

Associations between obstructive sleep apnea and comorbidities in a large clinical biobank

Supplementary Material

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Supplementary Methods

Genetic data and heritability analyses

Genotype chip data were imputed using the TOPMed r3 imputation panel¹, following quality control procedures addressing participant and variant missingness, Hardy-Weinberg equilibrium, and forward-strand build lift-over, prior to additional TOPMed Imputation Server-based quality control. Autosomal variants with info scores ≥ 0.95 and minor allele frequencies $> 0.5\%$ were retained. FRAPOSA² was used to obtain principal components and 1000 Genomes Project-defined continental ancestries.

Genetic heritability analyses were performed separately for each continental ancestry ($n > 1,000$). Participants with ICD-coded OSA but PheVis non-case status were excluded, as were participants with a known maximum AHI that fall in the “mild OSA” range (5 – 15). Analyses were performed using PCGC (via LDAK), adjusting for age, sex at birth, BMI, and 10 population principal components. We report marginal results, which accounts for covariate variance and gives lower estimates than conditional results.^{3,4} While algorithm heritability comparisons used data censored in 2023, final heritability estimates used additional phenotype data collected through 2025.

References

- 1 Das S, Forer L, Schön herr S, *et al.* Next-generation genotype imputation service and methods. *Nat Genet* 2016; **48**: 1284–7.
- 2 Zhang D, Dey R, Lee S. Fast and robust ancestry prediction using principal component analysis. *Bioinforma Oxf Engl* 2020; **36**: 3439–46.
- 3 Weissbrod O, Flint J, Rosset S. Estimating SNP-Based Heritability and Genetic Correlation in Case-Control Studies Directly and with Summary Statistics. *Am J Hum Genet* 2018; **103**: 89–99.
- 4 Zhang Q, Privé F, Vilhjálmsson B, Speed D. Improved genetic prediction of complex traits from individual-level data or summary statistics. *Nat Commun* 2021; **12**: 4192.

Figure S1. Case-control BMI density plots.

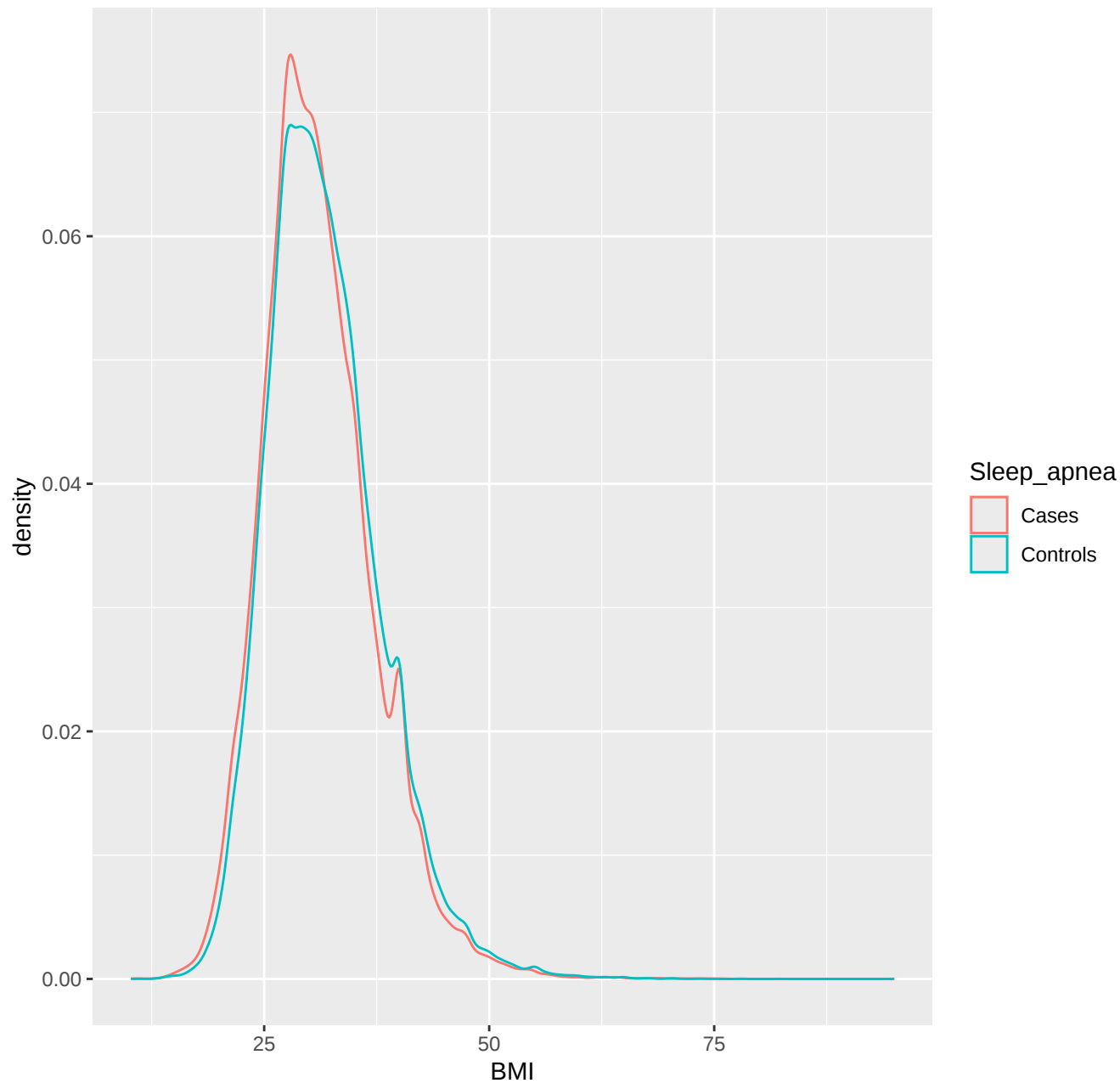
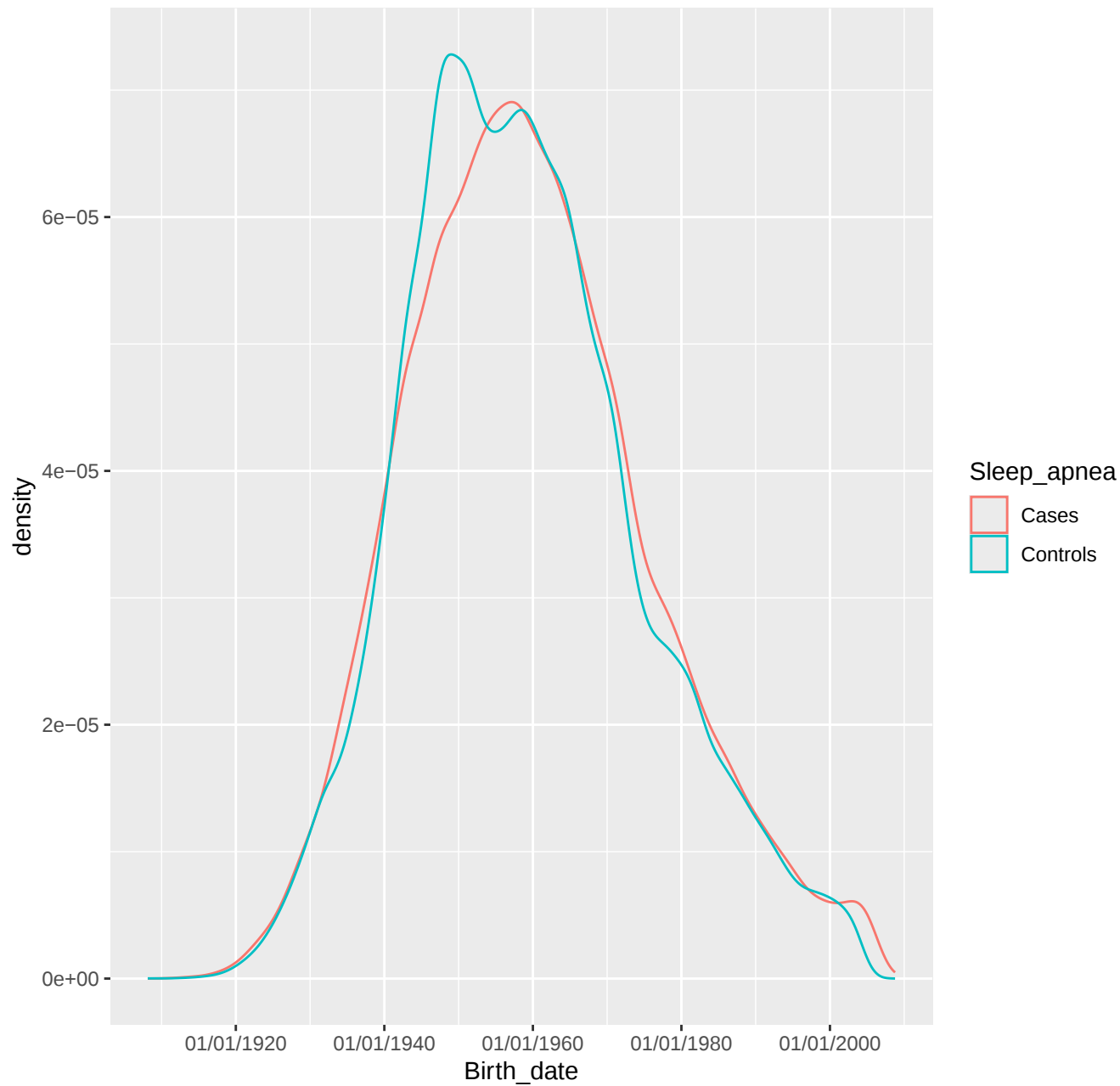


Figure S2. Case-control birth date density plots.



Median values for years relative to the first OSA diagnosis (or equivalent age in controls) were obtained. All available results were used, with the proportion of cases and controls with data varying by year (Table S7). Analyses adjusted for age, sex, BMI, population, and cumulative clinical encounter counts through the given year. Age was specific to the relative year, and the closest two BMIs to this relative date were averaged. The results are grouped by red blood cell then by lipid analysis and ordered by significance ten years prior to the first OSA diagnosis date. Full results are shown in Table S7.

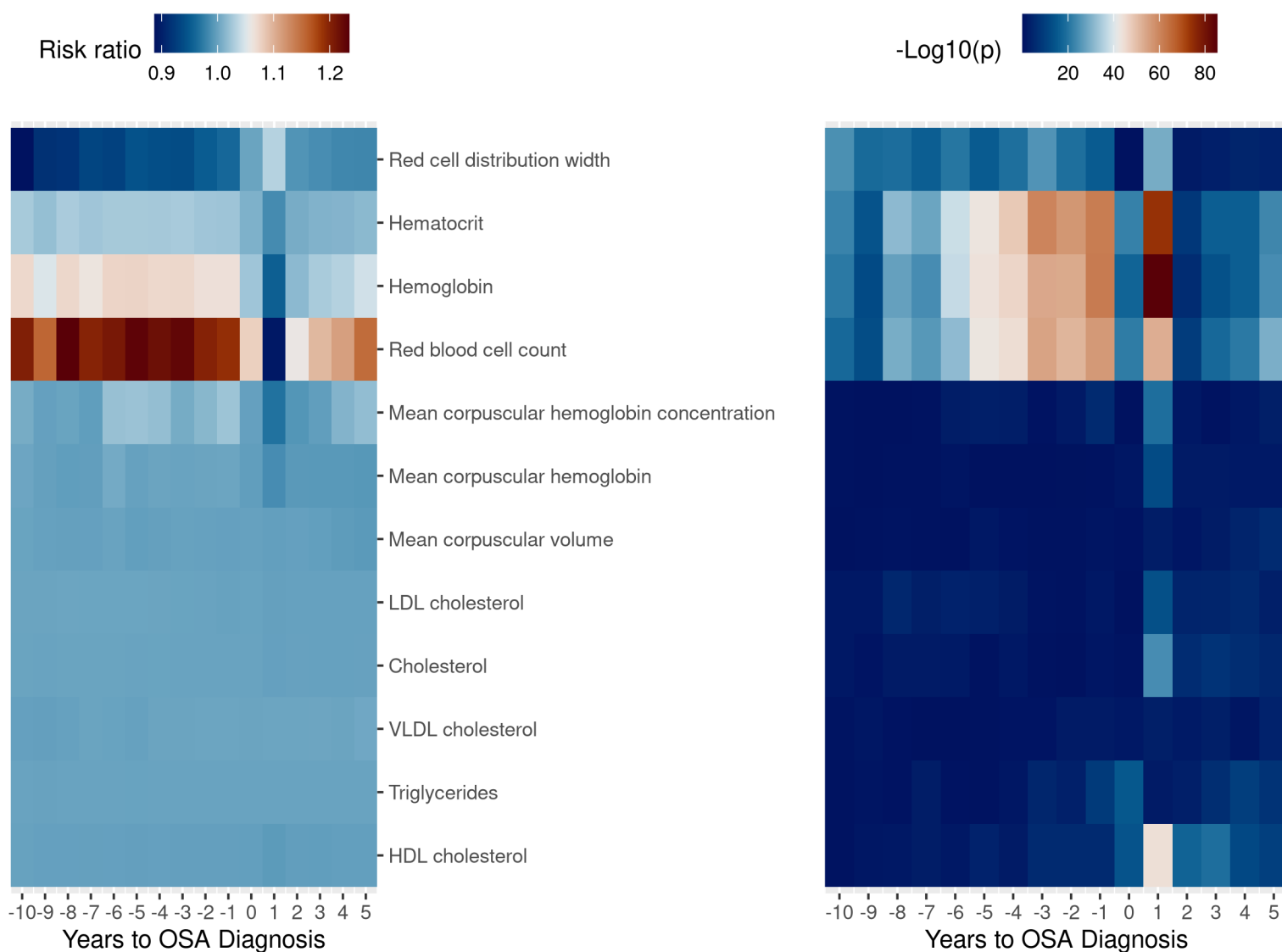


Figure S4. Relative temporal trends of the 421 associated PheCodes for participants with sleep apnea.

Relative PheCode (ICD) diagnosis dates were oriented to 1/1/2000 as the first sleep apnea diagnosis date. The 421 Bonferroni-significant PheCodes are listed in Table S5. All PheCode diagnosis dates were used, in contrast to other analyses using only the first recorded diagnosis date. Positions reflect temporal trends of all variables in year-wide bins, with a longer distance reflecting greater differences between two relative years. Multidimensional scaling is used to visualize the variability among data from relative years. Axis coordinates reflect the components of variance. Relative years are positioned as points where the distance between them represents the Jensen-Shannon probabilistic distance between their distributions. For more information, please see the EHRtemporalVariability references (PMID:30342679 and PMC7391413).

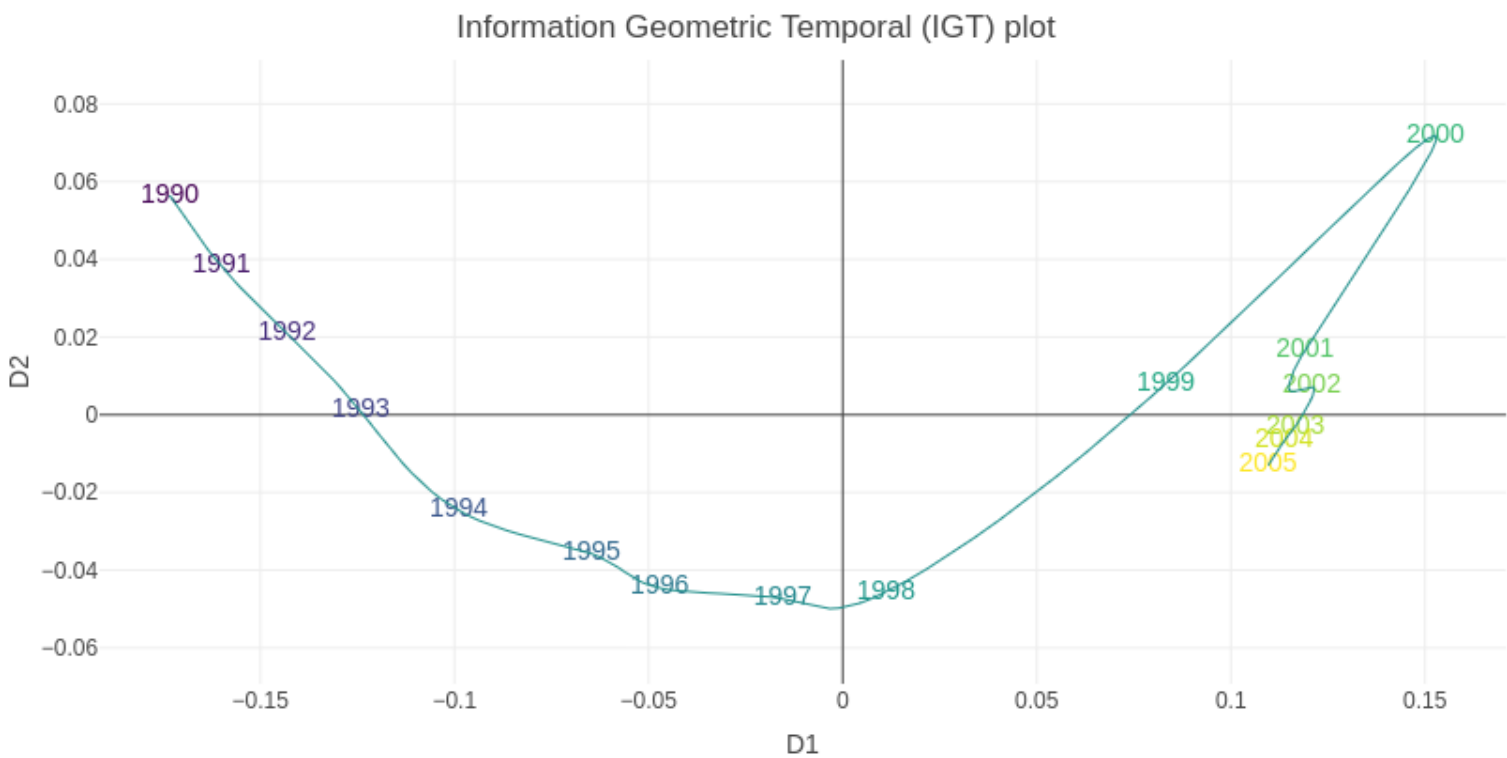


Figure S5. Relative temporal trends of sleep-related clinical note concepts for participants with sleep apnea.

Relative clinical note dates were oriented to 1/1/2000 as the first sleep apnea diagnosis date. The 47 sleep-related terms are defined in Table S8. Positions reflect temporal trends of all variables in year-wide bins, with a longer distance reflecting greater differences between two relative years. Multidimensional scaling is used to visualize the variability among data from relative years. Axis coordinates reflect the components of variance. Relative years are positioned as points where the distance between them represents the Jensen-Shannon probabilistic distance between their distributions. For more information, please see the EHRtemporalVariability references (PMID:30342679 and PMC7391413).

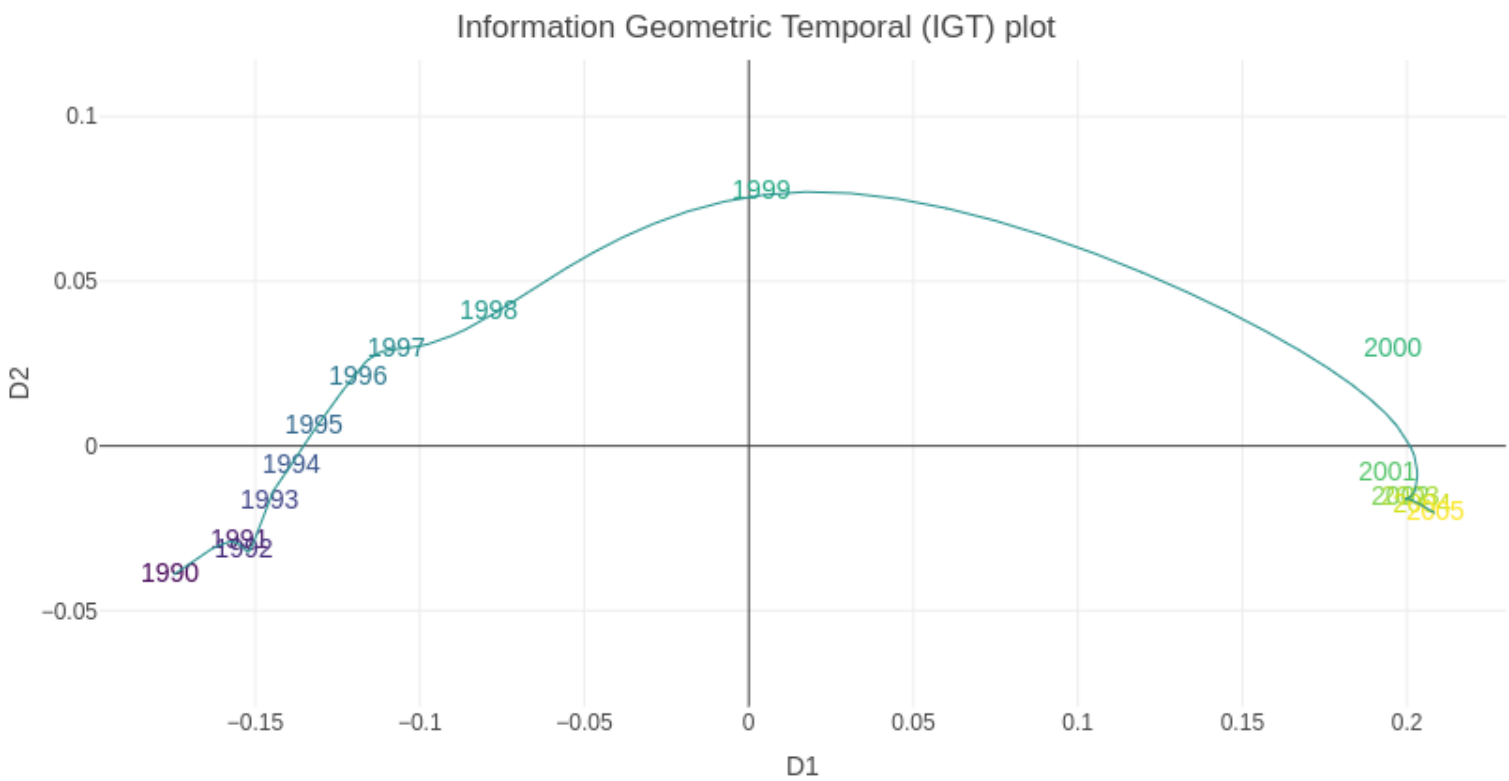


Figure S6. Relative temporal trends of the top 50 associated PheCodes for participants with sleep apnea.

Relative PheCode (ICD) diagnosis dates were oriented to 1/1/2000 as the first sleep apnea diagnosis date. The top 50 PheCodes are listed in Figure S6. All PheCode diagnosis dates were used, in contrast to other analyses using only the first recorded diagnosis date. Positions reflect temporal trends of all variables in year-wide bins, with a longer distance reflecting greater differences between two relative years. Multidimensional scaling is used to visualize the variability among data from relative years. Axis coordinates reflect the components of variance. Relative years are positioned as points where the distance between them represents the Jensen-Shannon probabilistic distance between their distributions. For more information, please see the EHRtemporalVariability references (PMID:30342679 and PMC7391413).

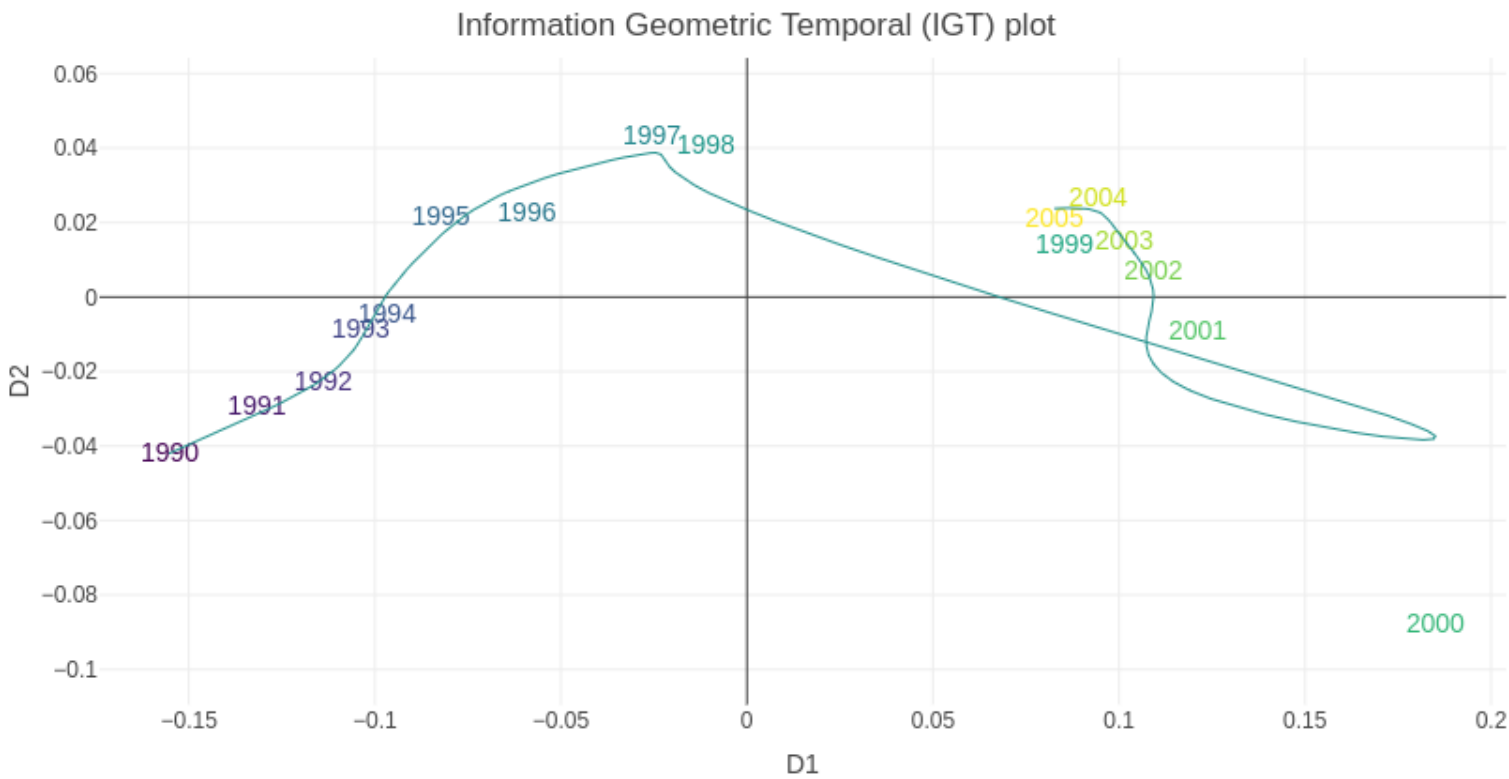


Figure S7. Proportional clinical note occurrences of sleep-related clinical note concepts for participants with sleep apnea.

Relative clinical note dates were oriented to 1/1/2000 as the first sleep apnea diagnosis date. The 47 sleep-related terms are defined in Table S8. The analysis was performed using the EHRtemporalVariability package (PMC7391413).

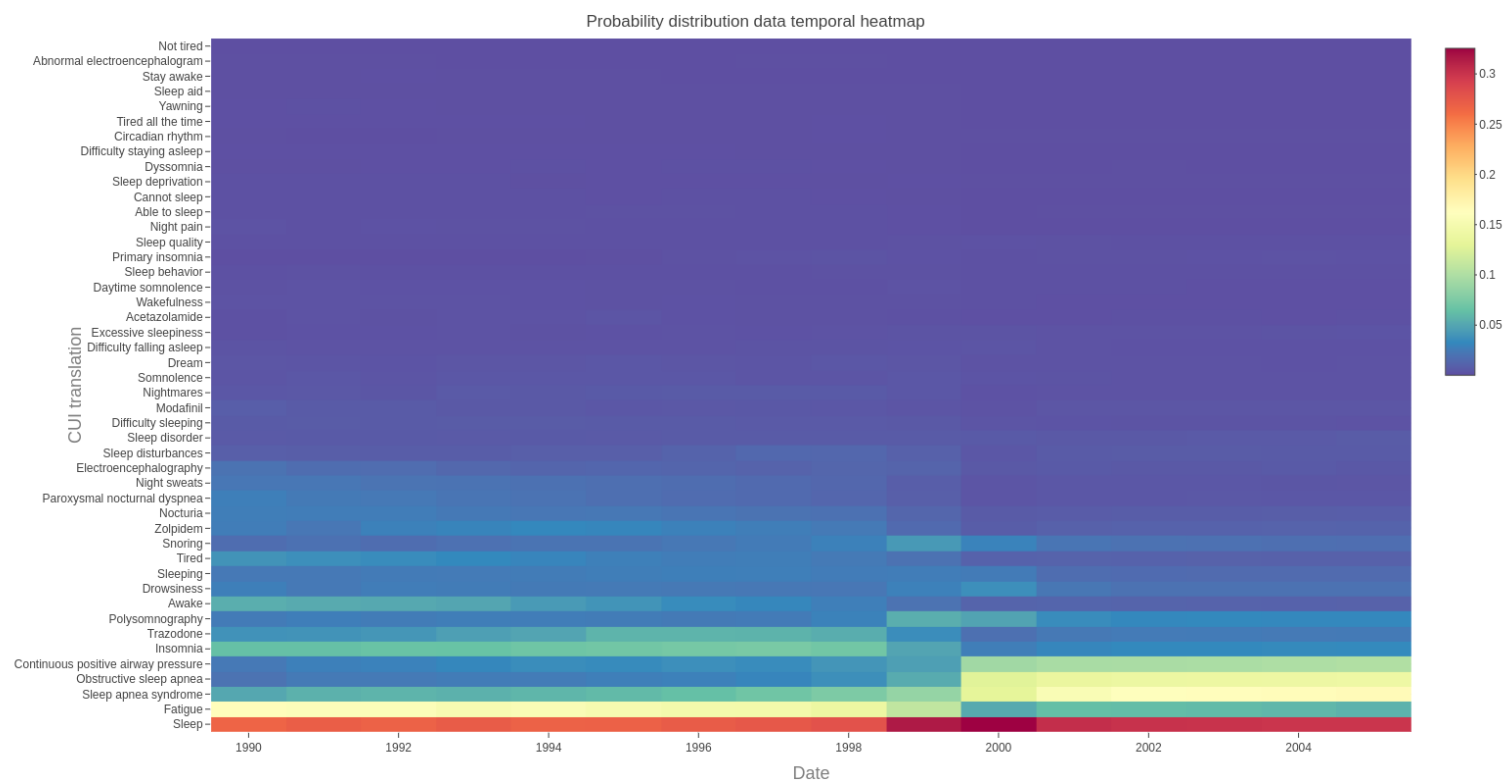


Figure S8. Relative temporal trends of the 421 associated PheCodes for matched controls without sleep apnea.

Relative PheCode (ICD) diagnosis dates were oriented to 1/1/2000 as the first sleep apnea diagnosis date. The 421 Bonferroni-significant PheCodes are listed in Table S5. All PheCode diagnosis dates were used, in contrast to other analyses using only the first recorded diagnosis date. Positions reflect temporal trends of all variables in year-wide bins, with a longer distance reflecting greater differences between two relative years. Multidimensional scaling is used to visualize the variability among data from relative years. Axis coordinates reflect the components of variance. Relative years are positioned as points where the distance between them represents the Jensen-Shannon probabilistic distance between their distributions. For more information, please see the EHRtemporalVariability references (PMID:30342679 and PMC7391413).

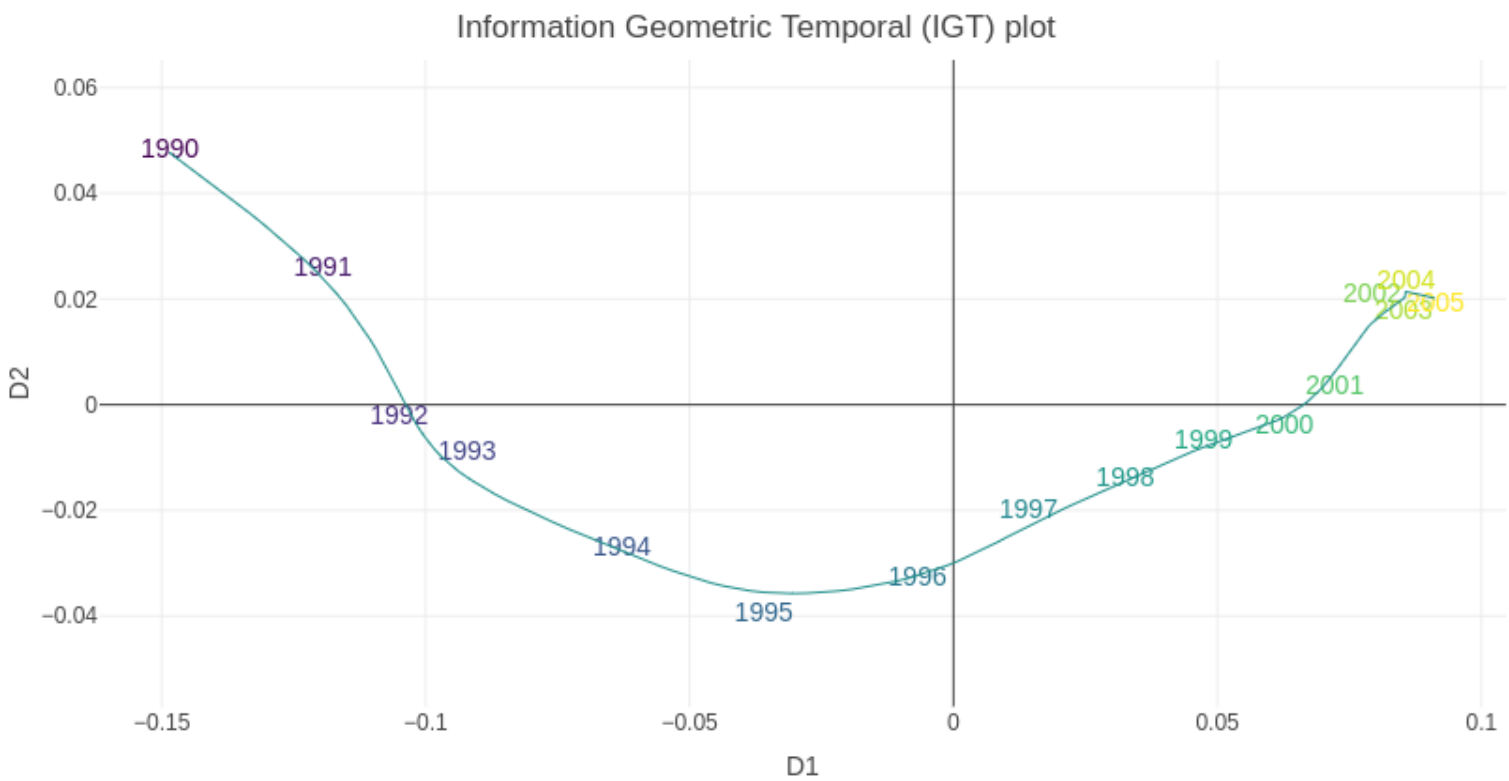


Figure S9. Relative temporal trends of sleep-related clinical note concepts for matched controls without sleep apnea.

Relative clinical note dates were oriented to 1/1/2000 as the first sleep apnea diagnosis date. The 47 sleep-related terms are defined in Table S8. Positions reflect temporal trends of all variables in year-wide bins, with a longer distance reflecting greater differences between two relative years. Multidimensional scaling is used to visualize the variability among data from relative years. Axis coordinates reflect the components of variance. Relative years are positioned as points where the distance between them represents the Jensen-Shannon probabilistic distance between their distributions. For more information, please see the EHRtemporalVariability references (PMID:30342679 and PMC7391413).

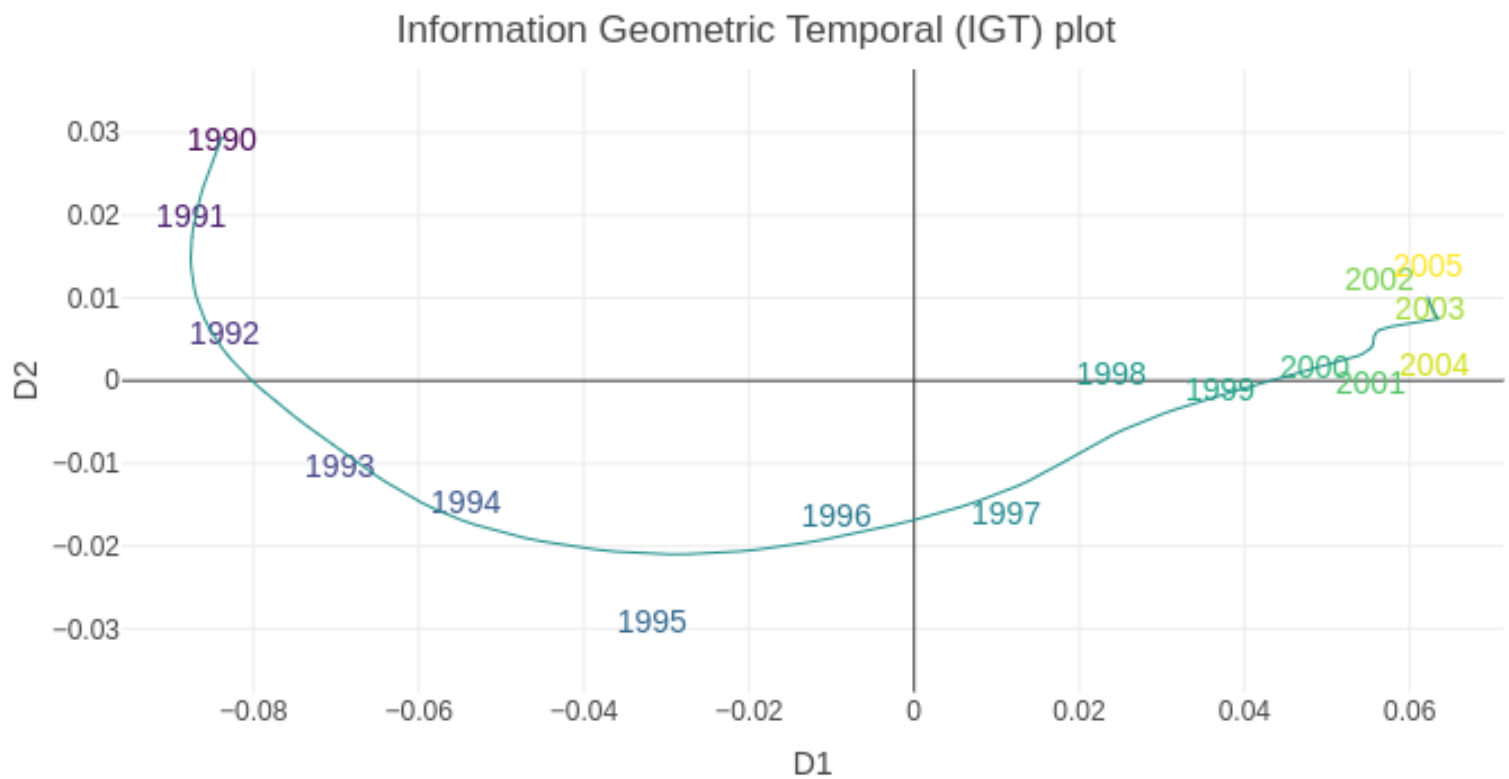


Figure S10. Relative temporal trends of the top 50 associated PheCodes for matched controls without sleep apnea.

Relative PheCode (ICD) diagnosis dates were oriented to 1/1/2000 as the first sleep apnea diagnosis date. The top 50 PheCodes are listed in Figure S6. All PheCode diagnosis dates were used, in contrast to other analyses using only the first recorded diagnosis date. Positions reflect temporal trends of all variables in year-wide bins, with a longer distance reflecting greater differences between two relative years. Multidimensional scaling is used to visualize the variability among data from relative years. Axis coordinates reflect the components of variance. Relative years are positioned as points where the distance between them represents the Jensen-Shannon probabilistic distance between their distributions. For more information, please see the EHRtemporalVariability references (PMID:30342679 and PMC7391413).

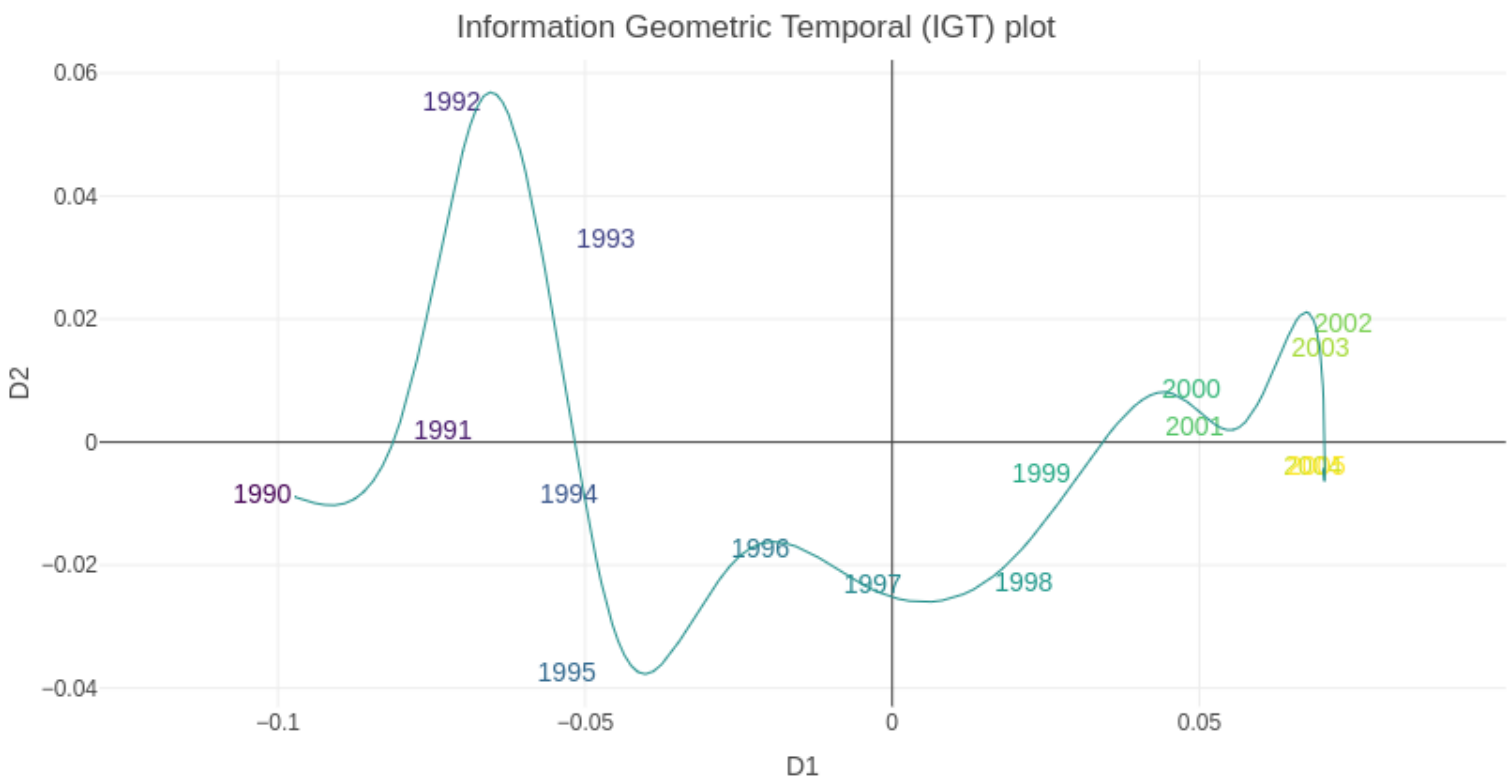
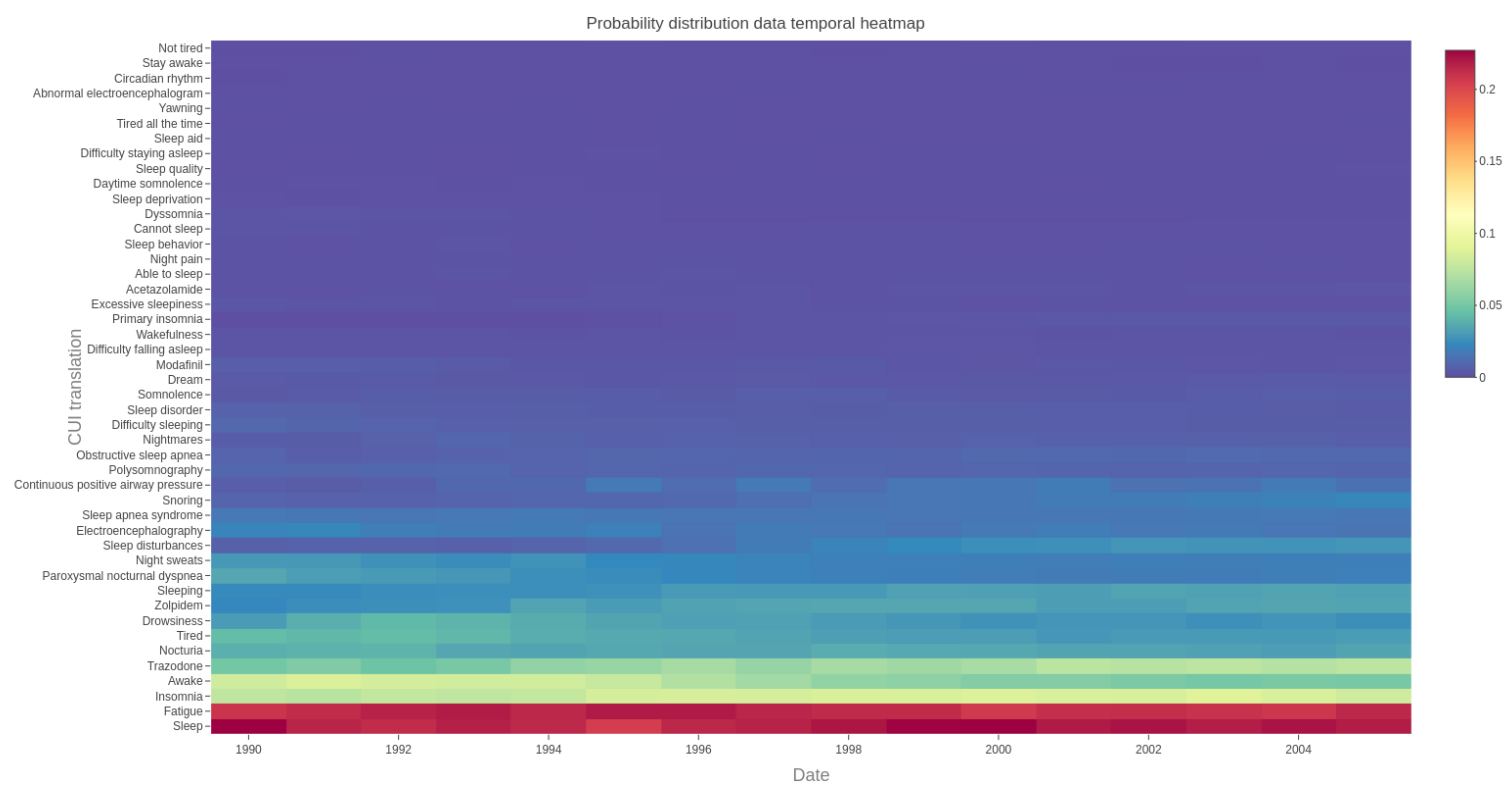


Figure S11. Proportional clinical note occurrences of sleep-related clinical note concepts for matched controls without OSA.

Relative clinical note dates were oriented to 1/1/2000 as the first sleep apnea diagnosis date. The 47 sleep-related terms are defined in Table S8. The analysis was performed using the EHRtemporalVariability package (PMC7391413).



Supplemental Tables**Table S1. PheVis Note Terms.**

The SAFE procedure (PMC6080726) was used to identify these clinical note terms (UMLS, <https://www.nlm.nih.gov/research/umls/index.html>) for use in PheVis. Terms were found in a majority of online sleep apnea reviews and were present in our clinical notes as extracted using cTAKES. Reviews are further described in Table S1 of PMC8826997 and included NLP extraction of online information from: American Thoracic Society Patient Series, Mayo Clinic, Medline, Medscape, Merck Manuals, Nature Reviews Disease Primers, and Wikipedia. Excluded status terms were removed prior to PheVis calculations due to non-specificity (e.g. “does pull”) or false-positive matches (e.g. the metal “lead” versus PSG electrode leads). MainCUI refers to a prioritized joint term consisting of the sum of the “sleep apnea” and “obstructive sleep apnea syndrome” term counts.

Status	CUI	Translation
Retained	[mainCUI]	mainCUI = C0037315 (sleep apnea); C0520679 (obstructive sleep apnea syndrome)
Retained	C0001425	Adenoidectomy
Retained	C0003578	Apnea
Retained	C0003811	Cardiac Arrhythmia
Retained	C0004238	Atrial Fibrillation
Retained	C0007222	Cardiovascular Diseases
Retained	C0008301	Choking
Retained	C0013144	Drowsiness
Retained	C0013839	Electromyography
Retained	C0018801	Heart failure
Retained	C0018802	Congestive heart failure
Retained	C0024117	Chronic Obstructive Airway Disease
Retained	C0027051	Myocardial Infarction
Retained	C0027424	Nasal congestion (finding)
Retained	C0028734	Nocturia
Retained	C0028754	Obesity
Retained	C0036557	Sedatives
Retained	C0036974	Shock
Retained	C0037317	Sleep disturbances
Retained	C0037384	Snoring
Retained	C0043352	Xerostomia
Retained	C0085631	Agitation
Retained	C0085633	Mood swings

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Status	CUI	Translation
Retained	C0162701	Polysomnography
Retained	C0199451	Continuous Positive Airway Pressure
Retained	C0233660	Mental blocking
Retained	C0233794	Memory impairment
Retained	C0242184	Hypoxia
Retained	C0338656	Impaired cognition
Retained	C0344329	Collapse (finding)
Retained	C0424295	Hyperactive behavior
Retained	C0424563	Quality of sleep
Retained	C0425449	Gasping for breath
Retained	C0425466	Respiratory effort
Retained	C0497247	Increase in blood pressure
Retained	C0497406	Overweight
Retained	C0517967	Respiratory pattern
Retained	C0542476	Forgetful
Retained	C0700292	Hypoxemia
Retained	C0746961	Oxygen saturation below reference range
Retained	C0851578	Sleep Disorders
Retained	C0917801	Sleeplessness
Retained	C1272641	Systemic arterial pressure
Retained	C2830004	Somnolence
Retained	C3854333	Narrowing
Retained	C3887611	Restlessness
Excluded	C0013216	Pharmacotherapy
Excluded	C0013658	Educational Status
Excluded	C0023175	Lead
Excluded	C0242402	Opioids
Excluded	C0332155	Did not receive therapy or drug for
Excluded	C0436331	Symptom aggravating factors
Excluded	C0541749	Does turn (finding)
Excluded	C0580846	Does pull
Excluded	C1292856	Stimulation procedure
Excluded	C1705232	Death Related to Adverse Event

Table S2. Algorithm Chart Review Performance.

Method	Total	True positives	False positives	True negatives	False negatives	Accuracy	Precision	Negative predictive value	Recall	Specificity	F1
1+ PheCode	484	333	150	0	1	0.688	0.689	0.000	0.997	0.000	0.815
PheVis	484	262	37	113	72	0.775	0.876	0.611	0.784	0.753	0.828
PheVis + AHI (PSG)	481	263	38	110	70	0.775	0.874	0.611	0.790	0.743	0.830
PheVis + AHI (PSG and NLP)	476	268	39	109	60	0.792	0.873	0.645	0.817	0.736	0.844
PheVis + AHI (PSG and NLP) + CPAP	477	270	39	109	59	0.795	0.874	0.649	0.821	0.736	0.846

The PheVis algorithm was chosen to optimize high-confidence cases (i.e. precision / positive predictive value) for use with controls defined by 0 OSA PheCodes. 484 chart reviews were performed for participants with one or more sleep apnea PheCode codings. Therefore PheCode-only values lack negative predictive values by definition. The base NLP prediction PheVis was supplemented with available AHI data obtained from sleep reports (PSG) and extracted from clinical notes (NLP). A PheVis control would be converted to a case if AHI ≥ 15 or nulled if the AHI was between 5 - 15. Note that this could still classify a patient as a case with sleep apnea using ICSD-3 criteria with available comorbidities. Finally, evidence of a CPAP prescription could convert a PheVis control to case, but these data were only available for participants seen in the Faulkner clinic and affected 2 participants in the chart review. AHI and CPAP information were masked if the corresponding date occurred after the chart review, which lowers the total count.

Accuracy = (True positives + True negatives) / (True positives + False positives + False negatives + True negatives)

Precision = True positives / (True positives + False positives)

Negative predictive value = True negatives / (True negatives + False negatives)

Recall = True positives / (True positives + False negatives)

Specificity = True negatives / (True negatives + False positives)

F1 = (2 * Recall * Precision) / (Recall + Precision)

Table S3. Sleep apnea heritability.

Continental ancestry	Cases	Controls	BMI adjusted estimate (SE)	BMI unadjusted estimate (SE)
AFR	527	2171	-0.064 (0.263)	0.157 (0.219)
AMR	844	5162	0.266 (0.162)	0.152 (0.152)
EUR	6336	39162	0.105 (0.027)	0.072 (0.020)
Combined populations	7878	48204	0.130 (0.027)	0.088 (0.018)

Marginal PCGC-based heritability estimates are shown, adjusted for age, sex, BMI, and 10 population principal components. Marginal estimates account for variance introduced by the covariates and may be lower than conditional heritability estimates often reported using other methods. Continental ancestry was calculated based on 1000 Genomes Project template data. Ancestry groups with $n > 1,000$ (African, American, and European) were directly tested. Negative heritability estimates are possible when using unbounded calculations and can be seen in results with relatively high standard error values. The final choice of PheVis + AHI information was based on the maximizing the point-wise estimate of the largest sample (EUR). Inclusion of CPAP prescription data decreased the pointwise estimate in EUR, although there were further marginal improvements in post-hoc analyses of the combined population sample (0.133 [0.027]). No BMI values were used to construct the PheVis algorithm estimates.

Table S4. Incident case/control comorbidity associations.

Incident analyses considered diagnoses at least one year after the initial sleep apnea diagnosis. Primary analyses considered joint-sex PheCodes with >1% incidence rate and were adjusted for age, sex, BMI, population, and healthcare encounters. Bonferroni-significant p-values are bolded. A sensitivity analysis using alternative control propensity score matching without healthcare encounters (but still adjusting for encounters in the analysis) was performed. PheCodes with discordant results (n=32) or $p > 0.05$ (n=187) in either analysis are displayed at the end of the table (from PheCode 721.8 onwards, highlighted in green). 179 PheCodes were both Bonferroni-level significant and had concordant directionality in the sensitivity analysis. Sleep apnea × sex interaction analyses were performed separately when incidence was >1% in men and women. Equivalent sex-stratified analyses are shown.

PheCode	Disease	Incidence OSA case / control	Risk ratio	P-value	Sensitivity analysis risk ratio	OSA x sex interaction p-value	Risk ratio (men)	Risk ratio (women)
472	Chronic pharyngitis and nasopharyngitis	3.3 / 0.5	6.19 (5.55 – 6.90)	3.0E-236	2.81 (2.56 – 3.09)	1.0E-01	6.72 (5.80 – 7.78)	5.55 (4.72 – 6.54)
296.22	Major depressive disorder	9.9 / 5.6	1.87 (1.79 – 1.95)	2.6E-179	2.22 (2.12 – 2.33)	5.8E-04	1.73 (1.63 – 1.84)	2.00 (1.89 – 2.12)
455	Hemorrhoids	7.0 / 3.1	2.20 (2.09 – 2.33)	1.2E-176	1.09 (1.03 – 1.15)	1.5E-04	2.41 (2.25 – 2.59)	1.92 (1.76 – 2.09)
327	Sleep disorders	2.4 / 0.4	5.90 (5.20 – 6.70)	8.7E-166	2.24 (2.01 – 2.49)	8.0E-01	5.86 (4.97 – 6.91)	5.96 (4.89 – 7.26)
689	Disorder of skin and subcutaneous tissue NOS	6.8 / 3.3	1.99 (1.88 – 2.09)	2.9E-140	1.23 (1.16 – 1.29)	4.9E-03	2.10 (1.97 – 2.25)	1.80 (1.65 – 1.96)
327.71	Restless legs syndrome	2.1 / 0.5	4.50 (4.00 – 5.07)	5.6E-136	5.38 (4.65 – 6.23)	8.6E-01	4.37 (3.68 – 5.19)	4.59 (3.89 – 5.41)
470	Septal Deviations/Turbinate Hypertrophy	3.2 / 1.1	2.86 (2.63 – 3.11)	9.4E-129	3.08 (2.78 – 3.42)	2.6E-05	3.30 (2.96 – 3.68)	2.23 (1.94 – 2.57)
476	Allergic rhinitis	6.9 / 3.7	1.93 (1.82 – 2.03)	7.2E-126	1.56 (1.46 – 1.66)	6.8E-05	2.15 (2.00 – 2.31)	1.69 (1.56 – 1.83)
327.4	Insomnia	5.4 / 2.9	1.83 (1.73 – 1.94)	1.6E-89	2.16 (2.02 – 2.32)	2.6E-01	1.78 (1.64 – 1.93)	1.89 (1.74 – 2.06)
289.9	Abnormality of red blood cells	1.1 / 0.1	7.36 (6.00 – 9.02)	4.0E-82	1.36 (1.19 – 1.56)	NA	NA	11.26 (7.98 – 15.89)
272.1	Hyperlipidemia	12.8 / 9.4	1.48 (1.42 – 1.54)	2.3E-76	1.08 (1.03 – 1.13)	3.3E-01	1.48 (1.40 – 1.55)	1.49 (1.39 – 1.60)
278	Overweight, obesity and other hyperalimentation	6.7 / 4.1	1.60 (1.52 – 1.69)	4.0E-72	1.62 (1.52 – 1.73)	1.7E-02	1.69 (1.58 – 1.80)	1.49 (1.38 – 1.62)
292	Neurological disorders	1.5 / 0.5	3.12 (2.74 – 3.54)	2.0E-68	1.97 (1.74 – 2.22)	3.1E-01	3.27 (2.77 – 3.86)	2.89 (2.36 – 3.53)
196	Radiotherapy	2.3 / 4.1	0.54 (0.51 – 0.58)	9.4E-66	0.65 (0.61 – 0.70)	5.6E-02	0.51 (0.47 – 0.56)	0.60 (0.54 – 0.68)
379.9	Pain, swelling or discharge of eye	1.2 / 0.4	3.46 (3.00 – 4.00)	4.0E-64	2.74 (2.28 – 3.28)	4.9E-02	3.04 (2.50 – 3.71)	4.00 (3.24 – 4.93)
292.3	Memory loss	3.1 / 1.5	1.93 (1.78 – 2.08)	1.3E-62	1.74 (1.59 – 1.91)	6.2E-03	2.11 (1.90 – 2.34)	1.72 (1.54 – 1.93)

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PheC ode	Disease	Incidence OSA case / control	Risk ratio	P-value	Sensitivity analysis risk ratio	OSA x sex interaction p-value	Risk ratio (men)	Risk ratio (women)
379	Other disorders of eye	1.1 / 0.0	41.54 (26.81 – 64.35)	1.6E-62	1.40 (1.16 – 1.69)	3.3E-01	52.08 (26.77 – 101.32)	33.45 (18.69 – 59.88)
300.11	Generalized anxiety disorder	4.8 / 3.1	1.62 (1.53 – 1.72)	1.1E-60	2.09 (1.95 – 2.23)	4.9E-01	1.59 (1.46 – 1.73)	1.65 (1.53 – 1.79)
475	Chronic sinusitis	2.9 / 1.6	1.90 (1.75 – 2.07)	3.2E-54	1.63 (1.49 – 1.79)	2.5E-04	2.19 (1.96 – 2.44)	1.59 (1.40 – 1.80)
550.2	Diaphragmatic hernia	2.3 / 1.1	2.05 (1.87 – 2.25)	6.0E-54	1.34 (1.20 – 1.49)	1.6E-01	2.16 (1.88 – 2.48)	1.95 (1.72 – 2.20)
306	Other mental disorder	4.2 / 2.6	1.63 (1.53 – 1.74)	2.1E-53	1.62 (1.51 – 1.74)	5.1E-01	1.66 (1.53 – 1.80)	1.60 (1.46 – 1.76)
278.1	Obesity	9.2 / 8.4	1.41 (1.35 – 1.48)	1.1E-52	1.53 (1.46 – 1.60)	2.4E-01	1.53 (1.44 – 1.63)	1.32 (1.23 – 1.40)
313.1	Attention deficit hyperactivity disorder	1.5 / 0.7	2.30 (2.06 – 2.56)	1.1E-50	2.65 (2.32 – 3.01)	1.4E-01	2.44 (2.12 – 2.80)	2.08 (1.75 – 2.49)
208	Benign neoplasm of colon	7.0 / 4.7	1.47 (1.39 – 1.54)	1.6E-49	1.31 (1.24 – 1.38)	9.8E-01	1.48 (1.39 – 1.58)	1.45 (1.33 – 1.58)
327.4 1	Organic or persistent insomnia	1.5 / 0.7	2.32 (2.07 – 2.60)	1.5E-47	2.15 (1.89 – 2.46)	9.6E-01	2.30 (1.95 – 2.71)	2.33 (1.99 – 2.73)
300.4	Dysthymic disorder	1.4 / 0.7	2.22 (1.98 – 2.50)	5.4E-40	5.10 (3.82 – 6.81)	5.9E-01	2.14 (1.81 – 2.54)	2.29 (1.94 – 2.70)
197	Chemotherapy	2.1 / 3.5	0.61 (0.56 – 0.65)	1.1E-39	0.57 (0.53 – 0.62)	3.4E-01	0.59 (0.53 – 0.64)	0.64 (0.57 – 0.72)
389	Hearing loss	5.5 / 3.7	1.44 (1.36 – 1.52)	2.3E-39	1.72 (1.61 – 1.83)	2.9E-01	1.46 (1.37 – 1.57)	1.39 (1.27 – 1.52)
798.1	Chronic fatigue syndrome	1.5 / 0.7	2.11 (1.88 – 2.36)	2.1E-38	2.69 (2.34 – 3.10)	7.4E-01	2.02 (1.71 – 2.39)	2.17 (1.86 – 2.54)
300.1	Anxiety disorder	8.7 / 7.0	1.33 (1.28 – 1.39)	7.0E-38	1.56 (1.48 – 1.63)	8.5E-01	1.33 (1.25 – 1.41)	1.34 (1.26 – 1.42)
564.1	Irritable Bowel Syndrome	1.8 / 1.0	1.91 (1.73 – 2.12)	2.1E-37	1.85 (1.65 – 2.09)	1.3E-01	2.12 (1.79 – 2.52)	1.81 (1.60 – 2.04)
706.8	Other specified diseases of sebaceous glands	2.4 / 1.3	1.72 (1.57 – 1.87)	5.5E-34	1.36 (1.25 – 1.48)	7.8E-01	1.72 (1.54 – 1.93)	1.69 (1.48 – 1.94)
172.2 2	Squamous cell carcinoma	1.9 / 1.0	1.82 (1.65 – 2.01)	2.5E-33	1.34 (1.18 – 1.52)	7.0E-01	1.80 (1.60 – 2.02)	1.87 (1.56 – 2.25)
530.11	GERD	10.9 / 8.8	1.28 (1.23 – 1.34)	2.6E-32	1.33 (1.28 – 1.40)	2.9E-01	1.26 (1.20 – 1.34)	1.31 (1.23 – 1.39)
761	Cervicalgia	5.0 / 3.5	1.43 (1.35 – 1.52)	4.3E-32	1.55 (1.45 – 1.66)	3.1E-01	1.40 (1.29 – 1.52)	1.47 (1.35 – 1.61)
701.2	Scar conditions and fibrosis of skin	2.8 / 1.7	1.58 (1.46 – 1.71)	1.5E-30	1.20 (1.10 – 1.30)	4.6E-01	1.60 (1.45 – 1.77)	1.54 (1.35 – 1.75)
272.1 2	Hyperglyceridemia	1.8 / 1.1	1.74 (1.58 – 1.92)	1.5E-28	1.67 (1.50 – 1.86)	1.3E-01	1.66 (1.48 – 1.87)	1.92 (1.62 – 2.28)
338.2	Chronic pain	6.8 / 5.2	1.31 (1.25 – 1.37)	1.6E-27	1.21 (1.15 – 1.28)	2.7E-01	1.35 (1.27 – 1.44)	1.26 (1.17 – 1.35)
599.5	Frequency of urination and polyuria	5.6 / 4.0	1.34 (1.27 – 1.42)	2.7E-27	1.57 (1.48 – 1.67)	3.4E-03	1.40 (1.32 – 1.49)	1.18 (1.06 – 1.32)
348.7	Coma	1.1 / 0.5	2.01 (1.77 – 2.28)	1.5E-26	2.74 (2.38 – 3.16)	3.6E-02	1.81 (1.55 – 2.12)	2.43 (1.94 – 3.03)
357	Inflammatory and toxic neuropathy	3.5 / 2.4	1.44 (1.34 – 1.54)	3.5E-26	1.78 (1.65 – 1.91)	5.3E-02	1.36 (1.24 – 1.48)	1.57 (1.41 – 1.74)

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PheC ode	Disease	Incidence OSA case / control	Risk ratio	P-value	Sensitivity analysis risk ratio	OSA x sex interaction p-value	Risk ratio (men)	Risk ratio (women)
599.9	Other abnormality of urination	3.0 / 2.0	1.47 (1.37 – 1.59)	4.8E-25	1.61 (1.48 – 1.75)	8.5E-02	1.53 (1.40 – 1.67)	1.36 (1.19 – 1.54)
300.1 2	Agorophobia, social phobia, and panic disorder	1.2 / 0.7	1.90 (1.68 – 2.14)	8.0E-25	1.91 (1.67 – 2.18)	NA	NA	2.21 (1.87 – 2.61)
262	Mineral deficiency NEC	1.4 / 0.8	1.77 (1.59 – 1.97)	2.0E-24	2.44 (2.16 – 2.76)	NA	NA	1.88 (1.64 – 2.16)
271.3	Intestinal disaccharidase deficiencies and disaccharide malabsorption	5.0 / 3.8	1.33 (1.25 – 1.40)	7.7E-24	1.36 (1.29 – 1.44)	2.5E-02	1.42 (1.31 – 1.53)	1.24 (1.15 – 1.34)
740.1	Osteoarthritis; localized	1.0 / 1.8	0.58 (0.52 – 0.64)	1.2E-23	0.86 (0.78 – 0.94)	NA	NA	0.57 (0.49 – 0.67)
599.4	Urinary incontinence	2.9 / 2.0	1.46 (1.35 – 1.57)	3.0E-23	1.56 (1.43 – 1.69)	1.1E-01	1.32 (1.16 – 1.49)	1.54 (1.41 – 1.69)
296	Mood disorders	1.7 / 1.1	1.66 (1.50 – 1.83)	3.4E-23	1.86 (1.67 – 2.07)	6.4E-01	1.62 (1.42 – 1.84)	1.71 (1.46 – 1.99)
563	Constipation	5.1 / 3.7	1.33 (1.25 – 1.40)	1.1E-22	1.77 (1.66 – 1.88)	2.0E-04	1.19 (1.10 – 1.28)	1.49 (1.38 – 1.62)
375.1	Dry eyes	2.1 / 1.3	1.55 (1.42 – 1.69)	2.2E-22	1.49 (1.34 – 1.64)	5.9E-01	1.60 (1.39 – 1.83)	1.51 (1.35 – 1.70)
379.2	Disorders of vitreous body	2.0 / 1.2	1.58 (1.44 – 1.73)	2.8E-22	1.28 (1.15 – 1.42)	7.8E-02	1.69 (1.49 – 1.91)	1.44 (1.25 – 1.66)
277	Other disorders of metabolism	2.7 / 1.9	1.45 (1.35 – 1.57)	7.6E-22	1.61 (1.48 – 1.74)	6.9E-03	1.27 (1.12 – 1.43)	1.59 (1.44 – 1.76)
272.11	Hypercholesterolemia	9.1 / 7.4	1.24 (1.19 – 1.30)	2.4E-21	1.09 (1.04 – 1.15)	3.0E-01	1.28 (1.21 – 1.36)	1.19 (1.11 – 1.28)
340	Migraine	2.5 / 1.9	1.46 (1.35 – 1.58)	8.1E-21	1.58 (1.45 – 1.73)	9.9E-01	1.44 (1.25 – 1.65)	1.47 (1.33 – 1.61)
272.1 3	Mixed hyperlipidemia	5.3 / 4.1	1.29 (1.23 – 1.37)	8.7E-21	1.11 (1.05 – 1.17)	5.3E-02	1.35 (1.26 – 1.44)	1.19 (1.08 – 1.31)
278.4	Abnormal weight gain	2.0 / 1.4	1.54 (1.41 – 1.69)	9.5E-21	2.04 (1.86 – 2.23)	8.9E-02	1.75 (1.51 – 2.03)	1.44 (1.29 – 1.61)
481	Influenza	2.2 / 1.5	1.49 (1.37 – 1.62)	2.0E-20	2.87 (2.39 – 3.46)	4.2E-01	1.54 (1.37 – 1.73)	1.44 (1.27 – 1.63)
289.4	Lymphadenitis	2.6 / 3.6	0.72 (0.67 – 0.77)	2.2E-20	0.70 (0.65 – 0.75)	3.9E-02	0.67 (0.61 – 0.74)	0.78 (0.70 – 0.87)
475.9	Postnasal drip	2.4 / 1.6	1.46 (1.35 – 1.58)	1.2E-19	1.56 (1.42 – 1.72)	4.1E-03	1.64 (1.46 – 1.84)	1.29 (1.15 – 1.45)
701	Other hypertrophic and atrophic conditions of skin	3.2 / 2.3	1.39 (1.29 – 1.49)	1.4E-19	1.48 (1.37 – 1.61)	3.6E-03	1.53 (1.40 – 1.68)	1.21 (1.08 – 1.36)
594.1	Calculus of kidney	2.9 / 2.1	1.40 (1.30 – 1.50)	5.2E-19	1.39 (1.29 – 1.50)	3.7E-01	1.37 (1.25 – 1.49)	1.46 (1.28 – 1.68)
428.2	Heart failure NOS	1.5 / 0.9	1.61 (1.45 – 1.79)	5.6E-19	2.42 (2.16 – 2.71)	1.7E-04	1.42 (1.25 – 1.61)	2.15 (1.78 – 2.61)
304	Adjustment reaction	2.5 / 1.7	1.46 (1.34 – 1.58)	5.6E-19	1.46 (1.33 – 1.60)	7.8E-02	1.56 (1.39 – 1.75)	1.35 (1.19 – 1.52)
429.3	Symptoms involving cardiovascular system	4.0 / 3.0	1.32 (1.24 – 1.40)	1.6E-18	1.55 (1.44 – 1.66)	3.1E-01	1.35 (1.24 – 1.46)	1.27 (1.16 – 1.40)
402	Elevated blood pressure reading without diagnosis of hypertension	3.4 / 2.6	1.36 (1.27 – 1.45)	2.3E-18	1.09 (1.01 – 1.18)	7.8E-03	1.49 (1.36 – 1.63)	1.19 (1.07 – 1.33)
495	Asthma	4.4 / 3.8	1.30 (1.23 – 1.38)	6.8E-18	1.28 (1.20 – 1.36)	8.6E-01	1.30 (1.19 – 1.42)	1.30 (1.20 – 1.41)

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PheC ode	Disease	Incidence OSA case / control	Risk ratio	P-value	Sensitivity analysis risk ratio	OSA x sex interaction p-value	Risk ratio (men)	Risk ratio (women)
380.4	Impacted cerumen	2.7 / 1.8	1.41 (1.30 – 1.53)	8.5E-18	1.43 (1.30 – 1.57)	6.8E-01	1.43 (1.30 – 1.58)	1.37 (1.20 – 1.57)
579.8	Nonspecific abnormal findings in stool contents	2.6 / 1.8	1.41 (1.30 – 1.52)	8.9E-18	1.39 (1.27 – 1.53)	7.1E-01	1.43 (1.28 – 1.58)	1.38 (1.23 – 1.55)
764	Sciatica	4.0 / 3.0	1.31 (1.23 – 1.39)	2.7E-17	1.41 (1.32 – 1.51)	7.7E-01	1.33 (1.22 – 1.44)	1.29 (1.18 – 1.42)
292.2	Mild cognitive impairment	1.2 / 0.7	1.66 (1.48 – 1.87)	5.5E-17	2.04 (1.77 – 2.36)	3.8E-01	1.73 (1.48 – 2.03)	1.57 (1.31 – 1.88)
250.4 1	Impaired fasting glucose	2.4 / 1.7	1.41 (1.30 – 1.53)	9.0E-17	1.43 (1.31 – 1.56)	2.2E-01	1.48 (1.33 – 1.65)	1.33 (1.18 – 1.50)
389.1	Sensorineural hearing loss	3.3 / 2.4	1.34 (1.25 – 1.44)	1.0E-16	1.35 (1.24 – 1.46)	1.2E-01	1.39 (1.28 – 1.52)	1.25 (1.12 – 1.40)
726	Peripheral enthesopathies and allied syndromes	3.2 / 2.3	1.36 (1.26 – 1.46)	1.6E-16	1.20 (1.10 – 1.30)	4.2E-01	1.41 (1.29 – 1.54)	1.28 (1.13 – 1.44)
912	Insect bite	1.2 / 0.7	1.65 (1.46 – 1.86)	1.9E-16	2.26 (1.96 – 2.61)	6.0E-01	1.61 (1.37 – 1.89)	1.70 (1.43 – 2.02)
508	Pulmonary collapse; interstitial and compensatory emphysema	3.4 / 4.3	0.77 (0.72 – 0.82)	4.1E-16	0.75 (0.70 – 0.80)	4.0E-02	0.73 (0.68 – 0.79)	0.84 (0.76 – 0.94)
797	Shock	1.2 / 0.7	1.63 (1.45 – 1.83)	7.1E-16	1.23 (1.11 – 1.36)	NA	1.51 (1.31 – 1.74)	NA
599.8	Other symptoms involving urinary system	2.5 / 1.7	1.38 (1.28 – 1.50)	9.5E-16	1.89 (1.72 – 2.08)	5.2E-01	1.35 (1.23 – 1.48)	1.47 (1.27 – 1.71)
427.6	Premature beats	2.0 / 1.3	1.44 (1.31 – 1.57)	1.6E-15	1.48 (1.33 – 1.63)	1.8E-01	1.49 (1.34 – 1.65)	1.32 (1.12 – 1.55)
765	Cervical radiculitis	2.2 / 1.6	1.41 (1.29 – 1.53)	1.8E-15	1.61 (1.46 – 1.78)	2.0E-01	1.35 (1.21 – 1.51)	1.49 (1.31 – 1.69)
519.8	Other diseases of respiratory system, NEC	1.4 / 0.9	1.55 (1.39 – 1.73)	2.0E-15	2.00 (1.78 – 2.26)	5.8E-01	1.51 (1.30 – 1.75)	1.60 (1.36 – 1.88)
401.1	Essential hypertension	11.9 / 17.3	0.84 (0.81 – 0.88)	2.1E-15	0.77 (0.74 – 0.81)	5.7E-02	0.85 (0.81 – 0.89)	0.86 (0.80 – 0.92)
427.9	Palpitations	4.3 / 3.4	1.29 (1.21 – 1.37)	2.3E-15	1.35 (1.26 – 1.45)	8.6E-01	1.29 (1.18 – 1.41)	1.28 (1.18 – 1.40)
386.9	Dizziness and giddiness (Light-headedness and vertigo)	6.1 / 4.9	1.24 (1.17 – 1.30)	2.9E-15	1.31 (1.24 – 1.39)	7.2E-01	1.25 (1.16 – 1.34)	1.22 (1.13 – 1.32)
726.1	Enthesopathy	3.9 / 3.0	1.30 (1.21 – 1.38)	3.6E-15	1.28 (1.20 – 1.38)	9.0E-02	1.38 (1.26 – 1.52)	1.22 (1.12 – 1.34)
110.11	Dermatophytosis of nail	1.7 / 1.1	1.48 (1.34 – 1.63)	5.1E-15	1.36 (1.22 – 1.51)	2.5E-02	1.60 (1.42 – 1.80)	1.24 (1.04 – 1.47)
507	Pleurisy; pleural effusion	2.7 / 3.5	0.76 (0.71 – 0.82)	1.2E-14	0.66 (0.61 – 0.72)	9.3E-01	0.76 (0.69 – 0.82)	0.76 (0.68 – 0.86)
537	Other disorders of stomach and duodenum	2.9 / 2.2	1.33 (1.24 – 1.43)	1.4E-14	1.42 (1.32 – 1.53)	5.2E-03	1.21 (1.10 – 1.33)	1.49 (1.34 – 1.67)
740.9	Osteoarthritis NOS	6.1 / 5.2	1.23 (1.17 – 1.30)	3.4E-14	1.16 (1.10 – 1.22)	7.7E-01	1.24 (1.15 – 1.33)	1.22 (1.13 – 1.32)
728.7	Fasciitis	1.8 / 1.3	1.43 (1.30 – 1.58)	8.5E-14	1.41 (1.27 – 1.56)	4.7E-02	1.58 (1.38 – 1.80)	1.30 (1.13 – 1.49)
527.7	Disturbance of salivary	1.3 / 0.8	1.53 (1.37 – 1.71)	1.5E-13	2.27 (1.94 – 2.66)	NA	NA	1.69 (1.45 – 1.98)

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PheC ode	Disease	Incidence OSA case / control	Risk ratio	P-value	Sensitivity analysis risk ratio	OSA x sex interaction p-value	Risk ratio (men)	Risk ratio (women)
	secretion							
464	Acute sinusitis	1.7 / 1.2	1.45 (1.31 – 1.60)	1.9E-13	1.41 (1.26 – 1.58)	6.9E-04	1.75 (1.52 – 2.03)	1.22 (1.07 – 1.40)
596.5	Functional disorders of bladder	1.2 / 0.7	1.56 (1.38 – 1.75)	2.1E-13	1.39 (1.22 – 1.59)	8.3E-01	1.51 (1.28 – 1.78)	1.60 (1.35 – 1.89)
382	Otalgia	3.1 / 2.4	1.30 (1.21 – 1.39)	3.9E-13	1.18 (1.09 – 1.28)	1.2E-02	1.43 (1.29 – 1.58)	1.19 (1.08 – 1.31)
586.4	Stricture/obstruction of ureter	1.5 / 0.9	1.46 (1.32 – 1.62)	7.3E-13	1.21 (1.08 – 1.36)	NA	1.52 (1.37 – 1.69)	NA
296.2	Depression	2.2 / 1.7	1.39 (1.27 – 1.52)	9.4E-13	2.02 (1.83 – 2.23)	9.5E-01	1.40 (1.23 – 1.58)	1.38 (1.21 – 1.57)
228.1	Hemangioma of skin and subcutaneous tissue	2.3 / 1.7	1.34 (1.24 – 1.46)	2.2E-12	1.38 (1.25 – 1.51)	1.0E-03	1.48 (1.34 – 1.64)	1.12 (0.97 – 1.29)
512.9	Other dyspnea	6.5 / 5.2	1.21 (1.15 – 1.28)	2.3E-12	1.99 (1.88 – 2.10)	1.1E-02	1.15 (1.07 – 1.23)	1.32 (1.21 – 1.44)
261.4	Vitamin D deficiency	4.7 / 4.0	1.23 (1.16 – 1.30)	2.3E-12	1.44 (1.36 – 1.53)	1.0E-02	1.33 (1.22 – 1.45)	1.15 (1.07 – 1.24)
807	Fracture of ribs	1.1 / 0.7	1.55 (1.37 – 1.76)	3.0E-12	1.16 (1.01 – 1.35)	3.5E-03	1.37 (1.17 – 1.60)	1.95 (1.59 – 2.40)
173	Neoplasm of uncertain behavior of skin	2.4 / 1.7	1.34 (1.23 – 1.46)	3.1E-12	1.65 (1.51 – 1.81)	6.6E-01	1.31 (1.18 – 1.45)	1.38 (1.21 – 1.59)
290.1	Dementias	2.0 / 1.3	1.37 (1.25 – 1.49)	4.0E-12	1.58 (1.42 – 1.76)	2.5E-03	1.52 (1.36 – 1.71)	1.16 (1.01 – 1.33)
741.2	Stiffness of joint	1.2 / 0.8	1.51 (1.34 – 1.70)	4.3E-12	1.29 (1.13 – 1.47)	3.6E-01	1.60 (1.36 – 1.89)	1.42 (1.21 – 1.68)
465	Acute upper respiratory infections of multiple or unspecified sites	3.8 / 3.1	1.27 (1.18 – 1.36)	1.3E-11	1.55 (1.44 – 1.67)	3.6E-02	1.36 (1.24 – 1.50)	1.17 (1.05 – 1.29)
380.1	Otitis externa	1.3 / 0.9	1.46 (1.31 – 1.63)	1.5E-11	1.65 (1.46 – 1.87)	2.7E-01	1.54 (1.34 – 1.77)	1.35 (1.13 – 1.61)
365	Glaucoma	2.7 / 2.0	1.29 (1.20 – 1.39)	3.2E-11	1.33 (1.23 – 1.45)	9.1E-01	1.29 (1.17 – 1.43)	1.29 (1.15 – 1.44)
760	Back pain	8.5 / 7.5	1.17 (1.12 – 1.23)	3.9E-11	1.15 (1.10 – 1.21)	4.0E-01	1.17 (1.10 – 1.24)	1.18 (1.10 – 1.28)
386.2	Peripheral or central vertigo	1.5 / 1.0	1.42 (1.28 – 1.57)	4.1E-11	1.50 (1.33 – 1.69)	5.2E-01	1.36 (1.16 – 1.59)	1.46 (1.28 – 1.68)
292.1	Aphasia/speech disturbance	1.3 / 0.9	1.45 (1.30 – 1.63)	5.7E-11	1.37 (1.21 – 1.55)	2.0E-01	1.53 (1.33 – 1.76)	1.34 (1.11 – 1.61)
704	Diseases of hair and hair follicles	1.5 / 1.1	1.40 (1.27 – 1.55)	6.5E-11	1.60 (1.44 – 1.79)	3.8E-01	1.44 (1.28 – 1.63)	1.31 (1.10 – 1.57)
704.1	Alopecia	1.7 / 1.3	1.37 (1.25 – 1.50)	7.2E-11	1.43 (1.28 – 1.60)	NA	NA	1.26 (1.13 – 1.41)
840	Sprains and strains	3.9 / 3.2	1.24 (1.16 – 1.32)	8.8E-11	1.12 (1.04 – 1.20)	6.4E-01	1.27 (1.17 – 1.37)	1.20 (1.08 – 1.33)
278.11	Morbid obesity	3.3 / 4.1	1.29 (1.19 – 1.39)	9.0E-11	1.52 (1.42 – 1.63)	1.4E-07	1.74 (1.56 – 1.94)	1.01 (0.92 – 1.12)
742.9	Other derangement of joint	2.5 / 2.0	1.29 (1.19 – 1.39)	1.2E-10	1.33 (1.23 – 1.45)	1.7E-02	1.17 (1.04 – 1.31)	1.40 (1.26 – 1.55)
798	Malaise and fatigue	9.4 / 7.9	1.16 (1.11 – 1.21)	1.3E-10	1.48 (1.41 – 1.56)	7.4E-01	1.14 (1.08 – 1.21)	1.18 (1.10 – 1.27)
809	Fracture of unspecified bones	1.8 / 2.3	0.76 (0.70 – 0.83)	1.4E-10	0.85 (0.78 – 0.92)	1.3E-01	0.72 (0.64 – 0.81)	0.80 (0.71 – 0.91)

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PheC ode	Disease	Incidence OSA case / control	Risk ratio	P-value	Sensitivity analysis risk ratio	OSA x sex interaction p-value	Risk ratio (men)	Risk ratio (women)
440.9	Atherosclerosis of aorta	1.2 / 0.8	1.46 (1.30 – 1.64)	2.6E-10	1.63 (1.43 – 1.86)	8.2E-01	1.43 (1.22 – 1.67)	1.48 (1.24 – 1.76)
350.1	Abnormal involuntary movements	2.6 / 2.0	1.28 (1.18 – 1.38)	3.0E-10	1.57 (1.44 – 1.71)	5.4E-01	1.25 (1.13 – 1.38)	1.31 (1.17 – 1.47)
427.3	Other specified cardiac dysrhythmias	3.8 / 2.9	1.23 (1.15 – 1.31)	3.3E-10	1.33 (1.24 – 1.43)	1.8E-01	1.25 (1.16 – 1.35)	1.17 (1.04 – 1.31)
593.2	Microscopic hematuria	1.8 / 1.3	1.34 (1.22 – 1.46)	5.5E-10	1.18 (1.07 – 1.32)	2.4E-01	1.27 (1.12 – 1.45)	1.41 (1.24 – 1.61)
285	Other anemias	6.7 / 5.7	1.17 (1.11 – 1.23)	5.9E-10	1.29 (1.23 – 1.37)	7.0E-04	1.07 (1.00 – 1.14)	1.32 (1.22 – 1.43)
415.2	Chronic pulmonary heart disease	1.2 / 0.9	1.42 (1.27 – 1.59)	7.5E-10	1.99 (1.75 – 2.26)	9.1E-04	1.19 (1.02 – 1.39)	1.74 (1.48 – 2.05)
536.8	Dyspepsia and other specified disorders of function of stomach	1.4 / 1.0	1.39 (1.25 – 1.55)	7.7E-10	1.26 (1.12 – 1.42)	7.3E-02	1.53 (1.32 – 1.77)	1.26 (1.08 – 1.47)
480.11	Pneumococcal pneumonia	1.4 / 1.0	1.39 (1.25 – 1.54)	8.1E-10	1.75 (1.55 – 1.97)	9.3E-01	1.37 (1.20 – 1.57)	1.41 (1.20 – 1.67)
512.2	Painful respiration	3.0 / 2.3	1.24 (1.16 – 1.34)	2.5E-09	1.28 (1.18 – 1.38)	8.1E-01	1.23 (1.12 – 1.36)	1.25 (1.13 – 1.40)
740.11	Osteoarthritis, localized, primary	6.0 / 6.9	0.86 (0.82 – 0.91)	3.4E-09	0.82 (0.79 – 0.87)	3.3E-02	0.92 (0.86 – 0.98)	0.81 (0.75 – 0.87)
394.7	Disease of tricuspid valve	1.3 / 0.9	1.40 (1.25 – 1.57)	4.8E-09	1.22 (1.07 – 1.38)	2.8E-02	1.25 (1.07 – 1.45)	1.62 (1.37 – 1.92)
561	Symptoms involving digestive system	2.0 / 1.5	1.30 (1.19 – 1.42)	4.9E-09	1.50 (1.35 – 1.66)	4.7E-01	1.25 (1.09 – 1.43)	1.34 (1.19 – 1.51)
965	Poisoning by analgesics, antipyretics, and antirheumatics	2.2 / 1.7	1.28 (1.18 – 1.39)	5.3E-09	1.40 (1.29 – 1.53)	9.3E-01	1.28 (1.12 – 1.46)	1.28 (1.15 – 1.42)
695.3	Rosacea	1.1 / 0.8	1.42 (1.26 – 1.60)	6.1E-09	1.26 (1.10 – 1.43)	NA	NA	1.36 (1.16 – 1.60)
727.1	Synovitis and tenosynovitis	2.0 / 1.5	1.30 (1.19 – 1.42)	9.6E-09	1.14 (1.04 – 1.26)	1.8E-05	1.56 (1.38 – 1.77)	1.05 (0.93 – 1.20)
781	Symptoms involving nervous and musculoskeletal systems	2.6 / 2.0	1.25 (1.16 – 1.35)	1.0E-08	1.88 (1.72 – 2.05)	4.9E-02	1.16 (1.05 – 1.29)	1.37 (1.22 – 1.53)
261.2	Vitamin B-complex deficiencies	1.3 / 0.9	1.38 (1.24 – 1.55)	1.1E-08	1.58 (1.40 – 1.79)	3.3E-01	1.27 (1.08 – 1.49)	1.49 (1.28 – 1.74)
766	Neuralgia, neuritis, and radiculitis NOS	1.7 / 1.3	1.32 (1.20 – 1.45)	1.2E-08	1.36 (1.22 – 1.51)	3.5E-01	1.36 (1.20 – 1.55)	1.26 (1.09 – 1.44)
351	Other peripheral nerve disorders	3.0 / 2.4	1.23 (1.15 – 1.33)	2.2E-08	1.12 (1.03 – 1.21)	2.9E-04	1.40 (1.27 – 1.54)	1.05 (0.94 – 1.17)
427.11	Paroxysmal supraventricular tachycardia	1.9 / 1.5	1.29 (1.18 – 1.41)	2.2E-08	1.52 (1.38 – 1.68)	9.4E-01	1.28 (1.13 – 1.44)	1.30 (1.14 – 1.48)

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PheC ode	Disease	Incidence OSA case / control	Risk ratio	P-value	Sensitivity analysis risk ratio	OSA x sex interaction p-value	Risk ratio (men)	Risk ratio (women)
459.9	Circulatory disease NEC	2.4 / 1.8	1.26 (1.16 – 1.36)	2.6E-08	1.48 (1.35 – 1.61)	5.2E-03	1.36 (1.24 – 1.50)	1.07 (0.93 – 1.23)
599.2	Retention of urine	2.6 / 2.0	1.23 (1.14 – 1.33)	6.4E-08	1.18 (1.08 – 1.28)	2.1E-02	1.17 (1.07 – 1.27)	1.52 (1.28 – 1.81)
395.1	Nonrheumatic mitral valve disorders	2.1 / 1.6	1.27 (1.16 – 1.39)	8.1E-08	1.13 (1.03 – 1.25)	9.6E-01	1.27 (1.13 – 1.43)	1.27 (1.11 – 1.46)
565	Anal and rectal conditions	1.5 / 1.1	1.32 (1.19 – 1.46)	8.1E-08	1.21 (1.08 – 1.35)	2.6E-01	1.26 (1.11 – 1.44)	1.41 (1.20 – 1.67)
389.4	Tinnitus	2.6 / 2.0	1.23 (1.14 – 1.33)	8.5E-08	1.25 (1.15 – 1.37)	2.3E-02	1.33 (1.21 – 1.47)	1.10 (0.97 – 1.24)
276.5	Hypovolemia	3.7 / 4.2	0.85 (0.80 – 0.90)	1.2E-07	0.80 (0.74 – 0.85)	7.0E-01	0.85 (0.79 – 0.92)	0.84 (0.76 – 0.93)
425.1	Primary/intrinsic cardiomyopathies	1.1 / 1.5	0.75 (0.67 – 0.83)	1.3E-07	0.89 (0.80 – 0.99)	NA	0.66 (0.58 – 0.75)	NA
696.4 1	Psoriasis vulgaris	1.1 / 0.8	1.37 (1.22 – 1.54)	1.7E-07	1.26 (1.11 – 1.43)	7.4E-01	1.37 (1.17 – 1.60)	1.39 (1.15 – 1.67)
530.9	Heartburn	2.1 / 1.6	1.25 (1.15 – 1.37)	1.9E-07	1.31 (1.19 – 1.44)	3.2E-01	1.30 (1.15 – 1.48)	1.21 (1.08 – 1.36)
136	Other infectious and parasitic diseases	2.1 / 1.6	1.25 (1.15 – 1.36)	2.0E-07	1.45 (1.33 – 1.58)	1.1E-03	1.10 (0.98 – 1.23)	1.48 (1.30 – 1.67)
401.2 1	Hypertensive heart disease	1.7 / 1.2	1.29 (1.17 – 1.42)	2.1E-07	2.03 (1.83 – 2.25)	2.5E-02	1.19 (1.05 – 1.35)	1.45 (1.25 – 1.68)
366.2	Senile cataract	3.6 / 2.9	1.18 (1.11 – 1.26)	4.6E-07	1.16 (1.08 – 1.25)	1.4E-01	1.22 (1.12 – 1.33)	1.12 (1.01 – 1.23)
244.2	Acquired hypothyroidism	1.5 / 1.2	1.29 (1.17 – 1.43)	5.7E-07	1.45 (1.30 – 1.62)	NA	NA	1.25 (1.11 – 1.42)
269	Proteinuria	1.6 / 1.2	1.28 (1.16 – 1.42)	6.3E-07	1.31 (1.18 – 1.45)	2.1E-01	1.35 (1.20 – 1.53)	1.17 (0.99 – 1.38)
496.1	Emphysema	1.4 / 1.0	1.30 (1.17 – 1.44)	1.1E-06	1.44 (1.27 – 1.62)	4.0E-01	1.24 (1.08 – 1.43)	1.38 (1.17 – 1.62)
530.1 4	Reflux esophagitis	1.3 / 0.9	1.32 (1.18 – 1.48)	1.1E-06	1.58 (1.39 – 1.80)	4.7E-02	1.46 (1.26 – 1.71)	1.17 (0.99 – 1.38)
054	Herpes simplex	1.3 / 1.0	1.31 (1.17 – 1.46)	1.5E-06	1.33 (1.17 – 1.51)	NA	NA	1.31 (1.14 – 1.51)
008	Intestinal infection	1.9 / 1.5	1.24 (1.14 – 1.35)	1.6E-06	1.41 (1.28 – 1.56)	1.3E-02	1.38 (1.22 – 1.56)	1.11 (0.98 – 1.26)
286.9	Abnormal coagulation profile	1.2 / 0.9	1.31 (1.17 – 1.47)	1.8E-06	1.59 (1.42 – 1.78)	4.3E-01	1.26 (1.09 – 1.46)	1.39 (1.17 – 1.66)
172.2 1	Basal cell carcinoma	3.0 / 2.4	1.18 (1.10 – 1.27)	2.8E-06	1.13 (1.05 – 1.22)	9.4E-01	1.18 (1.08 – 1.28)	1.18 (1.05 – 1.34)
369.5	Conjunctivitis, infectious	1.7 / 1.3	1.26 (1.14 – 1.38)	2.9E-06	1.63 (1.46 – 1.81)	3.4E-01	1.33 (1.15 – 1.52)	1.20 (1.05 – 1.37)
565.1	Anal and rectal polyp	1.1 / 0.9	1.30 (1.16 – 1.47)	8.7E-06	1.19 (1.04 – 1.35)	NA	1.37 (1.19 – 1.58)	NA
418.1	Precordial pain	1.5 / 1.2	1.25 (1.13 – 1.38)	9.2E-06	1.48 (1.33 – 1.65)	2.6E-01	1.20 (1.05 – 1.36)	1.34 (1.15 – 1.56)
280.1	Iron deficiency anemias, unspecified or not due to blood loss	2.3 / 1.9	1.20 (1.11 – 1.30)	9.9E-06	1.45 (1.33 – 1.58)	3.3E-01	1.11 (0.98 – 1.26)	1.27 (1.14 – 1.42)
483	Acute bronchitis and	1.7 / 1.4	1.24 (1.12 – 1.36)	1.4E-05	1.37 (1.23 – 1.52)	1.5E-03	1.43 (1.26 – 1.63)	1.03 (0.89 – 1.19)

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PheC ode	Disease	Incidence OSA case / control	Risk ratio	P-value	Sensitivity analysis risk ratio	OSA x sex interaction p-value	Risk ratio (men)	Risk ratio (women)
	bronchiolitis							
585.3	Chronic renal failure [CKD]	3.8 / 3.2	1.14 (1.08 – 1.22)	1.6E-05	1.52 (1.42 – 1.62)	4.8E-04	1.06 (0.98 – 1.14)	1.34 (1.20 – 1.50)
550.4	Umbilical hernia	1.1 / 0.9	1.28 (1.14 – 1.44)	2.9E-05	1.50 (1.33 – 1.68)	NA	1.29 (1.13 – 1.48)	NA
510	Other diseases of lung	1.6 / 1.3	1.24 (1.12 – 1.37)	2.9E-05	1.43 (1.28 – 1.60)	2.0E-02	1.12 (0.99 – 1.28)	1.44 (1.23 – 1.69)
562.2	Diverticulitis	1.7 / 1.4	1.22 (1.11 – 1.33)	3.2E-05	1.17 (1.06 – 1.29)	2.8E-01	1.29 (1.14 – 1.47)	1.13 (0.99 – 1.30)
290.2	Delirium due to conditions classified elsewhere	1.3 / 1.0	1.26 (1.13 – 1.40)	3.2E-05	1.34 (1.20 – 1.50)	5.4E-03	1.14 (1.00 – 1.30)	1.56 (1.28 – 1.89)
480	Pneumonia	4.4 / 3.8	1.13 (1.07 – 1.20)	4.2E-05	1.45 (1.36 – 1.55)	4.7E-01	1.10 (1.03 – 1.19)	1.17 (1.06 – 1.29)
585.4	Chronic kidney disease, Stage I or II	1.2 / 0.9	1.26 (1.13 – 1.41)	4.6E-05	1.66 (1.46 – 1.87)	6.4E-02	1.17 (1.02 – 1.35)	1.46 (1.21 – 1.77)
720	Spinal stenosis	2.1 / 1.7	1.19 (1.09 – 1.30)	5.5E-05	1.30 (1.19 – 1.42)	4.5E-01	1.17 (1.05 – 1.30)	1.23 (1.07 – 1.40)
367.4	Presbyopia	1.1 / 0.9	1.27 (1.13 – 1.42)	5.6E-05	1.55 (1.37 – 1.76)	8.6E-01	1.27 (1.09 – 1.49)	1.26 (1.06 – 1.49)
316	Substance addiction and disorders	1.8 / 1.6	1.20 (1.10 – 1.31)	6.4E-05	1.36 (1.24 – 1.49)	3.4E-10	0.99 (0.89 – 1.10)	1.86 (1.58 – 2.18)
743.11	Osteoporosis NOS	3.0 / 2.5	1.15 (1.08 – 1.24)	6.7E-05	1.25 (1.15 – 1.36)	7.5E-03	1.37 (1.18 – 1.58)	1.09 (1.01 – 1.18)
217.1	Nevus, non-neoplastic	2.2 / 1.9	1.18 (1.09 – 1.28)	7.0E-05	1.24 (1.13 – 1.36)	2.6E-04	1.35 (1.21 – 1.50)	0.99 (0.87 – 1.12)
528	Diseases of the oral soft tissues, excluding lesions specific for gingiva and tongue	1.2 / 1.0	1.25 (1.12 – 1.40)	7.1E-05	1.58 (1.38 – 1.80)	4.5E-01	1.30 (1.12 – 1.50)	1.18 (1.00 – 1.40)
571.5	Other chronic nonalcoholic liver disease	2.1 / 1.9	1.18 (1.09 – 1.29)	7.3E-05	1.20 (1.10 – 1.30)	9.9E-02	1.29 (1.15 – 1.44)	1.08 (0.95 – 1.22)
573.7	Abnormal results of function study of liver	2.1 / 1.8	1.19 (1.09 – 1.29)	8.2E-05	1.36 (1.24 – 1.49)	2.5E-01	1.25 (1.12 – 1.39)	1.10 (0.97 – 1.26)
687.1	Rash and other nonspecific skin eruption	4.6 / 4.1	1.12 (1.06 – 1.19)	9.4E-05	1.71 (1.60 – 1.82)	5.6E-02	1.06 (0.97 – 1.14)	1.19 (1.10 – 1.30)
727	Other disorders of synovium, tendon, and bursa	1.3 / 1.1	1.23 (1.11 – 1.37)	1.1E-04	1.57 (1.38 – 1.77)	7.6E-01	1.26 (1.09 – 1.46)	1.21 (1.04 – 1.40)
770	Myalgia and myositis unspecified	2.0 / 1.8	1.19 (1.09 – 1.30)	1.2E-04	1.49 (1.36 – 1.64)	6.1E-01	1.20 (1.04 – 1.39)	1.18 (1.05 – 1.31)
110.12	Althete's foot	1.0 / 0.8	1.27 (1.13 – 1.44)	1.2E-04	1.24 (1.08 – 1.42)	NA	1.44 (1.25 – 1.67)	NA
274.11	Gouty arthropathy	1.3 / 1.1	1.22 (1.10 – 1.36)	1.9E-04	1.24 (1.12 – 1.39)	NA	1.24 (1.11 – 1.39)	NA
550.1	Inguinal hernia	1.9 / 1.5	1.18 (1.08 – 1.29)	2.2E-04	1.34 (1.20 – 1.49)	NA	1.20 (1.10 – 1.32)	NA
371.3	Inflammation of eyelids	1.4 / 1.2	1.21 (1.09 – 1.34)	2.3E-04	1.38 (1.24 – 1.55)	8.7E-03	1.08 (0.94 – 1.24)	1.40 (1.20 – 1.63)

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PheC ode	Disease	Incidence OSA case / control	Risk ratio	P-value	Sensitivity analysis risk ratio	OSA x sex interaction p-value	Risk ratio (men)	Risk ratio (women)
414	Other forms of chronic heart disease	1.4 / 1.1	1.22 (1.10 – 1.35)	2.3E-04	1.72 (1.54 – 1.93)	NA	1.25 (1.10 – 1.41)	NA
690.1	Seborrheic dermatitis	1.3 / 1.1	1.22 (1.10 – 1.36)	2.4E-04	1.36 (1.21 – 1.54)	6.6E-03	1.36 (1.19 – 1.55)	1.00 (0.83 – 1.20)
772.2	Spasm of muscle	1.2 / 1.0	1.23 (1.10 – 1.37)	2.5E-04	2.05 (1.80 – 2.34)	NA	NA	1.38 (1.19 – 1.61)
561.1	Diarrhea	4.4 / 3.9	1.12 (1.05 – 1.19)	3.0E-04	1.40 (1.31 – 1.49)	1.8E-01	1.07 (0.98 – 1.16)	1.17 (1.07 – 1.28)
426.3 1	Right bundle branch block	1.3 / 1.1	1.21 (1.09 – 1.35)	3.5E-04	1.29 (1.15 – 1.45)	NA	1.28 (1.13 – 1.44)	NA
427.2 2	Atrial flutter	1.6 / 1.3	1.19 (1.08 – 1.31)	4.3E-04	1.21 (1.09 – 1.35)	NA	1.22 (1.10 – 1.37)	NA
053	Herpes zoster	2.5 / 2.1	1.15 (1.06 – 1.24)	5.0E-04	1.27 (1.17 – 1.39)	2.9E-02	1.24 (1.11 – 1.38)	1.06 (0.95 – 1.18)
350.2	Abnormality of gait	3.2 / 2.7	1.12 (1.05 – 1.20)	7.7E-04	1.19 (1.10 – 1.29)	9.1E-01	1.12 (1.03 – 1.22)	1.12 (1.01 – 1.25)
250.4 2	Other abnormal glucose	4.8 / 4.3	1.10 (1.04 – 1.16)	7.9E-04	1.29 (1.22 – 1.37)	8.1E-01	1.11 (1.03 – 1.19)	1.09 (1.00 – 1.19)
574.3	Cholecystitis without cholelithiasis	1.1 / 0.9	1.22 (1.08 – 1.37)	1.0E-03	1.35 (1.19 – 1.53)	2.4E-03	1.41 (1.21 – 1.65)	1.01 (0.84 – 1.21)
704.8	Other specified diseases of hair and hair follicles	1.1 / 0.9	1.21 (1.08 – 1.36)	1.0E-03	1.42 (1.24 – 1.62)	NA	1.37 (1.19 – 1.57)	NA
793.2	Nonspecific abnormal findings on radiological and other examination of other intrathoracic organs (echocardiogram, etc)	1.8 / 1.5	1.16 (1.06 – 1.27)	1.2E-03	1.29 (1.18 – 1.42)	4.2E-01	1.20 (1.06 – 1.35)	1.12 (0.98 – 1.28)
840.3	Joint/ligament sprain	1.7 / 1.5	1.16 (1.06 – 1.28)	1.3E-03	1.17 (1.05 – 1.31)	2.7E-01	1.23 (1.09 – 1.39)	1.09 (0.95 – 1.25)
501	Pneumonitis due to inhalation of food or vomitus	1.1 / 0.8	1.21 (1.08 – 1.36)	1.5E-03	1.47 (1.27 – 1.69)	NA	1.16 (1.01 – 1.33)	NA
274.1	Gout	2.5 / 2.2	1.13 (1.05 – 1.22)	1.6E-03	1.23 (1.14 – 1.33)	8.9E-02	1.11 (1.02 – 1.21)	1.25 (1.04 – 1.50)
512.8	Cough	8.0 / 7.5	1.08 (1.03 – 1.13)	2.3E-03	1.26 (1.19 – 1.32)	1.0E-01	1.04 (0.98 – 1.11)	1.13 (1.05 – 1.21)
505	Other pulmonary inflammation or edema	1.2 / 0.9	1.19 (1.06 – 1.33)	3.2E-03	1.44 (1.27 – 1.62)	5.9E-03	1.05 (0.91 – 1.22)	1.45 (1.21 – 1.75)
458.1	Orthostatic hypotension	1.1 / 0.9	1.19 (1.06 – 1.33)	3.6E-03	1.26 (1.11 – 1.43)	NA	1.13 (0.98 – 1.30)	NA
280.2	Iron deficiency anemia secondary to blood loss (chronic)	1.2 / 1.0	1.17 (1.05 – 1.31)	4.9E-03	1.40 (1.24 – 1.59)	1.8E-01	1.24 (1.06 – 1.45)	1.10 (0.94 – 1.29)
599.3	Dysuria	2.9 / 2.6	1.11 (1.03 – 1.19)	5.1E-03	1.50 (1.39 – 1.63)	2.3E-01	1.16 (1.04 – 1.30)	1.07 (0.97 – 1.18)
772.3	Muscle weakness	1.2 / 1.0	1.17 (1.05 – 1.30)	5.9E-03	2.01 (1.74 – 2.32)	6.2E-02	1.06 (0.91 – 1.23)	1.31 (1.12 – 1.55)

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PheC ode	Disease	Incidence OSA case / control	Risk ratio	P-value	Sensitivity analysis risk ratio	OSA x sex interaction p-value	Risk ratio (men)	Risk ratio (women)
428.4	Heart failure with preserved EF [Diastolic heart failure]	1.8 / 1.6	1.13 (1.03 – 1.23)	6.9E-03	1.67 (1.51 – 1.84)	2.5E-01	1.09 (0.97 – 1.22)	1.19 (1.04 – 1.36)
564	Functional digestive disorders	1.1 / 0.9	1.17 (1.04 – 1.32)	7.7E-03	1.50 (1.32 – 1.71)	NA	NA	1.24 (1.05 – 1.47)
716.9	Arthropathy NOS	2.2 / 1.9	1.12 (1.03 – 1.22)	8.8E-03	1.37 (1.26 – 1.50)	5.4E-01	1.09 (0.98 – 1.23)	1.14 (1.01 – 1.29)
569	Other disorders of intestine	3.3 / 2.9	1.09 (1.02 – 1.17)	1.0E-02	1.16 (1.08 – 1.25)	9.5E-02	1.04 (0.95 – 1.14)	1.16 (1.05 – 1.29)
477	Epistaxis or throat hemorrhage	1.3 / 1.1	1.14 (1.03 – 1.27)	1.2E-02	1.37 (1.22 – 1.54)	1.3E-01	1.22 (1.07 – 1.39)	1.03 (0.87 – 1.22)
941	Adverse reaction to serum or vaccine	1.1 / 0.9	1.16 (1.03 – 1.30)	1.3E-02	1.36 (1.20 – 1.54)	NA	NA	1.18 (1.02 – 1.37)
720.1	Spinal stenosis of lumbar region	2.2 / 2.4	0.90 (0.84 – 0.98)	1.3E-02	0.87 (0.80 – 0.94)	8.2E-01	0.92 (0.83 – 1.02)	0.89 (0.78 – 1.00)
938.2	Chronic dermatitis due to solar radiation	1.8 / 1.6	1.12 (1.02 – 1.22)	1.6E-02	1.25 (1.12 – 1.38)	2.5E-01	1.15 (1.03 – 1.29)	1.04 (0.89 – 1.23)
550.5	Ventral hernia	1.0 / 0.9	1.15 (1.02 – 1.29)	2.2E-02	1.38 (1.22 – 1.56)	NA	NA	1.21 (1.01 – 1.45)
593.1	Gross hematuria	1.8 / 1.6	1.11 (1.01 – 1.21)	2.5E-02	1.23 (1.12 – 1.35)	NA	1.08 (0.98 – 1.20)	NA
416	Cardiomegaly	1.1 / 1.0	1.14 (1.01 – 1.28)	3.0E-02	1.19 (1.05 – 1.34)	NA	1.07 (0.93 – 1.23)	NA
525	Other diseases of the teeth and supporting structures	1.0 / 0.9	1.14 (1.01 – 1.29)	3.0E-02	1.26 (1.10 – 1.43)	NA	NA	1.30 (1.09 – 1.55)
532	Dysphagia	4.0 / 3.6	1.06 (1.00 – 1.13)	4.6E-02	1.25 (1.17 – 1.34)	1.1E-02	0.99 (0.91 – 1.07)	1.18 (1.07 – 1.30)
721.8	Other allied disorders of spine	1.2 / 0.3	4.53 (3.87 – 5.31)	4.3E-79	1.05 (0.93 – 1.20)	3.2E-01	4.28 (3.50 – 5.25)	4.94 (3.86 – 6.34)
318	Tobacco use disorder	2.4 / 4.3	0.58 (0.53 – 0.62)	1.6E-45	0.95 (0.88 – 1.03)	3.9E-02	0.54 (0.49 – 0.60)	0.64 (0.57 – 0.73)
947	Urticaria	1.7 / 0.8	2.09 (1.88 – 2.33)	1.8E-42	1.02 (0.92 – 1.14)	6.5E-01	2.02 (1.70 – 2.40)	2.14 (1.87 – 2.45)
530.2	Esophageal bleeding (varices/hemorrhage)	1.0 / 0.5	1.87 (1.64 – 2.13)	1.6E-20	0.89 (0.76 – 1.06)	1.6E-04	1.56 (1.32 – 1.84)	2.59 (2.07 – 3.24)
773	Pain in limb	8.7 / 7.1	1.25 (1.19 – 1.31)	2.4E-20	0.95 (0.90 – 1.01)	5.5E-01	1.28 (1.21 – 1.37)	1.21 (1.12 – 1.31)
733	Other disorders of bone and cartilage	5.6 / 4.3	1.26 (1.20 – 1.33)	2.1E-19	1.02 (0.96 – 1.09)	4.6E-03	1.46 (1.31 – 1.63)	1.21 (1.14 – 1.28)
694.2	Other dyschromia	3.6 / 2.7	1.32 (1.23 – 1.41)	1.6E-15	1.02 (0.94 – 1.10)	3.5E-05	1.47 (1.35 – 1.61)	1.10 (0.99 – 1.23)
244.4	Hypothyroidism NOS	3.3 / 2.7	1.29 (1.21 – 1.38)	3.6E-13	1.02 (0.95 – 1.10)	3.0E-03	1.44 (1.30 – 1.60)	1.19 (1.08 – 1.30)
426.2 1	First degree AV block	1.0 / 1.4	0.69 (0.62 – 0.77)	5.0E-11	1.11 (0.97 – 1.28)	NA	0.68 (0.60 – 0.78)	NA
427.7	Tachycardia NOS	2.8 / 3.5	0.80 (0.74 – 0.85)	1.4E-10	0.98 (0.91 – 1.06)	1.4E-01	0.76 (0.69 – 0.83)	0.85 (0.77 – 0.94)
695.9	Unspecified erythematous	1.2 / 1.6	0.71 (0.64 – 0.79)	1.6E-10	1.00 (0.90 – 1.11)	3.0E-01	0.75 (0.66 – 0.86)	0.67 (0.57 – 0.78)

