Healthcare utilization and costs by disease stage in beneficiaries with Huntington's disease in the US Medicare population

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What does this study mean for the HD community?

The total healthcare resource utilisation (HCU) and costs for individuals with late-stage Huntington's disease (HD) were significantly higher than those with early- or middle-stage HD, highlighting the considerable economic burden late-stage disease exerts on the US healthcare service. Development of an effective disease-modifying treatment of HD could potentially reduce these substantial costs in the long-term.

Conclusions

- Medicare beneficiaries with HD have significant HCU and cost burden.
- Over 50% of individuals with HD identified in the Medicare population had late-stage disease.
- Late-stage HD Medicare beneficiaries have a significantly higher HCU and cost burden compared with beneficiaries with early- and middle-stage HD.

BACKGROUND

- HD is a rare, genetic, neurodegenerative and ultimately fatal disease that has a devastating impact on families across generations.[1,2]
- Quantifying the direct healthcare costs and resource utilisation associated with HD in individuals with early-, middle- and late-stage disease will provide a valuable insight into the economic impact of this disease through the various stages of its progression.

Objective: Investigate the healthcare utilisation and cost burden by stage of disease progression among US Medicare beneficiaries with HD.

METHODS

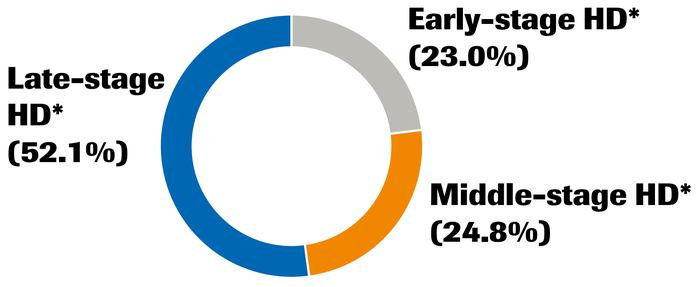
- A retrospective study was conducted using the 2013–2017 Medicare Research Identifiable Files (100%).
- Beneficiaries with HD were identified based on having ≥1 medical claim with a diagnosis code for HD (International Classification of Diseases [ICD]-9-Clinical Modification [CM]: 333.4; ICD-10-CM: G10) during the identification period (2014–2016).
- Date of HD claim was defined as the index date.
  - For multiple HD claims, one was randomly chosen as the index to capture all disease stages.
- Included beneficiaries had continuous enrolment in fee-for-service Medicare one year prior to (baseline) and one year after (follow-up) index.
- Demographics and chronic conditions[3] were measured during baseline; healthcare utilisation and costs during follow-up.
- Measures were stratified by early-, middle- and late-stage disease, determined by evidence in claims of diagnoses and services received one year after index.[4]

RESULTS

Study demographics

- 3,688 beneficiaries with HD were identified, of which 1,922 (52.1%) had late-stage disease (**Figure 1**).
- Mean age, sex and number of chronic comorbid conditions varied by disease stage (**Table 1**).

Figure 1. Percentage of HD beneficiaries by stage



* Based on the claims occurring in the one year post-index.

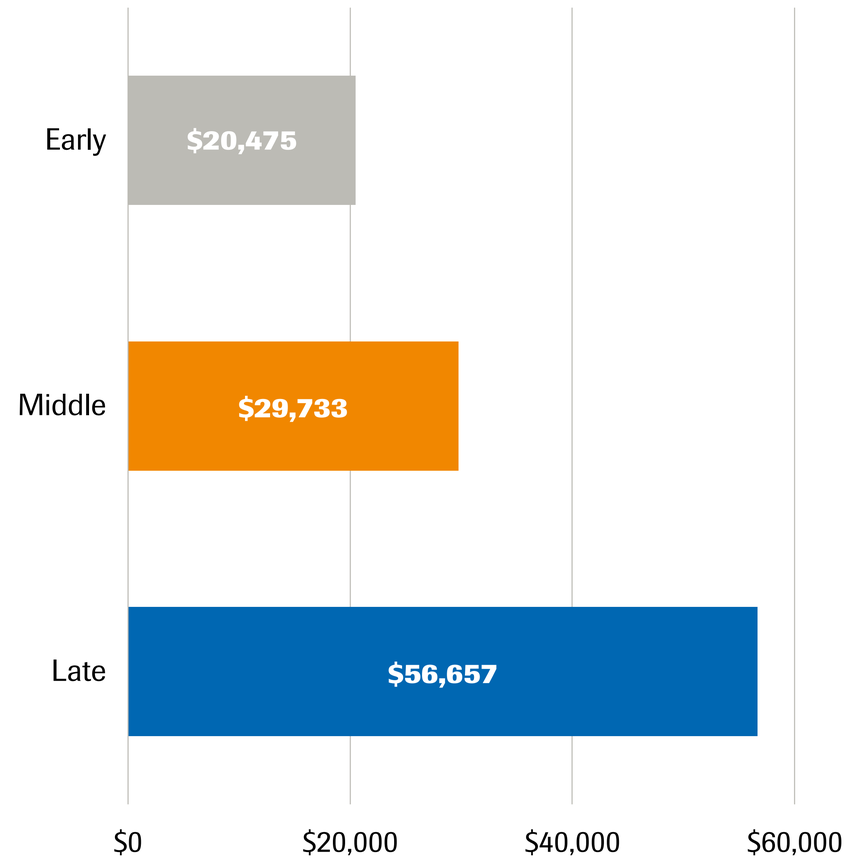
Table 1. Demographics of HD beneficiaries

