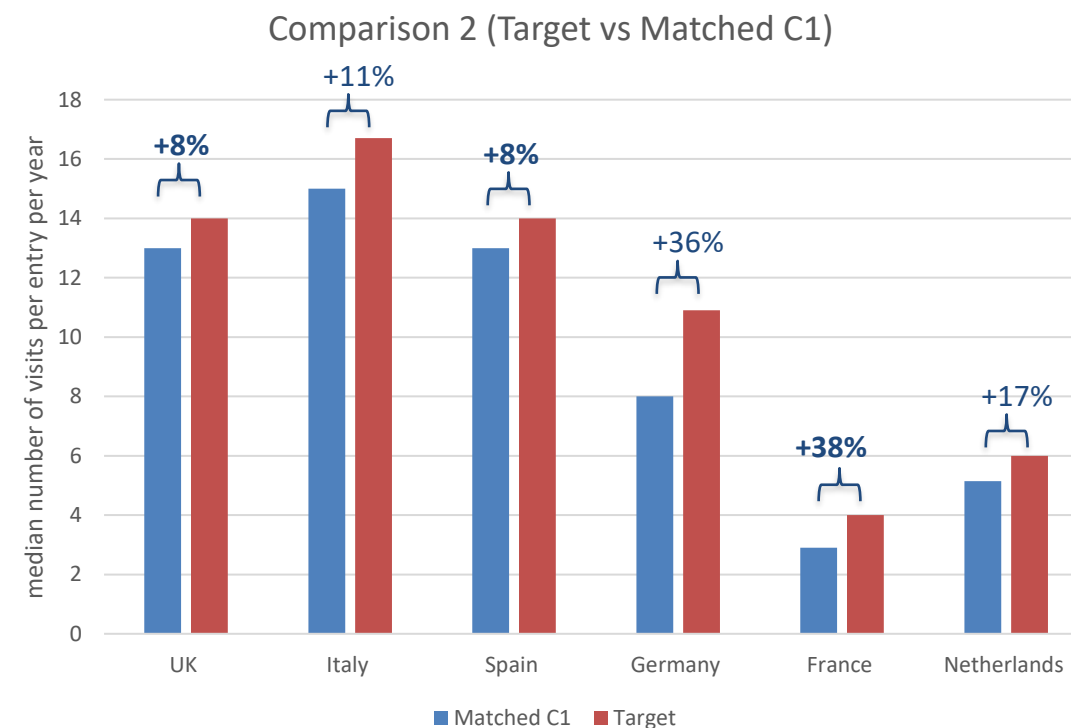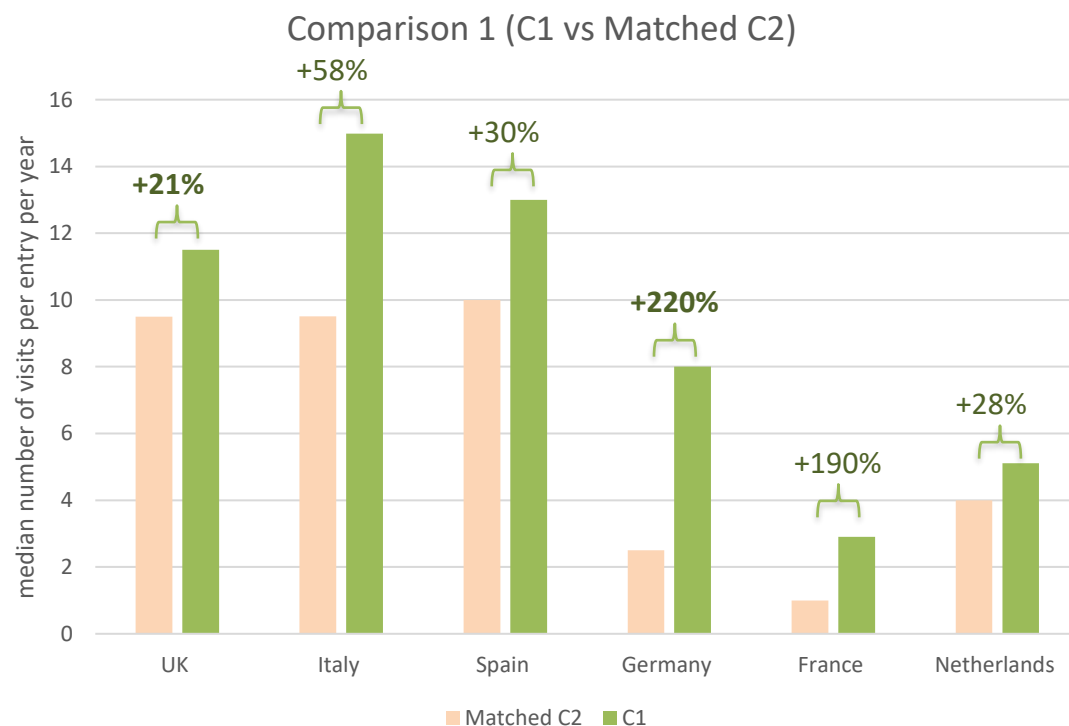# Users of primary care services