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PheC ode	Disease	Incidence OSA case / control	Risk ratio	P-value	Sensitivity analysis risk ratio	OSA x sex interaction p-value	Risk ratio (men)	Risk ratio (women)
	condition							
433.2 1	Cerebral artery occlusion, with cerebral infarction	2.2 / 2.7	0.79 (0.74 – 0.86)	2.6E-09	1.01 (0.93 – 1.09)	7.7E-01	0.79 (0.71 – 0.86)	0.81 (0.71 – 0.91)
285.1	Acute posthemorrhagic anemia	1.3 / 1.7	0.75 (0.68 – 0.82)	6.4E-09	0.95 (0.86 – 1.06)	1.2E-01	0.70 (0.62 – 0.80)	0.83 (0.70 – 0.97)
078	Viral warts & HPV	1.5 / 1.1	1.35 (1.22 – 1.50)	9.8E-09	0.99 (0.88 – 1.12)	1.5E-01	1.44 (1.26 – 1.65)	1.23 (1.05 – 1.44)
276.4 1	Acidosis	1.1 / 1.5	0.76 (0.69 – 0.85)	5.0E-07	0.92 (0.82 – 1.02)	4.8E-05	0.64 (0.56 – 0.74)	1.01 (0.85 – 1.20)
851	Complications of transplants and reattached limbs	1.0 / 1.4	0.77 (0.69 – 0.86)	3.5E-06	1.11 (1.00 – 1.24)	NA	0.76 (0.66 – 0.88)	NA
596	Other disorders of bladder	1.2 / 0.9	1.31 (1.17 – 1.47)	4.7E-06	1.12 (0.99 – 1.27)	NA	1.30 (1.14 – 1.48)	NA
506	Empyema and pneumothorax	1.3 / 1.6	0.80 (0.72 – 0.88)	7.0E-06	0.92 (0.83 – 1.03)	2.8E-01	0.76 (0.68 – 0.86)	0.87 (0.73 – 1.04)
079.9	Viremia, NOS	1.3 / 1.6	0.80 (0.72 – 0.88)	9.7E-06	1.07 (0.96 – 1.18)	NA	NA	0.83 (0.72 – 0.95)
585.1	Acute renal failure	3.1 / 3.5	0.86 (0.81 – 0.92)	1.0E-05	0.94 (0.87 – 1.00)	3.4E-02	0.82 (0.76 – 0.89)	0.95 (0.85 – 1.07)
721.1	Spondylosis without myelopathy	4.3 / 3.7	1.14 (1.08 – 1.22)	1.5E-05	0.97 (0.90 – 1.04)	4.9E-01	1.18 (1.08 – 1.28)	1.11 (1.01 – 1.22)
702.1	Actinic keratosis	2.1 / 1.7	1.20 (1.11 – 1.31)	2.1E-05	1.03 (0.94 – 1.14)	2.4E-01	1.24 (1.12 – 1.37)	1.11 (0.94 – 1.31)
276.1 3	Hyperpotassemia	1.4 / 1.6	0.83 (0.75 – 0.91)	1.4E-04	0.95 (0.85 – 1.05)	6.0E-01	0.84 (0.75 – 0.95)	0.79 (0.66 – 0.94)
411.4	Coronary atherosclerosis	3.9 / 4.5	0.89 (0.84 – 0.95)	2.7E-04	0.95 (0.89 – 1.01)	5.0E-02	0.87 (0.81 – 0.93)	0.98 (0.86 – 1.11)
428.3	Heart failure with reduced EF [Systolic or combined heart failure]	1.1 / 1.3	0.82 (0.73 – 0.91)	2.9E-04	1.01 (0.89 – 1.14)	NA	0.77 (0.68 – 0.87)	NA
452.2	Deep vein thrombosis [DVT]	2.0 / 2.3	0.86 (0.80 – 0.94)	3.4E-04	1.01 (0.94 – 1.10)	2.1E-02	0.80 (0.72 – 0.89)	0.97 (0.85 – 1.11)
509.1	Respiratory failure	1.8 / 2.1	0.86 (0.79 – 0.94)	4.4E-04	1.02 (0.93 – 1.12)	5.8E-04	0.77 (0.69 – 0.85)	1.04 (0.90 – 1.19)
695.8	Other specified erythematous conditions	1.0 / 0.9	1.23 (1.09 – 1.38)	6.4E-04	1.09 (0.96 – 1.24)	NA	NA	1.14 (0.98 – 1.33)
418	Nonspecific chest pain	8.1 / 7.7	1.09 (1.04 – 1.14)	6.4E-04	0.99 (0.94 – 1.05)	1.4E-01	1.07 (1.01 – 1.14)	1.13 (1.04 – 1.23)
514.2	Solitary pulmonary nodule	3.6 / 3.1	1.11 (1.04 – 1.19)	8.9E-04	1.06 (0.99 – 1.14)	4.0E-01	1.14 (1.05 – 1.24)	1.08 (0.98 – 1.19)
785	Abdominal pain	7.5 / 7.4	1.08 (1.03 – 1.14)	1.8E-03	0.95 (0.90 – 1.00)	2.4E-02	1.03 (0.96 – 1.10)	1.16 (1.07 – 1.25)
763	Thoracic or lumbosacral neuritis or radiculitis, unspecified	3.3 / 3.0	1.11 (1.04 – 1.19)	1.9E-03	1.01 (0.94 – 1.09)	8.8E-01	1.13 (1.03 – 1.23)	1.09 (0.99 – 1.21)

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PheC ode	Disease	Incidence OSA case / control	Risk ratio	P-value	Sensitivity analysis risk ratio	OSA x sex interaction p-value	Risk ratio (men)	Risk ratio (women)
252.1	Hyperparathyroidism	1.0 / 0.9	1.20 (1.07 – 1.35)	2.5E-03	1.05 (0.92 – 1.19)	NA	NA	1.16 (0.99 – 1.35)
172.2	Other non-epithelial cancer of skin	2.3 / 2.0	1.12 (1.03 – 1.21)	5.8E-03	1.03 (0.94 – 1.12)	5.0E-01	1.10 (0.99 – 1.21)	1.17 (1.01 – 1.35)
722.1	Displacement of intervertebral disc	1.6 / 1.4	1.14 (1.04 – 1.26)	8.0E-03	1.11 (1.00 – 1.23)	5.2E-01	1.19 (1.05 – 1.34)	1.08 (0.92 – 1.27)
250.2	Type 2 diabetes	5.2 / 5.5	1.07 (1.01 – 1.13)	1.6E-02	1.00 (0.95 – 1.06)	3.8E-04	1.03 (0.96 – 1.10)	1.17 (1.07 – 1.28)
558	Noninfectious gastroenteritis	2.0 / 1.8	1.11 (1.02 – 1.21)	2.0E-02	1.06 (0.96 – 1.17)	9.2E-01	1.09 (0.97 – 1.23)	1.12 (0.99 – 1.27)
830	Dislocation	1.2 / 1.1	1.14 (1.02 – 1.27)	2.1E-02	1.07 (0.95 – 1.20)	9.6E-02	1.26 (1.09 – 1.45)	1.00 (0.84 – 1.19)
401.3	Other hypertensive complications	1.2 / 1.3	0.88 (0.79 – 0.98)	2.1E-02	1.09 (0.98 – 1.22)	8.8E-01	0.88 (0.77 – 1.01)	0.89 (0.75 – 1.06)
241.1	Nontoxic uninodular goiter	1.9 / 1.8	1.10 (1.01 – 1.20)	2.3E-02	1.06 (0.96 – 1.17)	8.9E-02	1.00 (0.86 – 1.16)	1.17 (1.05 – 1.30)
433.3 1	Transient cerebral ischemia	2.4 / 2.1	1.09 (1.01 – 1.18)	2.8E-02	1.02 (0.94 – 1.11)	9.2E-01	1.09 (0.99 – 1.21)	1.09 (0.96 – 1.23)
560.4	Other intestinal obstruction	1.1 / 1.0	1.13 (1.01 – 1.26)	3.5E-02	1.03 (0.91 – 1.17)	6.1E-01	1.09 (0.93 – 1.27)	1.17 (0.99 – 1.38)
706.2	Sebaceous cyst	1.9 / 1.7	1.10 (1.00 – 1.20)	3.9E-02	0.95 (0.86 – 1.05)	2.3E-02	1.21 (1.08 – 1.35)	0.96 (0.84 – 1.11)
411.2	Myocardial infarction	2.3 / 2.4	0.92 (0.85 – 1.00)	3.9E-02	0.96 (0.89 – 1.04)	4.0E-01	0.91 (0.83 – 1.00)	0.96 (0.82 – 1.11)
454.1	Varicose veins of lower extremity	1.1 / 1.0	1.12 (1.00 – 1.26)	5.1E-02	1.25 (1.10 – 1.41)	NA	NA	1.06 (0.90 – 1.23)
426.3 2	Left bundle branch block	1.0 / 0.9	1.12 (1.00 – 1.27)	5.5E-02	1.12 (0.98 – 1.28)	NA	1.14 (0.98 – 1.32)	NA
199	Neoplasm of uncertain behavior	1.4 / 1.6	0.91 (0.82 – 1.00)	5.9E-02	0.84 (0.77 – 0.92)	2.6E-01	0.86 (0.76 – 0.98)	0.98 (0.84 – 1.14)
038	Septicemia	1.8 / 1.9	0.92 (0.85 – 1.01)	6.7E-02	1.16 (1.06 – 1.27)	7.0E-01	0.91 (0.82 – 1.00)	0.96 (0.82 – 1.11)
805	Fracture of vertebral column without mention of spinal cord injury	1.3 / 1.2	1.10 (0.99 – 1.22)	7.5E-02	1.03 (0.92 – 1.16)	2.3E-01	1.05 (0.91 – 1.21)	1.16 (1.00 – 1.35)
593	Hematuria	3.5 / 3.2	1.06 (0.99 – 1.13)	7.6E-02	1.18 (1.10 – 1.27)	2.5E-01	1.03 (0.95 – 1.11)	1.14 (1.01 – 1.28)
979	Adverse drug events and drug allergies	3.1 / 2.9	1.06 (0.99 – 1.13)	1.1E-01	0.97 (0.90 – 1.05)	6.2E-01	1.07 (0.97 – 1.17)	1.04 (0.94 – 1.15)
535.9	Gastritis and duodenitis, NOS	1.6 / 1.7	0.93 (0.85 – 1.02)	1.2E-01	1.42 (1.29 – 1.55)	4.5E-02	0.85 (0.75 – 0.97)	1.02 (0.89 – 1.17)
574.1	Cholelithiasis	2.1 / 2.0	1.06 (0.98 – 1.16)	1.3E-01	1.08 (0.99 – 1.18)	9.6E-01	1.05 (0.93 – 1.18)	1.08 (0.96 – 1.21)
591	Urinary tract infection	3.4 / 3.2	1.05 (0.98 – 1.13)	1.4E-01	1.01 (0.94 – 1.09)	5.8E-01	1.01 (0.91 – 1.11)	1.09 (1.00 – 1.20)
512.7	Shortness of breath	7.9 / 8.2	0.97 (0.92 – 1.01)	1.4E-01	1.37 (1.31 – 1.44)	1.1E-03	0.91 (0.86 – 0.96)	1.06 (0.99 – 1.14)

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PheC ode	Disease	Incidence OSA case / control	Risk ratio	P-value	Sensitivity analysis risk ratio	OSA x sex interaction p-value	Risk ratio (men)	Risk ratio (women)
427.6 1	Supraventricular premature beats	1.8 / 1.6	1.07 (0.98 – 1.16)	1.6E-01	1.19 (1.07 – 1.33)	8.2E-01	1.07 (0.96 – 1.20)	1.05 (0.91 – 1.22)
687.2	Localized superficial swelling, mass, or lump	3.5 / 3.3	1.05 (0.98 – 1.11)	1.7E-01	1.38 (1.29 – 1.48)	5.2E-01	1.03 (0.94 – 1.12)	1.07 (0.97 – 1.16)
415.11	Pulmonary embolism and infarction, acute	1.5 / 1.6	0.94 (0.85 – 1.03)	1.7E-01	0.97 (0.88 – 1.07)	2.0E-01	0.89 (0.78 – 1.00)	1.01 (0.87 – 1.17)
1011	Complications of surgical and medical procedures	3.2 / 3.0	1.05 (0.98 – 1.12)	1.7E-01	0.86 (0.80 – 0.92)	7.0E-01	1.05 (0.96 – 1.15)	1.04 (0.94 – 1.15)
578.9	Hemorrhage of gastrointestinal tract	1.9 / 1.7	1.06 (0.97 – 1.16)	2.1E-01	1.26 (1.15 – 1.39)	7.3E-01	1.06 (0.96 – 1.18)	1.04 (0.89 – 1.22)
599	Other symptoms/disorders or the urinary system	1.4 / 1.3	1.06 (0.96 – 1.18)	2.2E-01	1.23 (1.11 – 1.37)	7.6E-01	1.07 (0.94 – 1.21)	1.05 (0.90 – 1.24)
473.4	Voice disturbance	1.8 / 1.6	1.06 (0.97 – 1.16)	2.2E-01	1.35 (1.22 – 1.48)	9.5E-01	1.04 (0.92 – 1.18)	1.07 (0.94 – 1.22)
586	Other disorders of the kidney and ureters	3.0 / 2.8	1.04 (0.97 – 1.12)	2.3E-01	1.34 (1.25 – 1.44)	3.8E-01	1.06 (0.98 – 1.16)	1.00 (0.88 – 1.13)
916	Contusion	3.9 / 4.0	0.96 (0.91 – 1.03)	2.4E-01	0.87 (0.81 – 0.94)	3.1E-01	0.94 (0.86 – 1.02)	1.00 (0.91 – 1.09)
686	Other local infections of skin and subcutaneous tissue	1.0 / 1.1	0.93 (0.83 – 1.05)	2.5E-01	1.82 (1.66 – 2.00)	NA	0.94 (0.81 – 1.08)	NA
428.1	Congestive heart failure (CHF) NOS	2.8 / 2.7	1.04 (0.97 – 1.12)	2.7E-01	1.49 (1.38 – 1.60)	3.0E-03	0.97 (0.89 – 1.05)	1.20 (1.07 – 1.36)
1013	Asphyxia and hypoxemia	1.8 / 1.9	0.95 (0.87 – 1.04)	2.9E-01	1.34 (1.22 – 1.48)	2.2E-01	0.91 (0.81 – 1.02)	1.02 (0.89 – 1.17)
835	Internal derangement of knee	1.1 / 1.1	1.06 (0.95 – 1.19)	2.9E-01	1.09 (0.97 – 1.23)	8.3E-01	1.08 (0.93 – 1.26)	1.04 (0.87 – 1.25)
396	Abnormal heart sounds	2.4 / 2.4	0.96 (0.89 – 1.04)	3.0E-01	1.39 (1.28 – 1.51)	4.8E-01	0.93 (0.84 – 1.03)	1.00 (0.89 – 1.11)
339	Other headache syndromes	3.2 / 3.4	0.96 (0.90 – 1.03)	3.0E-01	1.22 (1.13 – 1.31)	8.2E-04	0.85 (0.76 – 0.94)	1.08 (0.98 – 1.19)
458.9	Hypotension NOS	2.8 / 2.8	0.96 (0.90 – 1.03)	3.1E-01	1.27 (1.17 – 1.37)	1.2E-01	0.91 (0.84 – 1.00)	1.06 (0.94 – 1.19)
367.2	Astigmatism	1.2 / 1.1	1.06 (0.95 – 1.18)	3.2E-01	1.50 (1.33 – 1.70)	6.3E-01	1.03 (0.89 – 1.19)	1.09 (0.93 – 1.29)
041	Bacterial infection NOS	1.1 / 1.2	0.95 (0.85 – 1.06)	3.2E-01	1.19 (1.06 – 1.33)	4.2E-01	0.90 (0.78 – 1.04)	1.01 (0.85 – 1.21)
592.11	Acute cystitis	1.7 / 1.6	1.05 (0.96 – 1.14)	3.2E-01	1.34 (1.21 – 1.48)	4.3E-01	0.98 (0.85 – 1.14)	1.08 (0.97 – 1.21)
771.1	Swelling of limb	2.2 / 2.3	0.96 (0.88 – 1.04)	3.2E-01	1.67 (1.54 – 1.81)	9.1E-01	0.96 (0.87 – 1.07)	0.95 (0.84 – 1.08)
395.2	Nonrheumatic aortic valve disorders	1.7 / 1.8	0.96 (0.87 – 1.05)	3.3E-01	0.98 (0.89 – 1.08)	2.1E-01	0.92 (0.83 – 1.03)	1.03 (0.88 – 1.22)
228	Hemangioma and lymphangioma, any site	1.1 / 1.2	0.95 (0.85 – 1.06)	3.3E-01	0.95 (0.83 – 1.07)	3.6E-02	1.05 (0.90 – 1.22)	0.84 (0.72 – 0.99)

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PheC ode	Disease	Incidence OSA case / control	Risk ratio	P-value	Sensitivity analysis risk ratio	OSA x sex interaction p-value	Risk ratio (men)	Risk ratio (women)
276.1 2	Hyposmolality and/or hyponatremia	1.8 / 1.8	0.96 (0.88 – 1.05)	3.3E-01	0.91 (0.82 – 1.00)	9.7E-01	0.96 (0.85 – 1.07)	0.96 (0.84 – 1.10)
698	Pruritus and related conditions	2.4 / 2.2	1.04 (0.96 – 1.12)	3.3E-01	1.53 (1.40 – 1.67)	1.4E-02	0.91 (0.81 – 1.03)	1.14 (1.03 – 1.27)
454.11	Varicose veins of lower extremity, symptomatic	1.0 / 1.0	1.05 (0.94 – 1.19)	3.7E-01	1.07 (0.95 – 1.21)	NA	NA	1.05 (0.89 – 1.23)
427.2 1	Atrial fibrillation	3.9 / 3.9	1.03 (0.97 – 1.09)	3.7E-01	1.12 (1.06 – 1.20)	7.1E-01	1.03 (0.96 – 1.10)	1.03 (0.92 – 1.15)
038.3	Bacteremia	1.6 / 1.7	0.96 (0.88 – 1.05)	3.8E-01	1.12 (1.02 – 1.23)	2.4E-01	0.92 (0.83 – 1.03)	1.05 (0.89 – 1.24)
801	Fracture of ankle and foot	1.1 / 1.1	1.05 (0.94 – 1.17)	4.1E-01	1.04 (0.92 – 1.18)	NA	NA	0.97 (0.83 – 1.13)
789	Nausea and vomiting	5.0 / 5.3	0.98 (0.93 – 1.03)	4.4E-01	1.09 (1.03 – 1.15)	6.4E-09	0.82 (0.75 – 0.89)	1.14 (1.06 – 1.22)
598.9	Other nonspecific findings on examination of urine	1.7 / 1.6	1.04 (0.95 – 1.13)	4.4E-01	1.27 (1.15 – 1.40)	2.0E-01	0.96 (0.85 – 1.10)	1.10 (0.97 – 1.25)
112	Candidiasis	1.9 / 1.8	1.03 (0.95 – 1.13)	4.6E-01	1.11 (1.01 – 1.23)	4.0E-02	0.91 (0.80 – 1.04)	1.13 (1.01 – 1.26)
573	Other disorders of liver	2.0 / 2.1	0.97 (0.89 – 1.05)	4.6E-01	0.95 (0.87 – 1.04)	9.0E-02	0.91 (0.82 – 1.02)	1.06 (0.93 – 1.20)
743.9	Osteopenia or other disorder of bone and cartilage	1.2 / 1.2	1.04 (0.93 – 1.16)	4.8E-01	0.95 (0.84 – 1.08)	NA	NA	0.98 (0.84 – 1.14)
288.2	Elevated white blood cell count	2.5 / 2.5	0.97 (0.91 – 1.05)	5.0E-01	1.06 (0.98 – 1.15)	1.6E-02	0.90 (0.81 – 0.99)	1.10 (0.98 – 1.23)
788	Syncope and collapse	3.7 / 3.5	1.02 (0.96 – 1.09)	5.1E-01	1.18 (1.10 – 1.27)	5.9E-01	1.03 (0.95 – 1.11)	1.00 (0.90 – 1.12)
260	Protein-calorie malnutrition	1.3 / 1.2	1.04 (0.93 – 1.15)	5.2E-01	1.20 (1.06 – 1.36)	2.9E-02	0.93 (0.81 – 1.06)	1.21 (1.02 – 1.42)
287.3	Thrombocytopenia	1.8 / 1.7	1.03 (0.94 – 1.12)	5.2E-01	1.03 (0.94 – 1.14)	3.9E-01	1.05 (0.95 – 1.16)	0.97 (0.82 – 1.15)
705.8	Hyperhidrosis	1.8 / 1.8	1.03 (0.94 – 1.12)	5.7E-01	1.20 (1.09 – 1.33)	1.7E-01	1.09 (0.97 – 1.23)	0.96 (0.84 – 1.09)
411.3	Angina pectoris	2.9 / 2.8	1.02 (0.95 – 1.09)	5.9E-01	1.18 (1.09 – 1.27)	7.1E-02	1.06 (0.98 – 1.16)	0.92 (0.81 – 1.05)
782.3	Edema	5.0 / 4.9	1.01 (0.96 – 1.07)	6.1E-01	1.47 (1.39 – 1.55)	9.8E-01	1.02 (0.95 – 1.09)	1.01 (0.93 – 1.10)
276.1 4	Hypopotassemia	1.7 / 1.7	0.98 (0.89 – 1.07)	6.3E-01	1.22 (1.10 – 1.35)	3.9E-01	1.02 (0.90 – 1.16)	0.94 (0.83 – 1.07)
456	Chronic venous insufficiency [CVI]	1.4 / 1.3	1.02 (0.93 – 1.13)	6.4E-01	0.99 (0.89 – 1.09)	2.0E-02	1.16 (1.01 – 1.33)	0.89 (0.76 – 1.03)
595	Hydronephrosis	1.2 / 1.2	0.98 (0.88 – 1.09)	7.2E-01	0.88 (0.78 – 0.99)	8.0E-01	0.99 (0.86 – 1.13)	0.97 (0.81 – 1.16)
276.6	Fluid overload	1.3 / 1.3	1.02 (0.92 – 1.13)	7.3E-01	1.52 (1.37 – 1.68)	1.7E-01	0.97 (0.85 – 1.10)	1.13 (0.95 – 1.34)
317.1	Alcoholism	1.2 / 1.1	1.02 (0.91 – 1.14)	7.4E-01	0.92 (0.83 – 1.03)	NA	0.86 (0.76 – 0.98)	NA
496	Chronic airway obstruction	1.8 / 1.9	0.99 (0.90 – 1.08)	7.7E-01	1.19 (1.08 – 1.31)	7.9E-04	0.87 (0.77 – 0.98)	1.18 (1.03 – 1.35)
443.9	Peripheral vascular	1.4 / 1.3	1.01 (0.92 – 1.12)	7.9E-01	1.13 (1.01 – 1.26)	1.3E-02	0.94 (0.83 – 1.06)	1.23 (1.02 – 1.49)

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PheC ode	Disease	Incidence OSA case / control	Risk ratio	P-value	Sensitivity analysis risk ratio	OSA x sex interaction p-value	Risk ratio (men)	Risk ratio (women)
	disease, unspecified							
368	Visual disturbances	3.0 / 3.0	0.99 (0.93 – 1.06)	8.0E-01	1.07 (0.99 – 1.15)	7.5E-01	1.00 (0.91 – 1.10)	0.98 (0.89 – 1.08)
741.4	Joint effusions	3.9 / 4.0	0.99 (0.94 – 1.05)	8.2E-01	0.89 (0.84 – 0.96)	6.0E-02	1.05 (0.97 – 1.14)	0.92 (0.84 – 1.01)
427.5	Arrhythmia (cardiac) NOS	4.7 / 4.6	0.99 (0.94 – 1.05)	8.3E-01	1.10 (1.03 – 1.17)	1.2E-01	0.96 (0.90 – 1.03)	1.07 (0.96 – 1.19)
348.8	Encephalopathy, not elsewhere classified	1.0 / 1.0	0.99 (0.88 – 1.11)	8.3E-01	1.15 (1.02 – 1.29)	NA	0.97 (0.83 – 1.12)	NA
726.3	Bursitis	1.1 / 1.1	1.01 (0.90 – 1.13)	8.3E-01	1.27 (1.14 – 1.43)	NA	1.07 (0.93 – 1.23)	NA
452	Other venous embolism and thrombosis	1.9 / 1.9	0.99 (0.91 – 1.08)	8.7E-01	1.01 (0.93 – 1.11)	1.1E-03	0.89 (0.80 – 0.99)	1.19 (1.03 – 1.36)
738.4	Acquired spondylolisthesis	1.3 / 1.3	1.00 (0.90 – 1.11)	9.7E-01	0.83 (0.74 – 0.93)	NA	NA	1.03 (0.90 – 1.19)
442.1	Aortic aneurysm	1.1 / 1.1	1.00 (0.89 – 1.12)	9.8E-01	0.98 (0.88 – 1.10)	NA	0.96 (0.85 – 1.08)	NA
338.1	Acute pain	6.1 / 11.0	0.55 (0.52 – 0.57)	1.3E-156	1.13 (1.08 – 1.17)	1.1E-07	0.49 (0.46 – 0.52)	0.62 (0.58 – 0.66)
949	Allergies, other	4.2 / 5.9	0.71 (0.67 – 0.75)	5.9E-36	1.68 (1.58 – 1.80)	7.8E-01	0.71 (0.65 – 0.77)	0.70 (0.66 – 0.76)
1002	Symptoms concerning nutrition, metabolism, and development	1.5 / 2.4	0.60 (0.54 – 0.65)	4.8E-28	3.28 (2.94 – 3.64)	2.5E-04	0.51 (0.45 – 0.57)	0.72 (0.63 – 0.83)
695.7	Prurigo and Lichen	1.3 / 0.7	1.94 (1.72 – 2.18)	6.1E-28	0.87 (0.77 – 0.99)	1.3E-01	2.16 (1.81 – 2.57)	1.78 (1.51 – 2.09)
479	Other upper respiratory disease	4.6 / 6.0	0.77 (0.73 – 0.81)	1.1E-21	1.60 (1.52 – 1.69)	1.2E-05	0.86 (0.80 – 0.92)	0.67 (0.62 – 0.73)
512.1	Wheezing	1.7 / 2.4	0.71 (0.65 – 0.77)	2.8E-15	1.26 (1.17 – 1.37)	3.6E-01	0.68 (0.60 – 0.77)	0.74 (0.66 – 0.83)
561.2	Flatulence	3.0 / 3.7	0.80 (0.75 – 0.85)	1.2E-11	1.44 (1.33 – 1.56)	6.3E-01	0.81 (0.74 – 0.89)	0.79 (0.72 – 0.87)
915	Superficial injury without mention of infection	1.7 / 2.3	0.75 (0.69 – 0.81)	2.5E-11	1.63 (1.47 – 1.81)	2.2E-01	0.72 (0.65 – 0.80)	0.80 (0.69 – 0.92)
939	Atopic/contact dermatitis due to other or unspecified	3.6 / 4.4	0.82 (0.77 – 0.87)	8.1E-10	1.18 (1.09 – 1.27)	9.4E-03	0.88 (0.81 – 0.96)	0.75 (0.68 – 0.82)
578.2	Blood in stool	2.4 / 2.9	0.79 (0.74 – 0.85)	8.2E-10	1.51 (1.39 – 1.65)	9.9E-01	0.79 (0.72 – 0.87)	0.79 (0.70 – 0.90)
745	Pain in joint	14.8 / 13.9	1.12 (1.08 – 1.17)	1.7E-09	0.89 (0.85 – 0.92)	7.1E-01	1.14 (1.08 – 1.19)	1.11 (1.04 – 1.18)
562.1	Diverticulosis	6.2 / 5.3	1.16 (1.10 – 1.22)	6.0E-09	0.89 (0.84 – 0.94)	8.3E-06	1.28 (1.20 – 1.36)	0.98 (0.90 – 1.07)
503	Pulmonary congestion and hypostasis	2.1 / 2.5	0.80 (0.73 – 0.86)	1.8E-08	1.13 (1.05 – 1.23)	4.4E-03	0.73 (0.66 – 0.81)	0.93 (0.81 – 1.06)
366	Cataract	2.5 / 2.9	0.82 (0.76 – 0.88)	5.1E-08	1.84 (1.70 – 1.99)	4.6E-01	0.80 (0.72 – 0.88)	0.84 (0.76 – 0.94)
702.2	Seborrheic keratosis	3.2 / 2.6	1.21 (1.12 – 1.29)	2.9E-07	0.87 (0.80 – 0.94)	9.3E-04	1.31 (1.20 – 1.43)	1.03 (0.91 – 1.16)
687.4	Disturbance of skin sensation	5.0 / 5.7	0.87 (0.83 – 0.92)	6.4E-07	1.53 (1.44 – 1.63)	8.4E-01	0.88 (0.82 – 0.95)	0.87 (0.80 – 0.94)

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PheC ode	Disease	Incidence OSA case / control	Risk ratio	P-value	Sensitivity analysis risk ratio	OSA x sex interaction p-value	Risk ratio (men)	Risk ratio (women)
497	Bronchitis	2.3 / 1.9	1.23 (1.13 – 1.34)	8.1E-07	0.88 (0.80 – 0.97)	4.4E-02	1.33 (1.19 – 1.49)	1.13 (1.00 – 1.27)
292.4	Altered mental status	3.3 / 3.7	0.86 (0.81 – 0.92)	2.1E-06	1.14 (1.07 – 1.22)	4.0E-01	0.84 (0.78 – 0.91)	0.89 (0.80 – 0.98)
741	Symptoms and disorders of the joints	1.4 / 1.7	0.80 (0.72 – 0.88)	9.9E-06	1.56 (1.40 – 1.74)	9.8E-01	0.80 (0.69 – 0.92)	0.80 (0.70 – 0.92)
465.2	Acute pharyngitis	3.5 / 4.1	0.87 (0.82 – 0.93)	5.2E-05	1.23 (1.15 – 1.32)	9.0E-01	0.87 (0.80 – 0.95)	0.88 (0.80 – 0.96)
756.5	Congenital osteodystrophies	1.4 / 1.7	0.82 (0.75 – 0.91)	7.1E-05	1.28 (1.17 – 1.41)	3.4E-01	0.79 (0.70 – 0.90)	0.87 (0.75 – 1.00)
783	Fever of unknown origin	4.1 / 4.5	0.89 (0.84 – 0.95)	1.9E-04	1.08 (1.01 – 1.15)	8.4E-03	0.83 (0.77 – 0.90)	1.00 (0.91 – 1.11)
279	Disorders involving the immune mechanism	2.1 / 2.4	0.87 (0.80 – 0.94)	6.9E-04	1.40 (1.29 – 1.52)	8.7E-01	0.86 (0.78 – 0.95)	0.88 (0.77 – 1.01)
286.7	Other and unspecified coagulation defects	1.5 / 1.7	0.86 (0.78 – 0.94)	1.3E-03	1.13 (1.03 – 1.24)	5.4E-02	0.78 (0.69 – 0.89)	0.97 (0.83 – 1.13)
216	Benign neoplasm of skin	3.5 / 3.2	1.12 (1.04 – 1.20)	1.4E-03	0.87 (0.80 – 0.94)	3.1E-08	1.30 (1.19 – 1.41)	0.85 (0.76 – 0.96)
780	Hypothermia/Chills	1.1 / 1.3	0.85 (0.77 – 0.95)	4.6E-03	1.26 (1.12 – 1.41)	NA	NA	0.86 (0.73 – 1.00)
681	Superficial cellulitis and abscess	2.1 / 2.4	0.89 (0.82 – 0.97)	5.1E-03	1.23 (1.13 – 1.33)	1.9E-01	0.86 (0.77 – 0.95)	0.95 (0.83 – 1.09)
539	Bariatric surgery	4.7 / 5.3	0.93 (0.88 – 0.98)	5.3E-03	1.59 (1.51 – 1.68)	3.4E-04	0.82 (0.75 – 0.88)	1.05 (0.97 – 1.13)
459.1	Hemorrhage NOS	1.3 / 1.4	0.88 (0.80 – 0.97)	1.4E-02	1.89 (1.66 – 2.16)	2.2E-01	0.83 (0.72 – 0.95)	0.95 (0.82 – 1.11)
722.6	Degeneration of intervertebral disc	2.3 / 2.1	1.10 (1.01 – 1.19)	2.7E-02	0.87 (0.79 – 0.95)	1.0E-01	1.17 (1.05 – 1.30)	1.00 (0.88 – 1.14)
241.2	Nontoxic multinodular goiter	1.1 / 1.0	1.14 (1.01 – 1.27)	2.8E-02	0.84 (0.73 – 0.95)	NA	NA	1.07 (0.93 – 1.22)
079	Viral infection	1.8 / 1.6	1.10 (1.00 – 1.20)	4.9E-02	0.87 (0.79 – 0.97)	2.2E-02	1.20 (1.06 – 1.35)	0.98 (0.85 – 1.12)

Table S5. Cross-sectional case/control comorbidity associations.

Primary analyses considered joint-sex PheCodes with >1% prevalence rate and were adjusted for age, sex, BMI, population, and healthcare encounters. Bonferroni-significant p-values are bolded. A sensitivity analysis using alternative control propensity score matching without healthcare encounters (but still adjusting for encounters in the analysis) was performed. PheCodes with discordant results (n=27) or $p > 0.05$ (n=72) in either analysis are displayed at the end of the table (from PheCode 530.2 onwards, highlighted in green). 421 PheCodes were both Bonferroni-level significant and had concordant directionality in the sensitivity analysis. Sleep apnea $\times$ sex interaction analyses were performed separately when prevalence was >1% in men and women. Equivalent sex-stratified analyses are shown.

PheCode	Disease	Prevalence OSA Case / Control	Risk ratio	P-value	Sensitivity analysis risk ratio	OSA x sex interaction p-value	Risk ratio (men)	Risk ratio (women)
244.4	Hypothyroidism NOS	12.5 / 6.6	1.92 (1.86 – 1.98)	0.0E+00	1.84 (1.77 – 1.91)	1.2E-03	2.08 (1.96 – 2.21)	1.85 (1.78 – 1.92)
272.1	Hyperlipidemia	34.3 / 18.2	1.90 (1.86 – 1.93)	0.0E+00	1.68 (1.65 – 1.72)	7.5E-01	1.89 (1.85 – 1.94)	1.91 (1.85 – 1.97)
272.11	Hypercholesterolemia	21.3 / 13.5	1.58 (1.55 – 1.62)	0.0E+00	1.48 (1.44 – 1.52)	7.4E-01	1.59 (1.54 – 1.64)	1.58 (1.52 – 1.64)
278.1	Obesity	25.6 / 15.1	1.77 (1.73 – 1.80)	0.0E+00	1.97 (1.92 – 2.01)	7.9E-14	1.97 (1.90 – 2.04)	1.62 (1.58 – 1.67)
296.2	Major depressive disorder 2	20.2 / 9.0	2.24 (2.18 – 2.30)	0.0E+00	2.70 (2.61 – 2.78)	2.9E-05	2.11 (2.02 – 2.19)	2.36 (2.28 – 2.44)
300.1	Anxiety disorder	20.8 / 11.7	1.78 (1.74 – 1.83)	0.0E+00	2.10 (2.04 – 2.16)	1.2E-01	1.82 (1.75 – 1.89)	1.76 (1.70 – 1.81)
327	Sleep disorders	6.1 / 0.8	7.19 (6.65 – 7.77)	0.0E+00	2.77 (2.59 – 2.96)	3.5E-01	7.44 (6.70 – 8.26)	6.90 (6.14 – 7.75)
327.4	Insomnia	12.3 / 4.4	2.71 (2.61 – 2.81)	0.0E+00	3.06 (2.92 – 3.21)	4.8E-01	2.75 (2.60 – 2.90)	2.68 (2.54 – 2.82)
327.7	Restless legs syndrome 1	4.3 / 0.7	6.27 (5.75 – 6.84)	0.0E+00	6.94 (6.21 – 7.76)	7.9E-02	6.75 (5.93 – 7.70)	5.88 (5.24 – 6.60)
401.1	Essential hypertension	43.2 / 30.6	1.43 (1.41 – 1.45)	0.0E+00	1.62 (1.59 – 1.64)	4.9E-01	1.43 (1.40 – 1.45)	1.43 (1.40 – 1.46)
455	Hemorrhoids	12.4 / 5.8	2.10 (2.03 – 2.18)	0.0E+00	1.29 (1.24 – 1.34)	5.6E-07	2.27 (2.17 – 2.37)	1.88 (1.79 – 1.99)
470	Septal Deviations/Turbinate Hypertrophy	9.9 / 2.0	4.90 (4.66 – 5.17)	0.0E+00	4.88 (4.56 – 5.22)	4.4E-13	5.66 (5.30 – 6.05)	3.80 (3.49 – 4.14)
472	Chronic pharyngitis and nasopharyngitis	7.7 / 1.1	6.87 (6.42 – 7.35)	0.0E+00	3.12 (2.94 – 3.32)	1.6E-03	7.56 (6.90 – 8.29)	6.08 (5.50 – 6.72)
474.2	Chronic tonsillitis and adenoiditis	4.5 / 0.7	5.56 (5.11 – 6.06)	0.0E+00	6.89 (6.12 – 7.77)	2.8E-12	7.44 (6.59 – 8.41)	4.01 (3.55 – 4.52)
476	Allergic rhinitis	17.6 / 8.4	2.07 (2.01 – 2.13)	0.0E+00	1.74 (1.68 – 1.80)	9.3E-30	2.43 (2.34 – 2.54)	1.76 (1.69 – 1.83)
495	Asthma	16.9 / 8.8	1.92 (1.87 – 1.98)	0.0E+00	2.08 (2.02 – 2.15)	3.4E-01	1.88 (1.80 – 1.97)	1.95 (1.88 – 2.02)

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PheC ode	Disease	Prevalen ce OSA Case / Control	Risk ratio	P-value	Sensitivity analysis risk ratio	OSA x sex interactio n p-value	Risk ratio (men)	Risk ratio (women)
530.11	GERD	29.0 / 15.2	1.91 (1.87 – 1.95)	0.0E+00	2.16 (2.11 – 2.21)	4.2E-01	1.92 (1.86 – 1.97)	1.90 (1.85 – 1.95)
689	Disorder of skin and subcutaneous tissue NOS	11.3 / 5.4	2.06 (1.99 – 2.14)	0.0E+00	1.26 (1.21 – 1.30)	3.3E-04	2.18 (2.08 – 2.29)	1.91 (1.80 – 2.02)
512.9	Other dyspnea	15.8 / 9.2	1.72 (1.67 – 1.77)	1.0E-293	2.94 (2.84 – 3.04)	4.4E-01	1.70 (1.64 – 1.77)	1.75 (1.67 – 1.82)
427.2 1	Atrial fibrillation	12.0 / 6.7	1.83 (1.77 – 1.89)	1.5E-291	1.93 (1.86 – 2.01)	5.1E-01	1.84 (1.77 – 1.92)	1.80 (1.69 – 1.92)
278	Overweight, obesity and other hyperalimentation	12.5 / 6.6	1.87 (1.81 – 1.93)	7.6E-288	1.73 (1.66 – 1.81)	5.8E-11	2.07 (1.98 – 2.17)	1.65 (1.57 – 1.74)
475	Chronic sinusitis	8.2 / 3.6	2.26 (2.16 – 2.36)	8.9E-284	1.98 (1.88 – 2.09)	2.6E-22	2.76 (2.60 – 2.94)	1.79 (1.68 – 1.91)
250.2	Type 2 diabetes	16.5 / 10.8	1.56 (1.52 – 1.60)	3.1E-237	1.56 (1.51 – 1.60)	6.4E-07	1.49 (1.44 – 1.54)	1.69 (1.62 – 1.77)
208	Benign neoplasm of colon	14.8 / 9.1	1.62 (1.57 – 1.67)	5.9E-233	1.49 (1.44 – 1.54)	6.5E-02	1.66 (1.60 – 1.72)	1.56 (1.49 – 1.64)
300.11	Generalized anxiety disorder	8.9 / 4.5	1.96 (1.89 – 2.05)	6.8E-230	2.46 (2.35 – 2.58)	5.9E-01	1.99 (1.87 – 2.12)	1.95 (1.84 – 2.06)
296.2	Depression	12.4 / 7.1	1.73 (1.67 – 1.79)	1.4E-221	2.43 (2.33 – 2.52)	1.8E-02	1.64 (1.56 – 1.73)	1.79 (1.72 – 1.87)
340	Migraine	8.6 / 4.4	1.94 (1.86 – 2.02)	5.2E-221	2.21 (2.10 – 2.32)	1.0E-02	2.11 (1.94 – 2.29)	1.88 (1.79 – 1.97)
313.1	Attention deficit hyperactivity disorder	4.4 / 1.5	2.87 (2.69 – 3.06)	2.6E-220	3.44 (3.17 – 3.73)	4.1E-02	2.72 (2.50 – 2.96)	3.14 (2.82 – 3.49)
292.3	Memory loss	5.4 / 2.1	2.51 (2.37 – 2.66)	4.0E-219	2.21 (2.05 – 2.38)	3.6E-04	2.76 (2.55 – 2.98)	2.24 (2.06 – 2.43)
798	Malaise and fatigue	19.4 / 13.0	1.48 (1.44 – 1.51)	1.0E-215	1.82 (1.77 – 1.87)	8.3E-04	1.53 (1.48 – 1.58)	1.41 (1.36 – 1.47)
389	Hearing loss	9.6 / 5.1	1.84 (1.77 – 1.92)	3.1E-215	2.01 (1.92 – 2.11)	5.0E-01	1.86 (1.77 – 1.95)	1.81 (1.70 – 1.93)
740.9	Osteoarthritis NOS	17.5 / 12.1	1.48 (1.44 – 1.52)	3.8E-206	1.42 (1.38 – 1.46)	1.2E-01	1.45 (1.40 – 1.51)	1.50 (1.45 – 1.55)
550.2	Diaphragmatic hernia	5.2 / 2.1	2.45 (2.32 – 2.60)	1.9E-205	1.76 (1.64 – 1.89)	1.2E-01	2.56 (2.34 – 2.79)	2.37 (2.19 – 2.56)
745	Pain in joint	29.0 / 22.0	1.32 (1.29 – 1.34)	8.1E-190	1.14 (1.12 – 1.16)	3.6E-01	1.31 (1.27 – 1.34)	1.33 (1.29 – 1.36)
379.9	Pain, swelling or discharge of eye	2.5 / 0.6	4.14 (3.75 – 4.57)	2.4E-175	2.57 (2.26 – 2.92)	4.8E-02	3.75 (3.26 – 4.32)	4.56 (3.97 – 5.23)
338.2	Chronic pain	11.0 / 6.7	1.65 (1.59 – 1.71)	3.5E-175	1.47 (1.41 – 1.53)	6.6E-01	1.67 (1.59 – 1.75)	1.63 (1.55 – 1.72)
721.8	Other allied disorders of spine	2.0 / 0.3	5.89 (5.20 – 6.68)	7.3E-170	1.20 (1.09 – 1.33)	9.9E-01	5.93 (5.02 – 7.01)	5.86 (4.85 – 7.09)
760	Back pain	20.9 / 15.0	1.38 (1.35 – 1.42)	3.5E-168	1.45 (1.41 – 1.48)	6.4E-01	1.38 (1.33 – 1.42)	1.39 (1.35 – 1.44)

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PheC ode	Disease	Prevalen ce OSA Case / Control	Risk ratio	P-value	Sensitivity analysis risk ratio	OSA x sex interactio n p-value	Risk ratio (men)	Risk ratio (women)
289.9	Abnormality of red blood cells	1.8 / 0.2	8.49 (7.30 – 9.89)	1.7E-167	1.45 (1.30 – 1.61)	9.8E-04	6.85 (5.66 – 8.30)	11.87 (9.19 – 15.32)
947	Urticaria	4.2 / 1.7	2.43 (2.28 – 2.60)	9.3E-161	1.13 (1.06 – 1.20)	3.1E-01	2.53 (2.27 – 2.82)	2.38 (2.20 – 2.58)
564.1	Irritable Bowel Syndrome	4.6 / 2.1	2.24 (2.11 – 2.37)	4.9E-155	2.37 (2.20 – 2.55)	6.5E-04	2.57 (2.32 – 2.85)	2.08 (1.94 – 2.24)
292	Neurological disorders	2.3 / 0.6	3.90 (3.52 – 4.31)	1.2E-152	2.39 (2.16 – 2.65)	1.1E-01	4.15 (3.64 – 4.73)	3.54 (3.01 – 4.16)
496	Chronic airway obstruction	6.5 / 3.6	1.87 (1.79 – 1.96)	1.3E-152	2.17 (2.05 – 2.29)	5.0E-04	1.74 (1.64 – 1.86)	2.06 (1.92 – 2.22)
428.1	Congestive heart failure (CHF) NOS	8.4 / 5.2	1.68 (1.62 – 1.75)	2.3E-152	2.11 (2.02 – 2.20)	1.3E-03	1.61 (1.54 – 1.69)	1.84 (1.72 – 1.96)
271.3	Intestinal disaccharidase deficiencies and disaccharide malabsorption	7.8 / 4.4	1.77 (1.70 – 1.85)	1.3E-151	1.82 (1.74 – 1.91)	2.0E-02	1.87 (1.76 – 1.99)	1.69 (1.59 – 1.79)
300.4	Dysthymic disorder	4.3 / 1.8	2.35 (2.20 – 2.50)	1.9E-149	4.28 (3.64 – 5.02)	7.0E-01	2.39 (2.16 – 2.64)	2.33 (2.15 – 2.53)
278.11	Morbid obesity	10.1 / 6.2	1.79 (1.71 – 1.86)	6.5E-149	1.92 (1.85 – 2.00)	2.3E-16	2.40 (2.20 – 2.61)	1.53 (1.46 – 1.61)
512.7	Shortness of breath	16.4 / 11.7	1.41 (1.38 – 1.45)	1.2E-146	1.94 (1.88 – 2.00)	1.5E-02	1.37 (1.33 – 1.42)	1.47 (1.41 – 1.53)
798.1	Chronic fatigue syndrome	2.8 / 0.9	2.97 (2.73 – 3.23)	1.5E-143	3.74 (3.35 – 4.17)	6.4E-01	3.02 (2.66 – 3.43)	2.93 (2.62 – 3.28)
272.13	Mixed hyperlipidemia	8.9 / 5.5	1.65 (1.59 – 1.72)	4.2E-142	1.38 (1.33 – 1.45)	3.1E-01	1.67 (1.60 – 1.75)	1.61 (1.50 – 1.72)
427.9	Palpitations	10.4 / 6.6	1.56 (1.51 – 1.62)	1.6E-134	1.66 (1.59 – 1.73)	2.3E-02	1.63 (1.55 – 1.72)	1.51 (1.44 – 1.58)
418	Nonspecific chest pain	19.4 / 14.4	1.34 (1.31 – 1.37)	1.1E-129	1.36 (1.32 – 1.40)	9.4E-02	1.37 (1.33 – 1.41)	1.31 (1.26 – 1.36)
261.4	Vitamin D deficiency	9.4 / 5.9	1.59 (1.53 – 1.65)	1.2E-129	1.84 (1.76 – 1.92)	1.2E-03	1.72 (1.62 – 1.82)	1.51 (1.44 – 1.58)
563	Constipation	9.5 / 5.8	1.58 (1.53 – 1.64)	4.5E-127	2.00 (1.91 – 2.09)	1.3E-05	1.45 (1.37 – 1.53)	1.71 (1.63 – 1.80)
599.5	Frequency of urination and polyuria	9.5 / 6.0	1.56 (1.50 – 1.62)	1.5E-123	1.73 (1.65 – 1.80)	9.9E-07	1.65 (1.58 – 1.73)	1.35 (1.26 – 1.45)
427.3	Other specified cardiac dysrhythmias	6.7 / 3.9	1.73 (1.65 – 1.81)	5.3E-123	1.74 (1.65 – 1.84)	6.2E-01	1.71 (1.62 – 1.80)	1.77 (1.63 – 1.91)
374	Other disorders of eyelids	1.4 / 0.2	7.00 (5.95 – 8.23)	5.2E-122	1.90 (1.70 – 2.13)	2.3E-02	8.70 (6.74 – 11.23)	5.93 (4.80 – 7.32)
285	Other anemias	13.8 / 9.7	1.42 (1.38 – 1.46)	1.3E-120	1.54 (1.49 – 1.60)	3.7E-02	1.38 (1.33 – 1.44)	1.46 (1.40 – 1.53)
761	Cervicalgia	10.4 / 6.7	1.52 (1.47 – 1.58)	6.1E-119	1.63 (1.56 – 1.70)	5.1E-01	1.51 (1.43 – 1.59)	1.54 (1.46 – 1.61)
327.41	Organic or persistent insomnia	2.3 / 0.8	2.93 (2.67 – 3.21)	2.9E-117	2.72 (2.44 – 3.05)	9.1E-01	2.92 (2.56 – 3.34)	2.93 (2.59 – 3.33)
306	Other mental disorder	6.1 / 3.4	1.79 (1.70 – 1.88)	2.0E-115	1.76 (1.66 – 1.86)	8.6E-01	1.78 (1.67 – 1.91)	1.80 (1.67 – 1.94)
388	Other disorders of ear	1.3 / 0.2	7.12 (6.02 – 8.43)	2.9E-115	1.75 (1.48 – 2.08)	7.2E-02	6.22 (5.01 – 7.74)	8.56 (6.55 – 11.19)
259	Other endocrine disorders	1.3 / 0.2	6.11 (5.23 – 7.15)	1.4E-113	2.75 (2.42 – 3.14)	4.5E-01	5.72 (4.64 – 7.06)	6.60 (5.22 – 8.36)

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PheC ode	Disease	Prevalen ce OSA Case / Control	Risk ratio	P-value	Sensitivity analysis risk ratio	OSA x sex interactio n p-value	Risk ratio (men)	Risk ratio (women)
389.2	Conductive hearing loss	1.5 / 0.3	4.77 (4.17 – 5.47)	4.0E-113	2.04 (1.68 – 2.48)	5.5E-01	4.63 (3.88 – 5.52)	5.00 (4.04 – 6.18)
415.2	Chronic pulmonary heart disease	3.0 / 1.3	2.34 (2.18 – 2.53)	5.7E-111	2.92 (2.67 – 3.20)	5.5E-05	2.04 (1.84 – 2.26)	2.75 (2.46 – 3.06)
773	Pain in limb	17.0 / 12.6	1.34 (1.31 – 1.38)	1.2E-109	1.11 (1.08 – 1.14)	2.2E-06	1.43 (1.38 – 1.48)	1.26 (1.21 – 1.31)
293	Symptoms involving head and neck	1.3 / 0.2	6.56 (5.56 – 7.75)	3.6E-109	1.70 (1.53 – 1.88)	1.2E-02	8.07 (6.35 – 10.27)	5.28 (4.19 – 6.66)
379	Other disorders of eye	1.8 / 0.0	55.83 (39.03 – 79.86)	1.7E-107	1.38 (1.19 – 1.59)	1.6E-01	74.43 (41.94 – 132.09)	44.13 (27.89 – 69.81)
427.5	Arrhythmia (cardiac) NOS	11.5 / 8.1	1.43 (1.39 – 1.48)	5.8E-105	1.46 (1.41 – 1.52)	5.4E-01	1.44 (1.39 – 1.50)	1.41 (1.33 – 1.50)
389.1	Sensorineural hearing loss	5.9 / 3.4	1.72 (1.64 – 1.80)	4.2E-104	1.60 (1.51 – 1.69)	3.2E-01	1.75 (1.64 – 1.86)	1.67 (1.54 – 1.80)
357	Inflammatory and toxic neuropathy	5.4 / 3.1	1.76 (1.67 – 1.85)	1.9E-102	2.04 (1.92 – 2.16)	1.3E-02	1.67 (1.56 – 1.78)	1.89 (1.75 – 2.05)
386.9	Dizziness and giddiness (Light-headedness and vertigo)	11.8 / 8.2	1.42 (1.37 – 1.46)	1.6E-100	1.50 (1.44 – 1.56)	2.0E-02	1.48 (1.41 – 1.55)	1.36 (1.30 – 1.42)
733	Other disorders of bone and cartilage	8.5 / 5.5	1.50 (1.45 – 1.56)	3.1E-99	1.18 (1.12 – 1.23)	1.6E-03	1.70 (1.56 – 1.85)	1.46 (1.40 – 1.52)
706.8	Other specified diseases of sebaceous glands	4.6 / 2.5	1.85 (1.75 – 1.96)	4.9E-98	1.42 (1.34 – 1.51)	1.7E-01	1.93 (1.78 – 2.08)	1.77 (1.63 – 1.93)
701.2	Scar conditions and fibrosis of skin	5.6 / 3.3	1.71 (1.63 – 1.80)	8.1E-97	1.26 (1.19 – 1.33)	9.8E-01	1.71 (1.60 – 1.83)	1.71 (1.58 – 1.85)
173	Neoplasm of uncertain behavior of skin	5.4 / 3.1	1.73 (1.64 – 1.82)	1.4E-96	1.74 (1.64 – 1.85)	4.3E-01	1.75 (1.64 – 1.87)	1.69 (1.56 – 1.84)
599.4	Urinary incontinence	5.9 / 3.5	1.67 (1.59 – 1.75)	7.7E-96	1.80 (1.70 – 1.90)	7.9E-01	1.68 (1.54 – 1.84)	1.66 (1.57 – 1.76)
512.8	Cough	17.7 / 13.4	1.30 (1.27 – 1.34)	1.4E-94	1.58 (1.53 – 1.62)	1.0E-01	1.33 (1.28 – 1.38)	1.28 (1.23 – 1.32)
278.4	Abnormal weight gain	5.0 / 3.0	1.72 (1.63 – 1.82)	2.1E-90	2.24 (2.12 – 2.37)	4.5E-01	1.81 (1.65 – 1.99)	1.69 (1.59 – 1.80)
402	Elevated blood pressure reading without diagnosis of hypertension	7.3 / 4.7	1.55 (1.48 – 1.62)	2.1E-89	1.42 (1.35 – 1.49)	7.7E-06	1.69 (1.60 – 1.79)	1.38 (1.29 – 1.47)
395.1	Nonrheumatic mitral valve disorders	5.8 / 3.5	1.64 (1.56 – 1.72)	2.3E-88	1.38 (1.30 – 1.46)	6.1E-01	1.65 (1.55 – 1.76)	1.62 (1.50 – 1.74)
770	Myalgia and myositis unspecified	6.3 / 3.9	1.59 (1.52 – 1.67)	1.8E-85	1.91 (1.81 – 2.02)	2.0E-02	1.46 (1.34 – 1.59)	1.66 (1.57 – 1.75)
272.1	Hyperglyceridemia	3.4 / 1.8	1.96 (1.83 – 2.10)	1.9E-85	1.91 (1.77 – 2.06)	7.1E-01	1.98 (1.83 – 2.15)	1.92 (1.71 – 2.17)

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PheC ode	Disease	Prevalen ce OSA Case / Control	Risk ratio	P-value	Sensitivity analysis risk ratio	OSA x sex interactio n p-value	Risk ratio (men)	Risk ratio (women)
2								
464	Acute sinusitis	5.2 / 3.0	1.69 (1.61 – 1.78)	3.6E-85	1.62 (1.53 – 1.73)	6.5E-07	2.00 (1.84 – 2.17)	1.52 (1.42 – 1.62)
594.1	Calculus of kidney	6.6 / 4.2	1.56 (1.49 – 1.64)	5.7E-84	1.62 (1.55 – 1.71)	3.0E-01	1.54 (1.45 – 1.62)	1.62 (1.49 – 1.75)
428.4	Heart failure with preserved EF [Diastolic heart failure]	3.5 / 1.9	1.87 (1.76 – 2.00)	5.1E-82	2.39 (2.22 – 2.58)	1.0E+00	1.89 (1.73 – 2.06)	1.86 (1.69 – 2.05)
250.4 1	Impaired fasting glucose	4.6 / 2.6	1.73 (1.63 – 1.83)	3.6E-81	1.73 (1.63 – 1.84)	4.7E-01	1.77 (1.64 – 1.91)	1.68 (1.55 – 1.83)
367.1	Myopia	1.5 / 0.4	3.20 (2.84 – 3.60)	9.9E-81	1.84 (1.63 – 2.08)	3.3E-01	3.35 (2.85 – 3.95)	3.02 (2.54 – 3.60)
172.2 2	Squamous cell carcinoma	2.7 / 1.3	2.11 (1.95 – 2.28)	1.3E-80	1.46 (1.31 – 1.61)	4.1E-01	2.06 (1.88 – 2.26)	2.22 (1.93 – 2.56)
428.2	Heart failure NOS	3.3 / 1.8	1.90 (1.77 – 2.03)	1.6E-76	2.64 (2.44 – 2.86)	4.2E-04	1.76 (1.62 – 1.90)	2.30 (2.03 – 2.60)
764	Sciatica	6.7 / 4.3	1.53 (1.46 – 1.60)	3.0E-76	1.57 (1.49 – 1.65)	5.9E-01	1.51 (1.42 – 1.61)	1.54 (1.45 – 1.64)
261	Vitamin deficiency	1.6 / 0.6	2.79 (2.50 – 3.12)	1.9E-75	2.02 (1.79 – 2.29)	NA	NA	2.72 (2.41 – 3.08)
537	Other disorders of stomach and duodenum	5.1 / 3.1	1.64 (1.56 – 1.73)	3.7E-75	1.55 (1.46 – 1.64)	1.4E-02	1.54 (1.44 – 1.66)	1.77 (1.63 – 1.91)
411.4	Coronary atherosclerosis	12.3 / 9.5	1.32 (1.28 – 1.36)	8.0E-75	1.45 (1.40 – 1.50)	5.1E-03	1.29 (1.25 – 1.33)	1.43 (1.34 – 1.53)
480	Pneumonia	8.8 / 6.2	1.42 (1.37 – 1.48)	5.6E-74	1.72 (1.64 – 1.79)	2.1E-01	1.39 (1.33 – 1.46)	1.48 (1.39 – 1.57)
539	Bariatric surgery	9.2 / 6.7	1.40 (1.35 – 1.45)	8.3E-74	2.06 (1.98 – 2.14)	2.8E-11	1.21 (1.14 – 1.28)	1.56 (1.49 – 1.63)
296	Mood disorders	3.9 / 2.2	1.79 (1.68 – 1.90)	1.3E-73	2.02 (1.88 – 2.17)	3.8E-03	1.65 (1.52 – 1.79)	1.99 (1.81 – 2.19)
274.1	Gout	6.1 / 4.1	1.53 (1.46 – 1.60)	4.0E-73	1.62 (1.54 – 1.70)	3.2E-01	1.51 (1.44 – 1.59)	1.63 (1.45 – 1.84)
375.1	Dry eyes	3.3 / 1.7	1.87 (1.75 – 2.01)	8.4E-73	1.75 (1.61 – 1.89)	4.3E-01	1.94 (1.74 – 2.16)	1.84 (1.68 – 2.00)
694.2	Other dyschromia	8.5 / 5.8	1.43 (1.38 – 1.49)	1.1E-72	1.16 (1.10 – 1.21)	5.6E-09	1.60 (1.52 – 1.69)	1.27 (1.20 – 1.34)
427.2 2	Atrial flutter	3.6 / 2.0	1.78 (1.67 – 1.90)	4.1E-71	1.77 (1.64 – 1.91)	1.9E-01	1.82 (1.70 – 1.96)	1.65 (1.44 – 1.89)
475.9	Postnasal drip	3.7 / 2.1	1.77 (1.66 – 1.88)	9.1E-71	1.83 (1.70 – 1.98)	1.0E-04	2.00 (1.83 – 2.19)	1.56 (1.43 – 1.71)
304	Adjustment reaction	5.7 / 3.5	1.57 (1.49 – 1.65)	3.9E-70	1.52 (1.43 – 1.61)	1.2E-02	1.69 (1.57 – 1.81)	1.48 (1.39 – 1.59)
599.9	Other abnormality of urination	4.5 / 2.7	1.66 (1.57 – 1.75)	9.7E-70	1.69 (1.59 – 1.81)	3.4E-02	1.73 (1.61 – 1.85)	1.53 (1.38 – 1.68)
250.4 2	Other abnormal glucose	8.5 / 6.0	1.41 (1.36 – 1.47)	1.7E-69	1.59 (1.52 – 1.66)	3.0E-01	1.39 (1.32 – 1.47)	1.45 (1.36 – 1.53)
427.6	Premature beats	3.5 / 2.0	1.79 (1.67 – 1.91)	6.3E-69	1.79 (1.65 – 1.93)	9.2E-01	1.80 (1.66 – 1.94)	1.77 (1.58 – 1.99)
585.3	Chronic renal failure [CKD]	7.4 / 5.3	1.44 (1.38 – 1.50)	9.3E-69	1.77 (1.69 – 1.85)	3.4E-02	1.40 (1.33 – 1.47)	1.54 (1.43 – 1.66)
380.4	Impacted cerumen	5.4 / 3.4	1.57 (1.49 – 1.65)	1.1E-68	1.55 (1.46 – 1.65)	1.0E-01	1.61 (1.52 – 1.72)	1.49 (1.37 – 1.62)
290.3	Other persistent mental	1.3 / 0.4	3.13 (2.75 – 3.56)	6.2E-68	2.31 (2.01 – 2.66)	1.1E-01	3.38 (2.86 – 3.99)	2.77 (2.26 – 3.40)

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PheC ode	Disease	Prevalen ce OSA Case / Control	Risk ratio	P-value	Sensitivity analysis risk ratio	OSA x sex interactio n p-value	Risk ratio (men)	Risk ratio (women)
	disorders due to conditions classified elsewhere							
519.8	Other diseases of respiratory system, NEC	2.5 / 1.2	2.07 (1.91 – 2.25)	6.3E-68	2.51 (2.28 – 2.77)	6.9E-01	2.05 (1.83 – 2.29)	2.12 (1.88 – 2.40)
471	Nasal polyps	1.6 / 0.6	2.54 (2.29 – 2.82)	1.1E-67	2.01 (1.79 – 2.27)	NA	2.76 (2.44 – 3.12)	NA
277	Other disorders of metabolism	4.2 / 2.5	1.67 (1.57 – 1.77)	1.3E-65	1.76 (1.65 – 1.88)	6.6E-03	1.52 (1.38 – 1.66)	1.79 (1.66 – 1.93)
379.2	Disorders of vitreous body	3.1 / 1.6	1.84 (1.71 – 1.97)	8.0E-65	1.52 (1.40 – 1.66)	2.8E-01	1.90 (1.72 – 2.09)	1.77 (1.59 – 1.96)
557	Intestinal malabsorption (non-celiac)	1.5 / 0.6	2.65 (2.37 – 2.96)	8.7E-65	2.57 (2.24 – 2.95)	NA	NA	2.68 (2.34 – 3.06)
366.2	Senile cataract	6.3 / 4.2	1.48 (1.41 – 1.55)	1.3E-64	1.39 (1.32 – 1.47)	6.0E-01	1.50 (1.41 – 1.59)	1.46 (1.36 – 1.56)
292.2	Mild cognitive impairment	1.8 / 0.8	2.29 (2.08 – 2.53)	3.0E-64	2.54 (2.24 – 2.87)	2.7E-02	2.51 (2.21 – 2.84)	2.01 (1.72 – 2.33)
701	Other hypertrophic and atrophic conditions of skin	6.7 / 4.6	1.47 (1.40 – 1.53)	4.2E-64	1.54 (1.46 – 1.61)	3.2E-09	1.68 (1.58 – 1.79)	1.27 (1.19 – 1.36)
350.1	Abnormal involuntary movements	4.6 / 2.8	1.61 (1.52 – 1.70)	4.3E-64	1.90 (1.78 – 2.02)	3.4E-01	1.64 (1.53 – 1.77)	1.56 (1.44 – 1.70)
365	Glaucoma	5.0 / 3.1	1.57 (1.49 – 1.65)	4.8E-64	1.62 (1.53 – 1.72)	9.7E-01	1.57 (1.47 – 1.69)	1.56 (1.45 – 1.69)
300.9	Posttraumatic stress disorder	2.8 / 1.5	1.90 (1.76 – 2.04)	5.8E-64	2.08 (1.91 – 2.25)	9.0E-05	1.58 (1.41 – 1.78)	2.16 (1.96 – 2.38)
429.3	Symptoms involving cardiovascular system	6.2 / 4.3	1.47 (1.41 – 1.54)	6.0E-62	1.66 (1.58 – 1.76)	6.4E-01	1.49 (1.40 – 1.58)	1.46 (1.35 – 1.56)
782.3	Edema	9.4 / 7.2	1.34 (1.30 – 1.39)	1.4E-61	1.81 (1.74 – 1.88)	8.4E-01	1.34 (1.28 – 1.41)	1.35 (1.28 – 1.42)
532	Dysphagia	7.6 / 5.3	1.41 (1.36 – 1.47)	2.7E-61	1.56 (1.48 – 1.64)	4.0E-03	1.33 (1.26 – 1.41)	1.52 (1.43 – 1.62)
496.1	Emphysema	3.1 / 1.7	1.79 (1.67 – 1.92)	6.6E-61	1.90 (1.74 – 2.07)	1.9E-01	1.72 (1.57 – 1.89)	1.90 (1.71 – 2.12)
389.4	Tinnitus	4.8 / 3.0	1.57 (1.48 – 1.65)	1.5E-60	1.48 (1.38 – 1.57)	1.1E-02	1.66 (1.55 – 1.78)	1.44 (1.32 – 1.56)
262	Mineral deficiency NEC	2.0 / 0.9	2.15 (1.96 – 2.36)	3.2E-60	2.74 (2.47 – 3.05)	8.6E-01	2.10 (1.80 – 2.45)	2.18 (1.94 – 2.44)
726	Peripheral enthesopathies and allied syndromes	7.1 / 4.9	1.43 (1.37 – 1.49)	2.0E-59	1.27 (1.21 – 1.34)	7.7E-04	1.53 (1.44 – 1.62)	1.30 (1.22 – 1.39)
726.1	Enthesopathy	8.2 / 5.9	1.39 (1.33 – 1.44)	2.9E-59	1.40 (1.34 – 1.47)	9.1E-04	1.49 (1.40 – 1.58)	1.31 (1.24 – 1.38)
415.2 1	Primary pulmonary hypertension	1.2 / 0.4	2.84 (2.50 – 3.23)	2.5E-58	3.37 (2.90 – 3.91)	NA	NA	3.58 (2.99 – 4.28)
785	Abdominal pain	16.7 / 13.3	1.23 (1.20 – 1.26)	1.3E-57	1.20 (1.17 – 1.24)	6.6E-01	1.24 (1.19 – 1.28)	1.23 (1.19 – 1.27)
743.11	Osteoporosis NOS	7.1 / 4.9	1.38 (1.33 – 1.44)	1.3E-56	1.40 (1.33 – 1.48)	2.6E-05	1.66 (1.51 – 1.83)	1.32 (1.27 – 1.38)
300.1	Agorophobia, social	2.9 / 1.6	1.81 (1.68 – 1.95)	2.9E-56	2.08 (1.92 – 2.26)	6.4E-03	1.62 (1.45 – 1.81)	1.99 (1.80 – 2.19)

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PheC ode	Disease	Prevalen ce OSA Case / Control	Risk ratio	P-value	Sensitivity analysis risk ratio	OSA x sex interactio n p-value	Risk ratio (men)	Risk ratio (women)
2	phobia, and panic disorder							
530.1 3	Barrett's esophagus	2.2 / 1.1	1.96 (1.80 – 2.13)	1.7E-55	1.92 (1.74 – 2.12)	7.2E-01	1.93 (1.74 – 2.14)	2.01 (1.73 – 2.33)
765	Cervical radiculitis	4.0 / 2.5	1.61 (1.51 – 1.70)	2.1E-55	1.78 (1.66 – 1.92)	2.0E-01	1.56 (1.44 – 1.69)	1.67 (1.53 – 1.82)
481	Influenza	3.9 / 2.3	1.63 (1.54 – 1.74)	2.6E-55	3.39 (2.92 – 3.93)	1.7E-01	1.70 (1.56 – 1.85)	1.57 (1.44 – 1.71)
433.3 1	Transient cerebral ischemia	5.0 / 3.3	1.51 (1.43 – 1.59)	4.9E-55	1.34 (1.26 – 1.42)	4.4E-01	1.53 (1.43 – 1.64)	1.48 (1.36 – 1.60)
530.1 4	Reflux esophagitis	3.2 / 1.8	1.72 (1.61 – 1.84)	5.6E-55	2.02 (1.86 – 2.20)	1.0E-03	1.91 (1.74 – 2.10)	1.53 (1.39 – 1.69)
381.1	Otitis media	2.1 / 1.0	2.02 (1.85 – 2.21)	1.8E-54	2.31 (2.09 – 2.55)	6.4E-01	2.07 (1.84 – 2.34)	1.97 (1.73 – 2.25)
946	Anaphylactic shock NOS	1.4 / 0.6	2.42 (2.16 – 2.70)	3.1E-53	1.31 (1.17 – 1.46)	4.3E-01	2.55 (2.15 – 3.03)	2.32 (2.00 – 2.69)
721.1	Spondylosis without myelopathy	8.8 / 6.6	1.34 (1.29 – 1.39)	8.8E-53	1.18 (1.13 – 1.23)	8.4E-02	1.38 (1.31 – 1.46)	1.29 (1.22 – 1.36)
1013	Asphyxia and hypoxemia	4.1 / 2.7	1.57 (1.48 – 1.66)	2.4E-52	1.98 (1.85 – 2.13)	2.9E-03	1.45 (1.35 – 1.57)	1.75 (1.60 – 1.91)
781	Symptoms involving nervous and musculoskeletal systems	3.8 / 2.4	1.59 (1.50 – 1.69)	8.9E-52	2.22 (2.07 – 2.38)	5.6E-01	1.57 (1.44 – 1.70)	1.62 (1.49 – 1.78)
427.11	Paroxysmal supraventricular tachycardia	3.5 / 2.1	1.63 (1.53 – 1.74)	2.9E-51	1.80 (1.67 – 1.93)	7.7E-01	1.62 (1.48 – 1.76)	1.65 (1.51 – 1.81)
720	Spinal stenosis	4.2 / 2.8	1.53 (1.45 – 1.62)	2.1E-50	1.56 (1.47 – 1.66)	2.6E-01	1.50 (1.39 – 1.61)	1.59 (1.46 – 1.73)
401.2 1	Hypertensive heart disease	2.7 / 1.6	1.73 (1.61 – 1.86)	4.1E-50	2.40 (2.21 – 2.61)	3.7E-01	1.70 (1.55 – 1.86)	1.80 (1.60 – 2.03)
593.2	Microscopic hematuria	3.0 / 1.7	1.70 (1.58 – 1.82)	1.1E-49	1.46 (1.34 – 1.58)	2.3E-01	1.63 (1.48 – 1.80)	1.77 (1.60 – 1.95)
348.7	Coma	1.5 / 0.6	2.26 (2.03 – 2.51)	2.0E-49	2.82 (2.49 – 3.19)	3.2E-02	2.07 (1.81 – 2.37)	2.66 (2.21 – 3.20)
514.2	Solitary pulmonary nodule	5.7 / 4.0	1.43 (1.36 – 1.50)	2.5E-49	1.30 (1.23 – 1.38)	1.4E-01	1.48 (1.39 – 1.58)	1.37 (1.28 – 1.47)
561.1	Diarrhea	8.5 / 6.4	1.33 (1.28 – 1.39)	3.5E-49	1.67 (1.60 – 1.75)	4.7E-01	1.30 (1.23 – 1.38)	1.36 (1.29 – 1.44)
302.1	Decreased libido	1.5 / 0.7	2.20 (1.98 – 2.44)	3.1E-48	2.08 (1.84 – 2.35)	NA	2.32 (2.05 – 2.62)	NA
386.2	Peripheral or central vertigo	2.6 / 1.4	1.75 (1.63 – 1.89)	1.1E-47	1.63 (1.49 – 1.78)	7.5E-01	1.78 (1.58 – 2.00)	1.74 (1.57 – 1.92)
797	Shock	1.7 / 0.8	2.04 (1.85 – 2.25)	2.1E-47	1.39 (1.28 – 1.52)	2.9E-01	1.96 (1.75 – 2.21)	2.23 (1.87 – 2.65)
579.8	Nonspecific abnormal findings in stool contents	4.4 / 2.9	1.51 (1.43 – 1.60)	3.3E-47	1.41 (1.32 – 1.51)	1.5E-01	1.46 (1.35 – 1.57)	1.58 (1.45 – 1.72)
136	Other infectious and parasitic diseases	3.7 / 2.3	1.57 (1.48 – 1.67)	8.1E-47	1.61 (1.50 – 1.72)	1.5E-03	1.44 (1.33 – 1.57)	1.77 (1.62 – 1.94)
411.2	Myocardial infarction	6.6 / 4.9	1.37 (1.31 – 1.43)	1.3E-46	1.35 (1.29 – 1.41)	1.0E-01	1.34 (1.28 – 1.41)	1.46 (1.34 – 1.60)

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PheC ode	Disease	Prevalen ce OSA Case / Control	Risk ratio	P-value	Sensitivity analysis risk ratio	OSA x sex interactio n p-value	Risk ratio (men)	Risk ratio (women)
280.1	Iron deficiency anemias, unspecified or not due to blood loss	4.7 / 3.1	1.48 (1.41 – 1.57)	1.6E-46	1.72 (1.61 – 1.82)	3.2E-01	1.43 (1.31 – 1.57)	1.51 (1.42 – 1.62)
411.3	Angina pectoris	6.3 / 4.5	1.39 (1.33 – 1.45)	4.1E-46	1.55 (1.47 – 1.63)	2.7E-02	1.44 (1.36 – 1.51)	1.28 (1.18 – 1.39)
696.4 1	Psoriasis vulgaris	3.2 / 2.0	1.62 (1.52 – 1.73)	4.2E-46	1.60 (1.49 – 1.73)	9.8E-01	1.61 (1.48 – 1.75)	1.63 (1.47 – 1.81)
110.11	Dermatophytosis of nail	3.6 / 2.2	1.58 (1.48 – 1.68)	6.5E-46	1.43 (1.33 – 1.54)	6.8E-05	1.74 (1.61 – 1.88)	1.32 (1.18 – 1.47)
440	Atherosclerosis	1.1 / 0.5	2.47 (2.18 – 2.80)	6.7E-45	2.24 (1.88 – 2.68)	2.0E-01	2.62 (2.23 – 3.08)	2.24 (1.83 – 2.74)
763	Thoracic or lumbosacral neuritis or radiculitis, unspecified	6.1 / 4.4	1.39 (1.32 – 1.45)	1.9E-44	1.24 (1.18 – 1.31)	9.7E-01	1.39 (1.31 – 1.48)	1.38 (1.29 – 1.48)
339	Other headache syndromes	10.7 / 8.2	1.27 (1.23 – 1.31)	2.7E-44	1.59 (1.53 – 1.65)	5.1E-01	1.25 (1.19 – 1.32)	1.29 (1.23 – 1.34)
496.2	Chronic bronchitis	1.4 / 0.6	2.19 (1.96 – 2.44)	3.0E-44	2.72 (2.37 – 3.12)	6.7E-01	2.13 (1.84 – 2.47)	2.25 (1.91 – 2.66)
290.1	Dementias	2.8 / 1.7	1.64 (1.53 – 1.76)	1.5E-43	1.87 (1.71 – 2.05)	2.6E-06	1.88 (1.71 – 2.06)	1.34 (1.20 – 1.49)
599.8	Other symptoms involving urinary system	3.2 / 2.0	1.59 (1.49 – 1.70)	6.3E-43	1.95 (1.80 – 2.11)	2.9E-01	1.54 (1.43 – 1.67)	1.70 (1.50 – 1.92)
300.3	Obsessive-compulsive disorders	1.1 / 0.5	2.37 (2.09 – 2.68)	9.4E-43	2.48 (2.14 – 2.86)	4.3E-01	2.46 (2.09 – 2.89)	2.26 (1.87 – 2.73)
172.2 1	Basal cell carcinoma	4.6 / 3.2	1.44 (1.37 – 1.52)	3.9E-42	1.32 (1.24 – 1.41)	2.1E-01	1.41 (1.32 – 1.50)	1.51 (1.39 – 1.66)
395.2	Nonrheumatic aortic valve disorders	4.7 / 3.4	1.43 (1.36 – 1.50)	5.8E-42	1.40 (1.32 – 1.48)	2.6E-02	1.37 (1.29 – 1.46)	1.57 (1.43 – 1.73)
296.1	Bipolar	3.2 / 2.0	1.58 (1.48 – 1.69)	1.4E-41	1.62 (1.51 – 1.74)	5.3E-08	1.31 (1.19 – 1.44)	1.92 (1.75 – 2.11)
246	Other disorders of thyroid	2.5 / 1.4	1.70 (1.57 – 1.83)	1.6E-41	1.38 (1.25 – 1.52)	4.2E-01	1.62 (1.41 – 1.87)	1.73 (1.58 – 1.90)
350.2	Abnormality of gait	5.4 / 3.9	1.39 (1.33 – 1.46)	2.1E-41	1.37 (1.29 – 1.45)	8.0E-02	1.44 (1.35 – 1.54)	1.33 (1.24 – 1.43)
196	Radiotherapy	4.3 / 6.0	0.72 (0.68 – 0.75)	1.3E-40	0.80 (0.76 – 0.85)	1.2E-02	0.68 (0.64 – 0.73)	0.78 (0.72 – 0.85)
741.2	Stiffness of joint	2.1 / 1.2	1.78 (1.63 – 1.93)	1.9E-40	1.41 (1.28 – 1.56)	3.0E-02	1.95 (1.73 – 2.21)	1.62 (1.44 – 1.82)
261.2	Vitamin B-complex deficiencies	2.4 / 1.4	1.69 (1.56 – 1.82)	2.2E-40	1.77 (1.62 – 1.94)	5.6E-01	1.63 (1.45 – 1.83)	1.73 (1.56 – 1.92)
292.1	Aphasia/speech disturbance	2.2 / 1.2	1.74 (1.60 – 1.88)	1.6E-39	1.63 (1.48 – 1.79)	2.9E-01	1.79 (1.62 – 1.99)	1.65 (1.44 – 1.88)
704	Diseases of hair and hair follicles	2.3 / 1.4	1.71 (1.58 – 1.85)	2.4E-39	1.92 (1.75 – 2.11)	6.3E-01	1.73 (1.57 – 1.91)	1.67 (1.46 – 1.92)
599.2	Retention of urine	4.3 / 3.0	1.44 (1.36 – 1.52)	1.9E-38	1.27 (1.19 – 1.36)	3.4E-03	1.37 (1.29 – 1.46)	1.69 (1.50 – 1.91)

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PheC ode	Disease	Prevalen ce OSA Case / Control	Risk ratio	P-value	Sensitivity analysis risk ratio	OSA x sex interactio n p-value	Risk ratio (men)	Risk ratio (women)
807	Fracture of ribs	1.7 / 0.9	1.86 (1.69 – 2.04)	2.8E-38	1.27 (1.13 – 1.43)	1.3E-02	1.71 (1.52 – 1.92)	2.18 (1.86 – 2.56)
216	Benign neoplasm of skin	10.8 / 8.6	1.24 (1.20 – 1.29)	2.9E-38	1.05 (1.01 – 1.09)	5.8E-23	1.44 (1.38 – 1.50)	1.03 (0.98 – 1.08)
571.5	Other chronic nonalcoholic liver disease	4.5 / 3.2	1.43 (1.35 – 1.51)	3.6E-38	1.51 (1.42 – 1.60)	2.0E-02	1.53 (1.42 – 1.64)	1.33 (1.23 – 1.44)
596.5	Functional disorders of bladder	2.1 / 1.2	1.74 (1.60 – 1.89)	5.9E-38	1.50 (1.36 – 1.65)	7.8E-01	1.74 (1.54 – 1.96)	1.73 (1.54 – 1.95)
459.9	Circulatory disease NEC	4.0 / 2.8	1.46 (1.38 – 1.55)	6.3E-38	1.62 (1.52 – 1.73)	1.3E-04	1.60 (1.49 – 1.72)	1.26 (1.14 – 1.39)
340.1	Migraine with aura	1.9 / 1.1	1.79 (1.63 – 1.95)	9.4E-38	1.67 (1.49 – 1.87)	7.9E-02	2.02 (1.71 – 2.38)	1.70 (1.53 – 1.88)
742.9	Other derangement of joint	4.3 / 3.0	1.44 (1.36 – 1.52)	2.8E-37	1.47 (1.38 – 1.56)	2.8E-01	1.39 (1.28 – 1.51)	1.48 (1.37 – 1.60)
740.1	Osteoarthritis; localized	2.8 / 4.2	0.68 (0.64 – 0.72)	5.2E-37	0.92 (0.87 – 0.97)	4.2E-01	0.66 (0.60 – 0.72)	0.69 (0.63 – 0.75)
427.8	Sinoatrial node dysfunction (Bradycardia)	1.9 / 1.1	1.74 (1.60 – 1.90)	1.5E-36	1.93 (1.73 – 2.16)	2.1E-01	1.80 (1.63 – 2.00)	1.61 (1.37 – 1.89)
788	Syncope and collapse	7.4 / 5.6	1.30 (1.25 – 1.35)	1.6E-36	1.46 (1.40 – 1.54)	2.0E-02	1.35 (1.28 – 1.42)	1.22 (1.14 – 1.31)
465	Acute upper respiratory infections of multiple or unspecified sites	10.0 / 7.8	1.25 (1.21 – 1.30)	2.9E-36	1.56 (1.50 – 1.63)	5.7E-08	1.39 (1.32 – 1.47)	1.15 (1.10 – 1.21)
287.1	Spontaneous ecchymoses	1.0 / 0.4	2.31 (2.02 – 2.63)	4.0E-36	1.51 (1.33 – 1.72)	NA	NA	2.25 (1.88 – 2.70)
562.2	Diverticulitis	3.6 / 2.5	1.47 (1.39 – 1.57)	1.0E-35	1.44 (1.34 – 1.54)	5.3E-01	1.51 (1.39 – 1.64)	1.44 (1.32 – 1.57)
531.2	Gastric ulcer	1.4 / 0.7	1.96 (1.76 – 2.17)	1.5E-35	1.36 (1.21 – 1.53)	1.8E-01	1.81 (1.56 – 2.10)	2.12 (1.83 – 2.46)
054	Herpes simplex	3.0 / 1.9	1.54 (1.44 – 1.65)	1.8E-35	1.65 (1.52 – 1.80)	7.9E-01	1.52 (1.36 – 1.69)	1.56 (1.43 – 1.70)
277.7	Dysmetabolic syndrome X	1.2 / 0.6	2.08 (1.86 – 2.34)	2.5E-35	2.13 (1.89 – 2.39)	2.3E-01	2.26 (1.91 – 2.67)	1.94 (1.65 – 2.28)
420.3	Endocarditis	1.3 / 0.6	2.04 (1.82 – 2.28)	2.6E-35	1.46 (1.25 – 1.71)	1.5E-04	1.76 (1.53 – 2.01)	2.91 (2.36 – 3.59)
241.1	Nontoxic uninodular goiter	4.5 / 3.2	1.40 (1.33 – 1.47)	6.9E-35	1.40 (1.31 – 1.49)	6.9E-02	1.30 (1.18 – 1.44)	1.44 (1.36 – 1.54)
728.7	Fasciitis	3.6 / 2.4	1.47 (1.38 – 1.56)	1.5E-34	1.45 (1.35 – 1.55)	1.1E-02	1.61 (1.47 – 1.76)	1.37 (1.26 – 1.49)
394.7	Disease of tricuspid valve	3.4 / 2.2	1.49 (1.40 – 1.59)	3.0E-34	1.33 (1.23 – 1.44)	1.2E-03	1.36 (1.25 – 1.48)	1.69 (1.54 – 1.86)
426.3 1	Right bundle branch block	2.3 / 1.4	1.62 (1.49 – 1.75)	4.9E-33	1.61 (1.47 – 1.77)	5.8E-02	1.69 (1.54 – 1.84)	1.40 (1.18 – 1.65)
561	Symptoms involving digestive system	3.2 / 2.1	1.49 (1.40 – 1.59)	9.1E-33	1.67 (1.54 – 1.80)	4.5E-01	1.54 (1.39 – 1.71)	1.46 (1.34 – 1.59)
527.7	Disturbance of salivary secretion	1.8 / 1.0	1.73 (1.58 – 1.89)	2.9E-32	2.39 (2.10 – 2.73)	9.3E-02	1.59 (1.39 – 1.81)	1.86 (1.64 – 2.10)
516.1	Hemoptysis	1.7 / 1.0	1.76 (1.60 – 1.93)	3.0E-32	2.17 (1.95 – 2.41)	2.0E-01	1.69 (1.51 – 1.90)	1.92 (1.63 – 2.26)
228.1	Hemangioma of skin and subcutaneous tissue	4.5 / 3.2	1.38 (1.31 – 1.46)	3.1E-32	1.43 (1.34 – 1.52)	7.0E-04	1.49 (1.39 – 1.60)	1.24 (1.14 – 1.35)
840	Sprains and strains	7.7 / 6.0	1.27 (1.22 – 1.33)	4.2E-32	1.14 (1.09 – 1.20)	5.5E-04	1.35 (1.28 – 1.42)	1.17 (1.09 – 1.25)

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PheC ode	Disease	Prevalen ce OSA Case / Control	Risk ratio	P-value	Sensitivity analysis risk ratio	OSA x sex interactio n p-value	Risk ratio (men)	Risk ratio (women)
912	Insect bite	2.4 / 1.5	1.59 (1.47 – 1.72)	4.3E-32	2.30 (2.09 – 2.53)	3.5E-01	1.53 (1.38 – 1.71)	1.65 (1.48 – 1.84)
596	Other disorders of bladder	2.0 / 1.2	1.67 (1.53 – 1.81)	4.8E-32	1.25 (1.13 – 1.37)	7.9E-01	1.66 (1.51 – 1.83)	1.64 (1.38 – 1.94)
505	Other pulmonary inflammation or edema	2.1 / 1.3	1.64 (1.51 – 1.78)	1.3E-31	1.88 (1.71 – 2.07)	5.2E-02	1.55 (1.39 – 1.71)	1.83 (1.60 – 2.11)
502	Postinflammatory pulmonary fibrosis	1.4 / 0.8	1.85 (1.67 – 2.06)	1.8E-31	1.53 (1.35 – 1.74)	6.6E-02	1.71 (1.50 – 1.96)	2.08 (1.77 – 2.45)
291.4	Specific nonpsychotic mental disorders due to brain damage	1.2 / 0.6	2.00 (1.78 – 2.25)	2.1E-31	2.55 (2.20 – 2.96)	9.2E-01	2.00 (1.71 – 2.35)	2.00 (1.69 – 2.37)
269	Proteinuria	2.8 / 1.8	1.52 (1.41 – 1.63)	3.5E-31	1.56 (1.45 – 1.69)	1.3E-01	1.60 (1.46 – 1.74)	1.41 (1.25 – 1.58)
380.1	Otitis externa	2.5 / 1.6	1.55 (1.44 – 1.67)	6.3E-31	1.63 (1.50 – 1.77)	1.4E-01	1.64 (1.48 – 1.81)	1.45 (1.29 – 1.63)
382	Otalgia	6.6 / 4.9	1.30 (1.24 – 1.36)	8.6E-31	1.17 (1.11 – 1.23)	2.3E-04	1.43 (1.34 – 1.53)	1.21 (1.14 – 1.28)
480.11	Pneumococcal pneumonia	2.0 / 1.2	1.65 (1.51 – 1.79)	1.2E-30	1.93 (1.74 – 2.13)	6.3E-01	1.67 (1.50 – 1.87)	1.62 (1.41 – 1.85)
414	Other forms of chronic heart disease	3.2 / 2.2	1.46 (1.37 – 1.55)	3.4E-30	1.95 (1.81 – 2.10)	1.4E-01	1.51 (1.40 – 1.63)	1.35 (1.20 – 1.53)
704.1	Alopecia	3.4 / 2.3	1.44 (1.35 – 1.54)	7.4E-30	1.50 (1.38 – 1.62)	4.3E-05	1.80 (1.59 – 2.04)	1.34 (1.24 – 1.44)
351	Other peripheral nerve disorders	6.6 / 5.1	1.29 (1.23 – 1.34)	8.1E-30	1.21 (1.15 – 1.27)	3.7E-05	1.42 (1.34 – 1.51)	1.17 (1.10 – 1.24)
443.1	Raynaud's syndrome	1.4 / 0.7	1.84 (1.66 – 2.05)	9.6E-30	1.71 (1.50 – 1.96)	NA	NA	1.68 (1.48 – 1.91)
965	Poisoning by analgesics, antipyretics, and antirheumatics	2.9 / 1.9	1.49 (1.39 – 1.60)	1.1E-29	1.54 (1.43 – 1.66)	7.7E-01	1.48 (1.32 – 1.66)	1.51 (1.38 – 1.65)
286.9	Abnormal coagulation profile	2.5 / 1.6	1.55 (1.43 – 1.67)	1.6E-29	1.56 (1.44 – 1.69)	8.2E-01	1.54 (1.39 – 1.70)	1.57 (1.40 – 1.76)
263	Other nutritional deficiency	1.2 / 0.6	1.93 (1.72 – 2.16)	2.0E-29	2.54 (2.26 – 2.87)	NA	NA	2.23 (1.93 – 2.56)
565	Anal and rectal conditions	3.2 / 2.1	1.46 (1.37 – 1.56)	2.1E-29	1.39 (1.29 – 1.51)	5.3E-01	1.44 (1.32 – 1.56)	1.51 (1.35 – 1.68)
473	Diseases of the larynx and vocal cords	2.0 / 1.2	1.63 (1.49 – 1.77)	6.0E-29	1.82 (1.65 – 2.02)	4.5E-01	1.67 (1.49 – 1.88)	1.57 (1.38 – 1.78)
244.2	Acquired hypothyroidism	2.4 / 1.6	1.54 (1.43 – 1.67)	6.1E-29	1.68 (1.54 – 1.84)	9.1E-01	1.53 (1.34 – 1.75)	1.55 (1.42 – 1.70)
727.1	Synovitis and tenosynovitis	4.3 / 3.1	1.37 (1.30 – 1.45)	6.4E-29	1.19 (1.12 – 1.27)	2.0E-06	1.59 (1.47 – 1.72)	1.21 (1.12 – 1.30)
586.4	Stricture/obstruction of ureter	2.0 / 1.3	1.60 (1.47 – 1.73)	2.3E-28	1.34 (1.22 – 1.48)	NA	1.70 (1.56 – 1.86)	NA
766	Neuralgia, neuritis, and radiculitis NOS	3.2 / 2.2	1.44 (1.35 – 1.54)	3.4E-28	1.42 (1.32 – 1.53)	1.6E-01	1.51 (1.38 – 1.66)	1.38 (1.25 – 1.51)
416	Cardiomegaly	3.8 / 2.8	1.38 (1.31 – 1.47)	5.5E-28	1.48 (1.39 – 1.58)	8.1E-02	1.34 (1.25 – 1.43)	1.51 (1.36 – 1.68)

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PheC ode	Disease	Prevalen ce OSA Case / Control	Risk ratio	P-value	Sensitivity analysis risk ratio	OSA x sex interactio n p-value	Risk ratio (men)	Risk ratio (women)
716.9	Arthropathy NOS	5.8 / 4.5	1.30 (1.24 – 1.36)	9.3E-28	1.45 (1.38 – 1.53)	8.6E-01	1.29 (1.21 – 1.39)	1.30 (1.22 – 1.39)
706.1	Acne	3.0 / 2.0	1.45 (1.36 – 1.56)	5.4E-27	1.59 (1.46 – 1.73)	3.1E-03	1.66 (1.49 – 1.85)	1.34 (1.23 – 1.46)
245.2 1	Chronic lymphocytic thyroiditis	1.5 / 0.9	1.72 (1.56 – 1.90)	9.3E-27	1.54 (1.36 – 1.74)	NA	NA	1.65 (1.47 – 1.84)
427.1 2	Paroxysmal ventricular tachycardia	2.3 / 1.6	1.52 (1.41 – 1.64)	1.1E-26	1.42 (1.30 – 1.55)	5.6E-01	1.54 (1.41 – 1.68)	1.45 (1.22 – 1.72)
008.5	Bacterial enteritis	1.4 / 0.7	1.78 (1.60 – 1.97)	1.3E-26	1.80 (1.60 – 2.01)	4.7E-01	1.72 (1.47 – 2.01)	1.84 (1.60 – 2.12)
214	Lipoma	2.3 / 1.5	1.52 (1.41 – 1.64)	3.4E-26	1.59 (1.46 – 1.73)	1.1E-03	1.69 (1.53 – 1.87)	1.31 (1.17 – 1.48)
415	Pulmonary heart disease	1.2 / 0.7	1.82 (1.63 – 2.03)	3.5E-26	1.67 (1.49 – 1.89)	8.6E-01	1.78 (1.53 – 2.08)	1.85 (1.57 – 2.17)
695.3	Rosacea	2.9 / 2.0	1.44 (1.35 – 1.55)	1.1E-25	1.40 (1.29 – 1.51)	1.5E-01	1.52 (1.37 – 1.68)	1.38 (1.26 – 1.52)
591	Urinary tract infection	8.0 / 6.4	1.23 (1.18 – 1.27)	2.0E-25	1.17 (1.12 – 1.23)	1.2E-01	1.28 (1.20 – 1.37)	1.19 (1.14 – 1.25)
724.8	Other symptoms referable to back	1.4 / 0.8	1.71 (1.55 – 1.90)	2.8E-25	1.77 (1.58 – 1.98)	8.4E-01	1.73 (1.50 – 2.00)	1.70 (1.47 – 1.96)
350.6	Disturbances of sensation of smell and taste	1.1 / 0.6	1.85 (1.65 – 2.08)	3.6E-25	2.33 (2.02 – 2.67)	5.3E-01	1.91 (1.62 – 2.25)	1.78 (1.51 – 2.10)
425.1	Primary/intrinsic cardiomyopathies	4.0 / 3.0	1.35 (1.27 – 1.43)	4.1E-25	1.53 (1.43 – 1.62)	4.5E-02	1.30 (1.22 – 1.39)	1.49 (1.33 – 1.67)
197	Chemotherapy	4.4 / 5.7	0.77 (0.74 – 0.81)	5.3E-25	0.75 (0.71 – 0.79)	4.1E-01	0.76 (0.71 – 0.81)	0.80 (0.74 – 0.86)
172.2	Other non-epithelial cancer of skin	5.7 / 4.5	1.27 (1.22 – 1.33)	5.9E-25	1.15 (1.09 – 1.21)	9.2E-01	1.27 (1.20 – 1.35)	1.28 (1.18 – 1.38)
702.1	Actinic keratosis	5.5 / 4.3	1.28 (1.22 – 1.34)	7.5E-25	1.09 (1.03 – 1.15)	1.2E-02	1.33 (1.26 – 1.41)	1.17 (1.07 – 1.27)
687.1	Rash and other nonspecific skin eruption	8.7 / 7.1	1.21 (1.17 – 1.26)	1.4E-24	1.81 (1.74 – 1.89)	7.6E-03	1.14 (1.08 – 1.21)	1.28 (1.22 – 1.35)
345	Epilepsy, recurrent seizures, convulsions	2.4 / 1.6	1.48 (1.37 – 1.60)	1.5E-24	1.58 (1.45 – 1.72)	8.6E-02	1.39 (1.26 – 1.54)	1.62 (1.44 – 1.83)
530.9	Heartburn	3.9 / 2.8	1.36 (1.28 – 1.44)	1.7E-24	1.45 (1.35 – 1.55)	1.7E-02	1.47 (1.34 – 1.60)	1.28 (1.19 – 1.39)
473.4	Voice disturbance	3.5 / 2.5	1.37 (1.29 – 1.46)	1.9E-24	1.66 (1.54 – 1.78)	3.3E-01	1.41 (1.30 – 1.53)	1.33 (1.22 – 1.46)
512.2	Painful respiration	5.7 / 4.4	1.28 (1.22 – 1.34)	2.5E-24	1.28 (1.21 – 1.35)	9.6E-01	1.28 (1.20 – 1.37)	1.29 (1.20 – 1.38)
217.1	Nevus, non-neoplastic	4.1 / 3.0	1.34 (1.27 – 1.42)	2.7E-24	1.35 (1.26 – 1.44)	7.3E-04	1.48 (1.37 – 1.60)	1.21 (1.12 – 1.32)
477	Epistaxis or throat hemorrhage	2.6 / 1.8	1.45 (1.35 – 1.56)	6.3E-24	1.53 (1.41 – 1.67)	1.4E-01	1.52 (1.39 – 1.67)	1.36 (1.21 – 1.52)
290.2	Delirium due to conditions classified elsewhere	2.2 / 1.5	1.49 (1.38 – 1.62)	6.7E-24	1.42 (1.31 – 1.54)	5.2E-03	1.38 (1.26 – 1.52)	1.77 (1.54 – 2.04)
251.1	Hypoglycemia	1.4 / 0.9	1.69 (1.52 – 1.87)	7.9E-24	2.24 (1.99 – 2.52)	1.5E-02	1.48 (1.28 – 1.72)	1.92 (1.66 – 2.22)
433	Cerebrovascular disease	1.3 / 0.8	1.72 (1.55 – 1.91)	1.3E-23	1.33 (1.17 – 1.52)	4.6E-01	1.77 (1.55 – 2.03)	1.64 (1.38 – 1.94)

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PheC ode	Disease	Prevalen ce OSA Case / Control	Risk ratio	P-value	Sensitivity analysis risk ratio	OSA x sex interactio n p-value	Risk ratio (men)	Risk ratio (women)
550.1	Inguinal hernia	3.8 / 2.7	1.34 (1.27 – 1.42)	2.3E-23	1.41 (1.31 – 1.51)	NA	1.35 (1.27 – 1.43)	NA
274.11	Gouty arthropathy	2.4 / 1.7	1.46 (1.35 – 1.57)	3.9E-23	1.38 (1.28 – 1.50)	NA	1.46 (1.35 – 1.59)	NA
418.1	Precordial pain	3.0 / 2.2	1.40 (1.31 – 1.49)	8.5E-23	1.57 (1.46 – 1.69)	5.4E-01	1.37 (1.26 – 1.50)	1.43 (1.29 – 1.59)
772.3	Muscle weakness	2.2 / 1.5	1.48 (1.37 – 1.60)	1.1E-22	2.30 (2.06 – 2.57)	2.2E-01	1.42 (1.27 – 1.58)	1.56 (1.39 – 1.76)
789	Nausea and vomiting	10.4 / 8.7	1.18 (1.14 – 1.22)	1.4E-22	1.33 (1.28 – 1.38)	1.1E-10	1.03 (0.97 – 1.08)	1.30 (1.24 – 1.35)
367.4	Presbyopia	1.7 / 1.0	1.58 (1.44 – 1.73)	1.7E-22	1.92 (1.73 – 2.14)	7.0E-01	1.61 (1.42 – 1.83)	1.55 (1.36 – 1.77)
316	Substance addiction and disorders	4.3 / 3.3	1.31 (1.24 – 1.38)	2.6E-22	1.50 (1.42 – 1.59)	4.9E-20	1.11 (1.04 – 1.18)	1.96 (1.77 – 2.16)
550.4	Umbilical hernia	2.1 / 1.4	1.48 (1.37 – 1.61)	6.8E-22	1.69 (1.55 – 1.84)	9.1E-01	1.49 (1.35 – 1.63)	1.48 (1.26 – 1.74)
241.2	Nontoxic multinodular goiter	2.9 / 2.1	1.38 (1.29 – 1.48)	1.2E-21	1.10 (1.01 – 1.19)	3.9E-02	1.57 (1.37 – 1.79)	1.33 (1.23 – 1.43)
350.3	Lack of coordination	1.7 / 1.0	1.57 (1.43 – 1.72)	1.5E-21	1.46 (1.30 – 1.64)	5.3E-01	1.61 (1.42 – 1.81)	1.51 (1.31 – 1.74)
565.1	Anal and rectal polyp	1.9 / 1.3	1.51 (1.39 – 1.65)	2.1E-21	1.34 (1.21 – 1.48)	2.2E-02	1.64 (1.47 – 1.82)	1.31 (1.13 – 1.52)
452	Other venous embolism and thrombosis	4.4 / 3.4	1.30 (1.23 – 1.37)	2.7E-21	1.30 (1.23 – 1.38)	3.3E-01	1.27 (1.18 – 1.36)	1.34 (1.24 – 1.46)
276.6	Fluid overload	2.5 / 1.8	1.42 (1.32 – 1.53)	3.7E-21	1.84 (1.70 – 2.00)	2.5E-02	1.35 (1.23 – 1.47)	1.59 (1.41 – 1.81)
496.2 1	Obstructive chronic bronchitis	1.2 / 0.7	1.69 (1.51 – 1.88)	5.4E-21	2.87 (2.52 – 3.27)	NA	NA	1.91 (1.63 – 2.23)
573.7	Abnormal results of function study of liver	4.0 / 3.0	1.32 (1.24 – 1.39)	5.9E-21	1.49 (1.40 – 1.59)	2.4E-04	1.45 (1.35 – 1.56)	1.16 (1.07 – 1.27)
333.1	Essential tremor	1.0 / 0.6	1.77 (1.57 – 2.00)	7.6E-21	1.77 (1.55 – 2.04)	NA	1.97 (1.68 – 2.30)	NA
793.2	Nonspecific abnormal findings on radiological and other examination of other intrathoracic organs (echocardiogram, etc)	3.0 / 2.2	1.37 (1.28 – 1.46)	9.4E-21	1.50 (1.39 – 1.62)	8.6E-01	1.38 (1.26 – 1.51)	1.36 (1.23 – 1.50)
501	Pneumonitis due to inhalation of food or vomitus	1.7 / 1.1	1.54 (1.41 – 1.68)	1.1E-20	1.65 (1.48 – 1.85)	5.5E-01	1.50 (1.35 – 1.67)	1.63 (1.38 – 1.93)
356	Hereditary and idiopathic peripheral neuropathy	2.5 / 1.8	1.41 (1.31 – 1.52)	1.7E-20	1.66 (1.53 – 1.81)	7.4E-01	1.40 (1.28 – 1.54)	1.44 (1.28 – 1.62)
724.9	Other unspecified back disorders	1.6 / 1.0	1.56 (1.42 – 1.71)	2.0E-20	1.43 (1.29 – 1.58)	9.8E-01	1.55 (1.37 – 1.75)	1.56 (1.36 – 1.80)
735.3	Hallux valgus (Bunion)	2.2 / 1.4	1.46 (1.35 – 1.58)	2.0E-20	1.35 (1.22 – 1.49)	1.9E-01	1.58 (1.38 – 1.81)	1.40 (1.27 – 1.55)
722.1	Displacement of intervertebral disc	4.9 / 3.9	1.27 (1.21 – 1.34)	2.1E-20	1.21 (1.14 – 1.28)	9.4E-01	1.28 (1.19 – 1.36)	1.27 (1.17 – 1.37)

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PheC ode	Disease	Prevalen ce OSA Case / Control	Risk ratio	P-value	Sensitivity analysis risk ratio	OSA x sex interactio n p-value	Risk ratio (men)	Risk ratio (women)
290.11	Alzheimer's disease	1.1 / 0.6	1.73 (1.54 – 1.94)	2.3E-20	1.65 (1.42 – 1.92)	NA	2.13 (1.83 – 2.48)	NA
723	Other disorders of cervical region	1.1 / 0.6	1.74 (1.55 – 1.96)	3.0E-20	1.76 (1.53 – 2.04)	NA	NA	1.80 (1.56 – 2.09)
737.3	Kyphoscoliosis and scoliosis	1.8 / 1.2	1.51 (1.38 – 1.65)	3.4E-20	1.51 (1.35 – 1.69)	7.9E-01	1.52 (1.31 – 1.76)	1.50 (1.34 – 1.67)
306.9	Tension headache	1.5 / 0.8	1.61 (1.46 – 1.79)	3.5E-20	1.63 (1.46 – 1.81)	NA	NA	1.49 (1.31 – 1.69)
292.6	Hallucinations	1.0 / 0.6	1.76 (1.56 – 1.99)	4.1E-20	1.46 (1.30 – 1.64)	NA	NA	1.96 (1.63 – 2.35)
528	Diseases of the oral soft tissues, excluding lesions specific for gingiva and tongue	2.2 / 1.5	1.45 (1.34 – 1.58)	4.3E-20	1.63 (1.48 – 1.80)	1.2E-02	1.59 (1.43 – 1.76)	1.30 (1.15 – 1.47)
394.2	Mitral valve disease	1.3 / 0.8	1.63 (1.47 – 1.81)	1.3E-19	1.63 (1.42 – 1.86)	8.4E-01	1.61 (1.40 – 1.85)	1.66 (1.41 – 1.96)
440.9	Atherosclerosis of aorta	1.5 / 1.0	1.56 (1.42 – 1.72)	1.3E-19	1.75 (1.57 – 1.96)	6.2E-01	1.52 (1.34 – 1.73)	1.60 (1.39 – 1.85)
078	Viral warts & HPV	3.9 / 2.9	1.31 (1.24 – 1.39)	1.8E-19	1.10 (1.03 – 1.18)	1.5E-01	1.36 (1.26 – 1.47)	1.25 (1.15 – 1.37)
426.3 2	Left bundle branch block	1.9 / 1.3	1.48 (1.36 – 1.61)	2.2E-19	1.36 (1.23 – 1.50)	8.2E-01	1.49 (1.34 – 1.66)	1.45 (1.26 – 1.68)
536.8	Dyspepsia and other specified disorders of function of stomach	4.0 / 2.9	1.31 (1.23 – 1.39)	3.5E-19	1.07 (1.00 – 1.14)	3.3E-04	1.46 (1.35 – 1.59)	1.19 (1.10 – 1.29)
369.5	Conjunctivitis, infectious	3.8 / 2.8	1.31 (1.23 – 1.39)	1.2E-18	1.52 (1.42 – 1.63)	2.9E-02	1.41 (1.30 – 1.54)	1.23 (1.13 – 1.34)
496.3	Bronchiectasis	1.1 / 0.6	1.68 (1.50 – 1.89)	1.3E-18	1.78 (1.53 – 2.07)	NA	NA	1.67 (1.41 – 1.97)
569	Other disorders of intestine	6.4 / 5.2	1.22 (1.17 – 1.27)	1.3E-18	1.25 (1.19 – 1.31)	2.5E-01	1.25 (1.18 – 1.33)	1.19 (1.11 – 1.27)
458.1	Orthostatic hypotension	1.8 / 1.2	1.48 (1.36 – 1.62)	1.5E-18	1.54 (1.39 – 1.71)	5.4E-01	1.47 (1.32 – 1.63)	1.52 (1.31 – 1.77)
443.9	Peripheral vascular disease, unspecified	3.1 / 2.3	1.32 (1.24 – 1.41)	1.2E-17	1.39 (1.29 – 1.49)	5.3E-02	1.27 (1.18 – 1.37)	1.46 (1.30 – 1.65)
428.3	Heart failure with reduced EF [Systolic or combined heart failure]	2.4 / 1.7	1.38 (1.28 – 1.49)	3.6E-17	1.54 (1.41 – 1.68)	4.2E-01	1.36 (1.25 – 1.48)	1.45 (1.25 – 1.69)
772	Symptoms of the muscles	1.2 / 0.7	1.62 (1.45 – 1.81)	4.1E-17	1.70 (1.48 – 1.96)	NA	NA	1.60 (1.37 – 1.86)
447	Other disorders of arteries and arterioles	1.3 / 0.8	1.57 (1.41 – 1.74)	6.3E-17	1.47 (1.30 – 1.66)	9.2E-01	1.59 (1.38 – 1.82)	1.55 (1.32 – 1.83)
447.7	Aortic ectasia	1.4 / 1.0	1.52 (1.38 – 1.67)	6.9E-17	1.62 (1.45 – 1.81)	NA	1.54 (1.38 – 1.72)	NA
585.4	Chronic kidney disease, Stage I or II	2.1 / 1.5	1.41 (1.30 – 1.53)	8.6E-17	1.64 (1.50 – 1.80)	4.4E-01	1.45 (1.31 – 1.60)	1.36 (1.18 – 1.56)
362.2 9	Macular degeneration (senile) of retina NOS	1.1 / 0.7	1.61 (1.44 – 1.80)	1.0E-16	1.74 (1.52 – 2.00)	2.7E-01	1.70 (1.45 – 1.98)	1.51 (1.29 – 1.78)

