Healthcare Resource Use and Costs for Clusters of Patients with Multiple Long-Term Conditions: Findings from the UK Co-Action Study

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Abstract

Background

Over 7 million people in the UK live with multiple long-term conditions (MLTC) and complex healthcare patterns that remain poorly characterised.

Objective(s)

To describe healthcare resource use (HCRU) and costs across clusters (CL) of individuals aged 18 or older and with at least two MLTC identified in UK primary and hospital care data.

Material and Methods

MLTC clusters (CLs) were derived using latent class analysis of CPRD GOLD linked to Hospital Episodes Statistics mapped to OMOP common data model. Primary care costs were estimated between 2018–2019 using specialty unit costs; medication costs and NHS Drug Tariff data. Inpatient and outpatient costs were estimated using the 2024–25 NHS Cost Collection via HRG Grouper software, with imputations for missing mandatory fields; and emergency department (ED) costs were estimated using weighted unit costs.

Results

A total of 237,156 patients were grouped into 4 CLs: (1) arthritis and hypertension (32.5%); (2) obesity (28.1%); (3) mental health (25.6%); and (4) high comorbidity (13.8%).

Over 95% of patients had ≥1 primary care contact; hospitalisation occurred in 50% of CL1-2, and 30% in CL3-4. Outpatient ranged from 79% (CL1) to 57% (CL3); ED from 34% (CL3) to 48% (CL1).

Primary care use and costs were highest in CL1 (79.6 encounters; £5,887), followed by CL2 (59.9; £4,590), CL4 (41.7; £3,056) and CL3 (40.3; £2,931). GP consultations were the most frequent, followed by administrative contacts and nurse visits.

Mean medication costs were highest in CL1 (£541), followed by CL2 (£277), CL4 (£149) and CL3 (£145). Common ATC categories were cardiovascular (CL1-2), anti-infective and nervous system (CL3 and 4).

Inpatient use and costs were highest in CL1 (1.98 hospitalisations; £3,263), followed by CL2 (1.56; £2,565), CL4 (0.80; £1,324) and CL3 (0.67; £1,235). Renal-related diagnoses and procedures were most frequent in CL1- 2; breast cancer–related diagnoses in CL3-4. Costs were driven by cardiovascular disease and catheterisation in CL1, arthrosis and joint replacement in CL2-3, arthrosis and delivery in CL4.

Outpatient use and costs were highest in CL1 (8.9 appointments; £1,417) and CL2 (7.4; £1,173), and lower in CL4 (4.6; £822) and CL3 (3.9; £646). Ophthalmology was most frequent CL1-2; trauma and orthopaedics in CL 3-4.

ED admissions were highest in CL1 (1.5; £ 413), followed by CL2 (1.2; £321), CL4 (1.1; £298), and CL3 (0.9; £235).

Overall, HCRU and costs were generally higher among individuals ≥50 years (except A&E), those of White ethnicity, and those living in more deprived areas.

Conclusions

MLTC clusters show substantial variation in HCRU and costs. Individuals with arthritis, hypertension and obesity experience the highest burden, highlighting the need for targeted interventions.