RWD151

Validating Primary and Secondary Healthcare Resource Use and Cost estimates in OMOP-Mapped vs Source CPRD-HES Data in the UK

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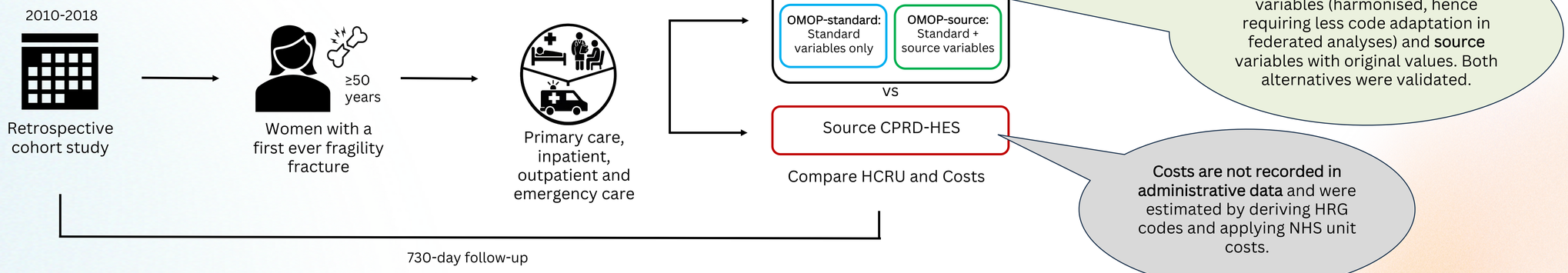
Objective

To validate estimates of primary and secondary healthcare resource use (HCRU) and costs derived from OMOP-mapped CPRD Aurum data linked to Hospital Episode Statistics (HES) vis-á-vis those generated using the source data for a cohort of postmenopausal women with fragility fractures.

Methods



Results

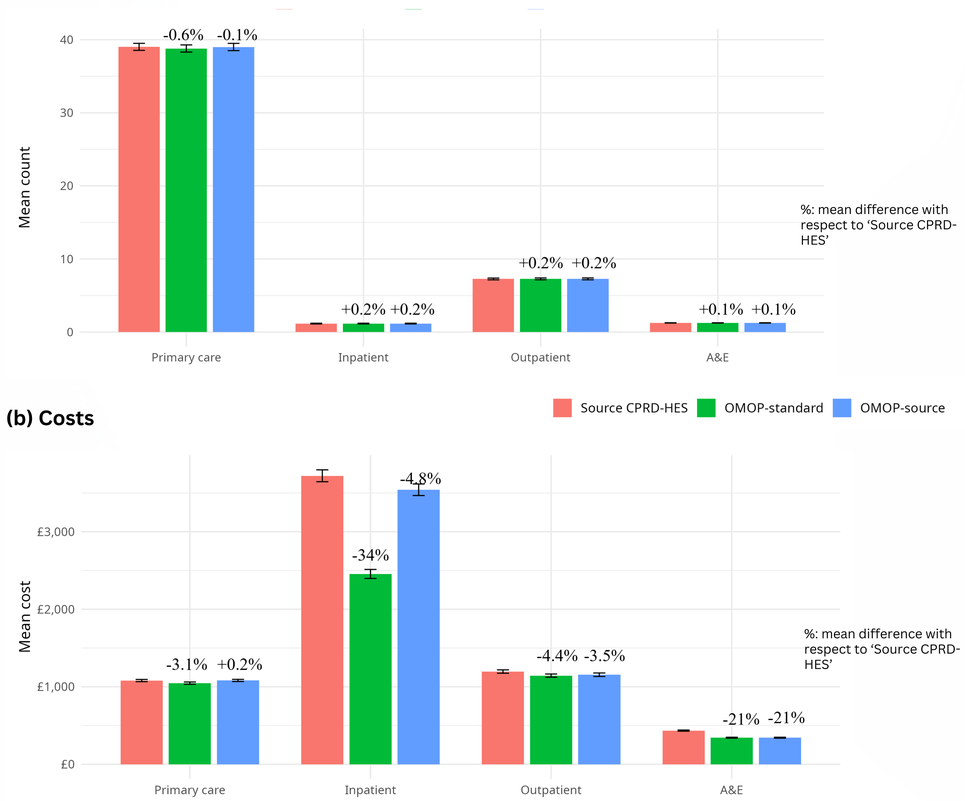
- **Patient characteristics** were nearly the same between source CPRD-HES and OMOP (Table 1).
- **Primary and hospital care HCRU** estimates from OMOP mapped data **were largely equivalent** to those obtained from source CPRD-HES, differences ranging from -0.6% to +0.2% (Figure 1a).
- **Costs** from OMOP **were** generally **lower** than CPRD–HES (range -3.1% to -34%), shown in Figure 1b.
- However, **using retained OMOP source variables improved alignment**, particularly for inpatient costs where the difference reduced from −34% to −4.8%.

Table 1: Patients characteristics

	Source CPRD-HES (n=23,106)	OMOP (n=22,900)
Mean age in years (SD)	71.3 (12.2)	71.3 (12.2)
Median follow-up time in days (Q1-Q3)	577 (191 - 730)	578 (192 - 730)
Fracture site	Hip (13.9%) Vertebra (7.2%) NHNV (78.9%)	Hip (14.0%) Vertebra (7.4%) NHNV (78.6%)
Healthcare users, n (%)*		
Primary care	22,480 (97.3%)	OMOP-source: 22,280 (97.3%) OMOP-standard: 22,336 (97.5%)
Inpatient	12,083 (52.3%)	12,000 (52.4%)
Outpatient	20,691 (89.5%)	20,512 (89.6%)
Emergency care	15,628 (67.6%)	15,480 (67.6%)

* ≥ 1 hospitalisations, outpatient visit, or emergency admission. NHNV: non-hip non-vertebral

Figure 1
HCRU and costs per patient from Source CPRD-HES and OMOP



Discussion

- Using **OMOP-standard variables alone** leads to reduced granularity and **required assumptions** that may explain cost differences.
  - For example, ~58% of primary care specialties had no OMOP standard equivalent hence 4.6% of encounters were costed using a single weighted unit cost. Similarly, in emergency care where HRG could not be generated.
- Using **OMOP source variables improved accuracy** but required dataset-specific adaptations.

Conclusions

- **OMOP-mapped data produced comparable HCRU and cost estimates, especially when source variables are leveraged.**
- A **trade-off** exists **between standardisation** (more scalable in federated analyses, but potentially less accurate) **and granularity** (more accurate estimates but requiring bespoke code adaptations).
- A comprehensive **OMOP-based costing framework** and **guidance** are needed to improve consistency and reduce reliance on assumptions.

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