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PheC ode	Disease	Prevalen ce OSA Case / Control	Risk ratio	P-value	Sensitivity analysis risk ratio	OSA x sex interactio n p-value	Risk ratio (men)	Risk ratio (women)
772.2	Spasm of muscle	2.3 / 1.6	1.38 (1.28 – 1.49)	1.2E-16	2.16 (1.96 – 2.37)	1.1E-01	1.28 (1.14 – 1.44)	1.46 (1.32 – 1.62)
738.4	Acquired spondylolisthesis	2.4 / 1.8	1.36 (1.26 – 1.46)	1.5E-16	1.14 (1.05 – 1.23)	6.6E-01	1.33 (1.19 – 1.48)	1.38 (1.25 – 1.52)
483	Acute bronchitis and bronchiolitis	5.2 / 4.2	1.23 (1.17 – 1.30)	2.2E-16	1.28 (1.21 – 1.35)	2.8E-05	1.37 (1.28 – 1.47)	1.11 (1.04 – 1.20)
586	Other disorders of the kidney and ureters	5.6 / 4.7	1.21 (1.16 – 1.27)	6.5E-16	1.45 (1.38 – 1.52)	7.3E-02	1.25 (1.18 – 1.32)	1.14 (1.05 – 1.24)
165.1	Cancer of bronchus; lung	1.8 / 2.4	0.73 (0.67 – 0.79)	1.2E-15	0.67 (0.61 – 0.73)	8.3E-01	0.74 (0.66 – 0.82)	0.72 (0.64 – 0.81)
361	Retinal detachments and defects	1.1 / 0.7	1.60 (1.43 – 1.80)	1.6E-15	1.41 (1.23 – 1.61)	NA	1.58 (1.37 – 1.81)	NA
510	Other diseases of lung	5.6 / 4.6	1.21 (1.15 – 1.27)	1.8E-15	1.27 (1.20 – 1.34)	1.6E-02	1.15 (1.08 – 1.23)	1.29 (1.21 – 1.39)
277.5 1	Lipoprotein disorders	1.5 / 1.0	1.48 (1.34 – 1.63)	3.3E-15	1.73 (1.55 – 1.93)	8.3E-01	1.49 (1.32 – 1.67)	1.46 (1.23 – 1.73)
368.2	Diplopia and disorders of binocular vision	1.6 / 1.1	1.45 (1.32 – 1.59)	3.5E-15	1.69 (1.52 – 1.88)	2.8E-01	1.39 (1.23 – 1.57)	1.55 (1.34 – 1.79)
288.2	Elevated white blood cell count	4.1 / 3.3	1.25 (1.18 – 1.32)	4.0E-15	1.32 (1.24 – 1.40)	7.5E-02	1.19 (1.11 – 1.28)	1.33 (1.22 – 1.45)
593	Hematuria	7.0 / 5.9	1.18 (1.13 – 1.23)	4.3E-15	1.26 (1.20 – 1.32)	7.4E-01	1.18 (1.12 – 1.24)	1.19 (1.10 – 1.28)
371.3	Inflammation of eyelids	2.5 / 1.9	1.33 (1.24 – 1.43)	5.7E-15	1.54 (1.41 – 1.67)	8.1E-02	1.26 (1.15 – 1.39)	1.43 (1.28 – 1.59)
110.12	Althete's foot	2.1 / 1.5	1.38 (1.27 – 1.50)	5.8E-15	1.28 (1.17 – 1.40)	1.6E-04	1.53 (1.39 – 1.68)	1.07 (0.91 – 1.25)
727	Other disorders of synovium, tendon, and bursa	1.9 / 1.3	1.40 (1.29 – 1.53)	6.3E-15	1.78 (1.60 – 1.97)	7.0E-01	1.38 (1.22 – 1.56)	1.43 (1.27 – 1.61)
526.4 1	Temporomandibular joint disorder, unspecified	1.2 / 0.8	1.54 (1.38 – 1.71)	7.9E-15	2.62 (2.24 – 3.07)	NA	NA	1.54 (1.35 – 1.75)
690.1	Seborrheic dermatitis	2.7 / 2.0	1.32 (1.23 – 1.41)	8.3E-15	1.46 (1.34 – 1.58)	3.0E-03	1.42 (1.31 – 1.55)	1.15 (1.02 – 1.29)
465.4	Acute laryngitis and tracheitis	1.3 / 0.9	1.50 (1.36 – 1.67)	9.5E-15	1.77 (1.56 – 2.01)	3.4E-01	1.59 (1.36 – 1.86)	1.44 (1.25 – 1.65)
558	Noninfectious gastroenteritis	4.3 / 3.4	1.24 (1.18 – 1.31)	1.2E-14	1.18 (1.10 – 1.25)	6.9E-02	1.30 (1.20 – 1.41)	1.19 (1.11 – 1.29)
252.1	Hyperparathyroidism	2.0 / 1.5	1.37 (1.26 – 1.49)	1.8E-14	1.29 (1.18 – 1.42)	1.8E-01	1.48 (1.29 – 1.69)	1.32 (1.19 – 1.46)
008.6	Viral Enteritis	1.3 / 0.8	1.52 (1.36 – 1.69)	1.9E-14	2.73 (2.42 – 3.08)	1.7E-01	1.42 (1.22 – 1.66)	1.65 (1.42 – 1.91)
840.3	Joint/ligament sprain	3.2 / 2.5	1.27 (1.20 – 1.36)	5.2E-14	1.31 (1.21 – 1.41)	1.6E-01	1.33 (1.22 – 1.44)	1.21 (1.10 – 1.33)
593.1	Gross hematuria	2.5 / 1.9	1.31 (1.22 – 1.41)	1.1E-13	1.36 (1.26 – 1.48)	2.5E-01	1.34 (1.23 – 1.45)	1.20 (1.03 – 1.41)
599.3	Dysuria	5.1 / 4.1	1.21 (1.15 – 1.27)	1.6E-13	1.62 (1.53 – 1.71)	1.8E-02	1.30 (1.20 – 1.41)	1.15 (1.08 – 1.23)
442.1	Aortic aneurysm	2.8 / 2.2	1.29 (1.21 – 1.38)	1.7E-13	1.25 (1.16 – 1.34)	8.0E-02	1.26 (1.17 – 1.36)	1.44 (1.24 – 1.68)

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PheC ode	Disease	Prevalen ce OSA Case / Control	Risk ratio	P-value	Sensitivity analysis risk ratio	OSA x sex interactio n p-value	Risk ratio (men)	Risk ratio (women)
411.1	Unstable angina (intermediate coronary syndrome)	2.3 / 1.7	1.33 (1.23 – 1.43)	1.7E-13	1.29 (1.19 – 1.41)	3.7E-01	1.35 (1.24 – 1.47)	1.25 (1.06 – 1.47)
458.9	Hypotension NOS	4.9 / 4.1	1.21 (1.15 – 1.27)	2.0E-13	1.43 (1.35 – 1.52)	8.0E-01	1.20 (1.13 – 1.27)	1.22 (1.12 – 1.33)
819	Skull and face fracture and other intercranial injury	1.7 / 1.2	1.40 (1.28 – 1.52)	2.0E-13	1.22 (1.10 – 1.35)	8.2E-03	1.30 (1.17 – 1.44)	1.69 (1.43 – 1.99)
415.11	Pulmonary embolism and infarction, acute	3.1 / 2.5	1.27 (1.19 – 1.35)	2.7E-13	1.32 (1.23 – 1.41)	3.1E-01	1.23 (1.13 – 1.33)	1.32 (1.20 – 1.46)
008	Intestinal infection	3.1 / 2.3	1.28 (1.20 – 1.37)	3.4E-13	1.42 (1.32 – 1.53)	6.0E-02	1.37 (1.25 – 1.50)	1.21 (1.10 – 1.33)
426	Cardiac conduction disorders	1.4 / 1.0	1.43 (1.30 – 1.57)	5.8E-13	1.65 (1.47 – 1.86)	NA	1.43 (1.28 – 1.60)	NA
250.1	Type 1 diabetes	1.3 / 0.9	1.46 (1.31 – 1.61)	5.9E-13	1.51 (1.35 – 1.68)	2.4E-01	1.39 (1.22 – 1.59)	1.58 (1.34 – 1.86)
575.7	Other disorders of gallbladder	1.1 / 0.8	1.50 (1.34 – 1.68)	9.2E-13	6.20 (4.18 – 9.19)	NA	NA	1.61 (1.38 – 1.89)
242	Thyrotoxicosis with or without goiter	1.9 / 1.4	1.35 (1.24 – 1.46)	1.9E-12	1.25 (1.14 – 1.38)	1.6E-04	1.69 (1.47 – 1.94)	1.19 (1.08 – 1.32)
535.2	Atrophic gastritis	1.4 / 0.9	1.44 (1.30 – 1.59)	2.0E-12	1.49 (1.34 – 1.65)	5.9E-01	1.39 (1.20 – 1.62)	1.48 (1.29 – 1.69)
280.2	Iron deficiency anemia secondary to blood loss (chronic)	1.7 / 1.2	1.38 (1.26 – 1.50)	2.8E-12	1.65 (1.49 – 1.83)	3.8E-02	1.53 (1.34 – 1.74)	1.25 (1.11 – 1.42)
735.1	Flat foot	1.2 / 0.8	1.47 (1.32 – 1.64)	3.2E-12	1.61 (1.42 – 1.82)	3.2E-02	1.64 (1.41 – 1.90)	1.31 (1.12 – 1.54)
715	Other inflammatory spondylopathies	1.1 / 0.8	1.48 (1.33 – 1.65)	3.3E-12	1.51 (1.34 – 1.71)	9.7E-03	1.72 (1.47 – 2.00)	1.27 (1.08 – 1.49)
355.1	Chronic pain syndrome	1.1 / 0.7	1.50 (1.34 – 1.68)	4.1E-12	1.59 (1.40 – 1.80)	NA	NA	1.43 (1.23 – 1.67)
367.8	Hypermetropia	1.1 / 0.7	1.49 (1.33 – 1.66)	4.1E-12	1.74 (1.50 – 2.02)	NA	NA	1.49 (1.27 – 1.74)
368	Visual disturbances	5.4 / 4.5	1.18 (1.13 – 1.24)	4.5E-12	1.25 (1.19 – 1.32)	1.5E-01	1.23 (1.15 – 1.31)	1.15 (1.07 – 1.23)
805	Fracture of vertebral column without mention of spinal cord injury	2.2 / 1.7	1.31 (1.22 – 1.42)	4.6E-12	1.14 (1.04 – 1.25)	5.7E-01	1.29 (1.16 – 1.43)	1.35 (1.20 – 1.51)
480.1	Bacterial pneumonia	1.3 / 0.9	1.45 (1.30 – 1.61)	4.9E-12	1.51 (1.34 – 1.70)	6.3E-01	1.42 (1.25 – 1.62)	1.52 (1.27 – 1.81)
277.5	Other disorders of lipid metabolism	1.0 / 0.7	1.50 (1.34 – 1.69)	6.0E-12	1.44 (1.27 – 1.63)	NA	1.64 (1.42 – 1.89)	NA
721.2	Spondylosis with myelopathy	1.0 / 0.7	1.50 (1.34 – 1.68)	6.8E-12	1.32 (1.15 – 1.51)	5.5E-01	1.45 (1.25 – 1.68)	1.57 (1.31 – 1.88)
112	Candidiasis	3.9 / 3.1	1.23 (1.16 – 1.30)	6.9E-12	1.18 (1.11 – 1.27)	1.8E-01	1.16 (1.05 – 1.28)	1.27 (1.18 – 1.36)
345.1	Epilepsy	1.1 / 0.7	1.48 (1.32 – 1.65)	7.1E-12	1.75 (1.55 – 1.97)	1.8E-01	1.39 (1.20 – 1.60)	1.64 (1.37 – 1.95)

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PheC ode	Disease	Prevalen ce OSA Case / Control	Risk ratio	P-value	Sensitivity analysis risk ratio	OSA x sex interactio n p-value	Risk ratio (men)	Risk ratio (women)
110.2	Dermatomycoses	1.2 / 0.8	1.45 (1.30 – 1.61)	7.6E-12	1.69 (1.49 – 1.91)	2.1E-02	1.59 (1.40 – 1.82)	1.24 (1.03 – 1.48)
287.3	Thrombocytopenia	3.1 / 2.5	1.25 (1.17 – 1.33)	1.0E-11	1.21 (1.12 – 1.30)	3.5E-01	1.27 (1.18 – 1.37)	1.19 (1.06 – 1.34)
276.1 2	Hyposmolality and/or hyponatremia	3.2 / 2.5	1.24 (1.17 – 1.33)	1.1E-11	1.10 (1.02 – 1.19)	6.1E-01	1.26 (1.16 – 1.37)	1.23 (1.12 – 1.35)
726.2	Synoviopathy	1.5 / 1.1	1.39 (1.26 – 1.53)	1.4E-11	1.16 (1.04 – 1.29)	9.2E-01	1.41 (1.24 – 1.59)	1.37 (1.18 – 1.60)
979	Adverse drug events and drug allergies	5.4 / 4.5	1.18 (1.12 – 1.24)	1.8E-11	1.07 (1.02 – 1.14)	6.2E-01	1.16 (1.09 – 1.24)	1.20 (1.12 – 1.29)
687.2	Localized superficial swelling, mass, or lump	5.9 / 5.0	1.17 (1.12 – 1.22)	1.8E-11	1.48 (1.41 – 1.56)	5.6E-01	1.15 (1.08 – 1.23)	1.19 (1.11 – 1.26)
300.1 3	Phobia	1.5 / 1.1	1.39 (1.26 – 1.53)	1.9E-11	1.88 (1.66 – 2.14)	2.7E-03	1.65 (1.43 – 1.91)	1.22 (1.07 – 1.38)
348.8	Encephalopathy, not elsewhere classified	2.0 / 1.5	1.32 (1.22 – 1.43)	1.9E-11	1.35 (1.24 – 1.47)	5.1E-01	1.29 (1.17 – 1.43)	1.37 (1.20 – 1.57)
427.6 1	Supraventricular premature beats	2.6 / 2.0	1.27 (1.19 – 1.36)	2.0E-11	1.35 (1.24 – 1.47)	9.4E-01	1.27 (1.16 – 1.39)	1.28 (1.14 – 1.43)
578.9	Hemorrhage of gastrointestinal tract	3.8 / 3.1	1.22 (1.15 – 1.29)	2.2E-11	1.30 (1.21 – 1.38)	1.8E-01	1.24 (1.16 – 1.33)	1.16 (1.05 – 1.29)
747.11	Cardiac shunt/ heart septal defect	1.5 / 1.0	1.39 (1.26 – 1.53)	2.4E-11	1.63 (1.45 – 1.82)	9.4E-01	1.38 (1.21 – 1.56)	1.40 (1.21 – 1.62)
594.8	Renal colic	1.0 / 0.7	1.50 (1.33 – 1.68)	3.0E-11	1.18 (1.04 – 1.35)	NA	NA	1.55 (1.29 – 1.87)
374.3	Ptosis of eyelid	1.1 / 0.7	1.46 (1.31 – 1.63)	3.1E-11	1.67 (1.46 – 1.91)	NA	NA	1.50 (1.29 – 1.75)
720.1	Spinal stenosis of lumbar region	4.5 / 3.9	1.19 (1.13 – 1.25)	3.1E-11	1.15 (1.09 – 1.22)	3.3E-01	1.21 (1.13 – 1.30)	1.16 (1.07 – 1.25)
279.2	Autoimmune disease NEC	3.0 / 2.4	1.25 (1.17 – 1.33)	3.4E-11	1.19 (1.11 – 1.29)	1.7E-01	1.33 (1.20 – 1.46)	1.20 (1.10 – 1.31)
260	Protein-calorie malnutrition	2.3 / 1.7	1.29 (1.20 – 1.39)	3.5E-11	1.31 (1.20 – 1.44)	3.1E-01	1.24 (1.12 – 1.36)	1.37 (1.21 – 1.54)
564	Functional digestive disorders	2.5 / 1.9	1.28 (1.19 – 1.38)	3.8E-11	1.49 (1.37 – 1.62)	6.4E-02	1.36 (1.23 – 1.50)	1.20 (1.08 – 1.34)
735	Acquired foot deformities	1.1 / 0.7	1.46 (1.30 – 1.64)	6.4E-11	1.58 (1.39 – 1.80)	NA	1.45 (1.26 – 1.68)	NA
585.1	Acute renal failure	5.6 / 4.9	1.17 (1.11 – 1.22)	6.9E-11	1.21 (1.15 – 1.28)	2.3E-01	1.14 (1.08 – 1.21)	1.22 (1.13 – 1.32)
367.2	Astigmatism	1.8 / 1.3	1.32 (1.21 – 1.44)	1.7E-10	1.83 (1.65 – 2.02)	9.0E-01	1.33 (1.18 – 1.49)	1.31 (1.16 – 1.48)
324	Other CNS infection and poliomyelitis	1.1 / 0.8	1.43 (1.28 – 1.60)	1.9E-10	1.80 (1.53 – 2.11)	1.3E-01	1.32 (1.14 – 1.54)	1.58 (1.34 – 1.86)
317.1	Alcoholism	3.0 / 2.4	1.23 (1.16 – 1.32)	2.0E-10	1.19 (1.11 – 1.28)	7.7E-12	1.09 (1.01 – 1.17)	1.86 (1.63 – 2.13)
250.7	Diabetic retinopathy	1.4 / 1.0	1.38 (1.25 – 1.52)	2.3E-10	1.39 (1.26 – 1.54)	3.3E-02	1.27 (1.12 – 1.44)	1.58 (1.34 – 1.85)
722.9	Other and unspecified disc	1.7 / 1.3	1.33 (1.22 – 1.45)	2.4E-10	1.54 (1.40 – 1.70)	8.8E-01	1.34 (1.19 – 1.51)	1.32 (1.15 – 1.50)

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PheC ode	Disease	Prevalen ce OSA Case / Control	Risk ratio	P-value	Sensitivity analysis risk ratio	OSA x sex interactio n p-value	Risk ratio (men)	Risk ratio (women)
	disorder							
941	Adverse reaction to serum or vaccine	1.4 / 1.0	1.37 (1.25 – 1.52)	2.8E-10	1.53 (1.37 – 1.71)	NA	NA	1.33 (1.17 – 1.51)
433.8	Late effects of cerebrovascular disease	1.6 / 1.2	1.33 (1.22 – 1.45)	4.0E-10	1.29 (1.16 – 1.42)	8.1E-02	1.41 (1.26 – 1.57)	1.20 (1.03 – 1.40)
433.2 1	Cerebral artery occlusion, with cerebral infarction	4.7 / 4.0	1.17 (1.12 – 1.23)	4.7E-10	1.38 (1.30 – 1.45)	3.5E-01	1.19 (1.12 – 1.27)	1.14 (1.05 – 1.24)
841	Sprains and strains of back and neck	1.4 / 1.0	1.37 (1.24 – 1.51)	5.9E-10	1.41 (1.27 – 1.57)	NA	NA	1.43 (1.26 – 1.62)
110.13	Dermatophytosis of the body	1.5 / 1.1	1.35 (1.23 – 1.48)	6.3E-10	1.60 (1.45 – 1.77)	NA	1.40 (1.25 – 1.56)	NA
727.6	Rupture of tendon, nontraumatic	2.1 / 1.6	1.28 (1.18 – 1.38)	9.8E-10	1.12 (1.03 – 1.22)	5.2E-01	1.31 (1.19 – 1.44)	1.23 (1.07 – 1.41)
681.2	Cellulitis and abscess of face/neck	1.3 / 1.0	1.37 (1.24 – 1.52)	1.4E-09	1.54 (1.34 – 1.77)	6.0E-01	1.41 (1.24 – 1.61)	1.34 (1.14 – 1.57)
153.2	Colon cancer	1.3 / 1.8	0.76 (0.69 – 0.83)	1.5E-09	0.76 (0.69 – 0.83)	2.6E-01	0.73 (0.65 – 0.82)	0.81 (0.70 – 0.93)
504	Other alveolar and parietoalveolar pneumonopathy	1.2 / 0.9	1.37 (1.24 – 1.52)	2.5E-09	1.59 (1.41 – 1.79)	5.3E-01	1.42 (1.24 – 1.62)	1.32 (1.12 – 1.54)
531.4	Peptic ulcer, site unspecified	1.3 / 1.0	1.35 (1.22 – 1.50)	3.0E-09	1.47 (1.31 – 1.64)	9.0E-01	1.34 (1.17 – 1.53)	1.38 (1.19 – 1.61)
695.8	Other specified erythematous conditions	1.8 / 1.4	1.29 (1.19 – 1.40)	3.3E-09	1.17 (1.06 – 1.28)	2.5E-01	1.36 (1.19 – 1.55)	1.25 (1.12 – 1.39)
598.9	Other nonspecific findings on examination of urine	2.6 / 2.1	1.23 (1.15 – 1.32)	5.0E-09	1.41 (1.31 – 1.53)	2.7E-01	1.19 (1.07 – 1.31)	1.28 (1.16 – 1.41)
427.7	Tachycardia NOS	5.7 / 4.9	1.15 (1.10 – 1.20)	5.6E-09	1.33 (1.26 – 1.40)	3.3E-01	1.12 (1.05 – 1.19)	1.18 (1.10 – 1.27)
592.11	Acute cystitis	2.2 / 1.8	1.25 (1.16 – 1.34)	1.1E-08	1.48 (1.35 – 1.61)	3.5E-01	1.31 (1.16 – 1.49)	1.21 (1.10 – 1.33)
594.3	Calculus of ureter	1.6 / 1.3	1.29 (1.18 – 1.41)	1.3E-08	1.14 (1.04 – 1.27)	3.2E-02	1.38 (1.24 – 1.53)	1.11 (0.94 – 1.32)
285.2 1	Anemia in chronic kidney disease	1.0 / 0.8	1.39 (1.24 – 1.56)	1.4E-08	1.59 (1.40 – 1.80)	NA	1.40 (1.22 – 1.61)	NA
1004	Other signs and symptoms involving emotional state	1.1 / 0.8	1.38 (1.24 – 1.55)	1.5E-08	1.60 (1.41 – 1.82)	9.1E-03	1.58 (1.36 – 1.83)	1.18 (1.00 – 1.40)
571.5 1	Cirrhosis of liver without mention of alcohol	1.2 / 1.6	0.76 (0.69 – 0.84)	2.5E-08	0.79 (0.72 – 0.87)	NA	0.67 (0.60 – 0.75)	NA
286.8 1	Primary hypercoagulable state	1.0 / 0.8	1.38 (1.23 – 1.55)	2.7E-08	1.49 (1.32 – 1.68)	NA	NA	1.39 (1.19 – 1.63)

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PheC ode	Disease	Prevalen ce OSA Case / Control	Risk ratio	P-value	Sensitivity analysis risk ratio	OSA x sex interactio n p-value	Risk ratio (men)	Risk ratio (women)
704.8	Other specified diseases of hair and hair follicles	2.3 / 1.8	1.24 (1.15 – 1.34)	2.8E-08	1.42 (1.30 – 1.55)	9.0E-05	1.38 (1.26 – 1.52)	1.01 (0.88 – 1.15)
366	Cataract	4.4 / 3.8	1.16 (1.10 – 1.22)	4.1E-08	2.13 (2.00 – 2.26)	4.2E-01	1.14 (1.06 – 1.22)	1.18 (1.09 – 1.27)
526	Diseases of the jaws	1.3 / 1.0	1.33 (1.20 – 1.47)	4.8E-08	1.39 (1.23 – 1.55)	NA	NA	1.33 (1.16 – 1.52)
574.3	Cholecystitis without cholelithiasis	1.9 / 1.5	1.26 (1.16 – 1.37)	5.9E-08	1.26 (1.15 – 1.38)	4.7E-04	1.45 (1.29 – 1.63)	1.08 (0.96 – 1.22)
508	Pulmonary collapse; interstitial and compensatory emphysema	8.2 / 7.5	1.11 (1.07 – 1.15)	6.3E-08	1.05 (1.01 – 1.10)	1.1E-01	1.09 (1.04 – 1.14)	1.16 (1.09 – 1.24)
727.4	Ganglion and cyst of synovium, tendon, and bursa	1.6 / 1.2	1.28 (1.17 – 1.40)	1.1E-07	1.32 (1.18 – 1.47)	5.9E-02	1.40 (1.23 – 1.60)	1.18 (1.04 – 1.34)
574.1	Cholelithiasis	4.3 / 3.7	1.15 (1.09 – 1.22)	1.9E-07	1.09 (1.02 – 1.15)	2.5E-01	1.19 (1.10 – 1.29)	1.12 (1.04 – 1.21)
454.1	Varicose veins of lower extremity	2.3 / 1.8	1.22 (1.13 – 1.31)	2.9E-07	1.31 (1.20 – 1.42)	8.9E-01	1.25 (1.11 – 1.41)	1.20 (1.09 – 1.32)
772.6	Facial weakness	1.1 / 0.8	1.34 (1.20 – 1.50)	3.0E-07	1.47 (1.28 – 1.69)	7.0E-01	1.36 (1.18 – 1.57)	1.30 (1.09 – 1.55)
509.1	Respiratory failure	3.4 / 3.0	1.17 (1.10 – 1.24)	3.1E-07	1.31 (1.22 – 1.41)	1.1E-05	1.06 (0.98 – 1.14)	1.39 (1.26 – 1.53)
703.1	Ingrowing nail	1.2 / 0.9	1.33 (1.19 – 1.48)	3.5E-07	1.72 (1.53 – 1.93)	1.6E-01	1.44 (1.24 – 1.67)	1.23 (1.05 – 1.44)
698	Pruritus and related conditions	4.3 / 3.6	1.15 (1.09 – 1.21)	3.6E-07	1.60 (1.50 – 1.70)	8.6E-01	1.13 (1.04 – 1.23)	1.16 (1.08 – 1.25)
577.3	Cyst and pseudocyst of pancreas	1.1 / 0.8	1.33 (1.19 – 1.48)	3.8E-07	1.24 (1.07 – 1.42)	NA	NA	1.25 (1.07 – 1.46)
452.2	Deep vein thrombosis [DVT]	3.8 / 3.3	1.16 (1.09 – 1.23)	4.2E-07	1.31 (1.23 – 1.39)	2.2E-01	1.12 (1.04 – 1.21)	1.21 (1.11 – 1.33)
411.8	Other chronic ischemic heart disease, unspecified	2.9 / 2.5	1.18 (1.11 – 1.26)	5.1E-07	1.12 (1.04 – 1.21)	9.8E-01	1.18 (1.10 – 1.27)	1.18 (1.00 – 1.39)
560.4	Other intestinal obstruction	2.1 / 1.7	1.22 (1.13 – 1.32)	5.7E-07	1.14 (1.04 – 1.25)	2.6E-01	1.26 (1.13 – 1.40)	1.17 (1.05 – 1.32)
053	Herpes zoster	4.5 / 3.9	1.14 (1.08 – 1.20)	6.5E-07	1.25 (1.18 – 1.33)	4.3E-02	1.20 (1.12 – 1.30)	1.09 (1.01 – 1.17)
509.3	Pulmonary insufficiency or respiratory failure following trauma and surgery	1.2 / 0.9	1.31 (1.18 – 1.45)	7.0E-07	1.20 (1.07 – 1.35)	NA	1.29 (1.14 – 1.46)	NA
130.1	Lyme disease	1.4 / 1.1	1.27 (1.15 – 1.40)	1.0E-06	1.28 (1.16 – 1.42)	8.8E-01	1.26 (1.11 – 1.42)	1.29 (1.11 – 1.50)
503	Pulmonary congestion and hypostasis	4.6 / 4.2	1.13 (1.08 – 1.19)	1.1E-06	1.40 (1.33 – 1.48)	6.8E-04	1.06 (1.00 – 1.13)	1.29 (1.18 – 1.40)
550.5	Ventral hernia	1.9 / 1.6	1.23 (1.13 – 1.33)	1.3E-06	1.37 (1.26 – 1.50)	7.4E-01	1.21 (1.08 – 1.36)	1.24 (1.10 – 1.40)
938.2	Chronic dermatitis due to	3.8 / 3.3	1.15 (1.08 – 1.21)	1.6E-06	1.21 (1.13 – 1.29)	3.0E-01	1.17 (1.09 – 1.26)	1.11 (1.01 – 1.21)

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PheC ode	Disease	Prevalen ce OSA Case / Control	Risk ratio	P-value	Sensitivity analysis risk ratio	OSA x sex interactio n p-value	Risk ratio (men)	Risk ratio (women)
	solar radiation							
550.6	Incisional hernia	1.3 / 1.0	1.28 (1.16 – 1.41)	1.7E-06	1.20 (1.08 – 1.34)	2.1E-02	1.13 (0.99 – 1.31)	1.45 (1.26 – 1.68)
420.2	Pericarditis	1.8 / 1.5	1.23 (1.13 – 1.34)	2.1E-06	1.21 (1.10 – 1.34)	7.0E-01	1.25 (1.12 – 1.40)	1.20 (1.05 – 1.37)
315	Develomental delays and disorders	1.4 / 1.0	1.28 (1.15 – 1.41)	2.4E-06	1.36 (1.25 – 1.49)	1.3E-02	1.16 (1.02 – 1.31)	1.51 (1.28 – 1.79)
401.3	Other hypertensive complications	2.1 / 1.8	1.20 (1.11 – 1.30)	2.9E-06	1.33 (1.22 – 1.44)	4.0E-01	1.24 (1.12 – 1.37)	1.16 (1.03 – 1.31)
1010.1	Screening for infectious and parasitic diseases	1.2 / 0.9	1.28 (1.16 – 1.43)	3.3E-06	1.25 (1.10 – 1.41)	NA	NA	1.15 (1.01 – 1.30)
456	Chronic venous insufficiency [CVI]	2.7 / 2.4	1.17 (1.09 – 1.25)	4.4E-06	1.12 (1.05 – 1.21)	1.1E-02	1.30 (1.19 – 1.43)	1.06 (0.96 – 1.16)
288.1	Decreased white blood cell count	1.2 / 0.9	1.26 (1.14 – 1.40)	8.2E-06	1.27 (1.12 – 1.44)	6.1E-02	1.15 (1.00 – 1.33)	1.40 (1.21 – 1.62)
334	Degenerative disease of the spinal cord	1.4 / 1.1	1.24 (1.13 – 1.37)	9.9E-06	1.13 (1.02 – 1.26)	8.7E-01	1.25 (1.10 – 1.42)	1.23 (1.06 – 1.43)
300.8	Acute reaction to stress	1.2 / 1.0	1.26 (1.13 – 1.39)	1.5E-05	1.40 (1.25 – 1.57)	NA	NA	1.12 (0.98 – 1.28)
686.1	Carbuncle and furuncle	1.2 / 0.9	1.26 (1.14 – 1.40)	1.7E-05	1.43 (1.27 – 1.60)	NA	NA	1.22 (1.07 – 1.40)
276.14	Hypopotassemia	3.0 / 2.6	1.15 (1.08 – 1.22)	2.0E-05	1.39 (1.29 – 1.50)	2.6E-01	1.20 (1.09 – 1.32)	1.11 (1.02 – 1.21)
705.8	Hyperhidrosis	3.5 / 3.0	1.14 (1.07 – 1.21)	2.5E-05	1.27 (1.18 – 1.36)	3.7E-01	1.17 (1.08 – 1.27)	1.11 (1.02 – 1.21)
454.11	Varicose veins of lower extremity, symptomatic	2.2 / 1.9	1.17 (1.08 – 1.26)	5.7E-05	1.14 (1.06 – 1.24)	8.9E-01	1.19 (1.06 – 1.34)	1.16 (1.05 – 1.28)
041	Bacterial infection NOS	1.9 / 1.6	1.18 (1.09 – 1.28)	6.0E-05	1.33 (1.22 – 1.45)	3.6E-01	1.14 (1.03 – 1.27)	1.24 (1.09 – 1.40)
279	Disorders involving the immune mechanism	5.5 / 5.0	1.10 (1.05 – 1.16)	6.0E-05	1.51 (1.44 – 1.59)	9.6E-01	1.10 (1.04 – 1.18)	1.11 (1.04 – 1.20)
288	Diseases of white blood cells	1.1 / 0.8	1.25 (1.12 – 1.39)	9.4E-05	1.66 (1.47 – 1.88)	NA	NA	1.31 (1.11 – 1.55)
276.11	Hyperosmolality and/or hyponatremia	1.0 / 0.8	1.25 (1.12 – 1.40)	1.0E-04	1.73 (1.50 – 2.00)	NA	1.20 (1.04 – 1.39)	NA
279.1	Immunity deficiency	1.2 / 1.0	1.23 (1.11 – 1.37)	1.1E-04	1.47 (1.30 – 1.66)	5.6E-01	1.20 (1.04 – 1.38)	1.29 (1.11 – 1.51)
599	Other symptoms/disorders or the urinary system	2.5 / 2.2	1.15 (1.07 – 1.23)	1.2E-04	1.22 (1.13 – 1.32)	7.7E-01	1.16 (1.05 – 1.28)	1.13 (1.02 – 1.26)
289.4	Lymphadenitis	5.5 / 6.0	0.92 (0.88 – 0.96)	1.2E-04	0.82 (0.78 – 0.87)	7.4E-02	0.89 (0.83 – 0.94)	0.96 (0.90 – 1.02)
714.1	Rheumatoid arthritis	2.0 / 1.8	1.16 (1.07 – 1.25)	1.8E-04	1.12 (1.03 – 1.22)	5.8E-01	1.19 (1.04 – 1.37)	1.14 (1.04 – 1.26)
525	Other diseases of the teeth	1.8 / 1.5	1.17 (1.08 – 1.28)	2.6E-04	1.13 (1.03 – 1.25)	3.2E-03	1.04 (0.93 – 1.17)	1.36 (1.20 – 1.55)

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PheC ode	Disease	Prevalen ce OSA Case / Control	Risk ratio	P-value	Sensitivity analysis risk ratio	OSA x sex interactio n p-value	Risk ratio (men)	Risk ratio (women)
	and supporting structures							
038	Septicemia	2.8 / 2.5	1.13 (1.06 – 1.21)	2.8E-04	1.25 (1.16 – 1.34)	3.1E-01	1.15 (1.07 – 1.25)	1.08 (0.97 – 1.22)
195.1	Malignant neoplasm, other	1.8 / 1.5	1.17 (1.07 – 1.27)	2.8E-04	1.43 (1.30 – 1.57)	1.2E-01	1.10 (0.99 – 1.23)	1.27 (1.11 – 1.44)
349	Other and unspecified disorders of the nervous system	1.1 / 0.9	1.22 (1.09 – 1.36)	3.1E-04	1.80 (1.45 – 2.24)	9.8E-01	1.21 (1.06 – 1.39)	1.22 (1.03 – 1.45)
783	Fever of unknown origin	8.2 / 7.5	1.07 (1.03 – 1.11)	3.9E-04	1.32 (1.26 – 1.37)	3.6E-01	1.06 (1.01 – 1.11)	1.10 (1.03 – 1.17)
110.1	Dermatophytosis	1.1 / 0.8	1.23 (1.10 – 1.37)	4.1E-04	1.55 (1.37 – 1.75)	1.0E-01	1.33 (1.15 – 1.55)	1.11 (0.93 – 1.32)
700	Corns and callosities	1.0 / 0.9	1.22 (1.09 – 1.36)	5.6E-04	1.80 (1.59 – 2.03)	NA	NA	1.18 (1.00 – 1.39)
577.1	Acute pancreatitis	1.7 / 1.4	1.16 (1.07 – 1.27)	7.0E-04	1.20 (1.09 – 1.32)	8.2E-01	1.17 (1.04 – 1.31)	1.16 (1.01 – 1.33)
726.3	Bursitis	2.1 / 1.9	1.13 (1.05 – 1.22)	1.2E-03	1.33 (1.23 – 1.44)	3.2E-01	1.16 (1.05 – 1.28)	1.09 (0.96 – 1.23)
717	Polymyalgia Rheumatica	1.1 / 1.0	1.19 (1.07 – 1.32)	1.4E-03	1.46 (1.29 – 1.65)	4.6E-02	1.30 (1.12 – 1.50)	1.07 (0.92 – 1.24)
396	Abnormal heart sounds	4.8 / 4.4	1.08 (1.03 – 1.14)	1.5E-03	1.54 (1.45 – 1.62)	9.8E-01	1.08 (1.01 – 1.16)	1.09 (1.01 – 1.17)
817	Concussion	1.2 / 1.0	1.18 (1.06 – 1.30)	1.9E-03	1.62 (1.44 – 1.82)	NA	NA	1.33 (1.16 – 1.54)
585.3 1	Renal dialysis	1.3 / 1.1	1.17 (1.06 – 1.29)	2.2E-03	1.32 (1.19 – 1.47)	NA	1.14 (1.01 – 1.28)	NA
381.2	Eustachian tube disorders	1.9 / 1.6	1.14 (1.05 – 1.23)	2.2E-03	2.10 (1.91 – 2.31)	9.0E-02	1.22 (1.09 – 1.37)	1.05 (0.93 – 1.19)
681.3	Cellulitis and abscess of arm/hand	1.8 / 1.6	1.14 (1.05 – 1.23)	2.6E-03	1.31 (1.20 – 1.44)	4.7E-01	1.11 (1.00 – 1.23)	1.19 (1.04 – 1.36)
590	Pyelonephritis	1.4 / 1.2	1.16 (1.05 – 1.27)	3.0E-03	1.12 (1.01 – 1.24)	NA	NA	1.14 (1.01 – 1.29)
506	Empyema and pneumothorax	3.0 / 2.7	1.10 (1.03 – 1.17)	3.2E-03	1.17 (1.09 – 1.26)	1.7E-01	1.07 (0.99 – 1.15)	1.18 (1.06 – 1.32)
681.1	Cellulitis and abscess of fingers/toes	1.7 / 1.5	1.14 (1.04 – 1.24)	3.2E-03	1.15 (1.05 – 1.27)	3.2E-01	1.18 (1.06 – 1.32)	1.09 (0.95 – 1.24)
573	Other disorders of liver	4.0 / 3.7	1.08 (1.03 – 1.15)	3.5E-03	1.07 (1.00 – 1.14)	3.7E-04	0.99 (0.92 – 1.07)	1.22 (1.12 – 1.32)
038.3	Bacteremia	2.5 / 2.3	1.11 (1.03 – 1.19)	4.5E-03	1.19 (1.10 – 1.28)	9.9E-01	1.10 (1.01 – 1.20)	1.12 (0.99 – 1.27)
479	Other upper respiratory disease	9.0 / 8.3	1.05 (1.01 – 1.09)	5.9E-03	2.00 (1.92 – 2.08)	2.8E-09	1.16 (1.11 – 1.22)	0.93 (0.89 – 0.99)
244.1	Secondary hypothyroidism	1.3 / 1.1	1.15 (1.04 – 1.26)	6.0E-03	1.17 (1.05 – 1.31)	NA	NA	1.14 (1.01 – 1.29)
612.2	Hypertrophy of breast (Gynecomastia)	1.6 / 1.4	1.13 (1.04 – 1.23)	6.0E-03	1.44 (1.30 – 1.59)	1.0E-01	1.24 (1.08 – 1.43)	1.07 (0.96 – 1.20)
442.11	Abdominal aortic aneurysm	1.2 / 1.1	1.15 (1.04 – 1.27)	6.9E-03	1.30 (1.16 – 1.46)	NA	1.16 (1.04 – 1.30)	NA
368.9	Subjective visual disturbances	1.4 / 1.2	1.14 (1.03 – 1.25)	7.9E-03	1.27 (1.14 – 1.41)	7.0E-01	1.16 (1.01 – 1.34)	1.12 (0.98 – 1.27)
275.3	Disorders of magnesium	1.2 / 1.1	1.15 (1.04 – 1.27)	8.5E-03	1.29 (1.15 – 1.45)	1.1E-01	1.06 (0.92 – 1.22)	1.27 (1.09 – 1.47)

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PheC ode	Disease	Prevalen ce OSA Case / Control	Risk ratio	P-value	Sensitivity analysis risk ratio	OSA x sex interactio n p-value	Risk ratio (men)	Risk ratio (women)
	metabolism							
916	Contusion	7.7 / 8.0	0.95 (0.92 – 0.99)	1.2E-02	0.81 (0.77 – 0.84)	1.8E-01	0.98 (0.93 – 1.03)	0.93 (0.88 – 0.98)
276.1 3	Hyperpotassemia	2.4 / 2.2	1.09 (1.02 – 1.17)	1.8E-02	1.14 (1.06 – 1.24)	5.4E-01	1.11 (1.02 – 1.21)	1.06 (0.93 – 1.20)
292.4	Altered mental status	5.2 / 4.9	1.06 (1.01 – 1.11)	1.8E-02	1.29 (1.22 – 1.36)	4.4E-01	1.07 (1.01 – 1.14)	1.04 (0.96 – 1.12)
241	Nontoxic nodular goiter	1.3 / 1.1	1.13 (1.02 – 1.24)	1.9E-02	1.46 (1.31 – 1.62)	NA	NA	1.12 (1.00 – 1.25)
550	Abdominal hernia	2.1 / 2.0	1.09 (1.01 – 1.17)	2.9E-02	1.34 (1.24 – 1.46)	1.6E-01	1.03 (0.94 – 1.13)	1.20 (1.05 – 1.36)
686	Other local infections of skin and subcutaneous tissue	1.6 / 1.5	1.10 (1.01 – 1.20)	3.3E-02	1.81 (1.69 – 1.95)	5.6E-01	1.13 (1.01 – 1.26)	1.06 (0.92 – 1.22)
585.2	Renal failure NOS	1.9 / 1.8	1.09 (1.01 – 1.18)	3.7E-02	1.40 (1.28 – 1.52)	9.2E-01	1.09 (0.99 – 1.20)	1.10 (0.95 – 1.28)
835	Internal derangement of knee	3.6 / 3.3	1.06 (1.00 – 1.13)	3.9E-02	1.12 (1.05 – 1.19)	8.3E-03	1.14 (1.06 – 1.23)	0.98 (0.90 – 1.07)
275.6	Hypercalcemia	1.3 / 1.2	1.10 (1.00 – 1.22)	4.5E-02	1.14 (1.03 – 1.27)	NA	NA	1.09 (0.96 – 1.23)
454	Varicose veins	1.1 / 1.0	1.11 (1.00 – 1.24)	4.7E-02	1.12 (1.03 – 1.23)	NA	1.12 (0.98 – 1.27)	NA
851	Complications of transplants and reattached limbs	2.0 / 1.9	1.08 (1.00 – 1.17)	5.0E-02	1.28 (1.17 – 1.39)	7.0E-01	1.10 (0.99 – 1.21)	1.07 (0.95 – 1.22)
530.2	Esophageal bleeding (varices/hemorrhage)	1.7 / 0.8	2.21 (2.00 – 2.43)	7.2E-56	1.08 (0.95 – 1.22)	2.5E-06	1.87 (1.65 – 2.11)	3.06 (2.58 – 3.63)
702.2	Seborrheic keratosis	8.6 / 6.5	1.33 (1.28 – 1.38)	1.0E-49	1.02 (0.97 – 1.06)	4.2E-06	1.43 (1.36 – 1.50)	1.20 (1.13 – 1.27)
562.1	Diverticulosis	10.9 / 8.7	1.27 (1.23 – 1.31)	6.7E-47	1.03 (0.99 – 1.07)	4.2E-09	1.37 (1.32 – 1.43)	1.12 (1.07 – 1.18)
1011	Complications of surgical and medical procedures	6.1 / 4.8	1.28 (1.22 – 1.34)	8.1E-27	0.96 (0.91 – 1.01)	2.1E-02	1.35 (1.27 – 1.43)	1.21 (1.13 – 1.30)
240	Simple and unspecified goiter	1.6 / 1.0	1.67 (1.52 – 1.84)	2.0E-26	1.02 (0.93 – 1.12)	NA	NA	1.61 (1.44 – 1.79)
741.3	Difficulty in walking	1.8 / 2.7	0.69 (0.64 – 0.75)	2.0E-21	0.94 (0.87 – 1.00)	8.2E-01	0.70 (0.63 – 0.77)	0.69 (0.61 – 0.77)
722.6	Degeneration of intervertebral disc	5.9 / 4.8	1.25 (1.19 – 1.31)	2.8E-21	1.05 (0.99 – 1.10)	5.0E-03	1.33 (1.25 – 1.42)	1.16 (1.08 – 1.24)
800	Fracture of lower limb	1.3 / 0.9	1.53 (1.38 – 1.69)	8.9E-16	1.03 (0.93 – 1.13)	8.7E-02	1.40 (1.20 – 1.63)	1.66 (1.44 – 1.92)
743.9	Osteopenia or other disorder of bone and cartilage	5.5 / 4.4	1.20 (1.15 – 1.26)	7.6E-15	1.05 (1.00 – 1.12)	3.1E-01	1.26 (1.15 – 1.39)	1.19 (1.13 – 1.25)
938	Dermatitis due to solar radiation	1.5 / 2.0	0.72 (0.66 – 0.79)	1.2E-13	1.08 (0.99 – 1.18)	8.5E-01	0.72 (0.63 – 0.81)	0.73 (0.65 – 0.82)

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PheC ode	Disease	Prevalen ce OSA Case / Control	Risk ratio	P-value	Sensitivity analysis risk ratio	OSA x sex interactio n p-value	Risk ratio (men)	Risk ratio (women)
706.2	Sebaceous cyst	4.7 / 3.9	1.20 (1.14 – 1.26)	3.2E-12	1.05 (0.99 – 1.11)	7.5E-03	1.28 (1.20 – 1.37)	1.11 (1.03 – 1.20)
727.5	Rupture of synovium	1.4 / 1.0	1.36 (1.23 – 1.50)	1.1E-09	1.03 (0.92 – 1.15)	1.2E-01	1.48 (1.28 – 1.71)	1.26 (1.10 – 1.45)
592.1	Cystitis	1.3 / 0.9	1.33 (1.20 – 1.47)	8.1E-08	0.98 (0.88 – 1.10)	NA	NA	1.40 (1.23 – 1.60)
595	Hydronephrosis	2.1 / 1.7	1.21 (1.12 – 1.30)	1.7E-06	0.97 (0.89 – 1.06)	3.2E-01	1.24 (1.13 – 1.37)	1.15 (1.01 – 1.30)
292.11	Aphasia	1.0 / 0.8	1.24 (1.11 – 1.39)	1.3E-04	1.06 (0.94 – 1.21)	NA	1.25 (1.08 – 1.44)	NA
740.11	Osteoarthritis, localized, primary	10.6 / 10.2	1.06 (1.03 – 1.10)	1.4E-04	1.00 (0.96 – 1.03)	6.5E-03	1.12 (1.07 – 1.17)	1.01 (0.97 – 1.06)
695.9	Unspecified erythematous condition	2.1 / 2.4	0.86 (0.80 – 0.93)	1.7E-04	1.05 (0.97 – 1.14)	3.1E-01	0.90 (0.81 – 1.00)	0.84 (0.75 – 0.93)
270.3 2	Paraproteinemia	1.5 / 1.3	1.18 (1.08 – 1.29)	4.1E-04	1.06 (0.95 – 1.17)	7.6E-01	1.17 (1.04 – 1.30)	1.19 (1.02 – 1.39)
317	Alcohol-related disorders	1.9 / 1.6	1.16 (1.07 – 1.25)	4.7E-04	0.99 (0.91 – 1.09)	8.9E-06	1.05 (0.95 – 1.15)	1.64 (1.39 – 1.95)
800.1	Fracture of neck of femur	1.2 / 1.0	1.18 (1.06 – 1.30)	2.1E-03	1.09 (0.96 – 1.23)	8.0E-01	1.16 (1.00 – 1.34)	1.20 (1.03 – 1.40)
801	Fracture of ankle and foot	2.1 / 1.9	1.12 (1.03 – 1.21)	4.7E-03	1.07 (0.98 – 1.17)	2.9E-01	1.18 (1.04 – 1.33)	1.08 (0.98 – 1.20)
228	Hemangioma and lymphangioma, any site	2.4 / 2.1	1.10 (1.03 – 1.19)	7.8E-03	1.08 (1.00 – 1.18)	1.5E-02	1.21 (1.09 – 1.34)	1.01 (0.91 – 1.12)
585.3 2	End stage renal disease	1.5 / 1.3	1.11 (1.01 – 1.22)	2.7E-02	0.99 (0.90 – 1.09)	4.9E-01	1.09 (0.98 – 1.22)	1.18 (1.00 – 1.39)
567	Peritonitis and retroperitoneal infections	1.0 / 0.9	1.13 (1.01 – 1.26)	3.1E-02	1.10 (0.97 – 1.24)	NA	1.09 (0.95 – 1.25)	NA
577	Diseases of pancreas	1.3 / 1.1	1.11 (1.01 – 1.23)	3.3E-02	1.02 (0.92 – 1.14)	1.0E+00	1.10 (0.97 – 1.25)	1.12 (0.96 – 1.31)
255	Disorders of adrenal glands	1.1 / 1.0	1.11 (1.00 – 1.23)	5.3E-02	1.28 (1.14 – 1.44)	NA	NA	1.18 (1.02 – 1.36)
426.9 1	Cardiac pacemaker in situ	1.4 / 1.6	0.92 (0.84 – 1.01)	6.6E-02	1.70 (1.51 – 1.92)	9.3E-01	0.92 (0.83 – 1.02)	0.91 (0.77 – 1.08)
202.2	Non-Hodgkins lymphoma	1.5 / 1.6	0.92 (0.84 – 1.01)	7.2E-02	0.88 (0.80 – 0.97)	1.4E-01	0.88 (0.79 – 0.98)	1.02 (0.87 – 1.19)
276.4 1	Acidosis	2.1 / 1.9	1.07 (0.99 – 1.16)	8.9E-02	1.06 (0.98 – 1.16)	1.3E-03	0.97 (0.88 – 1.07)	1.27 (1.12 – 1.44)
478	Throat pain	2.0 / 1.8	1.07 (0.99 – 1.16)	9.2E-02	1.81 (1.64 – 1.99)	1.5E-01	1.14 (1.01 – 1.28)	1.02 (0.91 – 1.13)
703	Diseases of nail, NOS	1.3 / 1.2	1.09 (0.99 – 1.20)	9.2E-02	1.51 (1.36 – 1.67)	2.2E-01	1.16 (1.02 – 1.31)	1.01 (0.87 – 1.18)
530	Diseases of esophagus	2.0 / 1.8	1.06 (0.98 – 1.15)	1.4E-01	1.18 (1.08 – 1.29)	6.4E-03	1.16 (1.04 – 1.29)	0.95 (0.84 – 1.07)
540.11	Acute appendicitis	1.2 / 1.1	1.08 (0.97 – 1.19)	1.5E-01	1.21 (1.08 – 1.37)	7.2E-01	1.07 (0.93 – 1.22)	1.10 (0.94 – 1.29)
318	Tobacco use disorder	7.7 / 7.9	0.97 (0.94 – 1.01)	1.5E-01	1.55 (1.48 – 1.62)	1.1E-05	0.90 (0.86 – 0.95)	1.09 (1.02 – 1.15)
215	Other benign neoplasm of connective and other soft tissue	2.0 / 1.9	1.06 (0.98 – 1.14)	1.6E-01	1.27 (1.17 – 1.38)	7.3E-01	1.08 (0.96 – 1.21)	1.04 (0.94 – 1.16)

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PheC ode	Disease	Prevalen ce OSA Case / Control	Risk ratio	P-value	Sensitivity analysis risk ratio	OSA x sex interactio n p-value	Risk ratio (men)	Risk ratio (women)
804	Fracture of hand or wrist	1.7 / 1.8	0.94 (0.87 – 1.02)	1.6E-01	1.13 (1.03 – 1.24)	3.1E-02	0.88 (0.78 – 0.98)	1.04 (0.92 – 1.18)
041.2	Streptococcus infection	1.1 / 1.0	1.08 (0.97 – 1.20)	1.7E-01	1.68 (1.44 – 1.95)	7.5E-01	1.09 (0.95 – 1.24)	1.06 (0.89 – 1.26)
276.1	Electrolyte imbalance	1.6 / 1.5	1.06 (0.97 – 1.16)	1.7E-01	1.40 (1.27 – 1.54)	6.1E-01	1.05 (0.94 – 1.16)	1.10 (0.95 – 1.29)
727.2	Bursitis disorders	1.3 / 1.3	0.93 (0.85 – 1.03)	1.7E-01	1.05 (0.94 – 1.16)	4.8E-02	1.03 (0.89 – 1.19)	0.86 (0.75 – 0.98)
535.9	Gastritis and duodenitis, NOS	4.6 / 4.2	1.04 (0.98 – 1.09)	1.9E-01	1.43 (1.36 – 1.51)	2.6E-02	0.98 (0.91 – 1.05)	1.10 (1.02 – 1.18)
803.2	Fracture of radius and ulna	1.4 / 1.3	1.06 (0.97 – 1.16)	2.2E-01	1.00 (0.90 – 1.11)	3.4E-01	1.14 (0.98 – 1.31)	1.02 (0.90 – 1.15)
288.11	Neutropenia	1.6 / 1.6	0.95 (0.87 – 1.03)	2.3E-01	0.93 (0.84 – 1.03)	3.3E-01	0.98 (0.88 – 1.10)	0.90 (0.78 – 1.03)
687.4	Disturbance of skin sensation	9.1 / 9.2	0.98 (0.95 – 1.01)	2.4E-01	1.75 (1.67 – 1.83)	9.7E-01	0.98 (0.94 – 1.03)	0.98 (0.93 – 1.03)
291.8	Alteration of consciousness	1.7 / 1.7	0.95 (0.87 – 1.04)	2.5E-01	3.82 (3.41 – 4.28)	4.7E-02	0.89 (0.80 – 0.99)	1.07 (0.94 – 1.23)
426.2 1	First degree AV block	1.6 / 1.7	0.95 (0.88 – 1.04)	2.6E-01	1.28 (1.15 – 1.43)	NA	0.95 (0.87 – 1.05)	NA
535.1	Acute gastritis	1.0 / 1.0	0.94 (0.84 – 1.05)	2.8E-01	1.24 (1.11 – 1.38)	NA	NA	0.89 (0.77 – 1.04)
579.2	Splenomegaly	1.5 / 1.4	1.05 (0.96 – 1.15)	2.9E-01	1.07 (0.97 – 1.18)	6.5E-02	1.00 (0.90 – 1.11)	1.22 (1.03 – 1.46)
990	Effects radiation NOS	1.6 / 1.7	0.96 (0.88 – 1.04)	3.0E-01	0.95 (0.86 – 1.04)	6.8E-01	0.97 (0.87 – 1.09)	0.94 (0.82 – 1.07)
079.9	Viremia, NOS	1.9 / 1.9	0.96 (0.88 – 1.04)	3.0E-01	1.24 (1.13 – 1.35)	8.2E-01	0.95 (0.84 – 1.07)	0.97 (0.88 – 1.09)
803.1	Fracture of humerus	1.1 / 1.1	1.05 (0.95 – 1.17)	3.2E-01	1.05 (0.94 – 1.18)	NA	NA	1.08 (0.94 – 1.24)
572	Ascites (non malignant)	1.7 / 1.7	0.96 (0.88 – 1.04)	3.3E-01	0.78 (0.71 – 0.85)	6.7E-01	0.95 (0.85 – 1.05)	0.99 (0.86 – 1.14)
870	Open wounds of head; neck; and trunk	1.6 / 1.7	0.96 (0.88 – 1.05)	3.5E-01	1.13 (1.03 – 1.24)	1.7E-01	0.91 (0.81 – 1.01)	1.05 (0.92 – 1.21)
286.7	Other and unspecified coagulation defects	3.8 / 3.7	1.03 (0.97 – 1.09)	3.5E-01	1.24 (1.16 – 1.31)	9.1E-01	1.02 (0.95 – 1.10)	1.04 (0.95 – 1.13)
199	Neoplasm of uncertain behavior	4.5 / 4.4	1.02 (0.97 – 1.08)	3.9E-01	0.98 (0.93 – 1.02)	1.4E-01	1.06 (0.99 – 1.14)	0.98 (0.91 – 1.06)
780	Hypothermia/Chills	1.8 / 1.7	1.03 (0.95 – 1.12)	4.6E-01	1.35 (1.24 – 1.48)	2.4E-01	1.08 (0.96 – 1.21)	0.99 (0.88 – 1.12)
738	Other acquired musculoskeletal deformity	1.2 / 1.1	1.03 (0.93 – 1.14)	5.4E-01	2.47 (1.89 – 3.22)	9.3E-01	1.04 (0.91 – 1.19)	1.03 (0.88 – 1.20)
345.3	Convulsions	3.4 / 3.3	1.02 (0.96 – 1.08)	5.5E-01	1.57 (1.46 – 1.68)	1.9E-01	0.98 (0.91 – 1.06)	1.08 (0.98 – 1.19)
295.3	Psychosis	1.2 / 1.2	1.03 (0.93 – 1.14)	5.7E-01	1.24 (1.11 – 1.38)	2.4E-02	0.94 (0.82 – 1.07)	1.21 (1.03 – 1.42)
372	Disorders of conjunctiva	1.3 / 1.2	1.03 (0.93 – 1.13)	5.9E-01	1.38 (1.26 – 1.52)	2.9E-01	0.98 (0.86 – 1.11)	1.09 (0.95 – 1.26)
381.11	Suppurative and unspecified otitis media	3.0 / 2.8	1.02 (0.95 – 1.09)	6.2E-01	1.52 (1.41 – 1.65)	2.6E-01	1.06 (0.97 – 1.16)	0.98 (0.89 – 1.07)
756.5	Congenital osteodystrophies	2.0 / 1.9	1.02 (0.94 – 1.10)	6.4E-01	1.47 (1.36 – 1.60)	4.1E-01	0.99 (0.89 – 1.10)	1.06 (0.94 – 1.19)

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PheC ode	Disease	Prevalen ce OSA Case / Control	Risk ratio	P-value	Sensitivity analysis risk ratio	OSA x sex interactio n p-value	Risk ratio (men)	Risk ratio (women)
080	Postoperative infection	1.4 / 1.4	1.02 (0.93 – 1.12)	6.4E-01	1.14 (1.04 – 1.26)	9.6E-01	1.02 (0.90 – 1.15)	1.03 (0.90 – 1.18)
509.2	Respiratory insufficiency	1.2 / 1.2	1.02 (0.92 – 1.13)	6.8E-01	1.69 (1.53 – 1.87)	1.7E-04	0.88 (0.78 – 1.01)	1.32 (1.12 – 1.55)
459.1	Hemorrhage NOS	2.0 / 1.9	1.02 (0.94 – 1.10)	6.9E-01	1.96 (1.76 – 2.17)	6.9E-01	1.03 (0.93 – 1.15)	1.00 (0.89 – 1.13)
189.2 1	Malignant neoplasm of bladder	1.2 / 1.2	1.02 (0.92 – 1.12)	7.3E-01	1.03 (0.93 – 1.15)	NA	1.06 (0.95 – 1.18)	NA
285.1	Acute posthemorrhagic anemia	2.5 / 2.5	1.01 (0.94 – 1.08)	7.9E-01	1.15 (1.07 – 1.24)	6.3E-01	1.02 (0.93 – 1.11)	1.00 (0.89 – 1.12)
193	Thyroid cancer	1.1 / 1.1	0.99 (0.89 – 1.10)	8.3E-01	0.99 (0.89 – 1.11)	NA	NA	1.03 (0.90 – 1.18)
743.2	Pathologic fracture	1.1 / 1.1	0.99 (0.89 – 1.10)	8.6E-01	1.01 (0.89 – 1.14)	NA	NA	1.03 (0.90 – 1.18)
809	Fracture of unspecified bones	3.4 / 3.4	1.00 (0.95 – 1.06)	9.3E-01	1.03 (0.97 – 1.09)	3.7E-03	0.92 (0.85 – 1.00)	1.10 (1.01 – 1.19)
771.1	Swelling of limb	7.4 / 7.4	1.00 (0.96 – 1.04)	9.5E-01	1.41 (1.36 – 1.47)	3.8E-01	0.99 (0.94 – 1.04)	1.02 (0.97 – 1.08)
297.1	Suicidal ideation	1.1 / 1.1	1.00 (0.90 – 1.11)	9.5E-01	1.37 (1.22 – 1.53)	NA	NA	1.52 (1.30 – 1.79)
070.9	Hepatitis NOS	2.1 / 2.0	1.00 (0.92 – 1.08)	9.7E-01	1.06 (0.98 – 1.15)	4.9E-02	0.94 (0.86 – 1.04)	1.12 (0.99 – 1.27)
338.1	Acute pain	9.5 / 13.2	0.72 (0.70 – 0.75)	2.9E-88	1.38 (1.34 – 1.42)	1.2E-10	0.65 (0.62 – 0.68)	0.80 (0.77 – 0.84)
695.7	Prurigo and Lichen	2.3 / 1.1	2.11 (1.94 – 2.30)	1.7E-67	0.91 (0.83 – 0.99)	5.6E-04	2.47 (2.18 – 2.79)	1.85 (1.65 – 2.07)
726.4	Calcaneal spur; Exostosis NOS	1.4 / 2.9	0.49 (0.45 – 0.53)	2.9E-63	1.14 (1.04 – 1.26)	NA	NA	0.50 (0.45 – 0.56)
289	Other diseases of blood and blood-forming organs	1.2 / 2.4	0.51 (0.47 – 0.56)	8.5E-47	1.43 (1.32 – 1.54)	4.4E-01	0.53 (0.47 – 0.60)	0.50 (0.43 – 0.57)
512.3	Abnormal chest sounds	1.0 / 2.0	0.51 (0.46 – 0.56)	9.0E-39	1.70 (1.51 – 1.93)	1.1E-02	0.58 (0.50 – 0.66)	0.44 (0.38 – 0.52)
1002	Symptoms concerning nutrition, metabolism, and development	2.4 / 3.6	0.64 (0.60 – 0.69)	1.5E-38	3.18 (2.94 – 3.45)	7.2E-03	0.59 (0.54 – 0.64)	0.71 (0.65 – 0.79)
741	Symptoms and disorders of the joints	3.1 / 4.2	0.73 (0.68 – 0.77)	3.9E-25	1.38 (1.29 – 1.47)	6.9E-01	0.72 (0.66 – 0.78)	0.74 (0.68 – 0.80)
497	Bronchitis	6.2 / 5.0	1.24 (1.19 – 1.30)	3.9E-21	0.91 (0.87 – 0.96)	7.1E-07	1.39 (1.31 – 1.48)	1.11 (1.04 – 1.19)
949	Allergies, other	7.2 / 8.3	0.85 (0.81 – 0.88)	1.8E-17	1.96 (1.87 – 2.06)	7.0E-01	0.85 (0.80 – 0.90)	0.84 (0.80 – 0.88)
578.2	Blood in stool	4.2 / 5.1	0.80 (0.76 – 0.84)	6.2E-17	1.54 (1.45 – 1.64)	2.4E-02	0.84 (0.79 – 0.90)	0.75 (0.69 – 0.81)
740.2	Osteoarthritis, generalized	1.1 / 1.7	0.66 (0.60 – 0.73)	6.8E-17	1.34 (1.23 – 1.47)	NA	NA	0.69 (0.61 – 0.77)
915	Superficial injury without mention of infection	3.1 / 4.0	0.78 (0.73 – 0.82)	9.6E-17	1.61 (1.49 – 1.73)	9.4E-01	0.78 (0.72 – 0.84)	0.78 (0.70 – 0.86)
939	Atopic/contact dermatitis due to other or unspecified	9.2 / 10.2	0.88 (0.85 – 0.91)	3.7E-13	1.19 (1.14 – 1.24)	1.6E-05	0.95 (0.90 – 1.00)	0.82 (0.78 – 0.86)
512.1	Wheezing	3.6 / 4.4	0.82 (0.77 – 0.86)	1.6E-12	1.41 (1.33 – 1.49)	1.3E-01	0.78 (0.72 – 0.84)	0.85 (0.79 – 0.92)

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PheC ode	Disease	Prevalen ce OSA Case / Control	Risk ratio	P-value	Sensitivity analysis risk ratio	OSA x sex interactio n p-value	Risk ratio (men)	Risk ratio (women)
530.1	Esophagitis, GERD and related diseases	2.1 / 2.5	0.82 (0.77 – 0.89)	3.0E-07	1.16 (1.08 – 1.24)	3.5E-02	0.88 (0.80 – 0.97)	0.76 (0.67 – 0.85)
681	Superficial cellulitis and abscess	4.3 / 4.9	0.88 (0.83 – 0.92)	6.5E-07	1.17 (1.11 – 1.23)	3.7E-02	0.92 (0.86 – 0.98)	0.83 (0.76 – 0.90)
507	Pleurisy; pleural effusion	6.6 / 6.0	1.11 (1.06 – 1.16)	8.9E-07	0.94 (0.89 – 0.99)	3.8E-01	1.13 (1.07 – 1.18)	1.08 (1.01 – 1.17)
465.2	Acute pharyngitis	9.5 / 10.1	0.92 (0.89 – 0.95)	4.1E-06	1.29 (1.25 – 1.34)	1.7E-01	0.95 (0.90 – 1.00)	0.90 (0.86 – 0.95)
561.2	Flatulence	5.1 / 5.5	0.90 (0.86 – 0.94)	6.2E-06	1.59 (1.50 – 1.70)	3.8E-01	0.92 (0.86 – 0.99)	0.88 (0.83 – 0.94)
681.5	Cellulitis and abscess of leg, except foot	1.5 / 1.9	0.82 (0.76 – 0.90)	7.9E-06	1.37 (1.26 – 1.49)	7.5E-01	0.82 (0.73 – 0.91)	0.84 (0.73 – 0.97)
741.4	Joint effusions	8.2 / 7.6	1.09 (1.05 – 1.13)	1.7E-05	0.94 (0.90 – 0.98)	3.2E-03	1.15 (1.09 – 1.21)	1.02 (0.96 – 1.08)
272.9	Unspecified disorder of lipoid metabolism	1.2 / 1.4	0.87 (0.79 – 0.96)	5.0E-03	1.60 (1.43 – 1.78)	9.2E-01	0.87 (0.77 – 0.99)	0.87 (0.73 – 1.02)
297	Suicidal ideation or attempt	2.2 / 2.4	0.91 (0.85 – 0.98)	1.1E-02	1.22 (1.12 – 1.33)	2.3E-02	0.85 (0.78 – 0.93)	1.04 (0.92 – 1.17)
276.5	Hypovolemia	7.5 / 7.1	1.04 (1.00 – 1.09)	3.0E-02	0.91 (0.87 – 0.95)	2.0E-01	1.07 (1.01 – 1.12)	1.02 (0.96 – 1.08)
830	Dislocation	3.6 / 3.4	1.07 (1.01 – 1.13)	3.0E-02	0.91 (0.85 – 0.97)	3.2E-04	1.16 (1.08 – 1.25)	0.95 (0.86 – 1.04)
079	Viral infection	5.0 / 4.4	1.06 (1.00 – 1.12)	3.3E-02	0.80 (0.76 – 0.85)	1.1E-05	1.19 (1.11 – 1.28)	0.95 (0.88 – 1.02)
401.2 2	Hypertensive chronic kidney disease	2.3 / 2.5	0.93 (0.87 – 1.00)	4.3E-02	1.49 (1.39 – 1.61)	2.5E-01	0.90 (0.83 – 0.98)	0.99 (0.88 – 1.12)

Table S6. Temporal stability of lead cross-sectional case-control associations.

Cross-sectional associations were further tested in a sensitivity analysis censoring data a number of years away from the first sleep apnea results (or the matching age for controls). Data were censored at a given relative year, meaning that future comorbidity cases were classified as controls for that year prior to the initial comorbidity diagnosis. Analyses were adjusted for age, sex, BMI, population, and healthcare encounters since age 18 to a given relative year. BMIs were based on measurements relative to a given age. Data from the lead 50 Table S5 results and other PheCodes with $p < 1e-10$ at year -5 are shown for practicality, given a PDF table format and >4,600 total rows. Results are ordered by p-value at year -5.

PheCode	Disease	Years to OSA diagnosis	Risk ratio	P-value	N
272.1	Hyperlipidemia	-5	1.36 (1.31 – 1.40)	2.21E-74	85312
272.1	Hyperlipidemia	-4	1.39 (1.35 – 1.44)	1.10E-98	90932
272.1	Hyperlipidemia	-3	1.44 (1.39 – 1.48)	1.13E-130	96622
272.1	Hyperlipidemia	-2	1.49 (1.45 – 1.53)	7.13E-179	102600
272.1	Hyperlipidemia	-1	1.55 (1.51 – 1.59)	6.82E-242	108657
272.1	Hyperlipidemia	0	1.58 (1.54 – 1.62)	2.94E-301	117551
272.1	Hyperlipidemia	1	1.83 (1.79 – 1.87)	0.00E+00	124868
272.1	Hyperlipidemia	2	1.85 (1.81 – 1.89)	0.00E+00	127897
272.1	Hyperlipidemia	3	1.85 (1.81 – 1.89)	0.00E+00	130482
272.1	Hyperlipidemia	4	1.85 (1.81 – 1.89)	0.00E+00	132711
272.1	Hyperlipidemia	5	1.85 (1.81 – 1.89)	0.00E+00	134656
472	Chronic pharyngitis and nasopharyngitis	-5	3.40 (2.98 – 3.88)	1.39E-72	85312
472	Chronic pharyngitis and nasopharyngitis	-4	3.59 (3.17 – 4.07)	3.51E-88	90932
472	Chronic pharyngitis and nasopharyngitis	-3	3.65 (3.24 – 4.11)	3.23E-100	96622
472	Chronic pharyngitis and nasopharyngitis	-2	3.66 (3.27 – 4.10)	2.87E-114	102600
472	Chronic pharyngitis and nasopharyngitis	-1	3.83 (3.45 – 4.25)	2.97E-139	108657
472	Chronic pharyngitis and nasopharyngitis	0	4.14 (3.76 – 4.56)	5.95E-180	117551
472	Chronic pharyngitis and nasopharyngitis	1	5.90 (5.41 – 6.44)	0.00E+00	124868
472	Chronic pharyngitis and nasopharyngitis	2	6.10 (5.62 – 6.63)	0.00E+00	127897
472	Chronic pharyngitis and nasopharyngitis	3	6.22 (5.74 – 6.74)	0.00E+00	130482
472	Chronic pharyngitis and nasopharyngitis	4	6.38 (5.90 – 6.90)	0.00E+00	132711
472	Chronic pharyngitis and nasopharyngitis	5	6.44 (5.97 – 6.95)	0.00E+00	134656
530.11	GERD	-5	1.44 (1.38 – 1.51)	1.66E-61	85312
530.11	GERD	-4	1.47 (1.41 – 1.53)	4.49E-77	90932
530.11	GERD	-3	1.48 (1.43 – 1.54)	2.55E-93	96622
530.11	GERD	-2	1.50 (1.45 – 1.56)	9.83E-113	102600

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PheCode	Disease	Years to OSA diagnosis	Risk ratio	P-value	N
530.11	GERD	-1	1.55 (1.50 – 1.60)	5.77E-149	108657
530.11	GERD	0	1.61 (1.56 – 1.66)	1.05E-206	117551
530.11	GERD	1	2.00 (1.95 – 2.06)	0.00E+00	124868
530.11	GERD	2	2.01 (1.96 – 2.06)	0.00E+00	127897
530.11	GERD	3	1.98 (1.94 – 2.03)	0.00E+00	130482
530.11	GERD	4	1.96 (1.91 – 2.01)	0.00E+00	132711
530.11	GERD	5	1.94 (1.89 – 1.98)	0.00E+00	134656
401.1	Essential hypertension	-5	1.20 (1.17 – 1.23)	7.64E-45	85312
401.1	Essential hypertension	-4	1.22 (1.19 – 1.25)	8.72E-61	90932
401.1	Essential hypertension	-3	1.24 (1.21 – 1.27)	9.65E-79	96622
401.1	Essential hypertension	-2	1.26 (1.23 – 1.29)	2.90E-104	102600
401.1	Essential hypertension	-1	1.29 (1.27 – 1.32)	1.19E-143	108657
401.1	Essential hypertension	0	1.35 (1.32 – 1.37)	5.99E-231	117551
401.1	Essential hypertension	1	1.50 (1.48 – 1.53)	0.00E+00	124868
401.1	Essential hypertension	2	1.49 (1.46 – 1.51)	0.00E+00	127897
401.1	Essential hypertension	3	1.47 (1.45 – 1.49)	0.00E+00	130482
401.1	Essential hypertension	4	1.45 (1.43 – 1.47)	0.00E+00	132711
401.1	Essential hypertension	5	1.43 (1.41 – 1.46)	0.00E+00	134656
495	Asthma	-5	1.40 (1.33 – 1.47)	8.74E-41	85312
495	Asthma	-4	1.43 (1.36 – 1.49)	2.03E-50	90932
495	Asthma	-3	1.47 (1.41 – 1.54)	1.52E-66	96622
495	Asthma	-2	1.48 (1.42 – 1.55)	1.10E-76	102600
495	Asthma	-1	1.50 (1.45 – 1.57)	2.17E-90	108657
495	Asthma	0	1.55 (1.49 – 1.60)	5.54E-117	117551
495	Asthma	1	1.80 (1.74 – 1.86)	1.33E-257	124868
495	Asthma	2	1.83 (1.77 – 1.89)	5.29E-288	127897
495	Asthma	3	1.83 (1.77 – 1.89)	1.07E-305	130482
495	Asthma	4	1.82 (1.77 – 1.88)	0.00E+00	132711
495	Asthma	5	1.82 (1.76 – 1.87)	0.00E+00	134656
379.9	Pain, swelling or discharge of eye	-5	4.37 (3.47 – 5.50)	6.98E-36	85312
379.9	Pain, swelling or discharge of eye	-4	4.42 (3.58 – 5.46)	6.34E-43	90932
379.9	Pain, swelling or discharge of eye	-3	4.15 (3.43 – 5.03)	4.05E-48	96622
379.9	Pain, swelling or discharge of eye	-2	3.91 (3.29 – 4.65)	9.20E-54	102600
379.9	Pain, swelling or discharge of eye	-1	3.92 (3.33 – 4.63)	2.80E-59	108657

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PheCode	Disease	Years to OSA diagnosis	Risk ratio	P-value	N
379.9	Pain, swelling or discharge of eye	0	3.73 (3.20 – 4.35)	3.09E-63	117551
379.9	Pain, swelling or discharge of eye	1	3.78 (3.28 – 4.35)	4.61E-75	124868
379.9	Pain, swelling or discharge of eye	2	3.82 (3.34 – 4.37)	1.61E-84	127897
379.9	Pain, swelling or discharge of eye	3	3.88 (3.41 – 4.42)	5.44E-94	130482
379.9	Pain, swelling or discharge of eye	4	3.85 (3.41 – 4.36)	8.39E-102	132711
379.9	Pain, swelling or discharge of eye	5	3.83 (3.40 – 4.31)	9.44E-110	134656
173	Neoplasm of uncertain behavior of skin	-5	1.83 (1.66 – 2.01)	4.27E-35	85312
173	Neoplasm of uncertain behavior of skin	-4	1.85 (1.69 – 2.03)	8.78E-41	90932
173	Neoplasm of uncertain behavior of skin	-3	1.83 (1.68 – 2.00)	1.50E-43	96622
173	Neoplasm of uncertain behavior of skin	-2	1.80 (1.65 – 1.95)	1.61E-44	102600
173	Neoplasm of uncertain behavior of skin	-1	1.73 (1.60 – 1.87)	1.59E-43	108657
173	Neoplasm of uncertain behavior of skin	0	1.63 (1.52 – 1.76)	1.82E-39	117551
173	Neoplasm of uncertain behavior of skin	1	1.60 (1.49 – 1.72)	2.88E-39	124868
173	Neoplasm of uncertain behavior of skin	2	1.61 (1.51 – 1.72)	1.67E-43	127897
173	Neoplasm of uncertain behavior of skin	3	1.62 (1.52 – 1.74)	1.09E-46	130482
173	Neoplasm of uncertain behavior of skin	4	1.64 (1.53 – 1.75)	4.78E-50	132711
173	Neoplasm of uncertain behavior of skin	5	1.65 (1.54 – 1.75)	7.48E-54	134656
293	Symptoms involving head and neck	-5	6.45 (4.79 – 8.67)	6.92E-35	85312
293	Symptoms involving head and neck	-4	6.43 (4.85 – 8.54)	6.67E-38	90932
293	Symptoms involving head and neck	-3	6.19 (4.74 – 8.08)	8.65E-41	96622
293	Symptoms involving head and neck	-2	5.75 (4.47 – 7.39)	2.81E-42	102600
293	Symptoms involving head and neck	-1	5.49 (4.33 – 6.96)	4.91E-45	108657
293	Symptoms involving head and neck	0	5.06 (4.05 – 6.32)	4.64E-46	117551
293	Symptoms involving head and neck	1	5.68 (4.61 – 7.00)	4.28E-60	124868
293	Symptoms involving head and neck	2	5.77 (4.73 – 7.05)	2.81E-66	127897
293	Symptoms involving head and neck	3	5.93 (4.88 – 7.21)	1.92E-71	130482
293	Symptoms involving head and neck	4	6.13 (5.06 – 7.42)	7.99E-77	132711
293	Symptoms involving head and neck	5	6.27 (5.20 – 7.57)	1.74E-81	134656
197	Chemotherapy	-5	0.44 (0.38 – 0.50)	5.67E-32	85312
197	Chemotherapy	-4	0.43 (0.38 – 0.49)	1.84E-39	90932
197	Chemotherapy	-3	0.43 (0.38 – 0.48)	1.33E-47	96622
197	Chemotherapy	-2	0.45 (0.40 – 0.50)	1.61E-52	102600
197	Chemotherapy	-1	0.45 (0.41 – 0.50)	1.08E-60	108657
197	Chemotherapy	0	0.54 (0.50 – 0.59)	1.86E-50	117551

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PheCode	Disease	Years to OSA diagnosis	Risk ratio	P-value	N
197	Chemotherapy	1	0.74 (0.70 – 0.79)	2.41E-18	124868
197	Chemotherapy	2	0.77 (0.73 – 0.82)	1.13E-15	127897
197	Chemotherapy	3	0.78 (0.74 – 0.83)	3.36E-15	130482
197	Chemotherapy	4	0.78 (0.73 – 0.82)	3.19E-17	132711
197	Chemotherapy	5	0.77 (0.73 – 0.82)	4.67E-19	134656
244.4	Hypothyroidism NOS	-5	1.42 (1.34 – 1.50)	9.39E-32	85312
244.4	Hypothyroidism NOS	-4	1.44 (1.36 – 1.52)	9.50E-39	90932
244.4	Hypothyroidism NOS	-3	1.48 (1.40 – 1.56)	3.12E-49	96622
244.4	Hypothyroidism NOS	-2	1.51 (1.44 – 1.59)	2.02E-61	102600
244.4	Hypothyroidism NOS	-1	1.56 (1.49 – 1.63)	2.19E-78	108657
244.4	Hypothyroidism NOS	0	1.59 (1.52 – 1.66)	4.87E-97	117551
244.4	Hypothyroidism NOS	1	1.83 (1.76 – 1.91)	1.45E-193	124868
244.4	Hypothyroidism NOS	2	1.85 (1.78 – 1.93)	3.18E-209	127897
244.4	Hypothyroidism NOS	3	1.86 (1.79 – 1.93)	1.10E-216	130482
244.4	Hypothyroidism NOS	4	1.85 (1.78 – 1.92)	1.20E-222	132711
244.4	Hypothyroidism NOS	5	1.84 (1.78 – 1.91)	1.80E-227	134656
740.1	Osteoarthritis; localized	-5	0.51 (0.45 – 0.57)	2.05E-29	85312
740.1	Osteoarthritis; localized	-4	0.49 (0.44 – 0.55)	2.50E-36	90932
740.1	Osteoarthritis; localized	-3	0.51 (0.46 – 0.57)	7.63E-38	96622
740.1	Osteoarthritis; localized	-2	0.53 (0.48 – 0.58)	1.34E-39	102600
740.1	Osteoarthritis; localized	-1	0.52 (0.48 – 0.57)	8.59E-46	108657
740.1	Osteoarthritis; localized	0	0.51 (0.47 – 0.55)	3.74E-57	117551
740.1	Osteoarthritis; localized	1	0.58 (0.54 – 0.63)	1.93E-45	124868
740.1	Osteoarthritis; localized	2	0.59 (0.55 – 0.64)	6.38E-44	127897
740.1	Osteoarthritis; localized	3	0.60 (0.56 – 0.64)	1.46E-43	130482
740.1	Osteoarthritis; localized	4	0.61 (0.57 – 0.66)	2.91E-42	132711
740.1	Osteoarthritis; localized	5	0.62 (0.58 – 0.67)	6.24E-41	134656
947	Urticaria	-5	1.99 (1.76 – 2.24)	8.33E-29	85312
947	Urticaria	-4	2.03 (1.81 – 2.28)	9.99E-34	90932
947	Urticaria	-3	2.07 (1.86 – 2.31)	9.96E-40	96622
947	Urticaria	-2	2.05 (1.86 – 2.27)	9.67E-44	102600
947	Urticaria	-1	2.06 (1.87 – 2.27)	6.95E-49	108657
947	Urticaria	0	2.03 (1.86 – 2.22)	4.45E-53	117551
947	Urticaria	1	2.09 (1.92 – 2.27)	2.55E-65	124868

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PheCode	Disease	Years to OSA diagnosis	Risk ratio	P-value	N
947	Urticaria	2	2.16 (1.99 – 2.35)	1.85E-76	127897
947	Urticaria	3	2.21 (2.05 – 2.39)	3.15E-87	130482
947	Urticaria	4	2.22 (2.06 – 2.40)	3.56E-94	132711
947	Urticaria	5	2.22 (2.06 – 2.39)	8.50E-100	134656
327	Sleep disorders	-5	2.42 (2.05 – 2.84)	2.63E-26	85312
327	Sleep disorders	-4	2.57 (2.20 – 3.00)	4.23E-33	90932
327	Sleep disorders	-3	2.80 (2.42 – 3.24)	4.87E-43	96622
327	Sleep disorders	-2	2.90 (2.53 – 3.32)	2.60E-52	102600
327	Sleep disorders	-1	3.35 (2.95 – 3.80)	6.07E-78	108657
327	Sleep disorders	0	5.14 (4.60 – 5.74)	1.25E-186	117551
327	Sleep disorders	1	6.62 (5.99 – 7.31)	1.79E-300	124868
327	Sleep disorders	2	6.85 (6.23 – 7.54)	0.00E+00	127897
327	Sleep disorders	3	7.02 (6.39 – 7.70)	0.00E+00	130482
327	Sleep disorders	4	6.97 (6.37 – 7.63)	0.00E+00	132711
327	Sleep disorders	5	7.08 (6.48 – 7.74)	0.00E+00	134656
470	Septal Deviations/Turbinate Hypertrophy	-5	1.98 (1.75 – 2.25)	3.08E-26	85312
470	Septal Deviations/Turbinate Hypertrophy	-4	2.00 (1.78 – 2.24)	3.08E-31	90932
470	Septal Deviations/Turbinate Hypertrophy	-3	2.07 (1.86 – 2.31)	5.19E-40	96622
470	Septal Deviations/Turbinate Hypertrophy	-2	2.18 (1.97 – 2.41)	4.06E-52	102600
470	Septal Deviations/Turbinate Hypertrophy	-1	2.27 (2.07 – 2.49)	1.26E-67	108657
470	Septal Deviations/Turbinate Hypertrophy	0	2.88 (2.66 – 3.13)	6.77E-142	117551
470	Septal Deviations/Turbinate Hypertrophy	1	5.45 (5.09 – 5.84)	0.00E+00	124868
470	Septal Deviations/Turbinate Hypertrophy	2	5.43 (5.09 – 5.80)	0.00E+00	127897
470	Septal Deviations/Turbinate Hypertrophy	3	5.40 (5.07 – 5.75)	0.00E+00	130482
470	Septal Deviations/Turbinate Hypertrophy	4	5.29 (4.98 – 5.63)	0.00E+00	132711
470	Septal Deviations/Turbinate Hypertrophy	5	5.17 (4.87 – 5.49)	0.00E+00	134656
340	Migraine	-5	1.47 (1.36 – 1.58)	3.35E-25	85312
340	Migraine	-4	1.45 (1.35 – 1.55)	4.70E-26	90932
340	Migraine	-3	1.49 (1.39 – 1.59)	7.00E-33	96622
340	Migraine	-2	1.52 (1.43 – 1.62)	4.20E-41	102600
340	Migraine	-1	1.58 (1.49 – 1.67)	2.74E-54	108657
340	Migraine	0	1.59 (1.51 – 1.68)	1.14E-64	117551
340	Migraine	1	1.75 (1.66 – 1.84)	1.32E-108	124868
340	Migraine	2	1.78 (1.69 – 1.86)	6.59E-123	127897

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PheCode	Disease	Years to OSA diagnosis	Risk ratio	P-value	N
340	Migraine	3	1.77 (1.69 – 1.86)	2.94E-131	130482
340	Migraine	4	1.77 (1.70 – 1.86)	4.76E-140	132711
340	Migraine	5	1.77 (1.70 – 1.85)	1.23E-145	134656
296.22	Major depressive disorder	-5	1.48 (1.37 – 1.59)	4.03E-25	85312
296.22	Major depressive disorder	-4	1.52 (1.42 – 1.63)	4.09E-33	90932
296.22	Major depressive disorder	-3	1.57 (1.48 – 1.68)	1.32E-44	96622
296.22	Major depressive disorder	-2	1.62 (1.53 – 1.71)	2.82E-59	102600
296.22	Major depressive disorder	-1	1.70 (1.62 – 1.79)	3.47E-89	108657
296.22	Major depressive disorder	0	1.88 (1.79 – 1.97)	1.06E-158	117551
296.22	Major depressive disorder	1	2.18 (2.09 – 2.27)	0.00E+00	124868
296.22	Major depressive disorder	2	2.21 (2.13 – 2.29)	0.00E+00	127897
296.22	Major depressive disorder	3	2.20 (2.12 – 2.28)	0.00E+00	130482
296.22	Major depressive disorder	4	2.18 (2.10 – 2.25)	0.00E+00	132711
296.22	Major depressive disorder	5	2.16 (2.09 – 2.23)	0.00E+00	134656
327.4	Insomnia	-5	1.70 (1.53 – 1.89)	3.23E-22	85312
327.4	Insomnia	-4	1.77 (1.60 – 1.95)	1.17E-30	90932
327.4	Insomnia	-3	1.82 (1.66 – 1.99)	8.78E-40	96622
327.4	Insomnia	-2	1.84 (1.70 – 2.00)	7.72E-49	102600
327.4	Insomnia	-1	1.94 (1.81 – 2.09)	5.45E-70	108657
327.4	Insomnia	0	2.30 (2.16 – 2.45)	5.44E-145	117551
327.4	Insomnia	1	3.17 (3.01 – 3.35)	0.00E+00	124868
327.4	Insomnia	2	3.17 (3.01 – 3.34)	0.00E+00	127897
327.4	Insomnia	3	3.08 (2.93 – 3.24)	0.00E+00	130482
327.4	Insomnia	4	3.00 (2.86 – 3.15)	0.00E+00	132711
327.4	Insomnia	5	2.93 (2.80 – 3.06)	0.00E+00	134656
508	Pulmonary collapse; interstitial and compensatory emphysema	-5	0.64 (0.58 – 0.70)	3.24E-22	85312
508	Pulmonary collapse; interstitial and compensatory emphysema	-4	0.64 (0.59 – 0.70)	1.32E-24	90932
508	Pulmonary collapse; interstitial and compensatory emphysema	-3	0.64 (0.59 – 0.69)	1.68E-29	96622
508	Pulmonary collapse; interstitial and compensatory emphysema	-2	0.64 (0.59 – 0.69)	1.85E-33	102600
508	Pulmonary collapse; interstitial and compensatory emphysema	-1	0.65 (0.61 – 0.70)	1.16E-35	108657

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PheCode	Disease	Years to OSA diagnosis	Risk ratio	P-value	N
508	Pulmonary collapse; interstitial and compensatory emphysema	0	0.76 (0.72 – 0.80)	3.55E-20	117551
508	Pulmonary collapse; interstitial and compensatory emphysema	1	1.11 (1.06 – 1.17)	1.98E-05	124868
508	Pulmonary collapse; interstitial and compensatory emphysema	2	1.12 (1.07 – 1.18)	2.45E-06	127897
508	Pulmonary collapse; interstitial and compensatory emphysema	3	1.11 (1.06 – 1.16)	1.51E-05	130482
508	Pulmonary collapse; interstitial and compensatory emphysema	4	1.10 (1.05 – 1.16)	3.87E-05	132711
508	Pulmonary collapse; interstitial and compensatory emphysema	5	1.10 (1.05 – 1.15)	6.57E-05	134656
272.11	Hypercholesterolemia	-5	1.24 (1.19 – 1.30)	2.54E-21	85312
272.11	Hypercholesterolemia	-4	1.27 (1.22 – 1.33)	6.18E-29	90932
272.11	Hypercholesterolemia	-3	1.28 (1.23 – 1.34)	2.91E-35	96622
272.11	Hypercholesterolemia	-2	1.30 (1.25 – 1.34)	2.35E-42	102600
272.11	Hypercholesterolemia	-1	1.31 (1.27 – 1.36)	3.43E-53	108657
272.11	Hypercholesterolemia	0	1.32 (1.28 – 1.36)	3.00E-62	117551
272.11	Hypercholesterolemia	1	1.52 (1.47 – 1.56)	2.08E-168	124868
272.11	Hypercholesterolemia	2	1.54 (1.50 – 1.59)	2.01E-192	127897
272.11	Hypercholesterolemia	3	1.55 (1.51 – 1.59)	7.99E-207	130482
272.11	Hypercholesterolemia	4	1.54 (1.50 – 1.58)	7.52E-213	132711
272.11	Hypercholesterolemia	5	1.54 (1.50 – 1.58)	2.03E-222	134656
389.2	Conductive hearing loss	-5	4.59 (3.30 – 6.39)	1.36E-19	85312
389.2	Conductive hearing loss	-4	4.50 (3.34 – 6.06)	3.59E-23	90932
389.2	Conductive hearing loss	-3	4.57 (3.49 – 5.99)	4.38E-28	96622
389.2	Conductive hearing loss	-2	4.64 (3.60 – 5.99)	3.07E-32	102600
389.2	Conductive hearing loss	-1	4.41 (3.51 – 5.56)	1.36E-36	108657
389.2	Conductive hearing loss	0	4.35 (3.53 – 5.37)	6.60E-43	117551
389.2	Conductive hearing loss	1	4.76 (3.93 – 5.76)	6.45E-58	124868
389.2	Conductive hearing loss	2	4.59 (3.84 – 5.48)	1.23E-63	127897
389.2	Conductive hearing loss	3	4.64 (3.92 – 5.49)	1.04E-70	130482
389.2	Conductive hearing loss	4	4.65 (3.95 – 5.48)	4.74E-76	132711
389.2	Conductive hearing loss	5	4.49 (3.84 – 5.25)	1.93E-78	134656
503	Pulmonary congestion and hypostasis	-5	0.51 (0.44 – 0.59)	4.10E-18	85312

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PheCode	Disease	Years to OSA diagnosis	Risk ratio	P-value	N
503	Pulmonary congestion and hypostasis	-4	0.53 (0.46 – 0.61)	9.62E-20	90932
503	Pulmonary congestion and hypostasis	-3	0.52 (0.46 – 0.59)	3.27E-24	96622
503	Pulmonary congestion and hypostasis	-2	0.55 (0.49 – 0.62)	5.80E-25	102600
503	Pulmonary congestion and hypostasis	-1	0.57 (0.52 – 0.63)	2.96E-26	108657
503	Pulmonary congestion and hypostasis	0	0.72 (0.66 – 0.78)	8.97E-14	117551
503	Pulmonary congestion and hypostasis	1	1.16 (1.08 – 1.24)	2.80E-05	124868
503	Pulmonary congestion and hypostasis	2	1.17 (1.09 – 1.25)	5.95E-06	127897
503	Pulmonary congestion and hypostasis	3	1.16 (1.09 – 1.24)	1.09E-05	130482
503	Pulmonary congestion and hypostasis	4	1.16 (1.08 – 1.23)	9.56E-06	132711
503	Pulmonary congestion and hypostasis	5	1.14 (1.07 – 1.21)	4.25E-05	134656
300.1	Anxiety disorder	-5	1.28 (1.21 – 1.35)	1.39E-17	85312
300.1	Anxiety disorder	-4	1.31 (1.24 – 1.38)	4.13E-24	90932
300.1	Anxiety disorder	-3	1.36 (1.29 – 1.43)	5.42E-36	96622
300.1	Anxiety disorder	-2	1.40 (1.34 – 1.46)	4.30E-49	102600
300.1	Anxiety disorder	-1	1.46 (1.40 – 1.52)	2.53E-72	108657
300.1	Anxiety disorder	0	1.53 (1.47 – 1.59)	3.77E-110	117551
300.1	Anxiety disorder	1	1.79 (1.74 – 1.85)	3.27E-265	124868
300.1	Anxiety disorder	2	1.80 (1.74 – 1.86)	3.55E-294	127897
300.1	Anxiety disorder	3	1.79 (1.74 – 1.85)	0.00E+00	130482
300.1	Anxiety disorder	4	1.77 (1.72 – 1.82)	0.00E+00	132711
300.1	Anxiety disorder	5	1.74 (1.69 – 1.79)	0.00E+00	134656
706.8	Other specified diseases of sebaceous glands	-5	1.65 (1.47 – 1.85)	3.25E-17	85312
706.8	Other specified diseases of sebaceous glands	-4	1.60 (1.44 – 1.79)	1.86E-17	90932
706.8	Other specified diseases of sebaceous glands	-3	1.63 (1.48 – 1.81)	4.58E-21	96622
706.8	Other specified diseases of sebaceous glands	-2	1.63 (1.48 – 1.79)	4.17E-23	102600
706.8	Other specified diseases of sebaceous glands	-1	1.61 (1.47 – 1.76)	1.45E-24	108657
706.8	Other specified diseases of sebaceous glands	0	1.53 (1.40 – 1.67)	2.08E-22	117551
706.8	Other specified diseases of sebaceous glands	1	1.55 (1.43 – 1.68)	1.83E-26	124868
706.8	Other specified diseases of sebaceous glands	2	1.62 (1.50 – 1.75)	4.75E-33	127897
706.8	Other specified diseases of sebaceous glands	3	1.65 (1.53 – 1.78)	5.03E-37	130482
706.8	Other specified diseases of sebaceous glands	4	1.67 (1.55 – 1.80)	1.13E-40	132711
706.8	Other specified diseases of sebaceous glands	5	1.66 (1.54 – 1.78)	5.40E-42	134656
313.1	Attention deficit hyperactivity disorder	-5	1.87 (1.62 – 2.17)	6.97E-17	85312
313.1	Attention deficit hyperactivity disorder	-4	1.91 (1.66 – 2.18)	1.55E-20	90932

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PheCode	Disease	Years to OSA diagnosis	Risk ratio	P-value	N
313.1	Attention deficit hyperactivity disorder	-3	1.96 (1.73 – 2.22)	6.52E-26	96622
313.1	Attention deficit hyperactivity disorder	-2	2.10 (1.87 – 2.35)	1.54E-36	102600
313.1	Attention deficit hyperactivity disorder	-1	2.17 (1.95 – 2.41)	1.87E-47	108657
313.1	Attention deficit hyperactivity disorder	0	2.25 (2.04 – 2.48)	1.06E-60	117551
313.1	Attention deficit hyperactivity disorder	1	2.53 (2.33 – 2.75)	1.00E-108	124868
313.1	Attention deficit hyperactivity disorder	2	2.61 (2.41 – 2.82)	1.24E-126	127897
313.1	Attention deficit hyperactivity disorder	3	2.59 (2.40 – 2.79)	1.71E-137	130482
313.1	Attention deficit hyperactivity disorder	4	2.59 (2.40 – 2.78)	7.17E-146	132711
313.1	Attention deficit hyperactivity disorder	5	2.56 (2.39 – 2.75)	5.09E-152	134656
272.13	Mixed hyperlipidemia	-5	1.66 (1.47 – 1.88)	1.88E-16	85312
272.13	Mixed hyperlipidemia	-4	1.61 (1.44 – 1.80)	1.98E-17	90932
272.13	Mixed hyperlipidemia	-3	1.53 (1.39 – 1.69)	4.21E-17	96622
272.13	Mixed hyperlipidemia	-2	1.49 (1.37 – 1.63)	5.56E-19	102600
272.13	Mixed hyperlipidemia	-1	1.43 (1.32 – 1.55)	3.18E-19	108657
272.13	Mixed hyperlipidemia	0	1.48 (1.38 – 1.58)	1.82E-29	117551
272.13	Mixed hyperlipidemia	1	1.75 (1.65 – 1.85)	1.87E-76	124868
272.13	Mixed hyperlipidemia	2	1.75 (1.66 – 1.85)	8.79E-88	127897
272.13	Mixed hyperlipidemia	3	1.76 (1.67 – 1.85)	1.12E-98	130482
272.13	Mixed hyperlipidemia	4	1.73 (1.64 – 1.81)	9.18E-101	132711
272.13	Mixed hyperlipidemia	5	1.70 (1.62 – 1.79)	1.88E-104	134656
946	Anaphylactic shock NOS	-5	2.19 (1.81 – 2.65)	8.38E-16	85312
946	Anaphylactic shock NOS	-4	2.05 (1.71 – 2.45)	6.88E-15	90932
946	Anaphylactic shock NOS	-3	2.18 (1.84 – 2.58)	1.72E-19	96622
946	Anaphylactic shock NOS	-2	2.01 (1.71 – 2.37)	1.76E-17	102600
946	Anaphylactic shock NOS	-1	1.93 (1.66 – 2.25)	3.34E-17	108657
946	Anaphylactic shock NOS	0	1.98 (1.71 – 2.29)	4.60E-20	117551
946	Anaphylactic shock NOS	1	2.05 (1.78 – 2.35)	2.43E-24	124868
946	Anaphylactic shock NOS	2	2.14 (1.87 – 2.45)	1.07E-28	127897
946	Anaphylactic shock NOS	3	2.18 (1.92 – 2.49)	1.22E-31	130482
946	Anaphylactic shock NOS	4	2.18 (1.92 – 2.47)	2.79E-33	132711
946	Anaphylactic shock NOS	5	2.20 (1.95 – 2.49)	7.39E-36	134656
510	Other diseases of lung	-5	0.73 (0.67 – 0.79)	1.06E-15	85312
510	Other diseases of lung	-4	0.74 (0.68 – 0.79)	4.46E-16	90932
510	Other diseases of lung	-3	0.76 (0.71 – 0.82)	2.09E-14	96622

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PheCode	Disease	Years to OSA diagnosis	Risk ratio	P-value	N
510	Other diseases of lung	-2	0.77 (0.72 – 0.82)	9.78E-15	102600
510	Other diseases of lung	-1	0.78 (0.73 – 0.84)	8.67E-14	108657
510	Other diseases of lung	0	0.83 (0.78 – 0.88)	1.11E-09	117551
510	Other diseases of lung	1	0.97 (0.92 – 1.02)	2.34E-01	124868
510	Other diseases of lung	2	1.01 (0.96 – 1.07)	7.50E-01	127897
510	Other diseases of lung	3	1.02 (0.97 – 1.08)	3.85E-01	130482
510	Other diseases of lung	4	1.04 (0.98 – 1.10)	1.75E-01	132711
510	Other diseases of lung	5	1.06 (1.00 – 1.11)	4.68E-02	134656
289.9	Abnormality of red blood cells	-5	5.51 (3.62 – 8.39)	1.77E-15	85312
289.9	Abnormality of red blood cells	-4	6.62 (4.45 – 9.83)	8.08E-21	90932
289.9	Abnormality of red blood cells	-3	5.93 (4.18 – 8.41)	1.58E-23	96622
289.9	Abnormality of red blood cells	-2	6.51 (4.73 – 8.96)	1.14E-30	102600
289.9	Abnormality of red blood cells	-1	6.48 (4.85 – 8.65)	1.05E-36	108657
289.9	Abnormality of red blood cells	0	6.60 (5.09 – 8.55)	3.76E-46	117551
289.9	Abnormality of red blood cells	1	7.71 (6.09 – 9.76)	1.19E-64	124868
289.9	Abnormality of red blood cells	2	7.89 (6.32 – 9.85)	1.81E-74	127897
289.9	Abnormality of red blood cells	3	8.62 (6.97 – 10.67)	3.59E-87	130482
289.9	Abnormality of red blood cells	4	8.71 (7.11 – 10.69)	4.33E-96	132711
289.9	Abnormality of red blood cells	5	8.79 (7.23 – 10.68)	9.47E-106	134656
689	Skin/subcutaneous tissue disorder NOS	-5	1.40 (1.29 – 1.52)	2.70E-15	85312
689	Skin/subcutaneous tissue disorder NOS	-4	1.42 (1.32 – 1.54)	4.15E-19	90932
689	Skin/subcutaneous tissue disorder NOS	-3	1.44 (1.34 – 1.55)	8.31E-23	96622
689	Skin/subcutaneous tissue disorder NOS	-2	1.47 (1.37 – 1.57)	3.79E-29	102600
689	Skin/subcutaneous tissue disorder NOS	-1	1.54 (1.44 – 1.64)	3.06E-41	108657
689	Skin/subcutaneous tissue disorder NOS	0	1.56 (1.47 – 1.65)	5.11E-50	117551
689	Skin/subcutaneous tissue disorder NOS	1	1.67 (1.58 – 1.77)	7.56E-75	124868
689	Skin/subcutaneous tissue disorder NOS	2	1.78 (1.69 – 1.88)	3.55E-101	127897
689	Skin/subcutaneous tissue disorder NOS	3	1.84 (1.75 – 1.94)	1.06E-121	130482
689	Skin/subcutaneous tissue disorder NOS	4	1.88 (1.79 – 1.98)	7.88E-140	132711
689	Skin/subcutaneous tissue disorder NOS	5	1.91 (1.82 – 2.00)	1.61E-156	134656
701.2	Scar conditions and fibrosis of skin	-5	1.48 (1.34 – 1.63)	3.26E-15	85312
701.2	Scar conditions and fibrosis of skin	-4	1.50 (1.37 – 1.65)	1.76E-18	90932
701.2	Scar conditions and fibrosis of skin	-3	1.47 (1.35 – 1.60)	1.56E-18	96622
701.2	Scar conditions and fibrosis of skin	-2	1.48 (1.37 – 1.61)	2.21E-21	102600

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PheCode	Disease	Years to OSA diagnosis	Risk ratio	P-value	N
701.2	Scar conditions and fibrosis of skin	-1	1.49 (1.38 – 1.61)	3.76E-24	108657
701.2	Scar conditions and fibrosis of skin	0	1.39 (1.29 – 1.50)	9.46E-19	117551
701.2	Scar conditions and fibrosis of skin	1	1.40 (1.31 – 1.50)	3.07E-21	124868
701.2	Scar conditions and fibrosis of skin	2	1.45 (1.35 – 1.55)	8.29E-27	127897
701.2	Scar conditions and fibrosis of skin	3	1.49 (1.39 – 1.59)	4.42E-32	130482
701.2	Scar conditions and fibrosis of skin	4	1.52 (1.43 – 1.62)	3.81E-38	132711
701.2	Scar conditions and fibrosis of skin	5	1.53 (1.44 – 1.63)	1.53E-41	134656
585.1	Acute renal failure	-5	0.49 (0.41 – 0.59)	3.84E-15	85312
585.1	Acute renal failure	-4	0.51 (0.44 – 0.60)	9.93E-17	90932
585.1	Acute renal failure	-3	0.56 (0.49 – 0.64)	6.23E-17	96622
585.1	Acute renal failure	-2	0.60 (0.53 – 0.68)	5.77E-17	102600
585.1	Acute renal failure	-1	0.66 (0.60 – 0.74)	1.00E-14	108657
585.1	Acute renal failure	0	0.86 (0.79 – 0.94)	6.08E-04	117551
585.1	Acute renal failure	1	1.25 (1.17 – 1.34)	2.79E-10	124868
585.1	Acute renal failure	2	1.26 (1.18 – 1.35)	1.21E-11	127897
585.1	Acute renal failure	3	1.24 (1.16 – 1.33)	1.07E-10	130482
585.1	Acute renal failure	4	1.22 (1.14 – 1.30)	1.46E-09	132711
585.1	Acute renal failure	5	1.19 (1.12 – 1.26)	5.87E-08	134656
300.4	Dysthymic disorder	-5	1.54 (1.38 – 1.72)	1.07E-14	85312
300.4	Dysthymic disorder	-4	1.54 (1.39 – 1.71)	8.56E-16	90932
300.4	Dysthymic disorder	-3	1.60 (1.45 – 1.78)	1.22E-19	96622
300.4	Dysthymic disorder	-2	1.64 (1.49 – 1.81)	2.83E-23	102600
300.4	Dysthymic disorder	-1	1.72 (1.57 – 1.90)	7.59E-30	108657
300.4	Dysthymic disorder	0	1.71 (1.56 – 1.87)	2.25E-31	117551
300.4	Dysthymic disorder	1	1.90 (1.74 – 2.07)	3.29E-48	124868
300.4	Dysthymic disorder	2	1.93 (1.78 – 2.10)	4.42E-52	127897
300.4	Dysthymic disorder	3	1.96 (1.81 – 2.13)	1.97E-57	130482
300.4	Dysthymic disorder	4	1.99 (1.84 – 2.15)	9.25E-65	132711
300.4	Dysthymic disorder	5	2.00 (1.85 – 2.16)	1.87E-69	134656
367.1	Myopia	-5	4.34 (2.99 – 6.30)	1.15E-14	85312
367.1	Myopia	-4	3.62 (2.59 – 5.04)	3.18E-14	90932
367.1	Myopia	-3	2.98 (2.26 – 3.93)	1.37E-14	96622
367.1	Myopia	-2	2.73 (2.15 – 3.46)	1.84E-16	102600
367.1	Myopia	-1	2.54 (2.05 – 3.15)	1.08E-17	108657

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PheCode	Disease	Years to OSA diagnosis	Risk ratio	P-value	N
367.1	Myopia	0	2.50 (2.07 – 3.02)	2.40E-21	117551
367.1	Myopia	1	2.60 (2.19 – 3.07)	7.45E-29	124868
367.1	Myopia	2	2.74 (2.34 – 3.21)	1.98E-36	127897
367.1	Myopia	3	2.81 (2.42 – 3.27)	1.72E-41	130482
367.1	Myopia	4	2.83 (2.45 – 3.26)	1.02E-45	132711
367.1	Myopia	5	2.93 (2.55 – 3.36)	6.93E-52	134656
427.21	Atrial fibrillation	-5	1.35 (1.25 – 1.46)	1.43E-14	85312
427.21	Atrial fibrillation	-4	1.37 (1.28 – 1.47)	1.85E-18	90932
427.21	Atrial fibrillation	-3	1.45 (1.36 – 1.55)	6.13E-30	96622
427.21	Atrial fibrillation	-2	1.51 (1.43 – 1.61)	6.70E-43	102600
427.21	Atrial fibrillation	-1	1.54 (1.46 – 1.63)	3.47E-55	108657
427.21	Atrial fibrillation	0	1.87 (1.78 – 1.96)	1.16E-147	117551
427.21	Atrial fibrillation	1	2.13 (2.04 – 2.23)	6.55E-262	124868
427.21	Atrial fibrillation	2	2.08 (1.99 – 2.17)	3.36E-263	127897
427.21	Atrial fibrillation	3	2.03 (1.95 – 2.11)	2.42E-259	130482
427.21	Atrial fibrillation	4	1.98 (1.91 – 2.06)	1.25E-255	132711
427.21	Atrial fibrillation	5	1.94 (1.87 – 2.01)	1.08E-249	134656
476	Allergic rhinitis	-5	1.23 (1.17 – 1.30)	1.66E-14	85312
476	Allergic rhinitis	-4	1.24 (1.18 – 1.31)	1.07E-17	90932
476	Allergic rhinitis	-3	1.29 (1.23 – 1.35)	4.32E-26	96622
476	Allergic rhinitis	-2	1.33 (1.27 – 1.39)	9.48E-34	102600
476	Allergic rhinitis	-1	1.37 (1.31 – 1.43)	2.00E-45	108657
476	Allergic rhinitis	0	1.41 (1.35 – 1.47)	3.14E-62	117551
476	Allergic rhinitis	1	1.76 (1.70 – 1.82)	6.63E-213	124868
476	Allergic rhinitis	2	1.83 (1.77 – 1.89)	2.09E-258	127897
476	Allergic rhinitis	3	1.87 (1.81 – 1.93)	5.51E-296	130482
476	Allergic rhinitis	4	1.89 (1.83 – 1.96)	0.00E+00	132711
476	Allergic rhinitis	5	1.91 (1.85 – 1.97)	0.00E+00	134656
509.1	Respiratory failure	-5	0.37 (0.29 – 0.48)	1.76E-14	85312
509.1	Respiratory failure	-4	0.42 (0.33 – 0.52)	2.27E-15	90932
509.1	Respiratory failure	-3	0.41 (0.34 – 0.50)	6.84E-19	96622
509.1	Respiratory failure	-2	0.43 (0.36 – 0.51)	6.57E-22	102600
509.1	Respiratory failure	-1	0.48 (0.41 – 0.56)	4.59E-22	108657
509.1	Respiratory failure	0	0.82 (0.74 – 0.92)	4.56E-04	117551

