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Supplementary Table S1 Information of pQTL and GWAS datasets

Type of dataset	Resource	Population	Sample size		Reference	Download site
pQTL	Wingo et al., 2021	European ancestry	ROSMAP	N _{subjects} = 376; N _{protein} = 1475	Wingo AP, Liu Y, Gerasimov ES, Gockley J, Logsdon BA, Duong DM, et al. Integrating human brain proteomes with genome-wide association data implicates new proteins in Alzheimer's disease pathogenesis. Nat Genet. 2021;53:143–146.	https://www.nature.com/articles/s41588-020-00773-z
			Banner	N _{subjects} = 152; N _{protein} = 1139		
GWAS	Guintivano et al, 2023	European	N _{case} = 17339; N _{control} = 53426		Guintivano J, Byrne EM, Kiewa J, Yao S, Bauer AE, Aberg KA, et al. Meta-Analyses of Genome-Wide Association Studies for Postpartum Depression. Am J Psychiatry. 2023;180:884–895.	https://psychiatryonline.org/doi/10.1176/appi.ajp.20230053?url_ver=Z39.88-2003&rfr_id=ori:rid:crossref.org&rfr_dat=c_r_pub%20%200pubmed
		East Asian	N _{case} = 975; N _{control} = 3780			
		African	N _{case} = 456; N _{control} = 1255			

This table lists the proteomic quantitative trait locus (pQTL) and genome-wide association study (GWAS) summary resources employed in our analyses. Columns are: Type of dataset (pQTL or GWAS), Resource (citation), Population (ancestry of study participants), Sample size (cohort-specific sample counts and number of proteins for pQTL datasets; case/control counts for GWAS), Reference (full citation), and Download site. For pQTL cohorts, “N_{subjects}” indicates the number of individuals with proteomic data and “N_{protein}” the number of proteins quantified. For GWAS cohorts, “N_{case}” and “N_{control}” denote numbers of cases and controls, respectively.

Supplementary Table S2 Significant risk genes identified by PWAS

Gene	CHR	ROSMAP			Banner		
		Z-PWAS	P-PWAS	P-FDR	Z-PWAS	P-PWAS	P-FDR
<i>MKRN1</i>	7	3.8327	1.27E-04	4.66E-02	3.963	7.40E-05	3.59E-02
<i>CCDC92</i>	12	-3.9612	7.46E - 05	3.65E-02	-3.7906	1.50E-04	4.28E-02
<i>CRK</i>	17	3.9718	7.13E - 05	3.65E-02	-	-	-
<i>HARS2</i>	5	-4.755	1.98E - 06	2.90E-03	-	-	-
<i>HARS</i>	5	-	-	-	-4.8647	1.15E - 06	1.31E-03
<i>DHX36</i>	3	-	-	-	-3.9049	9.43E - 05	3.59E-02

This table reports proteins prioritized by proteome-wide association study (PWAS) using ROSMAP and Banner proteome reference weights. Columns are: Gene (gene symbol), CHR (chromosome), followed by cohort-specific PWAS statistics for ROSMAP and Banner. For each cohort: Z-PWAS = association Z-score from PWAS (positive Z indicates that higher genetically predicted protein level is associated with increased PPD risk; negative Z indicates the opposite); P-PWAS = original p-value; P-FDR = false discovery rate (FDR) adjusted p-value (Benjamini–Hochberg) across proteins tested. A dash (“-”) denotes that the protein was not quantified or not tested in that cohort.

Supplementary Table S3 Genetic information and model parameters for overlapping genes identified in PWAS

ID	CHR	P0	P1	HSQ	NSNP	NWGT	MODEL	MODEL.CV.R2	MODEL.CV.PV
ROSMAP									
ENSG00000119242.CCDC92	12	124403207	124457378	0.0507	83	83	blup	0.075	3.90E-08
ENSG00000133606.MKRN1	7	140152840	140179369	0.19	96	5	lasso	0.085	5.40E-09
Banner									
ENSG00000133606.MKRN1	7	140152840	140179369	0.1466	90	1	top1	0.13	4.30E-06
ENSG00000119242.CCDC92	12	124403207	124457378	0.45	79	7	lasso	0.66	4.80E-37

This table summarizes genetic and model characteristics for protein-coding genes identified as overlapping in ROSMAP and Banner PWAS analyses. Columns are: ID (Ensembl gene ID with gene symbol), CHR (chromosome), P0 and P1 (genomic start and end positions), HSQ (estimated heritability), NSNP (number of SNPs in the cis-region), NWGT (number of weights), MODEL (prediction model type), MODEL.CV.R2 (cross-validated prediction R^2), and MODEL.CV.PV (P-value for model performance).

Supplementary Table S4 Genetic associations and PWAS results for overlapping genes

ID	ID-BEST-GWAS	Z-BEST-GWAS	ID-pQTL	R2-pQTL	Z-pQTL	Z-pQTL-GWAS	Z-PWAS	P-PWAS	P-FDR
ROSMAP									
ENSG00000119242.CCDC92	rs12823740	4.12	rs12309481	0.058099	-5.61	2.607	-3.9612	7.46E-05	0.036
ENSG00000133606.MKRN1	rs12155423	-3.96	rs12155423	0.081798	-6.01	-3.963	3.8327	1.27E-04	0.047
Banner									
ENSG00000133606.MKRN1	rs12155423	-3.96	rs12155423	0.13174	-4.83	-3.963	3.963	7.40E-05	0.036
ENSG00000119242.CCDC92	rs12823740	4.12	rs12311114	0.653431	-10.02	3.729	-3.7906	1.50E-04	0.043

This table reports summary statistics linking PPD GWAS variants, pQTLs, and PWAS signals for overlapping genes across ROSMAP and Banner datasets. Columns are: ID (Ensembl gene ID with gene symbol), ID-BEST-GWAS (top associated SNP in PPD GWAS), Z-BEST-GWAS (Z-score for the top GWAS SNP), ID-pQTL (lead SNP associated with protein abundance), R2-pQTL (LD r^2 between pQTL and GWAS SNP), Z-pQTL (Z-score for the pQTL), Z-pQTL-GWAS (Z-score of pQTL SNP in GWAS), Z-PWAS (PWAS Z-score), P-PWAS (PWAS P-value), and P-FDR (FDR-adjusted PWAS P-value).