A **greater** proportion of women with **single fracture** (C1) compared to those with **no fracture** (matched-C2) **used primary care services.** Similarly, the % of users with **imminent subsequent fracture** (Target) **was higher** compared to women with a **single fracture** (matched-C1).

Comparison 1 (C1 vs Matched C2)

Comparison 2 (Target vs Matched C1)

HCRU
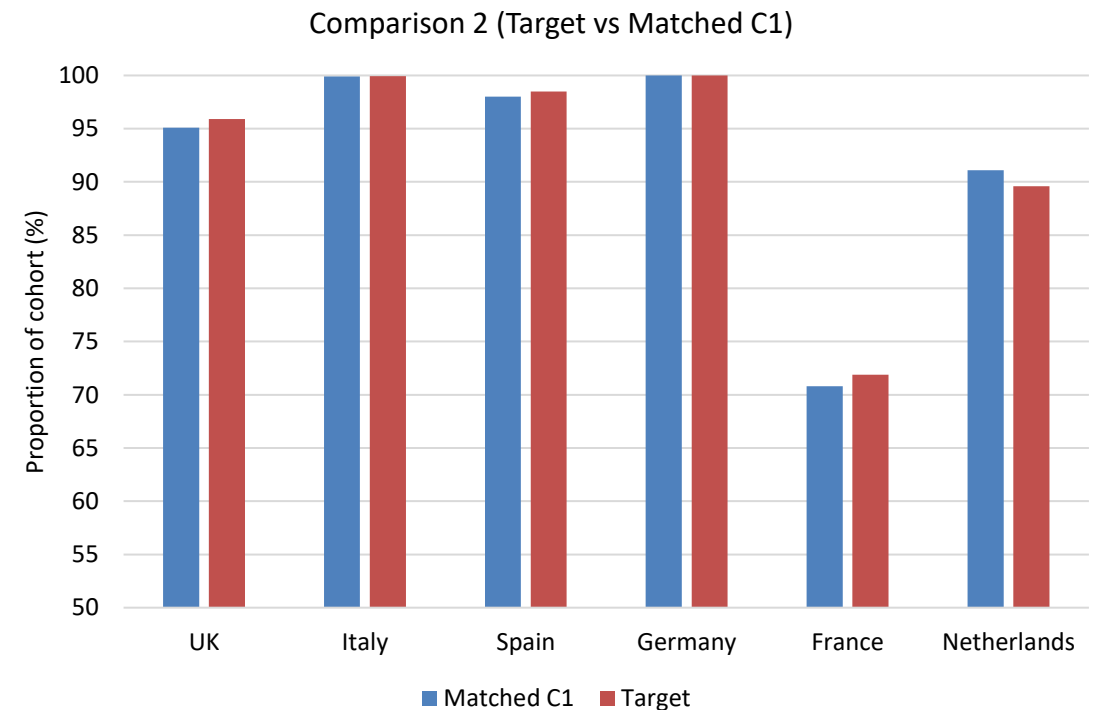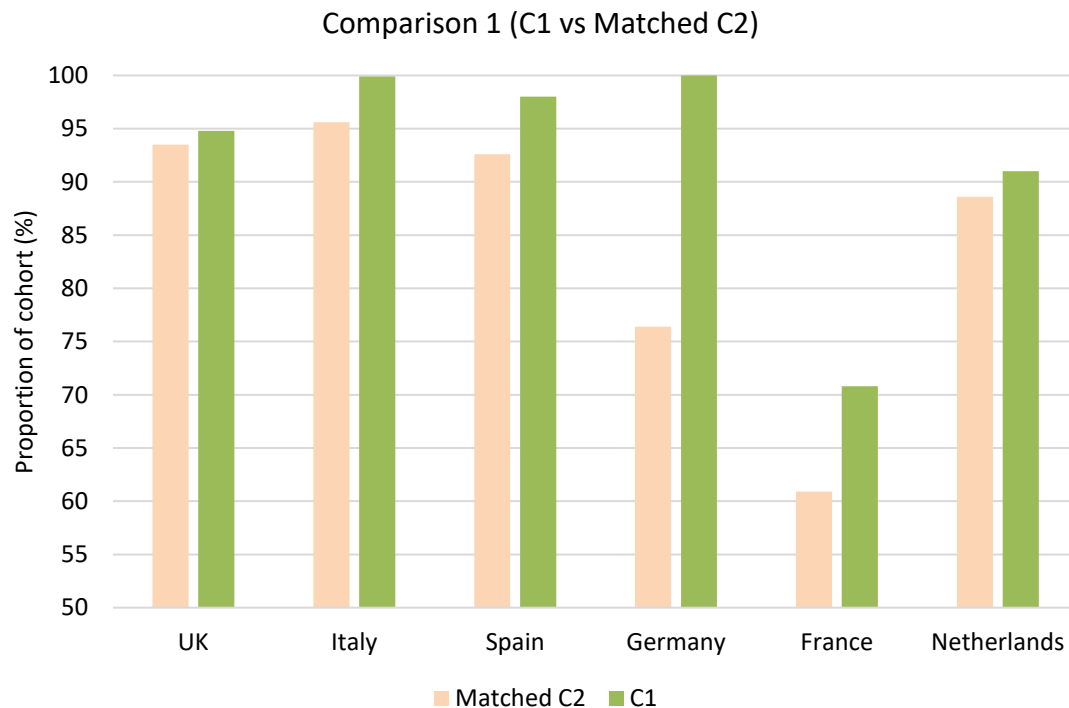
Women with a **single fracture** (C1) **required more primary care consultations than** those **without fractures** (matched-C2). Those who had an **imminent subsequent fracture** (Target) had yet **more consultations** (vs. matched-C1).