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PheCode	Disease	Years to OSA diagnosis	Risk ratio	P-value	N
509.1	Respiratory failure	1	1.25 (1.14 – 1.36)	7.56E-07	124868
509.1	Respiratory failure	2	1.24 (1.14 – 1.35)	2.81E-07	127897
509.1	Respiratory failure	3	1.25 (1.16 – 1.35)	2.53E-08	130482
509.1	Respiratory failure	4	1.23 (1.14 – 1.32)	1.29E-07	132711
509.1	Respiratory failure	5	1.20 (1.11 – 1.29)	1.36E-06	134656
196	Radiotherapy	-5	0.55 (0.47 – 0.64)	1.89E-14	85312
196	Radiotherapy	-4	0.55 (0.49 – 0.63)	6.27E-18	90932
196	Radiotherapy	-3	0.53 (0.47 – 0.59)	1.14E-25	96622
196	Radiotherapy	-2	0.54 (0.49 – 0.60)	8.25E-30	102600
196	Radiotherapy	-1	0.56 (0.51 – 0.62)	2.00E-32	108657
196	Radiotherapy	0	0.61 (0.57 – 0.67)	4.44E-31	117551
196	Radiotherapy	1	0.74 (0.69 – 0.79)	8.88E-17	124868
196	Radiotherapy	2	0.75 (0.70 – 0.80)	1.01E-17	127897
196	Radiotherapy	3	0.75 (0.70 – 0.80)	8.82E-19	130482
196	Radiotherapy	4	0.75 (0.70 – 0.80)	2.69E-20	132711
196	Radiotherapy	5	0.74 (0.70 – 0.78)	1.05E-23	134656
745	Pain in joint	-5	1.14 (1.10 – 1.17)	2.30E-14	85312
745	Pain in joint	-4	1.15 (1.11 – 1.18)	4.53E-18	90932
745	Pain in joint	-3	1.15 (1.12 – 1.19)	7.45E-22	96622
745	Pain in joint	-2	1.16 (1.13 – 1.19)	3.24E-25	102600
745	Pain in joint	-1	1.16 (1.13 – 1.19)	5.05E-30	108657
745	Pain in joint	0	1.16 (1.13 – 1.19)	3.80E-33	117551
745	Pain in joint	1	1.21 (1.19 – 1.24)	4.79E-62	124868
745	Pain in joint	2	1.25 (1.22 – 1.28)	3.28E-87	127897
745	Pain in joint	3	1.26 (1.24 – 1.29)	5.05E-103	130482
745	Pain in joint	4	1.27 (1.24 – 1.29)	1.82E-112	132711
745	Pain in joint	5	1.27 (1.24 – 1.30)	8.12E-121	134656
366.2	Senile cataract	-5	1.59 (1.41 – 1.80)	2.81E-14	85312
366.2	Senile cataract	-4	1.64 (1.48 – 1.83)	6.91E-20	90932
366.2	Senile cataract	-3	1.59 (1.44 – 1.75)	2.17E-20	96622
366.2	Senile cataract	-2	1.60 (1.46 – 1.74)	4.98E-25	102600
366.2	Senile cataract	-1	1.57 (1.45 – 1.70)	1.63E-27	108657
366.2	Senile cataract	0	1.53 (1.42 – 1.64)	1.15E-29	117551
366.2	Senile cataract	1	1.49 (1.39 – 1.59)	2.07E-30	124868

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PheCode	Disease	Years to OSA diagnosis	Risk ratio	P-value	N
366.2	Senile cataract	2	1.50 (1.40 – 1.60)	1.06E-34	127897
366.2	Senile cataract	3	1.49 (1.40 – 1.59)	9.03E-37	130482
366.2	Senile cataract	4	1.49 (1.40 – 1.58)	3.81E-39	132711
366.2	Senile cataract	5	1.49 (1.40 – 1.57)	2.61E-42	134656
427.3	Other specified cardiac dysrhythmias	-5	1.68 (1.47 – 1.93)	4.41E-14	85312
427.3	Other specified cardiac dysrhythmias	-4	1.62 (1.43 – 1.83)	1.80E-14	90932
427.3	Other specified cardiac dysrhythmias	-3	1.51 (1.35 – 1.69)	8.27E-13	96622
427.3	Other specified cardiac dysrhythmias	-2	1.51 (1.36 – 1.67)	4.14E-15	102600
427.3	Other specified cardiac dysrhythmias	-1	1.48 (1.35 – 1.63)	3.45E-17	108657
427.3	Other specified cardiac dysrhythmias	0	1.68 (1.55 – 1.82)	2.54E-36	117551
427.3	Other specified cardiac dysrhythmias	1	2.04 (1.90 – 2.19)	1.13E-88	124868
427.3	Other specified cardiac dysrhythmias	2	2.01 (1.88 – 2.14)	7.10E-96	127897
427.3	Other specified cardiac dysrhythmias	3	1.94 (1.82 – 2.07)	1.49E-96	130482
427.3	Other specified cardiac dysrhythmias	4	1.90 (1.79 – 2.01)	8.72E-99	132711
427.3	Other specified cardiac dysrhythmias	5	1.83 (1.73 – 1.94)	1.54E-95	134656
375.1	Dry eyes	-5	2.64 (2.05 – 3.40)	6.26E-14	85312
375.1	Dry eyes	-4	2.36 (1.90 – 2.93)	1.12E-14	90932
375.1	Dry eyes	-3	2.20 (1.81 – 2.67)	1.23E-15	96622
375.1	Dry eyes	-2	1.95 (1.65 – 2.31)	3.87E-15	102600
375.1	Dry eyes	-1	2.05 (1.77 – 2.37)	1.07E-21	108657
375.1	Dry eyes	0	2.04 (1.79 – 2.32)	2.65E-27	117551
375.1	Dry eyes	1	1.97 (1.76 – 2.21)	2.45E-31	124868
375.1	Dry eyes	2	1.94 (1.75 – 2.16)	6.49E-35	127897
375.1	Dry eyes	3	1.94 (1.76 – 2.14)	5.43E-39	130482
375.1	Dry eyes	4	1.91 (1.74 – 2.10)	4.63E-41	132711
375.1	Dry eyes	5	1.91 (1.75 – 2.09)	1.21E-45	134656
789	Nausea and vomiting	-5	0.74 (0.68 – 0.80)	4.90E-13	85312
789	Nausea and vomiting	-4	0.78 (0.72 – 0.84)	2.34E-11	90932
789	Nausea and vomiting	-3	0.81 (0.76 – 0.87)	2.13E-09	96622
789	Nausea and vomiting	-2	0.84 (0.79 – 0.90)	1.10E-07	102600
789	Nausea and vomiting	-1	0.86 (0.81 – 0.91)	9.56E-07	108657
789	Nausea and vomiting	0	0.91 (0.86 – 0.96)	1.12E-03	117551
789	Nausea and vomiting	1	1.11 (1.06 – 1.17)	8.72E-06	124868
789	Nausea and vomiting	2	1.16 (1.10 – 1.21)	4.55E-10	127897

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PheCode	Disease	Years to OSA diagnosis	Risk ratio	P-value	N
789	Nausea and vomiting	3	1.18 (1.13 – 1.23)	4.01E-13	130482
789	Nausea and vomiting	4	1.18 (1.13 – 1.23)	5.33E-15	132711
789	Nausea and vomiting	5	1.17 (1.13 – 1.22)	1.21E-14	134656
721.8	Other allied disorders of spine	-5	5.00 (3.22 – 7.78)	9.39E-13	85312
721.8	Other allied disorders of spine	-4	5.85 (3.91 – 8.74)	7.43E-18	90932
721.8	Other allied disorders of spine	-3	6.18 (4.36 – 8.77)	1.91E-24	96622
721.8	Other allied disorders of spine	-2	6.69 (4.90 – 9.14)	6.33E-33	102600
721.8	Other allied disorders of spine	-1	6.31 (4.81 – 8.29)	3.92E-40	108657
721.8	Other allied disorders of spine	0	6.29 (4.94 – 8.02)	3.34E-50	117551
721.8	Other allied disorders of spine	1	6.63 (5.35 – 8.21)	5.14E-67	124868
721.8	Other allied disorders of spine	2	6.63 (5.46 – 8.05)	2.62E-81	127897
721.8	Other allied disorders of spine	3	6.27 (5.25 – 7.48)	2.78E-92	130482
721.8	Other allied disorders of spine	4	5.86 (4.97 – 6.91)	1.04E-98	132711
721.8	Other allied disorders of spine	5	6.04 (5.15 – 7.07)	4.94E-110	134656
379	Other disorders of eye	-5	62.06 (19.49 – 197.59)	2.83E-12	85312
379	Other disorders of eye	-4	85.24 (26.78 – 271.34)	5.29E-14	90932
379	Other disorders of eye	-3	54.16 (23.58 – 124.37)	4.90E-21	96622
379	Other disorders of eye	-2	64.76 (28.51 – 147.08)	2.18E-23	102600
379	Other disorders of eye	-1	58.44 (28.70 – 118.99)	3.52E-29	108657
379	Other disorders of eye	0	52.24 (27.59 – 98.90)	5.91E-34	117551
379	Other disorders of eye	1	65.36 (34.84 – 122.60)	9.14E-39	124868
379	Other disorders of eye	2	58.64 (33.76 – 101.85)	2.45E-47	127897
379	Other disorders of eye	3	63.19 (37.16 – 107.43)	6.51E-53	130482
379	Other disorders of eye	4	70.92 (41.75 – 120.46)	5.32E-56	132711
379	Other disorders of eye	5	56.42 (35.75 – 89.03)	2.91E-67	134656
550.2	Diaphragmatic hernia	-5	1.56 (1.37 – 1.77)	3.72E-12	85312
550.2	Diaphragmatic hernia	-4	1.56 (1.39 – 1.76)	7.22E-14	90932
550.2	Diaphragmatic hernia	-3	1.63 (1.47 – 1.82)	8.06E-19	96622
550.2	Diaphragmatic hernia	-2	1.63 (1.47 – 1.80)	5.04E-21	102600
550.2	Diaphragmatic hernia	-1	1.66 (1.51 – 1.82)	5.02E-26	108657
550.2	Diaphragmatic hernia	0	1.80 (1.65 – 1.96)	1.04E-40	117551
550.2	Diaphragmatic hernia	1	2.25 (2.08 – 2.43)	3.28E-93	124868
550.2	Diaphragmatic hernia	2	2.34 (2.18 – 2.52)	1.13E-112	127897
550.2	Diaphragmatic hernia	3	2.38 (2.21 – 2.55)	1.12E-123	130482

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PheCode	Disease	Years to OSA diagnosis	Risk ratio	P-value	N
550.2	Diaphragmatic hernia	4	2.40 (2.24 – 2.57)	5.33E-135	132711
550.2	Diaphragmatic hernia	5	2.41 (2.25 – 2.57)	8.86E-144	134656
165.1	Cancer of bronchus; lung	-5	0.49 (0.40 – 0.60)	5.61E-12	85312
165.1	Cancer of bronchus; lung	-4	0.46 (0.38 – 0.55)	3.64E-16	90932
165.1	Cancer of bronchus; lung	-3	0.46 (0.39 – 0.55)	4.67E-19	96622
165.1	Cancer of bronchus; lung	-2	0.47 (0.40 – 0.55)	5.82E-21	102600
165.1	Cancer of bronchus; lung	-1	0.47 (0.40 – 0.54)	2.84E-25	108657
165.1	Cancer of bronchus; lung	0	0.58 (0.52 – 0.66)	3.09E-18	117551
165.1	Cancer of bronchus; lung	1	0.71 (0.64 – 0.79)	3.44E-10	124868
165.1	Cancer of bronchus; lung	2	0.72 (0.65 – 0.79)	6.20E-11	127897
165.1	Cancer of bronchus; lung	3	0.71 (0.65 – 0.79)	4.96E-12	130482
165.1	Cancer of bronchus; lung	4	0.73 (0.67 – 0.80)	2.72E-11	132711
165.1	Cancer of bronchus; lung	5	0.72 (0.66 – 0.79)	3.98E-13	134656
208	Benign neoplasm of colon	-5	1.22 (1.15 – 1.30)	1.92E-11	85312
208	Benign neoplasm of colon	-4	1.25 (1.18 – 1.31)	3.26E-15	90932
208	Benign neoplasm of colon	-3	1.26 (1.19 – 1.32)	1.68E-18	96622
208	Benign neoplasm of colon	-2	1.30 (1.24 – 1.36)	2.37E-27	102600
208	Benign neoplasm of colon	-1	1.32 (1.26 – 1.38)	3.94E-35	108657
208	Benign neoplasm of colon	0	1.31 (1.25 – 1.36)	3.53E-37	117551
208	Benign neoplasm of colon	1	1.42 (1.36 – 1.47)	6.61E-72	124868
208	Benign neoplasm of colon	2	1.48 (1.43 – 1.54)	3.64E-97	127897
208	Benign neoplasm of colon	3	1.51 (1.45 – 1.56)	3.94E-111	130482
208	Benign neoplasm of colon	4	1.52 (1.46 – 1.57)	1.28E-120	132711
208	Benign neoplasm of colon	5	1.53 (1.48 – 1.59)	1.02E-133	134656
571.51	Cirrhosis of liver without mention of alcohol	-5	0.39 (0.30 – 0.51)	1.92E-11	85312
571.51	Cirrhosis of liver without mention of alcohol	-4	0.40 (0.31 – 0.52)	5.89E-13	90932
571.51	Cirrhosis of liver without mention of alcohol	-3	0.39 (0.31 – 0.49)	4.45E-16	96622
571.51	Cirrhosis of liver without mention of alcohol	-2	0.41 (0.33 – 0.50)	1.15E-17	102600
571.51	Cirrhosis of liver without mention of alcohol	-1	0.44 (0.36 – 0.52)	5.45E-19	108657
571.51	Cirrhosis of liver without mention of alcohol	0	0.54 (0.47 – 0.63)	3.72E-15	117551
571.51	Cirrhosis of liver without mention of alcohol	1	0.67 (0.59 – 0.77)	3.09E-09	124868
571.51	Cirrhosis of liver without mention of alcohol	2	0.71 (0.63 – 0.80)	5.31E-08	127897
571.51	Cirrhosis of liver without mention of alcohol	3	0.72 (0.64 – 0.81)	4.01E-08	130482
571.51	Cirrhosis of liver without mention of alcohol	4	0.72 (0.65 – 0.81)	3.95E-08	132711

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PheCode	Disease	Years to OSA diagnosis	Risk ratio	P-value	N
571.51	Cirrhosis of liver without mention of alcohol	5	0.72 (0.65 – 0.81)	1.09E-08	134656
296.2	Depression	-5	1.19 (1.13 – 1.25)	5.26E-11	85312
296.2	Depression	-4	1.21 (1.15 – 1.27)	9.68E-15	90932
296.2	Depression	-3	1.24 (1.18 – 1.30)	5.64E-20	96622
296.2	Depression	-2	1.27 (1.21 – 1.33)	1.05E-25	102600
296.2	Depression	-1	1.30 (1.24 – 1.36)	8.67E-33	108657
296.2	Depression	0	1.31 (1.26 – 1.37)	7.03E-38	117551
296.2	Depression	1	1.46 (1.40 – 1.52)	1.28E-77	124868
296.2	Depression	2	1.49 (1.43 – 1.55)	1.48E-87	127897
296.2	Depression	3	1.51 (1.45 – 1.57)	1.53E-92	130482
296.2	Depression	4	1.51 (1.45 – 1.57)	1.24E-97	132711
296.2	Depression	5	1.51 (1.46 – 1.57)	6.04E-100	134656
250.2	Type 2 diabetes	-5	1.19 (1.13 – 1.26)	8.07E-11	85312
250.2	Type 2 diabetes	-4	1.20 (1.15 – 1.27)	2.94E-13	90932
250.2	Type 2 diabetes	-3	1.22 (1.16 – 1.28)	7.45E-17	96622
250.2	Type 2 diabetes	-2	1.26 (1.20 – 1.31)	4.23E-25	102600
250.2	Type 2 diabetes	-1	1.28 (1.23 – 1.34)	9.76E-33	108657
250.2	Type 2 diabetes	0	1.35 (1.30 – 1.40)	6.43E-56	117551
250.2	Type 2 diabetes	1	1.58 (1.52 – 1.63)	9.49E-153	124868
250.2	Type 2 diabetes	2	1.57 (1.52 – 1.62)	2.58E-158	127897
250.2	Type 2 diabetes	3	1.57 (1.52 – 1.62)	3.88E-163	130482
250.2	Type 2 diabetes	4	1.55 (1.50 – 1.60)	1.22E-163	132711
250.2	Type 2 diabetes	5	1.54 (1.50 – 1.59)	8.86E-167	134656
475	Chronic sinusitis	-5	1.30 (1.20 – 1.41)	2.21E-10	85312
475	Chronic sinusitis	-4	1.31 (1.21 – 1.41)	6.42E-12	90932
475	Chronic sinusitis	-3	1.33 (1.24 – 1.43)	1.80E-14	96622
475	Chronic sinusitis	-2	1.37 (1.28 – 1.46)	6.17E-19	102600
475	Chronic sinusitis	-1	1.45 (1.36 – 1.55)	6.35E-29	108657
475	Chronic sinusitis	0	1.53 (1.44 – 1.63)	3.33E-43	117551
475	Chronic sinusitis	1	1.97 (1.86 – 2.08)	1.20E-132	124868
475	Chronic sinusitis	2	2.05 (1.95 – 2.16)	4.03E-159	127897
475	Chronic sinusitis	3	2.09 (1.98 – 2.20)	1.52E-176	130482
475	Chronic sinusitis	4	2.10 (2.00 – 2.21)	6.34E-190	132711
475	Chronic sinusitis	5	2.11 (2.01 – 2.22)	1.28E-201	134656

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PheCode	Disease	Years to OSA diagnosis	Risk ratio	P-value	N
389	Hearing loss	-5	1.43 (1.28 – 1.60)	3.19E-10	85312
389	Hearing loss	-4	1.49 (1.35 – 1.65)	5.09E-15	90932
389	Hearing loss	-3	1.48 (1.35 – 1.62)	2.99E-17	96622
389	Hearing loss	-2	1.52 (1.40 – 1.65)	6.34E-24	102600
389	Hearing loss	-1	1.51 (1.40 – 1.63)	6.96E-28	108657
389	Hearing loss	0	1.57 (1.47 – 1.68)	1.76E-40	117551
389	Hearing loss	1	1.90 (1.79 – 2.02)	9.06E-104	124868
389	Hearing loss	2	1.93 (1.82 – 2.04)	4.77E-121	127897
389	Hearing loss	3	1.90 (1.81 – 2.01)	9.89E-129	130482
389	Hearing loss	4	1.88 (1.79 – 1.98)	5.63E-136	132711
389	Hearing loss	5	1.85 (1.77 – 1.94)	4.55E-140	134656
564.1	Irritable Bowel Syndrome	-5	1.45 (1.29 – 1.63)	3.80E-10	85312
564.1	Irritable Bowel Syndrome	-4	1.49 (1.34 – 1.67)	7.90E-13	90932
564.1	Irritable Bowel Syndrome	-3	1.54 (1.39 – 1.70)	2.02E-16	96622
564.1	Irritable Bowel Syndrome	-2	1.62 (1.47 – 1.79)	4.67E-22	102600
564.1	Irritable Bowel Syndrome	-1	1.75 (1.59 – 1.91)	3.44E-33	108657
564.1	Irritable Bowel Syndrome	0	1.78 (1.64 – 1.94)	1.99E-40	117551
564.1	Irritable Bowel Syndrome	1	1.97 (1.83 – 2.13)	6.40E-66	124868
564.1	Irritable Bowel Syndrome	2	2.02 (1.87 – 2.18)	1.24E-74	127897
564.1	Irritable Bowel Syndrome	3	2.04 (1.89 – 2.19)	2.43E-82	130482
564.1	Irritable Bowel Syndrome	4	2.05 (1.91 – 2.19)	4.36E-89	132711
564.1	Irritable Bowel Syndrome	5	2.03 (1.89 – 2.17)	1.66E-91	134656
278.1	Obesity	-5	1.16 (1.10 – 1.21)	1.40E-09	85312
278.1	Obesity	-4	1.18 (1.13 – 1.24)	5.09E-14	90932
278.1	Obesity	-3	1.23 (1.19 – 1.29)	2.44E-24	96622
278.1	Obesity	-2	1.25 (1.21 – 1.30)	3.02E-31	102600
278.1	Obesity	-1	1.30 (1.25 – 1.34)	2.12E-48	108657
278.1	Obesity	0	1.39 (1.34 – 1.43)	3.21E-91	117551
278.1	Obesity	1	1.78 (1.73 – 1.83)	0.00E+00	124868
278.1	Obesity	2	1.82 (1.77 – 1.87)	0.00E+00	127897
278.1	Obesity	3	1.81 (1.76 – 1.86)	0.00E+00	130482
278.1	Obesity	4	1.79 (1.75 – 1.84)	0.00E+00	132711
278.1	Obesity	5	1.77 (1.73 – 1.82)	0.00E+00	134656
338.2	Chronic pain	-5	1.51 (1.31 – 1.74)	1.35E-08	85312

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PheCode	Disease	Years to OSA diagnosis	Risk ratio	P-value	N
338.2	Chronic pain	-4	1.50 (1.33 – 1.68)	1.91E-11	90932
338.2	Chronic pain	-3	1.52 (1.37 – 1.67)	1.94E-16	96622
338.2	Chronic pain	-2	1.47 (1.35 – 1.60)	6.55E-19	102600
338.2	Chronic pain	-1	1.50 (1.40 – 1.62)	8.97E-27	108657
338.2	Chronic pain	0	1.58 (1.48 – 1.69)	5.64E-43	117551
338.2	Chronic pain	1	1.79 (1.69 – 1.90)	6.62E-85	124868
338.2	Chronic pain	2	1.80 (1.70 – 1.90)	2.48E-97	127897
338.2	Chronic pain	3	1.81 (1.72 – 1.91)	6.14E-111	130482
338.2	Chronic pain	4	1.75 (1.67 – 1.84)	1.10E-111	132711
338.2	Chronic pain	5	1.72 (1.64 – 1.80)	1.71E-114	134656
798.1	Chronic fatigue syndrome	-5	2.24 (1.67 – 2.99)	5.19E-08	85312
798.1	Chronic fatigue syndrome	-4	2.19 (1.67 – 2.86)	1.14E-08	90932
798.1	Chronic fatigue syndrome	-3	2.12 (1.66 – 2.70)	1.33E-09	96622
798.1	Chronic fatigue syndrome	-2	2.12 (1.71 – 2.62)	4.88E-12	102600
798.1	Chronic fatigue syndrome	-1	2.29 (1.91 – 2.76)	7.76E-19	108657
798.1	Chronic fatigue syndrome	0	3.24 (2.78 – 3.77)	1.85E-51	117551
798.1	Chronic fatigue syndrome	1	3.54 (3.10 – 4.04)	9.98E-79	124868
798.1	Chronic fatigue syndrome	2	3.56 (3.15 – 4.02)	1.54E-91	127897
798.1	Chronic fatigue syndrome	3	3.41 (3.04 – 3.83)	1.07E-96	130482
798.1	Chronic fatigue syndrome	4	3.32 (2.98 – 3.70)	8.92E-104	132711
798.1	Chronic fatigue syndrome	5	3.20 (2.89 – 3.55)	1.49E-107	134656
327.71	Restless legs syndrome	-5	2.38 (1.74 – 3.26)	5.25E-08	85312
327.71	Restless legs syndrome	-4	2.58 (1.96 – 3.39)	1.57E-11	90932
327.71	Restless legs syndrome	-3	2.45 (1.93 – 3.11)	1.85E-13	96622
327.71	Restless legs syndrome	-2	2.35 (1.91 – 2.91)	2.00E-15	102600
327.71	Restless legs syndrome	-1	2.64 (2.20 – 3.18)	6.99E-25	108657
327.71	Restless legs syndrome	0	3.60 (3.08 – 4.22)	8.88E-58	117551
327.71	Restless legs syndrome	1	7.12 (6.25 – 8.10)	2.10E-193	124868
327.71	Restless legs syndrome	2	7.09 (6.29 – 8.01)	1.10E-221	127897
327.71	Restless legs syndrome	3	6.86 (6.12 – 7.69)	7.23E-239	130482
327.71	Restless legs syndrome	4	6.87 (6.15 – 7.68)	7.27E-256	132711
327.71	Restless legs syndrome	5	6.62 (5.95 – 7.36)	7.34E-268	134656
740.9	Osteoarthritis NOS	-5	1.13 (1.08 – 1.18)	1.17E-07	85312
740.9	Osteoarthritis NOS	-4	1.14 (1.10 – 1.19)	3.36E-10	90932

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PheCode	Disease	Years to OSA diagnosis	Risk ratio	P-value	N
740.9	Osteoarthritis NOS	-3	1.16 (1.11 – 1.21)	2.41E-13	96622
740.9	Osteoarthritis NOS	-2	1.17 (1.13 – 1.21)	2.97E-16	102600
740.9	Osteoarthritis NOS	-1	1.19 (1.14 – 1.23)	6.74E-21	108657
740.9	Osteoarthritis NOS	0	1.19 (1.15 – 1.23)	5.28E-24	117551
740.9	Osteoarthritis NOS	1	1.32 (1.28 – 1.36)	6.00E-66	124868
740.9	Osteoarthritis NOS	2	1.36 (1.32 – 1.41)	6.69E-82	127897
740.9	Osteoarthritis NOS	3	1.38 (1.33 – 1.42)	1.54E-87	130482
740.9	Osteoarthritis NOS	4	1.38 (1.34 – 1.43)	3.36E-91	132711
740.9	Osteoarthritis NOS	5	1.38 (1.34 – 1.43)	1.08E-94	134656
512.9	Other dyspnea	-5	0.83 (0.78 – 0.89)	3.39E-07	85312
512.9	Other dyspnea	-4	0.89 (0.83 – 0.95)	2.48E-04	90932
512.9	Other dyspnea	-3	0.93 (0.87 – 0.98)	1.16E-02	96622
512.9	Other dyspnea	-2	0.98 (0.93 – 1.04)	5.08E-01	102600
512.9	Other dyspnea	-1	1.08 (1.03 – 1.14)	1.89E-03	108657
512.9	Other dyspnea	0	1.52 (1.46 – 1.58)	1.23E-86	117551
512.9	Other dyspnea	1	1.83 (1.76 – 1.90)	8.77E-220	124868
512.9	Other dyspnea	2	1.84 (1.78 – 1.91)	1.60E-235	127897
512.9	Other dyspnea	3	1.82 (1.76 – 1.89)	3.69E-236	130482
512.9	Other dyspnea	4	1.80 (1.74 – 1.86)	8.43E-238	132711
512.9	Other dyspnea	5	1.78 (1.72 – 1.85)	2.38E-241	134656
455	Hemorrhoids	-5	1.21 (1.13 – 1.31)	3.74E-07	85312
455	Hemorrhoids	-4	1.31 (1.23 – 1.41)	1.08E-14	90932
455	Hemorrhoids	-3	1.34 (1.26 – 1.43)	7.90E-19	96622
455	Hemorrhoids	-2	1.40 (1.32 – 1.49)	1.80E-28	102600
455	Hemorrhoids	-1	1.43 (1.35 – 1.51)	2.26E-35	108657
455	Hemorrhoids	0	1.48 (1.40 – 1.55)	1.50E-48	117551
455	Hemorrhoids	1	1.64 (1.56 – 1.72)	1.15E-89	124868
455	Hemorrhoids	2	1.76 (1.68 – 1.84)	4.00E-130	127897
455	Hemorrhoids	3	1.85 (1.77 – 1.93)	2.95E-167	130482
455	Hemorrhoids	4	1.90 (1.82 – 1.98)	1.73E-196	132711
455	Hemorrhoids	5	1.95 (1.87 – 2.03)	1.15E-226	134656
300.11	Generalized anxiety disorder	-5	1.32 (1.17 – 1.50)	1.28E-05	85312
300.11	Generalized anxiety disorder	-4	1.39 (1.24 – 1.55)	1.66E-08	90932
300.11	Generalized anxiety disorder	-3	1.45 (1.31 – 1.61)	5.47E-13	96622

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PheCode	Disease	Years to OSA diagnosis	Risk ratio	P-value	N
300.11	Generalized anxiety disorder	-2	1.53 (1.40 – 1.68)	6.79E-20	102600
300.11	Generalized anxiety disorder	-1	1.62 (1.49 – 1.76)	3.89E-30	108657
300.11	Generalized anxiety disorder	0	1.74 (1.62 – 1.88)	2.26E-49	117551
300.11	Generalized anxiety disorder	1	1.95 (1.82 – 2.08)	7.41E-87	124868
300.11	Generalized anxiety disorder	2	1.97 (1.85 – 2.10)	1.18E-96	127897
300.11	Generalized anxiety disorder	3	1.97 (1.85 – 2.09)	2.52E-102	130482
300.11	Generalized anxiety disorder	4	1.94 (1.82 – 2.05)	5.71E-106	132711
300.11	Generalized anxiety disorder	5	1.93 (1.82 – 2.04)	1.67E-112	134656
271.3	Intestinal disaccharidase deficiencies	-5	1.63 (1.29 – 2.05)	3.27E-05	85312
271.3	Intestinal disaccharidase deficiencies	-4	1.72 (1.42 – 2.09)	4.18E-08	90932
271.3	Intestinal disaccharidase deficiencies	-3	1.89 (1.61 – 2.21)	6.59E-15	96622
271.3	Intestinal disaccharidase deficiencies	-2	1.79 (1.56 – 2.05)	4.19E-17	102600
271.3	Intestinal disaccharidase deficiencies	-1	1.85 (1.66 – 2.07)	3.41E-27	108657
271.3	Intestinal disaccharidase deficiencies	0	1.90 (1.73 – 2.08)	2.08E-42	117551
271.3	Intestinal disaccharidase deficiencies	1	2.28 (2.12 – 2.47)	5.10E-99	124868
271.3	Intestinal disaccharidase deficiencies	2	2.23 (2.08 – 2.40)	5.15E-114	127897
271.3	Intestinal disaccharidase deficiencies	3	2.15 (2.02 – 2.30)	4.43E-121	130482
271.3	Intestinal disaccharidase deficiencies	4	2.12 (1.99 – 2.25)	1.04E-132	132711
271.3	Intestinal disaccharidase deficiencies	5	2.03 (1.92 – 2.15)	1.57E-134	134656
292.3	Memory loss	-5	1.52 (1.23 – 1.88)	8.62E-05	85312
292.3	Memory loss	-4	1.69 (1.41 – 2.03)	1.40E-08	90932
292.3	Memory loss	-3	1.63 (1.39 – 1.91)	2.57E-09	96622
292.3	Memory loss	-2	1.70 (1.48 – 1.95)	1.09E-13	102600
292.3	Memory loss	-1	1.85 (1.64 – 2.09)	6.78E-23	108657
292.3	Memory loss	0	2.44 (2.20 – 2.70)	2.98E-66	117551
292.3	Memory loss	1	2.76 (2.52 – 3.02)	2.27E-109	124868
292.3	Memory loss	2	2.82 (2.59 – 3.07)	3.67E-130	127897
292.3	Memory loss	3	2.76 (2.55 – 2.99)	4.17E-142	130482
292.3	Memory loss	4	2.70 (2.50 – 2.91)	1.36E-148	132711
292.3	Memory loss	5	2.65 (2.47 – 2.85)	6.36E-155	134656
760	Back pain	-5	1.07 (1.03 – 1.12)	6.49E-04	85312
760	Back pain	-4	1.09 (1.05 – 1.14)	4.61E-06	90932
760	Back pain	-3	1.13 (1.09 – 1.17)	2.08E-11	96622
760	Back pain	-2	1.15 (1.11 – 1.19)	1.14E-14	102600

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PheCode	Disease	Years to OSA diagnosis	Risk ratio	P-value	N
760	Back pain	-1	1.16 (1.12 – 1.19)	5.49E-18	108657
760	Back pain	0	1.15 (1.12 – 1.19)	2.97E-19	117551
760	Back pain	1	1.23 (1.20 – 1.27)	4.58E-44	124868
760	Back pain	2	1.27 (1.24 – 1.31)	1.95E-62	127897
760	Back pain	3	1.30 (1.26 – 1.33)	3.64E-75	130482
760	Back pain	4	1.31 (1.27 – 1.34)	4.26E-85	132711
760	Back pain	5	1.31 (1.28 – 1.35)	3.87E-92	134656
278.11	Morbid obesity	-5	0.86 (0.76 – 0.98)	1.88E-02	85312
278.11	Morbid obesity	-4	0.89 (0.79 – 0.99)	3.71E-02	90932
278.11	Morbid obesity	-3	0.96 (0.87 – 1.06)	4.57E-01	96622
278.11	Morbid obesity	-2	1.06 (0.97 – 1.15)	2.37E-01	102600
278.11	Morbid obesity	-1	1.13 (1.04 – 1.22)	2.47E-03	108657
278.11	Morbid obesity	0	1.57 (1.47 – 1.68)	1.42E-39	117551
278.11	Morbid obesity	1	2.19 (2.06 – 2.32)	1.99E-139	124868
278.11	Morbid obesity	2	2.20 (2.06 – 2.34)	7.28E-135	127897
278.11	Morbid obesity	3	2.14 (2.02 – 2.27)	9.40E-138	130482
278.11	Morbid obesity	4	2.07 (1.96 – 2.19)	2.15E-138	132711
278.11	Morbid obesity	5	2.02 (1.91 – 2.14)	1.77E-138	134656
496	Chronic airway obstruction	-5	1.08 (0.97 – 1.20)	1.58E-01	85312
496	Chronic airway obstruction	-4	1.10 (1.00 – 1.22)	5.31E-02	90932
496	Chronic airway obstruction	-3	1.19 (1.09 – 1.30)	1.47E-04	96622
496	Chronic airway obstruction	-2	1.23 (1.14 – 1.34)	7.27E-07	102600
496	Chronic airway obstruction	-1	1.33 (1.24 – 1.44)	8.02E-14	108657
496	Chronic airway obstruction	0	1.60 (1.49 – 1.71)	2.71E-43	117551
496	Chronic airway obstruction	1	2.10 (1.98 – 2.23)	3.24E-134	124868
496	Chronic airway obstruction	2	2.07 (1.96 – 2.20)	1.70E-137	127897
496	Chronic airway obstruction	3	2.02 (1.91 – 2.14)	1.10E-134	130482
496	Chronic airway obstruction	4	1.98 (1.88 – 2.10)	1.76E-133	132711
496	Chronic airway obstruction	5	1.93 (1.83 – 2.04)	1.68E-128	134656
474.2	Chronic tonsillitis and adenoiditis	-5	1.12 (0.89 – 1.41)	3.15E-01	85312
474.2	Chronic tonsillitis and adenoiditis	-4	1.08 (0.87 – 1.34)	4.98E-01	90932
474.2	Chronic tonsillitis and adenoiditis	-3	1.11 (0.91 – 1.36)	2.93E-01	96622
474.2	Chronic tonsillitis and adenoiditis	-2	1.18 (0.98 – 1.42)	7.67E-02	102600
474.2	Chronic tonsillitis and adenoiditis	-1	1.31 (1.11 – 1.55)	1.61E-03	108657

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PheCode	Disease	Years to OSA diagnosis	Risk ratio	P-value	N
474.2	Chronic tonsillitis and adenoiditis	0	2.01 (1.75 – 2.31)	7.27E-23	117551
474.2	Chronic tonsillitis and adenoiditis	1	4.84 (4.36 – 5.39)	8.33E-187	124868
474.2	Chronic tonsillitis and adenoiditis	2	5.00 (4.52 – 5.53)	4.33E-212	127897
474.2	Chronic tonsillitis and adenoiditis	3	5.02 (4.55 – 5.53)	6.43E-230	130482
474.2	Chronic tonsillitis and adenoiditis	4	5.01 (4.56 – 5.51)	3.02E-243	132711
474.2	Chronic tonsillitis and adenoiditis	5	4.98 (4.54 – 5.46)	6.85E-252	134656
278	Overweight, obesity, hyperalimentation	-5	1.05 (0.95 – 1.16)	3.22E-01	85312
278	Overweight, obesity, hyperalimentation	-4	1.05 (0.96 – 1.15)	2.54E-01	90932
278	Overweight, obesity, hyperalimentation	-3	1.07 (0.99 – 1.16)	8.02E-02	96622
278	Overweight, obesity, hyperalimentation	-2	1.12 (1.04 – 1.20)	2.99E-03	102600
278	Overweight, obesity, hyperalimentation	-1	1.13 (1.06 – 1.21)	2.31E-04	108657
278	Overweight, obesity, hyperalimentation	0	1.23 (1.16 – 1.31)	4.80E-12	117551
278	Overweight, obesity, hyperalimentation	1	1.75 (1.67 – 1.84)	7.79E-115	124868
278	Overweight, obesity, hyperalimentation	2	1.77 (1.69 – 1.85)	3.42E-132	127897
278	Overweight, obesity, hyperalimentation	3	1.80 (1.72 – 1.88)	5.60E-153	130482
278	Overweight, obesity, hyperalimentation	4	1.79 (1.71 – 1.86)	7.93E-162	132711
278	Overweight, obesity, hyperalimentation	5	1.79 (1.72 – 1.87)	1.21E-175	134656
292	Neurological disorders	-5	1.27 (0.67 – 2.39)	4.64E-01	85312
292	Neurological disorders	-4	1.86 (1.14 – 3.04)	1.29E-02	90932
292	Neurological disorders	-3	2.21 (1.49 – 3.28)	8.82E-05	96622
292	Neurological disorders	-2	2.16 (1.58 – 2.94)	1.23E-06	102600
292	Neurological disorders	-1	2.51 (1.96 – 3.22)	4.00E-13	108657
292	Neurological disorders	0	3.60 (2.94 – 4.40)	7.77E-36	117551
292	Neurological disorders	1	4.17 (3.51 – 4.95)	8.69E-60	124868
292	Neurological disorders	2	4.18 (3.56 – 4.89)	3.07E-70	127897
292	Neurological disorders	3	4.04 (3.49 – 4.67)	7.16E-78	130482
292	Neurological disorders	4	4.08 (3.55 – 4.68)	3.59E-88	132711
292	Neurological disorders	5	4.00 (3.50 – 4.56)	3.17E-93	134656
428.1	Congestive heart failure (CHF) NOS	-5	0.98 (0.89 – 1.07)	6.41E-01	85312
428.1	Congestive heart failure (CHF) NOS	-4	1.00 (0.92 – 1.09)	9.77E-01	90932
428.1	Congestive heart failure (CHF) NOS	-3	1.04 (0.96 – 1.12)	3.69E-01	96622
428.1	Congestive heart failure (CHF) NOS	-2	1.09 (1.01 – 1.17)	2.02E-02	102600
428.1	Congestive heart failure (CHF) NOS	-1	1.14 (1.07 – 1.22)	5.26E-05	108657
428.1	Congestive heart failure (CHF) NOS	0	1.41 (1.33 – 1.49)	1.50E-32	117551

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PheCode	Disease	Years to OSA diagnosis	Risk ratio	P-value	N
428.1	Congestive heart failure (CHF) NOS	1	1.76 (1.67 – 1.85)	8.68E-106	124868
428.1	Congestive heart failure (CHF) NOS	2	1.75 (1.67 – 1.84)	3.37E-108	127897
428.1	Congestive heart failure (CHF) NOS	3	1.74 (1.66 – 1.83)	2.59E-109	130482
428.1	Congestive heart failure (CHF) NOS	4	1.71 (1.63 – 1.80)	8.64E-107	132711
428.1	Congestive heart failure (CHF) NOS	5	1.69 (1.61 – 1.77)	9.37E-105	134656
512.7	Shortness of breath	-5	0.99 (0.93 – 1.07)	8.83E-01	85312
512.7	Shortness of breath	-4	1.01 (0.94 – 1.07)	8.64E-01	90932
512.7	Shortness of breath	-3	1.03 (0.97 – 1.10)	2.67E-01	96622
512.7	Shortness of breath	-2	1.05 (1.00 – 1.11)	6.32E-02	102600
512.7	Shortness of breath	-1	1.12 (1.07 – 1.17)	6.78E-06	108657
512.7	Shortness of breath	0	1.37 (1.31 – 1.43)	6.18E-49	117551
512.7	Shortness of breath	1	1.61 (1.55 – 1.67)	2.41E-134	124868
512.7	Shortness of breath	2	1.59 (1.53 – 1.65)	1.95E-135	127897
512.7	Shortness of breath	3	1.57 (1.52 – 1.63)	4.76E-134	130482
512.7	Shortness of breath	4	1.54 (1.49 – 1.59)	1.98E-131	132711
512.7	Shortness of breath	5	1.51 (1.46 – 1.56)	7.56E-128	134656
798	Malaise and fatigue	-5	1.00 (0.95 – 1.06)	9.48E-01	85312
798	Malaise and fatigue	-4	1.03 (0.98 – 1.08)	2.19E-01	90932
798	Malaise and fatigue	-3	1.07 (1.03 – 1.12)	2.45E-03	96622
798	Malaise and fatigue	-2	1.10 (1.05 – 1.15)	2.10E-05	102600
798	Malaise and fatigue	-1	1.16 (1.11 – 1.20)	1.81E-12	108657
798	Malaise and fatigue	0	1.31 (1.26 – 1.36)	6.03E-49	117551
798	Malaise and fatigue	1	1.47 (1.42 – 1.52)	2.94E-113	124868
798	Malaise and fatigue	2	1.50 (1.45 – 1.55)	1.79E-132	127897
798	Malaise and fatigue	3	1.50 (1.45 – 1.55)	2.45E-138	130482
798	Malaise and fatigue	4	1.49 (1.45 – 1.54)	1.16E-143	132711
798	Malaise and fatigue	5	1.48 (1.44 – 1.53)	5.16E-146	134656

Table S7. Relative temporal trends of lipid and red blood cell-related laboratory associations with OSA.

Median values for years relative to the first OSA diagnosis (or equivalent age in controls) were obtained. All available results were used, with the proportion of cases and controls with data varying by year. Analyses adjusted for age, sex, BMI, population, and cumulative clinical encounter counts through the given year. Age was specific to the relative year, and the closest two BMIs to this relative date were averaged. The results are grouped by red blood cell then by lipid analysis and ordered by significance ten years prior to the first OSA diagnosis date.

Lab	Years to OSA Diagnosis	Cases percentage with lab in year	Controls percentage with lab in year	Risk ratio	P-value	N
Red cell distribution width	-10	12.7	13.7	0.89 (0.87 – 0.91)	3.50E-25	19303
Red cell distribution width	-9	14.7	15.2	0.91 (0.90 – 0.93)	5.47E-19	21752
Red cell distribution width	-8	16.3	16.6	0.92 (0.90 – 0.93)	1.24E-19	23880
Red cell distribution width	-7	18.7	18.3	0.93 (0.92 – 0.95)	7.81E-17	26721
Red cell distribution width	-6	20.9	19.7	0.93 (0.92 – 0.94)	5.34E-21	29036
Red cell distribution width	-5	23.1	21.0	0.94 (0.93 – 0.96)	2.93E-16	31454
Red cell distribution width	-4	25.5	22.4	0.94 (0.93 – 0.95)	6.14E-20	33926
Red cell distribution width	-3	28.7	23.7	0.94 (0.93 – 0.95)	7.12E-26	36677
Red cell distribution width	-2	32.1	25.4	0.95 (0.94 – 0.96)	5.97E-20	40018
Red cell distribution width	-1	36.0	26.4	0.96 (0.95 – 0.97)	2.76E-16	42799
Red cell distribution width	0	55.0	27.0	1.00 (0.99 – 1.01)	0.86	52541
Red cell distribution width	1	50.7	26.3	1.03 (1.03 – 1.04)	8.13E-30	49793
Red cell distribution width	2	41.5	25.0	0.99 (0.98 – 1.00)	0.01	44133
Red cell distribution width	3	35.5	23.4	0.99 (0.98 – 0.99)	0	39627
Red cell distribution width	4	30.7	21.9	0.98 (0.97 – 0.99)	0	35929
Red cell distribution width	5	25.9	19.8	0.98 (0.97 – 0.99)	0	31540
Hematocrit	-10	13.7	14.7	1.03 (1.02 – 1.03)	3.88E-23	20754
Hematocrit	-9	15.7	16.2	1.02 (1.01 – 1.02)	9.51E-15	23167
Hematocrit	-8	17.3	17.4	1.03 (1.02 – 1.03)	3.03E-32	25174
Hematocrit	-7	19.7	19.1	1.02 (1.02 – 1.03)	9.25E-29	27934
Hematocrit	-6	21.8	20.3	1.03 (1.02 – 1.03)	1.13E-38	30147
Hematocrit	-5	24.0	21.7	1.03 (1.02 – 1.03)	8.36E-44	32482
Hematocrit	-4	26.4	23.0	1.03 (1.02 – 1.03)	4.33E-49	34899
Hematocrit	-3	29.5	24.2	1.03 (1.02 – 1.03)	4.32E-61	37543
Hematocrit	-2	32.9	25.8	1.02 (1.02 – 1.03)	1.18E-57	40760
Hematocrit	-1	36.7	26.7	1.02 (1.02 – 1.03)	2.02E-62	43465

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Lab	Years to OSA Diagnosis	Cases percentage with lab in year	Controls percentage with lab in year	Risk ratio	P-value	N
Hematocrit	0	55.7	27.3	1.01 (1.01 – 1.01)	6.68E-23	53187
Hematocrit	1	51.3	26.5	0.98 (0.98 – 0.99)	5.72E-75	50345
Hematocrit	2	41.9	25.2	1.01 (1.00 – 1.01)	7.81E-09	44521
Hematocrit	3	35.7	23.5	1.01 (1.01 – 1.01)	6.89E-17	39925
Hematocrit	4	30.9	22.1	1.01 (1.01 – 1.01)	6.84E-17	36181
Hematocrit	5	26.0	19.9	1.02 (1.01 – 1.02)	7.12E-24	31741
Hemoglobin	-10	13.6	14.6	1.07 (1.06 – 1.09)	1.87E-21	20717
Hemoglobin	-9	15.7	16.1	1.05 (1.04 – 1.06)	1.01E-12	23107
Hemoglobin	-8	17.3	17.4	1.07 (1.06 – 1.09)	5.88E-28	25119
Hemoglobin	-7	19.6	19.1	1.06 (1.05 – 1.08)	7.43E-25	27877
Hemoglobin	-6	21.8	20.3	1.08 (1.06 – 1.09)	3.31E-38	30088
Hemoglobin	-5	24.0	21.6	1.08 (1.07 – 1.09)	2.05E-44	32421
Hemoglobin	-4	26.4	23.0	1.07 (1.06 – 1.08)	7.43E-47	34846
Hemoglobin	-3	29.5	24.1	1.07 (1.06 – 1.08)	1.34E-54	37501
Hemoglobin	-2	32.8	25.8	1.07 (1.06 – 1.08)	2.87E-54	40707
Hemoglobin	-1	36.6	26.7	1.07 (1.06 – 1.07)	1.13E-62	43420
Hemoglobin	0	55.7	27.3	1.02 (1.02 – 1.03)	8.57E-18	53151
Hemoglobin	1	51.2	26.5	0.95 (0.95 – 0.96)	4.38E-86	50260
Hemoglobin	2	41.9	25.2	1.02 (1.01 – 1.02)	1.57E-06	44482
Hemoglobin	3	35.7	23.5	1.03 (1.02 – 1.03)	2.86E-14	39890
Hemoglobin	4	30.9	22.1	1.03 (1.02 – 1.04)	1.23E-16	36149
Hemoglobin	5	26.0	19.9	1.04 (1.04 – 1.05)	9.35E-25	31709
Red blood cell count	-10	13.6	14.6	1.20 (1.16 – 1.25)	9.11E-19	20664
Red blood cell count	-9	15.6	16.1	1.16 (1.11 – 1.20)	1.53E-13	23073
Red blood cell count	-8	17.2	17.4	1.23 (1.19 – 1.28)	4.94E-30	25064
Red blood cell count	-7	19.6	19.0	1.20 (1.16 – 1.24)	1.49E-26	27817
Red blood cell count	-6	21.7	20.3	1.21 (1.17 – 1.25)	1.98E-32	30024
Red blood cell count	-5	23.9	21.6	1.23 (1.19 – 1.27)	1.21E-43	32340
Red blood cell count	-4	26.3	22.9	1.22 (1.19 – 1.25)	2.00E-45	34761
Red blood cell count	-3	29.4	24.1	1.23 (1.20 – 1.26)	2.08E-55	37408
Red blood cell count	-2	32.7	25.7	1.20 (1.17 – 1.23)	2.05E-52	40622
Red blood cell count	-1	36.5	26.7	1.19 (1.17 – 1.22)	3.05E-57	43337
Red blood cell count	0	55.6	27.2	1.08 (1.06 – 1.10)	4.43E-22	53057

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Lab	Years to OSA Diagnosis	Cases percentage with lab in year	Controls percentage with lab in year	Risk ratio	P-value	N
Red blood cell count	1	51.1	26.5	0.89 (0.88 – 0.91)	1.11E-53	50179
Red blood cell count	2	41.8	25.2	1.06 (1.04 – 1.08)	6.68E-10	44416
Red blood cell count	3	35.6	23.5	1.10 (1.07 – 1.12)	8.92E-19	39830
Red blood cell count	4	30.8	22.0	1.11 (1.09 – 1.14)	1.81E-21	36102
Red blood cell count	5	26.0	19.9	1.15 (1.12 – 1.18)	2.39E-30	31669
Mean corpuscular hemoglobin concentration	-10	13.6	14.6	1.01 (0.99 – 1.03)	0.51	20660
Mean corpuscular hemoglobin concentration	-9	15.6	16.1	1.00 (0.98 – 1.02)	0.89	23066
Mean corpuscular hemoglobin concentration	-8	17.2	17.4	1.00 (0.98 – 1.02)	0.97	25059
Mean corpuscular hemoglobin concentration	-7	19.6	19.0	1.00 (0.98 – 1.01)	0.64	27812
Mean corpuscular hemoglobin concentration	-6	21.7	20.3	1.02 (1.01 – 1.03)	0	30033
Mean corpuscular hemoglobin concentration	-5	23.9	21.6	1.02 (1.01 – 1.03)	0	32340
Mean corpuscular hemoglobin concentration	-4	26.3	22.9	1.02 (1.01 – 1.03)	0	34766
Mean corpuscular hemoglobin concentration	-3	29.4	24.1	1.01 (0.99 – 1.02)	0.33	37402
Mean corpuscular hemoglobin concentration	-2	32.7	25.7	1.01 (1.00 – 1.02)	0.01	40617
Mean corpuscular hemoglobin concentration	-1	36.5	26.7	1.02 (1.01 – 1.03)	1.03E-05	43341
Mean corpuscular hemoglobin concentration	0	55.6	27.2	1.00 (0.99 – 1.00)	0.71	53059
Mean corpuscular hemoglobin concentration	1	51.1	26.5	0.97 (0.96 – 0.97)	7.44E-20	50180
Mean corpuscular hemoglobin concentration	2	41.8	25.2	0.99 (0.98 – 1.00)	0.03	44415
Mean corpuscular hemoglobin concentration	3	35.6	23.5	1.00 (0.99 – 1.00)	0.4	39830
Mean corpuscular hemoglobin concentration	4	30.8	22.0	1.01 (1.00 – 1.02)	0.04	36104
Mean corpuscular hemoglobin concentration	5	26.0	19.9	1.02 (1.01 – 1.03)	0	31674
Mean corpuscular hemoglobin	-10	13.6	14.6	1.00 (0.99 – 1.01)	0.63	20657
Mean corpuscular hemoglobin	-9	15.6	16.1	1.00 (0.99 – 1.01)	0.69	23064
Mean corpuscular hemoglobin	-8	17.2	17.4	1.00 (0.99 – 1.00)	0.39	25054
Mean corpuscular hemoglobin	-7	19.6	19.0	1.00 (0.99 – 1.00)	0.46	27809
Mean corpuscular hemoglobin	-6	21.7	20.3	1.00 (1.00 – 1.01)	0.18	30024
Mean corpuscular hemoglobin	-5	23.9	21.6	1.00 (0.99 – 1.01)	0.81	32337
Mean corpuscular hemoglobin	-4	26.3	22.9	1.00 (0.99 – 1.01)	0.74	34760
Mean corpuscular hemoglobin	-3	29.4	24.1	1.00 (0.99 – 1.01)	0.97	37402
Mean corpuscular hemoglobin	-2	32.7	25.7	1.00 (1.00 – 1.01)	0.67	40621
Mean corpuscular hemoglobin	-1	36.5	26.7	1.00 (1.00 – 1.01)	0.44	43335
Mean corpuscular hemoglobin	0	55.6	27.2	1.00 (0.99 – 1.00)	0.1	53057
Mean corpuscular hemoglobin	1	51.1	26.5	0.99 (0.98 – 0.99)	6.75E-13	50178

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Lab	Years to OSA Diagnosis	Cases percentage with lab in year	Controls percentage with lab in year	Risk ratio	P-value	N
Mean corpuscular hemoglobin	2	41.8	25.2	0.99 (0.99 – 1.00)	0.01	44416
Mean corpuscular hemoglobin	3	35.6	23.5	0.99 (0.99 – 1.00)	0.01	39830
Mean corpuscular hemoglobin	4	30.8	22.0	0.99 (0.99 – 1.00)	0.02	36103
Mean corpuscular hemoglobin	5	26.0	19.9	0.99 (0.99 – 1.00)	0.02	31669
Mean corpuscular volume	-10	13.6	14.6	1.00 (1.00 – 1.00)	0.85	20664
Mean corpuscular volume	-9	15.6	16.1	1.00 (1.00 – 1.00)	0.52	23074
Mean corpuscular volume	-8	17.2	17.4	1.00 (1.00 – 1.00)	0.28	25064
Mean corpuscular volume	-7	19.6	19.0	1.00 (1.00 – 1.00)	0.44	27816
Mean corpuscular volume	-6	21.7	20.3	1.00 (1.00 – 1.00)	0.93	30024
Mean corpuscular volume	-5	23.9	21.6	1.00 (0.99 – 1.00)	0.03	32341
Mean corpuscular volume	-4	26.3	22.9	1.00 (1.00 – 1.00)	0.24	34761
Mean corpuscular volume	-3	29.4	24.1	1.00 (1.00 – 1.00)	0.63	37407
Mean corpuscular volume	-2	32.7	25.7	1.00 (1.00 – 1.00)	0.38	40622
Mean corpuscular volume	-1	36.5	26.7	1.00 (1.00 – 1.00)	0.18	43337
Mean corpuscular volume	0	55.6	27.2	1.00 (1.00 – 1.00)	0.31	53057
Mean corpuscular volume	1	51.1	26.5	1.00 (1.00 – 1.00)	0	50179
Mean corpuscular volume	2	41.8	25.2	1.00 (1.00 – 1.00)	0.14	44416
Mean corpuscular volume	3	35.6	23.5	1.00 (1.00 – 1.00)	0.01	39830
Mean corpuscular volume	4	30.8	22.0	1.00 (0.99 – 1.00)	0	36102
Mean corpuscular volume	5	26.0	19.9	0.99 (0.99 – 1.00)	4.91E-06	31669
LDL cholesterol	-10	4.6	6.5	1.00 (1.00 – 1.00)	0.05	8525
LDL cholesterol	-9	5.2	7.1	1.00 (1.00 – 1.00)	0.06	9356
LDL cholesterol	-8	5.7	7.6	1.00 (1.00 – 1.00)	2.66E-05	10116
LDL cholesterol	-7	6.5	8.1	1.00 (1.00 – 1.00)	0	11003
LDL cholesterol	-6	7.1	8.6	1.00 (1.00 – 1.00)	0	11771
LDL cholesterol	-5	8.1	9.1	1.00 (1.00 – 1.00)	0	12673
LDL cholesterol	-4	9.1	9.5	1.00 (1.00 – 1.00)	0.01	13604
LDL cholesterol	-3	10.3	10.1	1.00 (1.00 – 1.00)	0.26	14764
LDL cholesterol	-2	12.0	10.9	1.00 (1.00 – 1.00)	0.61	16305
LDL cholesterol	-1	14.0	11.3	1.00 (1.00 – 1.00)	0.05	17663
LDL cholesterol	0	21.3	12.0	1.00 (1.00 – 1.00)	0.96	21807
LDL cholesterol	1	20.1	12.4	1.00 (1.00 – 1.00)	5.62E-14	21669
LDL cholesterol	2	20.3	13.0	1.00 (1.00 – 1.00)	0	22310

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Lab	Years to OSA Diagnosis	Cases percentage with lab in year	Controls percentage with lab in year	Risk ratio	P-value	N
LDL cholesterol	3	20.3	13.2	1.00 (1.00 – 1.00)	7.40E-05	22472
LDL cholesterol	4	19.9	13.4	1.00 (1.00 – 1.00)	1.15E-05	22545
LDL cholesterol	5	19.0	12.7	1.00 (1.00 – 1.00)	0	21402
Cholesterol	-10	11.7	11.9	1.00 (1.00 – 1.00)	0.05	17149
Cholesterol	-9	13.3	13.1	1.00 (1.00 – 1.00)	0.21	19091
Cholesterol	-8	15.0	14.2	1.00 (1.00 – 1.00)	0.01	20933
Cholesterol	-7	16.8	15.4	1.00 (1.00 – 1.00)	0.01	22902
Cholesterol	-6	18.7	16.2	1.00 (1.00 – 1.00)	0.02	24690
Cholesterol	-5	20.8	17.3	1.00 (1.00 – 1.00)	0.41	26700
Cholesterol	-4	23.1	18.1	1.00 (1.00 – 1.00)	0.05	28575
Cholesterol	-3	25.7	19.0	1.00 (1.00 – 1.00)	0.46	30732
Cholesterol	-2	29.0	20.2	1.00 (1.00 – 1.00)	0.77	33473
Cholesterol	-1	32.8	20.8	1.00 (1.00 – 1.00)	0.11	35955
Cholesterol	0	46.7	21.7	1.00 (1.00 – 1.00)	0.29	43443
Cholesterol	1	42.4	22.6	1.00 (1.00 – 1.00)	9.16E-25	42275
Cholesterol	2	43.8	23.2	1.00 (1.00 – 1.00)	1.72E-06	43512
Cholesterol	3	41.6	23.7	1.00 (1.00 – 1.00)	5.80E-08	42871
Cholesterol	4	38.8	23.7	1.00 (1.00 – 1.00)	1.15E-06	41625
Cholesterol	5	35.1	22.6	1.00 (1.00 – 1.00)	2.61E-05	38742
VLDL cholesterol	-10	3.5	2.8	1.00 (1.00 – 1.00)	0.27	4375
VLDL cholesterol	-9	3.9	3.1	1.00 (1.00 – 1.00)	0.08	4851
VLDL cholesterol	-8	4.4	3.4	1.00 (1.00 – 1.00)	0.33	5365
VLDL cholesterol	-7	4.8	3.7	1.00 (1.00 – 1.00)	0.69	5860
VLDL cholesterol	-6	5.2	3.9	1.00 (1.00 – 1.00)	0.98	6253
VLDL cholesterol	-5	5.7	4.0	1.00 (1.00 – 1.00)	0.38	6666
VLDL cholesterol	-4	6.2	4.4	1.00 (1.00 – 1.00)	0.19	7226
VLDL cholesterol	-3	6.8	4.5	1.00 (1.00 – 1.00)	0.2	7657
VLDL cholesterol	-2	7.8	4.8	1.00 (1.00 – 1.00)	0.01	8424
VLDL cholesterol	-1	8.6	5.1	1.00 (1.00 – 1.00)	0.01	9037
VLDL cholesterol	0	12.6	5.2	1.00 (1.00 – 1.00)	0.05	11076
VLDL cholesterol	1	11.4	5.4	1.00 (1.00 – 1.00)	0	10757
VLDL cholesterol	2	11.6	5.6	1.00 (1.00 – 1.00)	0.01	11014
VLDL cholesterol	3	10.7	5.8	1.00 (1.00 – 1.00)	0	10732

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Lab	Years to OSA Diagnosis	Cases percentage with lab in year	Controls percentage with lab in year	Risk ratio	P-value	N
VLDL cholesterol	4	9.7	5.8	1.00 (1.00 – 1.00)	0.14	10266
VLDL cholesterol	5	8.6	5.5	1.00 (1.00 – 1.00)	0	9447
Triglycerides	-10	10.9	11.1	1.00 (1.00 – 1.00)	0.51	15952
Triglycerides	-9	12.5	12.4	1.00 (1.00 – 1.00)	0.18	17963
Triglycerides	-8	14.3	13.5	1.00 (1.00 – 1.00)	0.32	19905
Triglycerides	-7	16.0	14.7	1.00 (1.00 – 1.00)	0.01	21885
Triglycerides	-6	17.9	15.6	1.00 (1.00 – 1.00)	0.37	23726
Triglycerides	-5	20.0	16.7	1.00 (1.00 – 1.00)	0.55	25770
Triglycerides	-4	22.4	17.5	1.00 (1.00 – 1.00)	0.08	27698
Triglycerides	-3	25.0	18.5	1.00 (1.00 – 1.00)	5.03E-05	29895
Triglycerides	-2	28.3	19.7	1.00 (1.00 – 1.00)	0	32668
Triglycerides	-1	32.2	20.4	1.00 (1.00 – 1.00)	1.41E-09	35248
Triglycerides	0	46.0	21.3	1.00 (1.00 – 1.00)	1.44E-15	42781
Triglycerides	1	42.3	22.2	1.00 (1.00 – 1.00)	0.01	41851
Triglycerides	2	43.3	23.0	1.00 (1.00 – 1.00)	0	43063
Triglycerides	3	41.1	23.4	1.00 (1.00 – 1.00)	7.77E-07	42446
Triglycerides	4	38.5	23.6	1.00 (1.00 – 1.00)	2.96E-10	41275
Triglycerides	5	34.8	22.5	1.00 (1.00 – 1.00)	1.07E-07	38453
HDL cholesterol	-10	11.2	11.5	1.00 (1.00 – 1.00)	0.6	16508
HDL cholesterol	-9	12.9	12.8	1.00 (1.00 – 1.00)	0.08	18516
HDL cholesterol	-8	14.6	13.9	1.00 (1.00 – 1.00)	0.05	20441
HDL cholesterol	-7	16.4	15.0	1.00 (1.00 – 1.00)	0	22419
HDL cholesterol	-6	18.3	15.9	1.00 (1.00 – 1.00)	0.04	24210
HDL cholesterol	-5	20.4	17.0	1.00 (1.00 – 1.00)	0	26289
HDL cholesterol	-4	22.8	17.8	1.00 (1.00 – 1.00)	0.01	28212
HDL cholesterol	-3	25.4	18.8	1.00 (1.00 – 1.00)	8.51E-06	30341
HDL cholesterol	-2	28.7	20.0	1.00 (1.00 – 1.00)	6.61E-06	33113
HDL cholesterol	-1	32.5	20.7	1.00 (1.00 – 1.00)	6.52E-06	35635
HDL cholesterol	0	46.4	21.5	1.00 (1.00 – 1.00)	9.35E-15	43119
HDL cholesterol	1	42.1	22.4	0.99 (0.99 – 1.00)	4.69E-45	41958
HDL cholesterol	2	43.5	23.1	1.00 (1.00 – 1.00)	1.19E-17	43286
HDL cholesterol	3	41.4	23.5	1.00 (1.00 – 1.00)	7.65E-20	42670
HDL cholesterol	4	38.7	23.7	1.00 (1.00 – 1.00)	2.26E-12	41488

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Lab	Years to OSA Diagnosis	Cases percentage with lab in year	Controls percentage with lab in year	Risk ratio	P-value	N
HDL cholesterol	5	35.0	22.5	1.00 (1.00 – 1.00)	1.98E-10	38625

Table S8. Sleep-related note term frequencies.

Clinical note terms were extracted using cTAKES (PMC2995668) using a default clinical pipeline and a Unified Medical Language System (UMLS) ontology (PMC308795). “Prevalence” indicates the proportion of participants with at least one term occurrence in any note. Individual CUI concepts have one or more exact phrases in UMLS.

CUI	Case prevalence	Control prevalence	Concept	UMLS Phrases
C0000981	2.9	1.2	acetazolamide	2-acetyl-amino-1,3,4-thiadiazole-5-sulfonamide 5-acetamido-1,3,4-thiadiazole-2-sulfonamide 5-acetyl-amino-1,3,4-thiadiazole-2-sulfonamide acetamide, n-(5-(aminosulfonyl)-1,3,4-thiadiazol-2-yl)- acetazolamid acetazolamida acetazolamide acetazolamide (medication) acetazolamide (product) acetazolamide (substance) acetazolamide - chemical acetazolamide - chemical (substance) acetazolamide [chemical/ingredient] acetazolamide [epilepsy] acetazolamide [epilepsy] (product) acetazolamide [epilepsy] (substance) acetazolamide [glaucoma] acetazolamide [glaucoma] (product) acetazolamide [glaucoma] (substance) acetazolamide product acetazolamide-containing product acetazolamides acetazolamidum acã©tazolamide n-(5-(aminosulfonyl)-1,3,4-thiadiazol-2-yl)acetamide n-[5-(aminosulfonyl)-1,3,4-thiadiazol-2-yl]acetamide n-[5-(aminosulfonyl)-1,3,5-thiadiazol-2-yl]acetamide product containing acetazolamide product containing acetazolamide (medicinal product)
C0008810	4.9	1.0	circadian rhythm	circadian process circadian rhythm circadian rhythm (function) circadian rhythm, function circadian rhythm, function (observable entity) circadian rhythm, nos circadian rhythms daily biorhythm daily biorhythm, nos diurnal rhythm diurnal rhythms diurnal variation diurnal variations nycthemeral rhythm nycthemeral rhythms nyctohemeral rhythm nyctohemeral rhythms rhythm, circadian rhythm, nycthemeral rhythm, nyctohemeral rhythm, twenty-four hour rhythms, circadian rhythms, nycthemeral rhythms, nyctohemeral rhythms, twenty-four hour twenty four hour rhythm twenty-four hour rhythm twenty-four hour rhythms variation diurnal
C0013117	22.9	6.9	dream	dream dream (function) dream, function dream, function (observable entity) dream, nos dreaming dreams dreamy
C0013144	79.4	36.1	drowsiness	[d]drowsiness [d]drowsiness (context-dependent category) [d]drowsiness (situation) drowsiness drowsiness (function) drowsiness (symptom) drowsiness was observed drowsiness, function drowsiness, function (observable entity) drowsy drowsy (finding) drowsy (physical finding) mental status, drowsy sleepiness sleepy sleepy (finding) somnolence somnolence (sleepiness) somnolent
C0013819	26.9	8.6	electroencephalography	eeg eeg (electrophysiology) eeg - electroencephalography eeg electroencephalography eeg, nos electrical tracings;neurolo electroencephalogr electroencephalogram electroencephalogram (eeg) electroencephalogram (procedure) electroencephalogram, nos electroencephalograms electroencephalography electroencephalography (eeg) electroencephalography (procedure) electroencephalography [eeg]
C0015672	94.1	78.6	fatigue	[d]fatigue [d]fatigue (context-dependent category) [d]fatigue (situation) [d]tiredness

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CUI	Case prevalence	Control prevalence	Concept	UMLS Phrases
				[d]tiredness (context-dependent category) [d]tiredness (situation) decrease in energy decreased energy energy decreased energy loss extreme fatigue fatigue fatigue (diagnosis) fatigue (finding) fatigue [disease/finding] fatigue extremefatigue nos fatigued fatigues fatiguing feeling of total lack of energy lack (of);energy lack of energy lack of energy (finding) lacking energy lacking in energy lacking in energy (finding) loss of energy rndx fatigue rndx fatigue (diagnosis) tatt time tired tired tired all the time tired out tired time tiredness tiredness (finding) weariness
C0028081	48.9	33.2	nights sweats	night sweat night sweating night sweats night sweats (finding) nights sweats nocturnal hyperhidrosis nocturnal perspiration nocturnal; sweating problem;sweating;night sweat; night sweats sweating heavily at night sweating heavily at night (symptom) sweating; night
C0028084	14.2	6.1	nightmares	[x]nightmares frightening dreams nightmare nightmares nightmares (finding) nightmares (symptom) terrifying dreams
C0028734	49.0	29.6	nocturia	[d]nocturia [d]nocturia (context-dependent category) [d]nocturia (situation) finding of nocturia finding of nocturia (finding) nocturia nocturia (finding) nocturia - finding nocturia [disease/finding] nocturnal frequency nycturia urinary frequency more than once at night urinary frequency more than once at night (nocturia) urinary frequency more than once at night (symptom)
C0033139	5.6	1.7	primary insomnia	insomnia, primary insomnia; primary primary insomnia primary insomnia (diagnosis) primary insomnia (disorder) primary; insomnia
C0037313	99.9	76.0	sleep	sleep sleep (biological function) (observable entity) sleep (biological function) [ambiguous] sleep (qualifier value) sleep functions sleep functions, unspecified sleep, function sleep, function (observable entity) sleep, nos sleeping sleeps
C0037315	99.1	21.7	sleep apnea syndrome	[d]sleep apnea syndrome [d]sleep apnea syndrome (context-dependent category) [d]sleep apnea syndrome (situation) [d]sleep apnoea syndrome [d]syndrome sleep apnea [d]syndrome sleep apnoea apnea syndrome apnea syndrome, sleep apnea syndromes, sleep apnea, sleep apnea; sleep apneas, sleep apnoea syndrome hypopnea, sleep hypopneas, sleep periods of not breathing while asleep periods of not breathing while asleep (sleep apnea) periods of not breathing while asleep (symptom) sas - sleep apnea syndrome sas - sleep apnoea syndrome sleep apnea sleep apnea (disorder) sleep apnea (finding) sleep apnea nos sleep apnea syndrome sleep apnea syndromes sleep apnea syndromes [disease/finding] sleep apnea, nos sleep apnea, unspecified sleep apneas sleep apnoea sleep apnoea (disorder) sleep apnoea syndrome sleep apnoea syndromes sleep apnoea, nos sleep apnoea, unspecified sleep apnoeas sleep hypopnea sleep hypopnea (diagnosis) sleep hypopneas sleep hypopnoea sleep; apnea syndrome sleep apnea syndrome sleep apnoea unspecified sleep apnea
C0037316	7.5	1.9	sleep deprivation	deprivation, sleep deprivations, sleep lack of adequate sleep not enough sleeping rndx sleep deprivation rndx sleep deprivation (diagnosis) sleep deficit sleep deprivation sleep deprivation (finding) sleep deprivation [disease/finding] sleep

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CUI	Case prevalence	Control prevalence	Concept	UMLS Phrases
				deprivations
C0037317	57.2	32.4	sleep disturbances	[d]sleep disturbance, unspecified[d]sleep disturbance, unspecified[d]sleep disturbance, unspecified (context-dependent category)[d]sleep disturbance, unspecified (situation)[d]sleep disturbances[d]sleep disturbances (context-dependent category)[d]sleep disturbances (situation) difficulty sleeping disturbance in sleep behavior disturbance in sleep behavior (finding) disturbance in sleep behavior, nos disturbance in sleep behaviour disturbance in sleep behaviour, nos disturbances, sleep disturbed sleep disturbed;sleep problems with sleeping sleep disturbance sleep disturbance nos sleep disturbance, unspecified sleep disturbance, unspecified sleep disturbances sleep disturbances (incl subtypes) sleep disturbances (including subtypes) sleep disturbances (symptom) sleep disturbances [d] sleep disturbed sleep dysfunction sleeping disturbances trouble sleeping unspecified sleep disturbance
C0037384	77.5	17.3	snoring	[d]snoring[d]snoring (context-dependent category)[d]snoring (situation) finding of snoring finding of snoring (finding) observation of snoring snore snored snores snoring snoring (finding) snoring (physical finding) snoring (symptom) snoring [disease/finding] snoring symptom snoring symptom nos snoring symptom nos (context-dependent category) snoring symptom nos (finding) snoring symptoms snoring symptoms (context-dependent category) snoring symptoms (finding) snoring was observed snorings
C0040805	26.4	15.5	trazodone	1,2,4-triazolo(4,3-a)pyridin-3(2h)-one, 2-(3-(4-(3-chlorophenyl)-1-piperazinyl)propyl)-2-(3-[4-(3-chlorophenyl)-1-piperazinyl]propyl)[1,2,4]triazolo[4,3-a]pyridin-3(2h)-one antidepressants trazodone product containing trazodone product containing trazodone (medicinal product) searle brand of trazodone hydrochloride trazodone trazodona trazodone trazodone (medication) trazodone (product) trazodone (substance) trazodone [chemical/ingredient] trazodone product trazodone-containing product trazodonum
C0043012	18.7	6.5	wakefulness	aroused arousing vigilance vigilant wakefulness wakefulness (observable entity) wakefulnesses watchfulness
C0043387	3.8	1.7	yawning	[d]yawning[d]yawning (context-dependent category)[d]yawning (situation) finding of yawning finding of yawning (finding) observation of yawning yawn yawning yawning (finding) yawning (function) yawning (symptom) yawning, function yawning, function (observable entity) yawnings yawns
C0078839	15.5	7.8	zolpidem	hypnotics zolpidem imidazo(1,2-a)pyridine-3-acetamide, n,n,6-trimethyl-2-(4-methylphenyl)-[n,n,6-trimethyl-2-(4-methylphenyl)imidazo(1,2-a)pyridine-3-acetamide[n,n,6-trimethyl-2-(4-methylphenyl)imidazo(1,2a)pyridine-3-acetamide hemitartrate product containing zolpidem product containing zolpidem (medicinal product) zolpidem zolpidem (medication) zolpidem (product) zolpidem (substance) zolpidem [chemical/ingredient] zolpidem product zolpidem-containing product zolpidemum zpd
C0151611	2.2	1.1	abnormal	[d]eeg/electroencephalogr.abn.[d]electroencephalogram (eeg) abnormal

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CUI	Case prevalence	Control prevalence	Concept	UMLS Phrases
			electroencephalogram	[d]electroencephalogram (eeg) abnormal (context-dependent category) [d]electroencephalogram (eeg) abnormal (situation) abnormal eeg abnormal electroencephalogram abnormal electroencephalogram [eeg] abnormal; electroencephalogram abnormality eeg disorder eeg (nos) eeg abnormal eeg abnormalities eeg abnormality eeg abnormality (finding) eeg abnormality, nos eeg/electroencephalogr.abn. electroencephalogram (eeg) abnormal electroencephalogram (eeg) abnormalities electroencephalogram abnormal electroencephalogram abnormal (finding) electroencephalogram abnormal (situation) electroencephalogram abnormalities electroencephalogram abnormality electroencephalogram abnormality (finding) electroencephalogram; abnormal
C0162701	86.3	11.8	polysomnography	2-95 sleep disorder tests and procedures full sleep study monitor sleep monitoring, sleep polysomnogr polysomnogram polysomnogram, nos polysomnograms polysomnographies polysomnography polysomnography (procedure) polysomnography, nos psg sleep disorder tests and procedures sleep measurement sleep monitoring sleep recording sleep studies sleep studies (procedure) sleep study sleep study (procedure) sleep test sleep testing sleep testing (procedure) sleep tests sleeping studying somnogr somnographies somnography study sleep
C0199451	93.5	14.0	continuous positive airway pressure	cont pos airways pres therapy cont positive airways pressure continuous cpap continuous cpap (procedure) continuous cpap (regime/therapy) continuous positive airway pressure continuous positive airway pressure (cpap) continuous positive airway pressure [cpap] continuous positive airway pressure ventilation continuous positive airway pressure ventilation (treatment) continuous positive airway pressure ventilation treatment continuous positive airway pressure ventilation treatment (procedure) continuous positive airway pressure ventilation treatment (regime/therapy) continuous positive airways pressure continuous positive airways pressure (observable entity) continuous positive airways pressure therapy cpap cpap (continuous positive airway pressure ventilation) cpap (continuous positive airway pressure) cpap - cont pos air pres ther cpap - continuous positive airways pressure cpap - continuous positive airways pressure therapy cpap treatment cpap ventilation pressure.continuous positive airway ventilation, cpap
C0234255	8.1	5.3	night pain	night pain night pain (finding) night pains nyctalgalia pain night
C0234422	79.5	62.2	awake	awake awake (finding) awakes clear consciousness wide awake
C0235162	37.9	13.1	difficulty sleeping	difficult sleeping difficulties sleep difficulties sleeping difficulty sleep difficulty sleeping difficulty sleeping (finding) poor sleep sleep difficult sleep difficulties sleeping difficulties sleeping difficulty
C0393760	31.2	6.9	difficulty falling asleep	cannot get off to sleep difficulty falling asleep difficulty falling asleep (symptom) difficulty getting to sleep difficulty in sleep initiation initial insomnia initial insomnia (disorder) initial insomnia (finding) insomnia, vesperal trouble falling asleep vesperal insomnia
C0393761	5.3	1.6	difficulty staying asleep	broken sleep difficulty in sleep maintenanc difficulty in sleep maintenance difficulty

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CUI	Case prevalence	Control prevalence	Concept	UMLS Phrases
				staying asleep fitful sleep interrupted sleep interrupting sleep keeps waking up middle insomnia middle insomnia (disorder) middle insomnia (finding) night wake night wakes night waking sleep maintenance insomnia waking night
C0424522	81.2	42.8	sleeping	activity, sleeping asleep asleep (finding) sleeping
C0424563	21.1	2.5	sleep quality	quality of sleep quality of sleep (finding) quality of sleep (observable entity) sleep quality
C0424565	8.8	4.7	cannot sleep	cannot sleep cannot sleep at all cannot sleep at all (finding) inability to sleep unable (to);sleep unable to sleep
C0424583	3.0	1.4	not tired	not tired not tired (context-dependent category) not tired (finding) not tired (situation)
C0439055	5.8	1.7	tired all the time	"tatt" - tired all the time c/o - "tired all the time" c/o - "tired all the time" (context-dependent category) complaining of "tired all the time" complaining of "tired all the time" (finding) tatt tatt - tired all the time tired all the time tired all the time (& [c/o -]) tired all the time (finding)
C0474396	14.1	4.0	sleep behavior	behavior sleep behaviors sleep behaviour sleeping pattern sleep patterns sleep patterns sleeping sleep behavior sleep behavior (observable entity) sleep behavior finding sleep behavior finding (finding) sleep behavior observations sleep behavior, nos sleep behaviour sleep behaviour finding sleep behaviour observations sleep behaviour, nos sleep pattern sleep pattern (finding) sleep pattern (history) sleep pattern finding sleep pattern finding (finding) sleeping pattern
C0520679	96.9	11.9	obstructive sleep apnea	apnea obstructive sleep apnea obstructive sleeping apnea, obstructive apnea, obstructive sleep apneas, obstructive sleep obstructive apnea obstructive sleep apnea obstructive sleep apnea (adult) (pediatric) obstructive sleep apnea (adult) (pediatric) obstructive sleep apnea (diagnosis) obstructive sleep apnea syndrome obstructive sleep apnea syndrome (disorder) obstructive sleep apneas obstructive sleep apnoea obstructive sleep apnoea (disorder) obstructive sleep apnoea syndrome obstructive sleep osa apnea osa osa - obstructive sleep apnea osa - obstructive sleep apnoea osahs osas sahs sleep apnea (& [obstructive]) sleep apnea hypopnea syndrome sleep apnea obstructive syndrome sleep apnea syndrome, obstructive sleep apnea, obstructive sleep apnea, obstructive [disease/finding] sleep apnea/hypopnea syndrome sleep apneas, obstructive sleep apnoea (& [obstructive]) sleep apnoea (& [obstructive]) (disorder) syndrome, obstructive sleep apnea syndrome, sleep apnea, obstructive
C0557875	75.7	46.0	tired	tired tired (finding)
C0700201	5.4	1.0	dyssomnia	dyssomnia dyssomnia (disorder) dyssomnia nos dyssomnia, nos dyssomnias dyssomnias [disease/finding] sleep disturbance sleep problem
C0718303	4.2	1.8	sleep aid	aid sleep aid sleeping aid to sleep aiding sleep aids sleep aids sleeping sleep aid to aid sleep
C0722882	5.7	1.1	modafinil	modafinil (provigil) provigil
C0723446	4.9	1.4	stay awake	awake stay awake staying stay awake

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CUI	Case prevalence	Control prevalence	Concept	UMLS Phrases
C0851578	36.8	3.6	sleep disorder	9-74 sleep disorders [d]sleep dysfunction nos [d]sleep dysfunction nos (context-dependent category) [d]sleep dysfunction nos (situation) disorder sleep disorder, sleep disorder;sleep disorders, sleep disturbances, sleep parasomnia problem;sleep sleep dis sleep disorder sleep disorder (diagnosis) sleep disorder (disorder) sleep disorder (nos) sleep disorder nos sleep disorder, nos sleep disorder, unspecified sleep disorders sleep disorders and disturbances sleep disturbance sleep disturbances sleep dysfunction nos sleep problem sleep wake disorders sleep wake disorders [disease/finding] sleep-wake disorder sleep-wake disorder (disorder) sleeping disorders
C0917799	19.2	3.2	excessive sleepiness	[d]hypersomnia [d]hypersomnia (context-dependent category) [d]hypersomnia (situation) [d]hypersomnia nos [d]hypersomnia nos (context-dependent category) [d]hypersomnia nos (situation) excessive sleep excessive sleepiness excessive sleeping hypersomnia hypersomnia (diagnosis) hypersomnia (disorder) hypersomnia (excessive sleeping) hypersomnia [d] hypersomnia nos hypersomnia nos (disorder) hypersomnia, nos hypersomnia, unspecified hypersomnias increased sleep increased sleeping much sleep too much sleeping too sleep disorder hypersomnia sleep excessive sleep too much sleeping excessive sleeping too much sleeping too much (hypersomnia) sleeping too much (symptom) sleeps too much too much sleep
C0917801	62.3	33.4	insomnia	[d]insomnia [d]insomnia (context-dependent category) [d]insomnia (situation) [d]insomnia - symptom [d]insomnia nos [d]insomnia nos (context-dependent category) [d]insomnia nos (situation) cannot sleep - insomnia disturbances of sleep/insomnia insomnia insomnia (disorder) insomnia (disorder) [ambiguous] insomnia (symptom) insomnia - symptom insomnia [ambiguous] (disorder) insomnia [d] insomnia dis insomnia disorder insomnia disorder (diagnosis) insomnia disorders insomnia nos insomnia nos (disorder) insomnia symptom insomnia, nos insomnia, unspecified insomnia: [transient] or [nos] insomnia: [transient] or [nos] (disorder) insomnias sleep disorder insomnia sleeplessness
C1956415	49.1	31.4	paroxysmal nocturnal dyspnea	cardiac asthma dyspnea nocturnal paroxysmal dyspnea paroxysmal dyspnea paroxysmal nocturnal dyspnea, nocturnal paroxysmal dyspnea, paroxysmal nocturnal dyspnoea paroxysmal nocturnal paroxysmal dyspnea paroxysmal nocturnal dyspnea paroxysmal nocturnal dyspnea (finding) paroxysmal nocturnal dyspnea pnd paroxysmal nocturnal dyspnoea paroxysmal nocturnal dyspnoea (finding) pnd pnd - paroxys nocturn dyspnea pnd - paroxys nocturn dyspnoea pnd - paroxysmal nocturnal dyspnea pnd - paroxysmal nocturnal dyspnoea pnds
C2219848	14.8	2.1	daytime somnolence	daytime ce daytime somnolence (finding) excessive sleepiness during day excessive sleepiness during day (symptom) excessive sleepiness during the day (daytime somnolence)
C2364286	11.4	6.5	able to sleep	able to sleep able to sleep (finding) actual positive sleep adequate sleep good sleep pattern good sleep pattern (finding)
C2830004	26.9	8.8	somnolence	[d]somnolence [d]somnolence (context-dependent category) [d]somnolence (situation) drowsiness sleepiness somnolence somnolent

Table S9. Incident sleep statistic associations with comorbidities.

Incident analyses considered diagnoses at least one year after the first sleep recording (prioritizing diagnostics, then splits, then home sleep tests) and are ordered by p-values. Primary analyses considered joint-sex PheCodes with >1% incidence rate and were rank-normalized after adjusting for age, sex, BMI, population, sleep study type, and healthcare encounters. The primary analysis considered all available sleep laboratory data (i.e. including participants being screened for other sleep disorders).

1 PheCode was Bonferroni-level significant (**bolded**) and FDR-level significant (in **red**, uncorrected p-values).

Due to PDF width constraints, sensitivity analyses are presented in two tables, with primary columns repeated (apart from incidence and n):

Table S9 further includes:

A sensitivity analysis considering only participants with AHI >15.

A sensitivity analysis further adjusting for an indicator variable for other common sleep disorders (PheCodes 327, 327.1, 327.4, 327.41, 327.5, 327.6, 327.7, 327.71) in the full sleep recording sample.

Table S10 further includes:

A sensitivity analysis further adjusting for an indicator variable for common pulmonary disorders (PheCodes 415.1, 415.11, 415.2, 480.1, 480.11, 480.2, 480, 495, 495.2, 496.1, 496.2, 496.21, 496.3, 497, 502, 503, 505, 506, 509.2).

P-values from sleep statistic × sex interaction analyses (not rank-normalized) performed separately.

Equivalent sex-stratified results.

PheCode	Disease	Sleep statistic	Incidence	Risk ratio	P-value	N	Risk ratio (AHI ≥15)	N (AHI ≥15)	Risk ratio (adj sleep disorders)
350.1	Abnormal involuntary movements	AHI 3%	1.6	0.99 (0.98 – 0.99)	2.0E-04	14830	0.99 (0.98 – 1.00)	7699	0.99 (0.98 – 0.99)
427.9	Palpitations	AHI 3%	1.8	0.99 (0.98 – 1.00)	8.1E-04	13710	0.99 (0.98 – 1.00)	7205	0.99 (0.98 – 1.00)
285	Other anemias	Per88	2.6	1.02 (1.01 – 1.04)	1.4E-03	8330	1.02 (1.01 – 1.04)	4035	1.02 (1.01 – 1.04)
530.9	Heartburn	Per88	1.6	0.97 (0.95 – 0.99)	2.1E-03	9237	0.97 (0.95 – 0.99)	4476	0.97 (0.95 – 0.99)
508	Pulmonary collapse; interstitial and compensatory emphysema	Per88	1.3	1.03 (1.01 – 1.06)	2.8E-03	9271	1.02 (1.00 – 1.04)	4447	1.03 (1.01 – 1.06)
585.3	Chronic renal failure [CKD]	Per88	1.3	1.03 (1.01 – 1.05)	3.8E-03	9252	1.03 (1.01 – 1.05)	4411	1.03 (1.01 – 1.05)
519.8	Other diseases of respiratory system, NEC	Per88	1.4	1.03 (1.01 – 1.05)	4.3E-03	9444	1.02 (1.00 – 1.04)	4578	1.03 (1.01 – 1.05)
292.3	Memory loss	AHI 3%	1.6	0.99 (0.98 – 1.00)	4.6E-03	14731	0.99 (0.98 – 1.00)	7606	0.99 (0.98 – 1.00)
512.9	Other dyspnea	Per88	1.6	1.03 (1.01 – 1.05)	6.1E-03	7969	1.03 (1.01 – 1.05)	3789	1.03 (1.01 – 1.05)
760	Back pain	AHI 3%	1.9	0.99 (0.98 – 1.00)	6.3E-03	11884	0.99 (0.98 – 1.00)	6096	0.99 (0.98 – 1.00)
340	Migraine	AHI 3%	1.1	0.99 (0.99 – 1.00)	8.0E-03	13482	0.99 (0.98 – 1.00)	7329	0.99 (0.99 – 1.00)

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PheCo de	Disease	Sleep statistic	Incidence	Risk ratio	P-value	N	Risk ratio (AHI ≥ 15)	N (AHI ≥ 15)	Risk ratio (adj sleep disorders)
840	Sprains and strains	AHI 3%	2.0	0.99 (0.99 – 1.00)	1.0E-02	14207	0.99 (0.98 – 1.00)	7355	0.99 (0.99 – 1.00)
382	Otalgia	Per88	1.9	0.98 (0.96 – 0.99)	1.0E-02	9060	0.99 (0.97 – 1.01)	4419	0.98 (0.96 – 0.99)
455	Hemorrhoids	AHI 3%	2.1	0.99 (0.99 – 1.00)	1.5E-02	13979	0.99 (0.99 – 1.00)	7233	0.99 (0.99 – 1.00)
599.9	Other abnormality of urination	AHI 3%	1.6	0.99 (0.98 – 1.00)	1.7E-02	14972	0.99 (0.98 – 1.00)	7763	0.99 (0.98 – 1.00)
599.5	Frequency of urination and polyuria	AHI 3%	1.8	0.99 (0.98 – 1.00)	1.8E-02	14148	0.99 (0.98 – 1.00)	7223	0.99 (0.98 – 1.00)
781	Symptoms involving nervous and musculoskeletal systems	Per88	1.8	1.02 (1.00 – 1.04)	2.0E-02	9286	1.02 (1.00 – 1.04)	4516	1.02 (1.00 – 1.04)
563	Constipation	AHI 3%	2.4	0.99 (0.99 – 1.00)	2.1E-02	14061	1.00 (0.99 – 1.00)	7418	0.99 (0.99 – 1.00)
382	Otalgia	AHI 3%	1.9	0.99 (0.99 – 1.00)	2.4E-02	14490	1.00 (0.99 – 1.00)	7560	0.99 (0.99 – 1.00)
480	Pneumonia	Per88	2.0	1.02 (1.00 – 1.04)	2.4E-02	9080	1.01 (0.99 – 1.03)	4353	1.02 (1.00 – 1.04)
512.9	Other dyspnea	AHI 3%	1.6	1.01 (1.00 – 1.02)	2.7E-02	12850	1.01 (1.00 – 1.02)	6549	1.01 (1.00 – 1.02)
465	Acute upper respiratory infections of multiple or unspecified sites	AHI 3%	1.3	1.01 (1.00 – 1.02)	3.2E-02	13885	1.01 (1.00 – 1.02)	7221	1.01 (1.00 – 1.02)
599.4	Urinary incontinence	AHI 3%	1.3	0.99 (0.98 – 1.00)	3.2E-02	14569	0.99 (0.98 – 1.00)	7531	0.99 (0.98 – 1.00)
561	Symptoms involving digestive system	AHI 3%	1.2	0.99 (0.98 – 1.00)	3.3E-02	15072	0.99 (0.98 – 1.00)	7818	0.99 (0.98 – 1.00)
720	Spinal stenosis	AHI 3%	1.1	0.99 (0.98 – 1.00)	3.8E-02	14898	1.00 (0.99 – 1.01)	7647	0.99 (0.98 – 1.00)
173	Neoplasm of uncertain behavior of skin	Per88	2.0	0.98 (0.96 – 1.00)	3.9E-02	8914	0.98 (0.96 – 1.00)	4288	0.98 (0.96 – 1.00)
272.13	Mixed hyperlipidemia	AHI 3%	1.4	1.01 (1.00 – 1.02)	4.1E-02	14573	1.01 (1.00 – 1.02)	7434	1.01 (1.00 – 1.02)
350.1	Abnormal involuntary movements	Per88	1.6	0.98 (0.96 – 1.00)	4.3E-02	9249	0.98 (0.96 – 1.01)	4505	0.98 (0.96 – 1.00)
278.4	Abnormal weight gain	AHI 3%	1.3	0.99 (0.98 – 1.00)	4.6E-02	14603	1.00 (0.99 – 1.01)	7580	0.99 (0.98 – 1.00)
726.1	Enthesopathy	AHI 3%	1.6	0.99 (0.99 – 1.00)	4.6E-02	13881	0.99 (0.98 – 1.00)	7147	0.99 (0.99 – 1.00)
300.11	Generalized anxiety disorder	AHI 3%	1.6	0.99 (0.99 – 1.00)	5.1E-02	14485	0.99 (0.98 – 1.00)	7657	0.99 (0.99 – 1.00)
136	Other infectious and parasitic diseases	Per88	1.6	1.02 (1.00 – 1.03)	5.3E-02	9347	1.01 (1.00 – 1.03)	4527	1.02 (1.00 – 1.03)
292.3	Memory loss	Per88	1.6	0.98 (0.96 – 1.00)	5.7E-02	9172	0.99 (0.97 – 1.01)	4420	0.98 (0.96 – 1.00)
740.9	Osteoarthritis NOS	AHI 3%	1.5	0.99 (0.98 – 1.00)	6.1E-02	12965	1.00 (0.99 – 1.00)	6461	0.99 (0.99 – 1.00)
357	Inflammatory and toxic neuropathy	AHI 3%	1.6	0.99 (0.98 – 1.00)	6.3E-02	14758	1.00 (0.99 – 1.01)	7605	0.99 (0.98 – 1.00)
599.5	Frequency of urination and polyuria	Per88	1.8	0.98 (0.96 – 1.00)	6.4E-02	8852	0.99 (0.97 – 1.00)	4207	0.98 (0.96 – 1.00)
530.11	GERD	AHI 3%	3.9	1.00 (0.99 – 1.00)	6.7E-02	10866	1.00 (0.99 – 1.00)	5447	1.00 (0.99 – 1.00)
427.3	Other specified cardiac dysrhythmias	AHI 3%	1.9	0.99 (0.99 – 1.00)	7.6E-02	14582	1.00 (0.99 – 1.00)	7508	0.99 (0.99 – 1.00)
760	Back pain	Per88	1.9	1.01 (1.00 – 1.03)	8.1E-02	7385	1.02 (1.00 – 1.04)	3544	1.01 (1.00 – 1.03)
742.9	Other derangement of joint	Per88	1.5	0.98 (0.97 – 1.00)	8.6E-02	9321	0.98 (0.96 – 1.00)	4522	0.98 (0.97 – 1.00)
262	Mineral deficiency NEC	AHI 3%	1.4	0.99 (0.99 – 1.00)	8.9E-02	15118	1.00 (0.99 – 1.01)	7856	0.99 (0.99 – 1.00)

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PheCo de	Disease	Sleep statistic	Incidence	Risk ratio	P-value	N	Risk ratio (AHI ≥ 15)	N (AHI ≥ 15)	Risk ratio (adj sleep disorders)
208	Benign neoplasm of colon	AHI 3%	1.9	0.99 (0.99 – 1.00)	9.7E-02	13336	0.99 (0.99 – 1.00)	6697	0.99 (0.99 – 1.00)
276.5	Hypovolemia	Per88	1.5	1.02 (1.00 – 1.04)	9.9E-02	9233	1.01 (0.99 – 1.03)	4483	1.02 (1.00 – 1.04)
689	Disorder of skin and subcutaneous tissue NOS	Per88	4.8	0.99 (0.98 – 1.00)	1.1E-01	8700	0.99 (0.98 – 1.00)	4179	0.99 (0.98 – 1.00)
366.2	Senile cataract	AHI 3%	1.6	0.99 (0.99 – 1.00)	1.2E-01	14630	0.99 (0.98 – 1.00)	7484	0.99 (0.99 – 1.00)
338.2	Chronic pain	AHI 3%	3.0	1.00 (0.99 – 1.00)	1.2E-01	13500	0.99 (0.99 – 1.00)	6997	1.00 (0.99 – 1.00)
476	Allergic rhinitis	Per88	1.5	0.99 (0.97 – 1.00)	1.3E-01	8332	0.98 (0.95 – 1.00)	4074	0.99 (0.97 – 1.00)
550.2	Diaphragmatic hernia	AHI 3%	1.3	0.99 (0.99 – 1.00)	1.4E-01	14748	0.99 (0.98 – 1.00)	7592	0.99 (0.99 – 1.00)
701.2	Scar conditions and fibrosis of skin	Per88	1.3	0.98 (0.96 – 1.01)	1.5E-01	9193	0.99 (0.96 – 1.01)	4468	0.98 (0.96 – 1.01)
365	Glaucoma	Per88	1.2	0.98 (0.95 – 1.01)	1.5E-01	9252	0.98 (0.96 – 1.01)	4441	0.98 (0.95 – 1.01)
495	Asthma	Per88	1.5	1.01 (1.00 – 1.03)	1.5E-01	7746	1.02 (0.99 – 1.04)	3795	1.01 (1.00 – 1.03)
687.1	Rash and other nonspecific skin eruption	Per88	2.6	1.01 (1.00 – 1.02)	1.5E-01	8724	1.01 (0.99 – 1.02)	4254	1.01 (1.00 – 1.02)
480	Pneumonia	AHI 3%	2.0	1.00 (1.00 – 1.01)	1.5E-01	14512	1.00 (0.99 – 1.01)	7429	1.01 (1.00 – 1.01)
402	Elevated blood pressure reading without diagnosis of hypertension	Per88	1.7	0.98 (0.96 – 1.01)	1.6E-01	8895	0.99 (0.96 – 1.01)	4277	0.98 (0.96 – 1.01)
701	Other hypertrophic and atrophic conditions of skin	Per88	2.6	0.99 (0.97 – 1.00)	1.7E-01	8800	0.99 (0.97 – 1.00)	4210	0.99 (0.97 – 1.00)
375.1	Dry eyes	AHI 3%	1.5	1.00 (0.99 – 1.00)	1.8E-01	14923	0.99 (0.99 – 1.00)	7751	1.00 (0.99 – 1.00)
743.11	Osteoporosis NOS	Per88	1.3	1.01 (0.99 – 1.03)	1.8E-01	9023	1.01 (1.00 – 1.03)	4358	1.01 (0.99 – 1.03)
472	Chronic pharyngitis and nasopharyngitis	Per88	1.6	1.01 (0.99 – 1.03)	1.8E-01	9020	1.00 (0.98 – 1.03)	4366	1.01 (0.99 – 1.03)
726	Peripheral enthesopathies and allied syndromes	AHI 3%	1.1	1.00 (0.99 – 1.00)	1.9E-01	14304	0.99 (0.98 – 1.00)	7397	1.00 (0.99 – 1.00)
304	Adjustment reaction	AHI 3%	1.5	1.00 (0.99 – 1.00)	2.0E-01	14422	0.99 (0.98 – 1.00)	7502	1.00 (0.99 – 1.00)
280.1	Iron deficiency anemias, unspecified or not due to blood loss	AHI 3%	1.3	0.99 (0.99 – 1.00)	2.0E-01	14672	1.00 (0.99 – 1.01)	7608	1.00 (0.99 – 1.00)
764	Sciatica	AHI 3%	1.8	1.00 (0.99 – 1.00)	2.0E-01	14416	0.99 (0.99 – 1.00)	7411	1.00 (0.99 – 1.00)
389	Hearing loss	Per88	2.2	1.01 (0.99 – 1.03)	2.0E-01	8972	1.01 (0.99 – 1.02)	4281	1.01 (0.99 – 1.03)
550.2	Diaphragmatic hernia	Per88	1.3	0.98 (0.96 – 1.01)	2.1E-01	9230	0.98 (0.96 – 1.01)	4433	0.98 (0.96 – 1.01)
366.2	Senile cataract	Per88	1.6	0.99 (0.96 – 1.01)	2.1E-01	9140	0.99 (0.97 – 1.01)	4363	0.99 (0.96 – 1.01)
594.1	Calculus of kidney	AHI 3%	1.3	1.00 (1.00 – 1.01)	2.2E-01	14492	1.00 (0.99 – 1.01)	7429	1.00 (1.00 – 1.01)
571.5	Other chronic nonalcoholic liver disease	Per88	1.2	0.98 (0.95 – 1.01)	2.3E-01	9327	0.98 (0.95 – 1.02)	4468	0.98 (0.95 – 1.01)
565.1	Anal and rectal polyp	AHI 3%	1.3	1.00 (1.00 – 1.01)	2.3E-01	15043	1.00 (1.00 – 1.01)	7746	1.00 (1.00 – 1.01)
706.8	Other specified diseases of	AHI 3%	1.9	1.00 (0.99 – 1.00)	2.4E-01	14368	1.00 (0.99 – 1.01)	7414	1.00 (0.99 – 1.00)

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PheCode	Disease	Sleep statistic	Incidence	Risk ratio	P-value	N	Risk ratio (AHI ≥15)	N (AHI ≥15)	Risk ratio (adj sleep disorders)
	sebaceous glands								
401.1	Essential hypertension	AHI 3%	2.8	1.00 (1.00 – 1.01)	2.4E-01	8968	1.00 (0.99 – 1.00)	3740	1.00 (1.00 – 1.01)
781	Symptoms involving nervous and musculoskeletal systems	AHI 3%	1.8	1.00 (1.00 – 1.01)	2.5E-01	14904	1.00 (1.00 – 1.01)	7718	1.00 (1.00 – 1.01)
579.8	Nonspecific abnormal findings in stool contents	Per88	1.7	0.99 (0.97 – 1.01)	2.6E-01	9351	0.98 (0.96 – 1.00)	4519	0.99 (0.97 – 1.01)
272.13	Mixed hyperlipidemia	Per88	1.4	0.98 (0.95 – 1.01)	2.7E-01	9150	0.99 (0.96 – 1.02)	4362	0.98 (0.95 – 1.01)
272.1	Hyperlipidemia	AHI 3%	3.6	1.00 (0.99 – 1.00)	2.7E-01	10935	0.99 (0.99 – 1.00)	5099	1.00 (0.99 – 1.00)
563	Constipation	Per88	2.4	1.01 (0.99 – 1.02)	2.7E-01	8682	1.01 (0.99 – 1.02)	4321	1.01 (0.99 – 1.02)
465	Acute upper respiratory infections of multiple or unspecified sites	Per88	1.3	1.01 (0.99 – 1.03)	2.8E-01	8709	1.01 (1.00 – 1.03)	4238	1.01 (0.99 – 1.03)
519.8	Other diseases of respiratory system, NEC	AHI 3%	1.4	1.00 (1.00 – 1.01)	2.9E-01	15116	1.01 (1.00 – 1.02)	7821	1.00 (1.00 – 1.01)
689	Disorder of skin and subcutaneous tissue NOS	AHI 3%	4.8	1.00 (0.99 – 1.00)	2.9E-01	13949	1.00 (0.99 – 1.00)	7176	1.00 (0.99 – 1.00)
306	Other mental disorder	Per88	3.0	1.01 (0.99 – 1.02)	3.0E-01	9016	1.00 (0.99 – 1.02)	4380	1.01 (0.99 – 1.02)
365	Glaucoma	AHI 3%	1.2	1.00 (0.99 – 1.00)	3.0E-01	14762	0.99 (0.98 – 1.00)	7573	1.00 (0.99 – 1.00)
386.9	Dizziness and giddiness (Light-headedness and vertigo)	AHI 3%	2.1	1.00 (1.00 – 1.01)	3.0E-01	13602	1.00 (0.99 – 1.01)	7051	1.00 (1.00 – 1.01)
427.9	Palpitations	Per88	1.8	0.99 (0.97 – 1.01)	3.0E-01	8525	0.99 (0.96 – 1.02)	4178	0.99 (0.97 – 1.01)
593.2	Microscopic hematuria	Per88	1.2	0.99 (0.97 – 1.01)	3.0E-01	9354	1.00 (0.98 – 1.01)	4519	0.99 (0.97 – 1.01)
357	Inflammatory and toxic neuropathy	Per88	1.6	1.01 (0.99 – 1.03)	3.1E-01	9212	1.01 (0.99 – 1.03)	4441	1.01 (0.99 – 1.03)
476	Allergic rhinitis	AHI 3%	1.5	1.00 (0.99 – 1.00)	3.2E-01	13345	1.00 (0.99 – 1.01)	6985	1.00 (0.99 – 1.00)
300.1	Anxiety disorder	Per88	2.8	1.01 (0.99 – 1.02)	3.2E-01	7210	1.00 (0.99 – 1.02)	3645	1.01 (0.99 – 1.02)
379.9	Pain, swelling or discharge of eye	Per88	1.1	0.99 (0.97 – 1.01)	3.3E-01	9327	1.00 (0.97 – 1.02)	4528	0.99 (0.97 – 1.01)
272.11	Hypercholesterolemia	Per88	2.3	1.01 (0.99 – 1.03)	3.4E-01	7915	1.01 (0.99 – 1.03)	3602	1.01 (0.99 – 1.03)
427.6	Premature beats	Per88	1.2	1.01 (0.99 – 1.03)	3.4E-01	9463	1.01 (0.99 – 1.03)	4572	1.01 (0.99 – 1.03)
389.4	Tinnitus	AHI 3%	1.6	1.00 (0.99 – 1.00)	3.5E-01	14710	1.00 (0.99 – 1.01)	7641	1.00 (0.99 – 1.00)
704	Diseases of hair and hair follicles	AHI 3%	1.1	1.00 (0.99 – 1.00)	3.7E-01	15044	1.00 (0.99 – 1.01)	7805	1.00 (0.99 – 1.00)
340	Migraine	Per88	1.1	0.99 (0.98 – 1.01)	3.7E-01	8315	0.99 (0.97 – 1.01)	4260	0.99 (0.98 – 1.01)
798	Malaise and fatigue	Per88	2.5	1.01 (0.99 – 1.02)	3.8E-01	7852	1.00 (0.98 – 1.02)	3908	1.01 (0.99 – 1.02)
278.11	Morbid obesity	AHI 3%	1.8	1.00 (1.00 – 1.01)	3.8E-01	13104	1.00 (0.99 – 1.01)	6429	1.00 (1.00 – 1.01)
455	Hemorrhoids	Per88	2.1	0.99 (0.97 – 1.01)	3.8E-01	8739	1.00 (0.97 – 1.02)	4229	0.99 (0.97 – 1.01)
316	Substance addiction and disorders	Per88	1.1	1.01 (0.99 – 1.03)	3.8E-01	9188	1.00 (0.97 – 1.03)	4433	1.01 (0.99 – 1.03)
278.11	Morbid obesity	Per88	1.8	1.01 (0.99 – 1.04)	3.9E-01	8273	1.01 (0.99 – 1.04)	3806	1.01 (0.99 – 1.04)
470	Septal Deviations/Turbinate	AHI 3%	1.2	1.00 (1.00 – 1.01)	3.9E-01	14480	1.00 (0.99 – 1.01)	7550	1.00 (1.00 – 1.01)