Supplementary Table S5 Significant risk genes in colocalization analysis and their evidence in PWAS/MR

Gene	CHR	H ₄ -ROSMAP	H ₄ -Banner	Evidence in PWAS	Evidence in MR
<i>MKRN1</i>	7	0.845	0.646	YES	YES
<i>CCDC92</i>	12	0.838	0.757	YES	NO
<i>DCPS</i>	11	0.761	-	NO	NO
<i>HARS</i>	5	-	0.619	NO	NO

This table summarizes results from colocalization analyses of PPD GWAS with brain pQTLs, alongside supporting evidence from PWAS and Mendelian randomization (MR). Columns are: Gene (gene symbol), CHR (chromosome), H₄-ROSMAP and H₄-Banner (posterior probability for hypothesis 4 [shared causal variant] in ROSMAP and Banner, respectively), Evidence in PWAS (YES/NO), and Evidence in MR (YES/NO).

Supplementary Table S6 Detailed information of colocalization analysis between PPD variants and overlapping genes

Gene	COLOC.PP0	COLOC.PP1 (H ₁)	COLOC.PP2 (H ₂)	COLOC.PP3 (H ₃)	COLOC.PP4 (H ₄)
ROSMAP					
<i>MKRN1</i>	0	0.154	0	0.001	0.845
<i>CCDC92</i>	0	0.141	0	0.021	0.838
Banner					
<i>CCDC92</i>	0	0.211	0	0.032	0.757
<i>MKRN1</i>	0.25	0.102	0.002	0	0.646

This table provides full posterior probabilities for colocalization analyses performed using the COLOC framework (ranging from 0 to 1; higher values indicate greater confidence). Columns are: Gene (gene symbol), COLOC.PP0 (probability of no association in either trait), COLOC.PP1/H₁ (association with GWAS only), COLOC.PP2/H₂ (association with pQTL only), COLOC.PP3/H₃ (both traits associated, distinct causal variants), and COLOC.PP4/H₄ (both traits associated, shared causal variant). Results are presented separately for ROSMAP and Banner proteome reference panels.

Supplementary Table S7 Significant SMR and HEIDI results from ROSMAP and Banner datasets

Gene	CHR	P-HEIDI (ROSMAP)	P-SMR (ROSMAP)	P-HEIDI (Banner)	P-SMR (Banner)
<i>ALDH5A1</i>	6	2.80E-01	2.30E-04	7.23E-01	3.54E-03
<i>MKRN1</i>	7	3.64E-01	8.59E-04	2.75E-01	2.62E-03
<i>CNNM2</i>	10	3.11E-01	4.01E-03	1.41E-01	3.52E-03
<i>AKR1A1</i>	1	1.86E-01	5.71E-03	1.31E-01	5.57E-03
<i>PPOX</i>	1	9.82E-01	6.81E-03	9.74E-01	6.23E-03
<i>DCPS</i>	11	1.16E-01	2.53E-03	-	-
<i>DCAF6</i>	1	4.93E-01	3.35E-03	-	-
<i>TBCC</i>	6	-	4.35E-03	-	-
<i>PSMD5</i>	9	2.12E-01	8.08E-03	-	-
<i>NAA80</i>	3	2.02E-01	8.50E-03	-	-
<i>ALDH2</i>	12	1.38E-01	9.28E-03	-	-
<i>NEK4</i>	3	3.73E-01	9.51E-03	-	-
<i>CCDC92</i>	12	-	-	2.68E-01	2.85E-04
<i>B3GLCT</i>	13	-	-	5.09E-01	3.18E-03
<i>IDH3A</i>	15	-	-	1.45E-01	6.91E-03

This table lists genes showing significant associations in summary data-based Mendelian randomization (SMR) analyses, together with heterogeneity in dependent instruments (HEIDI) test results. Columns are: Gene (gene symbol), CHR (chromosome), P-HEIDI (P-value for HEIDI heterogeneity test), and P-SMR (P-value for SMR association) from ROSMAP and Banner datasets, respectively. A dash (“-”) denotes that the protein had insufficient significance in the corresponding cohort.