Comparison 1 (C1 vs Matched C2)

median number of visits per entry per year

+21%
+58%
+30%
+220%
+190%
+28%

UK   Italy   Spain   Germany   France   Netherlands

Matched C2   C1

Comparison 2 (Target vs Matched C1)

median number of visits per entry per year

+8%
+11%
+8%
+36%
+38%
+17%

UK   Italy   Spain   Germany   France   Netherlands

Matched C1   Target

Costs

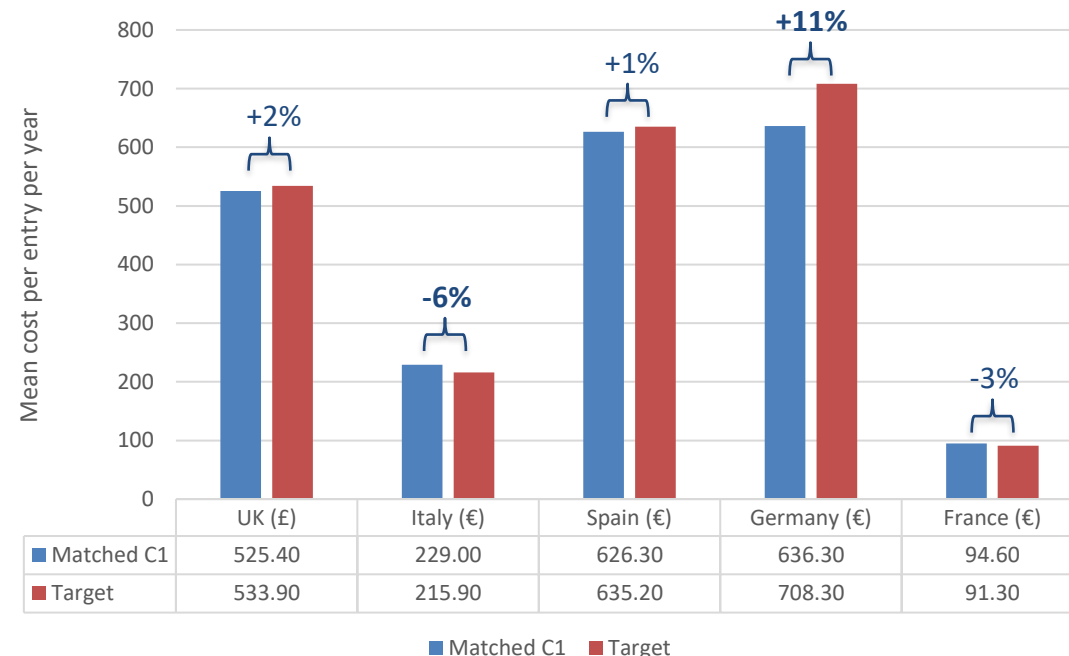Primary care consultation **costs increase with a single fracture** (C1 vs. matched-C2). **Imminent subsequent fractures** (Target) add **broadly similar costs** to the primary care burden (vs. matched-C1).