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PheCode	Disease	Sleep statistic	Incidence	Risk ratio	P-value	N	Risk ratio (AHI ≥15)	N (AHI ≥15)	Risk ratio (adj sleep disorders)
	Hypertrophy								
278.1	Obesity	Per88	3.5	1.01 (0.99 – 1.03)	4.0E-01	6442	1.00 (0.98 – 1.02)	2787	1.01 (0.99 – 1.03)
740.9	Osteoarthritis NOS	Per88	1.5	0.99 (0.96 – 1.01)	4.0E-01	8113	1.00 (0.97 – 1.02)	3759	0.99 (0.96 – 1.01)
561	Symptoms involving digestive system	Per88	1.2	0.99 (0.97 – 1.01)	4.0E-01	9424	1.00 (0.98 – 1.02)	4576	0.99 (0.97 – 1.01)
327.4	Insomnia	Per88	1.7	1.01 (0.99 – 1.02)	4.0E-01	7978	1.00 (0.98 – 1.02)	4022	1.01 (0.99 – 1.02)
585.3	Chronic renal failure [CKD]	AHI 3%	1.3	1.00 (0.99 – 1.01)	4.2E-01	14754	1.00 (0.99 – 1.01)	7515	1.00 (0.99 – 1.01)
687.1	Rash and other nonspecific skin eruption	AHI 3%	2.6	1.00 (0.99 – 1.00)	4.2E-01	14007	0.99 (0.99 – 1.00)	7306	1.00 (0.99 – 1.00)
475.9	Postnasal drip	Per88	1.7	1.01 (0.99 – 1.02)	4.3E-01	9341	1.01 (0.99 – 1.02)	4533	1.01 (0.99 – 1.02)
278	Overweight, obesity and other hyperalimentation	Per88	2.3	0.99 (0.98 – 1.01)	4.3E-01	8440	1.00 (0.98 – 1.02)	4046	0.99 (0.98 – 1.01)
280.1	Iron deficiency anemias, unspecified or not due to blood loss	Per88	1.3	0.99 (0.97 – 1.02)	4.4E-01	9144	1.00 (0.96 – 1.03)	4444	0.99 (0.97 – 1.02)
809	Fracture of unspecified bones	AHI 3%	1.4	1.00 (0.99 – 1.00)	4.4E-01	14935	1.00 (0.99 – 1.01)	7687	1.00 (0.99 – 1.00)
277	Other disorders of metabolism	Per88	2.6	0.99 (0.98 – 1.01)	4.4E-01	9230	1.00 (0.98 – 1.01)	4486	0.99 (0.98 – 1.01)
761	Cervicalgia	AHI 3%	2.0	1.00 (1.00 – 1.01)	4.5E-01	13801	1.01 (1.00 – 1.01)	7215	1.00 (1.00 – 1.01)
304	Adjustment reaction	Per88	1.5	1.01 (0.99 – 1.02)	4.5E-01	8964	1.01 (0.99 – 1.02)	4365	1.01 (0.99 – 1.02)
761	Cervicalgia	Per88	2.0	0.99 (0.98 – 1.01)	4.6E-01	8551	0.99 (0.96 – 1.01)	4192	0.99 (0.98 – 1.01)
369.5	Conjunctivitis, infectious	Per88	1.2	1.01 (0.99 – 1.02)	4.6E-01	9265	1.01 (0.99 – 1.03)	4511	1.01 (0.99 – 1.02)
316	Substance addiction and disorders	AHI 3%	1.1	1.00 (0.99 – 1.01)	4.6E-01	14760	1.00 (0.98 – 1.01)	7616	1.00 (0.99 – 1.01)
389	Hearing loss	AHI 3%	2.2	1.00 (1.00 – 1.01)	4.8E-01	14350	1.00 (0.99 – 1.01)	7343	1.00 (1.00 – 1.01)
306	Other mental disorder	AHI 3%	3.0	1.00 (1.00 – 1.01)	4.8E-01	14521	1.00 (1.00 – 1.01)	7533	1.00 (1.00 – 1.01)
196	Radiotherapy	AHI 3%	1.1	1.00 (0.99 – 1.01)	4.8E-01	15183	1.00 (0.99 – 1.01)	7836	1.00 (0.99 – 1.01)
173	Neoplasm of uncertain behavior of skin	AHI 3%	2.0	1.00 (1.00 – 1.01)	4.9E-01	14201	1.01 (1.00 – 1.01)	7318	1.00 (1.00 – 1.01)
742.9	Other derangement of joint	AHI 3%	1.5	1.00 (0.99 – 1.00)	5.1E-01	14927	0.99 (0.98 – 1.00)	7742	1.00 (0.99 – 1.00)
271.3	Intestinal disaccharidase deficiencies and disaccharide malabsorption	Per88	4.8	1.00 (0.98 – 1.01)	5.1E-01	8633	0.99 (0.98 – 1.01)	4076	1.00 (0.98 – 1.01)
351	Other peripheral nerve disorders	Per88	1.3	1.01 (0.99 – 1.03)	5.1E-01	9024	1.01 (0.99 – 1.04)	4365	1.01 (0.99 – 1.03)
292	Neurological disorders	Per88	1.2	0.99 (0.97 – 1.02)	5.3E-01	9398	0.99 (0.97 – 1.02)	4569	0.99 (0.97 – 1.02)
296.22	Major depressive disorder	AHI 3%	2.7	1.00 (0.99 – 1.00)	5.4E-01	12139	1.00 (0.99 – 1.01)	6418	1.00 (0.99 – 1.00)
272.11	Hypercholesterolemia	AHI 3%	2.3	1.00 (0.99 – 1.00)	5.5E-01	12454	1.00 (0.99 – 1.00)	6101	1.00 (0.99 – 1.00)
196	Radiotherapy	Per88	1.1	0.99 (0.96 – 1.02)	5.5E-01	9498	1.00 (0.97 – 1.02)	4586	0.99 (0.96 – 1.02)
530.9	Heartburn	AHI 3%	1.6	1.00 (0.99 – 1.00)	5.5E-01	14782	1.00 (0.99 – 1.00)	7669	1.00 (0.99 – 1.01)

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PheCode	Disease	Sleep statistic	Incidence	Risk ratio	P-value	N	Risk ratio (AHI ≥15)	N (AHI ≥15)	Risk ratio (adj sleep disorders)
726	Peripheral enthesopathies and allied syndromes	Per88	1.1	0.99 (0.97 – 1.02)	5.6E-01	8959	0.99 (0.96 – 1.02)	4335	0.99 (0.97 – 1.02)
338.2	Chronic pain	Per88	3.0	1.00 (0.98 – 1.01)	5.6E-01	8348	1.00 (0.98 – 1.02)	4067	1.00 (0.98 – 1.01)
965	Poisoning by analgesics, antipyretics, and antirheumatics	AHI 3%	1.8	1.00 (0.99 – 1.01)	5.8E-01	15050	1.00 (0.99 – 1.01)	7786	1.00 (0.99 – 1.01)
008	Intestinal infection	Per88	1.4	1.00 (0.99 – 1.02)	5.8E-01	9384	1.00 (0.98 – 1.02)	4556	1.00 (0.99 – 1.02)
475.9	Postnasal drip	AHI 3%	1.7	1.00 (0.99 – 1.00)	5.9E-01	14921	0.99 (0.99 – 1.00)	7719	1.00 (0.99 – 1.00)
351	Other peripheral nerve disorders	AHI 3%	1.3	1.00 (0.99 – 1.01)	6.0E-01	14432	1.01 (1.00 – 1.02)	7451	1.00 (0.99 – 1.01)
594.1	Calculus of kidney	Per88	1.3	0.99 (0.97 – 1.02)	6.0E-01	9096	0.99 (0.97 – 1.01)	4369	0.99 (0.97 – 1.02)
470	Septal Deviations/Turbinate Hypertrophy	Per88	1.2	0.99 (0.97 – 1.02)	6.0E-01	9085	1.00 (0.97 – 1.03)	4432	0.99 (0.97 – 1.02)
289.4	Lymphadenitis	AHI 3%	1.1	1.00 (0.99 – 1.01)	6.0E-01	14770	1.00 (0.99 – 1.01)	7624	1.00 (0.99 – 1.01)
740.11	Osteoarthritis, localized, primary	Per88	2.0	1.01 (0.99 – 1.03)	6.1E-01	8732	1.01 (1.00 – 1.03)	4093	1.01 (0.98 – 1.03)
599.2	Retention of urine	AHI 3%	1.4	1.00 (0.99 – 1.01)	6.1E-01	15042	1.01 (1.00 – 1.01)	7756	1.00 (0.99 – 1.01)
537	Other disorders of stomach and duodenum	Per88	2.0	1.00 (0.98 – 1.01)	6.2E-01	9046	1.00 (0.98 – 1.02)	4401	1.00 (0.98 – 1.01)
740.11	Osteoarthritis, localized, primary	AHI 3%	2.0	1.00 (0.99 – 1.01)	6.2E-01	13892	1.00 (0.99 – 1.01)	6988	1.00 (0.99 – 1.01)
726.1	Enthesopathy	Per88	1.6	0.99 (0.97 – 1.02)	6.3E-01	8665	1.00 (0.98 – 1.02)	4158	0.99 (0.97 – 1.02)
599.2	Retention of urine	Per88	1.4	0.99 (0.97 – 1.02)	6.4E-01	9410	0.99 (0.97 – 1.02)	4547	0.99 (0.97 – 1.02)
809	Fracture of unspecified bones	Per88	1.4	0.99 (0.97 – 1.02)	6.4E-01	9348	0.99 (0.97 – 1.01)	4502	0.99 (0.97 – 1.02)
512.2	Painful respiration	Per88	2.4	1.00 (0.98 – 1.01)	6.5E-01	8902	1.00 (0.99 – 1.02)	4303	1.00 (0.98 – 1.01)
764	Sciatica	Per88	1.8	1.00 (0.98 – 1.02)	6.5E-01	8968	0.99 (0.97 – 1.02)	4307	1.00 (0.98 – 1.02)
296.22	Major depressive disorder	Per88	2.7	1.00 (0.99 – 1.02)	6.6E-01	7372	1.00 (0.98 – 1.02)	3637	1.00 (0.99 – 1.02)
537	Other disorders of stomach and duodenum	AHI 3%	2.0	1.00 (0.99 – 1.00)	6.6E-01	14486	1.00 (0.99 – 1.01)	7511	1.00 (0.99 – 1.01)
495	Asthma	AHI 3%	1.5	1.00 (0.99 – 1.01)	6.6E-01	12524	1.00 (0.99 – 1.01)	6565	1.00 (0.99 – 1.01)
327.4	Insomnia	AHI 3%	1.7	1.00 (0.99 – 1.01)	6.6E-01	13047	1.00 (0.99 – 1.01)	6983	1.00 (0.99 – 1.01)
512.2	Painful respiration	AHI 3%	2.4	1.00 (0.99 – 1.00)	6.7E-01	14285	1.00 (0.99 – 1.01)	7397	1.00 (0.99 – 1.01)
289.4	Lymphadenitis	Per88	1.1	1.00 (0.97 – 1.02)	6.7E-01	9237	0.99 (0.97 – 1.01)	4465	1.00 (0.97 – 1.02)
579.8	Nonspecific abnormal findings in stool contents	AHI 3%	1.7	1.00 (0.99 – 1.01)	6.7E-01	14957	1.00 (0.99 – 1.01)	7723	1.00 (0.99 – 1.01)
599.8	Other symptoms involving urinary system	AHI 3%	1.4	1.00 (0.99 – 1.01)	6.7E-01	15157	1.00 (0.99 – 1.01)	7849	1.00 (0.99 – 1.01)
300.1	Anxiety disorder	AHI 3%	2.8	1.00 (0.99 – 1.00)	6.8E-01	11881	1.00 (0.99 – 1.01)	6407	1.00 (0.99 – 1.00)
706.8	Other specified diseases of sebaceous glands	Per88	1.9	1.00 (0.98 – 1.02)	6.8E-01	8986	1.00 (0.98 – 1.02)	4340	1.00 (0.98 – 1.02)

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PheCode	Disease	Sleep statistic	Incidence	Risk ratio	P-value	N	Risk ratio (AHI ≥ 15)	N (AHI ≥ 15)	Risk ratio (adj sleep disorders)
508	Pulmonary collapse; interstitial and compensatory emphysema	AHI 3%	1.3	1.00 (0.99 – 1.01)	6.8E-01	14829	1.01 (1.00 – 1.02)	7589	1.00 (0.99 – 1.01)
427.3	Other specified cardiac dysrhythmias	Per88	1.9	1.00 (0.98 – 1.02)	6.8E-01	9086	0.99 (0.97 – 1.01)	4373	1.00 (0.98 – 1.02)
459.9	Circulatory disease NEC	AHI 3%	1.5	1.00 (0.99 – 1.01)	6.9E-01	14955	1.01 (1.00 – 1.02)	7694	1.00 (0.99 – 1.01)
296	Mood disorders	AHI 3%	1.2	1.00 (0.99 – 1.01)	6.9E-01	14650	1.00 (0.99 – 1.01)	7604	1.00 (0.99 – 1.01)
720	Spinal stenosis	Per88	1.1	1.00 (0.97 – 1.02)	6.9E-01	9327	1.00 (0.98 – 1.02)	4476	1.00 (0.97 – 1.02)
701.2	Scar conditions and fibrosis of skin	AHI 3%	1.3	1.00 (0.99 – 1.01)	7.0E-01	14684	1.00 (0.99 – 1.01)	7621	1.00 (0.99 – 1.01)
429.3	Symptoms involving cardiovascular system	AHI 3%	2.3	1.00 (0.99 – 1.00)	7.1E-01	14709	1.00 (0.99 – 1.00)	7572	1.00 (0.99 – 1.00)
599.9	Other abnormality of urination	Per88	1.6	1.00 (0.98 – 1.02)	7.1E-01	9351	0.99 (0.97 – 1.01)	4539	1.00 (0.98 – 1.02)
008	Intestinal infection	AHI 3%	1.4	1.00 (0.99 – 1.01)	7.1E-01	15014	1.00 (0.99 – 1.01)	7783	1.00 (0.99 – 1.01)
389.4	Tinnitus	Per88	1.6	1.00 (0.98 – 1.01)	7.2E-01	9178	1.00 (0.98 – 1.01)	4459	1.00 (0.98 – 1.01)
704	Diseases of hair and hair follicles	Per88	1.1	1.00 (0.98 – 1.02)	7.5E-01	9423	1.00 (0.97 – 1.02)	4574	1.00 (0.98 – 1.02)
261.4	Vitamin D deficiency	AHI 3%	1.9	1.00 (0.99 – 1.01)	7.5E-01	13875	1.00 (0.99 – 1.01)	7194	1.00 (0.99 – 1.01)
271.3	Intestinal disaccharidase deficiencies and disaccharide malabsorption	AHI 3%	4.8	1.00 (1.00 – 1.00)	7.5E-01	13830	1.00 (0.99 – 1.00)	7019	1.00 (1.00 – 1.00)
840	Sprains and strains	Per88	2.0	1.00 (0.99 – 1.02)	7.6E-01	8923	0.99 (0.97 – 1.02)	4318	1.00 (0.99 – 1.02)
375.1	Dry eyes	Per88	1.5	1.00 (0.99 – 1.02)	7.6E-01	9322	1.00 (0.98 – 1.01)	4529	1.00 (0.99 – 1.02)
704.1	Alopecia	Per88	1.5	1.00 (0.98 – 1.02)	7.6E-01	9207	1.00 (0.98 – 1.03)	4520	1.00 (0.98 – 1.02)
296	Mood disorders	Per88	1.2	1.00 (0.98 – 1.02)	7.7E-01	9084	1.01 (0.98 – 1.03)	4410	1.00 (0.98 – 1.02)
272.1	Hyperlipidemia	Per88	3.6	1.00 (0.99 – 1.02)	7.7E-01	6985	0.99 (0.98 – 1.01)	3060	1.00 (0.99 – 1.02)
389.1	Sensorineural hearing loss	Per88	1.1	1.00 (0.98 – 1.03)	7.8E-01	9180	1.00 (0.98 – 1.03)	4404	1.00 (0.98 – 1.03)
278.4	Abnormal weight gain	Per88	1.3	1.00 (0.98 – 1.02)	7.8E-01	9141	1.00 (0.97 – 1.03)	4432	1.00 (0.98 – 1.02)
599.4	Urinary incontinence	Per88	1.3	1.00 (0.97 – 1.02)	7.8E-01	9075	1.00 (0.97 – 1.02)	4396	1.00 (0.97 – 1.02)
765	Cervical radiculitis	AHI 3%	1.1	1.00 (0.99 – 1.01)	7.8E-01	14936	1.00 (0.99 – 1.01)	7731	1.00 (0.99 – 1.01)
277	Other disorders of metabolism	AHI 3%	2.6	1.00 (1.00 – 1.01)	7.9E-01	14796	1.00 (0.99 – 1.01)	7682	1.00 (1.00 – 1.01)
261.4	Vitamin D deficiency	Per88	1.9	1.00 (0.98 – 1.02)	7.9E-01	8642	1.00 (0.98 – 1.02)	4182	1.00 (0.98 – 1.02)
701	Other hypertrophic and atrophic conditions of skin	AHI 3%	2.6	1.00 (0.99 – 1.01)	7.9E-01	13954	1.01 (1.00 – 1.01)	7162	1.00 (0.99 – 1.01)
276.5	Hypovolemia	AHI 3%	1.5	1.00 (0.99 – 1.01)	8.0E-01	14763	1.00 (1.00 – 1.01)	7640	1.00 (0.99 – 1.01)
262	Mineral deficiency NEC	Per88	1.4	1.00 (0.98 – 1.02)	8.0E-01	9447	1.00 (0.97 – 1.02)	4597	1.00 (0.98 – 1.02)
965	Poisoning by analgesics, antipyretics, and antirheumatics	Per88	1.8	1.00 (0.98 – 1.02)	8.0E-01	9409	0.99 (0.97 – 1.01)	4559	1.00 (0.98 – 1.02)
571.5	Other chronic nonalcoholic liver	AHI 3%	1.2	1.00 (0.99 – 1.01)	8.1E-01	14818	1.00 (0.99 – 1.01)	7594	1.00 (0.99 – 1.01)

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PheCo de	Disease	Sleep statistic	Incidence	Risk ratio	P-value	N	Risk ratio (AHI ≥15)	N (AHI ≥15)	Risk ratio (adj sleep disorders)
	disease								
427.6	Premature beats	AHI 3%	1.2	1.00 (0.99 – 1.01)	8.1E-01	15116	0.99 (0.98 – 1.00)	7807	1.00 (0.99 – 1.01)
278.1	Obesity	AHI 3%	3.5	1.00 (0.99 – 1.01)	8.2E-01	10143	1.00 (0.99 – 1.01)	4689	1.00 (0.99 – 1.01)
481	Influenza	AHI 3%	1.5	1.00 (0.99 – 1.01)	8.4E-01	14534	1.00 (0.99 – 1.01)	7509	1.00 (0.99 – 1.01)
278	Overweight, obesity and other hyperalimentation	AHI 3%	2.3	1.00 (0.99 – 1.01)	8.4E-01	13389	1.00 (1.00 – 1.01)	6871	1.00 (0.99 – 1.01)
136	Other infectious and parasitic diseases	AHI 3%	1.6	1.00 (0.99 – 1.01)	8.4E-01	14960	1.00 (0.99 – 1.01)	7747	1.00 (0.99 – 1.01)
300.11	Generalized anxiety disorder	Per88	1.6	1.00 (0.98 – 1.01)	8.5E-01	8948	0.99 (0.96 – 1.01)	4442	1.00 (0.98 – 1.01)
481	Influenza	Per88	1.5	1.00 (0.98 – 1.03)	8.5E-01	9080	1.01 (0.98 – 1.03)	4391	1.00 (0.98 – 1.03)
401.1	Essential hypertension	Per88	2.8	1.00 (0.98 – 1.03)	8.6E-01	5799	1.00 (0.98 – 1.03)	2253	1.00 (0.98 – 1.03)
798	Malaise and fatigue	AHI 3%	2.5	1.00 (0.99 – 1.01)	8.6E-01	12781	1.00 (0.99 – 1.00)	6748	1.00 (0.99 – 1.01)
530.11	GERD	Per88	3.9	1.00 (0.98 – 1.01)	8.6E-01	6759	1.01 (0.99 – 1.02)	3161	1.00 (0.98 – 1.01)
743.11	Osteoporosis NOS	AHI 3%	1.3	1.00 (0.99 – 1.01)	8.7E-01	14481	1.00 (0.99 – 1.00)	7482	1.00 (0.99 – 1.01)
459.9	Circulatory disease NEC	Per88	1.5	1.00 (0.98 – 1.03)	9.0E-01	9377	1.00 (0.98 – 1.02)	4514	1.00 (0.98 – 1.03)
704.1	Alopecia	AHI 3%	1.5	1.00 (0.99 – 1.01)	9.0E-01	14763	1.00 (0.99 – 1.01)	7730	1.00 (0.99 – 1.01)
208	Benign neoplasm of colon	Per88	1.9	1.00 (0.97 – 1.02)	9.2E-01	8415	0.99 (0.96 – 1.01)	3956	1.00 (0.97 – 1.02)
472	Chronic pharyngitis and nasopharyngitis	AHI 3%	1.6	1.00 (0.99 – 1.01)	9.2E-01	14413	1.00 (0.99 – 1.01)	7468	1.00 (0.99 – 1.01)
727.1	Synovitis and tenosynovitis	Per88	1.3	1.00 (0.98 – 1.03)	9.2E-01	9191	1.00 (0.98 – 1.02)	4436	1.00 (0.98 – 1.03)
593.2	Microscopic hematuria	AHI 3%	1.2	1.00 (0.99 – 1.01)	9.2E-01	14947	1.01 (1.00 – 1.01)	7730	1.00 (0.99 – 1.01)
386.9	Dizziness and giddiness (Light-headedness and vertigo)	Per88	2.1	1.00 (0.98 – 1.02)	9.2E-01	8415	1.00 (0.98 – 1.01)	4091	1.00 (0.98 – 1.02)
565.1	Anal and rectal polyp	Per88	1.3	1.00 (0.98 – 1.03)	9.2E-01	9431	0.99 (0.96 – 1.02)	4549	1.00 (0.98 – 1.03)
765	Cervical radiculitis	Per88	1.1	1.00 (0.98 – 1.02)	9.3E-01	9353	1.01 (0.99 – 1.03)	4530	1.00 (0.98 – 1.02)
402	Elevated blood pressure reading without diagnosis of hypertension	AHI 3%	1.7	1.00 (0.99 – 1.01)	9.3E-01	14115	1.00 (0.99 – 1.01)	7260	1.00 (0.99 – 1.01)
369.5	Conjunctivitis, infectious	AHI 3%	1.2	1.00 (0.99 – 1.01)	9.5E-01	14790	1.00 (0.99 – 1.01)	7679	1.00 (0.99 – 1.01)
292	Neurological disorders	AHI 3%	1.2	1.00 (0.99 – 1.01)	9.5E-01	15056	1.00 (0.99 – 1.01)	7813	1.00 (0.99 – 1.01)
379.9	Pain, swelling or discharge of eye	AHI 3%	1.1	1.00 (0.99 – 1.01)	9.7E-01	14916	1.00 (0.99 – 1.01)	7743	1.00 (0.99 – 1.01)
429.3	Symptoms involving cardiovascular system	Per88	2.3	1.00 (0.98 – 1.02)	9.8E-01	9191	1.00 (0.99 – 1.02)	4431	1.00 (0.98 – 1.02)
285	Other anemias	AHI 3%	2.6	1.00 (0.99 – 1.01)	9.9E-01	13445	1.00 (1.00 – 1.01)	6944	1.00 (0.99 – 1.01)
389.1	Sensorineural hearing loss	AHI 3%	1.1	1.00 (0.99 – 1.01)	9.9E-01	14658	1.00 (0.99 – 1.01)	7528	1.00 (0.99 – 1.01)
727.1	Synovitis and tenosynovitis	AHI 3%	1.3	1.00 (0.99 – 1.01)	9.9E-01	14689	1.00 (0.99 – 1.01)	7586	1.00 (0.99 – 1.01)
599.8	Other symptoms involving urinary	Per88	1.4	1.00 (0.98 – 1.02)	9.9E-01	9490	1.00 (0.98 – 1.03)	4608	1.00 (0.98 – 1.02)

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PheCode	Disease	Sleep statistic	Incidence	Risk ratio	P-value	N	Risk ratio (AHI ≥ 15)	N (AHI ≥ 15)	Risk ratio (adj sleep disorders)
	system								

Table S10. Incident sleep statistic associations with comorbidities sensitivity analyses.

Incident analyses considered diagnoses at least one year after the first sleep recording (prioritizing diagnostics, then splits, then home sleep tests) and are ordered by p-values. Primary analyses considered joint-sex PheCodes with >1% incidence rate and were rank-normalized after adjusting for age, sex, BMI, population, sleep study type, and healthcare encounters. The primary analysis considered all available sleep laboratory data (i.e. including participants being screened for other sleep disorders).

1 PheCode was Bonferroni-level significant (**bolded**) and FDR-level significant (in **red**, uncorrected p-values).

Due to PDF width constraints, sensitivity analyses are presented in two tables, with primary columns repeated (apart from incidence and n):

Table S9 further includes:

A sensitivity analysis considering only participants with AHI >15.

A sensitivity analysis further adjusting for an indicator variable for other common sleep disorders (PheCodes 327, 327.1, 327.4, 327.41, 327.5, 327.6, 327.7, 327.71) in the full sleep recording sample.

Table S10 further includes:

A sensitivity analysis further adjusting for an indicator variable for common pulmonary disorders (PheCodes 415.1, 415.11, 415.2, 480.1, 480.11, 480.2, 480, 495, 495.2, 496.1, 496.2, 496.21, 496.3, 497, 502, 503, 505, 506, 509.2).

P-values from sleep statistic × sex interaction analyses (not rank-normalized) performed separately.

Equivalent sex-stratified results.

PheCode	Disease	Sleep statistic	Risk ratio	P-value	Risk ratio (adj pulmonary disorders)	Sleep statistic x sex interaction p-value	Risk ratio (men)	Risk ratio (women)
350.1	Abnormal involuntary movements	AHI 3%	0.99 (0.98 – 0.99)	2.0E-04	0.99 (0.98 – 0.99)	8.0E-01	0.98 (0.97 – 0.99)	0.99 (0.98 – 1.00)
427.9	Palpitations	AHI 3%	0.99 (0.98 – 1.00)	8.1E-04	0.99 (0.98 – 1.00)	3.4E-01	0.98 (0.97 – 1.00)	0.99 (0.98 – 1.00)
285	Other anemias	Per88	1.02 (1.01 – 1.04)	1.4E-03	1.02 (1.01 – 1.04)	3.9E-01	1.01 (0.99 – 1.04)	1.03 (1.01 – 1.05)
530.9	Heartburn	Per88	0.97 (0.95 – 0.99)	2.1E-03	0.97 (0.95 – 0.99)	9.2E-01	0.98 (0.95 – 1.01)	0.97 (0.94 – 0.99)
508	Pulmonary collapse; interstitial and compensatory emphysema	Per88	1.03 (1.01 – 1.06)	2.8E-03	1.03 (1.01 – 1.06)	6.7E-01	1.02 (1.00 – 1.05)	1.05 (1.02 – 1.08)
585.3	Chronic renal failure [CKD]	Per88	1.03 (1.01 – 1.05)	3.8E-03	1.03 (1.01 – 1.05)	6.7E-01	1.03 (1.00 – 1.06)	1.03 (1.00 – 1.07)
519.8	Other diseases of respiratory system, NEC	Per88	1.03 (1.01 – 1.05)	4.3E-03	1.02 (1.01 – 1.04)	6.2E-01	1.02 (0.98 – 1.05)	1.03 (1.01 – 1.06)
292.3	Memory loss	AHI 3%	0.99 (0.98 – 1.00)	4.6E-03	0.99 (0.98 – 1.00)	7.7E-03	0.99 (0.98 – 1.00)	0.99 (0.98 – 1.00)
512.9	Other dyspnea	Per88	1.03 (1.01 – 1.05)	6.1E-03	1.02 (1.00 – 1.05)	6.8E-01	1.03 (1.01 – 1.06)	1.02 (0.98 – 1.06)
760	Back pain	AHI 3%	0.99 (0.98 – 1.00)	6.3E-03	0.99 (0.98 – 1.00)	3.7E-01	0.99 (0.98 – 1.00)	0.98 (0.97 – 1.00)

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PheCode	Disease	Sleep statistic	Risk ratio	P-value	Risk ratio (adj pulmonary disorders)	Sleep statistic x sex interaction p-value	Risk ratio (men)	Risk ratio (women)
340	Migraine	AHI 3%	0.99 (0.99 – 1.00)	8.0E-03	0.99 (0.99 – 1.00)	6.8E-01	0.99 (0.98 – 1.00)	0.99 (0.98 – 1.00)
840	Sprains and strains	AHI 3%	0.99 (0.99 – 1.00)	1.0E-02	0.99 (0.99 – 1.00)	3.1E-01	0.99 (0.99 – 1.00)	0.99 (0.98 – 1.00)
382	Otalgia	Per88	0.98 (0.96 – 0.99)	1.0E-02	0.98 (0.96 – 0.99)	9.4E-01	0.97 (0.93 – 1.01)	0.98 (0.96 – 1.00)
455	Hemorrhoids	AHI 3%	0.99 (0.99 – 1.00)	1.5E-02	0.99 (0.99 – 1.00)	6.7E-02	1.00 (0.99 – 1.00)	0.99 (0.98 – 1.00)
599.9	Other abnormality of urination	AHI 3%	0.99 (0.98 – 1.00)	1.7E-02	0.99 (0.98 – 1.00)	5.1E-01	0.99 (0.98 – 1.00)	1.00 (0.98 – 1.01)
599.5	Frequency of urination and polyuria	AHI 3%	0.99 (0.98 – 1.00)	1.8E-02	0.99 (0.98 – 1.00)	7.3E-01	0.99 (0.99 – 1.00)	1.00 (0.98 – 1.01)
781	Symptoms involving nervous and musculoskeletal systems	Per88	1.02 (1.00 – 1.04)	2.0E-02	1.02 (1.00 – 1.04)	1.4E-01	1.03 (1.01 – 1.06)	1.01 (0.98 – 1.04)
563	Constipation	AHI 3%	0.99 (0.99 – 1.00)	2.1E-02	0.99 (0.99 – 1.00)	4.6E-01	1.00 (0.99 – 1.01)	0.99 (0.98 – 1.00)
382	Otalgia	AHI 3%	0.99 (0.99 – 1.00)	2.4E-02	0.99 (0.99 – 1.00)	1.0E-01	0.99 (0.98 – 1.01)	0.99 (0.98 – 1.00)
480	Pneumonia	Per88	1.02 (1.00 – 1.04)	2.4E-02	1.01 (0.99 – 1.03)	8.9E-01	1.03 (1.00 – 1.05)	1.01 (0.98 – 1.04)
512.9	Other dyspnea	AHI 3%	1.01 (1.00 – 1.02)	2.7E-02	1.01 (1.00 – 1.02)	8.3E-01	1.01 (1.00 – 1.02)	1.01 (1.00 – 1.03)
465	Acute upper respiratory infections of multiple or unspecified sites	AHI 3%	1.01 (1.00 – 1.02)	3.2E-02	1.01 (1.00 – 1.02)	5.7E-01	1.01 (1.00 – 1.02)	1.01 (0.99 – 1.02)
599.4	Urinary incontinence	AHI 3%	0.99 (0.98 – 1.00)	3.2E-02	0.99 (0.98 – 1.00)	8.6E-01	0.99 (0.98 – 1.00)	0.99 (0.98 – 1.00)
561	Symptoms involving digestive system	AHI 3%	0.99 (0.98 – 1.00)	3.3E-02	0.99 (0.98 – 1.00)	2.1E-01	0.99 (0.98 – 1.00)	0.99 (0.98 – 1.00)
720	Spinal stenosis	AHI 3%	0.99 (0.98 – 1.00)	3.8E-02	0.99 (0.98 – 1.00)	4.5E-01	0.99 (0.98 – 1.00)	0.99 (0.98 – 1.01)
173	Neoplasm of uncertain behavior of skin	Per88	0.98 (0.96 – 1.00)	3.9E-02	0.98 (0.96 – 1.00)	4.0E-01	0.96 (0.93 – 0.99)	0.99 (0.97 – 1.02)
272.13	Mixed hyperlipidemia	AHI 3%	1.01 (1.00 – 1.02)	4.1E-02	1.01 (1.00 – 1.02)	3.4E-01	1.01 (1.00 – 1.02)	1.00 (0.99 – 1.02)
350.1	Abnormal involuntary movements	Per88	0.98 (0.96 – 1.00)	4.3E-02	0.98 (0.95 – 1.00)	5.7E-01	0.98 (0.95 – 1.02)	0.98 (0.95 – 1.01)
278.4	Abnormal weight gain	AHI 3%	0.99 (0.98 – 1.00)	4.6E-02	0.99 (0.98 – 1.00)	5.5E-02	1.00 (0.98 – 1.01)	0.99 (0.98 – 1.00)
726.1	Enthesopathy	AHI 3%	0.99 (0.99 – 1.00)	4.6E-02	0.99 (0.99 – 1.00)	8.2E-01	0.99 (0.98 – 1.00)	1.00 (0.99 – 1.00)
300.11	Generalized anxiety disorder	AHI 3%	0.99 (0.99 – 1.00)	5.1E-02	0.99 (0.99 – 1.00)	1.3E-01	0.99 (0.98 – 1.00)	1.00 (0.99 – 1.01)
136	Other infectious and parasitic diseases	Per88	1.02 (1.00 – 1.03)	5.3E-02	1.01 (1.00 – 1.03)	4.4E-03	1.05 (1.02 – 1.08)	1.00 (0.98 – 1.02)
292.3	Memory loss	Per88	0.98 (0.96 – 1.00)	5.7E-02	0.98 (0.96 – 1.00)	7.1E-01	0.98 (0.96 – 1.01)	0.98 (0.94 – 1.01)
740.9	Osteoarthritis NOS	AHI 3%	0.99 (0.98 – 1.00)	6.1E-02	0.99 (0.98 – 1.00)	7.2E-01	1.00 (0.99 – 1.01)	0.99 (0.97 – 1.00)
357	Inflammatory and toxic neuropathy	AHI 3%	0.99 (0.98 – 1.00)	6.3E-02	0.99 (0.98 – 1.00)	9.1E-02	0.98 (0.97 – 1.00)	1.00 (0.99 – 1.01)
599.5	Frequency of urination and polyuria	Per88	0.98 (0.96 – 1.00)	6.4E-02	0.98 (0.96 – 1.00)	9.0E-01	0.99 (0.97 – 1.01)	0.99 (0.95 – 1.02)
530.11	GERD	AHI 3%	1.00 (0.99 – 1.00)	6.7E-02	1.00 (0.99 – 1.00)	7.6E-01	1.00 (0.99 – 1.00)	0.99 (0.99 – 1.00)
427.3	Other specified cardiac dysrhythmias	AHI 3%	0.99 (0.99 – 1.00)	7.6E-02	0.99 (0.99 – 1.00)	5.4E-01	0.99 (0.99 – 1.00)	1.00 (0.99 – 1.02)
760	Back pain	Per88	1.01 (1.00 – 1.03)	8.1E-02	1.01 (1.00 – 1.03)	3.5E-01	1.02 (1.00 – 1.04)	1.01 (0.99 – 1.04)
742.9	Other derangement of joint	Per88	0.98 (0.97 – 1.00)	8.6E-02	0.98 (0.97 – 1.00)	8.1E-01	0.98 (0.94 – 1.02)	0.98 (0.96 – 1.00)
262	Mineral deficiency NEC	AHI 3%	0.99 (0.99 – 1.00)	8.9E-02	0.99 (0.99 – 1.00)	5.1E-01	0.99 (0.98 – 1.01)	0.99 (0.98 – 1.00)
208	Benign neoplasm of colon	AHI 3%	0.99 (0.99 – 1.00)	9.7E-02	0.99 (0.99 – 1.00)	6.7E-01	0.99 (0.99 – 1.00)	1.00 (0.99 – 1.01)
276.5	Hypovolemia	Per88	1.02 (1.00 – 1.04)	9.9E-02	1.02 (0.99 – 1.04)	6.1E-01	1.01 (0.98 – 1.04)	1.03 (1.00 – 1.06)
689	Disorder of skin and subcutaneous tissue NOS	Per88	0.99 (0.98 – 1.00)	1.1E-01	0.99 (0.98 – 1.00)	8.3E-01	1.00 (0.98 – 1.01)	0.99 (0.97 – 1.01)

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PheCode	Disease	Sleep statistic	Risk ratio	P-value	Risk ratio (adj pulmonary disorders)	Sleep statistic x sex interaction p-value	Risk ratio (men)	Risk ratio (women)
366.2	Senile cataract	AHI 3%	0.99 (0.99 – 1.00)	1.2E-01	0.99 (0.99 – 1.00)	3.1E-01	0.99 (0.98 – 1.00)	0.99 (0.98 – 1.01)
338.2	Chronic pain	AHI 3%	1.00 (0.99 – 1.00)	1.2E-01	1.00 (0.99 – 1.00)	3.9E-01	1.00 (0.99 – 1.00)	1.00 (0.99 – 1.00)
476	Allergic rhinitis	Per88	0.99 (0.97 – 1.00)	1.3E-01	0.98 (0.96 – 1.00)	8.4E-01	0.98 (0.95 – 1.01)	0.98 (0.96 – 1.01)
550.2	Diaphragmatic hernia	AHI 3%	0.99 (0.99 – 1.00)	1.4E-01	0.99 (0.99 – 1.00)	9.9E-01	0.99 (0.98 – 1.01)	0.99 (0.98 – 1.00)
701.2	Scar conditions and fibrosis of skin	Per88	0.98 (0.96 – 1.01)	1.5E-01	0.98 (0.96 – 1.00)	4.9E-01	0.97 (0.93 – 1.00)	1.00 (0.96 – 1.03)
365	Glaucoma	Per88	0.98 (0.95 – 1.01)	1.5E-01	0.98 (0.95 – 1.01)	1.5E-01	0.98 (0.95 – 1.01)	0.98 (0.94 – 1.02)
495	Asthma	Per88	1.01 (1.00 – 1.03)	1.5E-01	1.00 (0.98 – 1.03)	7.0E-01	1.00 (0.97 – 1.04)	1.02 (1.00 – 1.04)
687.1	Rash and other nonspecific skin eruption	Per88	1.01 (1.00 – 1.02)	1.5E-01	1.01 (0.99 – 1.02)	8.5E-01	1.00 (0.97 – 1.03)	1.01 (1.00 – 1.03)
480	Pneumonia	AHI 3%	1.00 (1.00 – 1.01)	1.5E-01	1.00 (1.00 – 1.01)	1.2E-01	1.01 (1.00 – 1.02)	1.00 (0.99 – 1.01)
402	Elevated blood pressure reading without diagnosis of hypertension	Per88	0.98 (0.96 – 1.01)	1.6E-01	0.99 (0.97 – 1.01)	2.6E-01	0.98 (0.95 – 1.02)	0.98 (0.96 – 1.01)
701	Other hypertrophic and atrophic conditions of skin	Per88	0.99 (0.97 – 1.00)	1.7E-01	0.99 (0.97 – 1.00)	2.1E-01	0.97 (0.95 – 1.00)	1.00 (0.98 – 1.02)
375.1	Dry eyes	AHI 3%	1.00 (0.99 – 1.00)	1.8E-01	1.00 (0.99 – 1.00)	3.7E-01	1.00 (0.99 – 1.01)	0.99 (0.98 – 1.00)
743.11	Osteoporosis NOS	Per88	1.01 (0.99 – 1.03)	1.8E-01	1.01 (0.99 – 1.03)	8.3E-01	1.02 (0.98 – 1.06)	1.00 (0.97 – 1.03)
472	Chronic pharyngitis and nasopharyngitis	Per88	1.01 (0.99 – 1.03)	1.8E-01	1.01 (0.99 – 1.03)	4.1E-01	1.00 (0.98 – 1.03)	1.02 (1.00 – 1.04)
726	Peripheral enthesopathies and allied syndromes	AHI 3%	1.00 (0.99 – 1.00)	1.9E-01	1.00 (0.99 – 1.00)	6.9E-01	1.00 (0.99 – 1.01)	0.99 (0.98 – 1.00)
304	Adjustment reaction	AHI 3%	1.00 (0.99 – 1.00)	2.0E-01	1.00 (0.99 – 1.00)	8.0E-01	0.99 (0.98 – 1.00)	1.00 (0.99 – 1.01)
280.1	Iron deficiency anemias, unspecified or not due to blood loss	AHI 3%	0.99 (0.99 – 1.00)	2.0E-01	0.99 (0.99 – 1.00)	2.4E-01	0.99 (0.98 – 1.01)	1.00 (0.99 – 1.01)
764	Sciatica	AHI 3%	1.00 (0.99 – 1.00)	2.0E-01	1.00 (0.99 – 1.00)	2.9E-02	1.00 (0.99 – 1.01)	0.99 (0.98 – 1.00)
389	Hearing loss	Per88	1.01 (0.99 – 1.03)	2.0E-01	1.01 (1.00 – 1.03)	6.5E-01	1.01 (0.99 – 1.03)	1.01 (0.99 – 1.04)
550.2	Diaphragmatic hernia	Per88	0.98 (0.96 – 1.01)	2.1E-01	0.98 (0.96 – 1.01)	1.8E-01	1.00 (0.94 – 1.05)	0.97 (0.94 – 1.01)
366.2	Senile cataract	Per88	0.99 (0.96 – 1.01)	2.1E-01	0.98 (0.96 – 1.01)	2.1E-01	1.00 (0.98 – 1.03)	0.96 (0.93 – 1.00)
594.1	Calculus of kidney	AHI 3%	1.00 (1.00 – 1.01)	2.2E-01	1.00 (1.00 – 1.01)	1.4E-01	1.01 (1.00 – 1.02)	1.00 (0.98 – 1.01)
571.5	Other chronic nonalcoholic liver disease	Per88	0.98 (0.95 – 1.01)	2.3E-01	0.98 (0.95 – 1.01)	7.0E-02	0.96 (0.91 – 1.01)	0.99 (0.95 – 1.04)
565.1	Anal and rectal polyp	AHI 3%	1.00 (1.00 – 1.01)	2.3E-01	1.00 (1.00 – 1.01)	6.0E-01	1.00 (1.00 – 1.01)	1.00 (0.99 – 1.02)
706.8	Other specified diseases of sebaceous glands	AHI 3%	1.00 (0.99 – 1.00)	2.4E-01	1.00 (0.99 – 1.00)	5.4E-01	0.99 (0.98 – 1.00)	1.00 (0.99 – 1.01)
401.1	Essential hypertension	AHI 3%	1.00 (1.00 – 1.01)	2.4E-01	1.00 (1.00 – 1.01)	7.7E-01	1.00 (0.99 – 1.01)	1.01 (0.99 – 1.02)
781	Symptoms involving nervous and musculoskeletal systems	AHI 3%	1.00 (1.00 – 1.01)	2.5E-01	1.00 (1.00 – 1.01)	1.1E-02	1.01 (1.00 – 1.02)	0.99 (0.98 – 1.01)
579.8	Nonspecific abnormal findings in stool contents	Per88	0.99 (0.97 – 1.01)	2.6E-01	0.99 (0.97 – 1.01)	5.1E-01	0.99 (0.96 – 1.02)	0.98 (0.96 – 1.01)
272.13	Mixed hyperlipidemia	Per88	0.98 (0.95 – 1.01)	2.7E-01	0.98 (0.95 – 1.01)	5.8E-01	1.00 (0.96 – 1.03)	0.97 (0.92 – 1.02)
272.1	Hyperlipidemia	AHI 3%	1.00 (0.99 – 1.00)	2.7E-01	1.00 (0.99 – 1.00)	2.5E-01	1.00 (0.99 – 1.01)	1.00 (0.99 – 1.00)
563	Constipation	Per88	1.01 (0.99 – 1.02)	2.7E-01	1.01 (0.99 – 1.02)	6.7E-01	1.00 (0.98 – 1.03)	1.01 (0.99 – 1.03)
465	Acute upper respiratory infections of multiple or	Per88	1.01 (0.99 – 1.03)	2.8E-01	1.01 (0.99 – 1.03)	8.4E-01	1.03 (1.00 – 1.05)	1.00 (0.97 – 1.02)

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PheCode	Disease	Sleep statistic	Risk ratio	P-value	Risk ratio (adj pulmonary disorders)	Sleep statistic x sex interaction p-value	Risk ratio (men)	Risk ratio (women)
	unspecified sites							
519.8	Other diseases of respiratory system, NEC	AHI 3%	1.00 (1.00 – 1.01)	2.9E-01	1.00 (1.00 – 1.01)	5.4E-01	1.01 (1.00 – 1.02)	1.00 (0.99 – 1.01)
689	Disorder of skin and subcutaneous tissue NOS	AHI 3%	1.00 (0.99 – 1.00)	2.9E-01	1.00 (0.99 – 1.00)	7.7E-01	1.00 (0.99 – 1.00)	1.00 (0.99 – 1.01)
306	Other mental disorder	Per88	1.01 (0.99 – 1.02)	3.0E-01	1.01 (0.99 – 1.02)	5.0E-01	1.01 (1.00 – 1.03)	1.00 (0.98 – 1.02)
365	Glaucoma	AHI 3%	1.00 (0.99 – 1.00)	3.0E-01	1.00 (0.99 – 1.00)	9.1E-01	1.00 (0.99 – 1.01)	0.99 (0.98 – 1.01)
386.9	Dizziness and giddiness (Light-headedness and vertigo)	AHI 3%	1.00 (1.00 – 1.01)	3.0E-01	1.00 (1.00 – 1.01)	3.6E-01	1.00 (0.99 – 1.01)	1.00 (0.99 – 1.01)
427.9	Palpitations	Per88	0.99 (0.97 – 1.01)	3.0E-01	0.99 (0.97 – 1.01)	1.3E-01	0.97 (0.94 – 1.01)	0.99 (0.97 – 1.02)
593.2	Microscopic hematuria	Per88	0.99 (0.97 – 1.01)	3.0E-01	0.99 (0.97 – 1.01)	5.5E-01	0.99 (0.96 – 1.02)	0.99 (0.96 – 1.02)
357	Inflammatory and toxic neuropathy	Per88	1.01 (0.99 – 1.03)	3.1E-01	1.01 (0.99 – 1.03)	2.6E-01	1.02 (0.99 – 1.04)	1.00 (0.98 – 1.03)
476	Allergic rhinitis	AHI 3%	1.00 (0.99 – 1.00)	3.2E-01	1.00 (0.99 – 1.00)	6.4E-01	0.99 (0.98 – 1.00)	1.00 (0.99 – 1.01)
300.1	Anxiety disorder	Per88	1.01 (0.99 – 1.02)	3.2E-01	1.01 (0.99 – 1.02)	5.8E-02	1.01 (0.99 – 1.04)	1.01 (0.99 – 1.02)
379.9	Pain, swelling or discharge of eye	Per88	0.99 (0.97 – 1.01)	3.3E-01	0.99 (0.97 – 1.01)	5.3E-02	0.95 (0.92 – 0.98)	1.00 (0.98 – 1.03)
272.11	Hypercholesterolemia	Per88	1.01 (0.99 – 1.03)	3.4E-01	1.01 (0.99 – 1.03)	2.8E-01	1.02 (1.00 – 1.04)	0.99 (0.95 – 1.02)
427.6	Premature beats	Per88	1.01 (0.99 – 1.03)	3.4E-01	1.01 (0.99 – 1.03)	8.0E-01	1.01 (0.99 – 1.04)	1.01 (0.96 – 1.05)
389.4	Tinnitus	AHI 3%	1.00 (0.99 – 1.00)	3.5E-01	1.00 (0.99 – 1.00)	6.6E-01	1.00 (0.99 – 1.01)	1.00 (0.99 – 1.01)
704	Diseases of hair and hair follicles	AHI 3%	1.00 (0.99 – 1.00)	3.7E-01	1.00 (0.99 – 1.00)	2.2E-01	1.00 (0.99 – 1.01)	0.99 (0.98 – 1.00)
340	Migraine	Per88	0.99 (0.98 – 1.01)	3.7E-01	0.99 (0.98 – 1.01)	1.4E-01	0.98 (0.95 – 1.00)	1.00 (0.98 – 1.02)
798	Malaise and fatigue	Per88	1.01 (0.99 – 1.02)	3.8E-01	1.01 (0.99 – 1.02)	5.9E-01	1.01 (0.99 – 1.03)	1.00 (0.98 – 1.03)
278.11	Morbid obesity	AHI 3%	1.00 (1.00 – 1.01)	3.8E-01	1.00 (1.00 – 1.01)	5.6E-01	1.00 (0.99 – 1.01)	1.00 (0.99 – 1.02)
455	Hemorrhoids	Per88	0.99 (0.97 – 1.01)	3.8E-01	0.99 (0.97 – 1.01)	4.5E-02	1.01 (0.98 – 1.04)	0.98 (0.95 – 1.01)
316	Substance addiction and disorders	Per88	1.01 (0.99 – 1.03)	3.8E-01	1.01 (0.98 – 1.03)	6.7E-01	1.00 (0.97 – 1.03)	1.02 (0.99 – 1.05)
278.11	Morbid obesity	Per88	1.01 (0.99 – 1.04)	3.9E-01	1.01 (0.99 – 1.04)	1.7E-01	0.99 (0.94 – 1.05)	1.01 (0.98 – 1.05)
470	Septal Deviations/Turbinate Hypertrophy	AHI 3%	1.00 (1.00 – 1.01)	3.9E-01	1.00 (1.00 – 1.01)	7.2E-02	1.00 (0.99 – 1.01)	1.01 (1.00 – 1.02)
278.1	Obesity	Per88	1.01 (0.99 – 1.03)	4.0E-01	1.01 (0.99 – 1.03)	3.0E-01	1.01 (0.97 – 1.05)	1.00 (0.98 – 1.03)
740.9	Osteoarthritis NOS	Per88	0.99 (0.96 – 1.01)	4.0E-01	0.99 (0.96 – 1.01)	1.6E-01	0.97 (0.93 – 1.00)	1.00 (0.97 – 1.04)
561	Symptoms involving digestive system	Per88	0.99 (0.97 – 1.01)	4.0E-01	0.99 (0.97 – 1.01)	4.0E-01	1.00 (0.98 – 1.03)	0.97 (0.93 – 1.01)
327.4	Insomnia	Per88	1.01 (0.99 – 1.02)	4.0E-01	1.01 (0.99 – 1.02)	9.3E-01	1.01 (0.99 – 1.04)	1.01 (0.98 – 1.03)
585.3	Chronic renal failure [CKD]	AHI 3%	1.00 (0.99 – 1.01)	4.2E-01	1.00 (0.99 – 1.01)	9.2E-02	1.01 (1.00 – 1.02)	0.99 (0.98 – 1.01)
687.1	Rash and other nonspecific skin eruption	AHI 3%	1.00 (0.99 – 1.00)	4.2E-01	1.00 (0.99 – 1.00)	8.8E-01	0.99 (0.99 – 1.00)	1.00 (0.99 – 1.01)
475.9	Postnasal drip	Per88	1.01 (0.99 – 1.02)	4.3E-01	1.01 (0.99 – 1.02)	9.8E-01	1.01 (0.98 – 1.04)	1.01 (0.98 – 1.03)
278	Overweight, obesity and other hyperalimentation	Per88	0.99 (0.98 – 1.01)	4.3E-01	0.99 (0.98 – 1.01)	5.0E-01	1.00 (0.98 – 1.02)	0.99 (0.96 – 1.01)
280.1	Iron deficiency anemias, unspecified or not due to blood loss	Per88	0.99 (0.97 – 1.02)	4.4E-01	0.99 (0.96 – 1.01)	9.0E-01	0.98 (0.93 – 1.03)	1.00 (0.97 – 1.03)
809	Fracture of unspecified bones	AHI 3%	1.00 (0.99 – 1.00)	4.4E-01	1.00 (0.99 – 1.00)	2.5E-01	0.99 (0.98 – 1.01)	1.00 (0.98 – 1.01)
277	Other disorders of metabolism	Per88	0.99 (0.98 – 1.01)	4.4E-01	0.99 (0.98 – 1.01)	5.2E-03	1.02 (0.99 – 1.05)	0.98 (0.96 – 1.00)

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PheCode	Disease	Sleep statistic	Risk ratio	P-value	Risk ratio (adj pulmonary disorders)	Sleep statistic x sex interaction p-value	Risk ratio (men)	Risk ratio (women)
761	Cervicalgia	AHI 3%	1.00 (1.00 – 1.01)	4.5E-01	1.00 (1.00 – 1.01)	6.7E-01	1.00 (0.99 – 1.01)	1.00 (0.99 – 1.01)
304	Adjustment reaction	Per88	1.01 (0.99 – 1.02)	4.5E-01	1.01 (0.99 – 1.02)	9.9E-01	0.99 (0.96 – 1.02)	1.01 (0.99 – 1.03)
761	Cervicalgia	Per88	0.99 (0.98 – 1.01)	4.6E-01	0.99 (0.98 – 1.01)	9.3E-01	0.99 (0.97 – 1.02)	0.98 (0.96 – 1.01)
369.5	Conjunctivitis, infectious	Per88	1.01 (0.99 – 1.02)	4.6E-01	1.00 (0.99 – 1.02)	6.0E-02	1.03 (1.00 – 1.05)	0.98 (0.95 – 1.01)
316	Substance addiction and disorders	AHI 3%	1.00 (0.99 – 1.01)	4.6E-01	1.00 (0.99 – 1.01)	5.2E-01	1.00 (0.98 – 1.01)	1.00 (0.98 – 1.01)
389	Hearing loss	AHI 3%	1.00 (1.00 – 1.01)	4.8E-01	1.00 (1.00 – 1.01)	7.9E-01	1.00 (0.99 – 1.01)	1.01 (1.00 – 1.01)
306	Other mental disorder	AHI 3%	1.00 (1.00 – 1.01)	4.8E-01	1.00 (1.00 – 1.01)	9.7E-01	1.00 (1.00 – 1.01)	1.00 (0.99 – 1.01)
196	Radiotherapy	AHI 3%	1.00 (0.99 – 1.01)	4.8E-01	1.00 (0.99 – 1.01)	9.9E-01	1.00 (1.00 – 1.01)	1.00 (0.99 – 1.02)
173	Neoplasm of uncertain behavior of skin	AHI 3%	1.00 (1.00 – 1.01)	4.9E-01	1.00 (1.00 – 1.01)	1.8E-01	1.00 (1.00 – 1.01)	1.00 (0.99 – 1.01)
742.9	Other derangement of joint	AHI 3%	1.00 (0.99 – 1.00)	5.1E-01	1.00 (0.99 – 1.00)	7.1E-01	1.00 (0.99 – 1.01)	0.99 (0.98 – 1.00)
271.3	Intestinal disaccharidase deficiencies and disaccharide malabsorption	Per88	1.00 (0.98 – 1.01)	5.1E-01	1.00 (0.98 – 1.01)	7.1E-02	0.98 (0.96 – 1.00)	1.00 (0.99 – 1.02)
351	Other peripheral nerve disorders	Per88	1.01 (0.99 – 1.03)	5.1E-01	1.01 (0.99 – 1.03)	9.2E-02	1.01 (0.97 – 1.04)	1.00 (0.98 – 1.03)
292	Neurological disorders	Per88	0.99 (0.97 – 1.02)	5.3E-01	0.99 (0.97 – 1.02)	9.0E-01	0.99 (0.96 – 1.02)	0.99 (0.96 – 1.03)
296.22	Major depressive disorder	AHI 3%	1.00 (0.99 – 1.00)	5.4E-01	1.00 (0.99 – 1.00)	6.6E-01	1.00 (0.99 – 1.01)	1.00 (0.99 – 1.01)
272.11	Hypercholesterolemia	AHI 3%	1.00 (0.99 – 1.00)	5.5E-01	1.00 (0.99 – 1.00)	3.0E-01	1.00 (0.99 – 1.01)	0.99 (0.98 – 1.00)
196	Radiotherapy	Per88	0.99 (0.96 – 1.02)	5.5E-01	0.99 (0.96 – 1.02)	4.7E-01	1.00 (0.97 – 1.03)	0.99 (0.94 – 1.04)
530.9	Heartburn	AHI 3%	1.00 (0.99 – 1.00)	5.5E-01	1.00 (0.99 – 1.00)	3.1E-01	1.00 (0.99 – 1.01)	1.00 (0.99 – 1.01)
726	Peripheral enthesopathies and allied syndromes	Per88	0.99 (0.97 – 1.02)	5.6E-01	0.99 (0.96 – 1.02)	5.6E-01	0.99 (0.96 – 1.03)	1.00 (0.96 – 1.03)
338.2	Chronic pain	Per88	1.00 (0.98 – 1.01)	5.6E-01	1.00 (0.98 – 1.01)	5.3E-01	0.99 (0.97 – 1.01)	1.00 (0.98 – 1.02)
965	Poisoning by analgesics, antipyretics, and antirheumatics	AHI 3%	1.00 (0.99 – 1.01)	5.8E-01	1.00 (0.99 – 1.01)	9.8E-01	1.00 (0.99 – 1.01)	1.00 (0.99 – 1.01)
008	Intestinal infection	Per88	1.00 (0.99 – 1.02)	5.8E-01	1.01 (0.99 – 1.02)	5.7E-01	1.01 (0.98 – 1.03)	1.00 (0.98 – 1.03)
475.9	Postnasal drip	AHI 3%	1.00 (0.99 – 1.00)	5.9E-01	1.00 (0.99 – 1.00)	6.8E-01	0.99 (0.98 – 1.00)	1.00 (0.99 – 1.01)
351	Other peripheral nerve disorders	AHI 3%	1.00 (0.99 – 1.01)	6.0E-01	1.00 (0.99 – 1.01)	6.5E-01	1.00 (0.99 – 1.01)	1.00 (0.99 – 1.02)
594.1	Calculus of kidney	Per88	0.99 (0.97 – 1.02)	6.0E-01	0.99 (0.97 – 1.02)	4.6E-01	0.98 (0.95 – 1.02)	1.00 (0.97 – 1.03)
470	Septal Deviations/Turbinate Hypertrophy	Per88	0.99 (0.97 – 1.02)	6.0E-01	1.00 (0.98 – 1.02)	4.4E-01	0.99 (0.96 – 1.02)	1.01 (0.98 – 1.03)
289.4	Lymphadenitis	AHI 3%	1.00 (0.99 – 1.01)	6.0E-01	1.00 (0.99 – 1.01)	8.0E-01	1.00 (0.99 – 1.01)	1.00 (0.99 – 1.01)
740.11	Osteoarthritis, localized, primary	Per88	1.01 (0.99 – 1.03)	6.1E-01	1.00 (0.98 – 1.03)	4.4E-01	0.99 (0.96 – 1.03)	1.01 (0.98 – 1.04)
599.2	Retention of urine	AHI 3%	1.00 (0.99 – 1.01)	6.1E-01	1.00 (0.99 – 1.01)	1.1E-02	1.00 (0.99 – 1.01)	0.98 (0.97 – 1.00)
537	Other disorders of stomach and duodenum	Per88	1.00 (0.98 – 1.01)	6.2E-01	0.99 (0.98 – 1.01)	3.0E-01	0.99 (0.96 – 1.02)	1.00 (0.97 – 1.02)
740.11	Osteoarthritis, localized, primary	AHI 3%	1.00 (0.99 – 1.01)	6.2E-01	1.00 (0.99 – 1.01)	7.7E-01	0.99 (0.99 – 1.00)	1.00 (0.99 – 1.01)
726.1	Enthesopathy	Per88	0.99 (0.97 – 1.02)	6.3E-01	0.99 (0.97 – 1.02)	3.9E-01	1.01 (0.97 – 1.05)	0.98 (0.95 – 1.01)
599.2	Retention of urine	Per88	0.99 (0.97 – 1.02)	6.4E-01	0.99 (0.97 – 1.02)	6.0E-02	0.99 (0.96 – 1.01)	1.02 (0.98 – 1.05)
809	Fracture of unspecified bones	Per88	0.99 (0.97 – 1.02)	6.4E-01	1.00 (0.97 – 1.02)	2.1E-01	1.01 (0.98 – 1.04)	0.98 (0.95 – 1.02)
512.2	Painful respiration	Per88	1.00 (0.98 – 1.01)	6.5E-01	1.00 (0.98 – 1.01)	5.4E-01	1.02 (0.99 – 1.05)	0.98 (0.95 – 1.00)

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PheCode	Disease	Sleep statistic	Risk ratio	P-value	Risk ratio (adj pulmonary disorders)	Sleep statistic x sex interaction p-value	Risk ratio (men)	Risk ratio (women)
764	Sciatica	Per88	1.00 (0.98 – 1.02)	6.5E-01	1.00 (0.98 – 1.02)	8.3E-03	1.02 (0.99 – 1.05)	0.97 (0.95 – 1.00)
296.22	Major depressive disorder	Per88	1.00 (0.99 – 1.02)	6.6E-01	1.00 (0.99 – 1.02)	5.3E-02	0.98 (0.95 – 1.01)	1.02 (1.00 – 1.04)
537	Other disorders of stomach and duodenum	AHI 3%	1.00 (0.99 – 1.00)	6.6E-01	1.00 (0.99 – 1.00)	2.0E-01	1.00 (0.99 – 1.01)	1.00 (0.99 – 1.01)
495	Asthma	AHI 3%	1.00 (0.99 – 1.01)	6.6E-01	1.00 (0.99 – 1.01)	3.2E-01	0.99 (0.98 – 1.00)	1.00 (0.99 – 1.01)
327.4	Insomnia	AHI 3%	1.00 (0.99 – 1.01)	6.6E-01	1.00 (0.99 – 1.01)	3.4E-01	1.00 (0.99 – 1.01)	1.00 (0.99 – 1.01)
512.2	Painful respiration	AHI 3%	1.00 (0.99 – 1.00)	6.7E-01	1.00 (0.99 – 1.00)	9.4E-01	1.00 (0.99 – 1.01)	1.00 (0.99 – 1.01)
289.4	Lymphadenitis	Per88	1.00 (0.97 – 1.02)	6.7E-01	0.99 (0.97 – 1.02)	8.8E-01	0.99 (0.96 – 1.03)	1.00 (0.98 – 1.03)
579.8	Nonspecific abnormal findings in stool contents	AHI 3%	1.00 (0.99 – 1.01)	6.7E-01	1.00 (0.99 – 1.01)	4.8E-01	1.00 (0.99 – 1.01)	1.00 (0.99 – 1.01)
599.8	Other symptoms involving urinary system	AHI 3%	1.00 (0.99 – 1.01)	6.7E-01	1.00 (0.99 – 1.01)	2.1E-01	1.00 (0.99 – 1.01)	0.99 (0.98 – 1.01)
300.1	Anxiety disorder	AHI 3%	1.00 (0.99 – 1.00)	6.8E-01	1.00 (0.99 – 1.00)	7.6E-01	1.00 (0.99 – 1.01)	1.00 (0.99 – 1.01)
706.8	Other specified diseases of sebaceous glands	Per88	1.00 (0.98 – 1.02)	6.8E-01	1.00 (0.98 – 1.02)	9.1E-01	0.98 (0.95 – 1.02)	1.00 (0.98 – 1.03)
508	Pulmonary collapse; interstitial and compensatory emphysema	AHI 3%	1.00 (0.99 – 1.01)	6.8E-01	1.00 (0.99 – 1.01)	7.6E-01	1.00 (0.99 – 1.01)	1.00 (0.98 – 1.02)
427.3	Other specified cardiac dysrhythmias	Per88	1.00 (0.98 – 1.02)	6.8E-01	0.99 (0.97 – 1.01)	4.2E-01	1.00 (0.98 – 1.02)	1.01 (0.98 – 1.04)
459.9	Circulatory disease NEC	AHI 3%	1.00 (0.99 – 1.01)	6.9E-01	1.00 (0.99 – 1.01)	4.8E-01	1.00 (0.99 – 1.01)	1.00 (0.99 – 1.01)
296	Mood disorders	AHI 3%	1.00 (0.99 – 1.01)	6.9E-01	1.00 (0.99 – 1.01)	4.1E-01	1.00 (0.99 – 1.01)	1.00 (0.99 – 1.02)
720	Spinal stenosis	Per88	1.00 (0.97 – 1.02)	6.9E-01	1.00 (0.97 – 1.02)	9.3E-01	0.99 (0.96 – 1.02)	1.00 (0.96 – 1.03)
701.2	Scar conditions and fibrosis of skin	AHI 3%	1.00 (0.99 – 1.01)	7.0E-01	1.00 (0.99 – 1.01)	5.0E-01	0.99 (0.98 – 1.00)	1.01 (1.00 – 1.02)
429.3	Symptoms involving cardiovascular system	AHI 3%	1.00 (0.99 – 1.00)	7.1E-01	1.00 (0.99 – 1.00)	5.2E-01	1.00 (0.99 – 1.01)	1.00 (0.99 – 1.01)
599.9	Other abnormality of urination	Per88	1.00 (0.98 – 1.02)	7.1E-01	0.99 (0.97 – 1.02)	6.8E-01	0.98 (0.96 – 1.01)	1.01 (0.99 – 1.04)
008	Intestinal infection	AHI 3%	1.00 (0.99 – 1.01)	7.1E-01	1.00 (0.99 – 1.01)	7.9E-01	1.00 (0.99 – 1.01)	1.00 (0.99 – 1.01)
389.4	Tinnitus	Per88	1.00 (0.98 – 1.01)	7.2E-01	1.00 (0.98 – 1.01)	5.8E-01	1.00 (0.97 – 1.02)	0.99 (0.97 – 1.02)
704	Diseases of hair and hair follicles	Per88	1.00 (0.98 – 1.02)	7.5E-01	1.00 (0.98 – 1.02)	9.4E-02	1.00 (0.97 – 1.03)	0.99 (0.97 – 1.02)
261.4	Vitamin D deficiency	AHI 3%	1.00 (0.99 – 1.01)	7.5E-01	1.00 (0.99 – 1.01)	5.5E-01	1.00 (0.98 – 1.01)	1.00 (0.99 – 1.01)
271.3	Intestinal disaccharidase deficiencies and disaccharide malabsorption	AHI 3%	1.00 (1.00 – 1.00)	7.5E-01	1.00 (1.00 – 1.00)	5.1E-01	1.00 (0.99 – 1.01)	1.00 (0.99 – 1.00)
840	Sprains and strains	Per88	1.00 (0.99 – 1.02)	7.6E-01	1.00 (0.98 – 1.02)	8.3E-01	1.00 (0.98 – 1.03)	1.00 (0.98 – 1.03)
375.1	Dry eyes	Per88	1.00 (0.99 – 1.02)	7.6E-01	1.00 (0.98 – 1.02)	2.7E-01	1.00 (0.97 – 1.02)	1.00 (0.98 – 1.03)
704.1	Alopecia	Per88	1.00 (0.98 – 1.02)	7.6E-01	1.00 (0.98 – 1.02)	7.2E-01	1.01 (0.98 – 1.05)	0.99 (0.96 – 1.02)
296	Mood disorders	Per88	1.00 (0.98 – 1.02)	7.7E-01	1.00 (0.98 – 1.03)	2.7E-01	1.01 (0.98 – 1.04)	1.00 (0.97 – 1.02)
272.1	Hyperlipidemia	Per88	1.00 (0.99 – 1.02)	7.7E-01	1.00 (0.98 – 1.02)	4.6E-01	1.00 (0.98 – 1.02)	1.01 (0.98 – 1.03)
389.1	Sensorineural hearing loss	Per88	1.00 (0.98 – 1.03)	7.8E-01	1.00 (0.98 – 1.03)	5.2E-02	1.03 (1.00 – 1.05)	0.97 (0.93 – 1.02)
278.4	Abnormal weight gain	Per88	1.00 (0.98 – 1.02)	7.8E-01	1.00 (0.98 – 1.02)	8.5E-01	0.98 (0.91 – 1.04)	1.00 (0.98 – 1.02)
599.4	Urinary incontinence	Per88	1.00 (0.97 – 1.02)	7.8E-01	1.00 (0.98 – 1.02)	7.0E-01	0.99 (0.95 – 1.03)	1.00 (0.97 – 1.03)
765	Cervical radiculitis	AHI 3%	1.00 (0.99 – 1.01)	7.8E-01	1.00 (0.99 – 1.01)	5.5E-01	1.00 (0.98 – 1.01)	1.01 (1.00 – 1.02)
277	Other disorders of metabolism	AHI 3%	1.00 (1.00 – 1.01)	7.9E-01	1.00 (1.00 – 1.01)	2.5E-01	1.00 (0.99 – 1.01)	1.00 (0.99 – 1.01)

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PheCode	Disease	Sleep statistic	Risk ratio	P-value	Risk ratio (adj pulmonary disorders)	Sleep statistic x sex interaction p-value	Risk ratio (men)	Risk ratio (women)
261.4	Vitamin D deficiency	Per88	1.00 (0.98 – 1.02)	7.9E-01	1.00 (0.98 – 1.02)	1.6E-01	0.98 (0.95 – 1.02)	1.01 (0.98 – 1.03)
701	Other hypertrophic and atrophic conditions of skin	AHI 3%	1.00 (0.99 – 1.01)	7.9E-01	1.00 (0.99 – 1.01)	5.9E-01	1.00 (0.99 – 1.01)	1.00 (0.99 – 1.01)
276.5	Hypovolemia	AHI 3%	1.00 (0.99 – 1.01)	8.0E-01	1.00 (0.99 – 1.01)	8.3E-01	1.00 (0.99 – 1.01)	1.00 (0.99 – 1.01)
262	Mineral deficiency NEC	Per88	1.00 (0.98 – 1.02)	8.0E-01	1.00 (0.98 – 1.02)	6.1E-01	1.00 (0.96 – 1.04)	1.00 (0.98 – 1.03)
965	Poisoning by analgesics, antipyretics, and antirheumatics	Per88	1.00 (0.98 – 1.02)	8.0E-01	1.00 (0.98 – 1.02)	1.8E-01	0.97 (0.93 – 1.01)	1.01 (0.99 – 1.03)
571.5	Other chronic nonalcoholic liver disease	AHI 3%	1.00 (0.99 – 1.01)	8.1E-01	1.00 (0.99 – 1.01)	5.2E-01	1.00 (0.99 – 1.02)	0.99 (0.98 – 1.01)
427.6	Premature beats	AHI 3%	1.00 (0.99 – 1.01)	8.1E-01	1.00 (0.99 – 1.01)	9.6E-01	1.00 (0.99 – 1.01)	1.01 (0.99 – 1.02)
278.1	Obesity	AHI 3%	1.00 (0.99 – 1.01)	8.2E-01	1.00 (0.99 – 1.01)	7.9E-01	1.00 (0.99 – 1.01)	1.00 (0.98 – 1.01)
481	Influenza	AHI 3%	1.00 (0.99 – 1.01)	8.4E-01	1.00 (0.99 – 1.01)	3.2E-01	1.00 (0.99 – 1.02)	1.00 (0.99 – 1.01)
278	Overweight, obesity and other hyperalimentation	AHI 3%	1.00 (0.99 – 1.01)	8.4E-01	1.00 (0.99 – 1.01)	4.1E-02	1.00 (1.00 – 1.01)	0.99 (0.99 – 1.00)
136	Other infectious and parasitic diseases	AHI 3%	1.00 (0.99 – 1.01)	8.4E-01	1.00 (0.99 – 1.01)	2.9E-01	1.00 (0.99 – 1.01)	1.00 (0.99 – 1.01)
300.11	Generalized anxiety disorder	Per88	1.00 (0.98 – 1.01)	8.5E-01	1.00 (0.98 – 1.01)	7.6E-02	0.97 (0.94 – 1.01)	1.01 (0.99 – 1.02)
481	Influenza	Per88	1.00 (0.98 – 1.03)	8.5E-01	1.00 (0.98 – 1.02)	5.4E-01	0.99 (0.96 – 1.03)	1.01 (0.99 – 1.04)
401.1	Essential hypertension	Per88	1.00 (0.98 – 1.03)	8.6E-01	1.00 (0.98 – 1.03)	6.1E-01	0.99 (0.95 – 1.03)	1.01 (0.98 – 1.05)
798	Malaise and fatigue	AHI 3%	1.00 (0.99 – 1.01)	8.6E-01	1.00 (0.99 – 1.01)	5.5E-01	1.00 (0.99 – 1.01)	1.00 (0.99 – 1.01)
530.11	GERD	Per88	1.00 (0.98 – 1.01)	8.6E-01	1.00 (0.98 – 1.01)	3.4E-01	0.99 (0.96 – 1.01)	1.01 (0.99 – 1.03)
743.11	Osteoporosis NOS	AHI 3%	1.00 (0.99 – 1.01)	8.7E-01	1.00 (0.99 – 1.01)	3.2E-01	0.98 (0.97 – 1.00)	1.00 (0.99 – 1.01)
459.9	Circulatory disease NEC	Per88	1.00 (0.98 – 1.03)	9.0E-01	1.00 (0.98 – 1.03)	1.7E-01	1.02 (0.99 – 1.05)	0.98 (0.94 – 1.01)
704.1	Alopecia	AHI 3%	1.00 (0.99 – 1.01)	9.0E-01	1.00 (0.99 – 1.01)	2.1E-01	1.00 (0.99 – 1.02)	1.00 (0.99 – 1.01)
208	Benign neoplasm of colon	Per88	1.00 (0.97 – 1.02)	9.2E-01	1.00 (0.97 – 1.03)	1.3E-01	1.02 (0.99 – 1.05)	0.97 (0.93 – 1.01)
472	Chronic pharyngitis and nasopharyngitis	AHI 3%	1.00 (0.99 – 1.01)	9.2E-01	1.00 (0.99 – 1.01)	3.4E-01	1.00 (0.99 – 1.01)	1.00 (0.99 – 1.01)
727.1	Synovitis and tenosynovitis	Per88	1.00 (0.98 – 1.03)	9.2E-01	1.00 (0.98 – 1.03)	5.7E-01	1.00 (0.96 – 1.04)	1.00 (0.97 – 1.03)
593.2	Microscopic hematuria	AHI 3%	1.00 (0.99 – 1.01)	9.2E-01	1.00 (0.99 – 1.01)	1.7E-01	1.00 (0.99 – 1.02)	0.99 (0.98 – 1.01)
386.9	Dizziness and giddiness (Light-headedness and vertigo)	Per88	1.00 (0.98 – 1.02)	9.2E-01	1.00 (0.98 – 1.02)	7.3E-01	0.99 (0.96 – 1.02)	1.01 (0.99 – 1.03)
565.1	Anal and rectal polyp	Per88	1.00 (0.98 – 1.03)	9.2E-01	1.00 (0.98 – 1.03)	3.8E-02	1.01 (0.98 – 1.05)	0.99 (0.96 – 1.02)
765	Cervical radiculitis	Per88	1.00 (0.98 – 1.02)	9.3E-01	1.00 (0.98 – 1.02)	1.3E-01	0.97 (0.94 – 0.99)	1.02 (1.00 – 1.05)
402	Elevated blood pressure reading without diagnosis of hypertension	AHI 3%	1.00 (0.99 – 1.01)	9.3E-01	1.00 (0.99 – 1.01)	9.1E-01	1.00 (0.99 – 1.01)	1.00 (0.99 – 1.01)
369.5	Conjunctivitis, infectious	AHI 3%	1.00 (0.99 – 1.01)	9.5E-01	1.00 (0.99 – 1.01)	1.2E-02	1.01 (1.00 – 1.02)	0.99 (0.98 – 1.00)
292	Neurological disorders	AHI 3%	1.00 (0.99 – 1.01)	9.5E-01	1.00 (0.99 – 1.01)	2.3E-01	1.00 (0.99 – 1.01)	0.99 (0.98 – 1.01)
379.9	Pain, swelling or discharge of eye	AHI 3%	1.00 (0.99 – 1.01)	9.7E-01	1.00 (0.99 – 1.01)	5.8E-01	1.01 (0.99 – 1.02)	0.99 (0.98 – 1.00)
429.3	Symptoms involving cardiovascular system	Per88	1.00 (0.98 – 1.02)	9.8E-01	1.00 (0.98 – 1.02)	6.9E-03	0.99 (0.96 – 1.01)	1.01 (0.99 – 1.04)
285	Other anemias	AHI 3%	1.00 (0.99 – 1.01)	9.9E-01	1.00 (0.99 – 1.01)	6.2E-01	1.00 (0.99 – 1.01)	1.00 (0.99 – 1.01)

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PheCode	Disease	Sleep statistic	Risk ratio	P-value	Risk ratio (adj pulmonary disorders)	Sleep statistic x sex interaction p-value	Risk ratio (men)	Risk ratio (women)
389.1	Sensorineural hearing loss	AHI 3%	1.00 (0.99 – 1.01)	9.9E-01	1.00 (0.99 – 1.01)	9.9E-02	1.00 (0.99 – 1.01)	0.99 (0.98 – 1.01)
727.1	Synovitis and tenosynovitis	AHI 3%	1.00 (0.99 – 1.01)	9.9E-01	1.00 (0.99 – 1.01)	4.8E-01	1.01 (1.00 – 1.02)	0.99 (0.98 – 1.01)
599.8	Other symptoms involving urinary system	Per88	1.00 (0.98 – 1.02)	9.9E-01	1.00 (0.98 – 1.02)	5.6E-01	1.01 (0.98 – 1.04)	1.00 (0.97 – 1.03)

Table S11. Cross-sectional sleep statistic associations with comorbidities.

Cross-sectional analyses used the first sleep recording (prioritizing diagnostics, then splits, then home sleep tests) and are ordered by p-values. Primary analyses considered joint-sex PheCodes with >1% prevalence rate and were rank-normalized after adjusting for age, sex, BMI, population, sleep study type, and healthcare encounters. The primary analysis considered all available sleep laboratory data (i.e. including participants being screened for other sleep disorders).

47 non-redundant PheCodes were Bonferroni-level significant (**bolded**) and 117 non-redundant PheCodes were FDR-level significant (in **red**, uncorrected p-values).

Due to PDF width constraints, sensitivity analyses are presented in two tables, with primary columns repeated (apart from incidence and n):

Table S11 further includes:

A sensitivity analysis considering only participants with AHI >15.

A sensitivity analysis further adjusting for an indicator variable for other common sleep disorders (PheCodes 327, 327.1, 327.4, 327.41, 327.5, 327.6, 327.7, 327.71) in the full sleep recording sample.

Table S12 further includes:

A sensitivity analysis further adjusting for an indicator variable for common pulmonary disorders (PheCodes 415.1, 415.11, 415.2, 480.1, 480.11, 480.2, 480, 495, 495.2, 496.1, 496.2, 496.21, 496.3, 497, 502, 503, 505, 506, 509.2).

P-values from sleep statistic × sex interaction analyses (not rank-normalized) performed separately. Two Bonferroni-level significant values are displayed in **green**.

Equivalent sex-stratified results.

PheCode	Disease	Sleep statistic	Prevalence	Risk ratio	P-value	N	Risk ratio (AHI >15)	N (AHI >15)	Risk ratio (adj sleep disorders)
1013	Asphyxia and hypoxemia	Per88	3.8	1.07 (1.06 – 1.07)	1.1E-70	12232	1.05 (1.04 – 1.06)	5845	1.07 (1.06 – 1.07)
496	Chronic airway obstruction	Per88	3.9	1.06 (1.05 – 1.06)	3.2E-45	12232	1.04 (1.04 – 1.05)	5845	1.06 (1.05 – 1.06)
509.1	Respiratory failure	Per88	2.3	1.07 (1.06 – 1.08)	7.0E-40	12232	1.05 (1.04 – 1.06)	5845	1.07 (1.06 – 1.08)
415.2	Chronic pulmonary heart disease	Per88	2.1	1.07 (1.05 – 1.08)	5.5E-38	12232	1.05 (1.04 – 1.06)	5845	1.07 (1.05 – 1.08)
496.21	Obstructive chronic bronchitis	Per88	1.3	1.07 (1.06 – 1.09)	2.4E-34	12232	1.06 (1.05 – 1.07)	5845	1.07 (1.06 – 1.09)
508	Pulmonary collapse; interstitial and compensatory emphysema	Per88	5.3	1.04 (1.04 – 1.05)	3.9E-34	12232	1.03 (1.02 – 1.04)	5845	1.04 (1.04 – 1.05)
503	Pulmonary congestion and hypostasis	Per88	2.9	1.06 (1.05 – 1.07)	6.8E-31	12232	1.04 (1.03 – 1.05)	5845	1.06 (1.05 – 1.07)
496.1	Emphysema	Per88	2.0	1.06 (1.05 – 1.07)	1.1E-30	12232	1.04 (1.03 – 1.06)	5845	1.06 (1.05 – 1.07)
512.7	Shortness of breath	Per88	17.1	1.02 (1.02 – 1.03)	8.6E-26	12232	1.02 (1.01 – 1.02)	5845	1.02 (1.02 – 1.03)
782.3	Edema	Per88	9.5	1.03 (1.03 – 1.04)	6.7E-25	12232	1.02 (1.02 – 1.03)	5845	1.03 (1.03 – 1.04)
428.1	Congestive heart failure (CHF) NOS	Per88	5.6	1.04 (1.03 – 1.05)	1.3E-21	12232	1.03 (1.02 – 1.04)	5845	1.04 (1.03 – 1.05)

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PheCode	Disease	Sleep statistic	Prevalence	Risk ratio	P-value	N	Risk ratio (AHI >15)	N (AHI >15)	Risk ratio (adj sleep disorders)
401.1	Essential hypertension	AHI 3%	41.8	1.00 (1.00 – 1.01)	7.0E-20	18332	1.00 (1.00 – 1.00)	9404	1.00 (1.00 – 1.01)
512.9	Other dyspnea	Per88	18.4	1.02 (1.01 – 1.02)	5.8E-18	12232	1.01 (1.01 – 1.02)	5845	1.02 (1.01 – 1.02)
428.4	Heart failure with preserved EF [Diastolic heart failure]	Per88	2.4	1.05 (1.04 – 1.06)	2.0E-17	12232	1.04 (1.02 – 1.05)	5845	1.05 (1.04 – 1.06)
480	Pneumonia	Per88	7.9	1.03 (1.02 – 1.03)	5.6E-17	12232	1.02 (1.01 – 1.03)	5845	1.03 (1.02 – 1.03)
505	Other pulmonary inflammation or edema	Per88	1.3	1.06 (1.04 – 1.07)	2.0E-16	12232	1.03 (1.02 – 1.05)	5845	1.06 (1.04 – 1.07)
510	Other diseases of lung	Per88	3.7	1.04 (1.03 – 1.04)	2.0E-15	12232	1.03 (1.02 – 1.04)	5845	1.04 (1.03 – 1.04)
428.2	Heart failure NOS	Per88	2.3	1.05 (1.03 – 1.06)	1.2E-14	12232	1.03 (1.02 – 1.04)	5845	1.05 (1.03 – 1.06)
276.6	Fluid overload	Per88	1.9	1.05 (1.04 – 1.06)	1.3E-14	12232	1.03 (1.02 – 1.04)	5845	1.05 (1.04 – 1.06)
340	Migraine	AHI 3%	13.3	0.99 (0.99 – 0.99)	5.6E-14	18332	0.99 (0.99 – 1.00)	9404	0.99 (0.99 – 1.00)
401.21	Hypertensive heart disease	Per88	2.5	1.04 (1.03 – 1.06)	6.2E-13	12232	1.03 (1.02 – 1.04)	5845	1.04 (1.03 – 1.06)
805	Fracture of vertebral column without mention of spinal cord injury	Per88	1.5	1.05 (1.03 – 1.06)	1.2E-12	12232	1.03 (1.02 – 1.05)	5845	1.05 (1.03 – 1.06)
458.9	Hypotension NOS	Per88	3.6	1.03 (1.02 – 1.04)	1.5E-12	12232	1.02 (1.01 – 1.03)	5845	1.03 (1.02 – 1.04)
401.1	Essential hypertension	Per88	41.8	1.01 (1.01 – 1.01)	2.0E-10	12232	1.00 (1.00 – 1.00)	5845	1.01 (1.01 – 1.01)
585.1	Acute renal failure	Per88	4.8	1.03 (1.02 – 1.04)	3.6E-10	12232	1.02 (1.01 – 1.03)	5845	1.03 (1.02 – 1.04)
427.7	Tachycardia NOS	Per88	7.4	1.02 (1.01 – 1.03)	5.6E-10	12232	1.02 (1.01 – 1.02)	5845	1.02 (1.01 – 1.03)
327.4	Insomnia	AHI 3%	16.8	0.99 (0.99 – 1.00)	8.3E-10	18332	1.00 (1.00 – 1.00)	9404	1.00 (1.00 – 1.00)
316	Substance addiction and disorders	Per88	5.5	1.02 (1.01 – 1.03)	4.4E-09	12232	1.02 (1.01 – 1.02)	5845	1.02 (1.01 – 1.03)
260	Protein-calorie malnutrition	Per88	1.7	1.03 (1.02 – 1.04)	1.6E-08	12232	1.02 (1.01 – 1.04)	5845	1.03 (1.02 – 1.04)
250.2	Type 2 diabetes	AHI 3%	15.4	1.01 (1.00 – 1.01)	1.8E-08	18332	1.00 (1.00 – 1.01)	9404	1.01 (1.00 – 1.01)
339	Other headache syndromes	AHI 3%	13.0	0.99 (0.99 – 1.00)	2.2E-08	18332	0.99 (0.99 – 1.00)	9404	0.99 (0.99 – 1.00)
317.1	Alcoholism	Per88	2.9	1.03 (1.02 – 1.04)	6.1E-08	12232	1.02 (1.01 – 1.03)	5845	1.03 (1.02 – 1.04)
250.2	Type 2 diabetes	Per88	15.4	1.01 (1.01 – 1.02)	1.0E-07	12232	1.01 (1.00 – 1.01)	5845	1.01 (1.01 – 1.02)
401.3	Other hypertensive complications	AHI 3%	2.3	1.02 (1.01 – 1.02)	1.3E-07	18332	1.02 (1.01 – 1.02)	9404	1.02 (1.01 – 1.02)
340.1	Migraine with aura	AHI 3%	3.5	0.99 (0.99 – 0.99)	2.0E-07	18332	0.99 (0.98 – 1.00)	9404	0.99 (0.99 – 0.99)
504	Other alveolar and parietoalveolar pneumonopathy	Per88	1.3	1.04 (1.02 – 1.05)	2.6E-07	12232	1.02 (1.01 – 1.04)	5845	1.04 (1.02 – 1.05)
261	Vitamin deficiency	AHI 3%	3.5	0.99 (0.98 – 0.99)	3.7E-07	18332	0.99 (0.99 – 1.00)	9404	0.99 (0.98 – 0.99)
505	Other pulmonary inflammation or edema	AHI 3%	1.3	1.02 (1.01 – 1.03)	6.5E-07	18332	1.02 (1.01 – 1.02)	9404	1.02 (1.01 – 1.03)
797	Shock	Per88	1.2	1.04 (1.03 – 1.06)	1.0E-06	12232	1.03 (1.02 – 1.05)	5845	1.04 (1.03 – 1.06)
269	Proteinuria	AHI 3%	3.0	1.01 (1.01 – 1.02)	1.3E-06	18332	1.01 (1.01 – 1.02)	9404	1.01 (1.01 – 1.02)
585.1	Acute renal failure	AHI 3%	4.8	1.01 (1.01 – 1.01)	2.8E-06	18332	1.01 (1.00 – 1.01)	9404	1.01 (1.01 – 1.01)
389.4	Tinnitus	Per88	6.2	0.98 (0.97 – 0.99)	3.3E-06	12232	0.98 (0.97 – 0.99)	5845	0.98 (0.97 – 0.99)
539	Bariatric surgery	AHI 3%	12.4	0.99 (0.99 – 1.00)	6.7E-06	18332	1.00 (0.99 – 1.00)	9404	0.99 (0.99 – 1.00)
563	Constipation	AHI 3%	10.8	0.99 (0.99 – 1.00)	1.0E-05	18332	1.00 (1.00 – 1.00)	9404	1.00 (0.99 – 1.00)
300.9	Posttraumatic stress disorder	AHI 3%	4.1	0.99 (0.99 – 1.00)	1.1E-05	18332	0.99 (0.99 – 1.00)	9404	0.99 (0.99 – 1.00)
288.2	Elevated white blood cell count	Per88	4.2	1.02 (1.01 – 1.03)	1.2E-05	12232	1.02 (1.01 – 1.03)	5845	1.02 (1.01 – 1.03)

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PheCode	Disease	Sleep statistic	Prevalence	Risk ratio	P-value	N	Risk ratio (AHI >15)	N (AHI >15)	Risk ratio (adj sleep disorders)
425.1	Primary/intrinsic cardiomyopathies	Per88	3.2	1.02 (1.01 – 1.04)	1.7E-05	12232	1.02 (1.01 – 1.03)	5845	1.03 (1.01 – 1.04)
503	Pulmonary congestion and hypostasis	AHI 3%	2.9	1.01 (1.01 – 1.02)	1.8E-05	18332	1.01 (1.00 – 1.01)	9404	1.01 (1.01 – 1.02)
340	Migraine	Per88	13.3	0.99 (0.99 – 0.99)	2.0E-05	12232	0.99 (0.98 – 1.00)	5845	0.99 (0.99 – 0.99)
512.8	Cough	Per88	16.5	1.01 (1.01 – 1.01)	2.5E-05	12232	1.01 (1.00 – 1.01)	5845	1.01 (1.01 – 1.01)
509.1	Respiratory failure	AHI 3%	2.3	1.01 (1.01 – 1.02)	2.6E-05	18332	1.01 (1.01 – 1.02)	9404	1.01 (1.01 – 1.02)
428.2	Heart failure NOS	AHI 3%	2.3	1.01 (1.01 – 1.02)	2.8E-05	18332	1.01 (1.00 – 1.01)	9404	1.01 (1.01 – 1.02)
041	Bacterial infection NOS	Per88	2.1	1.02 (1.01 – 1.04)	3.2E-05	12232	1.01 (1.00 – 1.03)	5845	1.02 (1.01 – 1.04)
694.2	Other dyschromia	Per88	12.9	0.99 (0.98 – 0.99)	3.3E-05	12232	0.99 (0.99 – 1.00)	5845	0.99 (0.98 – 0.99)
425.1	Primary/intrinsic cardiomyopathies	AHI 3%	3.2	1.01 (1.01 – 1.01)	4.0E-05	18332	1.01 (1.00 – 1.01)	9404	1.01 (1.00 – 1.01)
136	Other infectious and parasitic diseases	Per88	4.6	1.02 (1.01 – 1.02)	5.4E-05	12232	1.01 (1.00 – 1.02)	5845	1.02 (1.01 – 1.02)
290.2	Delirium due to conditions classified elsewhere	Per88	1.2	1.04 (1.02 – 1.05)	7.5E-05	12232	1.03 (1.02 – 1.05)	5845	1.04 (1.02 – 1.05)
327.41	Organic or persistent insomnia	AHI 3%	3.0	0.99 (0.99 – 1.00)	7.6E-05	18332	0.99 (0.99 – 1.00)	9404	1.00 (0.99 – 1.00)
276.14	Hypopotassemia	Per88	2.8	1.02 (1.01 – 1.03)	7.9E-05	12232	1.01 (1.00 – 1.02)	5845	1.02 (1.01 – 1.03)
414	Other forms of chronic heart disease	Per88	2.3	1.03 (1.01 – 1.04)	8.4E-05	12232	1.01 (1.00 – 1.03)	5845	1.03 (1.01 – 1.04)
745	Pain in joint	AHI 3%	33.1	1.00 (1.00 – 1.00)	8.8E-05	18332	1.00 (1.00 – 1.00)	9404	1.00 (1.00 – 1.00)
286.9	Abnormal coagulation profile	Per88	2.8	1.02 (1.01 – 1.03)	1.3E-04	12232	1.01 (1.00 – 1.03)	5845	1.02 (1.01 – 1.03)
416	Cardiomegaly	Per88	2.6	1.03 (1.01 – 1.04)	1.5E-04	12232	1.02 (1.00 – 1.03)	5845	1.03 (1.01 – 1.04)
288.2	Elevated white blood cell count	AHI 3%	4.2	1.01 (1.00 – 1.01)	1.7E-04	18332	1.01 (1.00 – 1.01)	9404	1.01 (1.00 – 1.01)
261	Vitamin deficiency	Per88	3.5	0.97 (0.96 – 0.99)	2.0E-04	12232	0.99 (0.97 – 1.00)	5845	0.97 (0.96 – 0.99)
350.1	Abnormal involuntary movements	AHI 3%	5.4	0.99 (0.99 – 1.00)	2.6E-04	18332	1.00 (0.99 – 1.00)	9404	0.99 (0.99 – 1.00)
428.3	Heart failure with reduced EF [Systolic or combined heart failure]	Per88	1.9	1.03 (1.01 – 1.05)	2.7E-04	12232	1.02 (1.00 – 1.03)	5845	1.03 (1.01 – 1.05)
496.2	Chronic bronchitis	Per88	1.1	1.03 (1.02 – 1.05)	2.9E-04	12232	1.02 (1.00 – 1.04)	5845	1.03 (1.02 – 1.05)
274.11	Gouty arthropathy	AHI 3%	2.3	1.01 (1.00 – 1.02)	3.2E-04	18332	1.01 (1.00 – 1.01)	9404	1.01 (1.01 – 1.02)
598.9	Other nonspecific findings on examination of urine	AHI 3%	3.0	0.99 (0.99 – 1.00)	3.2E-04	18332	1.00 (0.99 – 1.00)	9404	0.99 (0.99 – 1.00)
278	Overweight, obesity and other hyperalimentation	Per88	14.8	0.99 (0.99 – 1.00)	3.4E-04	12232	0.99 (0.99 – 1.00)	5845	0.99 (0.99 – 1.00)
427.9	Palpitations	AHI 3%	12.6	1.00 (0.99 – 1.00)	3.8E-04	18332	1.00 (0.99 – 1.00)	9404	1.00 (0.99 – 1.00)
250.7	Diabetic retinopathy	AHI 3%	1.4	1.01 (1.01 – 1.02)	3.8E-04	18332	1.01 (1.00 – 1.01)	9404	1.01 (1.01 – 1.02)
760	Back pain	AHI 3%	23.6	1.00 (1.00 – 1.00)	4.1E-04	18332	1.00 (0.99 – 1.00)	9404	1.00 (1.00 – 1.00)
726	Peripheral enthesopathies and allied syndromes	AHI 3%	8.1	1.00 (0.99 – 1.00)	4.3E-04	18332	1.00 (0.99 – 1.00)	9404	1.00 (0.99 – 1.00)
411.3	Angina pectoris	Per88	7.0	1.01 (1.01 – 1.02)	4.4E-04	12232	1.01 (1.00 – 1.01)	5845	1.01 (1.01 – 1.02)
250.7	Diabetic retinopathy	Per88	1.4	1.03 (1.01 – 1.05)	5.0E-04	12232	1.02 (1.00 – 1.04)	5845	1.03 (1.01 – 1.05)
743.11	Osteoporosis NOS	Per88	7.2	1.01 (1.01 – 1.02)	5.4E-04	12232	1.01 (1.01 – 1.02)	5845	1.01 (1.01 – 1.02)
514.2	Solitary pulmonary nodule	Per88	4.2	1.02 (1.01 – 1.03)	5.5E-04	12232	1.01 (1.00 – 1.02)	5845	1.02 (1.01 – 1.03)
415	Pulmonary heart disease	Per88	1.3	1.03 (1.01 – 1.04)	5.6E-04	12232	1.03 (1.01 – 1.04)	5845	1.03 (1.01 – 1.04)

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PheCode	Disease	Sleep statistic	Prevalence	Risk ratio	P-value	N	Risk ratio (AHI >15)	N (AHI >15)	Risk ratio (adj sleep disorders)
285	Other anemias	Per88	14.6	1.01 (1.00 – 1.01)	5.7E-04	12232	1.01 (1.00 – 1.01)	5845	1.01 (1.00 – 1.01)
278.4	Abnormal weight gain	AHI 3%	6.5	0.99 (0.99 – 1.00)	6.2E-04	18332	1.00 (0.99 – 1.00)	9404	0.99 (0.99 – 1.00)
797	Shock	AHI 3%	1.2	1.02 (1.01 – 1.02)	6.4E-04	18332	1.01 (1.01 – 1.02)	9404	1.02 (1.01 – 1.02)
327	Sleep disorders	AHI 3%	8.0	1.00 (0.99 – 1.00)	6.7E-04	18332	1.00 (1.00 – 1.00)	9404	1.00 (1.00 – 1.00)
395.1	Nonrheumatic mitral valve disorders	Per88	4.0	1.02 (1.01 – 1.03)	7.1E-04	12232	1.01 (1.01 – 1.02)	5845	1.02 (1.01 – 1.03)
250.42	Other abnormal glucose	Per88	11.1	1.01 (1.00 – 1.02)	7.3E-04	12232	1.01 (1.00 – 1.02)	5845	1.01 (1.00 – 1.02)
530.9	Heartburn	Per88	5.7	0.99 (0.98 – 0.99)	7.4E-04	12232	0.99 (0.98 – 1.00)	5845	0.99 (0.98 – 0.99)
840	Sprains and strains	AHI 3%	9.8	1.00 (0.99 – 1.00)	7.4E-04	18332	0.99 (0.99 – 1.00)	9404	1.00 (0.99 – 1.00)
512.8	Cough	AHI 3%	16.5	1.00 (1.00 – 1.00)	7.7E-04	18332	1.00 (1.00 – 1.00)	9404	1.00 (1.00 – 1.00)
785	Abdominal pain	AHI 3%	20.0	1.00 (1.00 – 1.00)	7.8E-04	18332	1.00 (0.99 – 1.00)	9404	1.00 (1.00 – 1.00)
427.3	Other specified cardiac dysrhythmias	AHI 3%	7.4	0.99 (0.99 – 1.00)	8.3E-04	18332	1.00 (0.99 – 1.00)	9404	0.99 (0.99 – 1.00)
586	Other disorders of the kidney and ureters	AHI 3%	5.2	1.01 (1.00 – 1.01)	8.5E-04	18332	1.01 (1.00 – 1.01)	9404	1.01 (1.00 – 1.01)
260	Protein-calorie malnutrition	AHI 3%	1.7	1.01 (1.00 – 1.02)	9.5E-04	18332	1.01 (1.00 – 1.01)	9404	1.01 (1.00 – 1.02)
508	Pulmonary collapse; interstitial and compensatory emphysema	AHI 3%	5.3	1.01 (1.00 – 1.01)	1.0E-03	18332	1.01 (1.00 – 1.01)	9404	1.01 (1.00 – 1.01)
428.1	Congestive heart failure (CHF) NOS	AHI 3%	5.6	1.01 (1.00 – 1.01)	1.0E-03	18332	1.00 (1.00 – 1.01)	9404	1.01 (1.00 – 1.01)
558	Noninfectious gastroenteritis	Per88	5.2	1.01 (1.01 – 1.02)	1.1E-03	12232	1.01 (1.01 – 1.02)	5845	1.01 (1.01 – 1.02)
585.3	Chronic renal failure [CKD]	Per88	5.6	1.02 (1.01 – 1.03)	1.1E-03	12232	1.01 (1.00 – 1.02)	5845	1.02 (1.01 – 1.03)
216	Benign neoplasm of skin	Per88	14.0	0.99 (0.99 – 1.00)	1.2E-03	12232	0.99 (0.99 – 1.00)	5845	0.99 (0.99 – 1.00)
427.21	Atrial fibrillation	Per88	9.2	1.01 (1.00 – 1.02)	1.3E-03	12232	1.01 (1.00 – 1.01)	5845	1.01 (1.00 – 1.02)
415.11	Pulmonary embolism and infarction, acute	Per88	3.0	1.02 (1.01 – 1.03)	1.3E-03	12232	1.01 (1.00 – 1.03)	5845	1.02 (1.01 – 1.03)
271.3	Intestinal disaccharidase deficiencies and disaccharide malabsorption	AHI 3%	14.0	1.00 (1.00 – 1.01)	1.3E-03	18332	1.00 (1.00 – 1.00)	9404	1.00 (1.00 – 1.01)
519.8	Other diseases of respiratory system, NEC	Per88	3.5	1.02 (1.01 – 1.03)	1.4E-03	12232	1.01 (1.00 – 1.02)	5845	1.02 (1.01 – 1.03)
443.9	Peripheral vascular disease, unspecified	Per88	1.6	1.03 (1.01 – 1.04)	1.5E-03	12232	1.02 (1.00 – 1.03)	5845	1.03 (1.01 – 1.04)
274.1	Gout	AHI 3%	4.7	1.01 (1.00 – 1.01)	1.6E-03	18332	1.00 (1.00 – 1.01)	9404	1.01 (1.00 – 1.01)
272.12	Hyperglyceridemia	AHI 3%	2.5	1.01 (1.00 – 1.01)	1.6E-03	18332	1.00 (1.00 – 1.01)	9404	1.01 (1.00 – 1.01)
357	Inflammatory and toxic neuropathy	Per88	5.8	1.01 (1.00 – 1.02)	1.7E-03	12232	1.01 (1.00 – 1.02)	5845	1.01 (1.00 – 1.02)
743.11	Osteoporosis NOS	AHI 3%	7.2	1.00 (1.00 – 1.01)	1.8E-03	18332	1.00 (1.00 – 1.01)	9404	1.00 (1.00 – 1.01)
560.4	Other intestinal obstruction	AHI 3%	1.9	1.01 (1.00 – 1.02)	1.8E-03	18332	1.01 (1.00 – 1.01)	9404	1.01 (1.00 – 1.02)
728.7	Fasciitis	Per88	5.3	0.98 (0.97 – 0.99)	1.8E-03	12232	0.99 (0.98 – 1.00)	5845	0.98 (0.97 – 0.99)
527.7	Disturbance of salivary secretion	Per88	1.5	1.02 (1.01 – 1.03)	1.9E-03	12232	1.02 (1.01 – 1.04)	5845	1.02 (1.01 – 1.03)
585.3	Chronic renal failure [CKD]	AHI 3%	5.6	1.01 (1.00 – 1.01)	1.9E-03	18332	1.01 (1.00 – 1.01)	9404	1.01 (1.00 – 1.01)
292.3	Memory loss	AHI 3%	6.1	1.00 (0.99 – 1.00)	2.0E-03	18332	1.00 (0.99 – 1.00)	9404	1.00 (0.99 – 1.00)
250.42	Other abnormal glucose	AHI 3%	11.1	1.00 (1.00 – 1.01)	2.1E-03	18332	1.00 (1.00 – 1.01)	9404	1.00 (1.00 – 1.01)
228.1	Hemangioma of skin and subcutaneous tissue	Per88	5.0	0.98 (0.97 – 0.99)	2.4E-03	12232	0.99 (0.98 – 1.00)	5845	0.98 (0.97 – 0.99)

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PheCode	Disease	Sleep statistic	Prevalence	Risk ratio	P-value	N	Risk ratio (AHI >15)	N (AHI >15)	Risk ratio (adj sleep disorders)
938.2	Chronic dermatitis due to solar radiation	Per88	5.9	0.98 (0.98 – 0.99)	2.4E-03	12232	0.99 (0.98 – 1.00)	5845	0.98 (0.98 – 0.99)
798	Malaise and fatigue	AHI 3%	19.1	1.00 (1.00 – 1.00)	2.6E-03	18332	1.00 (1.00 – 1.00)	9404	1.00 (1.00 – 1.00)
539	Bariatric surgery	Per88	12.4	0.99 (0.98 – 1.00)	2.6E-03	12232	1.00 (0.99 – 1.00)	5845	0.99 (0.98 – 1.00)
427.7	Tachycardia NOS	AHI 3%	7.4	1.00 (1.00 – 1.01)	2.7E-03	18332	1.00 (1.00 – 1.01)	9404	1.00 (1.00 – 1.01)
272.1	Hyperlipidemia	AHI 3%	30.5	1.00 (1.00 – 1.00)	2.8E-03	18332	1.00 (1.00 – 1.00)	9404	1.00 (1.00 – 1.00)
532	Dysphagia	Per88	7.4	1.01 (1.00 – 1.02)	3.1E-03	12232	1.01 (1.00 – 1.01)	5845	1.01 (1.00 – 1.02)
571.5	Other chronic nonalcoholic liver disease	AHI 3%	5.1	1.01 (1.00 – 1.01)	3.3E-03	18332	1.00 (1.00 – 1.01)	9404	1.01 (1.00 – 1.01)
456	Chronic venous insufficiency [CVI]	Per88	2.9	1.02 (1.01 – 1.03)	3.3E-03	12232	1.01 (1.00 – 1.03)	5845	1.02 (1.01 – 1.03)
300.11	Generalized anxiety disorder	AHI 3%	7.6	1.00 (0.99 – 1.00)	3.3E-03	18332	1.00 (0.99 – 1.00)	9404	1.00 (0.99 – 1.00)
798.1	Chronic fatigue syndrome	AHI 3%	4.4	1.00 (0.99 – 1.00)	3.3E-03	18332	0.99 (0.99 – 1.00)	9404	1.00 (0.99 – 1.00)
480.11	Pneumococcal pneumonia	Per88	1.5	1.02 (1.01 – 1.04)	3.5E-03	12232	1.02 (1.00 – 1.03)	5845	1.02 (1.01 – 1.04)
291.4	Specific nonpsychotic mental disorders due to brain damage	Per88	1.7	0.98 (0.96 – 0.99)	4.9E-03	12232	0.98 (0.96 – 1.00)	5845	0.98 (0.96 – 0.99)
564	Functional digestive disorders	Per88	1.8	1.02 (1.01 – 1.03)	5.4E-03	12232	1.01 (0.99 – 1.02)	5845	1.02 (1.01 – 1.03)
480	Pneumonia	AHI 3%	7.9	1.00 (1.00 – 1.01)	5.7E-03	18332	1.00 (1.00 – 1.01)	9404	1.00 (1.00 – 1.01)
411.2	Myocardial infarction	Per88	5.1	1.01 (1.00 – 1.02)	5.7E-03	12232	1.01 (1.00 – 1.02)	5845	1.01 (1.00 – 1.02)
339	Other headache syndromes	Per88	13.0	0.99 (0.99 – 1.00)	5.7E-03	12232	1.00 (0.99 – 1.00)	5845	0.99 (0.99 – 1.00)
496.21	Obstructive chronic bronchitis	AHI 3%	1.3	0.99 (0.98 – 1.00)	6.2E-03	18332	0.99 (0.98 – 1.00)	9404	0.99 (0.98 – 1.00)
287.3	Thrombocytopenia	Per88	2.7	1.02 (1.00 – 1.03)	6.3E-03	12232	1.01 (1.00 – 1.02)	5845	1.02 (1.00 – 1.03)
292.2	Mild cognitive impairment	Per88	2.4	0.98 (0.96 – 0.99)	6.9E-03	12232	0.99 (0.98 – 1.00)	5845	0.98 (0.96 – 0.99)
375.1	Dry eyes	AHI 3%	4.8	1.00 (0.99 – 1.00)	7.0E-03	18332	0.99 (0.99 – 1.00)	9404	1.00 (0.99 – 1.00)
575.7	Other disorders of gallbladder	Per88	2.1	1.02 (1.01 – 1.03)	7.2E-03	12232	1.02 (1.00 – 1.03)	5845	1.02 (1.01 – 1.03)
276.14	Hypopotassemia	AHI 3%	2.8	1.01 (1.00 – 1.01)	7.3E-03	18332	1.00 (1.00 – 1.01)	9404	1.01 (1.00 – 1.01)
726.1	Enthesopathy	AHI 3%	11.0	1.00 (0.99 – 1.00)	7.7E-03	18332	1.00 (0.99 – 1.00)	9404	1.00 (0.99 – 1.00)
302.1	Decreased libido	Per88	1.5	0.98 (0.96 – 0.99)	7.9E-03	12232	0.98 (0.96 – 1.00)	5845	0.98 (0.96 – 0.99)
728.7	Fasciitis	AHI 3%	5.3	1.00 (0.99 – 1.00)	7.9E-03	18332	1.00 (0.99 – 1.00)	9404	1.00 (0.99 – 1.00)
112	Candidiasis	Per88	5.3	1.01 (1.00 – 1.02)	8.7E-03	12232	1.01 (1.00 – 1.02)	5845	1.01 (1.00 – 1.02)
528	Diseases of the oral soft tissues, excluding lesions specific for gingiva and tongue	AHI 3%	2.4	0.99 (0.99 – 1.00)	8.8E-03	18332	0.99 (0.99 – 1.00)	9404	0.99 (0.99 – 1.00)
165.1	Cancer of bronchus; lung	Per88	1.2	1.02 (1.01 – 1.04)	8.8E-03	12232	1.01 (1.00 – 1.03)	5845	1.02 (1.01 – 1.04)
261.2	Vitamin B-complex deficiencies	AHI 3%	2.6	0.99 (0.99 – 1.00)	8.8E-03	18332	1.00 (0.99 – 1.00)	9404	0.99 (0.99 – 1.00)
454.11	Varicose veins of lower extremity, symptomatic	AHI 3%	2.3	0.99 (0.99 – 1.00)	9.0E-03	18332	0.99 (0.98 – 1.00)	9404	0.99 (0.99 – 1.00)
495	Asthma	AHI 3%	19.3	1.00 (1.00 – 1.00)	9.5E-03	18332	1.00 (1.00 – 1.00)	9404	1.00 (1.00 – 1.00)
386.9	Dizziness and giddiness (Light-headedness and vertigo)	Per88	13.5	0.99 (0.99 – 1.00)	1.0E-02	12232	0.99 (0.99 – 1.00)	5845	0.99 (0.99 – 1.00)
701.2	Scar conditions and fibrosis of skin	Per88	6.0	0.99 (0.98 – 1.00)	1.0E-02	12232	0.99 (0.98 – 1.00)	5845	0.99 (0.98 – 1.00)
418.1	Precordial pain	Per88	3.4	1.01 (1.00 – 1.02)	1.1E-02	12232	1.01 (1.00 – 1.02)	5845	1.01 (1.00 – 1.02)