Supplementary Table S8 Genetic information of probes and SNPs for SMR overlapping genes

ProbeID	Gene	ProbeCHR	Probe-bp	TopSNP	TopSNP-CHR	TopSNP-bp	A1	A2	Freq
ROSMAP									
P51649	<i>ALDH5A1</i>	6	24633429	rs7775073	6	24499551	G	A	0.316973
Q9UHC7	<i>MKRNI</i>	7	140278758	rs12155423	7	140145753	T	C	0.309816
Q9H8M5	<i>CNNM2</i>	10	104945028	rs12411886	10	104685299	A	C	0.0879346
P14550	<i>AKR1A1</i>	1	46132844	rs2229540	1	46032311	G	A	0.0654397
P50336	<i>PPOX</i>	1	161239471	rs3813619	1	161143801	A	G	0.0674847
Banner									
Q9UHC7	<i>MKRNI</i>	7	140278758	rs12155423	7	140145753	C	T	0.690184
Q9H8M5	<i>CNNM2</i>	10	104934709	rs11191499	10	104764271	T	C	0.912065
P51649	<i>ALDH5A1</i>	6	24633429	rs2076317	6	24490147	A	G	0.632924
P14550	<i>AKR1A1</i>	1	46132844	rs2229540	1	46032311	A	G	0.93456
P50336	<i>PPOX</i>	1	161239471	rs36013429	1	161139738	G	A	0.936605

This table summarizes the probe-level and SNP-level details used in SMR analyses of overlapping genes from ROSMAP and Banner datasets. Columns are: ProbeID (UniProt protein ID), Gene (gene symbol), ProbeCHR (chromosome of the probe region), Probe-bp (probe genomic coordinate), TopSNP (lead cis-pQTL SNP), TopSNP-CHR (chromosome of top SNP), TopSNP-bp (position of top SNP), A1 (effect allele), A2 (non-effect allele), and Freq (effect allele frequency).

Supplementary Table S9 Genetic associations, pQTL, and SMR results for overlapping genes

Gene	Beta-GWAS	SE-GWAS	P-GWAS	Beta-pQTL	SE-pQTL	P-pQTL	Beta-SMR	SE-SMR	P-SMR	P-HEIDI	NSNP-HEIDI
ROSMAP											
<i>ALDH5A1</i>	-0.0561	0.0137	4.20E-05	-0.06548	0.0077624	3.30E-17	0.85675	0.232573	2.30E-04	2.80E-01	20
<i>MKRNI</i>	-0.0587	0.0148	7.39E-05	-0.04741	0.00771105	7.83E-10	1.23814	0.371488	8.59E-04	3.64E-01	5

<i>CNNM2</i>	-0.0772	0.0233	9.32E-04	0.0422	0.0072739	6.57E-09	-1.82938	0.635831	4.01E-03	3.11E-01	3
<i>AKR1A1</i>	0.0753	0.0266	4.67E-03	-0.2532	0.0197555	1.32E-37	-0.297393	0.107587	5.71E-03	1.86E-01	7
<i>PPOX</i>	0.0736	0.0256	3.97E-03	-0.1175	0.0146587	1.10E-15	-0.626383	0.231463	6.81E-03	9.82E-01	15
Banner											
<i>MKRN1</i>	0.0587	0.0148	7.39E-05	-0.0451822	0.00978602	3.89E-06	-1.29918	0.431831	2.62E-03	2.75E-01	5
<i>CNNM2</i>	0.0801	0.0233	5.86E-04	0.045708	0.00827891	3.37E-08	1.75243	0.600502	3.52E-03	1.41E-01	6
<i>ALDH5A1</i>	0.0453	0.0131	5.66E-04	-0.0436893	0.00805111	5.75E-08	-1.03687	0.355551	3.54E-03	7.23E-01	16
<i>AKR1A1</i>	-0.0753	0.0266	4.67E-03	-0.268483	0.0196662	1.96E-42	0.280464	0.101183	5.57E-03	1.31E-01	5
<i>PPOX</i>	-0.0741	0.0256	3.81E-03	-0.141776	0.0169568	6.22E-17	0.522657	0.191081	6.23E-03	9.74E-01	9

This table integrates GWAS, pQTL, and SMR results for overlapping genes across ROSMAP and Banner datasets. Columns are: Gene (gene symbol), Beta-GWAS, SE-GWAS, and P-GWAS (effect size, standard error, and P-value from PPD GWAS), Beta-pQTL, SE-pQTL, and P-pQTL (effect size, standard error, and P-value from cis-pQTL analysis), Beta-SMR, SE-SMR, and P-SMR (effect size, standard error, and P-value from SMR analysis), P-HEIDI (P-value for HEIDI test), and NSNP-HEIDI (number of SNPs included in the HEIDI test).

Supplementary Table S10 Significant associations identified by TSMR

Exposure	Method	NSNP	Beta	SE	P-value	Lower-CI	Upper-CI	OR	Lower OR (95%CI)	Upper OR (95%CI)
<i>ALDH5A1</i>	Wald ratio	1	0.856750153	0.209224191	4.22E-05	0.446670739	1.266829566	2.355493248	1.563099547	3.549580993
<i>MKRN1</i>	Wald ratio	1	1.238135414	0.312170428	7.30E-05	0.626281375	1.849989454	3.449176181	1.870641416	6.35975245
<i>DCAF6</i>	Wald ratio	1	1.237509608	0.3638227	6.70E-04	0.524417115	1.950602101	3.44701834	1.689473792	7.032920834
<i>CNNM2</i>	Wald ratio	1	-1.81042654	0.552132701	1.04E-03	-2.892606635	-0.728246445	0.163584347	0.055431534	0.482754785
<i>TBCC</i>	Wald ratio	1	-1.493576741	0.492224476	2.41E-03	-2.458336714	-0.528816768	0.224567996	0.085577172	0.589301838
<i>PSMD5</i>	Wald ratio	1	-1.31614654	0.447761194	3.29E-03	-2.19375848	-0.4385346	0.268166683	0.111496901	0.644980884
<i>PPOX</i>	Wald ratio	1	-0.630638298	0.21787234	3.80E-03	-1.057668085	-0.203608511	0.532251957	0.347264659	0.815781679
<i>NAT6</i>	Wald ratio	1	0.690999291	0.242735648	4.42E-03	0.21523742	1.166761162	1.995708832	1.2401563	3.211574009

