

Background

- Estimating healthcare costs attributable to specific diseases is important for understanding population health burden. However, attribution of costs to individual diseases remains methodologically challenging especially when patients experience multiple coexisting conditions, making it difficult to distinguish the incremental cost attributable to each disease [1,2].
- The authors’ previous work evaluated costs attributable to cardio- and cerebrovascular events using regression models [3].
- This study extends prior methodologies to the outpatient setting to estimate disease-attributable costs based on the most impactful or prevalent ICD-10 3-digit codes in a general population using a Japanese insurer-based IQVIA Claims Plus1 database covering mainly working population.

Methods

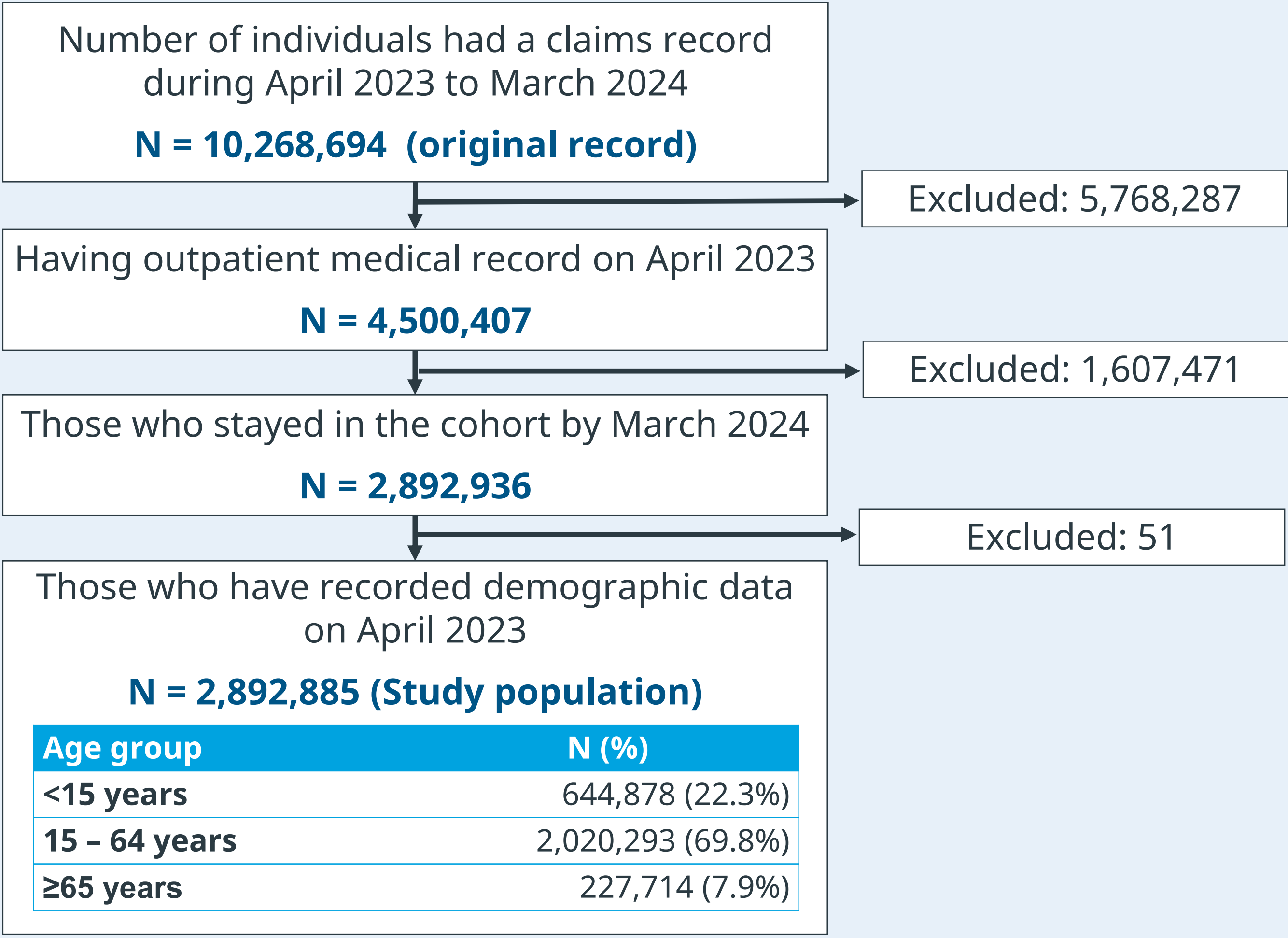
Overview

- This study evaluated attributable outpatient healthcare costs for
- The most prevalent diseases** among the general IQVIA Claims Plus1 population, and
 - Highest-cost-impact diseases** identified using LASSO