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PheCode	Disease	Sleep statistic	Prevalence	Risk ratio	P-value	N	Risk ratio (AHI >15)	N (AHI >15)	Risk ratio (adj sleep disorders)
340.1	Migraine with aura	Per88	3.5	0.99 (0.98 – 1.00)	1.1E-02	12232	1.00 (0.98 – 1.01)	5845	0.99 (0.98 – 1.00)
519.8	Other diseases of respiratory system, NEC	AHI 3%	3.5	1.01 (1.00 – 1.01)	1.1E-02	18332	1.00 (1.00 – 1.01)	9404	1.01 (1.00 – 1.01)
480.11	Pneumococcal pneumonia	AHI 3%	1.5	1.01 (1.00 – 1.02)	1.1E-02	18332	1.01 (1.00 – 1.02)	9404	1.01 (1.00 – 1.02)
306	Other mental disorder	Per88	8.8	1.01 (1.00 – 1.01)	1.1E-02	12232	1.01 (1.00 – 1.01)	5845	1.01 (1.00 – 1.01)
296	Mood disorders	AHI 3%	6.3	1.00 (1.00 – 1.01)	1.1E-02	18332	1.00 (1.00 – 1.01)	9404	1.00 (1.00 – 1.01)
458.9	Hypotension NOS	AHI 3%	3.6	1.01 (1.00 – 1.01)	1.2E-02	18332	1.00 (1.00 – 1.01)	9404	1.01 (1.00 – 1.01)
368	Visual disturbances	AHI 3%	6.7	1.00 (0.99 – 1.00)	1.2E-02	18332	1.00 (0.99 – 1.00)	9404	1.00 (0.99 – 1.00)
381.1	Otitis media	Per88	2.4	1.02 (1.00 – 1.03)	1.2E-02	12232	1.02 (1.01 – 1.03)	5845	1.02 (1.00 – 1.03)
840.3	Joint/ligament sprain	AHI 3%	5.4	1.00 (0.99 – 1.00)	1.3E-02	18332	1.00 (0.99 – 1.00)	9404	1.00 (0.99 – 1.00)
278.1	Obesity	AHI 3%	35.1	1.00 (1.00 – 1.00)	1.3E-02	18332	1.00 (1.00 – 1.00)	9404	1.00 (1.00 – 1.00)
411.8	Other chronic ischemic heart disease, unspecified	AHI 3%	1.5	1.01 (1.00 – 1.02)	1.4E-02	18332	1.01 (1.00 – 1.01)	9404	1.01 (1.00 – 1.02)
770	Myalgia and myositis unspecified	AHI 3%	6.5	1.00 (0.99 – 1.00)	1.4E-02	18332	1.00 (0.99 – 1.00)	9404	1.00 (0.99 – 1.00)
427.22	Atrial flutter	Per88	2.6	1.02 (1.00 – 1.03)	1.5E-02	12232	1.01 (1.00 – 1.02)	5845	1.02 (1.00 – 1.03)
578.9	Hemorrhage of gastrointestinal tract	Per88	2.9	1.02 (1.00 – 1.03)	1.6E-02	12232	1.01 (1.00 – 1.02)	5845	1.02 (1.00 – 1.03)
531.4	Peptic ulcer, site unspecified	Per88	1.3	1.02 (1.00 – 1.04)	1.6E-02	12232	1.01 (1.00 – 1.03)	5845	1.02 (1.00 – 1.04)
317.1	Alcoholism	AHI 3%	2.9	1.01 (1.00 – 1.01)	1.7E-02	18332	1.00 (1.00 – 1.01)	9404	1.01 (1.00 – 1.01)
279	Disorders involving the immune mechanism	Per88	2.1	1.02 (1.00 – 1.03)	1.7E-02	12232	1.01 (1.00 – 1.02)	5845	1.02 (1.00 – 1.03)
416	Cardiomegaly	AHI 3%	2.6	1.01 (1.00 – 1.01)	1.7E-02	18332	1.00 (1.00 – 1.01)	9404	1.01 (1.00 – 1.01)
278.11	Morbid obesity	AHI 3%	16.1	1.00 (1.00 – 1.00)	1.7E-02	18332	1.00 (1.00 – 1.00)	9404	1.00 (1.00 – 1.00)
516.1	Hemoptysis	Per88	1.5	1.02 (1.00 – 1.04)	1.8E-02	12232	1.02 (1.01 – 1.04)	5845	1.02 (1.00 – 1.04)
250.1	Type 1 diabetes	AHI 3%	1.4	1.01 (1.00 – 1.02)	1.9E-02	18332	1.01 (1.00 – 1.02)	9404	1.01 (1.00 – 1.02)
420.2	Pericarditis	AHI 3%	1.5	1.01 (1.00 – 1.01)	1.9E-02	18332	1.01 (1.00 – 1.01)	9404	1.01 (1.00 – 1.01)
172.21	Basal cell carcinoma	Per88	3.9	0.98 (0.97 – 1.00)	2.0E-02	12232	0.99 (0.98 – 1.00)	5845	0.98 (0.97 – 1.00)
452.2	Deep vein thrombosis [DVT]	AHI 3%	3.5	0.99 (0.99 – 1.00)	2.1E-02	18332	1.00 (0.99 – 1.00)	9404	0.99 (0.99 – 1.00)
564.1	Irritable Bowel Syndrome	AHI 3%	5.6	1.00 (0.99 – 1.00)	2.1E-02	18332	1.00 (0.99 – 1.00)	9404	1.00 (0.99 – 1.00)
599.9	Other abnormality of urination	AHI 3%	4.6	1.00 (0.99 – 1.00)	2.2E-02	18332	1.00 (0.99 – 1.00)	9404	1.00 (0.99 – 1.00)
452	Other venous embolism and thrombosis	AHI 3%	4.3	1.00 (0.99 – 1.00)	2.2E-02	18332	1.00 (0.99 – 1.00)	9404	1.00 (0.99 – 1.00)
427.12	Paroxysmal ventricular tachycardia	AHI 3%	1.5	1.01 (1.00 – 1.01)	2.2E-02	18332	1.01 (1.00 – 1.01)	9404	1.01 (1.00 – 1.01)
292	Neurological disorders	Per88	3.8	0.99 (0.98 – 1.00)	2.3E-02	12232	0.99 (0.98 – 1.00)	5845	0.99 (0.98 – 1.00)
807	Fracture of ribs	AHI 3%	1.4	1.01 (1.00 – 1.02)	2.3E-02	18332	1.01 (1.00 – 1.02)	9404	1.01 (1.00 – 1.02)
772.3	Muscle weakness	AHI 3%	2.7	0.99 (0.99 – 1.00)	2.3E-02	18332	0.99 (0.99 – 1.00)	9404	0.99 (0.99 – 1.00)
577.3	Cyst and pseudocyst of pancreas	Per88	1.2	1.02 (1.00 – 1.04)	2.3E-02	12232	1.02 (1.01 – 1.04)	5845	1.02 (1.00 – 1.04)
290.2	Delirium due to conditions classified elsewhere	AHI 3%	1.2	1.01 (1.00 – 1.02)	2.4E-02	18332	1.01 (1.00 – 1.02)	9404	1.01 (1.00 – 1.02)
427.11	Paroxysmal supraventricular tachycardia	Per88	3.1	1.01 (1.00 – 1.02)	2.5E-02	12232	1.01 (0.99 – 1.02)	5845	1.01 (1.00 – 1.02)

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PheCode	Disease	Sleep statistic	Prevalence	Risk ratio	P-value	N	Risk ratio (AHI >15)	N (AHI >15)	Risk ratio (adj sleep disorders)
427.6	Premature beats	Per88	3.4	1.01 (1.00 – 1.02)	2.5E-02	12232	1.01 (1.00 – 1.02)	5845	1.01 (1.00 – 1.02)
130.1	Lyme disease	Per88	1.4	0.98 (0.96 – 1.00)	2.5E-02	12232	0.98 (0.96 – 1.00)	5845	0.98 (0.96 – 1.00)
474.2	Chronic tonsillitis and adenoiditis	AHI 3%	2.5	1.01 (1.00 – 1.01)	2.6E-02	18332	1.01 (1.00 – 1.02)	9404	1.01 (1.00 – 1.01)
550.4	Umbilical hernia	Per88	3.1	1.01 (1.00 – 1.03)	2.6E-02	12232	1.01 (1.00 – 1.02)	5845	1.01 (1.00 – 1.03)
368	Visual disturbances	Per88	6.7	0.99 (0.98 – 1.00)	2.6E-02	12232	0.99 (0.98 – 1.00)	5845	0.99 (0.98 – 1.00)
306.9	Tension headache	Per88	3.5	0.99 (0.98 – 1.00)	2.7E-02	12232	0.99 (0.98 – 1.00)	5845	0.99 (0.98 – 1.00)
414	Other forms of chronic heart disease	AHI 3%	2.3	1.01 (1.00 – 1.01)	2.7E-02	18332	1.00 (1.00 – 1.01)	9404	1.01 (1.00 – 1.01)
338.2	Chronic pain	AHI 3%	15.2	1.00 (1.00 – 1.00)	2.7E-02	18332	1.00 (0.99 – 1.00)	9404	1.00 (1.00 – 1.00)
782.3	Edema	AHI 3%	9.5	1.00 (1.00 – 1.01)	2.8E-02	18332	1.00 (1.00 – 1.01)	9404	1.00 (1.00 – 1.01)
496	Chronic airway obstruction	AHI 3%	3.9	0.99 (0.99 – 1.00)	2.9E-02	18332	1.00 (0.99 – 1.00)	9404	0.99 (0.99 – 1.00)
473	Diseases of the larynx and vocal cords	AHI 3%	2.2	1.01 (1.00 – 1.01)	3.0E-02	18332	1.00 (1.00 – 1.01)	9404	1.01 (1.00 – 1.01)
465	Acute upper respiratory infections of multiple or unspecified sites	AHI 3%	10.9	1.00 (1.00 – 1.00)	3.0E-02	18332	1.00 (1.00 – 1.00)	9404	1.00 (1.00 – 1.00)
269	Proteinuria	Per88	3.0	1.01 (1.00 – 1.03)	3.1E-02	12232	1.01 (0.99 – 1.02)	5845	1.01 (1.00 – 1.03)
300.4	Dysthymic disorder	AHI 3%	5.2	1.00 (0.99 – 1.00)	3.2E-02	18332	1.00 (0.99 – 1.00)	9404	1.00 (0.99 – 1.00)
565.1	Anal and rectal polyp	AHI 3%	3.8	1.00 (1.00 – 1.01)	3.2E-02	18332	1.00 (1.00 – 1.01)	9404	1.00 (1.00 – 1.01)
427.3	Other specified cardiac dysrhythmias	Per88	7.4	0.99 (0.98 – 1.00)	3.2E-02	12232	0.99 (0.98 – 1.00)	5845	0.99 (0.98 – 1.00)
041	Bacterial infection NOS	AHI 3%	2.1	1.01 (1.00 – 1.01)	3.3E-02	18332	1.01 (1.00 – 1.01)	9404	1.01 (1.00 – 1.01)
250.1	Type 1 diabetes	Per88	1.4	1.02 (1.00 – 1.04)	3.4E-02	12232	1.02 (1.00 – 1.04)	5845	1.02 (1.00 – 1.04)
772.2	Spasm of muscle	AHI 3%	2.9	1.00 (0.99 – 1.00)	3.5E-02	18332	1.00 (0.99 – 1.00)	9404	1.00 (0.99 – 1.00)
569	Other disorders of intestine	Per88	8.3	1.01 (1.00 – 1.01)	3.5E-02	12232	1.01 (1.00 – 1.02)	5845	1.01 (1.00 – 1.01)
296	Mood disorders	Per88	6.3	1.01 (1.00 – 1.01)	3.5E-02	12232	1.00 (1.00 – 1.01)	5845	1.01 (1.00 – 1.01)
473	Diseases of the larynx and vocal cords	Per88	2.2	1.01 (1.00 – 1.02)	3.5E-02	12232	1.01 (1.00 – 1.03)	5845	1.01 (1.00 – 1.02)
557	Intestinal malabsorption (non-celiac)	AHI 3%	1.9	0.99 (0.99 – 1.00)	3.6E-02	18332	1.00 (0.99 – 1.00)	9404	0.99 (0.99 – 1.00)
272.13	Mixed hyperlipidemia	AHI 3%	6.9	1.00 (1.00 – 1.01)	3.6E-02	18332	1.00 (1.00 – 1.00)	9404	1.00 (1.00 – 1.01)
327.41	Organic or persistent insomnia	Per88	3.0	0.99 (0.98 – 1.00)	3.6E-02	12232	1.00 (0.98 – 1.01)	5845	0.99 (0.98 – 1.00)
476	Allergic rhinitis	Per88	14.6	0.99 (0.99 – 1.00)	3.6E-02	12232	0.99 (0.99 – 1.00)	5845	0.99 (0.99 – 1.00)
558	Noninfectious gastroenteritis	AHI 3%	5.2	1.00 (1.00 – 1.01)	3.6E-02	18332	1.00 (1.00 – 1.01)	9404	1.00 (1.00 – 1.01)
477	Epistaxis or throat hemorrhage	Per88	2.5	1.01 (1.00 – 1.03)	3.6E-02	12232	1.01 (1.00 – 1.02)	5845	1.01 (1.00 – 1.03)
277.51	Lipoprotein disorders	Per88	1.8	0.98 (0.96 – 1.00)	3.7E-02	12232	0.98 (0.96 – 1.00)	5845	0.98 (0.96 – 1.00)
276.6	Fluid overload	AHI 3%	1.9	1.01 (1.00 – 1.01)	3.7E-02	18332	1.00 (1.00 – 1.01)	9404	1.01 (1.00 – 1.01)
527.7	Disturbance of salivary secretion	AHI 3%	1.5	1.01 (1.00 – 1.01)	3.8E-02	18332	1.01 (1.01 – 1.02)	9404	1.01 (1.00 – 1.01)
472	Chronic pharyngitis and nasopharyngitis	AHI 3%	7.9	1.00 (1.00 – 1.01)	3.9E-02	18332	1.00 (1.00 – 1.00)	9404	1.00 (1.00 – 1.01)
550.4	Umbilical hernia	AHI 3%	3.1	1.01 (1.00 – 1.01)	4.0E-02	18332	1.00 (1.00 – 1.01)	9404	1.01 (1.00 – 1.01)
452.2	Deep vein thrombosis [DVT]	Per88	3.5	1.01 (1.00 – 1.02)	4.2E-02	12232	1.01 (1.00 – 1.02)	5845	1.01 (1.00 – 1.02)
704.8	Other specified diseases of hair and hair follicles	Per88	4.7	0.99 (0.98 – 1.00)	4.3E-02	12232	0.99 (0.98 – 1.00)	5845	0.99 (0.98 – 1.00)
722.1	Displacement of intervertebral disc	AHI 3%	4.5	1.00 (0.99 – 1.00)	4.4E-02	18332	0.99 (0.99 – 1.00)	9404	1.00 (0.99 – 1.00)

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PheCode	Disease	Sleep statistic	Prevalence	Risk ratio	P-value	N	Risk ratio (AHI >15)	N (AHI >15)	Risk ratio (adj sleep disorders)
747.11	Cardiac shunt/ heart septal defect	AHI 3%	1.2	0.99 (0.99 – 1.00)	4.5E-02	18332	0.99 (0.99 – 1.00)	9404	0.99 (0.99 – 1.00)
789	Nausea and vomiting	AHI 3%	13.3	1.00 (1.00 – 1.00)	4.6E-02	18332	1.00 (1.00 – 1.00)	9404	1.00 (1.00 – 1.00)
196	Radiotherapy	AHI 3%	2.9	1.00 (1.00 – 1.01)	4.6E-02	18332	1.00 (1.00 – 1.01)	9404	1.00 (1.00 – 1.01)
427.61	Supraventricular premature beats	Per88	1.8	1.02 (1.00 – 1.03)	4.6E-02	12232	1.01 (1.00 – 1.03)	5845	1.02 (1.00 – 1.03)
278.4	Abnormal weight gain	Per88	6.5	0.99 (0.98 – 1.00)	4.8E-02	12232	1.00 (0.99 – 1.01)	5845	0.99 (0.98 – 1.00)
452	Other venous embolism and thrombosis	Per88	4.3	1.01 (1.00 – 1.02)	4.8E-02	12232	1.01 (1.00 – 1.02)	5845	1.01 (1.00 – 1.02)
292.3	Memory loss	Per88	6.1	0.99 (0.98 – 1.00)	4.8E-02	12232	1.00 (0.99 – 1.00)	5845	0.99 (0.98 – 1.00)
687.1	Rash and other nonspecific skin eruption	AHI 3%	11.4	1.00 (1.00 – 1.00)	4.9E-02	18332	1.00 (1.00 – 1.00)	9404	1.00 (1.00 – 1.00)
455	Hemorrhoids	AHI 3%	11.2	1.00 (1.00 – 1.00)	5.0E-02	18332	1.00 (1.00 – 1.00)	9404	1.00 (1.00 – 1.00)
401.21	Hypertensive heart disease	AHI 3%	2.5	1.01 (1.00 – 1.01)	5.0E-02	18332	1.00 (1.00 – 1.01)	9404	1.01 (1.00 – 1.01)
807	Fracture of ribs	Per88	1.4	1.02 (1.00 – 1.03)	5.0E-02	12232	1.01 (0.99 – 1.03)	5845	1.02 (1.00 – 1.03)
296.2	Depression	AHI 3%	11.9	1.00 (1.00 – 1.00)	5.1E-02	18332	1.00 (1.00 – 1.00)	9404	1.00 (1.00 – 1.00)
261.2	Vitamin B-complex deficiencies	Per88	2.6	0.99 (0.97 – 1.00)	5.1E-02	12232	0.99 (0.97 – 1.01)	5845	0.99 (0.97 – 1.00)
345.1	Epilepsy	AHI 3%	1.7	0.99 (0.99 – 1.00)	5.1E-02	18332	1.00 (0.99 – 1.00)	9404	0.99 (0.99 – 1.00)
401.3	Other hypertensive complications	Per88	2.3	1.01 (1.00 – 1.03)	5.2E-02	12232	1.01 (0.99 – 1.02)	5845	1.01 (1.00 – 1.03)
292	Neurological disorders	AHI 3%	3.8	1.00 (0.99 – 1.00)	5.3E-02	18332	1.00 (1.00 – 1.01)	9404	1.00 (0.99 – 1.00)
367.4	Presbyopia	AHI 3%	2.5	1.00 (0.99 – 1.00)	5.5E-02	18332	0.99 (0.99 – 1.00)	9404	1.00 (0.99 – 1.00)
496.3	Bronchiectasis	Per88	1.2	1.02 (1.00 – 1.03)	5.6E-02	12232	1.02 (1.00 – 1.04)	5845	1.02 (1.00 – 1.03)
306	Other mental disorder	AHI 3%	8.8	1.00 (1.00 – 1.01)	5.7E-02	18332	1.00 (1.00 – 1.01)	9404	1.00 (1.00 – 1.01)
593.2	Microscopic hematuria	AHI 3%	4.2	1.00 (1.00 – 1.01)	5.7E-02	18332	1.00 (1.00 – 1.01)	9404	1.00 (1.00 – 1.01)
575.7	Other disorders of gallbladder	AHI 3%	2.1	1.01 (1.00 – 1.01)	5.8E-02	18332	1.00 (0.99 – 1.01)	9404	1.01 (1.00 – 1.01)
530.9	Heartburn	AHI 3%	5.7	1.00 (0.99 – 1.00)	6.0E-02	18332	0.99 (0.99 – 1.00)	9404	1.00 (0.99 – 1.00)
427.5	Arrhythmia (cardiac) NOS	Per88	13.9	1.01 (1.00 – 1.01)	6.0E-02	12232	1.00 (1.00 – 1.01)	5845	1.01 (1.00 – 1.01)
798.1	Chronic fatigue syndrome	Per88	4.4	0.99 (0.98 – 1.00)	6.3E-02	12232	0.99 (0.98 – 1.00)	5845	0.99 (0.98 – 1.00)
374.3	Ptosis of eyelid	Per88	1.5	0.98 (0.97 – 1.00)	6.3E-02	12232	0.98 (0.97 – 1.00)	5845	0.98 (0.97 – 1.00)
526.41	Temporomandibular joint disorder, unspecified	AHI 3%	1.6	1.00 (0.99 – 1.00)	6.4E-02	18332	0.99 (0.99 – 1.00)	9404	1.00 (0.99 – 1.00)
781	Symptoms involving nervous and musculoskeletal systems	Per88	5.4	1.01 (1.00 – 1.02)	6.5E-02	12232	1.00 (0.99 – 1.01)	5845	1.01 (1.00 – 1.02)
382	Otalgia	Per88	7.9	0.99 (0.99 – 1.00)	6.5E-02	12232	1.00 (0.99 – 1.00)	5845	0.99 (0.99 – 1.00)
291.4	Specific nonpsychotic mental disorders due to brain damage	AHI 3%	1.7	0.99 (0.99 – 1.00)	6.5E-02	18332	1.00 (0.99 – 1.01)	9404	1.00 (0.99 – 1.00)
740.9	Osteoarthritis NOS	Per88	16.4	1.00 (1.00 – 1.01)	6.5E-02	12232	1.00 (1.00 – 1.01)	5845	1.00 (1.00 – 1.01)
426.31	Right bundle branch block	Per88	2.2	1.01 (1.00 – 1.03)	6.6E-02	12232	1.01 (1.00 – 1.02)	5845	1.01 (1.00 – 1.03)
402	Elevated blood pressure reading without diagnosis of hypertension	AHI 3%	10.0	1.00 (1.00 – 1.00)	6.6E-02	18332	1.00 (1.00 – 1.00)	9404	1.00 (1.00 – 1.00)
304	Adjustment reaction	AHI 3%	8.0	1.00 (0.99 – 1.00)	6.6E-02	18332	1.00 (0.99 – 1.00)	9404	1.00 (1.00 – 1.00)
280.2	Iron deficiency anemia secondary to blood loss (chronic)	Per88	2.3	1.01 (1.00 – 1.03)	6.7E-02	12232	1.01 (1.00 – 1.03)	5845	1.01 (1.00 – 1.03)

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PheCode	Disease	Sleep statistic	Prevalence	Risk ratio	P-value	N	Risk ratio (AHI >15)	N (AHI >15)	Risk ratio (adj sleep disorders)
512.9	Other dyspnea	AHI 3%	18.4	1.00 (1.00 – 1.00)	6.7E-02	18332	1.00 (1.00 – 1.00)	9404	1.00 (1.00 – 1.00)
726	Peripheral enthesopathies and allied syndromes	Per88	8.1	0.99 (0.99 – 1.00)	6.8E-02	12232	1.00 (0.99 – 1.01)	5845	0.99 (0.99 – 1.00)
300.12	Agoraphobia, social phobia, and panic disorder	AHI 3%	4.2	1.00 (0.99 – 1.00)	6.8E-02	18332	1.00 (0.99 – 1.00)	9404	1.00 (0.99 – 1.00)
594.1	Calculus of kidney	Per88	7.3	0.99 (0.98 – 1.00)	6.9E-02	12232	0.99 (0.98 – 1.00)	5845	0.99 (0.98 – 1.00)
561.1	Diarrhea	Per88	9.7	1.01 (1.00 – 1.01)	7.0E-02	12232	1.01 (1.00 – 1.01)	5845	1.01 (1.00 – 1.01)
715	Other inflammatory spondylopathies	AHI 3%	1.0	0.99 (0.98 – 1.00)	7.0E-02	18332	0.99 (0.99 – 1.00)	9404	0.99 (0.98 – 1.00)
578.9	Hemorrhage of gastrointestinal tract	AHI 3%	2.9	1.00 (1.00 – 1.01)	7.1E-02	18332	1.00 (1.00 – 1.01)	9404	1.00 (1.00 – 1.01)
726.2	Synoviopathy	Per88	1.8	0.99 (0.97 – 1.00)	7.2E-02	12232	0.99 (0.97 – 1.00)	5845	0.99 (0.97 – 1.00)
345	Epilepsy, recurrent seizures, convulsions	AHI 3%	2.7	1.00 (0.99 – 1.00)	7.3E-02	18332	1.00 (0.99 – 1.00)	9404	1.00 (0.99 – 1.00)
130.1	Lyme disease	AHI 3%	1.4	0.99 (0.99 – 1.00)	7.5E-02	18332	0.99 (0.98 – 1.00)	9404	0.99 (0.99 – 1.00)
747.11	Cardiac shunt/ heart septal defect	Per88	1.2	1.01 (1.00 – 1.03)	7.5E-02	12232	1.01 (1.00 – 1.03)	5845	1.01 (1.00 – 1.03)
244.4	Hypothyroidism NOS	Per88	11.7	1.01 (1.00 – 1.01)	7.5E-02	12232	1.00 (1.00 – 1.01)	5845	1.01 (1.00 – 1.01)
586	Other disorders of the kidney and ureters	Per88	5.2	1.01 (1.00 – 1.02)	7.6E-02	12232	1.01 (1.00 – 1.02)	5845	1.01 (1.00 – 1.02)
689	Disorder of skin and subcutaneous tissue NOS	Per88	13.7	1.00 (0.99 – 1.00)	7.7E-02	12232	0.99 (0.99 – 1.00)	5845	1.00 (0.99 – 1.00)
720.1	Spinal stenosis of lumbar region	Per88	4.3	1.01 (1.00 – 1.02)	7.9E-02	12232	1.01 (1.00 – 1.02)	5845	1.01 (1.00 – 1.02)
454.1	Varicose veins of lower extremity	AHI 3%	3.1	1.00 (0.99 – 1.00)	8.1E-02	18332	1.00 (0.99 – 1.00)	9404	1.00 (0.99 – 1.00)
564	Functional digestive disorders	AHI 3%	1.8	1.01 (1.00 – 1.01)	8.4E-02	18332	1.01 (1.00 – 1.01)	9404	1.01 (1.00 – 1.01)
300.8	Acute reaction to stress	Per88	2.2	0.99 (0.97 – 1.00)	8.4E-02	12232	0.99 (0.98 – 1.01)	5845	0.99 (0.97 – 1.00)
819	Skull and face fracture and other intercranial injury	AHI 3%	1.4	0.99 (0.99 – 1.00)	8.5E-02	18332	0.99 (0.99 – 1.00)	9404	0.99 (0.99 – 1.00)
428.3	Heart failure with reduced EF [Systolic or combined heart failure]	AHI 3%	1.9	1.01 (1.00 – 1.01)	8.5E-02	18332	1.00 (0.99 – 1.01)	9404	1.01 (1.00 – 1.01)
456	Chronic venous insufficiency [CVI]	AHI 3%	2.9	1.00 (0.99 – 1.00)	8.7E-02	18332	1.00 (0.99 – 1.00)	9404	1.00 (0.99 – 1.00)
427.9	Palpitations	Per88	12.6	1.00 (0.99 – 1.00)	8.8E-02	12232	0.99 (0.99 – 1.00)	5845	1.00 (0.99 – 1.00)
433.21	Cerebral artery occlusion, with cerebral infarction	AHI 3%	4.3	1.00 (1.00 – 1.01)	8.8E-02	18332	1.00 (1.00 – 1.01)	9404	1.00 (1.00 – 1.01)
702.1	Actinic keratosis	Per88	5.3	0.99 (0.98 – 1.00)	8.9E-02	12232	0.99 (0.98 – 1.00)	5845	0.99 (0.98 – 1.00)
272.11	Hypercholesterolemia	Per88	20.2	1.00 (0.99 – 1.00)	9.0E-02	12232	1.00 (0.99 – 1.00)	5845	1.00 (0.99 – 1.00)
276.12	Hyposmolality and/or hyponatremia	Per88	2.6	1.01 (1.00 – 1.02)	9.0E-02	12232	1.01 (1.00 – 1.02)	5845	1.01 (1.00 – 1.02)
290.3	Other persistent mental disorders due to conditions classified elsewhere	AHI 3%	1.1	0.99 (0.99 – 1.00)	9.2E-02	18332	1.00 (0.99 – 1.01)	9404	0.99 (0.99 – 1.00)
573.7	Abnormal results of function study of liver	AHI 3%	3.8	1.00 (1.00 – 1.01)	9.2E-02	18332	1.00 (1.00 – 1.01)	9404	1.00 (1.00 – 1.01)
053	Herpes zoster	AHI 3%	4.7	1.00 (1.00 – 1.01)	9.4E-02	18332	1.00 (1.00 – 1.01)	9404	1.00 (1.00 – 1.01)
773	Pain in limb	AHI 3%	21.2	1.00 (1.00 – 1.00)	9.4E-02	18332	1.00 (1.00 – 1.00)	9404	1.00 (1.00 – 1.00)
355.1	Chronic pain syndrome	Per88	1.5	1.01 (1.00 – 1.03)	9.5E-02	12232	1.01 (1.00 – 1.03)	5845	1.01 (1.00 – 1.03)

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PheCode	Disease	Sleep statistic	Prevalence	Risk ratio	P-value	N	Risk ratio (AHI >15)	N (AHI >15)	Risk ratio (adj sleep disorders)
280.1	Iron deficiency anemias, unspecified or not due to blood loss	AHI 3%	6.2	1.00 (0.99 – 1.00)	9.5E-02	18332	1.00 (0.99 – 1.00)	9404	1.00 (0.99 – 1.00)
389.4	Tinnitus	AHI 3%	6.2	1.00 (0.99 – 1.00)	9.5E-02	18332	1.00 (1.00 – 1.00)	9404	1.00 (0.99 – 1.00)
388	Other disorders of ear	Per88	3.1	0.99 (0.98 – 1.00)	9.6E-02	12232	0.98 (0.97 – 1.00)	5845	0.99 (0.98 – 1.00)
690.1	Seborrheic dermatitis	Per88	4.1	0.99 (0.98 – 1.00)	9.8E-02	12232	0.99 (0.98 – 1.00)	5845	0.99 (0.98 – 1.00)
459.9	Circulatory disease NEC	Per88	4.5	1.01 (1.00 – 1.02)	9.9E-02	12232	1.00 (0.99 – 1.01)	5845	1.01 (1.00 – 1.02)
733	Other disorders of bone and cartilage	AHI 3%	10.2	1.00 (1.00 – 1.00)	1.0E-01	18332	1.00 (1.00 – 1.00)	9404	1.00 (1.00 – 1.00)
288.1	Decreased white blood cell count	AHI 3%	1.2	0.99 (0.99 – 1.00)	1.0E-01	18332	0.99 (0.99 – 1.00)	9404	0.99 (0.99 – 1.00)
366	Cataract	Per88	5.3	1.01 (1.00 – 1.02)	1.0E-01	12232	1.01 (1.00 – 1.02)	5845	1.01 (1.00 – 1.02)
1013	Asphyxia and hypoxemia	AHI 3%	3.8	1.00 (1.00 – 1.01)	1.1E-01	18332	1.01 (1.00 – 1.01)	9404	1.00 (1.00 – 1.01)
726.1	Enthesopathy	Per88	11.0	0.99 (0.99 – 1.00)	1.1E-01	12232	1.00 (0.99 – 1.00)	5845	0.99 (0.99 – 1.00)
772	Symptoms of the muscles	Per88	2.0	0.99 (0.98 – 1.00)	1.1E-01	12232	0.99 (0.97 – 1.01)	5845	0.99 (0.98 – 1.00)
585.4	Chronic kidney disease, Stage I or II	AHI 3%	2.0	1.01 (1.00 – 1.01)	1.1E-01	18332	1.00 (1.00 – 1.01)	9404	1.01 (1.00 – 1.01)
735.3	Hallux valgus (Bunion)	AHI 3%	2.9	1.00 (0.99 – 1.00)	1.1E-01	18332	1.00 (0.99 – 1.00)	9404	1.00 (0.99 – 1.00)
381.1	Otitis media	AHI 3%	2.4	1.00 (1.00 – 1.01)	1.1E-01	18332	1.00 (1.00 – 1.01)	9404	1.00 (1.00 – 1.01)
368.2	Diplopia and disorders of binocular vision	AHI 3%	1.9	1.00 (0.99 – 1.00)	1.1E-01	18332	1.00 (0.99 – 1.00)	9404	1.00 (0.99 – 1.00)
704.8	Other specified diseases of hair and hair follicles	AHI 3%	4.7	1.00 (0.99 – 1.00)	1.1E-01	18332	1.00 (1.00 – 1.01)	9404	1.00 (0.99 – 1.00)
690.1	Seborrheic dermatitis	AHI 3%	4.1	1.00 (0.99 – 1.00)	1.1E-01	18332	1.00 (1.00 – 1.01)	9404	1.00 (0.99 – 1.00)
704.1	Alopecia	AHI 3%	5.8	1.00 (1.00 – 1.00)	1.1E-01	18332	1.00 (1.00 – 1.00)	9404	1.00 (1.00 – 1.00)
737.3	Kyphoscoliosis and scoliosis	Per88	1.8	1.01 (1.00 – 1.02)	1.1E-01	12232	1.01 (1.00 – 1.03)	5845	1.01 (1.00 – 1.02)
946	Anaphylactic shock NOS	AHI 3%	1.9	1.00 (0.99 – 1.00)	1.2E-01	18332	0.99 (0.99 – 1.00)	9404	1.00 (0.99 – 1.00)
496.2	Chronic bronchitis	AHI 3%	1.1	0.99 (0.99 – 1.00)	1.2E-01	18332	0.99 (0.98 – 1.00)	9404	0.99 (0.99 – 1.00)
350.1	Abnormal involuntary movements	Per88	5.4	0.99 (0.98 – 1.00)	1.2E-01	12232	1.00 (0.99 – 1.01)	5845	0.99 (0.98 – 1.00)
724.8	Other symptoms referable to back	AHI 3%	1.3	0.99 (0.99 – 1.00)	1.2E-01	18332	0.99 (0.99 – 1.00)	9404	0.99 (0.99 – 1.00)
593	Hematuria	AHI 3%	7.9	1.00 (1.00 – 1.01)	1.2E-01	18332	1.00 (1.00 – 1.01)	9404	1.00 (1.00 – 1.01)
327.71	Restless legs syndrome	Per88	4.3	0.99 (0.98 – 1.00)	1.2E-01	12232	0.99 (0.98 – 1.00)	5845	0.99 (0.98 – 1.00)
594.8	Renal colic	Per88	1.4	0.98 (0.96 – 1.00)	1.2E-01	12232	0.98 (0.96 – 1.01)	5845	0.98 (0.96 – 1.00)
740.9	Osteoarthritis NOS	AHI 3%	16.4	1.00 (1.00 – 1.00)	1.2E-01	18332	1.00 (1.00 – 1.00)	9404	1.00 (1.00 – 1.00)
136	Other infectious and parasitic diseases	AHI 3%	4.6	1.00 (1.00 – 1.01)	1.2E-01	18332	1.00 (1.00 – 1.01)	9404	1.00 (1.00 – 1.01)
840.3	Joint/ligament sprain	Per88	5.4	0.99 (0.98 – 1.00)	1.2E-01	12232	1.00 (0.99 – 1.01)	5845	0.99 (0.98 – 1.00)
429.3	Symptoms involving cardiovascular system	Per88	6.9	1.01 (1.00 – 1.01)	1.3E-01	12232	1.00 (1.00 – 1.01)	5845	1.01 (1.00 – 1.01)
772	Symptoms of the muscles	AHI 3%	2.0	1.00 (0.99 – 1.00)	1.3E-01	18332	1.00 (0.99 – 1.01)	9404	1.00 (0.99 – 1.00)
941	Adverse reaction to serum or vaccine	Per88	2.7	0.99 (0.98 – 1.00)	1.3E-01	12232	0.99 (0.98 – 1.01)	5845	0.99 (0.98 – 1.00)
252.1	Hyperparathyroidism	AHI 3%	1.9	1.00 (1.00 – 1.01)	1.3E-01	18332	1.01 (1.00 – 1.01)	9404	1.00 (1.00 – 1.01)
564.1	Irritable Bowel Syndrome	Per88	5.6	0.99 (0.99 – 1.00)	1.3E-01	12232	0.99 (0.98 – 1.00)	5845	0.99 (0.99 – 1.00)

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PheCode	Disease	Sleep statistic	Prevalence	Risk ratio	P-value	N	Risk ratio (AHI >15)	N (AHI >15)	Risk ratio (adj sleep disorders)
279	Disorders involving the immune mechanism	AHI 3%	2.1	1.00 (1.00 – 1.01)	1.3E-01	18332	1.01 (1.00 – 1.01)	9404	1.00 (1.00 – 1.01)
458.1	Orthostatic hypotension	AHI 3%	1.7	1.00 (0.99 – 1.00)	1.3E-01	18332	0.99 (0.99 – 1.00)	9404	1.00 (0.99 – 1.00)
338.2	Chronic pain	Per88	15.2	1.00 (1.00 – 1.01)	1.3E-01	12232	1.00 (1.00 – 1.01)	5845	1.00 (1.00 – 1.01)
173	Neoplasm of uncertain behavior of skin	Per88	9.4	0.99 (0.99 – 1.00)	1.3E-01	12232	1.00 (0.99 – 1.00)	5845	0.99 (0.99 – 1.00)
280.1	Iron deficiency anemias, unspecified or not due to blood loss	Per88	6.2	1.01 (1.00 – 1.01)	1.3E-01	12232	1.01 (1.00 – 1.01)	5845	1.01 (1.00 – 1.01)
241.2	Nontoxic multinodular goiter	Per88	3.0	0.99 (0.98 – 1.00)	1.3E-01	12232	0.99 (0.98 – 1.00)	5845	0.99 (0.98 – 1.00)
447	Other disorders of arteries and arterioles	AHI 3%	1.3	1.01 (1.00 – 1.01)	1.3E-01	18332	1.01 (1.00 – 1.01)	9404	1.01 (1.00 – 1.01)
217.1	Nevus, non-neoplastic	Per88	5.2	0.99 (0.98 – 1.00)	1.3E-01	12232	0.99 (0.98 – 1.00)	5845	0.99 (0.98 – 1.00)
696.41	Psoriasis vulgaris	AHI 3%	3.3	1.00 (1.00 – 1.01)	1.3E-01	18332	1.00 (1.00 – 1.01)	9404	1.00 (1.00 – 1.01)
733	Other disorders of bone and cartilage	Per88	10.2	1.00 (1.00 – 1.01)	1.4E-01	12232	1.00 (1.00 – 1.01)	5845	1.00 (1.00 – 1.01)
302.1	Decreased libido	AHI 3%	1.5	1.00 (0.99 – 1.00)	1.4E-01	18332	1.00 (0.99 – 1.00)	9404	1.00 (0.99 – 1.00)
426.32	Left bundle branch block	AHI 3%	1.3	1.01 (1.00 – 1.01)	1.4E-01	18332	1.00 (0.99 – 1.01)	9404	1.01 (1.00 – 1.01)
277	Other disorders of metabolism	AHI 3%	6.5	1.00 (0.99 – 1.00)	1.4E-01	18332	1.00 (1.00 – 1.00)	9404	1.00 (0.99 – 1.00)
686.1	Carbuncle and furuncle	Per88	1.6	1.01 (1.00 – 1.03)	1.4E-01	12232	1.01 (0.99 – 1.03)	5845	1.01 (1.00 – 1.03)
278.11	Morbid obesity	Per88	16.1	1.00 (1.00 – 1.01)	1.5E-01	12232	1.00 (1.00 – 1.01)	5845	1.00 (1.00 – 1.01)
427.11	Paroxysmal supraventricular tachycardia	AHI 3%	3.1	1.00 (1.00 – 1.01)	1.5E-01	18332	1.00 (1.00 – 1.01)	9404	1.00 (1.00 – 1.01)
442.1	Aortic aneurysm	Per88	1.4	1.02 (0.99 – 1.04)	1.5E-01	12232	1.01 (0.99 – 1.03)	5845	1.02 (0.99 – 1.04)
196	Radiotherapy	Per88	2.9	1.01 (1.00 – 1.02)	1.5E-01	12232	1.00 (0.99 – 1.02)	5845	1.01 (1.00 – 1.02)
701	Other hypertrophic and atrophic conditions of skin	Per88	11.5	1.00 (0.99 – 1.00)	1.5E-01	12232	0.99 (0.99 – 1.00)	5845	1.00 (0.99 – 1.00)
426.32	Left bundle branch block	Per88	1.3	1.01 (0.99 – 1.03)	1.5E-01	12232	1.01 (0.99 – 1.02)	5845	1.01 (0.99 – 1.03)
537	Other disorders of stomach and duodenum	Per88	7.8	0.99 (0.99 – 1.00)	1.6E-01	12232	0.99 (0.98 – 1.00)	5845	0.99 (0.99 – 1.00)
586.4	Stricture/obstruction of ureter	Per88	2.5	0.99 (0.97 – 1.00)	1.6E-01	12232	0.99 (0.98 – 1.01)	5845	0.99 (0.97 – 1.00)
721.1	Spondylosis without myelopathy	AHI 3%	8.9	1.00 (1.00 – 1.00)	1.6E-01	18332	1.00 (0.99 – 1.00)	9404	1.00 (1.00 – 1.00)
531.2	Gastric ulcer	Per88	1.7	1.01 (1.00 – 1.03)	1.6E-01	12232	1.01 (0.99 – 1.02)	5845	1.01 (1.00 – 1.03)
292.2	Mild cognitive impairment	AHI 3%	2.4	1.00 (0.99 – 1.00)	1.6E-01	18332	1.00 (1.00 – 1.01)	9404	1.00 (0.99 – 1.00)
300.1	Anxiety disorder	AHI 3%	24.6	1.00 (1.00 – 1.00)	1.6E-01	18332	1.00 (1.00 – 1.00)	9404	1.00 (1.00 – 1.00)
965	Poisoning by analgesics, antipyretics, and antirheumatics	Per88	4.3	1.01 (1.00 – 1.02)	1.6E-01	12232	1.00 (0.99 – 1.01)	5845	1.01 (1.00 – 1.02)
530.13	Barrett's esophagus	Per88	1.9	1.01 (1.00 – 1.03)	1.6E-01	12232	1.00 (0.98 – 1.01)	5845	1.01 (1.00 – 1.03)
251.1	Hypoglycemia	Per88	1.6	1.01 (1.00 – 1.03)	1.6E-01	12232	1.01 (0.99 – 1.03)	5845	1.01 (1.00 – 1.03)
599.4	Urinary incontinence	AHI 3%	6.7	1.00 (0.99 – 1.00)	1.6E-01	18332	1.00 (1.00 – 1.00)	9404	1.00 (0.99 – 1.00)
763	Thoracic or lumbosacral neuritis or radiculitis, unspecified	AHI 3%	7.2	1.00 (1.00 – 1.00)	1.7E-01	18332	1.00 (0.99 – 1.00)	9404	1.00 (1.00 – 1.00)
300.4	Dysthymic disorder	Per88	5.2	0.99 (0.99 – 1.00)	1.7E-01	12232	0.99 (0.98 – 1.00)	5845	0.99 (0.99 – 1.00)
427.12	Paroxysmal ventricular tachycardia	Per88	1.5	1.01 (0.99 – 1.03)	1.7E-01	12232	1.01 (1.00 – 1.03)	5845	1.01 (1.00 – 1.03)

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PheCode	Disease	Sleep statistic	Prevalence	Risk ratio	P-value	N	Risk ratio (AHI >15)	N (AHI >15)	Risk ratio (adj sleep disorders)
727.6	Rupture of tendon, nontraumatic	Per88	2.4	0.99 (0.97 – 1.01)	1.7E-01	12232	0.99 (0.97 – 1.00)	5845	0.99 (0.97 – 1.01)
785	Abdominal pain	Per88	20.0	1.00 (0.99 – 1.00)	1.7E-01	12232	0.99 (0.99 – 1.00)	5845	1.00 (0.99 – 1.00)
287.3	Thrombocytopenia	AHI 3%	2.7	1.00 (1.00 – 1.01)	1.7E-01	18332	1.00 (1.00 – 1.01)	9404	1.00 (1.00 – 1.01)
228.1	Hemangioma of skin and subcutaneous tissue	AHI 3%	5.0	1.00 (0.99 – 1.00)	1.7E-01	18332	1.00 (1.00 – 1.01)	9404	1.00 (0.99 – 1.00)
386.9	Dizziness and giddiness (Light-headedness and vertigo)	AHI 3%	13.5	1.00 (1.00 – 1.00)	1.7E-01	18332	1.00 (1.00 – 1.00)	9404	1.00 (1.00 – 1.00)
420.2	Pericarditis	Per88	1.5	1.01 (0.99 – 1.03)	1.7E-01	12232	1.01 (0.99 – 1.02)	5845	1.01 (0.99 – 1.03)
172.2	Other non-epithelial cancer of skin	Per88	5.7	0.99 (0.98 – 1.00)	1.7E-01	12232	1.00 (0.99 – 1.01)	5845	0.99 (0.98 – 1.00)
788	Syncope and collapse	Per88	8.1	1.00 (1.00 – 1.01)	1.7E-01	12232	1.00 (1.00 – 1.01)	5845	1.00 (1.00 – 1.01)
172.21	Basal cell carcinoma	AHI 3%	3.9	1.00 (0.99 – 1.00)	1.7E-01	18332	1.00 (0.99 – 1.00)	9404	1.00 (0.99 – 1.00)
454.11	Varicose veins of lower extremity, symptomatic	Per88	2.3	1.01 (1.00 – 1.02)	1.7E-01	12232	1.01 (1.00 – 1.02)	5845	1.01 (1.00 – 1.02)
535.2	Atrophic gastritis	AHI 3%	2.7	1.00 (0.99 – 1.00)	1.8E-01	18332	1.00 (0.99 – 1.01)	9404	1.00 (0.99 – 1.00)
380.1	Otitis externa	AHI 3%	2.2	1.00 (0.99 – 1.00)	1.8E-01	18332	1.00 (0.99 – 1.01)	9404	1.00 (0.99 – 1.00)
242	Thyrotoxicosis with or without goiter	AHI 3%	2.4	1.00 (1.00 – 1.01)	1.8E-01	18332	1.01 (1.00 – 1.01)	9404	1.00 (1.00 – 1.01)
703.1	Ingrowing nail	Per88	1.9	1.01 (0.99 – 1.03)	1.8E-01	12232	1.01 (0.99 – 1.03)	5845	1.01 (0.99 – 1.03)
274.11	Gouty arthropathy	Per88	2.3	1.01 (0.99 – 1.03)	1.8E-01	12232	1.01 (0.99 – 1.02)	5845	1.01 (0.99 – 1.03)
008.5	Bacterial enteritis	Per88	3.8	0.99 (0.98 – 1.00)	1.9E-01	12232	1.00 (0.99 – 1.01)	5845	0.99 (0.98 – 1.00)
304	Adjustment reaction	Per88	8.0	1.00 (0.99 – 1.00)	1.9E-01	12232	1.00 (0.99 – 1.00)	5845	1.00 (0.99 – 1.00)
938.2	Chronic dermatitis due to solar radiation	AHI 3%	5.9	1.00 (0.99 – 1.00)	1.9E-01	18332	1.00 (1.00 – 1.00)	9404	1.00 (0.99 – 1.00)
313.1	Attention deficit hyperactivity disorder	AHI 3%	5.7	1.00 (1.00 – 1.00)	1.9E-01	18332	1.00 (0.99 – 1.00)	9404	1.00 (1.00 – 1.00)
560.4	Other intestinal obstruction	Per88	1.9	1.01 (1.00 – 1.02)	1.9E-01	12232	1.00 (0.99 – 1.02)	5845	1.01 (1.00 – 1.02)
716.9	Arthropathy NOS	AHI 3%	2.2	1.00 (0.99 – 1.00)	1.9E-01	18332	0.99 (0.98 – 1.00)	9404	1.00 (0.99 – 1.00)
395.2	Nonrheumatic aortic valve disorders	AHI 3%	2.9	1.00 (1.00 – 1.01)	1.9E-01	18332	1.00 (1.00 – 1.01)	9404	1.00 (1.00 – 1.01)
723	Other disorders of cervical region	Per88	1.4	0.99 (0.98 – 1.00)	1.9E-01	12232	0.98 (0.97 – 1.00)	5845	0.99 (0.98 – 1.00)
289.9	Abnormality of red blood cells	Per88	2.5	1.01 (1.00 – 1.02)	1.9E-01	12232	1.01 (0.99 – 1.02)	5845	1.01 (1.00 – 1.02)
536.8	Dyspepsia and other specified disorders of function of stomach	Per88	3.9	0.99 (0.99 – 1.00)	1.9E-01	12232	0.99 (0.98 – 1.00)	5845	0.99 (0.99 – 1.00)
371.3	Inflammation of eyelids	Per88	3.2	0.99 (0.98 – 1.00)	2.0E-01	12232	1.00 (0.98 – 1.01)	5845	0.99 (0.98 – 1.00)
272.11	Hypercholesterolemia	AHI 3%	20.2	1.00 (1.00 – 1.00)	2.0E-01	18332	1.00 (1.00 – 1.00)	9404	1.00 (1.00 – 1.00)
496.1	Emphysema	AHI 3%	2.0	1.00 (0.99 – 1.00)	2.0E-01	18332	1.00 (0.99 – 1.01)	9404	1.00 (0.99 – 1.00)
278.1	Obesity	Per88	35.1	1.00 (0.99 – 1.00)	2.0E-01	12232	1.00 (1.00 – 1.00)	5845	1.00 (0.99 – 1.00)
300.9	Posttraumatic stress disorder	Per88	4.1	1.01 (1.00 – 1.01)	2.0E-01	12232	1.01 (0.99 – 1.02)	5845	1.01 (1.00 – 1.01)
350.2	Abnormality of gait	Per88	4.7	0.99 (0.98 – 1.00)	2.0E-01	12232	0.99 (0.98 – 1.00)	5845	0.99 (0.98 – 1.00)
300.12	Agoraphobia, social phobia, and panic disorder	Per88	4.2	1.01 (1.00 – 1.01)	2.0E-01	12232	1.00 (0.99 – 1.01)	5845	1.01 (1.00 – 1.01)
290.3	Other persistent mental disorders due to conditions classified elsewhere	Per88	1.1	0.99 (0.97 – 1.01)	2.0E-01	12232	1.00 (0.98 – 1.02)	5845	0.99 (0.97 – 1.01)

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PheCode	Disease	Sleep statistic	Prevalence	Risk ratio	P-value	N	Risk ratio (AHI >15)	N (AHI >15)	Risk ratio (adj sleep disorders)
379.9	Pain, swelling or discharge of eye	AHI 3%	4.4	1.00 (0.99 – 1.00)	2.0E-01	18332	1.00 (0.99 – 1.00)	9404	1.00 (0.99 – 1.00)
078	Viral warts & HPV	Per88	4.9	0.99 (0.99 – 1.00)	2.0E-01	12232	1.00 (0.99 – 1.01)	5845	0.99 (0.99 – 1.00)
840	Sprains and strains	Per88	9.8	1.00 (0.99 – 1.00)	2.1E-01	12232	1.00 (0.99 – 1.01)	5845	1.00 (0.99 – 1.00)
530.14	Reflux esophagitis	Per88	3.1	0.99 (0.98 – 1.00)	2.1E-01	12232	1.00 (0.98 – 1.01)	5845	0.99 (0.98 – 1.00)
327.71	Restless legs syndrome	AHI 3%	4.3	1.00 (0.99 – 1.00)	2.1E-01	18332	1.00 (1.00 – 1.00)	9404	1.00 (1.00 – 1.00)
316	Substance addiction and disorders	AHI 3%	5.5	1.00 (1.00 – 1.01)	2.1E-01	18332	1.00 (1.00 – 1.01)	9404	1.00 (1.00 – 1.01)
112	Candidiasis	AHI 3%	5.3	1.00 (0.99 – 1.00)	2.1E-01	18332	1.00 (1.00 – 1.01)	9404	1.00 (0.99 – 1.00)
110.11	Dermatophytosis of nail	AHI 3%	4.4	1.00 (0.99 – 1.00)	2.2E-01	18332	1.00 (0.99 – 1.00)	9404	1.00 (0.99 – 1.00)
261.4	Vitamin D deficiency	Per88	11.6	1.00 (0.99 – 1.00)	2.2E-01	12232	1.00 (0.99 – 1.00)	5845	1.00 (0.99 – 1.00)
528	Diseases of the oral soft tissues, excluding lesions specific for gingiva and tongue	Per88	2.4	1.01 (1.00 – 1.02)	2.2E-01	12232	1.01 (0.99 – 1.02)	5845	1.01 (1.00 – 1.02)
526	Diseases of the jaws	AHI 3%	1.6	1.00 (0.99 – 1.00)	2.2E-01	18332	1.00 (0.99 – 1.00)	9404	1.00 (0.99 – 1.00)
428.4	Heart failure with preserved EF [Diastolic heart failure]	AHI 3%	2.4	1.00 (1.00 – 1.01)	2.2E-01	18332	1.00 (1.00 – 1.01)	9404	1.00 (1.00 – 1.01)
300.13	Phobia	AHI 3%	2.4	1.00 (0.99 – 1.00)	2.2E-01	18332	1.00 (0.99 – 1.00)	9404	1.00 (0.99 – 1.00)
327	Sleep disorders	Per88	8.0	1.00 (0.99 – 1.00)	2.2E-01	12232	1.00 (0.99 – 1.01)	5845	1.00 (0.99 – 1.00)
594.3	Calculus of ureter	Per88	1.5	0.99 (0.96 – 1.01)	2.2E-01	12232	0.98 (0.96 – 1.00)	5845	0.99 (0.96 – 1.01)
365	Glaucoma	Per88	5.6	1.01 (1.00 – 1.01)	2.2E-01	12232	1.01 (1.00 – 1.02)	5845	1.01 (1.00 – 1.01)
415.2	Chronic pulmonary heart disease	AHI 3%	2.1	1.00 (1.00 – 1.01)	2.2E-01	18332	1.00 (1.00 – 1.01)	9404	1.00 (1.00 – 1.01)
382	Otalgia	AHI 3%	7.9	1.00 (1.00 – 1.00)	2.3E-01	18332	1.00 (1.00 – 1.00)	9404	1.00 (1.00 – 1.00)
278	Overweight, obesity and other hyperalimentation	AHI 3%	14.8	1.00 (1.00 – 1.00)	2.3E-01	18332	1.00 (1.00 – 1.00)	9404	1.00 (1.00 – 1.00)
357	Inflammatory and toxic neuropathy	AHI 3%	5.8	1.00 (0.99 – 1.00)	2.3E-01	18332	1.00 (1.00 – 1.00)	9404	1.00 (0.99 – 1.00)
366.2	Senile cataract	AHI 3%	6.6	1.00 (0.99 – 1.00)	2.4E-01	18332	1.00 (1.00 – 1.00)	9404	1.00 (0.99 – 1.00)
565	Anal and rectal conditions	Per88	3.8	0.99 (0.98 – 1.00)	2.4E-01	12232	1.00 (0.98 – 1.01)	5845	0.99 (0.98 – 1.00)
447.7	Aortic ectasia	AHI 3%	1.3	1.00 (0.99 – 1.00)	2.4E-01	18332	0.99 (0.98 – 1.00)	9404	1.00 (0.99 – 1.00)
367.2	Astigmatism	AHI 3%	2.8	1.00 (0.99 – 1.00)	2.4E-01	18332	0.99 (0.99 – 1.00)	9404	1.00 (0.99 – 1.00)
263	Other nutritional deficiency	AHI 3%	1.3	1.00 (0.99 – 1.00)	2.4E-01	18332	1.00 (0.99 – 1.01)	9404	1.00 (0.99 – 1.00)
761	Cervicalgia	Per88	12.3	1.00 (0.99 – 1.00)	2.4E-01	12232	1.00 (0.99 – 1.00)	5845	1.00 (0.99 – 1.00)
379.2	Disorders of vitreous body	Per88	3.3	0.99 (0.98 – 1.00)	2.4E-01	12232	1.00 (0.99 – 1.01)	5845	0.99 (0.98 – 1.00)
695.8	Other specified erythematous conditions	AHI 3%	1.9	1.00 (0.99 – 1.00)	2.4E-01	18332	1.00 (0.99 – 1.00)	9404	1.00 (0.99 – 1.00)
110.13	Dermatophytosis of the body	Per88	2.3	0.99 (0.97 – 1.01)	2.4E-01	12232	0.99 (0.98 – 1.01)	5845	0.99 (0.97 – 1.01)
334	Degenerative disease of the spinal cord	AHI 3%	1.3	1.00 (1.00 – 1.01)	2.4E-01	18332	1.00 (1.00 – 1.01)	9404	1.00 (1.00 – 1.01)
214	Lipoma	AHI 3%	2.6	1.00 (0.99 – 1.00)	2.4E-01	18332	1.00 (0.99 – 1.00)	9404	1.00 (0.99 – 1.00)
402	Elevated blood pressure reading without diagnosis of hypertension	Per88	10.0	1.00 (0.99 – 1.00)	2.4E-01	12232	1.00 (0.99 – 1.00)	5845	1.00 (0.99 – 1.00)
351	Other peripheral nerve disorders	AHI 3%	7.5	1.00 (1.00 – 1.00)	2.4E-01	18332	1.00 (0.99 – 1.00)	9404	1.00 (1.00 – 1.00)
165.1	Cancer of bronchus; lung	AHI 3%	1.2	1.00 (1.00 – 1.01)	2.4E-01	18332	1.00 (1.00 – 1.01)	9404	1.00 (1.00 – 1.01)

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PheCode	Disease	Sleep statistic	Prevalence	Risk ratio	P-value	N	Risk ratio (AHI >15)	N (AHI >15)	Risk ratio (adj sleep disorders)
726.2	Synoviopathy	AHI 3%	1.8	1.00 (0.99 – 1.00)	2.5E-01	18332	0.99 (0.98 – 1.00)	9404	1.00 (0.99 – 1.00)
569	Other disorders of intestine	AHI 3%	8.3	1.00 (1.00 – 1.00)	2.5E-01	18332	1.00 (1.00 – 1.00)	9404	1.00 (1.00 – 1.00)
947	Urticaria	AHI 3%	4.8	1.00 (0.99 – 1.00)	2.5E-01	18332	1.00 (1.00 – 1.01)	9404	1.00 (0.99 – 1.00)
727.6	Rupture of tendon, nontraumatic	AHI 3%	2.4	1.00 (0.99 – 1.00)	2.5E-01	18332	0.99 (0.99 – 1.00)	9404	1.00 (0.99 – 1.00)
411.2	Myocardial infarction	AHI 3%	5.1	1.00 (1.00 – 1.01)	2.5E-01	18332	1.00 (1.00 – 1.01)	9404	1.00 (1.00 – 1.01)
242	Thyrototoxicosis with or without goiter	Per88	2.4	0.99 (0.98 – 1.01)	2.5E-01	12232	1.00 (0.98 – 1.01)	5845	0.99 (0.98 – 1.01)
704	Diseases of hair and hair follicles	Per88	3.7	0.99 (0.98 – 1.00)	2.5E-01	12232	1.00 (0.98 – 1.01)	5845	0.99 (0.98 – 1.00)
241.1	Nontoxic uninodular goiter	Per88	5.6	0.99 (0.99 – 1.00)	2.5E-01	12232	0.99 (0.99 – 1.00)	5845	0.99 (0.99 – 1.00)
252.1	Hyperparathyroidism	Per88	1.9	1.01 (0.99 – 1.03)	2.6E-01	12232	1.00 (0.99 – 1.02)	5845	1.01 (0.99 – 1.03)
701.2	Scar conditions and fibrosis of skin	AHI 3%	6.0	1.00 (1.00 – 1.00)	2.6E-01	18332	1.00 (1.00 – 1.00)	9404	1.00 (1.00 – 1.00)
246	Other disorders of thyroid	AHI 3%	2.6	1.00 (1.00 – 1.01)	2.6E-01	18332	1.00 (1.00 – 1.01)	9404	1.00 (1.00 – 1.01)
348.7	Coma	Per88	1.5	1.01 (0.99 – 1.02)	2.6E-01	12232	1.01 (0.99 – 1.02)	5845	1.01 (0.99 – 1.02)
841	Sprains and strains of back and neck	Per88	2.3	0.99 (0.98 – 1.01)	2.6E-01	12232	1.00 (0.98 – 1.01)	5845	0.99 (0.98 – 1.01)
593.1	Gross hematuria	AHI 3%	2.7	1.00 (1.00 – 1.01)	2.6E-01	18332	1.00 (1.00 – 1.01)	9404	1.00 (1.00 – 1.01)
727	Other disorders of synovium, tendon, and bursa	Per88	2.6	0.99 (0.98 – 1.01)	2.6E-01	12232	0.99 (0.97 – 1.00)	5845	0.99 (0.98 – 1.01)
793.2	Nonspecific abnormal findings on radiological and other examination of other intrathoracic organs (echocardiogram, etc)	Per88	4.0	1.01 (1.00 – 1.02)	2.7E-01	12232	1.00 (0.99 – 1.01)	5845	1.01 (1.00 – 1.02)
244.4	Hypothyroidism NOS	AHI 3%	11.7	1.00 (1.00 – 1.00)	2.7E-01	18332	1.00 (1.00 – 1.00)	9404	1.00 (1.00 – 1.00)
271.3	Intestinal disaccharidase deficiencies and disaccharide malabsorption	Per88	14.0	1.00 (1.00 – 1.01)	2.7E-01	12232	1.00 (1.00 – 1.01)	5845	1.00 (1.00 – 1.01)
172.22	Squamous cell carcinoma	AHI 3%	2.2	1.00 (0.99 – 1.00)	2.7E-01	18332	1.00 (0.99 – 1.00)	9404	1.00 (0.99 – 1.00)
292.1	Aphasia/speech disturbance	Per88	2.0	0.99 (0.98 – 1.01)	2.8E-01	12232	0.99 (0.97 – 1.01)	5845	0.99 (0.98 – 1.01)
464	Acute sinusitis	Per88	5.1	0.99 (0.99 – 1.00)	2.8E-01	12232	1.00 (0.99 – 1.01)	5845	0.99 (0.99 – 1.00)
512.2	Painful respiration	Per88	9.5	1.00 (1.00 – 1.01)	2.8E-01	12232	1.00 (1.00 – 1.01)	5845	1.00 (1.00 – 1.01)
763	Thoracic or lumbosacral neuritis or radiculitis, unspecified	Per88	7.2	1.00 (0.99 – 1.00)	2.8E-01	12232	0.99 (0.99 – 1.00)	5845	1.00 (0.99 – 1.00)
740.1	Osteoarthritis; localized	AHI 3%	3.5	1.00 (0.99 – 1.00)	2.8E-01	18332	1.00 (0.99 – 1.00)	9404	1.00 (0.99 – 1.00)
706.1	Acne	AHI 3%	5.6	1.00 (1.00 – 1.00)	2.8E-01	18332	1.00 (1.00 – 1.01)	9404	1.00 (1.00 – 1.00)
720.1	Spinal stenosis of lumbar region	AHI 3%	4.3	1.00 (0.99 – 1.00)	2.8E-01	18332	1.00 (0.99 – 1.00)	9404	1.00 (0.99 – 1.00)
296.22	Major depressive disorder	AHI 3%	22.7	1.00 (1.00 – 1.00)	2.8E-01	18332	1.00 (1.00 – 1.00)	9404	1.00 (1.00 – 1.00)
280.2	Iron deficiency anemia secondary to blood loss (chronic)	AHI 3%	2.3	1.00 (0.99 – 1.00)	2.8E-01	18332	1.00 (1.00 – 1.01)	9404	1.00 (0.99 – 1.00)
389	Hearing loss	AHI 3%	8.9	1.00 (1.00 – 1.00)	2.9E-01	18332	1.00 (1.00 – 1.01)	9404	1.00 (1.00 – 1.00)
433.21	Cerebral artery occlusion, with cerebral infarction	Per88	4.3	1.01 (1.00 – 1.02)	2.9E-01	12232	1.00 (0.99 – 1.01)	5845	1.01 (1.00 – 1.02)
727.4	Ganglion and cyst of synovium, tendon,	AHI 3%	2.5	1.00 (0.99 – 1.00)	2.9E-01	18332	1.00 (0.99 – 1.00)	9404	1.00 (0.99 – 1.00)

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PheCode	Disease	Sleep statistic	Prevalence	Risk ratio	P-value	N	Risk ratio (AHI >15)	N (AHI >15)	Risk ratio (adj sleep disorders)
	and bursa								
701	Other hypertrophic and atrophic conditions of skin	AHI 3%	11.5	1.00 (1.00 – 1.00)	2.9E-01	18332	1.00 (1.00 – 1.00)	9404	1.00 (1.00 – 1.00)
296.1	Bipolar	AHI 3%	3.4	1.00 (0.99 – 1.00)	2.9E-01	18332	1.00 (0.99 – 1.01)	9404	1.00 (0.99 – 1.00)
550.2	Diaphragmatic hernia	AHI 3%	5.5	1.00 (0.99 – 1.00)	2.9E-01	18332	1.00 (0.99 – 1.00)	9404	1.00 (0.99 – 1.00)
594.1	Calculus of kidney	AHI 3%	7.3	1.00 (1.00 – 1.00)	2.9E-01	18332	1.00 (1.00 – 1.00)	9404	1.00 (1.00 – 1.00)
536.8	Dyspepsia and other specified disorders of function of stomach	AHI 3%	3.9	1.00 (0.99 – 1.00)	3.0E-01	18332	1.00 (0.99 – 1.00)	9404	1.00 (0.99 – 1.00)
598.9	Other nonspecific findings on examination of urine	Per88	3.0	0.99 (0.98 – 1.01)	3.0E-01	12232	0.99 (0.98 – 1.01)	5845	0.99 (0.98 – 1.01)
008	Intestinal infection	Per88	4.1	1.00 (1.00 – 1.01)	3.0E-01	12232	1.00 (0.99 – 1.01)	5845	1.00 (1.00 – 1.01)
272.12	Hyperglyceridemia	Per88	2.5	1.01 (0.99 – 1.02)	3.0E-01	12232	1.00 (0.99 – 1.02)	5845	1.01 (0.99 – 1.02)
496.3	Bronchiectasis	AHI 3%	1.2	1.00 (0.99 – 1.00)	3.0E-01	18332	1.00 (0.99 – 1.00)	9404	1.00 (0.99 – 1.00)
599.5	Frequency of urination and polyuria	AHI 3%	9.8	1.00 (1.00 – 1.00)	3.0E-01	18332	1.00 (1.00 – 1.00)	9404	1.00 (1.00 – 1.00)
741.2	Stiffness of joint	AHI 3%	2.5	1.00 (0.99 – 1.00)	3.0E-01	18332	1.00 (0.99 – 1.00)	9404	1.00 (0.99 – 1.00)
355.1	Chronic pain syndrome	AHI 3%	1.5	1.00 (1.00 – 1.01)	3.0E-01	18332	1.00 (0.99 – 1.01)	9404	1.00 (1.00 – 1.01)
704.1	Alopecia	Per88	5.8	1.00 (0.99 – 1.00)	3.0E-01	12232	1.00 (0.99 – 1.01)	5845	1.00 (0.99 – 1.00)
504	Other alveolar and parietoalveolar pneumonopathy	AHI 3%	1.3	1.00 (0.99 – 1.00)	3.1E-01	18332	1.00 (0.99 – 1.00)	9404	1.00 (0.99 – 1.00)
475.9	Postnasal drip	Per88	5.0	1.00 (1.00 – 1.01)	3.1E-01	12232	1.00 (0.99 – 1.01)	5845	1.00 (1.00 – 1.01)
947	Urticaria	Per88	4.8	1.00 (0.99 – 1.00)	3.1E-01	12232	1.00 (0.98 – 1.01)	5845	1.00 (0.99 – 1.00)
1004	Other signs and symptoms involving emotional state	AHI 3%	1.4	1.00 (0.99 – 1.00)	3.1E-01	18332	1.00 (0.99 – 1.01)	9404	1.00 (0.99 – 1.00)
277.7	Dysmetabolic syndrome X	AHI 3%	1.3	1.00 (1.00 – 1.01)	3.1E-01	18332	1.00 (0.99 – 1.01)	9404	1.00 (1.00 – 1.01)
702.1	Actinic keratosis	AHI 3%	5.3	1.00 (0.99 – 1.00)	3.2E-01	18332	1.00 (1.00 – 1.00)	9404	1.00 (0.99 – 1.00)
110.12	Althete's foot	Per88	2.8	1.01 (0.99 – 1.02)	3.2E-01	12232	1.00 (0.99 – 1.02)	5845	1.01 (0.99 – 1.02)
470	Septal Deviations/Turbinate Hypertrophy	AHI 3%	7.3	1.00 (1.00 – 1.00)	3.2E-01	18332	1.00 (1.00 – 1.00)	9404	1.00 (1.00 – 1.00)
687.2	Localized superficial swelling, mass, or lump	AHI 3%	8.4	1.00 (1.00 – 1.00)	3.2E-01	18332	1.00 (0.99 – 1.00)	9404	1.00 (1.00 – 1.00)
334	Degenerative disease of the spinal cord	Per88	1.3	1.01 (0.99 – 1.03)	3.2E-01	12232	1.01 (0.99 – 1.02)	5845	1.01 (0.99 – 1.03)
173	Neoplasm of uncertain behavior of skin	AHI 3%	9.4	1.00 (1.00 – 1.00)	3.2E-01	18332	1.00 (1.00 – 1.01)	9404	1.00 (1.00 – 1.00)
706.1	Acne	Per88	5.6	1.00 (0.99 – 1.00)	3.2E-01	12232	1.00 (0.99 – 1.01)	5845	1.00 (0.99 – 1.00)
259	Other endocrine disorders	AHI 3%	1.7	1.00 (0.99 – 1.00)	3.2E-01	18332	1.00 (0.99 – 1.01)	9404	1.00 (0.99 – 1.00)
788	Syncope and collapse	AHI 3%	8.1	1.00 (1.00 – 1.00)	3.2E-01	18332	1.00 (1.00 – 1.00)	9404	1.00 (1.00 – 1.00)
805	Fracture of vertebral column without mention of spinal cord injury	AHI 3%	1.5	1.00 (1.00 – 1.01)	3.2E-01	18332	1.00 (0.99 – 1.01)	9404	1.00 (1.00 – 1.01)
773	Pain in limb	Per88	21.2	1.00 (1.00 – 1.01)	3.3E-01	12232	1.00 (1.00 – 1.01)	5845	1.00 (1.00 – 1.01)
550.5	Ventral hernia	Per88	2.2	1.01 (0.99 – 1.02)	3.3E-01	12232	1.01 (0.99 – 1.02)	5845	1.01 (0.99 – 1.02)
447	Other disorders of arteries and arterioles	Per88	1.3	0.99 (0.97 – 1.01)	3.3E-01	12232	1.00 (0.98 – 1.02)	5845	0.99 (0.97 – 1.01)

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PheCode	Disease	Sleep statistic	Prevalence	Risk ratio	P-value	N	Risk ratio (AHI >15)	N (AHI >15)	Risk ratio (adj sleep disorders)
356	Hereditary and idiopathic peripheral neuropathy	AHI 3%	2.5	1.00 (0.99 – 1.00)	3.3E-01	18332	1.00 (0.99 – 1.01)	9404	1.00 (0.99 – 1.00)
433.31	Transient cerebral ischemia	AHI 3%	4.3	1.00 (1.00 – 1.01)	3.3E-01	18332	1.00 (1.00 – 1.00)	9404	1.00 (1.00 – 1.01)
110.11	Dermatophytosis of nail	Per88	4.4	1.01 (0.99 – 1.02)	3.4E-01	12232	1.01 (1.00 – 1.02)	5845	1.01 (0.99 – 1.02)
574.1	Cholelithiasis	Per88	4.6	0.99 (0.98 – 1.01)	3.4E-01	12232	1.00 (0.99 – 1.01)	5845	0.99 (0.98 – 1.01)
411.8	Other chronic ischemic heart disease, unspecified	Per88	1.5	1.01 (0.99 – 1.03)	3.4E-01	12232	1.01 (0.99 – 1.02)	5845	1.01 (0.99 – 1.03)
465.4	Acute laryngitis and tracheitis	AHI 3%	1.5	1.00 (1.00 – 1.01)	3.4E-01	18332	1.00 (1.00 – 1.01)	9404	1.00 (1.00 – 1.01)
054	Herpes simplex	AHI 3%	4.3	1.00 (1.00 – 1.00)	3.5E-01	18332	1.00 (0.99 – 1.00)	9404	1.00 (1.00 – 1.00)
573.7	Abnormal results of function study of liver	Per88	3.8	1.01 (0.99 – 1.02)	3.5E-01	12232	1.01 (1.00 – 1.02)	5845	1.01 (0.99 – 1.02)
272.13	Mixed hyperlipidemia	Per88	6.9	1.00 (1.00 – 1.01)	3.5E-01	12232	1.00 (0.99 – 1.01)	5845	1.00 (1.00 – 1.01)
530.11	GERD	AHI 3%	31.1	1.00 (1.00 – 1.00)	3.5E-01	18332	1.00 (1.00 – 1.00)	9404	1.00 (1.00 – 1.00)
054	Herpes simplex	Per88	4.3	1.00 (0.99 – 1.00)	3.5E-01	12232	1.00 (0.98 – 1.01)	5845	1.00 (0.99 – 1.00)
197	Chemotherapy	Per88	3.3	1.01 (0.99 – 1.02)	3.5E-01	12232	1.00 (0.99 – 1.01)	5845	1.01 (0.99 – 1.02)
512.7	Shortness of breath	AHI 3%	17.1	1.00 (1.00 – 1.00)	3.5E-01	18332	1.00 (1.00 – 1.00)	9404	1.00 (1.00 – 1.00)
365	Glaucoma	AHI 3%	5.6	1.00 (1.00 – 1.00)	3.5E-01	18332	1.00 (0.99 – 1.00)	9404	1.00 (1.00 – 1.00)
246	Other disorders of thyroid	Per88	2.6	1.01 (0.99 – 1.02)	3.6E-01	12232	1.01 (0.99 – 1.02)	5845	1.01 (0.99 – 1.02)
153.2	Colon cancer	AHI 3%	1.1	1.00 (1.00 – 1.01)	3.6E-01	18332	1.01 (1.00 – 1.02)	9404	1.00 (1.00 – 1.01)
706.8	Other specified diseases of sebaceous glands	AHI 3%	8.3	1.00 (1.00 – 1.00)	3.6E-01	18332	1.00 (1.00 – 1.00)	9404	1.00 (1.00 – 1.00)
388	Other disorders of ear	AHI 3%	3.1	1.00 (0.99 – 1.00)	3.6E-01	18332	1.00 (0.99 – 1.00)	9404	1.00 (0.99 – 1.00)
008	Intestinal infection	AHI 3%	4.1	1.00 (1.00 – 1.01)	3.6E-01	18332	1.00 (1.00 – 1.01)	9404	1.00 (1.00 – 1.01)
197	Chemotherapy	AHI 3%	3.3	1.00 (1.00 – 1.01)	3.6E-01	18332	1.00 (1.00 – 1.01)	9404	1.00 (1.00 – 1.01)
306.9	Tension headache	AHI 3%	3.5	1.00 (0.99 – 1.00)	3.7E-01	18332	1.00 (0.99 – 1.00)	9404	1.00 (0.99 – 1.00)
471	Nasal polyps	Per88	1.9	0.99 (0.98 – 1.01)	3.7E-01	12232	0.99 (0.97 – 1.01)	5845	0.99 (0.98 – 1.01)
537	Other disorders of stomach and duodenum	AHI 3%	7.8	1.00 (1.00 – 1.00)	3.7E-01	18332	1.00 (1.00 – 1.00)	9404	1.00 (1.00 – 1.00)
345.1	Epilepsy	Per88	1.7	0.99 (0.98 – 1.01)	3.7E-01	12232	0.99 (0.98 – 1.01)	5845	0.99 (0.98 – 1.01)
599.8	Other symptoms involving urinary system	Per88	3.2	1.01 (0.99 – 1.02)	3.7E-01	12232	1.00 (0.99 – 1.02)	5845	1.01 (0.99 – 1.02)
561	Symptoms involving digestive system	Per88	3.6	1.00 (0.99 – 1.01)	3.8E-01	12232	1.00 (0.99 – 1.01)	5845	1.00 (0.99 – 1.01)
287.1	Spontaneous ecchymoses	AHI 3%	1.0	1.00 (0.99 – 1.00)	3.8E-01	18332	1.00 (0.99 – 1.01)	9404	1.00 (0.99 – 1.00)
722.9	Other and unspecified disc disorder	Per88	2.7	1.01 (0.99 – 1.02)	3.8E-01	12232	1.01 (0.99 – 1.02)	5845	1.01 (0.99 – 1.02)
379.2	Disorders of vitreous body	AHI 3%	3.3	1.00 (0.99 – 1.00)	3.8E-01	18332	1.00 (0.99 – 1.00)	9404	1.00 (0.99 – 1.00)
389.1	Sensorineural hearing loss	Per88	6.0	1.00 (0.99 – 1.01)	3.8E-01	12232	1.00 (0.99 – 1.01)	5845	1.00 (0.99 – 1.01)
695.8	Other specified erythematous conditions	Per88	1.9	0.99 (0.97 – 1.01)	3.9E-01	12232	0.99 (0.97 – 1.00)	5845	0.99 (0.97 – 1.01)
251.1	Hypoglycemia	AHI 3%	1.6	1.00 (1.00 – 1.01)	3.9E-01	18332	1.01 (1.00 – 1.01)	9404	1.00 (1.00 – 1.01)
293	Symptoms involving head and neck	AHI 3%	1.1	1.00 (0.99 – 1.00)	3.9E-01	18332	1.00 (0.99 – 1.01)	9404	1.00 (0.99 – 1.00)

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PheCode	Disease	Sleep statistic	Prevalence	Risk ratio	P-value	N	Risk ratio (AHI >15)	N (AHI >15)	Risk ratio (adj sleep disorders)
705.8	Hyperhidrosis	AHI 3%	3.5	1.00 (0.99 – 1.00)	3.9E-01	18332	1.00 (0.99 – 1.00)	9404	1.00 (0.99 – 1.00)
591	Urinary tract infection	Per88	8.5	1.00 (1.00 – 1.01)	4.0E-01	12232	1.00 (0.99 – 1.01)	5845	1.00 (1.00 – 1.01)
374.3	Ptosis of eyelid	AHI 3%	1.5	1.00 (0.99 – 1.00)	4.0E-01	18332	1.00 (0.99 – 1.01)	9404	1.00 (0.99 – 1.00)
735.1	Flat foot	AHI 3%	2.0	1.00 (0.99 – 1.00)	4.0E-01	18332	1.00 (0.99 – 1.00)	9404	1.00 (0.99 – 1.00)
386.2	Peripheral or central vertigo	Per88	2.8	0.99 (0.98 – 1.01)	4.0E-01	12232	1.00 (0.99 – 1.01)	5845	0.99 (0.98 – 1.01)
395.2	Nonrheumatic aortic valve disorders	Per88	2.9	1.01 (0.99 – 1.02)	4.0E-01	12232	1.00 (0.99 – 1.01)	5845	1.01 (0.99 – 1.02)
286.81	Primary hypercoagulable state	Per88	1.1	0.99 (0.97 – 1.01)	4.1E-01	12232	0.99 (0.97 – 1.01)	5845	0.99 (0.97 – 1.01)
379.9	Pain, swelling or discharge of eye	Per88	4.4	1.00 (0.99 – 1.01)	4.1E-01	12232	1.00 (0.99 – 1.01)	5845	1.00 (0.99 – 1.01)
348.8	Encephalopathy, not elsewhere classified	Per88	1.6	1.01 (0.99 – 1.02)	4.1E-01	12232	0.99 (0.97 – 1.01)	5845	1.01 (0.99 – 1.02)
722.1	Displacement of intervertebral disc	Per88	4.5	1.00 (0.99 – 1.01)	4.1E-01	12232	1.00 (0.99 – 1.01)	5845	1.00 (0.99 – 1.01)
356	Hereditary and idiopathic peripheral neuropathy	Per88	2.5	1.01 (0.99 – 1.02)	4.2E-01	12232	1.00 (0.99 – 1.02)	5845	1.01 (0.99 – 1.02)
565	Anal and rectal conditions	AHI 3%	3.8	1.00 (1.00 – 1.01)	4.2E-01	18332	1.00 (1.00 – 1.01)	9404	1.00 (1.00 – 1.01)
250.41	Impaired fasting glucose	AHI 3%	3.7	1.00 (1.00 – 1.01)	4.2E-01	18332	1.00 (0.99 – 1.00)	9404	1.00 (1.00 – 1.01)
443.9	Peripheral vascular disease, unspecified	AHI 3%	1.6	1.00 (1.00 – 1.01)	4.2E-01	18332	1.00 (0.99 – 1.01)	9404	1.00 (1.00 – 1.01)
475	Chronic sinusitis	AHI 3%	6.8	1.00 (1.00 – 1.00)	4.2E-01	18332	1.00 (0.99 – 1.00)	9404	1.00 (1.00 – 1.00)
562.2	Diverticulitis	AHI 3%	3.4	1.00 (1.00 – 1.01)	4.2E-01	18332	1.00 (0.99 – 1.00)	9404	1.00 (1.00 – 1.01)
727	Other disorders of synovium, tendon, and bursa	AHI 3%	2.6	1.00 (0.99 – 1.00)	4.2E-01	18332	0.99 (0.99 – 1.00)	9404	1.00 (0.99 – 1.00)
261.4	Vitamin D deficiency	AHI 3%	11.6	1.00 (1.00 – 1.00)	4.2E-01	18332	1.00 (1.00 – 1.00)	9404	1.00 (1.00 – 1.00)
277.7	Dysmetabolic syndrome X	Per88	1.3	0.99 (0.97 – 1.01)	4.3E-01	12232	0.99 (0.97 – 1.02)	5845	0.99 (0.97 – 1.01)
841	Sprains and strains of back and neck	AHI 3%	2.3	1.00 (1.00 – 1.01)	4.3E-01	18332	1.00 (0.99 – 1.01)	9404	1.00 (1.00 – 1.01)
369.5	Conjunctivitis, infectious	Per88	5.4	1.00 (0.99 – 1.01)	4.3E-01	12232	1.00 (0.99 – 1.01)	5845	1.00 (0.99 – 1.00)
770	Myalgia and myositis unspecified	Per88	6.5	1.00 (0.99 – 1.00)	4.3E-01	12232	1.00 (0.99 – 1.01)	5845	1.00 (0.99 – 1.00)
599.4	Urinary incontinence	Per88	6.7	1.00 (1.00 – 1.01)	4.3E-01	12232	1.00 (0.99 – 1.01)	5845	1.00 (1.00 – 1.01)
706.8	Other specified diseases of sebaceous glands	Per88	8.3	1.00 (0.99 – 1.00)	4.3E-01	12232	1.00 (0.99 – 1.01)	5845	1.00 (0.99 – 1.00)
687.1	Rash and other nonspecific skin eruption	Per88	11.4	1.00 (1.00 – 1.01)	4.3E-01	12232	1.01 (1.00 – 1.01)	5845	1.00 (1.00 – 1.01)
216	Benign neoplasm of skin	AHI 3%	14.0	1.00 (1.00 – 1.00)	4.3E-01	18332	1.00 (1.00 – 1.00)	9404	1.00 (1.00 – 1.00)
550.2	Diaphragmatic hernia	Per88	5.5	1.00 (0.99 – 1.01)	4.4E-01	12232	1.00 (0.99 – 1.01)	5845	1.00 (0.99 – 1.01)
078	Viral warts & HPV	AHI 3%	4.9	1.00 (1.00 – 1.00)	4.4E-01	18332	1.00 (1.00 – 1.01)	9404	1.00 (1.00 – 1.00)
979	Adverse drug events and drug allergies	AHI 3%	5.7	1.00 (1.00 – 1.00)	4.4E-01	18332	1.00 (1.00 – 1.00)	9404	1.00 (1.00 – 1.00)
389	Hearing loss	Per88	8.9	1.00 (1.00 – 1.01)	4.4E-01	12232	1.00 (0.99 – 1.01)	5845	1.00 (1.00 – 1.01)
418	Nonspecific chest pain	Per88	20.0	1.00 (1.00 – 1.01)	4.4E-01	12232	1.00 (0.99 – 1.00)	5845	1.00 (1.00 – 1.01)
765	Cervical radiculitis	AHI 3%	4.4	1.00 (0.99 – 1.00)	4.4E-01	18332	1.00 (0.99 – 1.00)	9404	1.00 (1.00 – 1.00)
279.2	Autoimmune disease NEC	AHI 3%	1.2	1.00 (0.99 – 1.00)	4.4E-01	18332	1.00 (0.99 – 1.01)	9404	1.00 (0.99 – 1.00)
411.4	Coronary atherosclerosis	Per88	8.1	1.00 (0.99 – 1.01)	4.5E-01	12232	1.00 (0.99 – 1.01)	5845	1.00 (1.00 – 1.01)

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PheCode	Disease	Sleep statistic	Prevalence	Risk ratio	P-value	N	Risk ratio (AHI >15)	N (AHI >15)	Risk ratio (adj sleep disorders)
481	Influenza	Per88	7.0	1.00 (1.00 – 1.01)	4.5E-01	12232	1.00 (0.99 – 1.01)	5845	1.00 (1.00 – 1.01)
705.8	Hyperhidrosis	Per88	3.5	1.00 (0.99 – 1.01)	4.5E-01	12232	1.00 (0.99 – 1.02)	5845	1.00 (0.99 – 1.01)
531.2	Gastric ulcer	AHI 3%	1.7	1.00 (0.99 – 1.00)	4.5E-01	18332	1.00 (0.99 – 1.00)	9404	1.00 (0.99 – 1.00)
367.1	Myopia	AHI 3%	2.5	1.00 (0.99 – 1.00)	4.5E-01	18332	1.00 (0.99 – 1.00)	9404	1.00 (0.99 – 1.00)
477	Epistaxis or throat hemorrhage	AHI 3%	2.5	1.00 (1.00 – 1.01)	4.5E-01	18332	1.00 (0.99 – 1.01)	9404	1.00 (1.00 – 1.01)
715	Other inflammatory spondylopathies	Per88	1.0	0.99 (0.97 – 1.01)	4.6E-01	12232	1.00 (0.98 – 1.02)	5845	0.99 (0.97 – 1.01)
443.1	Raynaud's syndrome	Per88	1.8	1.00 (0.98 – 1.01)	4.6E-01	12232	0.99 (0.97 – 1.01)	5845	1.00 (0.98 – 1.01)
512.2	Painful respiration	AHI 3%	9.5	1.00 (1.00 – 1.00)	4.6E-01	18332	1.00 (1.00 – 1.00)	9404	1.00 (1.00 – 1.00)
720	Spinal stenosis	AHI 3%	4.6	1.00 (0.99 – 1.00)	4.6E-01	18332	1.00 (1.00 – 1.00)	9404	1.00 (0.99 – 1.00)
053	Herpes zoster	Per88	4.7	1.00 (0.99 – 1.01)	4.6E-01	12232	1.01 (1.00 – 1.02)	5845	1.00 (0.99 – 1.01)
279.2	Autoimmune disease NEC	Per88	1.2	1.01 (0.99 – 1.02)	4.7E-01	12232	1.01 (0.99 – 1.03)	5845	1.01 (0.99 – 1.02)
366	Cataract	AHI 3%	5.3	1.00 (1.00 – 1.00)	4.7E-01	18332	1.00 (0.99 – 1.00)	9404	1.00 (1.00 – 1.00)
562.2	Diverticulitis	Per88	3.4	1.00 (0.99 – 1.02)	4.7E-01	12232	0.99 (0.98 – 1.01)	5845	1.00 (0.99 – 1.02)
351	Other peripheral nerve disorders	Per88	7.5	1.00 (1.00 – 1.01)	4.7E-01	12232	1.00 (1.00 – 1.01)	5845	1.00 (1.00 – 1.01)
277.51	Lipoprotein disorders	AHI 3%	1.8	1.00 (1.00 – 1.01)	4.8E-01	18332	1.01 (1.00 – 1.01)	9404	1.00 (1.00 – 1.01)
738.4	Acquired spondylolisthesis	AHI 3%	3.0	1.00 (0.99 – 1.00)	4.8E-01	18332	1.00 (0.99 – 1.00)	9404	1.00 (0.99 – 1.00)
367.4	Presbyopia	Per88	2.5	1.00 (0.99 – 1.02)	4.8E-01	12232	1.01 (1.00 – 1.02)	5845	1.00 (0.99 – 1.02)
781	Symptoms involving nervous and musculoskeletal systems	AHI 3%	5.4	1.00 (1.00 – 1.00)	4.8E-01	18332	1.00 (1.00 – 1.01)	9404	1.00 (1.00 – 1.00)
443.1	Raynaud's syndrome	AHI 3%	1.8	1.00 (0.99 – 1.00)	4.8E-01	18332	1.00 (0.99 – 1.01)	9404	1.00 (0.99 – 1.00)
687.2	Localized superficial swelling, mass, or lump	Per88	8.4	1.00 (1.00 – 1.01)	4.8E-01	12232	1.00 (0.99 – 1.01)	5845	1.00 (1.00 – 1.01)
429.3	Symptoms involving cardiovascular system	AHI 3%	6.9	1.00 (1.00 – 1.00)	4.9E-01	18332	1.00 (1.00 – 1.01)	9404	1.00 (1.00 – 1.00)
745	Pain in joint	Per88	33.1	1.00 (1.00 – 1.00)	4.9E-01	12232	1.00 (1.00 – 1.00)	5845	1.00 (1.00 – 1.00)
483	Acute bronchitis and bronchiolitis	AHI 3%	5.5	1.00 (1.00 – 1.00)	4.9E-01	18332	1.00 (1.00 – 1.00)	9404	1.00 (1.00 – 1.00)
703.1	Ingrowing nail	AHI 3%	1.9	1.00 (0.99 – 1.00)	4.9E-01	18332	1.01 (1.00 – 1.01)	9404	1.00 (0.99 – 1.00)
214	Lipoma	Per88	2.6	1.00 (0.99 – 1.02)	4.9E-01	12232	1.00 (0.99 – 1.01)	5845	1.01 (0.99 – 1.02)
738.4	Acquired spondylolisthesis	Per88	3.0	1.00 (0.99 – 1.02)	4.9E-01	12232	1.00 (0.99 – 1.02)	5845	1.00 (0.99 – 1.02)
727.1	Synovitis and tenosynovitis	AHI 3%	5.9	1.00 (1.00 – 1.00)	4.9E-01	18332	1.00 (0.99 – 1.00)	9404	1.00 (1.00 – 1.00)
737.3	Kyphoscoliosis and scoliosis	AHI 3%	1.8	1.00 (1.00 – 1.01)	4.9E-01	18332	1.00 (0.99 – 1.01)	9404	1.00 (1.00 – 1.01)
008.5	Bacterial enteritis	AHI 3%	3.8	1.00 (0.99 – 1.00)	4.9E-01	18332	1.00 (0.99 – 1.00)	9404	1.00 (0.99 – 1.00)
571.5	Other chronic nonalcoholic liver disease	Per88	5.1	1.00 (0.99 – 1.01)	4.9E-01	12232	1.00 (0.99 – 1.01)	5845	1.00 (0.99 – 1.01)
262	Mineral deficiency NEC	AHI 3%	3.5	1.00 (0.99 – 1.00)	4.9E-01	18332	1.00 (0.99 – 1.01)	9404	1.00 (1.00 – 1.00)
389.2	Conductive hearing loss	Per88	1.0	0.99 (0.97 – 1.01)	4.9E-01	12232	1.00 (0.98 – 1.02)	5845	0.99 (0.97 – 1.01)
380.4	Impacted cerumen	AHI 3%	3.7	1.00 (1.00 – 1.01)	4.9E-01	18332	1.00 (1.00 – 1.01)	9404	1.00 (1.00 – 1.01)
535.2	Atrophic gastritis	Per88	2.7	1.00 (0.98 – 1.01)	5.0E-01	12232	1.00 (0.98 – 1.01)	5845	1.00 (0.98 – 1.01)
241.2	Nontoxic multinodular goiter	AHI 3%	3.0	1.00 (1.00 – 1.01)	5.0E-01	18332	1.00 (0.99 – 1.01)	9404	1.00 (1.00 – 1.01)

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PheCode	Disease	Sleep statistic	Prevalence	Risk ratio	P-value	N	Risk ratio (AHI >15)	N (AHI >15)	Risk ratio (adj sleep disorders)
594.3	Calculus of ureter	AHI 3%	1.5	1.00 (1.00 – 1.01)	5.0E-01	18332	1.00 (1.00 – 1.01)	9404	1.00 (1.00 – 1.01)
760	Back pain	Per88	23.6	1.00 (1.00 – 1.01)	5.0E-01	12232	1.00 (1.00 – 1.01)	5845	1.00 (1.00 – 1.01)
153.2	Colon cancer	Per88	1.1	1.01 (0.99 – 1.03)	5.1E-01	12232	1.01 (0.99 – 1.03)	5845	1.01 (0.99 – 1.03)
367.8	Hypermetropia	AHI 3%	1.8	1.00 (0.99 – 1.00)	5.1E-01	18332	1.00 (0.99 – 1.00)	9404	1.00 (0.99 – 1.00)
447.7	Aortic ectasia	Per88	1.3	1.01 (0.99 – 1.03)	5.1E-01	12232	1.00 (0.99 – 1.02)	5845	1.01 (0.99 – 1.03)
735.1	Flat foot	Per88	2.0	1.01 (0.99 – 1.02)	5.1E-01	12232	1.00 (0.98 – 1.02)	5845	1.01 (0.99 – 1.02)
217.1	Nevus, non-neoplastic	AHI 3%	5.2	1.00 (1.00 – 1.00)	5.2E-01	18332	1.00 (1.00 – 1.01)	9404	1.00 (1.00 – 1.00)
333.1	Essential tremor	Per88	1.1	0.99 (0.97 – 1.02)	5.2E-01	12232	1.00 (0.98 – 1.02)	5845	0.99 (0.97 – 1.02)
287.1	Spontaneous ecchymoses	Per88	1.0	1.01 (0.99 – 1.02)	5.2E-01	12232	1.00 (0.98 – 1.03)	5845	1.01 (0.99 – 1.02)
689	Disorder of skin and subcutaneous tissue NOS	AHI 3%	13.7	1.00 (1.00 – 1.00)	5.2E-01	18332	1.00 (1.00 – 1.00)	9404	1.00 (1.00 – 1.00)
591	Urinary tract infection	AHI 3%	8.5	1.00 (1.00 – 1.00)	5.2E-01	18332	1.00 (1.00 – 1.00)	9404	1.00 (1.00 – 1.00)
530.14	Reflux esophagitis	AHI 3%	3.1	1.00 (1.00 – 1.01)	5.2E-01	18332	1.00 (1.00 – 1.01)	9404	1.00 (1.00 – 1.01)
245.21	Chronic lymphocytic thyroiditis	Per88	1.6	1.00 (0.98 – 1.01)	5.2E-01	12232	1.00 (0.98 – 1.02)	5845	1.00 (0.98 – 1.01)
941	Adverse reaction to serum or vaccine	AHI 3%	2.7	1.00 (0.99 – 1.00)	5.2E-01	18332	1.00 (0.99 – 1.01)	9404	1.00 (0.99 – 1.00)
579.8	Nonspecific abnormal findings in stool contents	AHI 3%	4.7	1.00 (1.00 – 1.00)	5.3E-01	18332	1.00 (1.00 – 1.01)	9404	1.00 (1.00 – 1.00)
440	Atherosclerosis	AHI 3%	1.2	1.00 (0.99 – 1.01)	5.3E-01	18332	1.00 (1.00 – 1.01)	9404	1.00 (0.99 – 1.01)
350.6	Disturbances of sensation of smell and taste	Per88	1.8	0.99 (0.98 – 1.01)	5.3E-01	12232	1.00 (0.98 – 1.01)	5845	1.00 (0.98 – 1.01)
286.9	Abnormal coagulation profile	AHI 3%	2.8	1.00 (0.99 – 1.00)	5.3E-01	18332	1.00 (0.99 – 1.01)	9404	1.00 (0.99 – 1.00)
110.2	Dermatomycoses	Per88	1.8	1.00 (0.99 – 1.02)	5.3E-01	12232	1.00 (0.99 – 1.02)	5845	1.00 (0.99 – 1.02)
433.8	Late effects of cerebrovascular disease	AHI 3%	1.4	1.00 (1.00 – 1.01)	5.3E-01	18332	1.00 (0.99 – 1.01)	9404	1.00 (1.00 – 1.01)
395.1	Nonrheumatic mitral valve disorders	AHI 3%	4.0	1.00 (1.00 – 1.00)	5.3E-01	18332	1.00 (0.99 – 1.00)	9404	1.00 (0.99 – 1.00)
350.6	Disturbances of sensation of smell and taste	AHI 3%	1.8	1.00 (0.99 – 1.00)	5.3E-01	18332	1.00 (0.99 – 1.00)	9404	1.00 (0.99 – 1.00)
333.1	Essential tremor	AHI 3%	1.1	1.00 (0.99 – 1.01)	5.3E-01	18332	1.00 (0.99 – 1.01)	9404	1.00 (0.99 – 1.01)
380.1	Otitis externa	Per88	2.2	1.00 (0.99 – 1.02)	5.3E-01	12232	1.01 (1.00 – 1.03)	5845	1.00 (0.99 – 1.02)
475	Chronic sinusitis	Per88	6.8	1.00 (0.99 – 1.01)	5.3E-01	12232	1.00 (0.99 – 1.00)	5845	1.00 (0.99 – 1.01)
473.4	Voice disturbance	AHI 3%	4.7	1.00 (1.00 – 1.00)	5.3E-01	18332	1.00 (1.00 – 1.01)	9404	1.00 (1.00 – 1.00)
550.5	Ventral hernia	AHI 3%	2.2	1.00 (0.99 – 1.00)	5.4E-01	18332	1.00 (0.99 – 1.00)	9404	1.00 (0.99 – 1.00)
348.8	Encephalopathy, not elsewhere classified	AHI 3%	1.6	1.00 (1.00 – 1.01)	5.4E-01	18332	1.00 (1.00 – 1.01)	9404	1.00 (1.00 – 1.01)
593.1	Gross hematuria	Per88	2.7	1.00 (0.99 – 1.02)	5.4E-01	12232	1.00 (0.99 – 1.02)	5845	1.00 (0.99 – 1.02)
427.21	Atrial fibrillation	AHI 3%	9.2	1.00 (1.00 – 1.00)	5.4E-01	18332	1.00 (1.00 – 1.00)	9404	1.00 (1.00 – 1.00)
577.3	Cyst and pseudocyst of pancreas	AHI 3%	1.2	1.00 (1.00 – 1.01)	5.4E-01	18332	1.01 (1.00 – 1.01)	9404	1.00 (1.00 – 1.01)
531.4	Peptic ulcer, site unspecified	AHI 3%	1.3	1.00 (0.99 – 1.01)	5.4E-01	18332	1.00 (0.99 – 1.01)	9404	1.00 (0.99 – 1.01)
716.9	Arthropathy NOS	Per88	2.2	1.00 (0.99 – 1.02)	5.5E-01	12232	1.00 (0.99 – 1.02)	5845	1.00 (0.99 – 1.02)
455	Hemorrhoids	Per88	11.2	1.00 (0.99 – 1.00)	5.5E-01	12232	1.00 (1.00 – 1.01)	5845	1.00 (0.99 – 1.00)

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PheCode	Disease	Sleep statistic	Prevalence	Risk ratio	P-value	N	Risk ratio (AHI >15)	N (AHI >15)	Risk ratio (adj sleep disorders)
350.3	Lack of coordination	Per88	1.2	0.99 (0.98 – 1.01)	5.6E-01	12232	0.99 (0.97 – 1.00)	5845	0.99 (0.98 – 1.01)
696.41	Psoriasis vulgaris	Per88	3.3	1.00 (0.98 – 1.01)	5.6E-01	12232	1.00 (0.98 – 1.01)	5845	1.00 (0.98 – 1.01)
426.31	Right bundle branch block	AHI 3%	2.2	1.00 (1.00 – 1.01)	5.6E-01	18332	1.00 (0.99 – 1.01)	9404	1.00 (1.00 – 1.01)
742.9	Other derangement of joint	AHI 3%	4.8	1.00 (1.00 – 1.00)	5.6E-01	18332	1.00 (0.99 – 1.00)	9404	1.00 (1.00 – 1.00)
510	Other diseases of lung	AHI 3%	3.7	1.00 (0.99 – 1.00)	5.7E-01	18332	1.00 (0.99 – 1.00)	9404	1.00 (0.99 – 1.00)
574.3	Cholecystitis without cholelithiasis	AHI 3%	3.1	1.00 (0.99 – 1.00)	5.7E-01	18332	1.00 (0.99 – 1.01)	9404	1.00 (0.99 – 1.00)
367.2	Astigmatism	Per88	2.8	1.00 (0.99 – 1.01)	5.7E-01	12232	1.00 (0.99 – 1.02)	5845	1.00 (0.99 – 1.01)
313.1	Attention deficit hyperactivity disorder	Per88	5.7	1.00 (0.99 – 1.00)	5.7E-01	12232	0.99 (0.98 – 1.00)	5845	1.00 (0.99 – 1.00)
596	Other disorders of bladder	Per88	2.1	1.00 (0.99 – 1.02)	5.8E-01	12232	1.00 (0.98 – 1.02)	5845	1.00 (0.99 – 1.02)
592.11	Acute cystitis	AHI 3%	2.2	1.00 (0.99 – 1.00)	5.8E-01	18332	1.00 (0.99 – 1.00)	9404	1.00 (0.99 – 1.00)
471	Nasal polyps	AHI 3%	1.9	1.00 (0.99 – 1.00)	5.9E-01	18332	1.00 (0.99 – 1.00)	9404	1.00 (0.99 – 1.00)
722.9	Other and unspecified disc disorder	AHI 3%	2.7	1.00 (0.99 – 1.00)	5.9E-01	18332	1.00 (0.99 – 1.01)	9404	1.00 (0.99 – 1.00)
695.3	Rosacea	AHI 3%	3.5	1.00 (0.99 – 1.00)	5.9E-01	18332	1.00 (0.99 – 1.00)	9404	1.00 (0.99 – 1.00)
742.9	Other derangement of joint	Per88	4.8	1.00 (0.99 – 1.01)	5.9E-01	12232	1.00 (0.99 – 1.01)	5845	1.00 (0.99 – 1.01)
599.9	Other abnormality of urination	Per88	4.6	1.00 (0.99 – 1.01)	5.9E-01	12232	0.99 (0.98 – 1.00)	5845	1.00 (0.99 – 1.01)
244.2	Acquired hypothyroidism	Per88	2.8	1.00 (0.99 – 1.02)	6.0E-01	12232	1.00 (0.99 – 1.02)	5845	1.00 (0.99 – 1.02)
741.2	Stiffness of joint	Per88	2.5	1.00 (0.99 – 1.02)	6.0E-01	12232	1.00 (0.99 – 1.02)	5845	1.00 (0.99 – 1.02)
695.3	Rosacea	Per88	3.5	1.00 (0.98 – 1.01)	6.0E-01	12232	1.01 (0.99 – 1.02)	5845	1.00 (0.98 – 1.01)
766	Neuralgia, neuritis, and radiculitis NOS	AHI 3%	3.7	1.00 (0.99 – 1.00)	6.0E-01	18332	1.00 (0.99 – 1.00)	9404	1.00 (1.00 – 1.00)
557	Intestinal malabsorption (non-celiac)	Per88	1.9	1.00 (0.99 – 1.02)	6.0E-01	12232	1.00 (0.98 – 1.01)	5845	1.00 (0.99 – 1.02)
327.4	Insomnia	Per88	16.8	1.00 (1.00 – 1.00)	6.0E-01	12232	1.00 (1.00 – 1.01)	5845	1.00 (1.00 – 1.00)
789	Nausea and vomiting	Per88	13.3	1.00 (1.00 – 1.01)	6.0E-01	12232	1.00 (1.00 – 1.01)	5845	1.00 (1.00 – 1.01)
262	Mineral deficiency NEC	Per88	3.5	1.00 (0.99 – 1.01)	6.0E-01	12232	1.01 (0.99 – 1.02)	5845	1.00 (0.99 – 1.01)
946	Anaphylactic shock NOS	Per88	1.9	1.00 (0.98 – 1.01)	6.0E-01	12232	0.99 (0.97 – 1.01)	5845	1.00 (0.98 – 1.01)
366.2	Senile cataract	Per88	6.6	1.00 (0.99 – 1.01)	6.0E-01	12232	1.00 (0.99 – 1.01)	5845	1.00 (0.99 – 1.01)
288.1	Decreased white blood cell count	Per88	1.2	1.00 (0.99 – 1.02)	6.0E-01	12232	1.01 (0.99 – 1.03)	5845	1.00 (0.99 – 1.02)
411.3	Angina pectoris	AHI 3%	7.0	1.00 (1.00 – 1.00)	6.1E-01	18332	1.00 (0.99 – 1.00)	9404	1.00 (1.00 – 1.00)
599.2	Retention of urine	AHI 3%	4.0	1.00 (0.99 – 1.00)	6.1E-01	18332	1.00 (1.00 – 1.01)	9404	1.00 (0.99 – 1.00)
426	Cardiac conduction disorders	Per88	1.2	1.01 (0.98 – 1.03)	6.2E-01	12232	1.01 (0.99 – 1.03)	5845	1.01 (0.98 – 1.03)
599.5	Frequency of urination and polyuria	Per88	9.8	1.00 (0.99 – 1.01)	6.2E-01	12232	1.00 (0.99 – 1.00)	5845	1.00 (0.99 – 1.01)
526.41	Temporomandibular joint disorder, unspecified	Per88	1.6	1.00 (0.98 – 1.01)	6.3E-01	12232	0.99 (0.98 – 1.01)	5845	1.00 (0.98 – 1.01)
263	Other nutritional deficiency	Per88	1.3	1.00 (0.99 – 1.02)	6.3E-01	12232	1.01 (0.99 – 1.03)	5845	1.00 (0.99 – 1.02)
1004	Other signs and symptoms involving emotional state	Per88	1.4	1.00 (0.98 – 1.01)	6.3E-01	12232	1.00 (0.98 – 1.02)	5845	1.00 (0.98 – 1.01)
473.4	Voice disturbance	Per88	4.7	1.00 (0.99 – 1.01)	6.3E-01	12232	1.00 (0.99 – 1.01)	5845	1.00 (0.99 – 1.01)
433.31	Transient cerebral ischemia	Per88	4.3	1.00 (0.99 – 1.01)	6.3E-01	12232	1.00 (0.99 – 1.01)	5845	1.00 (0.99 – 1.01)
110.12	Althete's foot	AHI 3%	2.8	1.00 (1.00 – 1.01)	6.4E-01	18332	1.00 (0.99 – 1.01)	9404	1.00 (1.00 – 1.01)

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PheCode	Disease	Sleep statistic	Prevalence	Risk ratio	P-value	N	Risk ratio (AHI >15)	N (AHI >15)	Risk ratio (adj sleep disorders)
798	Malaise and fatigue	Per88	19.1	1.00 (1.00 – 1.00)	6.4E-01	12232	1.00 (0.99 – 1.00)	5845	1.00 (1.00 – 1.00)
979	Adverse drug events and drug allergies	Per88	5.7	1.00 (0.99 – 1.01)	6.4E-01	12232	1.00 (0.99 – 1.01)	5845	1.00 (0.99 – 1.01)
596.5	Functional disorders of bladder	AHI 3%	2.1	1.00 (0.99 – 1.00)	6.4E-01	18332	1.00 (1.00 – 1.01)	9404	1.00 (0.99 – 1.01)
530.11	GERD	Per88	31.1	1.00 (1.00 – 1.00)	6.5E-01	12232	1.00 (1.00 – 1.00)	5845	1.00 (1.00 – 1.00)
368.2	Diplopia and disorders of binocular vision	Per88	1.9	1.00 (0.98 – 1.01)	6.5E-01	12232	0.99 (0.97 – 1.01)	5845	1.00 (0.98 – 1.01)
208	Benign neoplasm of colon	Per88	14.6	1.00 (0.99 – 1.00)	6.5E-01	12232	1.00 (0.99 – 1.00)	5845	1.00 (0.99 – 1.00)
481	Influenza	AHI 3%	7.0	1.00 (1.00 – 1.00)	6.5E-01	18332	1.00 (1.00 – 1.00)	9404	1.00 (1.00 – 1.00)
472	Chronic pharyngitis and nasopharyngitis	Per88	7.9	1.00 (0.99 – 1.01)	6.5E-01	12232	1.00 (0.99 – 1.01)	5845	1.00 (0.99 – 1.01)
723	Other disorders of cervical region	AHI 3%	1.4	1.00 (0.99 – 1.00)	6.5E-01	18332	1.01 (1.00 – 1.01)	9404	1.00 (0.99 – 1.01)
772.6	Facial weakness	AHI 3%	1.4	1.00 (0.99 – 1.01)	6.6E-01	18332	1.00 (0.99 – 1.01)	9404	1.00 (0.99 – 1.01)
277.5	Other disorders of lipid metabolism	Per88	2.1	1.00 (0.99 – 1.02)	6.6E-01	12232	1.01 (0.99 – 1.02)	5845	1.00 (0.99 – 1.02)
289.9	Abnormality of red blood cells	AHI 3%	2.5	1.00 (1.00 – 1.01)	6.6E-01	18332	1.00 (1.00 – 1.01)	9404	1.00 (1.00 – 1.01)
476	Allergic rhinitis	AHI 3%	14.6	1.00 (1.00 – 1.00)	6.7E-01	18332	1.00 (1.00 – 1.00)	9404	1.00 (1.00 – 1.00)
793.2	Nonspecific abnormal findings on radiological and other examination of other intrathoracic organs (echocardiogram, etc)	AHI 3%	4.0	1.00 (1.00 – 1.00)	6.7E-01	18332	1.00 (0.99 – 1.00)	9404	1.00 (1.00 – 1.00)
698	Pruritus and related conditions	AHI 3%	9.5	1.00 (1.00 – 1.00)	6.7E-01	18332	1.00 (1.00 – 1.00)	9404	1.00 (1.00 – 1.00)
300.1	Anxiety disorder	Per88	24.6	1.00 (1.00 – 1.00)	6.7E-01	12232	1.00 (1.00 – 1.00)	5845	1.00 (1.00 – 1.00)
727.4	Ganglion and cyst of synovium, tendon, and bursa	Per88	2.5	1.00 (0.99 – 1.02)	6.7E-01	12232	1.01 (0.99 – 1.02)	5845	1.00 (0.99 – 1.02)
440.9	Atherosclerosis of aorta	Per88	1.2	1.00 (0.98 – 1.03)	6.7E-01	12232	1.01 (0.99 – 1.02)	5845	1.00 (0.98 – 1.03)
374	Other disorders of eyelids	AHI 3%	2.7	1.00 (1.00 – 1.01)	6.8E-01	18332	1.00 (0.99 – 1.00)	9404	1.00 (1.00 – 1.01)
483	Acute bronchitis and bronchiolitis	Per88	5.5	1.00 (0.99 – 1.01)	6.8E-01	12232	1.00 (0.99 – 1.01)	5845	1.00 (0.99 – 1.01)
250.41	Impaired fasting glucose	Per88	3.7	1.00 (0.98 – 1.01)	6.8E-01	12232	0.99 (0.98 – 1.01)	5845	1.00 (0.98 – 1.01)
574.3	Cholecystitis without cholelithiasis	Per88	3.1	1.00 (0.99 – 1.02)	6.8E-01	12232	1.01 (1.00 – 1.02)	5845	1.00 (0.99 – 1.02)
579.8	Nonspecific abnormal findings in stool contents	Per88	4.7	1.00 (0.99 – 1.01)	6.8E-01	12232	1.00 (0.99 – 1.01)	5845	1.00 (0.99 – 1.01)
593.2	Microscopic hematuria	Per88	4.2	1.00 (0.99 – 1.01)	6.8E-01	12232	1.00 (0.99 – 1.01)	5845	1.00 (0.99 – 1.01)
454.1	Varicose veins of lower extremity	Per88	3.1	1.00 (0.99 – 1.01)	6.9E-01	12232	1.00 (0.99 – 1.01)	5845	1.00 (0.99 – 1.01)
277	Other disorders of metabolism	Per88	6.5	1.00 (0.99 – 1.01)	7.0E-01	12232	1.00 (0.99 – 1.01)	5845	1.00 (0.99 – 1.01)
296.1	Bipolar	Per88	3.4	1.00 (0.99 – 1.01)	7.0E-01	12232	1.00 (0.99 – 1.01)	5845	1.00 (0.99 – 1.01)
593	Hematuria	Per88	7.9	1.00 (0.99 – 1.01)	7.0E-01	12232	1.00 (0.99 – 1.00)	5845	1.00 (0.99 – 1.01)
389.2	Conductive hearing loss	AHI 3%	1.0	1.00 (0.99 – 1.01)	7.0E-01	18332	1.00 (0.98 – 1.01)	9404	1.00 (0.99 – 1.01)
766	Neuralgia, neuritis, and radiculitis NOS	Per88	3.7	1.00 (0.99 – 1.01)	7.0E-01	12232	1.00 (0.99 – 1.01)	5845	1.00 (0.99 – 1.01)
374	Other disorders of eyelids	Per88	2.7	1.00 (0.99 – 1.01)	7.1E-01	12232	1.00 (0.99 – 1.02)	5845	1.00 (0.99 – 1.01)
740.1	Osteoarthritis; localized	Per88	3.5	1.00 (0.99 – 1.02)	7.1E-01	12232	1.00 (0.99 – 1.01)	5845	1.00 (0.99 – 1.02)
300.8	Acute reaction to stress	AHI 3%	2.2	1.00 (1.00 – 1.01)	7.1E-01	18332	1.00 (0.99 – 1.01)	9404	1.00 (1.00 – 1.01)