<i>AKR1A1</i>	Wald ratio	1	-0.297393365	0.105055292	4.64E-03	-0.503301738	-0.091484992	0.742751782	0.604531357	0.912575012
<i>ALDH2</i>	Wald ratio	1	-0.586616635	0.210131332	5.24E-03	-0.998474046	-0.174759225	0.556205952	0.368441237	0.839659166
<i>ALDH1A3</i>	Wald ratio	1	-0.328802039	0.120645709	6.42E-03	-0.56526763	-0.092336449	0.719785492	0.568208057	0.911798325
<i>AK4; LOC100507855</i>	Wald ratio	1	-0.99789916	0.367647059	6.64E-03	-1.718487395	-0.277310924	0.36865311	0.179337209	0.757818836
<i>IDH3A</i>	Wald ratio	1	0.522796353	0.194528875	7.20E-03	0.141519757	0.904072948	1.686737775	1.152023264	2.469641376
<i>DGKQ</i>	Wald ratio	1	0.671946244	0.250779938	7.37E-03	0.180417567	1.163474922	1.958044447	1.197717385	3.201037327
<i>COQ9</i>	Wald ratio	1	0.720572057	0.273193986	8.35E-03	0.185111845	1.25603227	2.0556088	1.203353021	3.51146128
<i>CYB5R3</i>	Wald ratio	1	-0.830945559	0.315186246	8.38E-03	-1.448710602	-0.213180516	0.435637171	0.234872938	0.808010265
<i>CCDC92</i>	Wald ratio	1	-1.22067324	0.469228154	9.28E-03	-2.140360422	-0.300986059	0.295031473	0.117612445	0.74008809

This table presents significant causal associations between protein levels and postpartum depression risk estimated by TSMR analysis. Columns are: Exposure (protein/gene), Method (MR method used), NSNP (number of instrumental SNPs), Beta (effect size), SE (standard error), P-value, Lower-CI and Upper-CI (95% confidence interval bounds for effect estimate), OR (odds ratio), and Lower OR and Upper OR (95% confidence interval for OR).

Supplementary Table S11 Associations between *MKRN1* and disease phenotypes identified by Phe-MR

Category	Phenotype	Number of cases	Number of controls	Number of excluded controls	P-value	Significance
circulatory system	Coronary atherosclerosis	20023	377103	11835	4.37E-04	No
	Ischemic Heart Disease	31355	377103	503	7.07E-04	No
	Hypertension	77977	330366	618	1.65E-03	No
	Angina pectoris	16175	377103	15683	2.16E-03	No
	Essential hypertension	77723	330366	872	2.33E-03	No
	Other chronic ischemic heart disease, unspecified	14921	377103	16937	8.83E-03	No
	Elevated blood pressure reading without diagnosis of hypertension	1487	330366	77108	9.23E-03	No

Arterial embolism and thrombosis of lower extremity artery	557	400595	7809	1.26E-02	No
Noninfectious disorders of lymphatic channels	705	408256	0	1.32E-02	No
Nonspecific chest pain	31429	377532	0	1.56E-02	No
Bundle branch block	3353	380919	24689	3.82E-02	No
Tachycardia NOS	2193	380919	25849	4.07E-02	No
Other acute and subacute forms of ischemic heart disease	1169	377103	30689	5.19E-02	No
Abnormal heart sounds	1049	402421	5491	6.10E-02	No
Circulatory disease NEC	16366	387905	4690	6.28E-02	No
Arterial embolism and thrombosis	921	400595	7445	6.42E-02	No
Unstable angina (intermediate coronary syndrome)	5181	377103	26677	6.58E-02	No
Other disorders of circulatory system	16544	387905	4512	7.24E-02	No
Disease of tricuspid valve	1058	402421	5482	7.44E-02	No
Hypotension NOS	3518	387905	17538	7.52E-02	No
Hemorrhoids	23896	369592	15473	1.13E-01	No
Carditis	2020	405779	1162	1.30E-01	No
Cardiac conduction disorders	6959	380919	21083	1.38E-01	No
Right bundle branch block	1498	380919	26544	1.45E-01	No
Myocardial infarction	11703	377103	20155	1.48E-01	No
Transient cerebral ischemia	2146	399017	7798	1.48E-01	No
Hypotension	5827	387905	15229	1.55E-01	No
Congestive heart failure (CHF) NOS	2031	402834	4096	1.57E-01	No
Atrioventricular block, complete	587	380919	27455	1.65E-01	No
Cardiac dysrhythmias	24681	380919	3361	1.75E-01	No
Other disorders of arteries and arterioles	1333	400595	7033	1.91E-01	No