HD stage	Age, years (SD)	Female, %	Chronic conditions, mean (SD)
Early (n=850)	64.6 (12.2)	48.8	4.3 (2.4)
Middle (n=916)	69.3 (11.5)	57.0	5.5 (2.4)
Late (n=1,922)	68.5 (12.7)	54.1	6.0 (2.6)
Total (N=3,688)	67.8 (12.4)	53.6	5.4 (2.6)

Annual healthcare costs

- Total annual healthcare costs were highest among beneficiaries with late-stage HD (p<0.001) (**Figure 2**).

Figure 2. Mean total healthcare costs by stage*

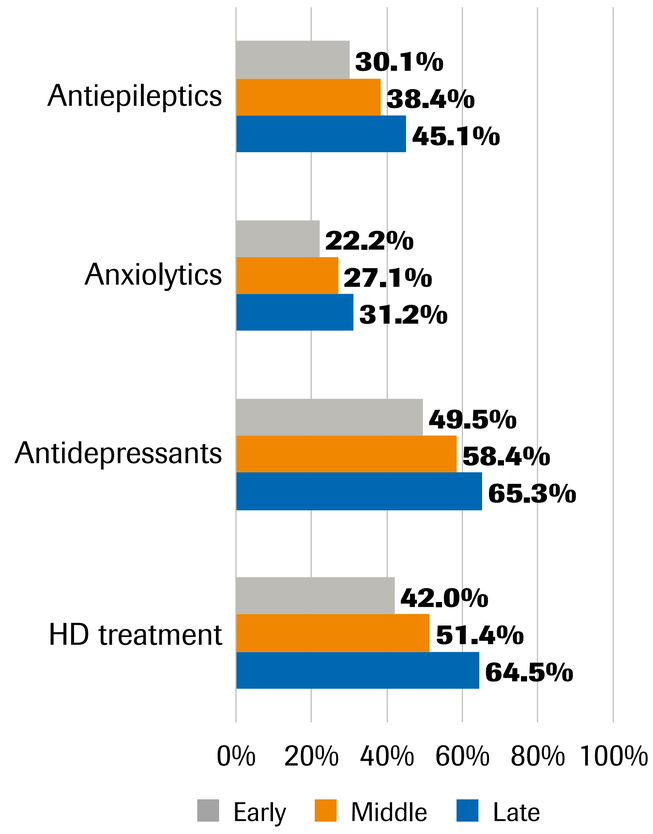


* All pair-wise differences among stages were statistically significant (p<0.001).

Annual healthcare resource utilisation by stage

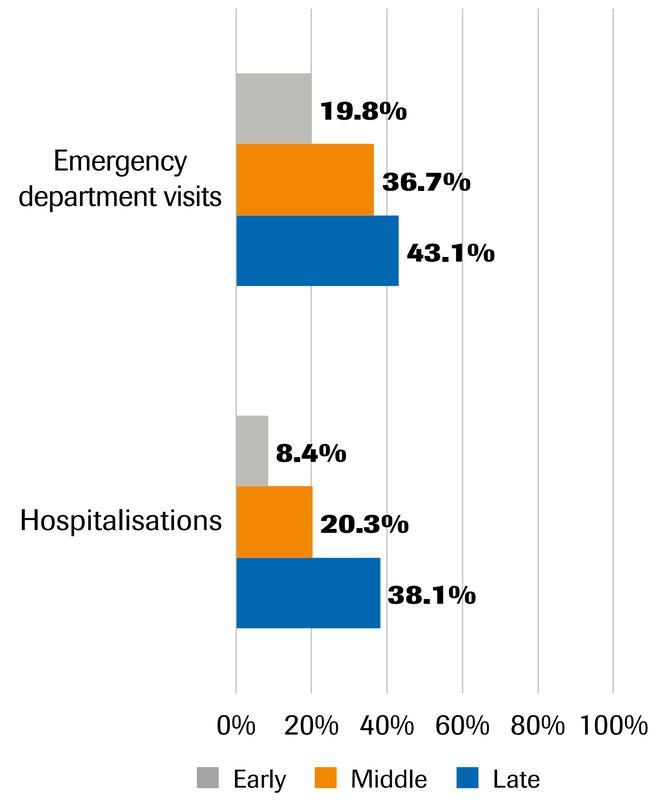
- A greater percentage of late-stage HD beneficiaries were on medication (**Figure 3**), visited the emergency department and were hospitalised (**Figure 4**); all p<0.001.

Figure 3. Medication use*



* All pair-wise differences in medication use among stages were statistically significant (p<0.05).

Figure 4. Hospitalisations and emergency department visits*



* All pair-wise differences in hospitalisations and emergency department visits among stages were statistically significant (p<0.001).

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Abbreviations

CM, Clinical Modification; HCU, healthcare resource utilisation; HD, Huntington's disease; ICD, International Classification of Diseases; SD, standard deviation.

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