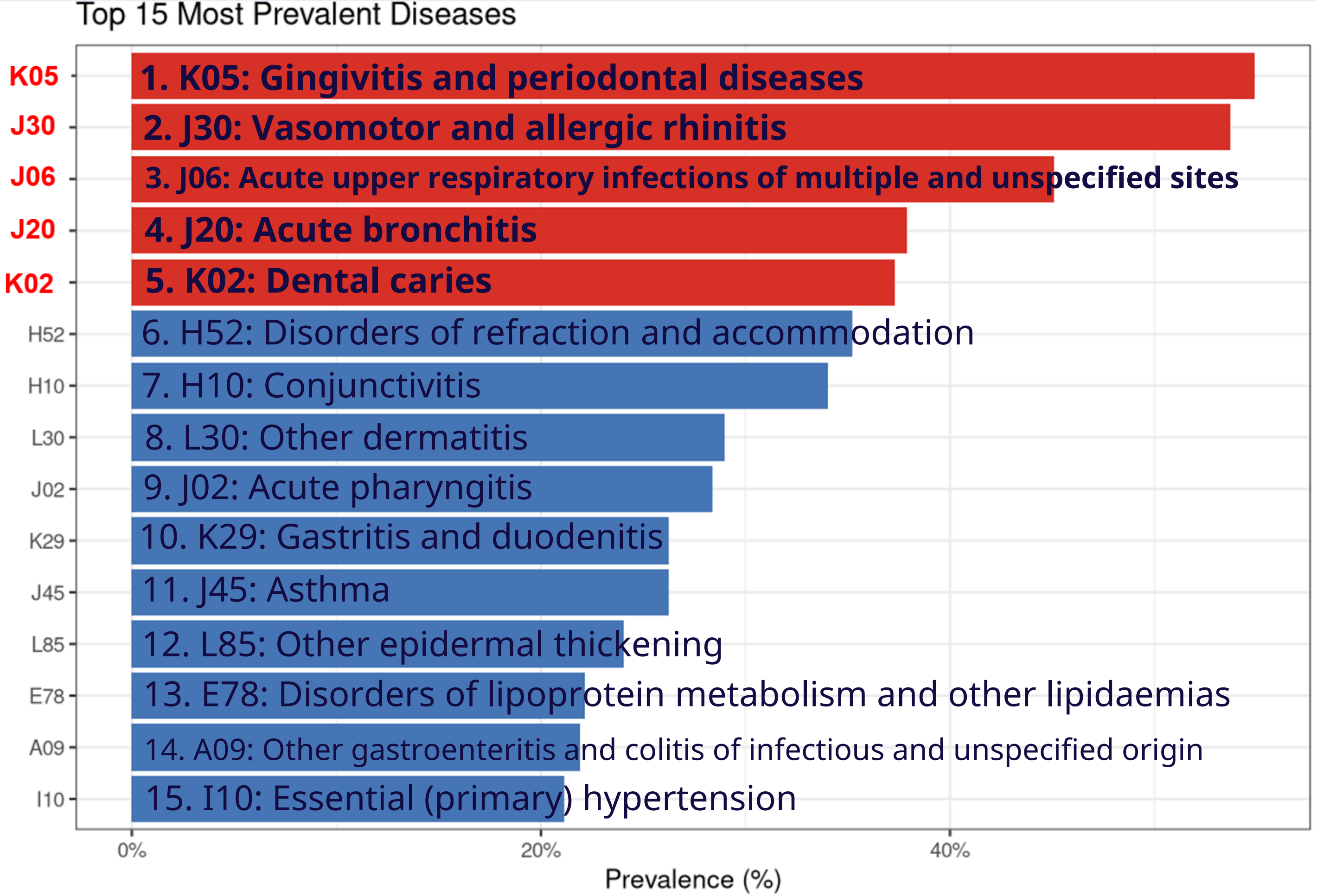
Analysis Specification

Study Populations	Individuals received outpatient practice in April 2023 who remained in the cohort through March 2024.
Outcomes	Monthly outpatient cost (costs were converted to 2026 JPY values and converted to USD) (1 USD = 159 JPY)
Study Period	Between April 2023 and March 2024 (1 year)
Data Source	IQVIA Claims Plus1 (an insurer-based administrative database covering mainly working population)
Estimating attributable costs	Fixed-effects panel regression models with monthly disease indicators and time fixed effects (using Duan’s smearing estimator) [4,5]
Disease selection criteria	Disease lists were generated from 463 three-digit ICD-10 codes (with ≥5,000 patients) and dialysis and included the top 15 diseases based on: - Prevalence in the study population - LASSO-derived impact on outpatient costs