Cerebral artery occlusion, with cerebral infarction	1501	399017	8443	1.96E-01	No
Occlusion of cerebral arteries	4134	399017	5810	2.03E-01	No
Pericarditis	1273	405779	1909	2.06E-01	No
Chronic pulmonary heart disease	590	402375	5996	2.18E-01	No
Ill-defined descriptions and complications of heart disease	796	402834	5331	2.23E-01	No
Orthostatic hypotension	1347	387905	19709	2.31E-01	No
Occlusion and stenosis of precerebral arteries	1185	399017	8759	2.54E-01	No
Hypertensive heart and/or renal disease	1719	330366	76876	2.73E-01	No
Polyarteritis nodosa and allied conditions	828	400595	7538	2.89E-01	No
Precordial pain	3582	377532	27847	2.91E-01	No
Other specified cardiac dysrhythmias	3236	380919	24806	2.94E-01	No
Rheumatic disease of the heart valves	4895	402421	1645	3.13E-01	No
Cerebral ischemia	2920	399017	7024	3.26E-01	No
Cardiomegaly	2573	402375	4013	3.43E-01	No
Vascular insufficiency of intestine	576	400595	7790	3.44E-01	No
Peripheral vascular disease, unspecified	2566	400595	5800	3.64E-01	No
Atrioventricular [AV] block	2125	380919	25917	3.99E-01	No
Varicose veins	12172	369592	27197	4.01E-01	No
Hypertensive chronic kidney disease	1548	330366	77047	4.55E-01	No
Left bundle branch block	1757	380919	26285	4.68E-01	No
Nonspecific abnormal findings on radiological and other examination of other intrathoracic organs (echocardiogram, etc)	567	408263	131	4.88E-01	No
Atrial fibrillation and flutter	14820	380919	13222	5.17E-01	No
Stricture of artery	873	400595	7493	5.27E-01	No

Cardiac arrest and ventricular fibrillation	1137	380919	26905	5.34E-01	No
Cardiac arrest	927	380919	27115	5.39E-01	No
Paroxysmal tachycardia, unspecified	3225	380919	24817	5.43E-01	No
Varicose veins of lower extremity	11697	369592	27672	5.49E-01	No
Atherosclerosis	1324	400595	7042	5.58E-01	No
Aortic aneurysm	1374	400595	6992	5.74E-01	No
Intracranial hemorrhage	1796	399017	8148	5.75E-01	No
Premature beats	536	380919	27506	5.98E-01	No
Cardiac pacemaker in situ	2283	380919	25759	6.01E-01	No
Aneurysm and dissection of heart	698	377103	31160	6.53E-01	No
Intracerebral hemorrhage	700	399017	9244	6.56E-01	No
First degree AV block	988	380919	27054	6.67E-01	No
Late effects of cerebrovascular disease	1263	399017	8681	6.98E-01	No
Mitral valve disease	2985	402421	3555	7.03E-01	No
Aortic valve disease	1260	402421	5280	7.08E-01	No
Congestive heart failure; nonhypertensive	5415	402834	712	7.13E-01	No
Phlebitis and thrombophlebitis	3900	369592	35469	7.16E-01	No
Peripheral vascular disease	3927	400595	4439	7.27E-01	No
Paroxysmal supraventricular tachycardia	2359	380919	25683	7.40E-01	No
Palpitations	3832	380919	24210	7.42E-01	No
Heart valve disorders	4239	402421	2301	7.47E-01	No
Cardiomyopathy	1247	405779	1935	7.52E-01	No
Subarachnoid hemorrhage	812	399017	9132	7.55E-01	No
Pulmonary heart disease	4257	402375	2329	7.68E-01	No

	Endocarditis	686	405779	2496	7.70E-01	No
	Atherosclerosis of the extremities	811	400595	7555	7.86E-01	No
	Other forms of chronic heart disease	1796	377103	30062	7.94E-01	No
	Other venous embolism and thrombosis	558	369592	38811	8.49E-01	No
	Nonrheumatic mitral valve disorders	2892	402421	3648	8.51E-01	No
	Cardiac pacemaker/device in situ	2487	380919	25555	8.61E-01	No
	Phlebitis and thrombophlebitis of lower extremities	3587	369592	35782	8.63E-01	No
	Raynaud's syndrome	1148	400595	7218	8.70E-01	No
	Abnormal function study of cardiovascular system	524	402834	5603	8.74E-01	No
	Heart failure NOS	4269	402834	1858	8.80E-01	No
	Primary/intrinsic cardiomyopathies	1208	405779	1974	8.95E-01	No
	Heart valve replaced	1499	402421	5041	8.97E-01	No
	Arrhythmia (cardiac) NOS	922	380919	27120	9.10E-01	No
	Abdominal aortic aneurysm	903	400595	7463	9.16E-01	No
	Paroxysmal ventricular tachycardia	938	380919	27104	9.49E-01	No
	Cerebrovascular disease	8742	399017	1202	9.49E-01	No
	Varicose veins of lower extremity, symptomatic	633	369592	38736	9.69E-01	No
	Other aneurysm	1808	400595	6558	9.76E-01	No
congenital anomalies	Genitourinary congenital anomalies	1596	406730	635	4.63E-02	No
	Congenital anomalies of genital organs	732	406730	1499	1.32E-01	No
	Other congenital musculoskeletal anomalies	594	407831	536	1.84E-01	No
	Congenital anomalies of urinary system	855	406730	1376	3.24E-01	No
	Congenital anomalies of great vessels	1799	406165	997	4.24E-01	No
	Cardiac shunt/ heart septal defect	586	406165	2210	4.28E-01	No

