Primary Care Resource Utilisation and Costs of Fragility Fractures in Postmenopausal Women in the UK Using CPRD Data Mapped to OMOP Common Data Model

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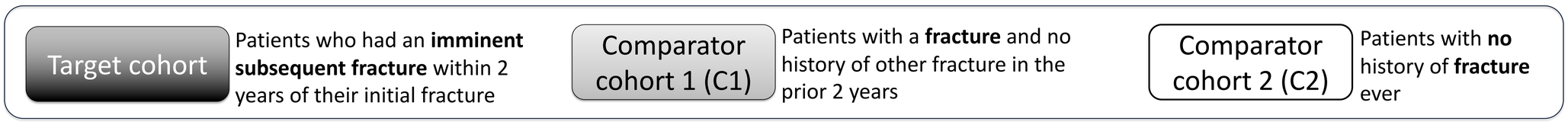
Objective

To describe the primary care resource utilisation and direct costs of imminent subsequent fractures in postmenopausal women with fragility fractures in the UK using data from the Clinical Practice Research Datalink (CPRD) mapped to the OMOP Common Data Model (OMOP-CDM).

Methods

- **Design:** Time-stratified age and propensity score matched observational network cohort study.
- **Setting:** Primary care (CPRD AURUM, UK) mapped to the OMOP CDM.
- **Study period:** 01 April 2010 to 31 March 2018, divided into 6-month periods to account for seasonality of fracture occurrence.
- **Participants:** Women aged ≥50 years who met the eligibility criteria were included in three different cohorts (Figure 1).
- **Outcomes:** Primary care consultation counts and associated costs per person (entry into the cohort) per year.
- **Statistical analysis:** Consultations were analysed based on staff roles and costed using national unit costs. For each cohort we estimated the number of "non-service users" (i.e., no visit records), who did not generate expenditure for the healthcare system. Resource use and costs were compared between target and matched C1 (comparison 1), and then between full C1 and matched C2 (comparison 2).

Figure 1. Cohort definition



Results

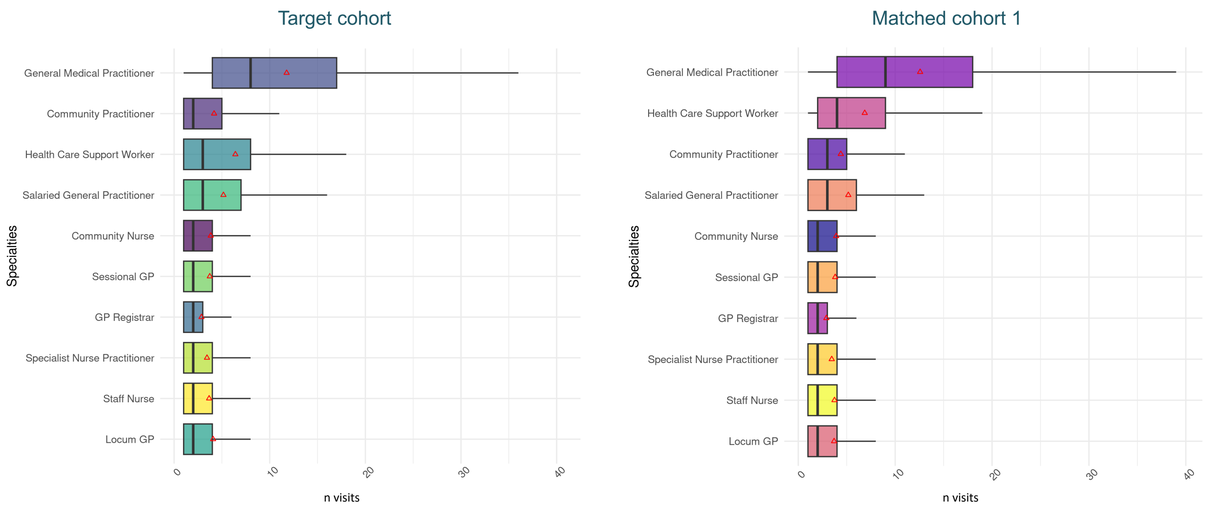
Comparison 1 (Target cohort vs matched-C1)

- Non-service users: Target cohort = 4.1% vs. C1 = 4.9%
- Service users in Target cohort: 4.2% higher median number of consultation, 2.1% higher mean costs compared to entire Target.
- Service users in matched C1: 7.7% higher median number of consultation and 2.4% higher mean costs compared to entire matched-C1.
- Further details in Table 1 and Figure 2.