Comparison 1 (C1 vs Matched C2)

	UK (£)	Italy (€)	Spain (€)	Germany (€)	France (€)
Matched C2	420.90	192.70	538.30	385.10	67.50
C1	475.40	228.80	624.90	627.70	94.60

+13% +19% +16% +63% +40%

Comparison 2 (Target vs Matched C1)

	UK (£)	Italy (€)	Spain (€)	Germany (€)	France (€)
Matched C1	525.40	229.00	626.30	636.30	94.60
Target	533.90	215.90	635.20	708.30	91.30

+2% -6% +1% +11% -3%
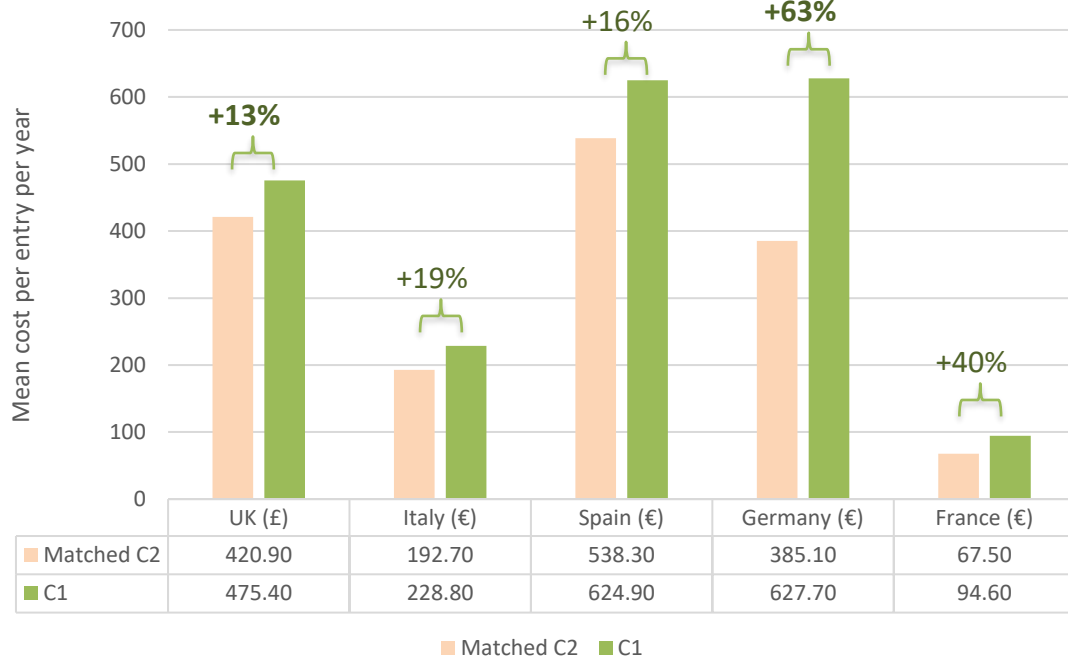
Take-home messages

- First fracture by postmenopausal women places **significant burden in primary care services**

- **Subsequent fractures are even more resource demanding than and about as costly** as first fractures in primary care

- Pattern is consistent across six European countries

- Costs vary

- Limitations: patient identification, variable granularity of data, local costing

- Strengths: representative, common data model: standardised methods, common core script

Thank you!

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