	Cardiac and circulatory congenital anomalies	2796	406165	0	5.72E-01	No
	Cardiac congenital anomalies	2618	406165	178	6.43E-01	No
	Digestive congenital anomalies	703	406730	1528	8.03E-01	No
dermatologic	Hyperhidrosis	592	399255	9114	1.92E-03	No
	Disorders of sweat glands	817	399255	8889	1.72E-02	No
	Disturbance of skin sensation	2900	403407	2654	8.59E-02	No
	Disorder of skin and subcutaneous tissue NOS	5782	403179	0	9.40E-02	No
	Symptoms affecting skin	5554	403407	0	1.00E-01	No
	Decubitus ulcer	913	406973	1075	1.01E-01	No
	Pruritus and related conditions	783	408178	0	1.23E-01	No
	Other hypertrophic and atrophic conditions of skin	4804	403875	282	1.28E-01	No
	Cellulitis and abscess of face/neck	524	397635	10802	2.31E-01	No
	Carbuncle and furuncle	2302	397635	9024	2.93E-01	No
	Cellulitis and abscess of fingers/toes	566	397635	10760	3.44E-01	No
	Psoriatic arthropathy	708	398199	10054	3.77E-01	No
	Scar conditions and fibrosis of skin	2356	403875	2730	3.85E-01	No
	Psoriasis and related disorders	2293	398199	8469	3.91E-01	No
	Superficial cellulitis and abscess	7451	397635	3875	4.05E-01	No
	Degenerative skin conditions and other dermatoses	5522	398746	4693	4.24E-01	No
	Diseases of hair and hair follicles	5344	402357	1260	4.40E-01	No
	Erythematous conditions	2420	402672	3869	4.62E-01	No
	Actinic keratosis	2594	403439	2928	4.78E-01	No
	Cellulitis and abscess of arm/hand	5539	397635	5787	4.94E-01	No
	Cellulitis and abscess of foot, toe	5502	397635	5824	4.96E-01	No

	Cellulitis and abscess of leg, except foot	5547	397635	5779	5.03E-01	No
	Sarcoidosis	548	402672	5741	5.03E-01	No
	Psoriasis	2237	398199	8525	5.64E-01	No
	Cellulitis and abscess of trunk	602	397635	10724	6.18E-01	No
	Diseases of nail, NOS	1287	402357	5317	6.26E-01	No
	Psoriasis vulgaris	1684	398199	9078	6.62E-01	No
	Rash and other nonspecific skin eruption	2157	403407	3397	7.01E-01	No
	Sebaceous cyst	8876	399255	830	7.13E-01	No
	Other local infections of skin and subcutaneous tissue	4520	397635	6806	7.21E-01	No
	Diseases of sebaceous glands	8948	399255	758	7.53E-01	No
	Other dyschromia	783	402672	5506	7.87E-01	No
	Dyschromia and Vitiligo	987	402672	5302	8.45E-01	No
	Chronic ulcer of skin	1988	406973	0	8.70E-01	No
	Unspecified diffuse connective tissue disease	2720	399404	6837	8.79E-01	No
	Diffuse diseases of connective tissue	3463	399404	6094	8.89E-01	No
	Atopic/contact dermatitis due to other or unspecified	2110	404817	2034	9.00E-01	No
	Sicca syndrome	513	399404	9044	9.19E-01	No
	Prurigo and Lichen	779	402672	5510	9.47E-01	No
	Pilonidal cyst	587	397635	10739	9.62E-01	No
	Seborrheic keratosis	3092	403439	2430	9.67E-01	No
	Ingrowing nail	970	402357	5634	9.89E-01	No
digestive	Calculus of bile duct	2634	391307	15020	1.88E-03	No
	Liver abscess and sequelae of chronic liver disease	942	400055	7964	1.69E-02	No
	Duodenal ulcer	3002	401525	4434	1.70E-02	No

Constipation	10442	334783	63736	1.77E-02	No
Peritoneal or intestinal adhesions	832	334783	73346	2.25E-02	No
Ulceration of the lower GI tract	1063	334783	73115	2.63E-02	No
Functional digestive disorders	22138	334783	52040	3.21E-02	No
Anal and rectal conditions	14997	387338	6626	3.58E-02	No
Stricture and stenosis of esophagus	1874	369275	37812	3.66E-02	No
Noninfectious gastroenteritis	15747	334783	58431	4.08E-02	No
Irritable Bowel Syndrome	5548	334783	68630	5.58E-02	No
Inguinal hernia	15995	361617	31349	6.86E-02	No
Other diseases of the teeth and supporting structures	2689	398136	8136	8.70E-02	No
Peptic ulcer (excl. esophageal)	7436	401525	0	9.11E-02	No
Personal history of diseases of digestive system	15392	334783	58786	9.11E-02	No
Reflux esophagitis	10551	369275	29135	9.23E-02	No
Hemorrhage of rectum and anus	13222	385157	10582	9.23E-02	No
Cholelithiasis with other cholecystitis	5472	391307	12182	9.50E-02	No
Umbilical hernia	3727	361617	43617	9.89E-02	No
Periapical abscess	1177	398136	9648	1.23E-01	No
Flatulence	1689	334783	72489	1.24E-01	No
Anal and rectal polyp	7408	387338	14215	1.29E-01	No
Gastrointestinal hemorrhage	21137	385157	2667	1.35E-01	No
Chronic periodontitis	561	398136	10264	1.47E-01	No
Ventral hernia	3448	361617	43896	1.52E-01	No
Portal hypertension	529	400055	8377	1.53E-01	No
Duodenitis	7655	378124	23182	1.78E-01	No