Population Selection



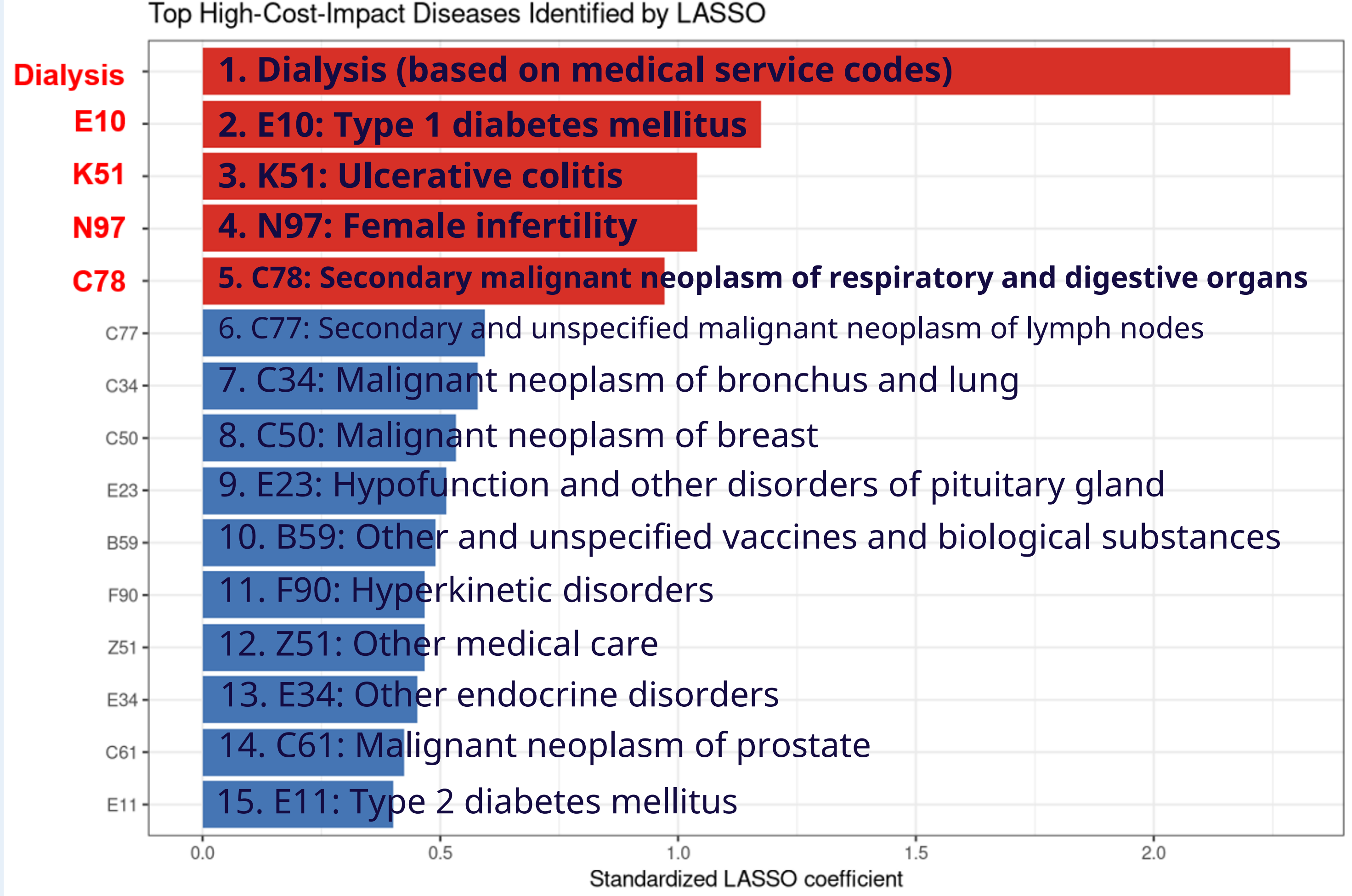
Results: The Most Prevalent Diseases



Key Finding

- ✓ This study quantified disease-attributable outpatient costs in a general Japanese working population, using fixed-effects panel regression to separate the incremental cost of each disease amid coexisting conditions.
- ✓ The disease-specific attributable costs based on the disease codes were generally consistent with findings reported in previous studies.

Results: Highest-Cost-Impact Diseases



Results: Attributable Outpatient Costs

- Resource-intensive conditions, including dialysis, T1D and UC, were among the largest drivers of outpatient healthcare expenditures, while the most prevalent diseases were generally associated with modest attributable outpatient costs.
- The estimated costs based on the disease-codes in this study were generally consistent with previous estimations [4].

The most prevalent diseases

#	Disease name	Outpatient costs (PPPM)*
1	K05: Gingivitis and periodontal diseases	-\$228 (-\$233 - -\$224)
2	J30: Vasomotor and allergic rhinitis	\$158 (\$148 - \$167)
3	J06: Acute upper respiratory infections of multiple and unspecified sites	\$237 (\$227 - \$247)
4	J20: Acute bronchitis	\$192 (\$182 - \$202)
5	K02: Dental caries	-\$113 (-\$121 - -\$105)
6	H52: Disorders of refraction and accommodation	\$295 (\$281 - \$309)
7	H10: Conjunctivitis	\$71 (\$61 - \$81)
8	L30: Other dermatitis	\$134 (\$123 - \$146)
9	J02: Acute pharyngitis	\$212 (\$200 - \$225)
10	K29: Gastritis and duodenitis	\$249 (\$232 - \$267)
11	J45: Asthma	\$159 (\$145 - \$172)
12	L85: Other epidermal thickening	\$185 (\$171 - \$199)
13	E78: Disorders of lipoprotein metabolism and other lipidaemias	\$408 (\$376 - \$442)