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PheCode	Disease	Sleep statistic	Prevalence	Risk ratio	P-value	N	Risk ratio (AHI >15)	N (AHI >15)	Risk ratio (adj sleep disorders)
585.4	Chronic kidney disease, Stage I or II	Per88	2.0	1.00 (0.99 – 1.02)	7.1E-01	12232	1.00 (0.99 – 1.02)	5845	1.00 (0.99 – 1.02)
599.3	Dysuria	Per88	6.6	1.00 (0.99 – 1.01)	7.2E-01	12232	1.00 (0.99 – 1.01)	5845	1.00 (0.99 – 1.01)
586.4	Stricture/obstruction of ureter	AHI 3%	2.5	1.00 (0.99 – 1.00)	7.2E-01	18332	1.00 (1.00 – 1.01)	9404	1.00 (0.99 – 1.01)
772.6	Facial weakness	Per88	1.4	1.00 (0.98 – 1.02)	7.2E-01	12232	1.00 (0.98 – 1.02)	5845	1.00 (0.98 – 1.02)
727.1	Synovitis and tenosynovitis	Per88	5.9	1.00 (0.99 – 1.01)	7.2E-01	12232	1.00 (0.99 – 1.01)	5845	1.00 (0.99 – 1.01)
465.4	Acute laryngitis and tracheitis	Per88	1.5	1.00 (0.98 – 1.01)	7.2E-01	12232	1.00 (0.98 – 1.02)	5845	1.00 (0.98 – 1.01)
371.3	Inflammation of eyelids	AHI 3%	3.2	1.00 (1.00 – 1.00)	7.2E-01	18332	1.00 (1.00 – 1.01)	9404	1.00 (1.00 – 1.00)
526	Diseases of the jaws	Per88	1.6	1.00 (0.99 – 1.02)	7.3E-01	12232	1.00 (0.98 – 1.02)	5845	1.00 (0.99 – 1.02)
286.81	Primary hypercoagulable state	AHI 3%	1.1	1.00 (0.99 – 1.01)	7.3E-01	18332	1.00 (0.99 – 1.01)	9404	1.00 (0.99 – 1.01)
427.61	Supraventricular premature beats	AHI 3%	1.8	1.00 (0.99 – 1.01)	7.3E-01	18332	1.01 (1.00 – 1.01)	9404	1.00 (0.99 – 1.01)
765	Cervical radiculitis	Per88	4.4	1.00 (0.99 – 1.01)	7.3E-01	12232	1.01 (1.00 – 1.02)	5845	1.00 (0.99 – 1.01)
720	Spinal stenosis	Per88	4.6	1.00 (0.99 – 1.01)	7.3E-01	12232	1.00 (0.99 – 1.01)	5845	1.00 (0.99 – 1.01)
348.7	Coma	AHI 3%	1.5	1.00 (0.99 – 1.01)	7.4E-01	18332	1.00 (0.99 – 1.00)	9404	1.00 (0.99 – 1.01)
110.13	Dermatophytosis of the body	AHI 3%	2.3	1.00 (1.00 – 1.01)	7.4E-01	18332	1.00 (0.99 – 1.00)	9404	1.00 (1.00 – 1.01)
561	Symptoms involving digestive system	AHI 3%	3.6	1.00 (1.00 – 1.00)	7.4E-01	18332	1.00 (1.00 – 1.01)	9404	1.00 (1.00 – 1.00)
442.1	Aortic aneurysm	AHI 3%	1.4	1.00 (0.99 – 1.01)	7.4E-01	18332	1.00 (0.99 – 1.01)	9404	1.00 (0.99 – 1.01)
285	Other anemias	AHI 3%	14.6	1.00 (1.00 – 1.00)	7.4E-01	18332	1.00 (1.00 – 1.01)	9404	1.00 (1.00 – 1.00)
369.5	Conjunctivitis, infectious	AHI 3%	5.4	1.00 (1.00 – 1.00)	7.4E-01	18332	1.00 (0.99 – 1.00)	9404	1.00 (1.00 – 1.00)
290.1	Dementias	Per88	1.7	1.00 (0.98 – 1.02)	7.4E-01	12232	1.00 (0.98 – 1.02)	5845	1.00 (0.98 – 1.02)
530.13	Barrett's esophagus	AHI 3%	1.9	1.00 (0.99 – 1.01)	7.6E-01	18332	1.00 (0.99 – 1.00)	9404	1.00 (0.99 – 1.01)
296.2	Depression	Per88	11.9	1.00 (0.99 – 1.00)	7.6E-01	12232	1.00 (0.99 – 1.01)	5845	1.00 (0.99 – 1.00)
686.1	Carbuncle and furuncle	AHI 3%	1.6	1.00 (0.99 – 1.01)	7.6E-01	18332	1.01 (1.00 – 1.02)	9404	1.00 (0.99 – 1.01)
458.1	Orthostatic hypotension	Per88	1.7	1.00 (0.98 – 1.01)	7.6E-01	12232	1.00 (0.98 – 1.01)	5845	1.00 (0.98 – 1.01)
426	Cardiac conduction disorders	AHI 3%	1.2	1.00 (0.99 – 1.01)	7.7E-01	18332	1.00 (1.00 – 1.01)	9404	1.00 (0.99 – 1.01)
418	Nonspecific chest pain	AHI 3%	20.0	1.00 (1.00 – 1.00)	7.7E-01	18332	1.00 (1.00 – 1.00)	9404	1.00 (1.00 – 1.00)
565.1	Anal and rectal polyp	Per88	3.8	1.00 (0.99 – 1.01)	7.7E-01	12232	1.00 (0.99 – 1.01)	5845	1.00 (0.99 – 1.01)
367.1	Myopia	Per88	2.5	1.00 (0.99 – 1.01)	7.7E-01	12232	1.00 (0.99 – 1.01)	5845	1.00 (0.99 – 1.01)
721.8	Other allied disorders of spine	Per88	2.0	1.00 (0.98 – 1.01)	7.7E-01	12232	1.00 (0.99 – 1.02)	5845	1.00 (0.98 – 1.01)
599.8	Other symptoms involving urinary system	AHI 3%	3.2	1.00 (0.99 – 1.00)	7.8E-01	18332	1.00 (1.00 – 1.01)	9404	1.00 (1.00 – 1.00)
110.2	Dermatomycoses	AHI 3%	1.8	1.00 (0.99 – 1.01)	7.8E-01	18332	1.00 (0.99 – 1.01)	9404	1.00 (0.99 – 1.01)
274.1	Gout	Per88	4.7	1.00 (0.99 – 1.01)	7.8E-01	12232	1.00 (0.99 – 1.01)	5845	1.00 (0.99 – 1.01)
465	Acute upper respiratory infections of multiple or unspecified sites	Per88	10.9	1.00 (0.99 – 1.01)	7.8E-01	12232	1.00 (0.99 – 1.00)	5845	1.00 (0.99 – 1.01)
433.8	Late effects of cerebrovascular disease	Per88	1.4	1.00 (0.98 – 1.02)	7.8E-01	12232	1.01 (0.99 – 1.02)	5845	1.00 (0.98 – 1.02)
411.1	Unstable angina (intermediate coronary syndrome)	AHI 3%	1.7	1.00 (0.99 – 1.01)	7.9E-01	18332	1.00 (0.99 – 1.00)	9404	1.00 (0.99 – 1.01)
592.11	Acute cystitis	Per88	2.2	1.00 (0.99 – 1.02)	7.9E-01	12232	1.00 (0.99 – 1.02)	5845	1.00 (0.99 – 1.02)

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PheCode	Disease	Sleep statistic	Prevalence	Risk ratio	P-value	N	Risk ratio (AHI >15)	N (AHI >15)	Risk ratio (adj sleep disorders)
470	Septal Deviations/Turbinate Hypertrophy	Per88	7.3	1.00 (0.99 – 1.01)	8.0E-01	12232	1.00 (0.99 – 1.01)	5845	1.00 (0.99 – 1.01)
594.8	Renal colic	AHI 3%	1.4	1.00 (0.99 – 1.01)	8.0E-01	18332	1.00 (0.99 – 1.01)	9404	1.00 (0.99 – 1.01)
761	Cervicalgia	AHI 3%	12.3	1.00 (1.00 – 1.00)	8.0E-01	18332	1.00 (1.00 – 1.00)	9404	1.00 (1.00 – 1.00)
300.13	Phobia	Per88	2.4	1.00 (0.99 – 1.01)	8.0E-01	12232	1.00 (0.98 – 1.01)	5845	1.00 (0.99 – 1.01)
272.1	Hyperlipidemia	Per88	30.5	1.00 (1.00 – 1.00)	8.1E-01	12232	1.00 (0.99 – 1.00)	5845	1.00 (1.00 – 1.00)
574.1	Cholelithiasis	AHI 3%	4.6	1.00 (1.00 – 1.00)	8.1E-01	18332	1.00 (1.00 – 1.01)	9404	1.00 (1.00 – 1.00)
440	Atherosclerosis	Per88	1.2	1.00 (0.98 – 1.02)	8.2E-01	12232	1.00 (0.99 – 1.02)	5845	1.00 (0.98 – 1.02)
241.1	Nontoxic uninodular goiter	AHI 3%	5.6	1.00 (1.00 – 1.00)	8.2E-01	18332	1.00 (1.00 – 1.00)	9404	1.00 (1.00 – 1.00)
418.1	Precordial pain	AHI 3%	3.4	1.00 (1.00 – 1.01)	8.2E-01	18332	1.00 (1.00 – 1.01)	9404	1.00 (1.00 – 1.01)
440.9	Atherosclerosis of aorta	AHI 3%	1.2	1.00 (0.99 – 1.01)	8.2E-01	18332	1.00 (0.99 – 1.01)	9404	1.00 (0.99 – 1.01)
427.5	Arrhythmia (cardiac) NOS	AHI 3%	13.9	1.00 (1.00 – 1.00)	8.3E-01	18332	1.00 (1.00 – 1.00)	9404	1.00 (1.00 – 1.00)
411.1	Unstable angina (intermediate coronary syndrome)	Per88	1.7	1.00 (0.98 – 1.02)	8.3E-01	12232	1.00 (0.98 – 1.01)	5845	1.00 (0.98 – 1.02)
350.3	Lack of coordination	AHI 3%	1.2	1.00 (0.99 – 1.01)	8.3E-01	18332	1.00 (1.00 – 1.01)	9404	1.00 (0.99 – 1.01)
819	Skull and face fracture and other intercranial injury	Per88	1.4	1.00 (0.99 – 1.02)	8.4E-01	12232	1.00 (0.98 – 1.02)	5845	1.00 (0.99 – 1.02)
596	Other disorders of bladder	AHI 3%	2.1	1.00 (0.99 – 1.01)	8.4E-01	18332	1.00 (1.00 – 1.01)	9404	1.00 (0.99 – 1.01)
411.4	Coronary atherosclerosis	AHI 3%	8.1	1.00 (1.00 – 1.00)	8.5E-01	18332	1.00 (1.00 – 1.00)	9404	1.00 (1.00 – 1.00)
350.2	Abnormality of gait	AHI 3%	4.7	1.00 (1.00 – 1.00)	8.5E-01	18332	1.00 (1.00 – 1.01)	9404	1.00 (1.00 – 1.00)
427.8	Sinoatrial node dysfunction (Bradycardia)	Per88	1.1	1.00 (0.98 – 1.02)	8.5E-01	12232	0.99 (0.97 – 1.01)	5845	1.00 (0.98 – 1.02)
694.2	Other dyschromia	AHI 3%	12.9	1.00 (1.00 – 1.00)	8.5E-01	18332	1.00 (1.00 – 1.00)	9404	1.00 (1.00 – 1.00)
380.4	Impacted cerumen	Per88	3.7	1.00 (0.99 – 1.01)	8.6E-01	12232	1.00 (0.99 – 1.01)	5845	1.00 (0.99 – 1.01)
561.1	Diarrhea	AHI 3%	9.7	1.00 (1.00 – 1.00)	8.6E-01	18332	1.00 (1.00 – 1.00)	9404	1.00 (1.00 – 1.00)
495	Asthma	Per88	19.3	1.00 (1.00 – 1.00)	8.6E-01	12232	1.00 (1.00 – 1.01)	5845	1.00 (1.00 – 1.00)
475.9	Postnasal drip	AHI 3%	5.0	1.00 (1.00 – 1.00)	8.7E-01	18332	1.00 (0.99 – 1.00)	9404	1.00 (1.00 – 1.00)
290.1	Dementias	AHI 3%	1.7	1.00 (0.99 – 1.01)	8.7E-01	18332	1.01 (1.00 – 1.01)	9404	1.00 (0.99 – 1.01)
474.2	Chronic tonsillitis and adenoiditis	Per88	2.5	1.00 (0.99 – 1.01)	8.8E-01	12232	1.00 (0.99 – 1.02)	5845	1.00 (0.99 – 1.01)
427.6	Premature beats	AHI 3%	3.4	1.00 (1.00 – 1.00)	8.8E-01	18332	1.00 (0.99 – 1.00)	9404	1.00 (1.00 – 1.00)
721.8	Other allied disorders of spine	AHI 3%	2.0	1.00 (0.99 – 1.01)	8.9E-01	18332	1.00 (1.00 – 1.01)	9404	1.00 (0.99 – 1.01)
599.2	Retention of urine	Per88	4.0	1.00 (0.99 – 1.01)	8.9E-01	12232	1.00 (0.99 – 1.01)	5845	1.00 (0.99 – 1.01)
300.11	Generalized anxiety disorder	Per88	7.6	1.00 (0.99 – 1.01)	8.9E-01	12232	1.00 (0.99 – 1.00)	5845	1.00 (0.99 – 1.01)
772.2	Spasm of muscle	Per88	2.9	1.00 (0.99 – 1.01)	8.9E-01	12232	1.00 (0.99 – 1.01)	5845	1.00 (0.99 – 1.01)
277.5	Other disorders of lipid metabolism	AHI 3%	2.1	1.00 (0.99 – 1.01)	9.0E-01	18332	1.00 (1.00 – 1.01)	9404	1.00 (0.99 – 1.01)
772.3	Muscle weakness	Per88	2.7	1.00 (0.99 – 1.01)	9.0E-01	12232	1.00 (0.98 – 1.01)	5845	1.00 (0.99 – 1.01)
912	Insect bite	Per88	2.1	1.00 (0.99 – 1.01)	9.1E-01	12232	1.00 (0.99 – 1.02)	5845	1.00 (0.99 – 1.01)
427.8	Sinoatrial node dysfunction (Bradycardia)	AHI 3%	1.1	1.00 (0.99 – 1.01)	9.1E-01	18332	1.00 (1.00 – 1.01)	9404	1.00 (0.99 – 1.01)

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PheCode	Disease	Sleep statistic	Prevalence	Risk ratio	P-value	N	Risk ratio (AHI >15)	N (AHI >15)	Risk ratio (adj sleep disorders)
599.3	Dysuria	AHI 3%	6.6	1.00 (1.00 – 1.00)	9.1E-01	18332	1.00 (1.00 – 1.00)	9404	1.00 (1.00 – 1.00)
764	Sciatica	Per88	8.1	1.00 (0.99 – 1.01)	9.1E-01	12232	1.00 (0.99 – 1.01)	5845	1.00 (0.99 – 1.01)
721.1	Spondylosis without myelopathy	Per88	8.9	1.00 (0.99 – 1.01)	9.1E-01	12232	1.00 (0.99 – 1.01)	5845	1.00 (0.99 – 1.01)
245.21	Chronic lymphocytic thyroiditis	AHI 3%	1.6	1.00 (0.99 – 1.00)	9.2E-01	18332	1.00 (1.00 – 1.01)	9404	1.00 (0.99 – 1.00)
389.1	Sensorineural hearing loss	AHI 3%	6.0	1.00 (1.00 – 1.00)	9.2E-01	18332	1.00 (1.00 – 1.00)	9404	1.00 (1.00 – 1.00)
764	Sciatica	AHI 3%	8.1	1.00 (1.00 – 1.00)	9.2E-01	18332	1.00 (1.00 – 1.00)	9404	1.00 (1.00 – 1.00)
008.6	Viral Enteritis	Per88	2.3	1.00 (0.99 – 1.01)	9.3E-01	12232	1.00 (0.98 – 1.01)	5845	1.00 (0.99 – 1.01)
735.3	Hallux valgus (Bunion)	Per88	2.9	1.00 (0.99 – 1.01)	9.3E-01	12232	1.00 (0.99 – 1.01)	5845	1.00 (0.99 – 1.01)
208	Benign neoplasm of colon	AHI 3%	14.6	1.00 (1.00 – 1.00)	9.4E-01	18332	1.00 (1.00 – 1.00)	9404	1.00 (1.00 – 1.00)
300.3	Obsessive-compulsive disorders	Per88	1.4	1.00 (0.99 – 1.01)	9.4E-01	12232	0.99 (0.97 – 1.01)	5845	1.00 (0.99 – 1.01)
244.2	Acquired hypothyroidism	AHI 3%	2.8	1.00 (1.00 – 1.00)	9.4E-01	18332	1.00 (1.00 – 1.01)	9404	1.00 (1.00 – 1.00)
296.22	Major depressive disorder	Per88	22.7	1.00 (1.00 – 1.00)	9.5E-01	12232	1.00 (1.00 – 1.00)	5845	1.00 (1.00 – 1.00)
415.11	Pulmonary embolism and infarction, acute	AHI 3%	3.0	1.00 (0.99 – 1.00)	9.5E-01	18332	1.00 (1.00 – 1.01)	9404	1.00 (0.99 – 1.00)
459.9	Circulatory disease NEC	AHI 3%	4.5	1.00 (1.00 – 1.00)	9.5E-01	18332	1.00 (1.00 – 1.01)	9404	1.00 (1.00 – 1.00)
293	Symptoms involving head and neck	Per88	1.1	1.00 (0.98 – 1.02)	9.5E-01	12232	1.00 (0.98 – 1.02)	5845	1.00 (0.98 – 1.02)
415	Pulmonary heart disease	AHI 3%	1.3	1.00 (0.99 – 1.01)	9.5E-01	18332	1.00 (1.00 – 1.01)	9404	1.00 (0.99 – 1.01)
008.6	Viral Enteritis	AHI 3%	2.3	1.00 (0.99 – 1.01)	9.5E-01	18332	1.00 (0.99 – 1.01)	9404	1.00 (0.99 – 1.01)
516.1	Hemoptysis	AHI 3%	1.5	1.00 (0.99 – 1.01)	9.5E-01	18332	1.00 (0.99 – 1.01)	9404	1.00 (0.99 – 1.01)
532	Dysphagia	AHI 3%	7.4	1.00 (1.00 – 1.00)	9.5E-01	18332	1.00 (1.00 – 1.00)	9404	1.00 (1.00 – 1.00)
172.22	Squamous cell carcinoma	Per88	2.2	1.00 (0.98 – 1.02)	9.5E-01	12232	1.00 (0.98 – 1.01)	5845	1.00 (0.98 – 1.02)
172.2	Other non-epithelial cancer of skin	AHI 3%	5.7	1.00 (1.00 – 1.00)	9.6E-01	18332	1.00 (1.00 – 1.00)	9404	1.00 (1.00 – 1.00)
912	Insect bite	AHI 3%	2.1	1.00 (0.99 – 1.01)	9.6E-01	18332	1.00 (1.00 – 1.01)	9404	1.00 (0.99 – 1.01)
345	Epilepsy, recurrent seizures, convulsions	Per88	2.7	1.00 (0.99 – 1.01)	9.6E-01	12232	1.00 (0.98 – 1.01)	5845	1.00 (0.99 – 1.01)
367.8	Hypermetropia	Per88	1.8	1.00 (0.99 – 1.01)	9.6E-01	12232	1.00 (0.99 – 1.02)	5845	1.00 (0.99 – 1.01)
596.5	Functional disorders of bladder	Per88	2.1	1.00 (0.98 – 1.01)	9.6E-01	12232	1.00 (0.98 – 1.01)	5845	1.00 (0.98 – 1.01)
965	Poisoning by analgesics, antipyretics, and antirheumatics	AHI 3%	4.3	1.00 (1.00 – 1.00)	9.6E-01	18332	1.00 (1.00 – 1.01)	9404	1.00 (1.00 – 1.00)
724.8	Other symptoms referable to back	Per88	1.3	1.00 (0.98 – 1.02)	9.6E-01	12232	1.01 (0.99 – 1.03)	5845	1.00 (0.98 – 1.02)
514.2	Solitary pulmonary nodule	AHI 3%	4.2	1.00 (1.00 – 1.00)	9.6E-01	18332	1.00 (0.99 – 1.00)	9404	1.00 (1.00 – 1.00)
698	Pruritus and related conditions	Per88	9.5	1.00 (0.99 – 1.01)	9.7E-01	12232	1.00 (0.99 – 1.01)	5845	1.00 (0.99 – 1.01)
464	Acute sinusitis	AHI 3%	5.1	1.00 (1.00 – 1.00)	9.7E-01	18332	1.00 (0.99 – 1.00)	9404	1.00 (1.00 – 1.00)
276.12	Hyposmolality and/or hyponatremia	AHI 3%	2.6	1.00 (0.99 – 1.01)	9.7E-01	18332	1.00 (1.00 – 1.01)	9404	1.00 (1.00 – 1.01)
704	Diseases of hair and hair follicles	AHI 3%	3.7	1.00 (1.00 – 1.00)	9.8E-01	18332	1.00 (1.00 – 1.01)	9404	1.00 (1.00 – 1.00)
259	Other endocrine disorders	Per88	1.7	1.00 (0.98 – 1.02)	9.8E-01	12232	1.02 (1.00 – 1.04)	5845	1.00 (0.98 – 1.02)
292.1	Aphasia/speech disturbance	AHI 3%	2.0	1.00 (0.99 – 1.01)	9.8E-01	18332	1.00 (1.00 – 1.01)	9404	1.00 (0.99 – 1.01)
375.1	Dry eyes	Per88	4.8	1.00 (0.99 – 1.01)	9.8E-01	12232	1.00 (0.99 – 1.01)	5845	1.00 (0.99 – 1.01)
563	Constipation	Per88	10.8	1.00 (0.99 – 1.01)	9.9E-01	12232	1.00 (0.99 – 1.01)	5845	1.00 (0.99 – 1.01)

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PheCode	Disease	Sleep statistic	Prevalence	Risk ratio	P-value	N	Risk ratio (AHI >15)	N (AHI >15)	Risk ratio (adj sleep disorders)
427.22	Atrial flutter	AHI 3%	2.6	1.00 (0.99 – 1.01)	9.9E-01	18332	1.00 (1.00 – 1.01)	9404	1.00 (0.99 – 1.01)
386.2	Peripheral or central vertigo	AHI 3%	2.8	1.00 (1.00 – 1.00)	9.9E-01	18332	1.00 (0.99 – 1.00)	9404	1.00 (1.00 – 1.00)
300.3	Obsessive-compulsive disorders	AHI 3%	1.4	1.00 (0.99 – 1.01)	9.9E-01	18332	1.01 (1.00 – 1.01)	9404	1.00 (1.00 – 1.01)

Table S12. Cross-sectional sleep statistic associations with comorbidities sensitivity analyses.

Cross-sectional analyses used the first sleep recording (prioritizing diagnostics, then splits, then home sleep tests) and are ordered by p-values. Primary analyses considered joint-sex PheCodes with >1% prevalence rate and were rank-normalized after adjusting for age, sex, BMI, population, sleep study type, and healthcare encounters. The primary analysis considered all available sleep laboratory data (i.e. including participants being screened for other sleep disorders).

47 non-redundant PheCodes were Bonferroni-level significant (**bolded**) and 117 non-redundant PheCodes were FDR-level significant (in **red**, uncorrected p-values).

Due to PDF width constraints, sensitivity analyses are presented in two tables, with primary columns repeated (apart from incidence and n):

Table S11 further includes:

A sensitivity analysis considering only participants with AHI >15.

A sensitivity analysis further adjusting for an indicator variable for other common sleep disorders (PheCodes 327, 327.1, 327.4, 327.41, 327.5, 327.6, 327.7, 327.71) in the full sleep recording sample.

Table S12 further includes:

A sensitivity analysis further adjusting for an indicator variable for common pulmonary disorders (PheCodes 415.1, 415.11, 415.2, 480.1, 480.11, 480.2, 480, 495, 495.2, 496.1, 496.2, 496.21, 496.3, 497, 502, 503, 505, 506, 509.2).

P-values from sleep statistic × sex interaction analyses (not rank-normalized) performed separately. Two Bonferroni-level significant values are displayed in **green**.

Equivalent sex-stratified results.

PheCode	Disease	Sleep statistic	Risk ratio	P-value	Risk ratio (adj pulmonary disorders)	Sleep statistic x sex interaction p-value	Risk ratio (Men)	Risk ratio (Women)
1013	Asphyxia and hypoxemia	Per88	1.07 (1.06 – 1.07)	1.1E-70	1.07 (1.06 – 1.07)	2.9E-01	1.06 (1.05 – 1.08)	1.07 (1.06 – 1.08)
496	Chronic airway obstruction	Per88	1.06 (1.05 – 1.06)	3.2E-45	1.05 (1.05 – 1.06)	9.6E-01	1.05 (1.03 – 1.06)	1.07 (1.06 – 1.08)
509.1	Respiratory failure	Per88	1.07 (1.06 – 1.08)	7.0E-40	1.06 (1.05 – 1.08)	5.8E-01	1.06 (1.04 – 1.07)	1.07 (1.06 – 1.09)
415.2	Chronic pulmonary heart disease	Per88	1.07 (1.05 – 1.08)	5.5E-38	1.06 (1.05 – 1.07)	3.4E-01	1.06 (1.05 – 1.08)	1.07 (1.06 – 1.08)
496.21	Obstructive chronic bronchitis	Per88	1.07 (1.06 – 1.09)	2.4E-34	1.07 (1.06 – 1.08)	3.5E-01	1.06 (1.04 – 1.07)	1.09 (1.07 – 1.10)
508	Pulmonary collapse; interstitial and compensatory emphysema	Per88	1.04 (1.04 – 1.05)	3.9E-34	1.04 (1.03 – 1.05)	1.0E-01	1.03 (1.02 – 1.04)	1.06 (1.05 – 1.07)
503	Pulmonary congestion and hypostasis	Per88	1.06 (1.05 – 1.07)	6.8E-31	1.05 (1.04 – 1.06)	1.6E-01	1.04 (1.03 – 1.06)	1.07 (1.06 – 1.08)
496.1	Emphysema	Per88	1.06 (1.05 – 1.07)	1.1E-30	1.06 (1.05 – 1.07)	3.9E-01	1.05 (1.03 – 1.06)	1.07 (1.06 – 1.09)

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PheCode	Disease	Sleep statistic	Risk ratio	P-value	Risk ratio (adj pulmonary disorders)	Sleep statistic x sex interaction p-value	Risk ratio (Men)	Risk ratio (Women)
512.7	Shortness of breath	Per88	1.02 (1.02 – 1.03)	8.6E-26	1.02 (1.01 – 1.02)	2.5E-01	1.02 (1.01 – 1.03)	1.02 (1.02 – 1.03)
782.3	Edema	Per88	1.03 (1.03 – 1.04)	6.7E-25	1.03 (1.02 – 1.04)	9.1E-03	1.03 (1.02 – 1.04)	1.03 (1.02 – 1.04)
428.1	Congestive heart failure (CHF) NOS	Per88	1.04 (1.03 – 1.05)	1.3E-21	1.04 (1.03 – 1.05)	7.7E-01	1.03 (1.02 – 1.04)	1.05 (1.04 – 1.06)
401.1	Essential hypertension	AHI 3%	1.00 (1.00 – 1.01)	7.0E-20	1.00 (1.00 – 1.01)	7.9E-02	1.00 (1.00 – 1.00)	1.01 (1.00 – 1.01)
512.9	Other dyspnea	Per88	1.02 (1.01 – 1.02)	5.8E-18	1.01 (1.01 – 1.02)	1.3E-02	1.01 (1.01 – 1.02)	1.02 (1.02 – 1.03)
428.4	Heart failure with preserved EF [Diastolic heart failure]	Per88	1.05 (1.04 – 1.06)	2.0E-17	1.05 (1.04 – 1.06)	7.2E-01	1.04 (1.02 – 1.06)	1.06 (1.05 – 1.08)
480	Pneumonia	Per88	1.03 (1.02 – 1.03)	5.6E-17	1.02 (1.01 – 1.03)	3.7E-01	1.03 (1.02 – 1.03)	1.03 (1.02 – 1.04)
505	Other pulmonary inflammation or edema	Per88	1.06 (1.04 – 1.07)	2.0E-16	1.06 (1.04 – 1.07)	8.1E-01	1.05 (1.03 – 1.07)	1.06 (1.04 – 1.08)
510	Other diseases of lung	Per88	1.04 (1.03 – 1.04)	2.0E-15	1.03 (1.02 – 1.04)	6.2E-01	1.02 (1.01 – 1.04)	1.04 (1.03 – 1.06)
428.2	Heart failure NOS	Per88	1.05 (1.03 – 1.06)	1.2E-14	1.05 (1.03 – 1.06)	5.8E-01	1.04 (1.02 – 1.05)	1.05 (1.03 – 1.07)
276.6	Fluid overload	Per88	1.05 (1.04 – 1.06)	1.3E-14	1.05 (1.04 – 1.06)	5.5E-01	1.04 (1.03 – 1.06)	1.06 (1.04 – 1.08)
340	Migraine	AHI 3%	0.99 (0.99 – 0.99)	5.6E-14	0.99 (0.99 – 0.99)	7.3E-01	0.99 (0.99 – 1.00)	0.99 (0.99 – 0.99)
401.21	Hypertensive heart disease	Per88	1.04 (1.03 – 1.06)	6.2E-13	1.04 (1.03 – 1.06)	8.3E-01	1.03 (1.01 – 1.05)	1.06 (1.04 – 1.07)
805	Fracture of vertebral column without mention of spinal cord injury	Per88	1.05 (1.03 – 1.06)	1.2E-12	1.05 (1.03 – 1.06)	5.3E-01	1.05 (1.03 – 1.07)	1.04 (1.02 – 1.06)
458.9	Hypotension NOS	Per88	1.03 (1.02 – 1.04)	1.5E-12	1.03 (1.02 – 1.04)	6.1E-01	1.03 (1.01 – 1.04)	1.04 (1.03 – 1.05)
401.1	Essential hypertension	Per88	1.01 (1.01 – 1.01)	2.0E-10	1.01 (1.01 – 1.01)	6.8E-01	1.00 (1.00 – 1.01)	1.01 (1.01 – 1.01)
585.1	Acute renal failure	Per88	1.03 (1.02 – 1.04)	3.6E-10	1.03 (1.02 – 1.04)	2.8E-01	1.02 (1.01 – 1.03)	1.04 (1.03 – 1.05)
427.7	Tachycardia NOS	Per88	1.02 (1.01 – 1.03)	5.6E-10	1.02 (1.01 – 1.02)	3.1E-02	1.02 (1.01 – 1.03)	1.02 (1.01 – 1.03)
327.4	Insomnia	AHI 3%	0.99 (0.99 – 1.00)	8.3E-10	0.99 (0.99 – 1.00)	1.0E-01	0.99 (0.99 – 1.00)	0.99 (0.99 – 1.00)
316	Substance addiction and disorders	Per88	1.02 (1.01 – 1.03)	4.4E-09	1.02 (1.01 – 1.03)	8.9E-01	1.02 (1.01 – 1.03)	1.02 (1.01 – 1.03)
260	Protein-calorie malnutrition	Per88	1.03 (1.02 – 1.04)	1.6E-08	1.03 (1.02 – 1.04)	7.3E-01	1.03 (1.02 – 1.05)	1.03 (1.01 – 1.04)
250.2	Type 2 diabetes	AHI 3%	1.01 (1.00 – 1.01)	1.8E-08	1.01 (1.00 – 1.01)	8.0E-01	1.00 (1.00 – 1.01)	1.01 (1.00 – 1.01)
339	Other headache syndromes	AHI 3%	0.99 (0.99 – 1.00)	2.2E-08	0.99 (0.99 – 1.00)	5.9E-01	0.99 (0.99 – 1.00)	1.00 (0.99 – 1.00)
317.1	Alcoholism	Per88	1.03 (1.02 – 1.04)	6.1E-08	1.03 (1.02 – 1.04)	3.2E-01	1.03 (1.02 – 1.04)	1.02 (1.00 – 1.03)
250.2	Type 2 diabetes	Per88	1.01 (1.01 – 1.02)	1.0E-07	1.01 (1.01 – 1.02)	1.7E-01	1.01 (1.00 – 1.02)	1.01 (1.01 – 1.02)
401.3	Other hypertensive complications	AHI 3%	1.02 (1.01 – 1.02)	1.3E-07	1.02 (1.01 – 1.02)	5.4E-01	1.01 (1.00 – 1.02)	1.02 (1.01 – 1.03)
340.1	Migraine with aura	AHI 3%	0.99 (0.99 – 0.99)	2.0E-07	0.99 (0.99 – 0.99)	3.6E-01	0.99 (0.99 – 1.00)	0.99 (0.98 – 0.99)
504	Other alveolar and parietoalveolar pneumonopathy	Per88	1.04 (1.02 – 1.05)	2.6E-07	1.04 (1.02 – 1.05)	9.7E-01	1.03 (1.01 – 1.05)	1.05 (1.03 – 1.07)
261	Vitamin deficiency	AHI 3%	0.99 (0.98 – 0.99)	3.7E-07	0.99 (0.98 – 0.99)	3.4E-05	1.00 (0.99 – 1.01)	0.99 (0.98 – 0.99)
505	Other pulmonary inflammation or edema	AHI 3%	1.02 (1.01 – 1.03)	6.5E-07	1.02 (1.01 – 1.03)	4.5E-01	1.02 (1.01 – 1.03)	1.02 (1.01 – 1.03)
797	Shock	Per88	1.04 (1.03 – 1.06)	1.0E-06	1.04 (1.02 – 1.06)	3.1E-01	1.03 (1.01 – 1.05)	1.05 (1.02 – 1.08)
269	Proteinuria	AHI 3%	1.01 (1.01 – 1.02)	1.3E-06	1.01 (1.01 – 1.02)	4.2E-01	1.01 (1.00 – 1.01)	1.02 (1.01 – 1.02)
585.1	Acute renal failure	AHI 3%	1.01 (1.01 – 1.01)	2.8E-06	1.01 (1.01 – 1.01)	1.6E-01	1.01 (1.00 – 1.01)	1.01 (1.00 – 1.02)

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PheCode	Disease	Sleep statistic	Risk ratio	P-value	Risk ratio (adj pulmonary disorders)	Sleep statistic x sex interaction p-value	Risk ratio (Men)	Risk ratio (Women)
389.4	Tinnitus	Per88	0.98 (0.97 – 0.99)	3.3E-06	0.98 (0.97 – 0.99)	4.2E-01	0.98 (0.97 – 0.99)	0.98 (0.97 – 0.99)
539	Bariatric surgery	AHI 3%	0.99 (0.99 – 1.00)	6.7E-06	0.99 (0.99 – 1.00)	7.3E-03	1.00 (0.99 – 1.00)	0.99 (0.99 – 1.00)
563	Constipation	AHI 3%	0.99 (0.99 – 1.00)	1.0E-05	0.99 (0.99 – 1.00)	3.2E-01	0.99 (0.99 – 1.00)	0.99 (0.99 – 1.00)
300.9	Posttraumatic stress disorder	AHI 3%	0.99 (0.99 – 1.00)	1.1E-05	0.99 (0.99 – 1.00)	6.2E-01	0.98 (0.98 – 0.99)	0.99 (0.99 – 1.00)
288.2	Elevated white blood cell count	Per88	1.02 (1.01 – 1.03)	1.2E-05	1.02 (1.01 – 1.03)	6.2E-01	1.02 (1.01 – 1.04)	1.02 (1.01 – 1.04)
425.1	Primary/intrinsic cardiomyopathies	Per88	1.02 (1.01 – 1.04)	1.7E-05	1.02 (1.01 – 1.04)	7.3E-01	1.02 (1.01 – 1.03)	1.03 (1.01 – 1.04)
503	Pulmonary congestion and hypostasis	AHI 3%	1.01 (1.01 – 1.02)	1.8E-05	1.01 (1.01 – 1.02)	9.2E-01	1.01 (1.01 – 1.02)	1.01 (1.00 – 1.02)
340	Migraine	Per88	0.99 (0.99 – 0.99)	2.0E-05	0.99 (0.98 – 0.99)	7.0E-01	0.99 (0.98 – 1.00)	0.99 (0.99 – 1.00)
512.8	Cough	Per88	1.01 (1.01 – 1.01)	2.5E-05	1.01 (1.00 – 1.01)	3.2E-01	1.00 (1.00 – 1.01)	1.01 (1.01 – 1.02)
509.1	Respiratory failure	AHI 3%	1.01 (1.01 – 1.02)	2.6E-05	1.01 (1.01 – 1.02)	5.6E-01	1.02 (1.01 – 1.02)	1.01 (1.00 – 1.02)
428.2	Heart failure NOS	AHI 3%	1.01 (1.01 – 1.02)	2.8E-05	1.01 (1.01 – 1.02)	7.0E-01	1.01 (1.00 – 1.02)	1.01 (1.00 – 1.02)
041	Bacterial infection NOS	Per88	1.02 (1.01 – 1.04)	3.2E-05	1.02 (1.01 – 1.03)	7.0E-02	1.04 (1.02 – 1.05)	1.02 (1.00 – 1.03)
694.2	Other dyschromia	Per88	0.99 (0.98 – 0.99)	3.3E-05	0.99 (0.98 – 0.99)	2.8E-01	0.99 (0.98 – 1.00)	0.98 (0.97 – 0.99)
425.1	Primary/intrinsic cardiomyopathies	AHI 3%	1.01 (1.01 – 1.01)	4.0E-05	1.01 (1.01 – 1.01)	8.9E-01	1.01 (1.00 – 1.01)	1.01 (1.00 – 1.02)
136	Other infectious and parasitic diseases	Per88	1.02 (1.01 – 1.02)	5.4E-05	1.01 (1.01 – 1.02)	1.4E-01	1.02 (1.01 – 1.04)	1.01 (1.00 – 1.02)
290.2	Delirium due to conditions classified elsewhere	Per88	1.04 (1.02 – 1.05)	7.5E-05	1.03 (1.01 – 1.05)	2.8E-01	1.03 (1.01 – 1.05)	1.04 (1.01 – 1.07)
327.41	Organic or persistent insomnia	AHI 3%	0.99 (0.99 – 1.00)	7.6E-05	0.99 (0.99 – 1.00)	2.9E-01	0.99 (0.98 – 1.00)	0.99 (0.98 – 0.99)
276.14	Hypopotassemia	Per88	1.02 (1.01 – 1.03)	7.9E-05	1.02 (1.01 – 1.03)	4.4E-01	1.02 (1.00 – 1.04)	1.02 (1.01 – 1.04)
414	Other forms of chronic heart disease	Per88	1.03 (1.01 – 1.04)	8.4E-05	1.03 (1.01 – 1.04)	1.8E-01	1.02 (1.00 – 1.04)	1.04 (1.01 – 1.06)
745	Pain in joint	AHI 3%	1.00 (1.00 – 1.00)	8.8E-05	1.00 (1.00 – 1.00)	7.1E-03	1.00 (1.00 – 1.00)	1.00 (1.00 – 1.00)
286.9	Abnormal coagulation profile	Per88	1.02 (1.01 – 1.03)	1.3E-04	1.02 (1.01 – 1.03)	5.8E-02	1.00 (0.99 – 1.02)	1.03 (1.02 – 1.05)
416	Cardiomegaly	Per88	1.03 (1.01 – 1.04)	1.5E-04	1.02 (1.01 – 1.04)	8.3E-01	1.02 (1.01 – 1.04)	1.03 (1.01 – 1.05)
288.2	Elevated white blood cell count	AHI 3%	1.01 (1.00 – 1.01)	1.7E-04	1.01 (1.00 – 1.01)	1.3E-01	1.01 (1.01 – 1.02)	1.00 (1.00 – 1.01)
261	Vitamin deficiency	Per88	0.97 (0.96 – 0.99)	2.0E-04	0.97 (0.95 – 0.99)	1.9E-01	0.97 (0.92 – 1.03)	0.98 (0.97 – 1.00)
350.1	Abnormal involuntary movements	AHI 3%	0.99 (0.99 – 1.00)	2.6E-04	0.99 (0.99 – 1.00)	6.9E-01	0.99 (0.99 – 1.00)	0.99 (0.99 – 1.00)
428.3	Heart failure with reduced EF [Systolic or combined heart failure]	Per88	1.03 (1.01 – 1.05)	2.7E-04	1.03 (1.01 – 1.04)	2.5E-01	1.01 (0.99 – 1.04)	1.05 (1.02 – 1.07)
496.2	Chronic bronchitis	Per88	1.03 (1.02 – 1.05)	2.9E-04	1.03 (1.01 – 1.05)	6.4E-02	1.02 (1.00 – 1.04)	1.05 (1.02 – 1.08)
274.11	Gouty arthropathy	AHI 3%	1.01 (1.00 – 1.02)	3.2E-04	1.01 (1.00 – 1.02)	1.5E-02	1.01 (1.00 – 1.01)	1.02 (1.00 – 1.03)
598.9	Other nonspecific findings on examination of urine	AHI 3%	0.99 (0.99 – 1.00)	3.2E-04	0.99 (0.99 – 1.00)	1.2E-01	1.00 (0.99 – 1.00)	0.99 (0.98 – 0.99)
278	Overweight, obesity and other hyperalimentation	Per88	0.99 (0.99 – 1.00)	3.4E-04	0.99 (0.99 – 1.00)	1.0E+00	0.99 (0.98 – 1.00)	0.99 (0.98 – 1.00)
427.9	Palpitations	AHI 3%	1.00 (0.99 – 1.00)	3.8E-04	1.00 (0.99 – 1.00)	6.7E-01	1.00 (0.99 – 1.00)	1.00 (0.99 – 1.00)
250.7	Diabetic retinopathy	AHI 3%	1.01 (1.01 – 1.02)	3.8E-04	1.01 (1.01 – 1.02)	5.8E-01	1.02 (1.01 – 1.02)	1.00 (0.99 – 1.02)
760	Back pain	AHI 3%	1.00 (1.00 – 1.00)	4.1E-04	1.00 (1.00 – 1.00)	7.2E-01	1.00 (1.00 – 1.00)	1.00 (0.99 – 1.00)
726	Peripheral enthesopathies and allied syndromes	AHI 3%	1.00 (0.99 – 1.00)	4.3E-04	1.00 (0.99 – 1.00)	5.1E-01	1.00 (0.99 – 1.00)	0.99 (0.99 – 1.00)

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PheCode	Disease	Sleep statistic	Risk ratio	P-value	Risk ratio (adj pulmonary disorders)	Sleep statistic x sex interaction p-value	Risk ratio (Men)	Risk ratio (Women)
411.3	Angina pectoris	Per88	1.01 (1.01 – 1.02)	4.4E-04	1.01 (1.00 – 1.02)	8.5E-02	1.01 (1.00 – 1.02)	1.02 (1.01 – 1.03)
250.7	Diabetic retinopathy	Per88	1.03 (1.01 – 1.05)	5.0E-04	1.03 (1.01 – 1.05)	1.1E-02	1.04 (1.02 – 1.06)	1.01 (0.97 – 1.04)
743.11	Osteoporosis NOS	Per88	1.01 (1.01 – 1.02)	5.4E-04	1.01 (1.00 – 1.02)	2.6E-01	1.02 (1.00 – 1.04)	1.00 (0.99 – 1.01)
514.2	Solitary pulmonary nodule	Per88	1.02 (1.01 – 1.03)	5.5E-04	1.02 (1.00 – 1.03)	4.9E-02	1.00 (0.99 – 1.02)	1.03 (1.02 – 1.05)
415	Pulmonary heart disease	Per88	1.03 (1.01 – 1.04)	5.6E-04	1.02 (1.01 – 1.04)	4.9E-01	1.03 (1.00 – 1.06)	1.03 (1.00 – 1.05)
285	Other anemias	Per88	1.01 (1.00 – 1.01)	5.7E-04	1.01 (1.00 – 1.01)	3.0E-02	1.01 (1.00 – 1.02)	1.01 (1.00 – 1.02)
278.4	Abnormal weight gain	AHI 3%	0.99 (0.99 – 1.00)	6.2E-04	0.99 (0.99 – 1.00)	2.4E-02	0.99 (0.99 – 1.00)	0.99 (0.99 – 1.00)
797	Shock	AHI 3%	1.02 (1.01 – 1.02)	6.4E-04	1.02 (1.01 – 1.02)	5.1E-01	1.01 (1.00 – 1.02)	1.02 (1.00 – 1.04)
327	Sleep disorders	AHI 3%	1.00 (0.99 – 1.00)	6.7E-04	1.00 (0.99 – 1.00)	1.2E-01	1.00 (0.99 – 1.00)	0.99 (0.99 – 1.00)
395.1	Nonrheumatic mitral valve disorders	Per88	1.02 (1.01 – 1.03)	7.1E-04	1.01 (1.00 – 1.02)	3.2E-01	1.01 (1.00 – 1.03)	1.02 (1.00 – 1.03)
250.42	Other abnormal glucose	Per88	1.01 (1.00 – 1.02)	7.3E-04	1.01 (1.00 – 1.02)	2.2E-01	1.01 (1.00 – 1.02)	1.01 (1.00 – 1.02)
530.9	Heartburn	Per88	0.99 (0.98 – 0.99)	7.4E-04	0.98 (0.97 – 0.99)	6.5E-01	0.99 (0.97 – 1.00)	0.98 (0.97 – 0.99)
840	Sprains and strains	AHI 3%	1.00 (0.99 – 1.00)	7.4E-04	1.00 (0.99 – 1.00)	1.1E-01	1.00 (0.99 – 1.00)	0.99 (0.99 – 1.00)
512.8	Cough	AHI 3%	1.00 (1.00 – 1.00)	7.7E-04	1.00 (1.00 – 1.00)	1.5E-01	1.00 (1.00 – 1.00)	1.00 (1.00 – 1.01)
785	Abdominal pain	AHI 3%	1.00 (1.00 – 1.00)	7.8E-04	1.00 (1.00 – 1.00)	8.0E-01	1.00 (1.00 – 1.00)	1.00 (1.00 – 1.00)
427.3	Other specified cardiac dysrhythmias	AHI 3%	0.99 (0.99 – 1.00)	8.3E-04	0.99 (0.99 – 1.00)	8.7E-01	1.00 (0.99 – 1.00)	1.00 (0.99 – 1.00)
586	Other disorders of the kidney and ureters	AHI 3%	1.01 (1.00 – 1.01)	8.5E-04	1.01 (1.00 – 1.01)	8.4E-01	1.01 (1.00 – 1.01)	1.01 (1.00 – 1.01)
260	Protein-calorie malnutrition	AHI 3%	1.01 (1.00 – 1.02)	9.5E-04	1.01 (1.00 – 1.02)	2.1E-01	1.01 (1.00 – 1.02)	1.00 (1.00 – 1.01)
508	Pulmonary collapse; interstitial and compensatory emphysema	AHI 3%	1.01 (1.00 – 1.01)	1.0E-03	1.01 (1.00 – 1.01)	1.7E-01	1.01 (1.00 – 1.01)	1.00 (1.00 – 1.01)
428.1	Congestive heart failure (CHF) NOS	AHI 3%	1.01 (1.00 – 1.01)	1.0E-03	1.01 (1.00 – 1.01)	3.8E-01	1.01 (1.00 – 1.01)	1.00 (1.00 – 1.01)
558	Noninfectious gastroenteritis	Per88	1.01 (1.01 – 1.02)	1.1E-03	1.01 (1.00 – 1.02)	4.1E-01	1.01 (1.00 – 1.02)	1.02 (1.01 – 1.03)
585.3	Chronic renal failure [CKD]	Per88	1.02 (1.01 – 1.03)	1.1E-03	1.02 (1.01 – 1.03)	2.5E-01	1.01 (1.00 – 1.02)	1.02 (1.01 – 1.04)
216	Benign neoplasm of skin	Per88	0.99 (0.99 – 1.00)	1.2E-03	0.99 (0.99 – 1.00)	6.7E-01	0.99 (0.98 – 1.00)	0.99 (0.98 – 1.00)
427.21	Atrial fibrillation	Per88	1.01 (1.00 – 1.02)	1.3E-03	1.01 (1.00 – 1.02)	9.8E-02	1.01 (1.00 – 1.01)	1.03 (1.01 – 1.04)
415.11	Pulmonary embolism and infarction, acute	Per88	1.02 (1.01 – 1.03)	1.3E-03	1.01 (1.00 – 1.03)	5.1E-01	1.01 (0.99 – 1.03)	1.03 (1.01 – 1.04)
271.3	Intestinal disaccharidase deficiencies and disaccharide malabsorption	AHI 3%	1.00 (1.00 – 1.01)	1.3E-03	1.00 (1.00 – 1.01)	9.0E-02	1.00 (1.00 – 1.01)	1.00 (1.00 – 1.01)
519.8	Other diseases of respiratory system, NEC	Per88	1.02 (1.01 – 1.03)	1.4E-03	1.01 (1.00 – 1.02)	7.2E-01	1.01 (1.00 – 1.03)	1.02 (1.00 – 1.03)
443.9	Peripheral vascular disease, unspecified	Per88	1.03 (1.01 – 1.04)	1.5E-03	1.03 (1.01 – 1.04)	6.7E-01	1.02 (1.00 – 1.04)	1.03 (1.01 – 1.06)
274.1	Gout	AHI 3%	1.01 (1.00 – 1.01)	1.6E-03	1.01 (1.00 – 1.01)	1.7E-03	1.00 (1.00 – 1.01)	1.02 (1.00 – 1.03)
272.12	Hyperglyceridemia	AHI 3%	1.01 (1.00 – 1.01)	1.6E-03	1.01 (1.00 – 1.01)	8.5E-01	1.01 (1.00 – 1.01)	1.01 (1.00 – 1.02)
357	Inflammatory and toxic neuropathy	Per88	1.01 (1.00 – 1.02)	1.7E-03	1.01 (1.00 – 1.02)	3.6E-01	1.01 (1.00 – 1.02)	1.01 (1.00 – 1.02)
743.11	Osteoporosis NOS	AHI 3%	1.00 (1.00 – 1.01)	1.8E-03	1.00 (1.00 – 1.01)	7.1E-01	1.00 (0.99 – 1.01)	1.00 (1.00 – 1.00)
560.4	Other intestinal obstruction	AHI 3%	1.01 (1.00 – 1.02)	1.8E-03	1.01 (1.00 – 1.02)	3.7E-01	1.01 (1.01 – 1.02)	1.00 (1.00 – 1.01)
728.7	Fasciitis	Per88	0.98 (0.97 – 0.99)	1.8E-03	0.98 (0.97 – 0.99)	5.7E-01	0.99 (0.98 – 1.01)	0.98 (0.96 – 0.99)

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PheCode	Disease	Sleep statistic	Risk ratio	P-value	Risk ratio (adj pulmonary disorders)	Sleep statistic x sex interaction p-value	Risk ratio (Men)	Risk ratio (Women)
527.7	Disturbance of salivary secretion	Per88	1.02 (1.01 – 1.03)	1.9E-03	1.02 (1.01 – 1.03)	2.5E-01	1.01 (0.99 – 1.04)	1.02 (1.01 – 1.04)
585.3	Chronic renal failure [CKD]	AHI 3%	1.01 (1.00 – 1.01)	1.9E-03	1.01 (1.00 – 1.01)	7.5E-01	1.00 (1.00 – 1.01)	1.01 (1.00 – 1.01)
292.3	Memory loss	AHI 3%	1.00 (0.99 – 1.00)	2.0E-03	1.00 (0.99 – 1.00)	7.9E-01	1.00 (0.99 – 1.00)	0.99 (0.99 – 1.00)
250.42	Other abnormal glucose	AHI 3%	1.00 (1.00 – 1.01)	2.1E-03	1.00 (1.00 – 1.01)	3.7E-02	1.00 (1.00 – 1.01)	1.00 (1.00 – 1.01)
228.1	Hemangioma of skin and subcutaneous tissue	Per88	0.98 (0.97 – 0.99)	2.4E-03	0.98 (0.97 – 0.99)	1.7E-01	0.99 (0.97 – 1.00)	0.99 (0.97 – 1.00)
938.2	Chronic dermatitis due to solar radiation	Per88	0.98 (0.98 – 0.99)	2.4E-03	0.99 (0.98 – 0.99)	8.5E-01	0.99 (0.98 – 1.00)	0.98 (0.97 – 1.00)
798	Malaise and fatigue	AHI 3%	1.00 (1.00 – 1.00)	2.6E-03	1.00 (1.00 – 1.00)	1.1E-01	1.00 (1.00 – 1.00)	1.00 (0.99 – 1.00)
539	Bariatric surgery	Per88	0.99 (0.98 – 1.00)	2.6E-03	0.99 (0.98 – 1.00)	5.8E-01	0.99 (0.98 – 1.01)	0.99 (0.98 – 1.00)
427.7	Tachycardia NOS	AHI 3%	1.00 (1.00 – 1.01)	2.7E-03	1.00 (1.00 – 1.01)	5.5E-03	1.01 (1.00 – 1.01)	1.00 (1.00 – 1.01)
272.1	Hyperlipidemia	AHI 3%	1.00 (1.00 – 1.00)	2.8E-03	1.00 (1.00 – 1.00)	4.1E-03	1.00 (1.00 – 1.00)	1.00 (1.00 – 1.01)
532	Dysphagia	Per88	1.01 (1.00 – 1.02)	3.1E-03	1.01 (1.00 – 1.01)	2.9E-01	1.01 (1.00 – 1.02)	1.01 (1.00 – 1.02)
571.5	Other chronic nonalcoholic liver disease	AHI 3%	1.01 (1.00 – 1.01)	3.3E-03	1.01 (1.00 – 1.01)	1.9E-01	1.01 (1.00 – 1.01)	1.00 (1.00 – 1.01)
456	Chronic venous insufficiency [CVI]	Per88	1.02 (1.01 – 1.03)	3.3E-03	1.02 (1.01 – 1.03)	6.0E-02	1.02 (1.00 – 1.04)	1.02 (1.00 – 1.03)
300.11	Generalized anxiety disorder	AHI 3%	1.00 (0.99 – 1.00)	3.3E-03	1.00 (0.99 – 1.00)	1.8E-02	0.99 (0.99 – 1.00)	1.00 (1.00 – 1.00)
798.1	Chronic fatigue syndrome	AHI 3%	1.00 (0.99 – 1.00)	3.3E-03	1.00 (0.99 – 1.00)	9.5E-01	0.99 (0.99 – 1.00)	1.00 (0.99 – 1.00)
480.11	Pneumococcal pneumonia	Per88	1.02 (1.01 – 1.04)	3.5E-03	1.02 (1.00 – 1.03)	2.9E-01	1.01 (0.98 – 1.03)	1.04 (1.02 – 1.06)
291.4	Specific nonpsychotic mental disorders due to brain damage	Per88	0.98 (0.96 – 0.99)	4.9E-03	0.98 (0.96 – 0.99)	8.2E-01	0.98 (0.96 – 1.00)	0.98 (0.97 – 1.00)
564	Functional digestive disorders	Per88	1.02 (1.01 – 1.03)	5.4E-03	1.02 (1.00 – 1.03)	4.1E-01	1.00 (0.98 – 1.02)	1.03 (1.01 – 1.05)
480	Pneumonia	AHI 3%	1.00 (1.00 – 1.01)	5.7E-03	1.00 (1.00 – 1.01)	3.2E-01	1.01 (1.00 – 1.01)	1.00 (1.00 – 1.01)
411.2	Myocardial infarction	Per88	1.01 (1.00 – 1.02)	5.7E-03	1.01 (1.00 – 1.02)	9.2E-01	1.01 (1.00 – 1.02)	1.02 (1.01 – 1.04)
339	Other headache syndromes	Per88	0.99 (0.99 – 1.00)	5.7E-03	0.99 (0.99 – 1.00)	2.2E-01	0.99 (0.98 – 1.00)	0.99 (0.99 – 1.00)
496.21	Obstructive chronic bronchitis	AHI 3%	0.99 (0.98 – 1.00)	6.2E-03	0.99 (0.98 – 1.00)	1.3E-01	0.99 (0.98 – 1.00)	0.99 (0.97 – 1.00)
287.3	Thrombocytopenia	Per88	1.02 (1.00 – 1.03)	6.3E-03	1.02 (1.00 – 1.03)	5.1E-01	1.02 (1.01 – 1.03)	1.01 (0.99 – 1.03)
292.2	Mild cognitive impairment	Per88	0.98 (0.96 – 0.99)	6.9E-03	0.98 (0.97 – 1.00)	4.3E-01	0.99 (0.98 – 1.00)	0.98 (0.95 – 1.00)
375.1	Dry eyes	AHI 3%	1.00 (0.99 – 1.00)	7.0E-03	1.00 (0.99 – 1.00)	4.8E-02	1.00 (0.99 – 1.00)	0.99 (0.99 – 1.00)
575.7	Other disorders of gallbladder	Per88	1.02 (1.01 – 1.03)	7.2E-03	1.02 (1.00 – 1.03)	9.1E-01	1.02 (1.00 – 1.04)	1.02 (1.00 – 1.04)
276.14	Hypopotassemia	AHI 3%	1.01 (1.00 – 1.01)	7.3E-03	1.01 (1.00 – 1.01)	7.7E-02	1.01 (1.00 – 1.02)	1.00 (1.00 – 1.01)
726.1	Enthesopathy	AHI 3%	1.00 (0.99 – 1.00)	7.7E-03	1.00 (0.99 – 1.00)	2.0E-01	0.99 (0.99 – 1.00)	1.00 (0.99 – 1.00)
302.1	Decreased libido	Per88	0.98 (0.96 – 0.99)	7.9E-03	0.98 (0.96 – 1.00)	2.4E-01	0.98 (0.96 – 1.00)	0.97 (0.94 – 1.00)
728.7	Fasciitis	AHI 3%	1.00 (0.99 – 1.00)	7.9E-03	1.00 (0.99 – 1.00)	9.2E-01	1.00 (0.99 – 1.00)	0.99 (0.99 – 1.00)
112	Candidiasis	Per88	1.01 (1.00 – 1.02)	8.7E-03	1.01 (1.00 – 1.02)	3.3E-02	1.03 (1.01 – 1.04)	1.01 (1.00 – 1.02)
528	Diseases of the oral soft tissues, excluding lesions specific for gingiva and tongue	AHI 3%	0.99 (0.99 – 1.00)	8.8E-03	0.99 (0.99 – 1.00)	1.2E-01	0.99 (0.99 – 1.00)	0.99 (0.99 – 1.00)
165.1	Cancer of bronchus; lung	Per88	1.02 (1.01 – 1.04)	8.8E-03	1.02 (1.00 – 1.04)	3.2E-01	0.99 (0.96 – 1.02)	1.04 (1.02 – 1.06)
261.2	Vitamin B-complex deficiencies	AHI 3%	0.99 (0.99 – 1.00)	8.8E-03	0.99 (0.99 – 1.00)	7.7E-01	0.99 (0.99 – 1.00)	0.99 (0.98 – 1.00)

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PheCode	Disease	Sleep statistic	Risk ratio	P-value	Risk ratio (adj pulmonary disorders)	Sleep statistic x sex interaction p-value	Risk ratio (Men)	Risk ratio (Women)
454.11	Varicose veins of lower extremity, symptomatic	AHI 3%	0.99 (0.99 – 1.00)	9.0E-03	0.99 (0.99 – 1.00)	8.0E-01	0.99 (0.98 – 0.99)	1.00 (0.99 – 1.00)
495	Asthma	AHI 3%	1.00 (1.00 – 1.00)	9.5E-03	1.00 (1.00 – 1.00)	2.0E-01	1.00 (0.99 – 1.00)	1.00 (1.00 – 1.00)
386.9	Dizziness and giddiness (Light-headedness and vertigo)	Per88	0.99 (0.99 – 1.00)	1.0E-02	0.99 (0.99 – 1.00)	4.6E-01	0.99 (0.99 – 1.00)	0.99 (0.99 – 1.00)
701.2	Scar conditions and fibrosis of skin	Per88	0.99 (0.98 – 1.00)	1.0E-02	0.99 (0.98 – 1.00)	7.8E-01	0.99 (0.98 – 1.00)	0.99 (0.98 – 1.00)
418.1	Precordial pain	Per88	1.01 (1.00 – 1.02)	1.1E-02	1.01 (1.00 – 1.02)	3.7E-01	1.00 (0.99 – 1.02)	1.02 (1.01 – 1.04)
340.1	Migraine with aura	Per88	0.99 (0.98 – 1.00)	1.1E-02	0.99 (0.98 – 1.00)	6.5E-01	0.98 (0.96 – 1.01)	0.99 (0.98 – 1.00)
519.8	Other diseases of respiratory system, NEC	AHI 3%	1.01 (1.00 – 1.01)	1.1E-02	1.01 (1.00 – 1.01)	1.8E-01	1.01 (1.00 – 1.01)	1.00 (1.00 – 1.01)
480.11	Pneumococcal pneumonia	AHI 3%	1.01 (1.00 – 1.02)	1.1E-02	1.01 (1.00 – 1.02)	5.2E-01	1.01 (1.00 – 1.02)	1.01 (1.00 – 1.02)
306	Other mental disorder	Per88	1.01 (1.00 – 1.01)	1.1E-02	1.01 (1.00 – 1.01)	8.4E-01	1.01 (1.00 – 1.02)	1.00 (1.00 – 1.01)
296	Mood disorders	AHI 3%	1.00 (1.00 – 1.01)	1.1E-02	1.00 (1.00 – 1.01)	3.6E-01	1.01 (1.00 – 1.01)	1.00 (1.00 – 1.01)
458.9	Hypotension NOS	AHI 3%	1.01 (1.00 – 1.01)	1.2E-02	1.01 (1.00 – 1.01)	2.0E-02	1.01 (1.00 – 1.01)	1.00 (0.99 – 1.01)
368	Visual disturbances	AHI 3%	1.00 (0.99 – 1.00)	1.2E-02	1.00 (0.99 – 1.00)	4.4E-01	1.00 (0.99 – 1.00)	0.99 (0.99 – 1.00)
381.1	Otitis media	Per88	1.02 (1.00 – 1.03)	1.2E-02	1.02 (1.00 – 1.03)	1.6E-01	1.02 (1.00 – 1.04)	1.01 (1.00 – 1.03)
840.3	Joint/ligament sprain	AHI 3%	1.00 (0.99 – 1.00)	1.3E-02	1.00 (0.99 – 1.00)	6.5E-01	0.99 (0.99 – 1.00)	1.00 (0.99 – 1.00)
278.1	Obesity	AHI 3%	1.00 (1.00 – 1.00)	1.3E-02	1.00 (1.00 – 1.00)	5.2E-04	1.00 (1.00 – 1.00)	1.00 (1.00 – 1.00)
411.8	Other chronic ischemic heart disease, unspecified	AHI 3%	1.01 (1.00 – 1.02)	1.4E-02	1.01 (1.00 – 1.02)	8.1E-02	1.01 (1.00 – 1.01)	1.02 (1.01 – 1.04)
770	Myalgia and myositis unspecified	AHI 3%	1.00 (0.99 – 1.00)	1.4E-02	1.00 (0.99 – 1.00)	1.5E-01	1.00 (0.99 – 1.01)	0.99 (0.99 – 1.00)
427.22	Atrial flutter	Per88	1.02 (1.00 – 1.03)	1.5E-02	1.02 (1.00 – 1.03)	8.0E-02	1.01 (1.00 – 1.03)	1.04 (1.02 – 1.07)
578.9	Hemorrhage of gastrointestinal tract	Per88	1.02 (1.00 – 1.03)	1.6E-02	1.01 (1.00 – 1.03)	6.1E-01	1.01 (1.00 – 1.03)	1.01 (0.99 – 1.04)
531.4	Peptic ulcer, site unspecified	Per88	1.02 (1.00 – 1.04)	1.6E-02	1.02 (1.00 – 1.04)	4.5E-01	1.02 (1.00 – 1.05)	1.02 (0.99 – 1.04)
317.1	Alcoholism	AHI 3%	1.01 (1.00 – 1.01)	1.7E-02	1.01 (1.00 – 1.01)	6.5E-01	1.00 (1.00 – 1.01)	1.01 (1.00 – 1.02)
279	Disorders involving the immune mechanism	Per88	1.02 (1.00 – 1.03)	1.7E-02	1.01 (1.00 – 1.03)	9.5E-01	1.02 (1.00 – 1.03)	1.02 (1.00 – 1.03)
416	Cardiomegaly	AHI 3%	1.01 (1.00 – 1.01)	1.7E-02	1.01 (1.00 – 1.01)	2.1E-02	1.00 (1.00 – 1.01)	1.02 (1.01 – 1.03)
278.11	Morbid obesity	AHI 3%	1.00 (1.00 – 1.00)	1.7E-02	1.00 (1.00 – 1.00)	2.4E-02	1.00 (1.00 – 1.01)	1.00 (1.00 – 1.00)
516.1	Hemoptysis	Per88	1.02 (1.00 – 1.04)	1.8E-02	1.02 (1.00 – 1.03)	3.2E-01	1.03 (1.00 – 1.05)	1.02 (0.99 – 1.04)
250.1	Type 1 diabetes	AHI 3%	1.01 (1.00 – 1.02)	1.9E-02	1.01 (1.00 – 1.02)	9.4E-02	1.00 (0.99 – 1.01)	1.02 (1.01 – 1.03)
420.2	Pericarditis	AHI 3%	1.01 (1.00 – 1.01)	1.9E-02	1.01 (1.00 – 1.01)	5.5E-01	1.01 (1.00 – 1.02)	1.01 (1.00 – 1.02)
172.21	Basal cell carcinoma	Per88	0.98 (0.97 – 1.00)	2.0E-02	0.98 (0.97 – 1.00)	5.8E-01	0.99 (0.98 – 1.01)	0.98 (0.96 – 1.00)
452.2	Deep vein thrombosis [DVT]	AHI 3%	0.99 (0.99 – 1.00)	2.1E-02	0.99 (0.99 – 1.00)	4.3E-01	0.99 (0.99 – 1.00)	0.99 (0.99 – 1.00)
564.1	Irritable Bowel Syndrome	AHI 3%	1.00 (0.99 – 1.00)	2.1E-02	1.00 (0.99 – 1.00)	1.3E-01	0.99 (0.99 – 1.00)	1.00 (0.99 – 1.00)
599.9	Other abnormality of urination	AHI 3%	1.00 (0.99 – 1.00)	2.2E-02	1.00 (0.99 – 1.00)	5.7E-02	1.00 (0.99 – 1.00)	1.00 (0.99 – 1.00)
452	Other venous embolism and thrombosis	AHI 3%	1.00 (0.99 – 1.00)	2.2E-02	1.00 (0.99 – 1.00)	1.5E-01	1.00 (0.99 – 1.00)	0.99 (0.99 – 1.00)
427.12	Paroxysmal ventricular tachycardia	AHI 3%	1.01 (1.00 – 1.01)	2.2E-02	1.01 (1.00 – 1.01)	6.3E-01	1.01 (1.00 – 1.01)	1.01 (0.99 – 1.02)
292	Neurological disorders	Per88	0.99 (0.98 – 1.00)	2.3E-02	0.99 (0.98 – 1.00)	2.9E-01	0.99 (0.98 – 1.01)	0.98 (0.97 – 1.00)

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PheCode	Disease	Sleep statistic	Risk ratio	P-value	Risk ratio (adj pulmonary disorders)	Sleep statistic x sex interaction p-value	Risk ratio (Men)	Risk ratio (Women)
807	Fracture of ribs	AHI 3%	1.01 (1.00 – 1.02)	2.3E-02	1.01 (1.00 – 1.02)	8.7E-01	1.01 (1.00 – 1.02)	1.01 (1.00 – 1.02)
772.3	Muscle weakness	AHI 3%	0.99 (0.99 – 1.00)	2.3E-02	0.99 (0.99 – 1.00)	5.9E-01	0.99 (0.98 – 1.00)	1.00 (0.99 – 1.00)
577.3	Cyst and pseudocyst of pancreas	Per88	1.02 (1.00 – 1.04)	2.3E-02	1.02 (1.00 – 1.03)	8.8E-01	1.02 (1.00 – 1.05)	1.02 (0.99 – 1.04)
290.2	Delirium due to conditions classified elsewhere	AHI 3%	1.01 (1.00 – 1.02)	2.4E-02	1.01 (1.00 – 1.02)	5.2E-01	1.01 (1.00 – 1.01)	1.01 (1.00 – 1.03)
427.11	Paroxysmal supraventricular tachycardia	Per88	1.01 (1.00 – 1.02)	2.5E-02	1.01 (1.00 – 1.02)	2.3E-01	1.00 (0.98 – 1.02)	1.02 (1.01 – 1.04)
427.6	Premature beats	Per88	1.01 (1.00 – 1.02)	2.5E-02	1.01 (1.00 – 1.02)	4.1E-01	1.01 (1.00 – 1.02)	1.01 (0.99 – 1.03)
130.1	Lyme disease	Per88	0.98 (0.96 – 1.00)	2.5E-02	0.98 (0.96 – 1.00)	5.3E-01	0.98 (0.96 – 1.00)	0.98 (0.96 – 1.01)
474.2	Chronic tonsillitis and adenoiditis	AHI 3%	1.01 (1.00 – 1.01)	2.6E-02	1.01 (1.00 – 1.01)	1.9E-02	1.00 (0.99 – 1.01)	1.01 (1.00 – 1.02)
550.4	Umbilical hernia	Per88	1.01 (1.00 – 1.03)	2.6E-02	1.01 (1.00 – 1.03)	1.9E-01	1.01 (1.00 – 1.03)	1.01 (0.99 – 1.03)
368	Visual disturbances	Per88	0.99 (0.98 – 1.00)	2.6E-02	0.99 (0.98 – 1.00)	1.7E-02	0.98 (0.97 – 0.99)	1.00 (0.99 – 1.01)
306.9	Tension headache	Per88	0.99 (0.98 – 1.00)	2.7E-02	0.99 (0.98 – 1.00)	2.6E-02	0.99 (0.97 – 1.01)	0.99 (0.98 – 1.00)
414	Other forms of chronic heart disease	AHI 3%	1.01 (1.00 – 1.01)	2.7E-02	1.01 (1.00 – 1.01)	6.1E-01	1.01 (1.00 – 1.01)	1.00 (0.99 – 1.01)
338.2	Chronic pain	AHI 3%	1.00 (1.00 – 1.00)	2.7E-02	1.00 (1.00 – 1.00)	4.8E-02	1.00 (0.99 – 1.00)	1.00 (1.00 – 1.00)
782.3	Edema	AHI 3%	1.00 (1.00 – 1.01)	2.8E-02	1.00 (1.00 – 1.01)	5.9E-03	1.00 (1.00 – 1.01)	1.00 (1.00 – 1.01)
496	Chronic airway obstruction	AHI 3%	0.99 (0.99 – 1.00)	2.9E-02	0.99 (0.99 – 1.00)	8.1E-01	1.00 (0.99 – 1.00)	0.99 (0.98 – 1.00)
473	Diseases of the larynx and vocal cords	AHI 3%	1.01 (1.00 – 1.01)	3.0E-02	1.01 (1.00 – 1.01)	3.4E-01	1.01 (1.00 – 1.01)	1.00 (1.00 – 1.01)
465	Acute upper respiratory infections of multiple or unspecified sites	AHI 3%	1.00 (1.00 – 1.00)	3.0E-02	1.00 (1.00 – 1.00)	3.0E-01	1.00 (1.00 – 1.00)	1.00 (1.00 – 1.01)
269	Proteinuria	Per88	1.01 (1.00 – 1.03)	3.1E-02	1.01 (1.00 – 1.03)	2.5E-01	1.02 (1.00 – 1.04)	1.01 (0.98 – 1.03)
300.4	Dysthymic disorder	AHI 3%	1.00 (0.99 – 1.00)	3.2E-02	1.00 (0.99 – 1.00)	3.8E-02	0.99 (0.98 – 1.00)	1.00 (1.00 – 1.01)
565.1	Anal and rectal polyp	AHI 3%	1.00 (1.00 – 1.01)	3.2E-02	1.00 (1.00 – 1.01)	1.6E-01	1.00 (1.00 – 1.01)	1.01 (1.00 – 1.02)
427.3	Other specified cardiac dysrhythmias	Per88	0.99 (0.98 – 1.00)	3.2E-02	0.99 (0.98 – 1.00)	1.7E-01	0.99 (0.98 – 1.00)	1.00 (0.99 – 1.01)
041	Bacterial infection NOS	AHI 3%	1.01 (1.00 – 1.01)	3.3E-02	1.01 (1.00 – 1.01)	1.5E-02	1.01 (1.01 – 1.02)	1.00 (0.99 – 1.01)
250.1	Type 1 diabetes	Per88	1.02 (1.00 – 1.04)	3.4E-02	1.02 (1.00 – 1.04)	1.1E-01	1.00 (0.98 – 1.03)	1.03 (1.01 – 1.06)
772.2	Spasm of muscle	AHI 3%	1.00 (0.99 – 1.00)	3.5E-02	1.00 (0.99 – 1.00)	2.0E-01	1.00 (0.99 – 1.00)	0.99 (0.99 – 1.00)
569	Other disorders of intestine	Per88	1.01 (1.00 – 1.01)	3.5E-02	1.01 (1.00 – 1.01)	5.7E-01	1.01 (1.00 – 1.02)	1.01 (1.00 – 1.02)
296	Mood disorders	Per88	1.01 (1.00 – 1.01)	3.5E-02	1.01 (1.00 – 1.01)	8.1E-01	1.01 (1.00 – 1.02)	1.01 (1.00 – 1.02)
473	Diseases of the larynx and vocal cords	Per88	1.01 (1.00 – 1.02)	3.5E-02	1.01 (1.00 – 1.02)	5.4E-01	1.01 (0.99 – 1.03)	1.01 (1.00 – 1.03)
557	Intestinal malabsorption (non-celiac)	AHI 3%	0.99 (0.99 – 1.00)	3.6E-02	0.99 (0.99 – 1.00)	3.0E-02	1.00 (0.99 – 1.01)	0.99 (0.98 – 1.00)
272.13	Mixed hyperlipidemia	AHI 3%	1.00 (1.00 – 1.01)	3.6E-02	1.00 (1.00 – 1.01)	9.5E-01	1.00 (1.00 – 1.01)	1.00 (1.00 – 1.01)
327.41	Organic or persistent insomnia	Per88	0.99 (0.98 – 1.00)	3.6E-02	0.99 (0.98 – 1.00)	8.4E-01	0.99 (0.98 – 1.01)	0.98 (0.97 – 1.00)
476	Allergic rhinitis	Per88	0.99 (0.99 – 1.00)	3.6E-02	0.99 (0.99 – 1.00)	5.5E-01	0.99 (0.98 – 1.00)	1.00 (0.99 – 1.00)
558	Noninfectious gastroenteritis	AHI 3%	1.00 (1.00 – 1.01)	3.6E-02	1.00 (1.00 – 1.01)	1.8E-01	1.01 (1.00 – 1.01)	1.00 (1.00 – 1.01)
477	Epistaxis or throat hemorrhage	Per88	1.01 (1.00 – 1.03)	3.6E-02	1.01 (1.00 – 1.03)	8.9E-01	1.01 (0.99 – 1.03)	1.02 (1.00 – 1.04)
277.51	Lipoprotein disorders	Per88	0.98 (0.96 – 1.00)	3.7E-02	0.98 (0.96 – 1.00)	8.8E-01	0.97 (0.95 – 1.00)	0.98 (0.95 – 1.02)

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PheCode	Disease	Sleep statistic	Risk ratio	P-value	Risk ratio (adj pulmonary disorders)	Sleep statistic x sex interaction p-value	Risk ratio (Men)	Risk ratio (Women)
276.6	Fluid overload	AHI 3%	1.01 (1.00 – 1.01)	3.7E-02	1.01 (1.00 – 1.01)	1.4E-01	1.01 (1.00 – 1.02)	1.00 (0.99 – 1.01)
527.7	Disturbance of salivary secretion	AHI 3%	1.01 (1.00 – 1.01)	3.8E-02	1.01 (1.00 – 1.01)	9.8E-01	1.01 (1.00 – 1.02)	1.01 (1.00 – 1.02)
472	Chronic pharyngitis and nasopharyngitis	AHI 3%	1.00 (1.00 – 1.01)	3.9E-02	1.00 (1.00 – 1.01)	9.7E-01	1.00 (1.00 – 1.01)	1.00 (1.00 – 1.01)
550.4	Umbilical hernia	AHI 3%	1.01 (1.00 – 1.01)	4.0E-02	1.01 (1.00 – 1.01)	1.1E-01	1.01 (1.00 – 1.01)	1.00 (0.99 – 1.01)
452.2	Deep vein thrombosis [DVT]	Per88	1.01 (1.00 – 1.02)	4.2E-02	1.01 (1.00 – 1.02)	3.3E-01	1.00 (0.98 – 1.02)	1.02 (1.01 – 1.04)
704.8	Other specified diseases of hair and hair follicles	Per88	0.99 (0.98 – 1.00)	4.3E-02	0.99 (0.98 – 1.00)	3.3E-01	0.98 (0.97 – 1.00)	1.00 (0.98 – 1.01)
722.1	Displacement of intervertebral disc	AHI 3%	1.00 (0.99 – 1.00)	4.4E-02	1.00 (0.99 – 1.00)	6.1E-01	1.00 (0.99 – 1.00)	1.00 (0.99 – 1.00)
747.11	Cardiac shunt/ heart septal defect	AHI 3%	0.99 (0.99 – 1.00)	4.5E-02	0.99 (0.99 – 1.00)	9.1E-01	0.99 (0.98 – 1.00)	1.00 (0.99 – 1.01)
789	Nausea and vomiting	AHI 3%	1.00 (1.00 – 1.00)	4.6E-02	1.00 (1.00 – 1.00)	5.8E-03	1.00 (1.00 – 1.00)	1.00 (0.99 – 1.00)
196	Radiotherapy	AHI 3%	1.00 (1.00 – 1.01)	4.6E-02	1.00 (1.00 – 1.01)	3.4E-01	1.01 (1.00 – 1.01)	1.00 (1.00 – 1.01)
427.61	Supraventricular premature beats	Per88	1.02 (1.00 – 1.03)	4.6E-02	1.01 (1.00 – 1.03)	5.3E-01	1.01 (0.99 – 1.03)	1.02 (0.99 – 1.04)
278.4	Abnormal weight gain	Per88	0.99 (0.98 – 1.00)	4.8E-02	0.99 (0.98 – 1.00)	9.5E-03	1.00 (0.98 – 1.02)	0.99 (0.98 – 1.00)
452	Other venous embolism and thrombosis	Per88	1.01 (1.00 – 1.02)	4.8E-02	1.01 (1.00 – 1.02)	3.1E-01	1.00 (0.99 – 1.02)	1.02 (1.00 – 1.03)
292.3	Memory loss	Per88	0.99 (0.98 – 1.00)	4.8E-02	0.99 (0.98 – 1.00)	7.0E-01	0.99 (0.98 – 1.00)	0.99 (0.98 – 1.00)
687.1	Rash and other nonspecific skin eruption	AHI 3%	1.00 (1.00 – 1.00)	4.9E-02	1.00 (1.00 – 1.00)	2.1E-01	1.00 (0.99 – 1.00)	1.00 (1.00 – 1.00)
455	Hemorrhoids	AHI 3%	1.00 (1.00 – 1.00)	5.0E-02	1.00 (1.00 – 1.00)	7.6E-01	1.00 (0.99 – 1.00)	1.00 (0.99 – 1.00)
401.21	Hypertensive heart disease	AHI 3%	1.01 (1.00 – 1.01)	5.0E-02	1.01 (1.00 – 1.01)	5.8E-01	1.00 (1.00 – 1.01)	1.01 (1.00 – 1.02)
807	Fracture of ribs	Per88	1.02 (1.00 – 1.03)	5.0E-02	1.01 (1.00 – 1.03)	4.6E-01	1.01 (0.98 – 1.03)	1.02 (1.00 – 1.05)
296.2	Depression	AHI 3%	1.00 (1.00 – 1.00)	5.1E-02	1.00 (1.00 – 1.00)	7.6E-01	1.00 (0.99 – 1.00)	1.00 (1.00 – 1.00)
261.2	Vitamin B-complex deficiencies	Per88	0.99 (0.97 – 1.00)	5.1E-02	0.99 (0.97 – 1.00)	7.0E-01	0.99 (0.97 – 1.02)	0.98 (0.96 – 1.00)
345.1	Epilepsy	AHI 3%	0.99 (0.99 – 1.00)	5.1E-02	0.99 (0.99 – 1.00)	9.7E-01	0.99 (0.98 – 1.00)	1.00 (0.99 – 1.00)
401.3	Other hypertensive complications	Per88	1.01 (1.00 – 1.03)	5.2E-02	1.01 (1.00 – 1.03)	6.7E-01	1.01 (1.00 – 1.03)	1.01 (0.99 – 1.03)
292	Neurological disorders	AHI 3%	1.00 (0.99 – 1.00)	5.3E-02	1.00 (0.99 – 1.00)	2.9E-03	1.00 (0.99 – 1.00)	0.99 (0.99 – 1.00)
367.4	Presbyopia	AHI 3%	1.00 (0.99 – 1.00)	5.5E-02	1.00 (0.99 – 1.00)	4.7E-02	1.00 (0.99 – 1.00)	0.99 (0.98 – 1.00)
496.3	Bronchiectasis	Per88	1.02 (1.00 – 1.03)	5.6E-02	1.01 (0.99 – 1.03)	9.6E-01	1.01 (0.99 – 1.03)	1.02 (1.00 – 1.05)
306	Other mental disorder	AHI 3%	1.00 (1.00 – 1.01)	5.7E-02	1.00 (1.00 – 1.01)	1.9E-01	1.00 (1.00 – 1.01)	1.00 (1.00 – 1.01)
593.2	Microscopic hematuria	AHI 3%	1.00 (1.00 – 1.01)	5.7E-02	1.00 (1.00 – 1.01)	2.8E-01	1.00 (1.00 – 1.01)	1.00 (1.00 – 1.01)
575.7	Other disorders of gallbladder	AHI 3%	1.01 (1.00 – 1.01)	5.8E-02	1.01 (1.00 – 1.01)	7.3E-01	1.00 (1.00 – 1.01)	1.01 (1.00 – 1.01)
530.9	Heartburn	AHI 3%	1.00 (0.99 – 1.00)	6.0E-02	1.00 (0.99 – 1.00)	3.4E-01	1.00 (0.99 – 1.00)	1.00 (0.99 – 1.00)
427.5	Arrhythmia (cardiac) NOS	Per88	1.01 (1.00 – 1.01)	6.0E-02	1.00 (1.00 – 1.01)	1.2E-01	1.00 (0.99 – 1.01)	1.01 (1.00 – 1.02)
798.1	Chronic fatigue syndrome	Per88	0.99 (0.98 – 1.00)	6.3E-02	0.99 (0.98 – 1.00)	6.4E-01	0.99 (0.98 – 1.01)	0.99 (0.98 – 1.00)
374.3	Ptosis of eyelid	Per88	0.98 (0.97 – 1.00)	6.3E-02	0.98 (0.96 – 1.00)	9.4E-01	0.97 (0.94 – 1.00)	0.99 (0.97 – 1.01)
526.41	Temporomandibular joint disorder, unspecified	AHI 3%	1.00 (0.99 – 1.00)	6.4E-02	1.00 (0.99 – 1.00)	7.3E-01	0.99 (0.98 – 1.00)	0.99 (0.99 – 1.00)
781	Symptoms involving nervous and musculoskeletal systems	Per88	1.01 (1.00 – 1.02)	6.5E-02	1.01 (1.00 – 1.01)	4.4E-01	1.01 (0.99 – 1.02)	1.01 (1.00 – 1.02)

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PheCode	Disease	Sleep statistic	Risk ratio	P-value	Risk ratio (adj pulmonary disorders)	Sleep statistic x sex interaction p-value	Risk ratio (Men)	Risk ratio (Women)
382	Otalgia	Per88	0.99 (0.99 – 1.00)	6.5E-02	0.99 (0.99 – 1.00)	3.9E-01	0.99 (0.98 – 1.01)	0.99 (0.98 – 1.00)
291.4	Specific nonpsychotic mental disorders due to brain damage	AHI 3%	0.99 (0.99 – 1.00)	6.5E-02	0.99 (0.99 – 1.00)	1.9E-01	1.00 (0.99 – 1.00)	0.99 (0.98 – 1.00)
740.9	Osteoarthritis NOS	Per88	1.00 (1.00 – 1.01)	6.5E-02	1.00 (1.00 – 1.01)	7.1E-01	1.00 (0.99 – 1.01)	1.01 (1.00 – 1.01)
426.31	Right bundle branch block	Per88	1.01 (1.00 – 1.03)	6.6E-02	1.01 (1.00 – 1.03)	8.7E-01	1.01 (1.00 – 1.03)	1.02 (0.99 – 1.05)
402	Elevated blood pressure reading without diagnosis of hypertension	AHI 3%	1.00 (1.00 – 1.00)	6.6E-02	1.00 (1.00 – 1.00)	4.6E-01	1.00 (1.00 – 1.00)	1.00 (1.00 – 1.01)
304	Adjustment reaction	AHI 3%	1.00 (0.99 – 1.00)	6.6E-02	1.00 (0.99 – 1.00)	3.5E-01	1.00 (0.99 – 1.00)	1.00 (1.00 – 1.00)
280.2	Iron deficiency anemia secondary to blood loss (chronic)	Per88	1.01 (1.00 – 1.03)	6.7E-02	1.01 (1.00 – 1.03)	4.2E-01	1.03 (1.01 – 1.05)	1.01 (1.00 – 1.03)
512.9	Other dyspnea	AHI 3%	1.00 (1.00 – 1.00)	6.7E-02	1.00 (1.00 – 1.00)	8.6E-01	1.00 (1.00 – 1.00)	1.00 (1.00 – 1.00)
726	Peripheral enthesopathies and allied syndromes	Per88	0.99 (0.99 – 1.00)	6.8E-02	0.99 (0.99 – 1.00)	2.4E-01	0.99 (0.98 – 1.00)	1.00 (0.99 – 1.01)
300.12	Agoraphobia, social phobia, and panic disorder	AHI 3%	1.00 (0.99 – 1.00)	6.8E-02	1.00 (0.99 – 1.00)	3.5E-01	1.00 (0.99 – 1.00)	1.00 (0.99 – 1.00)
594.1	Calculus of kidney	Per88	0.99 (0.98 – 1.00)	6.9E-02	0.99 (0.98 – 1.00)	8.0E-01	0.99 (0.98 – 1.00)	0.99 (0.98 – 1.01)
561.1	Diarrhea	Per88	1.01 (1.00 – 1.01)	7.0E-02	1.00 (1.00 – 1.01)	6.8E-01	1.00 (0.99 – 1.01)	1.01 (1.00 – 1.01)
715	Other inflammatory spondylopathies	AHI 3%	0.99 (0.98 – 1.00)	7.0E-02	0.99 (0.98 – 1.00)	8.9E-01	0.99 (0.98 – 1.00)	0.99 (0.98 – 1.01)
578.9	Hemorrhage of gastrointestinal tract	AHI 3%	1.00 (1.00 – 1.01)	7.1E-02	1.00 (1.00 – 1.01)	5.8E-01	1.00 (1.00 – 1.01)	1.01 (1.00 – 1.02)
726.2	Synoviopathy	Per88	0.99 (0.97 – 1.00)	7.2E-02	0.99 (0.97 – 1.00)	4.9E-01	0.99 (0.97 – 1.02)	0.97 (0.95 – 1.00)
345	Epilepsy, recurrent seizures, convulsions	AHI 3%	1.00 (0.99 – 1.00)	7.3E-02	1.00 (0.99 – 1.00)	1.1E-01	1.00 (0.99 – 1.00)	0.99 (0.99 – 1.00)
130.1	Lyme disease	AHI 3%	0.99 (0.99 – 1.00)	7.5E-02	0.99 (0.99 – 1.00)	7.5E-01	0.99 (0.99 – 1.00)	1.00 (0.99 – 1.01)
747.11	Cardiac shunt/ heart septal defect	Per88	1.01 (1.00 – 1.03)	7.5E-02	1.01 (1.00 – 1.03)	2.8E-01	1.03 (1.01 – 1.05)	1.00 (0.98 – 1.03)
244.4	Hypothyroidism NOS	Per88	1.01 (1.00 – 1.01)	7.5E-02	1.00 (1.00 – 1.01)	7.2E-01	1.00 (0.99 – 1.02)	1.01 (1.00 – 1.01)
586	Other disorders of the kidney and ureters	Per88	1.01 (1.00 – 1.02)	7.6E-02	1.01 (1.00 – 1.02)	2.0E-01	1.01 (0.99 – 1.02)	1.01 (0.99 – 1.03)
689	Disorder of skin and subcutaneous tissue NOS	Per88	1.00 (0.99 – 1.00)	7.7E-02	1.00 (0.99 – 1.00)	1.7E-02	0.99 (0.99 – 1.00)	1.00 (0.99 – 1.01)
720.1	Spinal stenosis of lumbar region	Per88	1.01 (1.00 – 1.02)	7.9E-02	1.01 (1.00 – 1.02)	4.3E-01	1.01 (0.99 – 1.02)	1.01 (1.00 – 1.03)
454.1	Varicose veins of lower extremity	AHI 3%	1.00 (0.99 – 1.00)	8.1E-02	1.00 (0.99 – 1.00)	8.1E-01	0.99 (0.98 – 1.00)	1.00 (0.99 – 1.00)
564	Functional digestive disorders	AHI 3%	1.01 (1.00 – 1.01)	8.4E-02	1.01 (1.00 – 1.01)	9.3E-01	1.01 (1.00 – 1.02)	1.00 (0.99 – 1.01)
300.8	Acute reaction to stress	Per88	0.99 (0.97 – 1.00)	8.4E-02	0.99 (0.98 – 1.00)	2.0E-01	0.99 (0.96 – 1.02)	0.99 (0.97 – 1.00)
819	Skull and face fracture and other intracranial injury	AHI 3%	0.99 (0.99 – 1.00)	8.5E-02	0.99 (0.99 – 1.00)	1.2E-01	1.00 (0.99 – 1.00)	0.99 (0.98 – 1.00)
428.3	Heart failure with reduced EF [Systolic or combined heart failure]	AHI 3%	1.01 (1.00 – 1.01)	8.5E-02	1.01 (1.00 – 1.01)	8.8E-01	1.00 (1.00 – 1.01)	1.00 (0.99 – 1.02)
456	Chronic venous insufficiency [CVI]	AHI 3%	1.00 (0.99 – 1.00)	8.7E-02	1.00 (0.99 – 1.00)	2.3E-01	0.99 (0.99 – 1.00)	0.99 (0.99 – 1.00)
427.9	Palpitations	Per88	1.00 (0.99 – 1.00)	8.8E-02	0.99 (0.99 – 1.00)	3.5E-02	0.99 (0.98 – 1.00)	0.99 (0.99 – 1.00)
433.21	Cerebral artery occlusion, with cerebral infarction	AHI 3%	1.00 (1.00 – 1.01)	8.8E-02	1.00 (1.00 – 1.01)	6.1E-01	1.00 (1.00 – 1.01)	1.00 (1.00 – 1.01)
702.1	Actinic keratosis	Per88	0.99 (0.98 – 1.00)	8.9E-02	0.99 (0.98 – 1.00)	6.3E-01	1.00 (0.98 – 1.01)	0.99 (0.97 – 1.01)

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PheCode	Disease	Sleep statistic	Risk ratio	P-value	Risk ratio (adj pulmonary disorders)	Sleep statistic x sex interaction p-value	Risk ratio (Men)	Risk ratio (Women)
272.11	Hypercholesterolemia	Per88	1.00 (0.99 – 1.00)	9.0E-02	1.00 (0.99 – 1.00)	9.0E-01	0.99 (0.99 – 1.00)	1.00 (0.99 – 1.01)
276.12	Hyposmolality and/or hyponatremia	Per88	1.01 (1.00 – 1.02)	9.0E-02	1.01 (1.00 – 1.02)	3.5E-01	1.00 (0.98 – 1.02)	1.02 (1.00 – 1.04)
290.3	Other persistent mental disorders due to conditions classified elsewhere	AHI 3%	0.99 (0.99 – 1.00)	9.2E-02	0.99 (0.99 – 1.00)	9.4E-01	0.99 (0.98 – 1.00)	1.00 (0.98 – 1.01)
573.7	Abnormal results of function study of liver	AHI 3%	1.00 (1.00 – 1.01)	9.2E-02	1.00 (1.00 – 1.01)	3.3E-01	1.00 (1.00 – 1.01)	1.00 (0.99 – 1.01)
053	Herpes zoster	AHI 3%	1.00 (1.00 – 1.01)	9.4E-02	1.00 (1.00 – 1.01)	1.7E-01	1.00 (0.99 – 1.01)	1.01 (1.00 – 1.01)
773	Pain in limb	AHI 3%	1.00 (1.00 – 1.00)	9.4E-02	1.00 (1.00 – 1.00)	4.0E-01	1.00 (1.00 – 1.00)	1.00 (1.00 – 1.00)
355.1	Chronic pain syndrome	Per88	1.01 (1.00 – 1.03)	9.5E-02	1.01 (1.00 – 1.03)	1.4E-01	1.01 (0.98 – 1.05)	1.01 (0.99 – 1.03)
280.1	Iron deficiency anemias, unspecified or not due to blood loss	AHI 3%	1.00 (0.99 – 1.00)	9.5E-02	1.00 (0.99 – 1.00)	2.9E-01	1.00 (0.99 – 1.00)	1.00 (1.00 – 1.01)
389.4	Tinnitus	AHI 3%	1.00 (0.99 – 1.00)	9.5E-02	1.00 (0.99 – 1.00)	5.1E-01	1.00 (1.00 – 1.00)	1.00 (0.99 – 1.00)
388	Other disorders of ear	Per88	0.99 (0.98 – 1.00)	9.6E-02	0.99 (0.98 – 1.00)	1.6E-01	0.98 (0.96 – 1.00)	1.00 (0.98 – 1.01)
690.1	Seborrheic dermatitis	Per88	0.99 (0.98 – 1.00)	9.8E-02	0.99 (0.98 – 1.00)	5.5E-01	1.00 (0.98 – 1.01)	0.99 (0.97 – 1.01)
459.9	Circulatory disease NEC	Per88	1.01 (1.00 – 1.02)	9.9E-02	1.01 (1.00 – 1.02)	4.3E-01	1.01 (1.00 – 1.02)	1.01 (1.00 – 1.03)
733	Other disorders of bone and cartilage	AHI 3%	1.00 (1.00 – 1.00)	1.0E-01	1.00 (1.00 – 1.00)	1.0E+00	1.00 (1.00 – 1.01)	1.00 (1.00 – 1.00)
288.1	Decreased white blood cell count	AHI 3%	0.99 (0.99 – 1.00)	1.0E-01	0.99 (0.99 – 1.00)	5.9E-01	0.99 (0.98 – 1.00)	0.99 (0.98 – 1.00)
366	Cataract	Per88	1.01 (1.00 – 1.02)	1.0E-01	1.01 (1.00 – 1.02)	3.7E-02	1.01 (1.00 – 1.02)	1.00 (0.99 – 1.02)
1013	Asphyxia and hypoxemia	AHI 3%	1.00 (1.00 – 1.01)	1.1E-01	1.00 (1.00 – 1.01)	1.9E-01	1.01 (1.00 – 1.02)	1.00 (0.99 – 1.01)
726.1	Enthesopathy	Per88	0.99 (0.99 – 1.00)	1.1E-01	0.99 (0.99 – 1.00)	1.3E-01	1.00 (0.99 – 1.01)	0.99 (0.98 – 1.00)
772	Symptoms of the muscles	Per88	0.99 (0.98 – 1.00)	1.1E-01	0.99 (0.98 – 1.00)	4.6E-01	1.00 (0.97 – 1.02)	0.98 (0.97 – 1.00)
585.4	Chronic kidney disease, Stage I or II	AHI 3%	1.01 (1.00 – 1.01)	1.1E-01	1.01 (1.00 – 1.01)	7.2E-02	1.00 (0.99 – 1.01)	1.01 (1.00 – 1.03)
735.3	Hallux valgus (Bunion)	AHI 3%	1.00 (0.99 – 1.00)	1.1E-01	1.00 (0.99 – 1.00)	3.6E-01	1.00 (0.99 – 1.01)	0.99 (0.99 – 1.00)
381.1	Otitis media	AHI 3%	1.00 (1.00 – 1.01)	1.1E-01	1.00 (1.00 – 1.01)	3.9E-01	1.00 (1.00 – 1.01)	1.00 (0.99 – 1.01)
368.2	Diplopia and disorders of binocular vision	AHI 3%	1.00 (0.99 – 1.00)	1.1E-01	1.00 (0.99 – 1.00)	6.0E-02	1.00 (0.99 – 1.01)	0.99 (0.98 – 1.00)
704.8	Other specified diseases of hair and hair follicles	AHI 3%	1.00 (0.99 – 1.00)	1.1E-01	1.00 (0.99 – 1.00)	2.6E-01	1.00 (0.99 – 1.00)	0.99 (0.99 – 1.00)
690.1	Seborrheic dermatitis	AHI 3%	1.00 (0.99 – 1.00)	1.1E-01	1.00 (0.99 – 1.00)	8.2E-01	1.00 (0.99 – 1.00)	1.00 (0.99 – 1.00)
704.1	Alopecia	AHI 3%	1.00 (1.00 – 1.00)	1.1E-01	1.00 (1.00 – 1.00)	2.1E-01	1.00 (1.00 – 1.01)	1.00 (0.99 – 1.00)
737.3	Kyphoscoliosis and scoliosis	Per88	1.01 (1.00 – 1.02)	1.1E-01	1.01 (1.00 – 1.02)	1.5E-01	1.02 (0.99 – 1.04)	1.00 (0.99 – 1.02)
946	Anaphylactic shock NOS	AHI 3%	1.00 (0.99 – 1.00)	1.2E-01	1.00 (0.99 – 1.00)	5.2E-01	1.00 (0.99 – 1.01)	0.99 (0.99 – 1.00)
496.2	Chronic bronchitis	AHI 3%	0.99 (0.99 – 1.00)	1.2E-01	0.99 (0.99 – 1.00)	9.2E-01	1.00 (0.99 – 1.01)	0.99 (0.98 – 1.00)
350.1	Abnormal involuntary movements	Per88	0.99 (0.98 – 1.00)	1.2E-01	0.99 (0.98 – 1.00)	6.1E-01	1.00 (0.98 – 1.01)	1.00 (0.98 – 1.01)
724.8	Other symptoms referable to back	AHI 3%	0.99 (0.99 – 1.00)	1.2E-01	0.99 (0.99 – 1.00)	8.0E-01	0.99 (0.98 – 1.00)	1.00 (0.99 – 1.01)
593	Hematuria	AHI 3%	1.00 (1.00 – 1.01)	1.2E-01	1.00 (1.00 – 1.01)	1.4E-01	1.00 (1.00 – 1.00)	1.00 (1.00 – 1.01)
327.71	Restless legs syndrome	Per88	0.99 (0.98 – 1.00)	1.2E-01	0.99 (0.98 – 1.00)	7.6E-01	1.00 (0.98 – 1.01)	0.99 (0.98 – 1.00)
594.8	Renal colic	Per88	0.98 (0.96 – 1.00)	1.2E-01	0.98 (0.96 – 1.00)	5.6E-01	0.98 (0.95 – 1.01)	0.99 (0.96 – 1.02)
740.9	Osteoarthritis NOS	AHI 3%	1.00 (1.00 – 1.00)	1.2E-01	1.00 (1.00 – 1.00)	5.5E-01	1.00 (0.99 – 1.00)	1.00 (1.00 – 1.00)

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PheCode	Disease	Sleep statistic	Risk ratio	P-value	Risk ratio (adj pulmonary disorders)	Sleep statistic x sex interaction p-value	Risk ratio (Men)	Risk ratio (Women)
136	Other infectious and parasitic diseases	AHI 3%	1.00 (1.00 – 1.01)	1.2E-01	1.00 (1.00 – 1.01)	4.4E-01	1.00 (1.00 – 1.01)	1.00 (1.00 – 1.01)
840.3	Joint/ligament sprain	Per88	0.99 (0.98 – 1.00)	1.2E-01	0.99 (0.98 – 1.00)	5.9E-01	0.99 (0.98 – 1.01)	0.99 (0.98 – 1.01)
429.3	Symptoms involving cardiovascular system	Per88	1.01 (1.00 – 1.01)	1.3E-01	1.00 (1.00 – 1.01)	1.4E-01	1.00 (0.99 – 1.01)	1.01 (1.00 – 1.03)
772	Symptoms of the muscles	AHI 3%	1.00 (0.99 – 1.00)	1.3E-01	1.00 (0.99 – 1.00)	2.3E-01	0.99 (0.98 – 1.00)	1.00 (0.99 – 1.00)
941	Adverse reaction to serum or vaccine	Per88	0.99 (0.98 – 1.00)	1.3E-01	0.99 (0.98 – 1.00)	4.2E-01	0.99 (0.97 – 1.01)	0.99 (0.97 – 1.00)
252.1	Hyperparathyroidism	AHI 3%	1.00 (1.00 – 1.01)	1.3E-01	1.00 (1.00 – 1.01)	3.6E-02	1.00 (0.98 – 1.01)	1.01 (1.00 – 1.02)
564.1	Irritable Bowel Syndrome	Per88	0.99 (0.99 – 1.00)	1.3E-01	0.99 (0.99 – 1.00)	9.1E-01	0.99 (0.98 – 1.01)	0.99 (0.98 – 1.00)
279	Disorders involving the immune mechanism	AHI 3%	1.00 (1.00 – 1.01)	1.3E-01	1.00 (1.00 – 1.01)	3.8E-02	1.01 (1.00 – 1.02)	1.00 (0.99 – 1.01)
458.1	Orthostatic hypotension	AHI 3%	1.00 (0.99 – 1.00)	1.3E-01	0.99 (0.99 – 1.00)	3.6E-01	0.99 (0.98 – 1.00)	1.00 (0.99 – 1.01)
338.2	Chronic pain	Per88	1.00 (1.00 – 1.01)	1.3E-01	1.00 (1.00 – 1.01)	2.6E-02	1.00 (0.99 – 1.00)	1.01 (1.00 – 1.01)
173	Neoplasm of uncertain behavior of skin	Per88	0.99 (0.99 – 1.00)	1.3E-01	0.99 (0.99 – 1.00)	6.5E-01	0.99 (0.98 – 1.00)	1.00 (0.99 – 1.01)
280.1	Iron deficiency anemias, unspecified or not due to blood loss	Per88	1.01 (1.00 – 1.01)	1.3E-01	1.00 (1.00 – 1.01)	6.4E-01	1.01 (0.99 – 1.02)	1.01 (1.00 – 1.02)
241.2	Nontoxic multinodular goiter	Per88	0.99 (0.98 – 1.00)	1.3E-01	0.99 (0.98 – 1.00)	7.5E-01	0.98 (0.95 – 1.01)	0.99 (0.97 – 1.00)
447	Other disorders of arteries and arterioles	AHI 3%	1.01 (1.00 – 1.01)	1.3E-01	1.01 (1.00 – 1.01)	7.7E-01	1.00 (0.99 – 1.01)	1.01 (1.00 – 1.02)
217.1	Nevus, non-neoplastic	Per88	0.99 (0.98 – 1.00)	1.3E-01	0.99 (0.98 – 1.00)	8.9E-02	0.98 (0.97 – 1.00)	1.00 (0.99 – 1.01)
696.41	Psoriasis vulgaris	AHI 3%	1.00 (1.00 – 1.01)	1.3E-01	1.00 (1.00 – 1.01)	2.5E-01	1.00 (0.99 – 1.01)	1.01 (1.00 – 1.02)
733	Other disorders of bone and cartilage	Per88	1.00 (1.00 – 1.01)	1.4E-01	1.00 (1.00 – 1.01)	5.4E-01	1.00 (0.99 – 1.01)	1.00 (0.99 – 1.01)
302.1	Decreased libido	AHI 3%	1.00 (0.99 – 1.00)	1.4E-01	1.00 (0.99 – 1.00)	5.8E-01	0.99 (0.99 – 1.00)	1.00 (0.99 – 1.01)
426.32	Left bundle branch block	AHI 3%	1.01 (1.00 – 1.01)	1.4E-01	1.01 (1.00 – 1.01)	3.6E-01	1.00 (1.00 – 1.01)	1.01 (1.00 – 1.02)
277	Other disorders of metabolism	AHI 3%	1.00 (0.99 – 1.00)	1.4E-01	1.00 (0.99 – 1.00)	2.8E-02	1.00 (0.99 – 1.01)	1.00 (0.99 – 1.00)
686.1	Carbuncle and furuncle	Per88	1.01 (1.00 – 1.03)	1.4E-01	1.01 (0.99 – 1.03)	1.1E-01	1.00 (0.97 – 1.03)	1.02 (1.00 – 1.04)
278.11	Morbid obesity	Per88	1.00 (1.00 – 1.01)	1.5E-01	1.00 (1.00 – 1.01)	2.2E-01	1.01 (1.00 – 1.02)	1.00 (0.99 – 1.01)
427.11	Paroxysmal supraventricular tachycardia	AHI 3%	1.00 (1.00 – 1.01)	1.5E-01	1.00 (1.00 – 1.01)	1.2E-01	1.00 (0.99 – 1.01)	1.00 (1.00 – 1.01)
442.1	Aortic aneurysm	Per88	1.02 (0.99 – 1.04)	1.5E-01	1.01 (0.99 – 1.04)	8.5E-02	0.99 (0.97 – 1.02)	1.06 (1.03 – 1.08)
196	Radiotherapy	Per88	1.01 (1.00 – 1.02)	1.5E-01	1.01 (1.00 – 1.02)	8.0E-01	1.01 (0.99 – 1.02)	1.01 (0.99 – 1.03)
701	Other hypertrophic and atrophic conditions of skin	Per88	1.00 (0.99 – 1.00)	1.5E-01	1.00 (0.99 – 1.00)	3.2E-01	0.99 (0.98 – 1.00)	0.99 (0.98 – 1.00)
426.32	Left bundle branch block	Per88	1.01 (0.99 – 1.03)	1.5E-01	1.01 (0.99 – 1.03)	3.9E-01	1.00 (0.98 – 1.03)	1.03 (1.00 – 1.06)
537	Other disorders of stomach and duodenum	Per88	0.99 (0.99 – 1.00)	1.6E-01	0.99 (0.99 – 1.00)	9.2E-01	1.00 (0.98 – 1.01)	1.00 (0.98 – 1.01)
586.4	Stricture/obstruction of ureter	Per88	0.99 (0.97 – 1.00)	1.6E-01	0.99 (0.97 – 1.01)	NA	1.00 (0.98 – 1.01)	NA
721.1	Spondylosis without myelopathy	AHI 3%	1.00 (1.00 – 1.00)	1.6E-01	1.00 (1.00 – 1.00)	5.3E-01	1.00 (0.99 – 1.00)	1.00 (0.99 – 1.00)
531.2	Gastric ulcer	Per88	1.01 (1.00 – 1.03)	1.6E-01	1.01 (0.99 – 1.03)	9.3E-01	1.00 (0.98 – 1.03)	1.01 (0.99 – 1.03)
292.2	Mild cognitive impairment	AHI 3%	1.00 (0.99 – 1.00)	1.6E-01	1.00 (0.99 – 1.00)	3.4E-02	1.00 (0.99 – 1.00)	1.00 (0.99 – 1.01)
300.1	Anxiety disorder	AHI 3%	1.00 (1.00 – 1.00)	1.6E-01	1.00 (1.00 – 1.00)	2.2E-03	1.00 (1.00 – 1.00)	1.00 (1.00 – 1.00)
965	Poisoning by analgesics, antipyretics, and	Per88	1.01 (1.00 – 1.02)	1.6E-01	1.00 (1.00 – 1.01)	5.1E-01	1.00 (0.98 – 1.03)	1.01 (0.99 – 1.02)