Malposition and malpresentation of fetus or obstruction	1720	405994	1247	1.99E-01	No
Cholelithiasis and cholecystitis	16225	391307	1429	2.02E-01	No
Diseases of the jaws	960	398136	9865	2.05E-01	No
Appendiceal conditions	3409	405552	0	2.08E-01	No
Nonspecific abnormal findings in stool contents	1659	385157	22145	2.08E-01	No
Acute appendicitis	2608	405552	801	2.28E-01	No
Diseases of esophagus	35852	369275	3834	2.30E-01	No
Acute gastritis	1184	378124	29653	2.43E-01	No
Esophageal bleeding (varices/hemorrhage)	1672	369275	38014	2.65E-01	No
Peritonitis and retroperitoneal infections	887	387338	20736	2.72E-01	No
Appendicitis	3217	405552	192	2.94E-01	No
Hemorrhage of gastrointestinal tract	5229	385157	18575	2.96E-01	No
Other disorders of intestine	4200	387338	17423	2.98E-01	No
Heartburn	2100	369275	37586	3.13E-01	No
Esophagitis, GERD and related diseases	32108	369275	7578	3.63E-01	No
Diseases of pancreas	2690	406271	0	3.65E-01	No
Ulcerative colitis	3195	334783	70983	3.66E-01	No
Ulceration of intestine	674	334783	73504	3.82E-01	No
Cholelithiasis	13777	391307	3877	3.83E-01	No
Hematemesis	1961	385157	21843	3.96E-01	No
Other specified gastritis	8147	378124	22690	4.08E-01	No
Ulcer of esophagus	5243	369275	34443	4.20E-01	No
Acute pancreatitis	1986	406271	704	4.20E-01	No
Chronic pancreatitis	514	406271	2176	4.31E-01	No

Acute periodontitis	668	398136	10157	4.47E-01	No
Other disorders of peritoneum	3308	387338	18315	4.55E-01	No
Hemorrhage from gastrointestinal ulcer	617	401525	6819	4.62E-01	No
Diverticulosis and diverticulitis	27311	334783	46867	4.64E-01	No
Intestinal malabsorption (non-celiac)	2103	334783	72075	4.67E-01	No
Diseases of pulp and periapical tissues	1795	398136	9030	4.82E-01	No
Ileostomy status	1660	334783	72518	4.83E-01	No
Dysphagia	6482	369275	33204	4.84E-01	No
Diverticulosis	27268	334783	46910	4.98E-01	No
Paralytic ileus	522	334783	73656	5.11E-01	No
Disorders of esophageal motility	639	369275	39047	5.11E-01	No
Chronic liver disease and cirrhosis	2895	400055	6011	5.17E-01	No
Other biliary tract disease	3892	391307	13762	5.19E-01	No
Peritoneal adhesions (postoperative) (postinfection)	3108	387338	18515	5.22E-01	No
Regional enteritis	1743	334783	72435	5.26E-01	No
Disorders of tooth development	2449	398136	8376	5.27E-01	No
Gastritis and duodenitis	28941	378124	1896	5.37E-01	No
Other disorders of gallbladder	1412	391307	16242	5.50E-01	No
Ascites (non malignant)	1547	400055	7359	5.57E-01	No
Cholelithiasis with acute cholecystitis	1513	391307	16141	5.69E-01	No
Gingival and periodontal diseases	1742	398136	9083	5.74E-01	No
Intestinal obstruction without mention of hernia	3994	334783	70184	5.91E-01	No
Abdominal hernia	47344	361617	0	5.97E-01	No
Other disorders of stomach and duodenum	3404	378124	27433	6.07E-01	No

Disturbances in tooth eruption	2364	398136	8461	6.12E-01	No
Diseases of the salivary glands	710	403323	4928	6.37E-01	No
Ulcerative colitis (chronic)	539	334783	73639	6.44E-01	No
Abnormal results of function study of liver	3479	400055	5427	6.45E-01	No
Diseases of the oral soft tissues, excluding lesions specific for gingiva and tongue	3939	403323	1699	6.56E-01	No
Diaphragmatic hernia	27126	361617	20218	6.57E-01	No
Cholecystitis without cholelithiasis	2761	391307	14893	6.57E-01	No
Periodontitis (acute or chronic)	1222	398136	9603	6.64E-01	No
Other disorders of biliary tract	1040	391307	16614	6.77E-01	No
Gastric ulcer	4109	401525	3327	6.94E-01	No
Celiac disease	1855	334783	72323	7.00E-01	No
Inflammatory bowel disease and other gastroenteritis and colitis	4528	334783	69650	7.03E-01	No
Abnormal findings on exam of gastrointestinal tract/ abdominal area	1650	334783	72528	7.52E-01	No
Other disorders of liver	5847	400055	3059	7.53E-01	No
Obstruction of bile duct	777	391307	16877	7.55E-01	No
Other chronic nonalcoholic liver disease	1664	400055	7242	7.56E-01	No
Femoral hernia	651	361617	46693	7.60E-01	No
Diseases of lips	684	403323	4954	7.64E-01	No
Diseases of hard tissues of teeth	3091	398136	7734	7.70E-01	No
Dental caries	3051	398136	7774	7.75E-01	No
Jaundice (not of newborn)	897	400055	8009	7.87E-01	No
Blood in stool	2639	385157	21165	8.20E-01	No
Other symptoms involving abdomen and pelvis	3195	385157	20609	8.24E-01	No