14	A09: Other gastroenteritis and colitis of infectious and unspecified origin	\$180 (\$166 - \$194)
15	I10: Essential (primary) hypertension	\$289 (\$258 - \$321)

*Using monthly data based on randomly sampled 2% of the target population.

Highest-cost-impact diseases

#	Disease name	Outpatient costs (PPPM)*
1	Dialysis (based on medical service codes)	\$5,121 (\$3,262 - \$7,944)
2	E10: Type 1 diabetes mellitus	\$2,527 (\$1,473 - \$4,189)
3	K51: Ulcerative colitis	\$1,738 (\$1,176 - \$2,507)
4	N97: Female infertility	\$1,002 (\$821 - \$1,211)
5	C78: Secondary malignant neoplasm of respiratory and digestive organs	\$813 (\$323 - \$1,661)
6	C77: Secondary and unspecified malignant neoplasm of lymph nodes	\$414 (\$196 - \$717)
7	C34: Malignant neoplasm of bronchus and lung	\$1,360 (\$761 - \$2,282)
8	C50: Malignant neoplasm of breast	\$988 (\$791 - \$1,220)
9	E23: Hypofunction and other disorders of pituitary gland	\$613 (\$367 - \$944)
10	B59: Other and unspecified vaccines and biological substances	\$1,044 (\$597 - \$1,702)
11	F90: Hyperkinetic disorders	\$534 (\$422 - \$661)
12	Z51: Other medical care	\$5,682 (\$3,066 - \$10,304)
13	E34: Other endocrine disorders	\$417 (\$190 - \$736)
14	C61: Malignant neoplasm of prostate	\$497 (\$312 - \$734)
15	E11: Type 2 diabetes mellitus	\$996 (\$883 - \$1,119)

*Using monthly data based on randomly sampled 2% of the target population.

Conflict of interest

- This study was entirely supported by IQVIA Solutions Japan G.K. All authors are staff members of IQVIA Solutions Japan G.K., the funding organization and Japanese division of IQVIA. The research was completely carried out by the funder.

References

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