Table 1. Primary care resource use and costs, comparison 1, entire cohorts

Cohort	Entries	Median visits per person/year (IQR)	Mean costs per person/year (SD)
Target	16,278	14.0 (6.6-25.4)	£533.9 (974.5)
Matched C1	42,374	13.0 (6.1-24.2)	£525.4 (1,006.0)
Ratio		**1.08**	**1.02**

Figure 2. Distribution of primary care consultation for top 10 staff roles



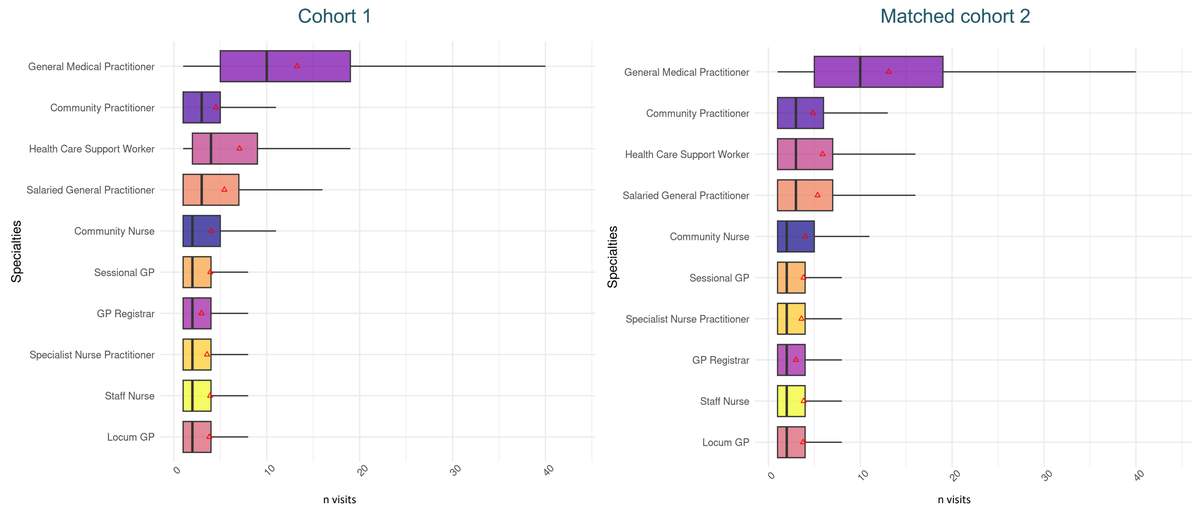
Comparison 2 (C1 vs matched-C2)

- Non-service users: C1 = 5.2% vs. C2 = 6.5%.
- Service users in C1: 8.7% higher median number of consultation and 2.9% higher mean costs compared to entire C1.
- Service users in matched C2: 5.3% higher median number of consultation and 6% higher mean costs compared to entire matched-C2.
- Further details in Table 2 and Figure 3.

Table 2. Primary care resource use and costs, comparison 2, entire cohorts

Cohort	Entries	Median visits per person/year (IQR)	Mean costs per person/year (SD)
C1	59,898	11.5 (5.5-22.0)	£475.4 (991.9)
Matched C2	293,654	9.5 (4.0-18.0)	£420.9 (571.8)
Ratio		**1.21**	**1.13**

Figure 3. Distribution of primary care consultation for top 10 staff roles



Conclusions

- Having a first fracture is associated with an increase in the proportion of women accessing primary care services as well as the number of primary care visits and associated costs per year compared to not having a fracture. These extra costs add to further additional hospital and social care costs associated with fractures.
- An imminent subsequent fracture also leads to increased demand of primary care services compared to fractures not followed by another one within 2 years. These additional resource use burden and costs are avoidable if subsequent fractures were prevented.

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