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PheCode	Disease	Sleep statistic	Risk ratio	P-value	Risk ratio (adj pulmonary disorders)	Sleep statistic x sex interaction p-value	Risk ratio (Men)	Risk ratio (Women)
	antirheumatics							
530.13	Barrett's esophagus	Per88	1.01 (1.00 – 1.03)	1.6E-01	1.01 (1.00 – 1.03)	1.2E-01	1.00 (0.98 – 1.02)	1.02 (1.00 – 1.05)
251.1	Hypoglycemia	Per88	1.01 (1.00 – 1.03)	1.6E-01	1.01 (0.99 – 1.03)	1.0E-01	1.02 (0.99 – 1.05)	1.01 (0.99 – 1.03)
599.4	Urinary incontinence	AHI 3%	1.00 (0.99 – 1.00)	1.6E-01	1.00 (0.99 – 1.00)	1.4E-01	1.00 (0.99 – 1.00)	1.00 (0.99 – 1.00)
763	Thoracic or lumbosacral neuritis or radiculitis, unspecified	AHI 3%	1.00 (1.00 – 1.00)	1.7E-01	1.00 (1.00 – 1.00)	9.2E-01	1.00 (0.99 – 1.00)	1.00 (0.99 – 1.00)
300.4	Dysthymic disorder	Per88	0.99 (0.99 – 1.00)	1.7E-01	0.99 (0.99 – 1.00)	1.7E-01	0.98 (0.96 – 1.00)	1.00 (0.99 – 1.01)
427.12	Paroxysmal ventricular tachycardia	Per88	1.01 (0.99 – 1.03)	1.7E-01	1.01 (0.99 – 1.03)	2.2E-01	1.01 (0.99 – 1.03)	1.00 (0.97 – 1.03)
727.6	Rupture of tendon, nontraumatic	Per88	0.99 (0.97 – 1.01)	1.7E-01	0.99 (0.97 – 1.01)	8.1E-01	0.98 (0.96 – 1.01)	0.99 (0.97 – 1.02)
785	Abdominal pain	Per88	1.00 (0.99 – 1.00)	1.7E-01	1.00 (0.99 – 1.00)	3.4E-01	0.99 (0.99 – 1.00)	1.00 (1.00 – 1.00)
287.3	Thrombocytopenia	AHI 3%	1.00 (1.00 – 1.01)	1.7E-01	1.00 (1.00 – 1.01)	8.0E-01	1.00 (1.00 – 1.01)	1.00 (0.99 – 1.01)
228.1	Hemangioma of skin and subcutaneous tissue	AHI 3%	1.00 (0.99 – 1.00)	1.7E-01	1.00 (0.99 – 1.00)	9.6E-01	1.00 (1.00 – 1.00)	1.00 (0.99 – 1.00)
386.9	Dizziness and giddiness (Light-headedness and vertigo)	AHI 3%	1.00 (1.00 – 1.00)	1.7E-01	1.00 (1.00 – 1.00)	3.0E-02	1.00 (1.00 – 1.00)	1.00 (0.99 – 1.00)
420.2	Pericarditis	Per88	1.01 (0.99 – 1.03)	1.7E-01	1.01 (0.99 – 1.03)	6.8E-01	1.01 (0.98 – 1.03)	1.02 (0.99 – 1.04)
172.2	Other non-epithelial cancer of skin	Per88	0.99 (0.98 – 1.00)	1.7E-01	0.99 (0.98 – 1.00)	1.2E-01	1.00 (0.98 – 1.01)	0.99 (0.97 – 1.01)
788	Syncope and collapse	Per88	1.00 (1.00 – 1.01)	1.7E-01	1.00 (1.00 – 1.01)	9.9E-01	1.01 (1.00 – 1.01)	1.01 (1.00 – 1.02)
172.21	Basal cell carcinoma	AHI 3%	1.00 (0.99 – 1.00)	1.7E-01	1.00 (0.99 – 1.00)	9.7E-01	1.00 (0.99 – 1.00)	1.00 (0.99 – 1.01)
454.11	Varicose veins of lower extremity, symptomatic	Per88	1.01 (1.00 – 1.02)	1.7E-01	1.01 (1.00 – 1.02)	3.7E-01	1.01 (0.99 – 1.04)	1.01 (0.99 – 1.02)
535.2	Atrophic gastritis	AHI 3%	1.00 (0.99 – 1.00)	1.8E-01	1.00 (0.99 – 1.00)	8.0E-02	1.00 (0.99 – 1.00)	1.00 (0.99 – 1.01)
380.1	Otitis externa	AHI 3%	1.00 (0.99 – 1.00)	1.8E-01	1.00 (0.99 – 1.00)	9.1E-01	1.00 (0.99 – 1.00)	1.00 (0.99 – 1.01)
242	Thyrotoxicosis with or without goiter	AHI 3%	1.00 (1.00 – 1.01)	1.8E-01	1.00 (1.00 – 1.01)	3.0E-01	1.01 (1.00 – 1.02)	1.00 (1.00 – 1.01)
703.1	Ingrowing nail	Per88	1.01 (0.99 – 1.03)	1.8E-01	1.01 (0.99 – 1.03)	6.2E-01	1.00 (0.98 – 1.03)	1.01 (0.99 – 1.04)
274.11	Gouty arthropathy	Per88	1.01 (0.99 – 1.03)	1.8E-01	1.01 (0.99 – 1.03)	3.5E-01	1.00 (0.98 – 1.02)	1.03 (0.99 – 1.06)
008.5	Bacterial enteritis	Per88	0.99 (0.98 – 1.00)	1.9E-01	0.99 (0.98 – 1.00)	8.6E-01	1.00 (0.98 – 1.01)	0.99 (0.98 – 1.00)
304	Adjustment reaction	Per88	1.00 (0.99 – 1.00)	1.9E-01	1.00 (0.99 – 1.00)	7.4E-01	1.00 (0.99 – 1.01)	0.99 (0.99 – 1.00)
938.2	Chronic dermatitis due to solar radiation	AHI 3%	1.00 (0.99 – 1.00)	1.9E-01	1.00 (0.99 – 1.00)	4.4E-01	1.00 (0.99 – 1.00)	1.00 (0.99 – 1.00)
313.1	Attention deficit hyperactivity disorder	AHI 3%	1.00 (1.00 – 1.00)	1.9E-01	1.00 (1.00 – 1.00)	2.8E-01	1.00 (0.99 – 1.00)	1.00 (0.99 – 1.00)
560.4	Other intestinal obstruction	Per88	1.01 (1.00 – 1.02)	1.9E-01	1.01 (0.99 – 1.02)	5.8E-03	1.03 (1.01 – 1.05)	0.99 (0.96 – 1.01)
716.9	Arthropathy NOS	AHI 3%	1.00 (0.99 – 1.00)	1.9E-01	1.00 (0.99 – 1.00)	2.2E-02	0.99 (0.98 – 1.00)	1.00 (1.00 – 1.01)
395.2	Nonrheumatic aortic valve disorders	AHI 3%	1.00 (1.00 – 1.01)	1.9E-01	1.00 (1.00 – 1.01)	1.3E-02	1.00 (0.99 – 1.01)	1.01 (1.00 – 1.02)
723	Other disorders of cervical region	Per88	0.99 (0.98 – 1.00)	1.9E-01	0.99 (0.98 – 1.01)	7.2E-01	0.99 (0.96 – 1.02)	0.99 (0.97 – 1.01)
289.9	Abnormality of red blood cells	Per88	1.01 (1.00 – 1.02)	1.9E-01	1.01 (1.00 – 1.02)	1.9E-01	1.01 (0.99 – 1.03)	1.01 (0.99 – 1.03)
536.8	Dyspepsia and other specified disorders of function of stomach	Per88	0.99 (0.99 – 1.00)	1.9E-01	0.99 (0.99 – 1.00)	9.5E-01	1.00 (0.99 – 1.02)	0.99 (0.98 – 1.00)
371.3	Inflammation of eyelids	Per88	0.99 (0.98 – 1.00)	2.0E-01	0.99 (0.98 – 1.01)	2.7E-01	0.98 (0.96 – 0.99)	1.00 (0.98 – 1.01)

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PheCode	Disease	Sleep statistic	Risk ratio	P-value	Risk ratio (adj pulmonary disorders)	Sleep statistic x sex interaction p-value	Risk ratio (Men)	Risk ratio (Women)
272.11	Hypercholesterolemia	AHI 3%	1.00 (1.00 – 1.00)	2.0E-01	1.00 (1.00 – 1.00)	9.9E-04	1.00 (1.00 – 1.00)	1.00 (1.00 – 1.01)
496.1	Emphysema	AHI 3%	1.00 (0.99 – 1.00)	2.0E-01	1.00 (0.99 – 1.00)	4.6E-01	1.00 (0.99 – 1.01)	0.99 (0.98 – 1.00)
278.1	Obesity	Per88	1.00 (0.99 – 1.00)	2.0E-01	1.00 (0.99 – 1.00)	3.3E-02	1.00 (0.99 – 1.00)	1.00 (0.99 – 1.00)
300.9	Posttraumatic stress disorder	Per88	1.01 (1.00 – 1.01)	2.0E-01	1.00 (1.00 – 1.01)	5.0E-01	1.01 (0.99 – 1.02)	1.01 (1.00 – 1.02)
350.2	Abnormality of gait	Per88	0.99 (0.98 – 1.00)	2.0E-01	0.99 (0.98 – 1.00)	9.6E-01	1.00 (0.98 – 1.01)	0.99 (0.97 – 1.01)
300.12	Agoraphobia, social phobia, and panic disorder	Per88	1.01 (1.00 – 1.01)	2.0E-01	1.01 (1.00 – 1.01)	7.4E-01	1.01 (0.99 – 1.02)	1.01 (1.00 – 1.02)
290.3	Other persistent mental disorders due to conditions classified elsewhere	Per88	0.99 (0.97 – 1.01)	2.0E-01	0.99 (0.97 – 1.01)	7.5E-01	1.00 (0.97 – 1.02)	0.98 (0.95 – 1.01)
379.9	Pain, swelling or discharge of eye	AHI 3%	1.00 (0.99 – 1.00)	2.0E-01	1.00 (0.99 – 1.00)	5.7E-01	1.00 (0.99 – 1.00)	1.00 (0.99 – 1.00)
078	Viral warts & HPV	Per88	0.99 (0.99 – 1.00)	2.0E-01	1.00 (0.99 – 1.00)	2.9E-01	0.99 (0.98 – 1.01)	1.00 (0.98 – 1.01)
840	Sprains and strains	Per88	1.00 (0.99 – 1.00)	2.1E-01	0.99 (0.99 – 1.00)	4.0E-01	1.00 (0.99 – 1.01)	0.99 (0.98 – 1.00)
530.14	Reflux esophagitis	Per88	0.99 (0.98 – 1.00)	2.1E-01	0.99 (0.98 – 1.00)	3.1E-01	0.98 (0.96 – 1.00)	1.00 (0.99 – 1.02)
327.71	Restless legs syndrome	AHI 3%	1.00 (0.99 – 1.00)	2.1E-01	1.00 (0.99 – 1.00)	2.2E-01	1.00 (0.99 – 1.00)	1.00 (0.99 – 1.00)
316	Substance addiction and disorders	AHI 3%	1.00 (1.00 – 1.01)	2.1E-01	1.00 (1.00 – 1.01)	2.0E-01	1.00 (1.00 – 1.01)	1.00 (1.00 – 1.01)
112	Candidiasis	AHI 3%	1.00 (0.99 – 1.00)	2.1E-01	1.00 (0.99 – 1.00)	1.6E-01	1.00 (1.00 – 1.01)	1.00 (0.99 – 1.00)
110.11	Dermatophytosis of nail	AHI 3%	1.00 (0.99 – 1.00)	2.2E-01	1.00 (0.99 – 1.00)	2.8E-01	1.00 (0.99 – 1.00)	1.00 (0.99 – 1.01)
261.4	Vitamin D deficiency	Per88	1.00 (0.99 – 1.00)	2.2E-01	1.00 (0.99 – 1.00)	3.8E-01	1.00 (0.99 – 1.01)	1.00 (0.99 – 1.00)
528	Diseases of the oral soft tissues, excluding lesions specific for gingiva and tongue	Per88	1.01 (1.00 – 1.02)	2.2E-01	1.01 (1.00 – 1.02)	7.3E-01	1.00 (0.98 – 1.03)	1.01 (0.99 – 1.02)
526	Diseases of the jaws	AHI 3%	1.00 (0.99 – 1.00)	2.2E-01	1.00 (0.99 – 1.00)	6.7E-01	1.00 (0.99 – 1.01)	1.00 (0.99 – 1.00)
428.4	Heart failure with preserved EF [Diastolic heart failure]	AHI 3%	1.00 (1.00 – 1.01)	2.2E-01	1.00 (1.00 – 1.01)	5.1E-01	1.00 (0.99 – 1.01)	1.01 (1.00 – 1.02)
300.13	Phobia	AHI 3%	1.00 (0.99 – 1.00)	2.2E-01	1.00 (0.99 – 1.00)	8.2E-01	0.99 (0.98 – 1.00)	1.00 (0.99 – 1.01)
327	Sleep disorders	Per88	1.00 (0.99 – 1.00)	2.2E-01	1.00 (0.99 – 1.00)	4.4E-01	1.00 (0.99 – 1.01)	0.99 (0.98 – 1.00)
594.3	Calculus of ureter	Per88	0.99 (0.96 – 1.01)	2.2E-01	0.99 (0.96 – 1.01)	4.2E-01	0.99 (0.97 – 1.02)	0.98 (0.95 – 1.02)
365	Glaucoma	Per88	1.01 (1.00 – 1.01)	2.2E-01	1.01 (1.00 – 1.01)	5.1E-01	1.01 (1.00 – 1.02)	1.00 (0.99 – 1.02)
415.2	Chronic pulmonary heart disease	AHI 3%	1.00 (1.00 – 1.01)	2.2E-01	1.00 (1.00 – 1.01)	6.6E-01	1.01 (1.00 – 1.02)	1.00 (0.99 – 1.01)
382	Otalgia	AHI 3%	1.00 (1.00 – 1.00)	2.3E-01	1.00 (1.00 – 1.00)	5.9E-01	1.00 (0.99 – 1.00)	1.00 (1.00 – 1.00)
278	Overweight, obesity and other hyperalimentation	AHI 3%	1.00 (1.00 – 1.00)	2.3E-01	1.00 (1.00 – 1.00)	3.6E-01	1.00 (1.00 – 1.01)	1.00 (1.00 – 1.00)
357	Inflammatory and toxic neuropathy	AHI 3%	1.00 (0.99 – 1.00)	2.3E-01	1.00 (0.99 – 1.00)	4.5E-01	1.00 (0.99 – 1.00)	1.00 (0.99 – 1.00)
366.2	Senile cataract	AHI 3%	1.00 (0.99 – 1.00)	2.4E-01	1.00 (0.99 – 1.00)	7.2E-01	1.00 (1.00 – 1.00)	1.00 (0.99 – 1.00)
565	Anal and rectal conditions	Per88	0.99 (0.98 – 1.00)	2.4E-01	0.99 (0.98 – 1.00)	6.3E-01	0.99 (0.98 – 1.01)	1.00 (0.98 – 1.01)
447.7	Aortic ectasia	AHI 3%	1.00 (0.99 – 1.00)	2.4E-01	1.00 (0.99 – 1.00)	6.2E-02	0.99 (0.99 – 1.00)	1.01 (0.99 – 1.02)
367.2	Astigmatism	AHI 3%	1.00 (0.99 – 1.00)	2.4E-01	1.00 (0.99 – 1.00)	3.1E-01	1.00 (0.99 – 1.01)	0.99 (0.99 – 1.00)
263	Other nutritional deficiency	AHI 3%	1.00 (0.99 – 1.00)	2.4E-01	1.00 (0.99 – 1.00)	5.5E-03	1.01 (0.99 – 1.02)	0.99 (0.98 – 1.00)
761	Cervicalgia	Per88	1.00 (0.99 – 1.00)	2.4E-01	1.00 (0.99 – 1.00)	6.1E-01	0.99 (0.99 – 1.00)	1.00 (0.99 – 1.00)

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PheCode	Disease	Sleep statistic	Risk ratio	P-value	Risk ratio (adj pulmonary disorders)	Sleep statistic x sex interaction p-value	Risk ratio (Men)	Risk ratio (Women)
379.2	Disorders of vitreous body	Per88	0.99 (0.98 – 1.00)	2.4E-01	0.99 (0.98 – 1.01)	6.6E-01	1.00 (0.99 – 1.02)	0.98 (0.96 – 1.00)
695.8	Other specified erythematous conditions	AHI 3%	1.00 (0.99 – 1.00)	2.4E-01	1.00 (0.99 – 1.00)	3.9E-01	0.99 (0.98 – 1.00)	1.00 (0.99 – 1.01)
110.13	Dermatophytosis of the body	Per88	0.99 (0.97 – 1.01)	2.4E-01	0.99 (0.97 – 1.01)	1.5E-01	0.99 (0.97 – 1.01)	0.98 (0.95 – 1.01)
334	Degenerative disease of the spinal cord	AHI 3%	1.00 (1.00 – 1.01)	2.4E-01	1.00 (1.00 – 1.01)	9.6E-01	1.00 (0.99 – 1.01)	1.00 (0.99 – 1.02)
214	Lipoma	AHI 3%	1.00 (0.99 – 1.00)	2.4E-01	1.00 (0.99 – 1.00)	9.3E-01	1.00 (0.99 – 1.00)	1.00 (0.99 – 1.00)
402	Elevated blood pressure reading without diagnosis of hypertension	Per88	1.00 (0.99 – 1.00)	2.4E-01	1.00 (0.99 – 1.00)	2.8E-01	1.00 (0.99 – 1.01)	0.99 (0.98 – 1.00)
351	Other peripheral nerve disorders	AHI 3%	1.00 (1.00 – 1.00)	2.4E-01	1.00 (1.00 – 1.00)	8.6E-01	1.00 (0.99 – 1.00)	1.00 (1.00 – 1.00)
165.1	Cancer of bronchus; lung	AHI 3%	1.00 (1.00 – 1.01)	2.4E-01	1.00 (1.00 – 1.01)	4.5E-01	1.00 (0.99 – 1.01)	1.01 (1.00 – 1.02)
726.2	Synoviopathy	AHI 3%	1.00 (0.99 – 1.00)	2.5E-01	1.00 (0.99 – 1.00)	3.6E-01	0.99 (0.99 – 1.00)	1.00 (0.99 – 1.01)
569	Other disorders of intestine	AHI 3%	1.00 (1.00 – 1.00)	2.5E-01	1.00 (1.00 – 1.00)	8.0E-01	1.00 (1.00 – 1.01)	1.00 (1.00 – 1.00)
947	Urticaria	AHI 3%	1.00 (0.99 – 1.00)	2.5E-01	1.00 (0.99 – 1.00)	1.4E-01	1.00 (1.00 – 1.01)	1.00 (0.99 – 1.00)
727.6	Rupture of tendon, nontraumatic	AHI 3%	1.00 (0.99 – 1.00)	2.5E-01	1.00 (0.99 – 1.00)	4.1E-01	0.99 (0.99 – 1.00)	1.00 (0.99 – 1.01)
411.2	Myocardial infarction	AHI 3%	1.00 (1.00 – 1.01)	2.5E-01	1.00 (1.00 – 1.01)	3.4E-02	1.00 (1.00 – 1.00)	1.01 (1.00 – 1.02)
242	Thyrotoxicosis with or without goiter	Per88	0.99 (0.98 – 1.01)	2.5E-01	0.99 (0.98 – 1.01)	4.7E-01	1.01 (0.99 – 1.03)	0.99 (0.97 – 1.00)
704	Diseases of hair and hair follicles	Per88	0.99 (0.98 – 1.00)	2.5E-01	1.00 (0.98 – 1.01)	7.5E-02	1.00 (0.98 – 1.01)	0.99 (0.97 – 1.00)
241.1	Nontoxic uninodular goiter	Per88	0.99 (0.99 – 1.00)	2.5E-01	1.00 (0.99 – 1.00)	9.2E-01	0.99 (0.97 – 1.01)	0.99 (0.98 – 1.00)
252.1	Hyperparathyroidism	Per88	1.01 (0.99 – 1.03)	2.6E-01	1.01 (0.99 – 1.03)	7.9E-01	1.01 (0.98 – 1.03)	1.01 (0.99 – 1.03)
701.2	Scar conditions and fibrosis of skin	AHI 3%	1.00 (1.00 – 1.00)	2.6E-01	1.00 (1.00 – 1.00)	7.0E-01	1.00 (0.99 – 1.00)	1.00 (1.00 – 1.01)
246	Other disorders of thyroid	AHI 3%	1.00 (1.00 – 1.01)	2.6E-01	1.00 (1.00 – 1.01)	1.5E-01	1.00 (0.99 – 1.01)	1.00 (1.00 – 1.01)
348.7	Coma	Per88	1.01 (0.99 – 1.02)	2.6E-01	1.01 (0.99 – 1.02)	8.7E-01	1.00 (0.97 – 1.02)	1.02 (1.00 – 1.04)
841	Sprains and strains of back and neck	Per88	0.99 (0.98 – 1.01)	2.6E-01	0.99 (0.98 – 1.01)	3.2E-01	0.98 (0.96 – 1.01)	0.99 (0.98 – 1.01)
593.1	Gross hematuria	AHI 3%	1.00 (1.00 – 1.01)	2.6E-01	1.00 (1.00 – 1.01)	1.6E-02	1.00 (1.00 – 1.01)	1.00 (0.99 – 1.01)
727	Other disorders of synovium, tendon, and bursa	Per88	0.99 (0.98 – 1.01)	2.6E-01	0.99 (0.98 – 1.01)	9.0E-01	0.99 (0.97 – 1.01)	0.99 (0.97 – 1.01)
793.2	Nonspecific abnormal findings on radiological and other examination of other intrathoracic organs (echocardiogram, etc)	Per88	1.01 (1.00 – 1.02)	2.7E-01	1.01 (1.00 – 1.02)	4.6E-01	1.00 (0.98 – 1.02)	1.01 (1.00 – 1.03)
244.4	Hypothyroidism NOS	AHI 3%	1.00 (1.00 – 1.00)	2.7E-01	1.00 (1.00 – 1.00)	3.7E-01	1.00 (0.99 – 1.00)	1.00 (1.00 – 1.00)
271.3	Intestinal disaccharidase deficiencies and disaccharide malabsorption	Per88	1.00 (1.00 – 1.01)	2.7E-01	1.00 (1.00 – 1.01)	2.6E-01	1.00 (1.00 – 1.01)	1.00 (1.00 – 1.01)
172.22	Squamous cell carcinoma	AHI 3%	1.00 (0.99 – 1.00)	2.7E-01	1.00 (0.99 – 1.00)	7.4E-01	1.00 (0.99 – 1.00)	1.00 (0.99 – 1.01)
292.1	Aphasia/speech disturbance	Per88	0.99 (0.98 – 1.01)	2.8E-01	0.99 (0.98 – 1.00)	6.4E-02	0.98 (0.96 – 1.00)	1.00 (0.98 – 1.02)
464	Acute sinusitis	Per88	0.99 (0.99 – 1.00)	2.8E-01	0.99 (0.98 – 1.00)	2.4E-01	1.00 (0.98 – 1.02)	0.99 (0.98 – 1.00)
512.2	Painful respiration	Per88	1.00 (1.00 – 1.01)	2.8E-01	1.00 (1.00 – 1.01)	3.3E-01	1.01 (1.00 – 1.02)	1.00 (0.99 – 1.01)
763	Thoracic or lumbosacral neuritis or radiculitis, unspecified	Per88	1.00 (0.99 – 1.00)	2.8E-01	1.00 (0.99 – 1.00)	8.1E-01	0.99 (0.98 – 1.01)	0.99 (0.98 – 1.01)

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PheCode	Disease	Sleep statistic	Risk ratio	P-value	Risk ratio (adj pulmonary disorders)	Sleep statistic x sex interaction p-value	Risk ratio (Men)	Risk ratio (Women)
740.1	Osteoarthritis; localized	AHI 3%	1.00 (0.99 – 1.00)	2.8E-01	1.00 (0.99 – 1.00)	4.5E-01	0.99 (0.99 – 1.00)	1.00 (0.99 – 1.01)
706.1	Acne	AHI 3%	1.00 (1.00 – 1.00)	2.8E-01	1.00 (1.00 – 1.00)	7.2E-02	1.00 (0.99 – 1.00)	1.00 (1.00 – 1.00)
720.1	Spinal stenosis of lumbar region	AHI 3%	1.00 (0.99 – 1.00)	2.8E-01	1.00 (0.99 – 1.00)	3.9E-01	1.00 (0.99 – 1.00)	1.00 (0.99 – 1.01)
296.22	Major depressive disorder	AHI 3%	1.00 (1.00 – 1.00)	2.8E-01	1.00 (1.00 – 1.00)	3.3E-02	1.00 (1.00 – 1.00)	1.00 (1.00 – 1.00)
280.2	Iron deficiency anemia secondary to blood loss (chronic)	AHI 3%	1.00 (0.99 – 1.00)	2.8E-01	1.00 (0.99 – 1.00)	8.7E-03	1.01 (1.00 – 1.02)	0.99 (0.99 – 1.00)
389	Hearing loss	AHI 3%	1.00 (1.00 – 1.00)	2.9E-01	1.00 (1.00 – 1.00)	3.4E-02	1.00 (1.00 – 1.00)	1.01 (1.00 – 1.01)
433.21	Cerebral artery occlusion, with cerebral infarction	Per88	1.01 (1.00 – 1.02)	2.9E-01	1.01 (0.99 – 1.02)	9.3E-01	1.01 (0.99 – 1.02)	1.01 (0.99 – 1.03)
727.4	Ganglion and cyst of synovium, tendon, and bursa	AHI 3%	1.00 (0.99 – 1.00)	2.9E-01	1.00 (0.99 – 1.00)	9.2E-01	1.00 (0.99 – 1.01)	1.00 (0.99 – 1.00)
701	Other hypertrophic and atrophic conditions of skin	AHI 3%	1.00 (1.00 – 1.00)	2.9E-01	1.00 (1.00 – 1.00)	9.5E-03	1.00 (1.00 – 1.01)	1.00 (1.00 – 1.00)
296.1	Bipolar	AHI 3%	1.00 (0.99 – 1.00)	2.9E-01	1.00 (0.99 – 1.00)	7.8E-03	1.00 (0.99 – 1.00)	1.00 (0.99 – 1.01)
550.2	Diaphragmatic hernia	AHI 3%	1.00 (0.99 – 1.00)	2.9E-01	1.00 (0.99 – 1.00)	3.1E-01	1.00 (0.99 – 1.00)	1.00 (0.99 – 1.00)
594.1	Calculus of kidney	AHI 3%	1.00 (1.00 – 1.00)	2.9E-01	1.00 (1.00 – 1.00)	5.3E-01	1.00 (1.00 – 1.01)	1.00 (1.00 – 1.01)
536.8	Dyspepsia and other specified disorders of function of stomach	AHI 3%	1.00 (0.99 – 1.00)	3.0E-01	1.00 (0.99 – 1.00)	5.4E-01	1.00 (1.00 – 1.01)	0.99 (0.99 – 1.00)
598.9	Other nonspecific findings on examination of urine	Per88	0.99 (0.98 – 1.01)	3.0E-01	0.99 (0.98 – 1.01)	1.5E-01	0.99 (0.96 – 1.01)	1.00 (0.98 – 1.01)
008	Intestinal infection	Per88	1.00 (1.00 – 1.01)	3.0E-01	1.00 (1.00 – 1.01)	6.1E-02	0.99 (0.97 – 1.01)	1.01 (1.00 – 1.02)
272.12	Hyperglyceridemia	Per88	1.01 (0.99 – 1.02)	3.0E-01	1.01 (0.99 – 1.02)	2.6E-01	1.01 (1.00 – 1.03)	0.98 (0.95 – 1.01)
496.3	Bronchiectasis	AHI 3%	1.00 (0.99 – 1.00)	3.0E-01	1.00 (0.99 – 1.00)	6.6E-01	1.00 (0.99 – 1.01)	0.99 (0.98 – 1.01)
599.5	Frequency of urination and polyuria	AHI 3%	1.00 (1.00 – 1.00)	3.0E-01	1.00 (1.00 – 1.00)	6.7E-01	1.00 (1.00 – 1.00)	1.00 (1.00 – 1.01)
741.2	Stiffness of joint	AHI 3%	1.00 (0.99 – 1.00)	3.0E-01	1.00 (0.99 – 1.00)	9.7E-01	1.00 (0.99 – 1.00)	1.00 (0.99 – 1.01)
355.1	Chronic pain syndrome	AHI 3%	1.00 (1.00 – 1.01)	3.0E-01	1.00 (1.00 – 1.01)	9.0E-01	1.00 (0.99 – 1.01)	1.00 (0.99 – 1.01)
704.1	Alopecia	Per88	1.00 (0.99 – 1.00)	3.0E-01	1.00 (0.99 – 1.00)	3.2E-01	1.00 (0.99 – 1.01)	0.99 (0.99 – 1.00)
504	Other alveolar and parietoalveolar pneumonopathy	AHI 3%	1.00 (0.99 – 1.00)	3.1E-01	1.00 (0.99 – 1.00)	4.6E-01	0.99 (0.98 – 1.01)	1.00 (0.99 – 1.01)
475.9	Postnasal drip	Per88	1.00 (1.00 – 1.01)	3.1E-01	1.00 (0.99 – 1.01)	5.8E-01	1.00 (0.99 – 1.02)	1.00 (0.99 – 1.01)
947	Urticaria	Per88	1.00 (0.99 – 1.00)	3.1E-01	0.99 (0.99 – 1.00)	6.0E-01	0.99 (0.97 – 1.01)	1.00 (0.99 – 1.01)
1004	Other signs and symptoms involving emotional state	AHI 3%	1.00 (0.99 – 1.00)	3.1E-01	1.00 (0.99 – 1.00)	4.7E-01	1.00 (0.99 – 1.01)	0.99 (0.98 – 1.00)
277.7	Dysmetabolic syndrome X	AHI 3%	1.00 (1.00 – 1.01)	3.1E-01	1.00 (1.00 – 1.01)	2.1E-02	1.01 (1.00 – 1.02)	1.00 (0.99 – 1.01)
702.1	Actinic keratosis	AHI 3%	1.00 (0.99 – 1.00)	3.2E-01	1.00 (0.99 – 1.00)	4.0E-01	1.00 (1.00 – 1.00)	1.00 (0.99 – 1.01)
110.12	Althete's foot	Per88	1.01 (0.99 – 1.02)	3.2E-01	1.01 (0.99 – 1.02)	1.9E-01	1.01 (0.99 – 1.02)	1.00 (0.98 – 1.02)
470	Septal Deviations/Turbinate Hypertrophy	AHI 3%	1.00 (1.00 – 1.00)	3.2E-01	1.00 (1.00 – 1.00)	9.6E-01	1.00 (1.00 – 1.01)	1.00 (1.00 – 1.00)
687.2	Localized superficial swelling, mass, or lump	AHI 3%	1.00 (1.00 – 1.00)	3.2E-01	1.00 (1.00 – 1.00)	5.2E-02	1.00 (1.00 – 1.00)	1.00 (0.99 – 1.00)

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PheCode	Disease	Sleep statistic	Risk ratio	P-value	Risk ratio (adj pulmonary disorders)	Sleep statistic x sex interaction p-value	Risk ratio (Men)	Risk ratio (Women)
334	Degenerative disease of the spinal cord	Per88	1.01 (0.99 – 1.03)	3.2E-01	1.01 (0.99 – 1.02)	4.9E-01	1.01 (0.99 – 1.03)	1.01 (0.98 – 1.04)
173	Neoplasm of uncertain behavior of skin	AHI 3%	1.00 (1.00 – 1.00)	3.2E-01	1.00 (1.00 – 1.00)	8.3E-01	1.00 (1.00 – 1.01)	1.00 (1.00 – 1.00)
706.1	Acne	Per88	1.00 (0.99 – 1.00)	3.2E-01	1.00 (0.99 – 1.00)	2.7E-01	0.99 (0.98 – 1.01)	1.00 (0.99 – 1.01)
259	Other endocrine disorders	AHI 3%	1.00 (0.99 – 1.00)	3.2E-01	1.00 (0.99 – 1.00)	3.7E-02	1.00 (0.99 – 1.01)	0.99 (0.98 – 1.00)
788	Syncope and collapse	AHI 3%	1.00 (1.00 – 1.00)	3.2E-01	1.00 (1.00 – 1.00)	4.1E-02	1.00 (1.00 – 1.00)	1.00 (0.99 – 1.00)
805	Fracture of vertebral column without mention of spinal cord injury	AHI 3%	1.00 (1.00 – 1.01)	3.2E-01	1.00 (1.00 – 1.01)	6.2E-01	1.00 (0.99 – 1.01)	1.00 (0.99 – 1.01)
773	Pain in limb	Per88	1.00 (1.00 – 1.01)	3.3E-01	1.00 (1.00 – 1.01)	4.3E-01	1.00 (0.99 – 1.01)	1.00 (1.00 – 1.01)
550.5	Ventral hernia	Per88	1.01 (0.99 – 1.02)	3.3E-01	1.01 (0.99 – 1.02)	5.6E-01	1.02 (1.00 – 1.04)	1.00 (0.98 – 1.02)
447	Other disorders of arteries and arterioles	Per88	0.99 (0.97 – 1.01)	3.3E-01	0.99 (0.97 – 1.01)	9.2E-01	0.98 (0.95 – 1.01)	1.00 (0.97 – 1.03)
356	Hereditary and idiopathic peripheral neuropathy	AHI 3%	1.00 (0.99 – 1.00)	3.3E-01	1.00 (0.99 – 1.00)	3.8E-01	1.00 (0.99 – 1.00)	1.00 (0.99 – 1.01)
433.31	Transient cerebral ischemia	AHI 3%	1.00 (1.00 – 1.01)	3.3E-01	1.00 (1.00 – 1.01)	7.2E-01	1.00 (0.99 – 1.00)	1.00 (1.00 – 1.01)
110.11	Dermatophytosis of nail	Per88	1.01 (0.99 – 1.02)	3.4E-01	1.01 (1.00 – 1.02)	3.8E-01	1.00 (0.99 – 1.02)	1.01 (0.99 – 1.03)
574.1	Cholelithiasis	Per88	0.99 (0.98 – 1.01)	3.4E-01	0.99 (0.98 – 1.00)	3.0E-01	1.01 (0.99 – 1.02)	0.99 (0.98 – 1.00)
411.8	Other chronic ischemic heart disease, unspecified	Per88	1.01 (0.99 – 1.03)	3.4E-01	1.01 (0.99 – 1.03)	7.7E-01	1.01 (0.99 – 1.03)	1.02 (0.98 – 1.06)
465.4	Acute laryngitis and tracheitis	AHI 3%	1.00 (1.00 – 1.01)	3.4E-01	1.00 (1.00 – 1.01)	9.2E-02	1.01 (1.00 – 1.02)	1.00 (0.99 – 1.01)
054	Herpes simplex	AHI 3%	1.00 (1.00 – 1.00)	3.5E-01	1.00 (1.00 – 1.00)	2.4E-01	1.00 (1.00 – 1.01)	1.00 (0.99 – 1.00)
573.7	Abnormal results of function study of liver	Per88	1.01 (0.99 – 1.02)	3.5E-01	1.00 (0.99 – 1.02)	6.3E-01	1.01 (0.99 – 1.02)	1.00 (0.98 – 1.02)
272.13	Mixed hyperlipidemia	Per88	1.00 (1.00 – 1.01)	3.5E-01	1.00 (0.99 – 1.01)	4.7E-01	1.01 (1.00 – 1.02)	1.00 (0.98 – 1.02)
530.11	GERD	AHI 3%	1.00 (1.00 – 1.00)	3.5E-01	1.00 (1.00 – 1.00)	5.9E-01	1.00 (1.00 – 1.00)	1.00 (1.00 – 1.00)
054	Herpes simplex	Per88	1.00 (0.99 – 1.00)	3.5E-01	1.00 (0.99 – 1.00)	6.6E-02	1.01 (1.00 – 1.03)	0.99 (0.98 – 1.00)
197	Chemotherapy	Per88	1.01 (0.99 – 1.02)	3.5E-01	1.00 (0.99 – 1.02)	5.3E-02	0.99 (0.97 – 1.01)	1.02 (1.00 – 1.03)
512.7	Shortness of breath	AHI 3%	1.00 (1.00 – 1.00)	3.5E-01	1.00 (1.00 – 1.00)	3.4E-04	1.00 (1.00 – 1.01)	1.00 (0.99 – 1.00)
365	Glaucoma	AHI 3%	1.00 (1.00 – 1.00)	3.5E-01	1.00 (1.00 – 1.00)	2.1E-01	1.00 (1.00 – 1.01)	1.00 (0.99 – 1.00)
246	Other disorders of thyroid	Per88	1.01 (0.99 – 1.02)	3.6E-01	1.01 (0.99 – 1.02)	6.7E-01	1.01 (0.98 – 1.04)	1.01 (0.99 – 1.02)
153.2	Colon cancer	AHI 3%	1.00 (1.00 – 1.01)	3.6E-01	1.00 (1.00 – 1.01)	1.9E-01	1.00 (0.99 – 1.01)	1.01 (1.00 – 1.03)
706.8	Other specified diseases of sebaceous glands	AHI 3%	1.00 (1.00 – 1.00)	3.6E-01	1.00 (1.00 – 1.00)	6.2E-01	1.00 (1.00 – 1.00)	1.00 (0.99 – 1.00)
388	Other disorders of ear	AHI 3%	1.00 (0.99 – 1.00)	3.6E-01	1.00 (0.99 – 1.00)	4.7E-01	1.00 (0.99 – 1.01)	1.00 (0.99 – 1.00)
008	Intestinal infection	AHI 3%	1.00 (1.00 – 1.01)	3.6E-01	1.00 (1.00 – 1.01)	1.5E-01	1.00 (1.00 – 1.01)	1.00 (0.99 – 1.00)
197	Chemotherapy	AHI 3%	1.00 (1.00 – 1.01)	3.6E-01	1.00 (1.00 – 1.01)	1.2E-01	1.00 (0.99 – 1.00)	1.01 (1.00 – 1.01)
306.9	Tension headache	AHI 3%	1.00 (0.99 – 1.00)	3.7E-01	1.00 (0.99 – 1.00)	8.7E-01	1.00 (0.99 – 1.01)	1.00 (0.99 – 1.00)
471	Nasal polyps	Per88	0.99 (0.98 – 1.01)	3.7E-01	0.99 (0.97 – 1.01)	4.2E-01	1.00 (0.98 – 1.02)	0.98 (0.96 – 1.01)
537	Other disorders of stomach and duodenum	AHI 3%	1.00 (1.00 – 1.00)	3.7E-01	1.00 (1.00 – 1.00)	8.1E-02	1.00 (1.00 – 1.01)	1.00 (0.99 – 1.00)
345.1	Epilepsy	Per88	0.99 (0.98 – 1.01)	3.7E-01	0.99 (0.98 – 1.01)	9.0E-02	0.98 (0.96 – 1.00)	1.00 (0.98 – 1.02)
599.8	Other symptoms involving urinary system	Per88	1.01 (0.99 – 1.02)	3.7E-01	1.01 (0.99 – 1.02)	9.7E-01	1.01 (0.99 – 1.02)	1.01 (0.99 – 1.02)

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PheCode	Disease	Sleep statistic	Risk ratio	P-value	Risk ratio (adj pulmonary disorders)	Sleep statistic x sex interaction p-value	Risk ratio (Men)	Risk ratio (Women)
561	Symptoms involving digestive system	Per88	1.00 (0.99 – 1.01)	3.8E-01	1.00 (0.99 – 1.01)	9.0E-01	1.00 (0.99 – 1.02)	0.99 (0.97 – 1.00)
287.1	Spontaneous ecchymoses	AHI 3%	1.00 (0.99 – 1.00)	3.8E-01	1.00 (0.99 – 1.00)	7.2E-02	1.00 (0.99 – 1.02)	0.99 (0.98 – 1.00)
722.9	Other and unspecified disc disorder	Per88	1.01 (0.99 – 1.02)	3.8E-01	1.01 (0.99 – 1.02)	9.9E-01	1.01 (1.00 – 1.03)	1.00 (0.97 – 1.02)
379.2	Disorders of vitreous body	AHI 3%	1.00 (0.99 – 1.00)	3.8E-01	1.00 (0.99 – 1.00)	8.7E-01	1.00 (0.99 – 1.01)	0.99 (0.99 – 1.00)
389.1	Sensorineural hearing loss	Per88	1.00 (0.99 – 1.01)	3.8E-01	1.00 (0.99 – 1.01)	1.9E-01	0.99 (0.98 – 1.00)	1.01 (0.99 – 1.02)
695.8	Other specified erythematous conditions	Per88	0.99 (0.97 – 1.01)	3.9E-01	0.99 (0.97 – 1.01)	9.1E-01	0.98 (0.94 – 1.01)	1.00 (0.97 – 1.02)
251.1	Hypoglycemia	AHI 3%	1.00 (1.00 – 1.01)	3.9E-01	1.00 (1.00 – 1.01)	1.4E-02	1.01 (1.00 – 1.03)	0.99 (0.99 – 1.00)
293	Symptoms involving head and neck	AHI 3%	1.00 (0.99 – 1.00)	3.9E-01	1.00 (0.99 – 1.00)	1.1E-01	0.99 (0.98 – 1.00)	1.00 (0.99 – 1.01)
705.8	Hyperhidrosis	AHI 3%	1.00 (0.99 – 1.00)	3.9E-01	1.00 (0.99 – 1.00)	2.9E-01	1.00 (0.99 – 1.00)	1.00 (0.99 – 1.00)
591	Urinary tract infection	Per88	1.00 (1.00 – 1.01)	4.0E-01	1.00 (1.00 – 1.01)	9.7E-01	0.99 (0.98 – 1.01)	1.01 (1.00 – 1.01)
374.3	Ptosis of eyelid	AHI 3%	1.00 (0.99 – 1.00)	4.0E-01	1.00 (0.99 – 1.00)	2.3E-01	1.00 (0.99 – 1.01)	1.00 (0.99 – 1.01)
735.1	Flat foot	AHI 3%	1.00 (0.99 – 1.00)	4.0E-01	1.00 (0.99 – 1.00)	8.6E-01	1.00 (0.99 – 1.01)	1.00 (0.99 – 1.01)
386.2	Peripheral or central vertigo	Per88	0.99 (0.98 – 1.01)	4.0E-01	0.99 (0.98 – 1.01)	7.5E-01	0.99 (0.97 – 1.01)	1.00 (0.98 – 1.02)
395.2	Nonrheumatic aortic valve disorders	Per88	1.01 (0.99 – 1.02)	4.0E-01	1.01 (0.99 – 1.02)	1.6E-01	1.00 (0.98 – 1.01)	1.02 (1.00 – 1.05)
286.81	Primary hypercoagulable state	Per88	0.99 (0.97 – 1.01)	4.1E-01	0.99 (0.97 – 1.01)	7.1E-02	0.97 (0.93 – 1.00)	1.00 (0.98 – 1.03)
379.9	Pain, swelling or discharge of eye	Per88	1.00 (0.99 – 1.01)	4.1E-01	0.99 (0.99 – 1.00)	1.8E-01	0.98 (0.96 – 1.00)	1.00 (0.99 – 1.01)
348.8	Encephalopathy, not elsewhere classified	Per88	1.01 (0.99 – 1.02)	4.1E-01	1.00 (0.99 – 1.02)	3.9E-02	0.99 (0.97 – 1.01)	1.03 (1.00 – 1.05)
722.1	Displacement of intervertebral disc	Per88	1.00 (0.99 – 1.01)	4.1E-01	1.00 (0.99 – 1.01)	9.9E-02	0.99 (0.98 – 1.00)	1.00 (0.99 – 1.02)
356	Hereditary and idiopathic peripheral neuropathy	Per88	1.01 (0.99 – 1.02)	4.2E-01	1.01 (0.99 – 1.02)	2.1E-02	1.01 (1.00 – 1.03)	0.99 (0.97 – 1.01)
565	Anal and rectal conditions	AHI 3%	1.00 (1.00 – 1.01)	4.2E-01	1.00 (1.00 – 1.01)	3.4E-03	1.00 (1.00 – 1.01)	1.00 (0.99 – 1.00)
250.41	Impaired fasting glucose	AHI 3%	1.00 (1.00 – 1.01)	4.2E-01	1.00 (1.00 – 1.01)	8.6E-01	1.00 (0.99 – 1.00)	1.01 (1.00 – 1.01)
443.9	Peripheral vascular disease, unspecified	AHI 3%	1.00 (1.00 – 1.01)	4.2E-01	1.00 (1.00 – 1.01)	7.0E-01	1.00 (0.99 – 1.01)	1.00 (0.99 – 1.02)
475	Chronic sinusitis	AHI 3%	1.00 (1.00 – 1.00)	4.2E-01	1.00 (1.00 – 1.00)	2.4E-01	1.00 (1.00 – 1.00)	1.00 (0.99 – 1.00)
562.2	Diverticulitis	AHI 3%	1.00 (1.00 – 1.01)	4.2E-01	1.00 (1.00 – 1.01)	5.1E-01	1.00 (0.99 – 1.00)	1.00 (1.00 – 1.01)
727	Other disorders of synovium, tendon, and bursa	AHI 3%	1.00 (0.99 – 1.00)	4.2E-01	1.00 (0.99 – 1.00)	5.5E-01	1.00 (0.99 – 1.01)	1.00 (0.99 – 1.00)
261.4	Vitamin D deficiency	AHI 3%	1.00 (1.00 – 1.00)	4.2E-01	1.00 (1.00 – 1.00)	5.0E-01	1.00 (1.00 – 1.01)	1.00 (1.00 – 1.00)
277.7	Dysmetabolic syndrome X	Per88	0.99 (0.97 – 1.01)	4.3E-01	0.99 (0.97 – 1.01)	9.6E-02	0.99 (0.95 – 1.03)	0.99 (0.97 – 1.02)
841	Sprains and strains of back and neck	AHI 3%	1.00 (1.00 – 1.01)	4.3E-01	1.00 (1.00 – 1.01)	4.0E-01	1.01 (1.00 – 1.02)	1.00 (0.99 – 1.01)
369.5	Conjunctivitis, infectious	Per88	1.00 (0.99 – 1.01)	4.3E-01	0.99 (0.98 – 1.00)	2.1E-01	1.00 (0.99 – 1.02)	0.99 (0.98 – 1.00)
770	Myalgia and myositis unspecified	Per88	1.00 (0.99 – 1.00)	4.3E-01	1.00 (0.99 – 1.00)	2.9E-01	1.01 (0.99 – 1.02)	0.99 (0.98 – 1.00)
599.4	Urinary incontinence	Per88	1.00 (1.00 – 1.01)	4.3E-01	1.00 (1.00 – 1.01)	8.7E-01	1.00 (0.98 – 1.02)	1.00 (0.99 – 1.01)
706.8	Other specified diseases of sebaceous glands	Per88	1.00 (0.99 – 1.00)	4.3E-01	1.00 (0.99 – 1.00)	5.8E-01	1.00 (0.99 – 1.01)	1.00 (0.98 – 1.01)
687.1	Rash and other nonspecific skin eruption	Per88	1.00 (1.00 – 1.01)	4.3E-01	1.00 (1.00 – 1.01)	8.8E-01	1.00 (0.99 – 1.01)	1.00 (1.00 – 1.01)
216	Benign neoplasm of skin	AHI 3%	1.00 (1.00 – 1.00)	4.3E-01	1.00 (1.00 – 1.00)	4.7E-01	1.00 (1.00 – 1.00)	1.00 (1.00 – 1.00)
550.2	Diaphragmatic hernia	Per88	1.00 (0.99 – 1.01)	4.4E-01	1.00 (0.99 – 1.01)	9.7E-01	1.00 (0.98 – 1.01)	1.00 (0.98 – 1.01)

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PheCode	Disease	Sleep statistic	Risk ratio	P-value	Risk ratio (adj pulmonary disorders)	Sleep statistic x sex interaction p-value	Risk ratio (Men)	Risk ratio (Women)
078	Viral warts & HPV	AHI 3%	1.00 (1.00 – 1.00)	4.4E-01	1.00 (1.00 – 1.00)	4.6E-01	1.00 (1.00 – 1.00)	1.00 (0.99 – 1.00)
979	Adverse drug events and drug allergies	AHI 3%	1.00 (1.00 – 1.00)	4.4E-01	1.00 (1.00 – 1.00)	9.4E-01	1.00 (1.00 – 1.01)	1.00 (1.00 – 1.01)
389	Hearing loss	Per88	1.00 (1.00 – 1.01)	4.4E-01	1.00 (1.00 – 1.01)	6.6E-01	1.00 (0.99 – 1.01)	1.00 (0.99 – 1.02)
418	Nonspecific chest pain	Per88	1.00 (1.00 – 1.01)	4.4E-01	1.00 (1.00 – 1.00)	3.9E-02	1.00 (0.99 – 1.00)	1.00 (1.00 – 1.01)
765	Cervical radiculitis	AHI 3%	1.00 (0.99 – 1.00)	4.4E-01	1.00 (0.99 – 1.00)	3.0E-01	1.00 (0.99 – 1.00)	1.00 (0.99 – 1.01)
279.2	Autoimmune disease NEC	AHI 3%	1.00 (0.99 – 1.00)	4.4E-01	1.00 (0.99 – 1.00)	4.2E-01	1.00 (0.99 – 1.01)	1.00 (0.99 – 1.01)
411.4	Coronary atherosclerosis	Per88	1.00 (0.99 – 1.01)	4.5E-01	1.00 (0.99 – 1.01)	2.2E-01	1.00 (0.99 – 1.01)	1.01 (1.00 – 1.03)
481	Influenza	Per88	1.00 (1.00 – 1.01)	4.5E-01	1.00 (0.99 – 1.01)	8.5E-01	1.00 (0.99 – 1.01)	1.01 (1.00 – 1.02)
705.8	Hyperhidrosis	Per88	1.00 (0.99 – 1.01)	4.5E-01	1.00 (0.99 – 1.01)	9.2E-01	1.00 (0.99 – 1.02)	1.01 (0.99 – 1.02)
531.2	Gastric ulcer	AHI 3%	1.00 (0.99 – 1.00)	4.5E-01	1.00 (0.99 – 1.00)	1.3E-01	0.99 (0.99 – 1.00)	1.00 (0.99 – 1.01)
367.1	Myopia	AHI 3%	1.00 (0.99 – 1.00)	4.5E-01	1.00 (0.99 – 1.00)	5.9E-02	1.00 (1.00 – 1.01)	0.99 (0.99 – 1.00)
477	Epistaxis or throat hemorrhage	AHI 3%	1.00 (1.00 – 1.01)	4.5E-01	1.00 (1.00 – 1.01)	2.6E-01	1.00 (0.99 – 1.00)	1.01 (1.00 – 1.02)
715	Other inflammatory spondylopathies	Per88	0.99 (0.97 – 1.01)	4.6E-01	0.99 (0.97 – 1.01)	8.4E-01	0.98 (0.95 – 1.02)	1.00 (0.97 – 1.03)
443.1	Raynaud's syndrome	Per88	1.00 (0.98 – 1.01)	4.6E-01	0.99 (0.98 – 1.01)	4.2E-01	0.98 (0.95 – 1.00)	1.00 (0.98 – 1.01)
512.2	Painful respiration	AHI 3%	1.00 (1.00 – 1.00)	4.6E-01	1.00 (1.00 – 1.00)	9.5E-02	1.00 (1.00 – 1.01)	1.00 (0.99 – 1.00)
720	Spinal stenosis	AHI 3%	1.00 (0.99 – 1.00)	4.6E-01	1.00 (0.99 – 1.00)	9.2E-03	0.99 (0.99 – 1.00)	1.00 (1.00 – 1.01)
053	Herpes zoster	Per88	1.00 (0.99 – 1.01)	4.6E-01	1.00 (0.99 – 1.01)	1.9E-01	1.00 (0.99 – 1.02)	1.00 (0.99 – 1.02)
279.2	Autoimmune disease NEC	Per88	1.01 (0.99 – 1.02)	4.7E-01	1.00 (0.99 – 1.02)	2.2E-01	1.02 (1.00 – 1.05)	1.00 (0.98 – 1.02)
366	Cataract	AHI 3%	1.00 (1.00 – 1.00)	4.7E-01	1.00 (1.00 – 1.00)	9.1E-01	1.00 (0.99 – 1.00)	1.00 (0.99 – 1.00)
562.2	Diverticulitis	Per88	1.00 (0.99 – 1.02)	4.7E-01	1.00 (0.99 – 1.02)	8.7E-02	1.00 (0.98 – 1.02)	1.00 (0.98 – 1.02)
351	Other peripheral nerve disorders	Per88	1.00 (1.00 – 1.01)	4.7E-01	1.00 (1.00 – 1.01)	2.6E-01	1.00 (0.99 – 1.02)	1.00 (0.99 – 1.01)
277.51	Lipoprotein disorders	AHI 3%	1.00 (1.00 – 1.01)	4.8E-01	1.00 (1.00 – 1.01)	8.1E-01	1.00 (0.99 – 1.01)	1.00 (0.99 – 1.02)
738.4	Acquired spondylolisthesis	AHI 3%	1.00 (0.99 – 1.00)	4.8E-01	1.00 (0.99 – 1.00)	1.3E-01	1.00 (0.99 – 1.00)	1.00 (0.99 – 1.01)
367.4	Presbyopia	Per88	1.00 (0.99 – 1.02)	4.8E-01	1.00 (0.99 – 1.02)	1.4E-01	1.01 (0.99 – 1.03)	1.00 (0.98 – 1.01)
781	Symptoms involving nervous and musculoskeletal systems	AHI 3%	1.00 (1.00 – 1.00)	4.8E-01	1.00 (1.00 – 1.00)	2.5E-01	1.00 (1.00 – 1.01)	0.99 (0.99 – 1.00)
443.1	Raynaud's syndrome	AHI 3%	1.00 (0.99 – 1.00)	4.8E-01	1.00 (0.99 – 1.00)	6.1E-01	1.00 (0.99 – 1.00)	1.00 (0.99 – 1.00)
687.2	Localized superficial swelling, mass, or lump	Per88	1.00 (1.00 – 1.01)	4.8E-01	1.00 (1.00 – 1.01)	1.5E-02	1.00 (0.99 – 1.02)	1.00 (0.99 – 1.01)
429.3	Symptoms involving cardiovascular system	AHI 3%	1.00 (1.00 – 1.00)	4.9E-01	1.00 (1.00 – 1.00)	6.5E-01	1.00 (1.00 – 1.01)	1.00 (1.00 – 1.01)
745	Pain in joint	Per88	1.00 (1.00 – 1.00)	4.9E-01	1.00 (1.00 – 1.00)	6.6E-01	1.00 (0.99 – 1.00)	1.00 (0.99 – 1.00)
483	Acute bronchitis and bronchiolitis	AHI 3%	1.00 (1.00 – 1.00)	4.9E-01	1.00 (1.00 – 1.00)	1.4E-01	1.00 (0.99 – 1.00)	1.00 (1.00 – 1.01)
703.1	Ingrowing nail	AHI 3%	1.00 (0.99 – 1.00)	4.9E-01	1.00 (0.99 – 1.00)	9.8E-01	1.00 (0.99 – 1.01)	0.99 (0.98 – 1.00)
214	Lipoma	Per88	1.00 (0.99 – 1.02)	4.9E-01	1.00 (0.99 – 1.02)	9.9E-01	1.00 (0.98 – 1.02)	1.00 (0.98 – 1.02)
738.4	Acquired spondylolisthesis	Per88	1.00 (0.99 – 1.02)	4.9E-01	1.00 (0.99 – 1.02)	2.6E-01	0.99 (0.97 – 1.01)	1.01 (0.99 – 1.03)
727.1	Synovitis and tenosynovitis	AHI 3%	1.00 (1.00 – 1.00)	4.9E-01	1.00 (1.00 – 1.00)	6.5E-01	1.00 (0.99 – 1.00)	1.00 (1.00 – 1.00)

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PheCode	Disease	Sleep statistic	Risk ratio	P-value	Risk ratio (adj pulmonary disorders)	Sleep statistic x sex interaction p-value	Risk ratio (Men)	Risk ratio (Women)
737.3	Kyphoscoliosis and scoliosis	AHI 3%	1.00 (1.00 – 1.01)	4.9E-01	1.00 (1.00 – 1.01)	2.9E-02	0.99 (0.98 – 1.00)	1.00 (1.00 – 1.01)
008.5	Bacterial enteritis	AHI 3%	1.00 (0.99 – 1.00)	4.9E-01	1.00 (0.99 – 1.00)	4.6E-01	1.00 (0.99 – 1.00)	1.00 (1.00 – 1.01)
571.5	Other chronic nonalcoholic liver disease	Per88	1.00 (0.99 – 1.01)	4.9E-01	1.00 (0.99 – 1.01)	4.3E-01	1.01 (0.99 – 1.02)	1.00 (0.98 – 1.01)
262	Mineral deficiency NEC	AHI 3%	1.00 (0.99 – 1.00)	4.9E-01	1.00 (0.99 – 1.00)	1.9E-01	1.00 (0.99 – 1.01)	1.00 (0.99 – 1.00)
389.2	Conductive hearing loss	Per88	0.99 (0.97 – 1.01)	4.9E-01	0.99 (0.97 – 1.01)	3.9E-01	0.98 (0.95 – 1.02)	1.00 (0.97 – 1.03)
380.4	Impacted cerumen	AHI 3%	1.00 (1.00 – 1.01)	4.9E-01	1.00 (1.00 – 1.01)	9.1E-02	1.00 (0.99 – 1.00)	1.00 (1.00 – 1.01)
535.2	Atrophic gastritis	Per88	1.00 (0.98 – 1.01)	5.0E-01	0.99 (0.98 – 1.01)	9.8E-03	0.98 (0.97 – 1.00)	1.00 (0.99 – 1.02)
241.2	Nontoxic multinodular goiter	AHI 3%	1.00 (1.00 – 1.01)	5.0E-01	1.00 (1.00 – 1.01)	9.9E-01	1.00 (0.99 – 1.01)	1.00 (1.00 – 1.01)
594.3	Calculus of ureter	AHI 3%	1.00 (1.00 – 1.01)	5.0E-01	1.00 (1.00 – 1.01)	2.7E-01	1.01 (1.00 – 1.01)	0.99 (0.98 – 1.01)
760	Back pain	Per88	1.00 (1.00 – 1.01)	5.0E-01	1.00 (1.00 – 1.00)	6.9E-01	1.00 (0.99 – 1.01)	1.00 (1.00 – 1.01)
153.2	Colon cancer	Per88	1.01 (0.99 – 1.03)	5.1E-01	1.01 (0.99 – 1.03)	8.6E-01	1.00 (0.97 – 1.03)	1.00 (0.97 – 1.04)
367.8	Hypermetropia	AHI 3%	1.00 (0.99 – 1.00)	5.1E-01	1.00 (0.99 – 1.00)	2.2E-01	0.99 (0.99 – 1.00)	1.00 (0.99 – 1.01)
447.7	Aortic ectasia	Per88	1.01 (0.99 – 1.03)	5.1E-01	1.01 (0.99 – 1.03)	3.2E-02	1.00 (0.98 – 1.02)	1.04 (1.01 – 1.07)
735.1	Flat foot	Per88	1.01 (0.99 – 1.02)	5.1E-01	1.00 (0.99 – 1.02)	7.2E-01	1.00 (0.98 – 1.03)	1.01 (0.99 – 1.03)
217.1	Nevus, non-neoplastic	AHI 3%	1.00 (1.00 – 1.00)	5.2E-01	1.00 (1.00 – 1.00)	9.6E-01	1.00 (1.00 – 1.01)	1.00 (1.00 – 1.01)
333.1	Essential tremor	Per88	0.99 (0.97 – 1.02)	5.2E-01	0.99 (0.97 – 1.01)	3.1E-01	1.00 (0.97 – 1.03)	0.98 (0.94 – 1.02)
287.1	Spontaneous ecchymoses	Per88	1.01 (0.99 – 1.02)	5.2E-01	1.00 (0.99 – 1.02)	2.9E-01	1.01 (0.97 – 1.05)	1.01 (0.99 – 1.03)
689	Disorder of skin and subcutaneous tissue NOS	AHI 3%	1.00 (1.00 – 1.00)	5.2E-01	1.00 (1.00 – 1.00)	3.4E-01	1.00 (1.00 – 1.00)	1.00 (1.00 – 1.00)
591	Urinary tract infection	AHI 3%	1.00 (1.00 – 1.00)	5.2E-01	1.00 (1.00 – 1.00)	1.8E-06	1.00 (1.00 – 1.01)	1.00 (0.99 – 1.00)
530.14	Reflux esophagitis	AHI 3%	1.00 (1.00 – 1.01)	5.2E-01	1.00 (1.00 – 1.01)	2.0E-01	1.00 (0.99 – 1.00)	1.01 (1.00 – 1.01)
245.21	Chronic lymphocytic thyroiditis	Per88	1.00 (0.98 – 1.01)	5.2E-01	0.99 (0.98 – 1.01)	3.7E-01	0.97 (0.93 – 1.01)	1.00 (0.98 – 1.02)
941	Adverse reaction to serum or vaccine	AHI 3%	1.00 (0.99 – 1.00)	5.2E-01	1.00 (0.99 – 1.00)	5.9E-01	1.00 (0.99 – 1.01)	1.00 (0.99 – 1.00)
579.8	Nonspecific abnormal findings in stool contents	AHI 3%	1.00 (1.00 – 1.00)	5.3E-01	1.00 (1.00 – 1.00)	8.2E-01	1.00 (0.99 – 1.00)	1.00 (0.99 – 1.00)
440	Atherosclerosis	AHI 3%	1.00 (0.99 – 1.01)	5.3E-01	1.00 (0.99 – 1.01)	4.2E-01	1.00 (0.99 – 1.01)	1.01 (1.00 – 1.02)
350.6	Disturbances of sensation of smell and taste	Per88	0.99 (0.98 – 1.01)	5.3E-01	0.99 (0.98 – 1.01)	4.2E-01	1.00 (0.98 – 1.02)	0.99 (0.97 – 1.02)
286.9	Abnormal coagulation profile	AHI 3%	1.00 (0.99 – 1.00)	5.3E-01	1.00 (0.99 – 1.00)	7.5E-01	1.00 (0.99 – 1.00)	1.00 (0.99 – 1.01)
110.2	Dermatomycoses	Per88	1.00 (0.99 – 1.02)	5.3E-01	1.01 (0.99 – 1.02)	7.7E-01	1.00 (0.98 – 1.02)	1.01 (0.99 – 1.03)
433.8	Late effects of cerebrovascular disease	AHI 3%	1.00 (1.00 – 1.01)	5.3E-01	1.00 (1.00 – 1.01)	9.2E-01	1.00 (1.00 – 1.01)	1.00 (0.99 – 1.02)
395.1	Nonrheumatic mitral valve disorders	AHI 3%	1.00 (1.00 – 1.00)	5.3E-01	1.00 (0.99 – 1.00)	7.4E-01	1.00 (1.00 – 1.00)	1.00 (0.99 – 1.00)
350.6	Disturbances of sensation of smell and taste	AHI 3%	1.00 (0.99 – 1.00)	5.3E-01	1.00 (0.99 – 1.00)	7.9E-01	1.00 (0.99 – 1.01)	1.00 (0.99 – 1.01)
333.1	Essential tremor	AHI 3%	1.00 (0.99 – 1.01)	5.3E-01	1.00 (0.99 – 1.01)	3.9E-01	1.00 (0.99 – 1.01)	1.00 (0.98 – 1.01)
380.1	Otitis externa	Per88	1.00 (0.99 – 1.02)	5.3E-01	1.00 (0.99 – 1.02)	8.9E-01	1.00 (0.98 – 1.02)	1.01 (0.99 – 1.03)
475	Chronic sinusitis	Per88	1.00 (0.99 – 1.01)	5.3E-01	0.99 (0.99 – 1.00)	5.3E-01	1.00 (0.98 – 1.01)	1.00 (0.99 – 1.01)
473.4	Voice disturbance	AHI 3%	1.00 (1.00 – 1.00)	5.3E-01	1.00 (1.00 – 1.00)	4.2E-01	1.00 (1.00 – 1.01)	1.00 (0.99 – 1.00)
550.5	Ventral hernia	AHI 3%	1.00 (0.99 – 1.00)	5.4E-01	1.00 (0.99 – 1.00)	1.9E-01	1.00 (0.99 – 1.00)	1.00 (0.99 – 1.01)

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PheCode	Disease	Sleep statistic	Risk ratio	P-value	Risk ratio (adj pulmonary disorders)	Sleep statistic x sex interaction p-value	Risk ratio (Men)	Risk ratio (Women)
348.8	Encephalopathy, not elsewhere classified	AHI 3%	1.00 (1.00 – 1.01)	5.4E-01	1.00 (1.00 – 1.01)	3.6E-01	1.00 (0.99 – 1.01)	1.00 (0.99 – 1.01)
593.1	Gross hematuria	Per88	1.00 (0.99 – 1.02)	5.4E-01	1.00 (0.99 – 1.02)	6.2E-01	1.00 (0.98 – 1.02)	1.01 (0.99 – 1.03)
427.21	Atrial fibrillation	AHI 3%	1.00 (1.00 – 1.00)	5.4E-01	1.00 (1.00 – 1.00)	1.7E-01	1.00 (1.00 – 1.00)	1.00 (1.00 – 1.01)
577.3	Cyst and pseudocyst of pancreas	AHI 3%	1.00 (1.00 – 1.01)	5.4E-01	1.00 (1.00 – 1.01)	3.7E-01	1.00 (0.99 – 1.02)	1.00 (0.99 – 1.01)
531.4	Peptic ulcer, site unspecified	AHI 3%	1.00 (0.99 – 1.01)	5.4E-01	1.00 (0.99 – 1.01)	7.9E-01	0.99 (0.98 – 1.00)	1.00 (0.99 – 1.01)
716.9	Arthropathy NOS	Per88	1.00 (0.99 – 1.02)	5.5E-01	1.00 (0.99 – 1.02)	6.2E-01	1.01 (0.98 – 1.03)	1.00 (0.98 – 1.03)
455	Hemorrhoids	Per88	1.00 (0.99 – 1.00)	5.5E-01	1.00 (0.99 – 1.00)	7.8E-02	1.00 (0.99 – 1.01)	0.99 (0.98 – 1.00)
350.3	Lack of coordination	Per88	0.99 (0.98 – 1.01)	5.6E-01	0.99 (0.98 – 1.01)	8.7E-01	1.00 (0.98 – 1.02)	0.99 (0.97 – 1.02)
696.41	Psoriasis vulgaris	Per88	1.00 (0.98 – 1.01)	5.6E-01	0.99 (0.98 – 1.01)	3.7E-01	1.00 (0.98 – 1.01)	0.99 (0.97 – 1.01)
426.31	Right bundle branch block	AHI 3%	1.00 (1.00 – 1.01)	5.6E-01	1.00 (1.00 – 1.01)	3.9E-01	1.00 (1.00 – 1.01)	1.00 (0.99 – 1.01)
742.9	Other derangement of joint	AHI 3%	1.00 (1.00 – 1.00)	5.6E-01	1.00 (1.00 – 1.00)	1.2E-01	1.00 (0.99 – 1.00)	1.00 (1.00 – 1.01)
510	Other diseases of lung	AHI 3%	1.00 (0.99 – 1.00)	5.7E-01	1.00 (0.99 – 1.00)	7.6E-01	1.00 (0.99 – 1.00)	1.00 (0.99 – 1.01)
574.3	Cholecystitis without cholelithiasis	AHI 3%	1.00 (0.99 – 1.00)	5.7E-01	1.00 (0.99 – 1.00)	4.2E-02	1.00 (0.99 – 1.01)	1.00 (0.99 – 1.00)
367.2	Astigmatism	Per88	1.00 (0.99 – 1.01)	5.7E-01	1.00 (0.99 – 1.01)	7.0E-01	1.00 (0.99 – 1.02)	1.00 (0.99 – 1.02)
313.1	Attention deficit hyperactivity disorder	Per88	1.00 (0.99 – 1.00)	5.7E-01	1.00 (0.99 – 1.00)	1.4E-01	0.99 (0.98 – 1.00)	1.00 (0.99 – 1.01)
596	Other disorders of bladder	Per88	1.00 (0.99 – 1.02)	5.8E-01	1.01 (0.99 – 1.02)	5.5E-02	0.99 (0.98 – 1.01)	1.03 (1.00 – 1.05)
592.11	Acute cystitis	AHI 3%	1.00 (0.99 – 1.00)	5.8E-01	1.00 (0.99 – 1.00)	3.2E-01	1.00 (0.99 – 1.01)	1.00 (0.99 – 1.00)
471	Nasal polyps	AHI 3%	1.00 (0.99 – 1.00)	5.9E-01	1.00 (0.99 – 1.00)	1.1E-01	1.00 (1.00 – 1.01)	0.99 (0.98 – 1.00)
722.9	Other and unspecified disc disorder	AHI 3%	1.00 (0.99 – 1.00)	5.9E-01	1.00 (0.99 – 1.00)	2.2E-01	1.00 (0.99 – 1.01)	0.99 (0.99 – 1.00)
695.3	Rosacea	AHI 3%	1.00 (0.99 – 1.00)	5.9E-01	1.00 (0.99 – 1.00)	9.8E-01	1.00 (1.00 – 1.01)	1.00 (0.99 – 1.00)
742.9	Other derangement of joint	Per88	1.00 (0.99 – 1.01)	5.9E-01	1.00 (0.99 – 1.01)	9.7E-01	1.00 (0.99 – 1.02)	0.99 (0.98 – 1.01)
599.9	Other abnormality of urination	Per88	1.00 (0.99 – 1.01)	5.9E-01	1.00 (0.99 – 1.01)	5.4E-01	0.99 (0.98 – 1.01)	1.00 (0.99 – 1.02)
244.2	Acquired hypothyroidism	Per88	1.00 (0.99 – 1.02)	6.0E-01	1.00 (0.99 – 1.02)	1.7E-01	0.99 (0.96 – 1.02)	1.01 (0.99 – 1.03)
741.2	Stiffness of joint	Per88	1.00 (0.99 – 1.02)	6.0E-01	1.00 (0.99 – 1.02)	3.4E-01	1.02 (1.00 – 1.03)	0.99 (0.97 – 1.01)
695.3	Rosacea	Per88	1.00 (0.98 – 1.01)	6.0E-01	1.00 (0.99 – 1.01)	9.2E-02	1.01 (0.99 – 1.03)	0.98 (0.97 – 1.00)
766	Neuralgia, neuritis, and radiculitis NOS	AHI 3%	1.00 (0.99 – 1.00)	6.0E-01	1.00 (0.99 – 1.00)	5.5E-01	1.00 (0.99 – 1.00)	1.00 (1.00 – 1.01)
557	Intestinal malabsorption (non-celiac)	Per88	1.00 (0.99 – 1.02)	6.0E-01	1.00 (0.99 – 1.01)	7.9E-01	1.00 (0.98 – 1.03)	1.00 (0.99 – 1.02)
327.4	Insomnia	Per88	1.00 (1.00 – 1.00)	6.0E-01	1.00 (1.00 – 1.00)	1.8E-01	1.00 (0.99 – 1.00)	1.00 (0.99 – 1.00)
789	Nausea and vomiting	Per88	1.00 (1.00 – 1.01)	6.0E-01	1.00 (0.99 – 1.00)	9.3E-01	1.00 (0.99 – 1.01)	1.00 (1.00 – 1.01)
262	Mineral deficiency NEC	Per88	1.00 (0.99 – 1.01)	6.0E-01	1.00 (0.99 – 1.01)	6.2E-01	1.01 (0.99 – 1.03)	1.00 (0.99 – 1.02)
946	Anaphylactic shock NOS	Per88	1.00 (0.98 – 1.01)	6.0E-01	0.99 (0.98 – 1.01)	7.9E-01	0.98 (0.95 – 1.01)	1.01 (0.99 – 1.02)
366.2	Senile cataract	Per88	1.00 (0.99 – 1.01)	6.0E-01	1.00 (0.99 – 1.01)	3.4E-01	1.01 (1.00 – 1.02)	1.00 (0.98 – 1.01)
288.1	Decreased white blood cell count	Per88	1.00 (0.99 – 1.02)	6.0E-01	1.00 (0.99 – 1.02)	1.9E-01	1.00 (0.98 – 1.03)	1.01 (0.99 – 1.03)
411.3	Angina pectoris	AHI 3%	1.00 (1.00 – 1.00)	6.1E-01	1.00 (1.00 – 1.00)	2.7E-01	1.00 (1.00 – 1.00)	1.00 (0.99 – 1.01)
599.2	Retention of urine	AHI 3%	1.00 (0.99 – 1.00)	6.1E-01	1.00 (0.99 – 1.00)	4.7E-02	1.00 (1.00 – 1.01)	1.00 (0.99 – 1.00)

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PheCode	Disease	Sleep statistic	Risk ratio	P-value	Risk ratio (adj pulmonary disorders)	Sleep statistic x sex interaction p-value	Risk ratio (Men)	Risk ratio (Women)
426	Cardiac conduction disorders	Per88	1.01 (0.98 – 1.03)	6.2E-01	1.01 (0.98 – 1.03)	6.5E-01	1.00 (0.97 – 1.02)	1.03 (0.99 – 1.06)
599.5	Frequency of urination and polyuria	Per88	1.00 (0.99 – 1.01)	6.2E-01	1.00 (0.99 – 1.01)	8.3E-01	1.00 (0.99 – 1.01)	1.00 (0.99 – 1.01)
526.41	Temporomandibular joint disorder, unspecified	Per88	1.00 (0.98 – 1.01)	6.3E-01	1.00 (0.98 – 1.01)	3.4E-01	0.99 (0.96 – 1.02)	1.00 (0.98 – 1.01)
263	Other nutritional deficiency	Per88	1.00 (0.99 – 1.02)	6.3E-01	1.00 (0.99 – 1.02)	8.4E-02	1.04 (1.02 – 1.07)	0.98 (0.96 – 1.01)
1004	Other signs and symptoms involving emotional state	Per88	1.00 (0.98 – 1.01)	6.3E-01	1.00 (0.98 – 1.01)	5.4E-01	0.99 (0.97 – 1.01)	1.00 (0.98 – 1.02)
473.4	Voice disturbance	Per88	1.00 (0.99 – 1.01)	6.3E-01	1.00 (0.99 – 1.01)	6.2E-01	1.00 (0.99 – 1.02)	1.00 (0.99 – 1.02)
433.31	Transient cerebral ischemia	Per88	1.00 (0.99 – 1.01)	6.3E-01	1.00 (0.99 – 1.01)	7.4E-01	1.00 (0.99 – 1.01)	1.01 (0.99 – 1.02)
110.12	Althete's foot	AHI 3%	1.00 (1.00 – 1.01)	6.4E-01	1.00 (1.00 – 1.01)	9.8E-01	1.00 (0.99 – 1.01)	1.00 (0.99 – 1.01)
798	Malaise and fatigue	Per88	1.00 (1.00 – 1.00)	6.4E-01	1.00 (0.99 – 1.00)	3.3E-01	1.00 (0.99 – 1.00)	1.00 (1.00 – 1.01)
979	Adverse drug events and drug allergies	Per88	1.00 (0.99 – 1.01)	6.4E-01	1.00 (0.99 – 1.01)	8.8E-01	1.00 (0.98 – 1.01)	1.01 (1.00 – 1.02)
596.5	Functional disorders of bladder	AHI 3%	1.00 (0.99 – 1.00)	6.4E-01	1.00 (0.99 – 1.00)	7.5E-01	1.00 (0.99 – 1.01)	1.00 (0.99 – 1.01)
530.11	GERD	Per88	1.00 (1.00 – 1.00)	6.5E-01	1.00 (1.00 – 1.00)	7.6E-01	1.00 (1.00 – 1.01)	1.00 (1.00 – 1.00)
368.2	Diplopia and disorders of binocular vision	Per88	1.00 (0.98 – 1.01)	6.5E-01	1.00 (0.98 – 1.01)	4.2E-01	1.00 (0.98 – 1.02)	1.00 (0.98 – 1.02)
208	Benign neoplasm of colon	Per88	1.00 (0.99 – 1.00)	6.5E-01	1.00 (0.99 – 1.00)	4.2E-01	1.00 (0.99 – 1.01)	0.99 (0.98 – 1.00)
481	Influenza	AHI 3%	1.00 (1.00 – 1.00)	6.5E-01	1.00 (1.00 – 1.00)	9.4E-01	1.00 (1.00 – 1.01)	1.00 (1.00 – 1.01)
472	Chronic pharyngitis and nasopharyngitis	Per88	1.00 (0.99 – 1.01)	6.5E-01	1.00 (0.99 – 1.01)	9.0E-01	1.00 (0.99 – 1.01)	1.00 (0.99 – 1.01)
723	Other disorders of cervical region	AHI 3%	1.00 (0.99 – 1.00)	6.5E-01	1.00 (0.99 – 1.00)	4.3E-02	0.99 (0.98 – 1.01)	1.00 (0.99 – 1.01)
772.6	Facial weakness	AHI 3%	1.00 (0.99 – 1.01)	6.6E-01	1.00 (0.99 – 1.01)	3.0E-01	1.00 (0.99 – 1.01)	1.00 (0.99 – 1.01)
277.5	Other disorders of lipid metabolism	Per88	1.00 (0.99 – 1.02)	6.6E-01	1.00 (0.99 – 1.02)	5.0E-01	1.01 (0.98 – 1.03)	1.00 (0.98 – 1.03)
289.9	Abnormality of red blood cells	AHI 3%	1.00 (1.00 – 1.01)	6.6E-01	1.00 (1.00 – 1.01)	4.9E-02	1.01 (1.00 – 1.01)	1.00 (0.99 – 1.00)
476	Allergic rhinitis	AHI 3%	1.00 (1.00 – 1.00)	6.7E-01	1.00 (1.00 – 1.00)	3.5E-01	1.00 (1.00 – 1.00)	1.00 (1.00 – 1.00)
793.2	Nonspecific abnormal findings on radiological and other examination of other intrathoracic organs (echocardiogram, etc)	AHI 3%	1.00 (1.00 – 1.00)	6.7E-01	1.00 (1.00 – 1.00)	9.9E-01	1.00 (0.99 – 1.01)	1.00 (0.99 – 1.00)
698	Pruritus and related conditions	AHI 3%	1.00 (1.00 – 1.00)	6.7E-01	1.00 (1.00 – 1.00)	8.3E-01	1.00 (1.00 – 1.01)	1.00 (1.00 – 1.00)
300.1	Anxiety disorder	Per88	1.00 (1.00 – 1.00)	6.7E-01	1.00 (1.00 – 1.00)	5.1E-01	1.00 (0.99 – 1.01)	1.00 (1.00 – 1.01)
727.4	Ganglion and cyst of synovium, tendon, and bursa	Per88	1.00 (0.99 – 1.02)	6.7E-01	1.00 (0.99 – 1.02)	1.6E-01	1.01 (0.99 – 1.04)	1.00 (0.98 – 1.02)
440.9	Atherosclerosis of aorta	Per88	1.00 (0.98 – 1.03)	6.7E-01	1.00 (0.98 – 1.03)	1.5E-01	0.99 (0.97 – 1.02)	1.01 (0.98 – 1.05)
374	Other disorders of eyelids	AHI 3%	1.00 (1.00 – 1.01)	6.8E-01	1.00 (1.00 – 1.01)	7.2E-01	1.00 (0.99 – 1.01)	1.00 (1.00 – 1.01)
483	Acute bronchitis and bronchiolitis	Per88	1.00 (0.99 – 1.01)	6.8E-01	1.00 (0.99 – 1.01)	8.6E-01	1.00 (0.98 – 1.01)	1.01 (0.99 – 1.02)
250.41	Impaired fasting glucose	Per88	1.00 (0.98 – 1.01)	6.8E-01	1.00 (0.99 – 1.01)	3.9E-01	0.99 (0.97 – 1.01)	1.00 (0.98 – 1.01)
574.3	Cholecystitis without cholelithiasis	Per88	1.00 (0.99 – 1.02)	6.8E-01	1.00 (0.99 – 1.01)	1.5E-02	0.98 (0.96 – 1.00)	1.02 (1.01 – 1.03)
579.8	Nonspecific abnormal findings in stool contents	Per88	1.00 (0.99 – 1.01)	6.8E-01	1.00 (0.99 – 1.01)	9.6E-01	1.00 (0.98 – 1.01)	1.00 (0.98 – 1.01)
593.2	Microscopic hematuria	Per88	1.00 (0.99 – 1.01)	6.8E-01	1.00 (0.99 – 1.01)	6.0E-01	1.00 (0.99 – 1.02)	1.00 (0.98 – 1.01)

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PheCode	Disease	Sleep statistic	Risk ratio	P-value	Risk ratio (adj pulmonary disorders)	Sleep statistic x sex interaction p-value	Risk ratio (Men)	Risk ratio (Women)
454.1	Varicose veins of lower extremity	Per88	1.00 (0.99 – 1.01)	6.9E-01	1.00 (0.99 – 1.01)	3.1E-01	0.99 (0.97 – 1.02)	1.00 (0.99 – 1.02)
277	Other disorders of metabolism	Per88	1.00 (0.99 – 1.01)	7.0E-01	1.00 (0.99 – 1.01)	3.7E-03	1.01 (1.00 – 1.03)	0.99 (0.98 – 1.00)
296.1	Bipolar	Per88	1.00 (0.99 – 1.01)	7.0E-01	1.00 (0.99 – 1.01)	2.0E-02	0.98 (0.96 – 1.00)	1.02 (1.00 – 1.03)
593	Hematuria	Per88	1.00 (0.99 – 1.01)	7.0E-01	1.00 (0.99 – 1.01)	9.2E-01	1.00 (0.99 – 1.01)	1.00 (0.99 – 1.01)
389.2	Conductive hearing loss	AHI 3%	1.00 (0.99 – 1.01)	7.0E-01	1.00 (0.99 – 1.01)	3.3E-01	0.99 (0.98 – 1.01)	1.00 (0.99 – 1.02)
766	Neuralgia, neuritis, and radiculitis NOS	Per88	1.00 (0.99 – 1.01)	7.0E-01	1.00 (0.99 – 1.01)	1.0E+00	1.00 (0.98 – 1.01)	1.00 (0.98 – 1.01)
374	Other disorders of eyelids	Per88	1.00 (0.99 – 1.01)	7.1E-01	1.00 (0.99 – 1.01)	7.5E-01	1.00 (0.99 – 1.02)	1.00 (0.98 – 1.02)
740.1	Osteoarthritis; localized	Per88	1.00 (0.99 – 1.02)	7.1E-01	1.00 (0.99 – 1.02)	6.5E-01	1.00 (0.98 – 1.02)	1.00 (0.98 – 1.02)
300.8	Acute reaction to stress	AHI 3%	1.00 (1.00 – 1.01)	7.1E-01	1.00 (1.00 – 1.01)	9.5E-01	1.00 (0.99 – 1.01)	1.00 (0.99 – 1.01)
585.4	Chronic kidney disease, Stage I or II	Per88	1.00 (0.99 – 1.02)	7.1E-01	1.00 (0.98 – 1.02)	6.8E-01	1.00 (0.98 – 1.02)	0.99 (0.96 – 1.03)
599.3	Dysuria	Per88	1.00 (0.99 – 1.01)	7.2E-01	1.00 (0.99 – 1.01)	3.1E-01	0.99 (0.98 – 1.01)	1.01 (1.00 – 1.02)
586.4	Stricture/obstruction of ureter	AHI 3%	1.00 (0.99 – 1.00)	7.2E-01	1.00 (0.99 – 1.00)	NA	1.00 (0.99 – 1.00)	NA
772.6	Facial weakness	Per88	1.00 (0.98 – 1.02)	7.2E-01	0.99 (0.98 – 1.01)	3.8E-01	1.00 (0.98 – 1.03)	0.99 (0.96 – 1.02)
727.1	Synovitis and tenosynovitis	Per88	1.00 (0.99 – 1.01)	7.2E-01	1.00 (0.99 – 1.01)	1.4E-01	1.00 (0.98 – 1.02)	1.00 (0.98 – 1.01)
465.4	Acute laryngitis and tracheitis	Per88	1.00 (0.98 – 1.01)	7.2E-01	0.99 (0.98 – 1.01)	9.5E-01	1.00 (0.97 – 1.02)	1.00 (0.97 – 1.02)
371.3	Inflammation of eyelids	AHI 3%	1.00 (1.00 – 1.00)	7.2E-01	1.00 (1.00 – 1.00)	1.3E-01	1.00 (0.99 – 1.01)	1.00 (0.99 – 1.00)
526	Diseases of the jaws	Per88	1.00 (0.99 – 1.02)	7.3E-01	1.00 (0.99 – 1.02)	9.5E-01	1.00 (0.97 – 1.03)	1.00 (0.99 – 1.02)
286.81	Primary hypercoagulable state	AHI 3%	1.00 (0.99 – 1.01)	7.3E-01	1.00 (0.99 – 1.01)	9.9E-01	1.00 (0.98 – 1.01)	1.00 (0.99 – 1.01)
427.61	Supraventricular premature beats	AHI 3%	1.00 (0.99 – 1.01)	7.3E-01	1.00 (0.99 – 1.01)	5.7E-01	1.00 (0.99 – 1.01)	1.00 (0.99 – 1.01)
765	Cervical radiculitis	Per88	1.00 (0.99 – 1.01)	7.3E-01	1.00 (0.99 – 1.01)	3.0E-01	0.99 (0.98 – 1.01)	1.01 (1.00 – 1.02)
720	Spinal stenosis	Per88	1.00 (0.99 – 1.01)	7.3E-01	1.00 (0.99 – 1.01)	1.9E-01	0.99 (0.97 – 1.00)	1.01 (0.99 – 1.02)
348.7	Coma	AHI 3%	1.00 (0.99 – 1.01)	7.4E-01	1.00 (0.99 – 1.01)	5.6E-01	1.00 (0.99 – 1.01)	1.00 (0.99 – 1.01)
110.13	Dermatophytosis of the body	AHI 3%	1.00 (1.00 – 1.01)	7.4E-01	1.00 (1.00 – 1.01)	1.3E-01	1.00 (0.99 – 1.00)	1.01 (0.99 – 1.02)
561	Symptoms involving digestive system	AHI 3%	1.00 (1.00 – 1.00)	7.4E-01	1.00 (1.00 – 1.00)	7.4E-01	1.00 (1.00 – 1.01)	1.00 (0.99 – 1.00)
442.1	Aortic aneurysm	AHI 3%	1.00 (0.99 – 1.01)	7.4E-01	1.00 (0.99 – 1.01)	9.5E-02	1.00 (0.99 – 1.01)	1.01 (1.00 – 1.03)
285	Other anemias	AHI 3%	1.00 (1.00 – 1.00)	7.4E-01	1.00 (1.00 – 1.00)	2.2E-04	1.00 (1.00 – 1.01)	1.00 (1.00 – 1.00)
369.5	Conjunctivitis, infectious	AHI 3%	1.00 (1.00 – 1.00)	7.4E-01	1.00 (1.00 – 1.00)	2.7E-01	1.00 (1.00 – 1.01)	1.00 (0.99 – 1.00)
290.1	Dementias	Per88	1.00 (0.98 – 1.02)	7.4E-01	1.00 (0.98 – 1.02)	7.4E-01	1.00 (0.98 – 1.02)	1.00 (0.98 – 1.04)
530.13	Barrett's esophagus	AHI 3%	1.00 (0.99 – 1.01)	7.6E-01	1.00 (0.99 – 1.01)	7.2E-01	1.00 (0.99 – 1.01)	1.00 (0.99 – 1.01)
296.2	Depression	Per88	1.00 (0.99 – 1.00)	7.6E-01	1.00 (0.99 – 1.00)	9.8E-01	1.00 (0.99 – 1.01)	1.00 (0.99 – 1.01)
686.1	Carbuncle and furuncle	AHI 3%	1.00 (0.99 – 1.01)	7.6E-01	1.00 (0.99 – 1.01)	2.9E-01	0.99 (0.98 – 1.00)	1.01 (1.00 – 1.02)
458.1	Orthostatic hypotension	Per88	1.00 (0.98 – 1.01)	7.6E-01	1.00 (0.98 – 1.01)	2.2E-01	1.00 (0.98 – 1.02)	1.00 (0.98 – 1.02)
426	Cardiac conduction disorders	AHI 3%	1.00 (0.99 – 1.01)	7.7E-01	1.00 (0.99 – 1.01)	2.9E-01	1.00 (0.99 – 1.01)	1.00 (0.99 – 1.02)
418	Nonspecific chest pain	AHI 3%	1.00 (1.00 – 1.00)	7.7E-01	1.00 (1.00 – 1.00)	9.9E-01	1.00 (1.00 – 1.00)	1.00 (1.00 – 1.00)
565.1	Anal and rectal polyp	Per88	1.00 (0.99 – 1.01)	7.7E-01	1.00 (0.99 – 1.01)	3.5E-01	1.00 (0.98 – 1.01)	1.00 (0.98 – 1.01)

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PheCode	Disease	Sleep statistic	Risk ratio	P-value	Risk ratio (adj pulmonary disorders)	Sleep statistic x sex interaction p-value	Risk ratio (Men)	Risk ratio (Women)
367.1	Myopia	Per88	1.00 (0.99 – 1.01)	7.7E-01	1.00 (0.99 – 1.01)	9.8E-01	1.00 (0.98 – 1.02)	1.00 (0.98 – 1.01)
721.8	Other allied disorders of spine	Per88	1.00 (0.98 – 1.01)	7.7E-01	1.00 (0.99 – 1.01)	4.0E-01	1.00 (0.98 – 1.02)	0.99 (0.97 – 1.01)
599.8	Other symptoms involving urinary system	AHI 3%	1.00 (0.99 – 1.00)	7.8E-01	1.00 (0.99 – 1.00)	6.4E-03	1.00 (1.00 – 1.01)	1.00 (0.99 – 1.00)
110.2	Dermatomycoses	AHI 3%	1.00 (0.99 – 1.01)	7.8E-01	1.00 (0.99 – 1.01)	9.5E-02	1.00 (0.99 – 1.00)	1.01 (1.00 – 1.02)
274.1	Gout	Per88	1.00 (0.99 – 1.01)	7.8E-01	1.00 (0.99 – 1.01)	3.6E-01	0.99 (0.98 – 1.01)	1.02 (1.00 – 1.04)
465	Acute upper respiratory infections of multiple or unspecified sites	Per88	1.00 (0.99 – 1.01)	7.8E-01	1.00 (0.99 – 1.00)	3.2E-01	1.00 (0.99 – 1.01)	1.00 (0.99 – 1.01)
433.8	Late effects of cerebrovascular disease	Per88	1.00 (0.98 – 1.02)	7.8E-01	1.00 (0.98 – 1.02)	3.6E-01	1.00 (0.98 – 1.02)	1.01 (0.98 – 1.04)
411.1	Unstable angina (intermediate coronary syndrome)	AHI 3%	1.00 (0.99 – 1.01)	7.9E-01	1.00 (0.99 – 1.01)	3.3E-01	1.00 (0.99 – 1.00)	1.01 (1.00 – 1.02)
592.11	Acute cystitis	Per88	1.00 (0.99 – 1.02)	7.9E-01	1.00 (0.99 – 1.02)	2.5E-01	0.99 (0.96 – 1.01)	1.01 (0.99 – 1.03)
470	Septal Deviations/Turbinate Hypertrophy	Per88	1.00 (0.99 – 1.01)	8.0E-01	1.00 (0.99 – 1.00)	4.0E-01	1.00 (0.99 – 1.01)	1.00 (0.99 – 1.01)
594.8	Renal colic	AHI 3%	1.00 (0.99 – 1.01)	8.0E-01	1.00 (0.99 – 1.01)	4.1E-01	1.00 (0.99 – 1.01)	1.01 (0.99 – 1.02)
761	Cervicalgia	AHI 3%	1.00 (1.00 – 1.00)	8.0E-01	1.00 (1.00 – 1.00)	3.2E-01	1.00 (1.00 – 1.00)	1.00 (0.99 – 1.00)
300.13	Phobia	Per88	1.00 (0.99 – 1.01)	8.0E-01	1.00 (0.99 – 1.01)	2.1E-01	1.01 (0.99 – 1.04)	0.99 (0.98 – 1.01)
272.1	Hyperlipidemia	Per88	1.00 (1.00 – 1.00)	8.1E-01	1.00 (1.00 – 1.00)	1.1E-01	1.00 (0.99 – 1.00)	1.00 (1.00 – 1.01)
574.1	Cholelithiasis	AHI 3%	1.00 (1.00 – 1.00)	8.1E-01	1.00 (1.00 – 1.00)	2.5E-01	1.00 (1.00 – 1.01)	1.00 (0.99 – 1.00)
440	Atherosclerosis	Per88	1.00 (0.98 – 1.02)	8.2E-01	1.00 (0.98 – 1.02)	1.9E-01	0.98 (0.95 – 1.01)	1.03 (1.01 – 1.06)
241.1	Nontoxic uninodular goiter	AHI 3%	1.00 (1.00 – 1.00)	8.2E-01	1.00 (1.00 – 1.00)	1.9E-01	1.00 (0.99 – 1.01)	1.00 (0.99 – 1.00)
418.1	Precordial pain	AHI 3%	1.00 (1.00 – 1.01)	8.2E-01	1.00 (1.00 – 1.01)	8.3E-01	1.00 (0.99 – 1.01)	1.00 (0.99 – 1.01)
440.9	Atherosclerosis of aorta	AHI 3%	1.00 (0.99 – 1.01)	8.2E-01	1.00 (0.99 – 1.01)	4.5E-01	1.00 (0.99 – 1.01)	1.01 (1.00 – 1.02)
427.5	Arrhythmia (cardiac) NOS	AHI 3%	1.00 (1.00 – 1.00)	8.3E-01	1.00 (1.00 – 1.00)	4.4E-01	1.00 (1.00 – 1.00)	1.00 (1.00 – 1.00)
411.1	Unstable angina (intermediate coronary syndrome)	Per88	1.00 (0.98 – 1.02)	8.3E-01	1.00 (0.98 – 1.02)	4.5E-01	1.00 (0.97 – 1.02)	1.01 (0.98 – 1.05)
350.3	Lack of coordination	AHI 3%	1.00 (0.99 – 1.01)	8.3E-01	1.00 (0.99 – 1.01)	5.5E-01	1.00 (0.99 – 1.01)	0.99 (0.98 – 1.01)
819	Skull and face fracture and other intercranial injury	Per88	1.00 (0.99 – 1.02)	8.4E-01	1.00 (0.98 – 1.01)	1.2E-01	1.01 (0.99 – 1.03)	0.99 (0.96 – 1.01)
596	Other disorders of bladder	AHI 3%	1.00 (0.99 – 1.01)	8.4E-01	1.00 (0.99 – 1.01)	8.8E-01	1.00 (0.99 – 1.01)	1.00 (0.99 – 1.01)
411.4	Coronary atherosclerosis	AHI 3%	1.00 (1.00 – 1.00)	8.5E-01	1.00 (1.00 – 1.00)	2.6E-01	1.00 (1.00 – 1.00)	1.00 (1.00 – 1.01)
350.2	Abnormality of gait	AHI 3%	1.00 (1.00 – 1.00)	8.5E-01	1.00 (1.00 – 1.00)	1.4E-01	1.00 (1.00 – 1.01)	1.00 (0.99 – 1.00)
427.8	Sinoatrial node dysfunction (Bradycardia)	Per88	1.00 (0.98 – 1.02)	8.5E-01	1.00 (0.98 – 1.02)	6.4E-02	0.99 (0.97 – 1.01)	1.03 (1.00 – 1.06)
694.2	Other dyschromia	AHI 3%	1.00 (1.00 – 1.00)	8.5E-01	1.00 (1.00 – 1.00)	5.8E-01	1.00 (1.00 – 1.00)	1.00 (1.00 – 1.00)
380.4	Impacted cerumen	Per88	1.00 (0.99 – 1.01)	8.6E-01	1.00 (0.99 – 1.01)	7.3E-01	1.00 (0.99 – 1.01)	1.00 (0.99 – 1.02)
561.1	Diarrhea	AHI 3%	1.00 (1.00 – 1.00)	8.6E-01	1.00 (1.00 – 1.00)	6.3E-01	1.00 (1.00 – 1.00)	1.00 (0.99 – 1.00)
495	Asthma	Per88	1.00 (1.00 – 1.00)	8.6E-01	0.99 (0.98 – 0.99)	3.5E-01	1.00 (0.99 – 1.00)	1.00 (1.00 – 1.01)
475.9	Postnasal drip	AHI 3%	1.00 (1.00 – 1.00)	8.7E-01	1.00 (1.00 – 1.00)	7.6E-01	1.00 (0.99 – 1.00)	1.00 (1.00 – 1.01)

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PheCode	Disease	Sleep statistic	Risk ratio	P-value	Risk ratio (adj pulmonary disorders)	Sleep statistic x sex interaction p-value	Risk ratio (Men)	Risk ratio (Women)
290.1	Dementias	AHI 3%	1.00 (0.99 – 1.01)	8.7E-01	1.00 (0.99 – 1.01)	8.4E-01	1.00 (1.00 – 1.01)	1.00 (0.99 – 1.01)
474.2	Chronic tonsillitis and adenoiditis	Per88	1.00 (0.99 – 1.01)	8.8E-01	1.00 (0.99 – 1.01)	1.8E-01	0.99 (0.97 – 1.01)	1.01 (1.00 – 1.02)
427.6	Premature beats	AHI 3%	1.00 (1.00 – 1.00)	8.8E-01	1.00 (1.00 – 1.00)	2.1E-01	1.00 (1.00 – 1.01)	1.00 (0.99 – 1.01)
721.8	Other allied disorders of spine	AHI 3%	1.00 (0.99 – 1.01)	8.9E-01	1.00 (0.99 – 1.01)	5.9E-01	1.00 (0.99 – 1.01)	1.00 (0.99 – 1.01)
599.2	Retention of urine	Per88	1.00 (0.99 – 1.01)	8.9E-01	1.00 (0.99 – 1.01)	6.8E-01	1.00 (0.99 – 1.01)	1.01 (0.99 – 1.03)
300.11	Generalized anxiety disorder	Per88	1.00 (0.99 – 1.01)	8.9E-01	1.00 (0.99 – 1.01)	1.8E-01	1.00 (0.99 – 1.01)	1.00 (1.00 – 1.01)
772.2	Spasm of muscle	Per88	1.00 (0.99 – 1.01)	8.9E-01	1.00 (0.99 – 1.01)	9.6E-02	1.00 (0.99 – 1.02)	1.00 (0.98 – 1.01)
277.5	Other disorders of lipid metabolism	AHI 3%	1.00 (0.99 – 1.01)	9.0E-01	1.00 (0.99 – 1.01)	7.5E-03	1.01 (1.00 – 1.01)	0.99 (0.98 – 1.00)
772.3	Muscle weakness	Per88	1.00 (0.99 – 1.01)	9.0E-01	1.00 (0.99 – 1.01)	2.2E-01	1.00 (0.98 – 1.02)	0.99 (0.98 – 1.01)
912	Insect bite	Per88	1.00 (0.99 – 1.01)	9.1E-01	1.00 (0.99 – 1.01)	8.6E-01	1.00 (0.97 – 1.03)	0.99 (0.97 – 1.01)
427.8	Sinoatrial node dysfunction (Bradycardia)	AHI 3%	1.00 (0.99 – 1.01)	9.1E-01	1.00 (0.99 – 1.01)	5.4E-01	1.00 (0.99 – 1.01)	1.00 (0.99 – 1.02)
599.3	Dysuria	AHI 3%	1.00 (1.00 – 1.00)	9.1E-01	1.00 (1.00 – 1.00)	7.4E-03	1.00 (1.00 – 1.01)	1.00 (0.99 – 1.00)
764	Sciatica	Per88	1.00 (0.99 – 1.01)	9.1E-01	1.00 (0.99 – 1.01)	4.3E-01	1.00 (0.99 – 1.01)	1.00 (0.99 – 1.01)
721.1	Spondylosis without myelopathy	Per88	1.00 (0.99 – 1.01)	9.1E-01	1.00 (0.99 – 1.01)	6.8E-01	1.00 (0.99 – 1.01)	1.00 (0.99 – 1.01)
245.21	Chronic lymphocytic thyroiditis	AHI 3%	1.00 (0.99 – 1.00)	9.2E-01	1.00 (0.99 – 1.00)	6.6E-01	0.99 (0.98 – 1.00)	1.00 (0.99 – 1.01)
389.1	Sensorineural hearing loss	AHI 3%	1.00 (1.00 – 1.00)	9.2E-01	1.00 (1.00 – 1.00)	3.3E-01	1.00 (1.00 – 1.00)	1.00 (1.00 – 1.01)
764	Sciatica	AHI 3%	1.00 (1.00 – 1.00)	9.2E-01	1.00 (1.00 – 1.00)	1.5E-01	1.00 (1.00 – 1.01)	1.00 (0.99 – 1.00)
008.6	Viral Enteritis	Per88	1.00 (0.99 – 1.01)	9.3E-01	1.00 (0.99 – 1.01)	9.0E-01	1.01 (0.99 – 1.04)	0.99 (0.98 – 1.01)
735.3	Hallux valgus (Bunion)	Per88	1.00 (0.99 – 1.01)	9.3E-01	1.00 (0.99 – 1.01)	8.3E-01	0.99 (0.97 – 1.02)	1.00 (0.98 – 1.01)
208	Benign neoplasm of colon	AHI 3%	1.00 (1.00 – 1.00)	9.4E-01	1.00 (1.00 – 1.00)	3.3E-01	1.00 (1.00 – 1.00)	1.00 (1.00 – 1.00)
300.3	Obsessive-compulsive disorders	Per88	1.00 (0.99 – 1.01)	9.4E-01	1.00 (0.99 – 1.01)	1.8E-01	1.00 (0.98 – 1.01)	1.01 (0.99 – 1.02)
244.2	Acquired hypothyroidism	AHI 3%	1.00 (1.00 – 1.00)	9.4E-01	1.00 (1.00 – 1.00)	3.7E-01	0.99 (0.98 – 1.00)	1.00 (1.00 – 1.01)
296.22	Major depressive disorder	Per88	1.00 (1.00 – 1.00)	9.5E-01	1.00 (1.00 – 1.00)	1.0E-01	1.00 (0.99 – 1.00)	1.00 (1.00 – 1.01)
415.11	Pulmonary embolism and infarction, acute	AHI 3%	1.00 (0.99 – 1.00)	9.5E-01	1.00 (0.99 – 1.00)	4.2E-01	1.00 (0.99 – 1.01)	1.00 (0.99 – 1.01)
459.9	Circulatory disease NEC	AHI 3%	1.00 (1.00 – 1.00)	9.5E-01	1.00 (1.00 – 1.00)	8.3E-01	1.00 (1.00 – 1.00)	1.00 (0.99 – 1.01)
293	Symptoms involving head and neck	Per88	1.00 (0.98 – 1.02)	9.5E-01	1.00 (0.98 – 1.02)	5.7E-01	0.99 (0.97 – 1.02)	1.00 (0.98 – 1.03)
415	Pulmonary heart disease	AHI 3%	1.00 (0.99 – 1.01)	9.5E-01	1.00 (0.99 – 1.01)	4.3E-03	1.01 (1.00 – 1.02)	0.99 (0.98 – 1.00)
008.6	Viral Enteritis	AHI 3%	1.00 (0.99 – 1.01)	9.5E-01	1.00 (0.99 – 1.01)	8.2E-01	1.00 (0.99 – 1.01)	1.00 (0.99 – 1.01)
516.1	Hemoptysis	AHI 3%	1.00 (0.99 – 1.01)	9.5E-01	1.00 (0.99 – 1.01)	4.7E-01	1.00 (0.99 – 1.01)	1.00 (0.99 – 1.01)
532	Dysphagia	AHI 3%	1.00 (1.00 – 1.00)	9.5E-01	1.00 (1.00 – 1.00)	8.1E-01	1.00 (1.00 – 1.01)	1.00 (0.99 – 1.00)
172.22	Squamous cell carcinoma	Per88	1.00 (0.98 – 1.02)	9.5E-01	1.00 (0.98 – 1.01)	2.6E-01	0.99 (0.98 – 1.01)	1.02 (1.00 – 1.05)
172.2	Other non-epithelial cancer of skin	AHI 3%	1.00 (1.00 – 1.00)	9.6E-01	1.00 (1.00 – 1.00)	3.8E-01	1.00 (1.00 – 1.01)	1.00 (0.99 – 1.00)
912	Insect bite	AHI 3%	1.00 (0.99 – 1.01)	9.6E-01	1.00 (0.99 – 1.01)	9.5E-01	1.00 (0.99 – 1.01)	1.00 (0.99 – 1.01)
345	Epilepsy, recurrent seizures, convulsions	Per88	1.00 (0.99 – 1.01)	9.6E-01	1.00 (0.99 – 1.01)	8.1E-02	1.00 (0.98 – 1.01)	1.00 (0.99 – 1.02)
367.8	Hypermetropia	Per88	1.00 (0.99 – 1.01)	9.6E-01	1.00 (0.99 – 1.01)	7.0E-01	0.99 (0.97 – 1.02)	1.01 (0.99 – 1.03)

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PheCode	Disease	Sleep statistic	Risk ratio	P-value	Risk ratio (adj pulmonary disorders)	Sleep statistic x sex interaction p-value	Risk ratio (Men)	Risk ratio (Women)
596.5	Functional disorders of bladder	Per88	1.00 (0.98 – 1.01)	9.6E-01	1.00 (0.98 – 1.01)	8.2E-01	1.01 (0.99 – 1.03)	0.99 (0.97 – 1.01)
965	Poisoning by analgesics, antipyretics, and antirheumatics	AHI 3%	1.00 (1.00 – 1.00)	9.6E-01	1.00 (1.00 – 1.00)	3.7E-01	1.00 (1.00 – 1.01)	1.00 (0.99 – 1.00)
724.8	Other symptoms referable to back	Per88	1.00 (0.98 – 1.02)	9.6E-01	1.00 (0.98 – 1.02)	8.3E-01	0.99 (0.96 – 1.02)	1.01 (0.99 – 1.03)
514.2	Solitary pulmonary nodule	AHI 3%	1.00 (1.00 – 1.00)	9.6E-01	1.00 (1.00 – 1.00)	3.5E-01	1.00 (0.99 – 1.00)	1.00 (0.99 – 1.01)
698	Pruritus and related conditions	Per88	1.00 (0.99 – 1.01)	9.7E-01	1.00 (0.99 – 1.01)	7.9E-01	0.99 (0.98 – 1.01)	1.00 (1.00 – 1.01)
464	Acute sinusitis	AHI 3%	1.00 (1.00 – 1.00)	9.7E-01	1.00 (1.00 – 1.00)	3.6E-01	1.00 (0.99 – 1.01)	1.00 (0.99 – 1.00)
276.12	Hyposmolality and/or hyponatremia	AHI 3%	1.00 (0.99 – 1.01)	9.7E-01	1.00 (0.99 – 1.01)	3.5E-01	1.00 (0.99 – 1.00)	1.00 (0.99 – 1.01)
704	Diseases of hair and hair follicles	AHI 3%	1.00 (1.00 – 1.00)	9.8E-01	1.00 (1.00 – 1.00)	6.4E-03	1.00 (1.00 – 1.01)	0.99 (0.99 – 1.00)
259	Other endocrine disorders	Per88	1.00 (0.98 – 1.02)	9.8E-01	1.00 (0.98 – 1.02)	5.3E-02	1.02 (1.00 – 1.05)	0.97 (0.95 – 1.00)
292.1	Aphasia/speech disturbance	AHI 3%	1.00 (0.99 – 1.01)	9.8E-01	1.00 (0.99 – 1.01)	1.5E-01	1.00 (0.99 – 1.01)	1.00 (0.99 – 1.01)
375.1	Dry eyes	Per88	1.00 (0.99 – 1.01)	9.8E-01	1.00 (0.99 – 1.01)	4.0E-01	1.00 (0.99 – 1.02)	0.99 (0.98 – 1.01)
563	Constipation	Per88	1.00 (0.99 – 1.01)	9.9E-01	1.00 (0.99 – 1.00)	5.1E-01	1.00 (0.99 – 1.01)	1.00 (1.00 – 1.01)
427.22	Atrial flutter	AHI 3%	1.00 (0.99 – 1.01)	9.9E-01	1.00 (0.99 – 1.01)	6.0E-01	1.00 (1.00 – 1.01)	1.00 (0.99 – 1.01)
386.2	Peripheral or central vertigo	AHI 3%	1.00 (1.00 – 1.00)	9.9E-01	1.00 (1.00 – 1.00)	6.1E-01	1.00 (0.99 – 1.01)	1.00 (0.99 – 1.01)
300.3	Obsessive-compulsive disorders	AHI 3%	1.00 (0.99 – 1.01)	9.9E-01	1.00 (0.99 – 1.01)	9.0E-01	1.00 (0.99 – 1.01)	1.00 (0.99 – 1.01)