	GERD	14223	369275	25463	8.37E-01	No
	Diseases and other conditions of the tongue	1236	403323	4402	8.91E-01	No
	Symptoms involving digestive system	15977	334783	58201	9.19E-01	No
	Other intestinal obstruction	3346	334783	70832	9.82E-01	No
endocrine/metabolic	Nontoxic multinodular goiter	680	391429	16852	1.31E-03	No
	Nontoxic nodular goiter	1143	391429	16389	3.63E-03	No
	Hyperlipidemia	35844	373034	83	5.23E-03	No
	Disorders of lipid metabolism	35927	373034	0	6.31E-03	No
	Hypercholesterolemia	33242	373034	2685	1.17E-02	No
	Disorders of the pituitary gland and its hypothalamic control	693	405386	2882	1.72E-02	No
	Diabetes mellitus	20203	388756	2	5.97E-02	No
	Crystal arthropathies	616	405198	3147	6.44E-02	No
	Chondrocalcinosis	560	405198	3203	1.03E-01	No
	Type 2 diabetes	18945	388756	1260	1.14E-01	No
	Overweight, obesity and other hyperalimentation	10968	397993	0	1.34E-01	No
	Disorders of fluid, electrolyte, and acid-base balance	7455	401506	0	1.36E-01	No
	Obesity	10799	397993	169	1.49E-01	No
	Hyposmolality and/or hyponatremia	1826	401506	5629	1.57E-01	No
	Hypopotassemia	1430	401506	6025	2.05E-01	No
	Disorders of parathyroid gland	877	405386	2698	2.57E-01	No
	Thyrotoxicosis with or without goiter	1860	391429	15672	2.81E-01	No
	Protein-calorie malnutrition	1057	406492	1412	2.86E-01	No
	Disorders of adrenal glands	642	405386	2933	3.04E-01	No
	Vitamin B-complex deficiencies	754	406492	1715	3.76E-01	No

Hyperparathyroidism	781	405386	2794	3.79E-01	No
Anorexia	835	406492	1634	4.19E-01	No
Secondary hypothyroidism	1117	391429	16415	4.30E-01	No
Type 2 diabetes with neurological manifestations	575	388756	19630	4.30E-01	No
Other disorders of metabolism	1424	407537	0	4.32E-01	No
Type 1 diabetes	2660	388756	17545	4.74E-01	No
Simple and unspecified goiter	602	391429	16930	5.34E-01	No
Vitamin deficiency	1208	406492	1261	5.36E-01	No
Hypothyroidism NOS	14171	391429	3361	5.41E-01	No
Electrolyte imbalance	4123	401506	3332	5.55E-01	No
Hypovolemia	2834	401506	4621	5.58E-01	No
Disorders of mineral metabolism	2127	406834	0	5.70E-01	No
Abnormal glucose	685	388756	19520	5.75E-01	No
Hypothyroidism	14871	391429	2661	6.19E-01	No
Hyperpotassemia	975	401506	6480	6.24E-01	No
Gout	3195	405198	568	6.95E-01	No
Disorders of calcium/phosphorus metabolism	1204	406834	923	7.02E-01	No
Gout and other crystal arthropathies	3763	405198	0	7.31E-01	No
Acid-base balance disorder	1161	401506	6294	7.96E-01	No
Diabetic retinopathy	1339	396859	10763	8.21E-01	No
Type 2 diabetes with ophthalmic manifestations	1298	388756	18907	8.28E-01	No
Acidosis	1055	401506	6400	8.77E-01	No
Other disorders of pancreatic internal secretion	943	405386	2632	8.94E-01	No
Hypoglycemia	939	386319	21703	9.18E-01	No

genitourinary	Nephritis; nephrosis; renal sclerosis	1522	397602	9837	2.57E-03	No
	Urinary tract infection	12491	379936	16534	4.62E-03	No
	Other disorders of urethra and urinary tract	4069	394699	10193	5.57E-03	No
	Endometrial hyperplasia	1133	396384	11444	1.17E-02	No
	Calculus of ureter	2417	401005	5539	1.78E-02	No
	Inflammatory diseases of female pelvic organs	6204	399757	3000	2.76E-02	No
	Glomerulonephritis	1033	397602	10326	2.88E-02	No
	Hydronephrosis	1951	401005	6005	4.14E-02	No
	Urethral stricture (not specified as infectious)	3331	394699	10931	5.30E-02	No
	Urinary incontinence	8856	384930	15175	5.72E-02	No
	Pyelonephritis	1324	379936	27701	6.62E-02	No
	Other disorders of bladder	9933	394699	4329	6.77E-02	No
	Other nonmalignant breast conditions	1983	406978	0	7.33E-02	No
	Mucous polyp of cervix	3450	396384	9127	7.52E-02	No
	Cystic mastopathy	928	401746	6287	8.25E-02	No
	Renal failure	6985	397602	4374	8.62E-02	No
	Pelvic peritoneal adhesions, female (postoperative) (postinfection)	2546	399757	6658	8.77E-02	No
	Bladder neck obstruction	1980	394699	12282	9.71E-02	No
	Other disorders of the kidney and ureters	3362	397602	7997	1.04E-01	No
	Chronic glomerulonephritis, NOS	845	397602	10514	1.11E-01	No
	Inflammatory disease of cervix, vagina, and vulva	2864	399757	6340	1.31E-01	No
	Cervicitis and endocervicitis	1323	399757	7881	1.41E-01	No
	Other disorders of male genital organs	2833	389094	17034	1.50E-01	No
Chronic renal failure [CKD]	2629	397602	8730	1.63E-01	No	

Other symptoms/disorders of the urinary system	24031	384930	0	1.75E-01	No
Prolapse of vaginal vault after hysterectomy	513	396730	11718	1.97E-01	No
Hematuria	16409	379936	12616	2.11E-01	No
Infertility, female	1370	377857	29734	2.13E-01	No
Renal failure NOS	1412	397602	9947	2.28E-01	No
Chronic cystitis	892	379936	28133	2.29E-01	No
Retention of urine	6755	384930	17276	2.35E-01	No
Cystitis and urethritis	3088	379936	25937	2.36E-01	No
Prolapse of vaginal walls	7462	396730	4769	2.77E-01	No
Endometriosis	4053	399757	5151	2.87E-01	No
Dysmenorrhea	1787	377857	29317	2.92E-01	No
Irregular menstrual cycle	1989	377857	29115	2.92E-01	No
Acute renal failure	4521	397602	6838	2.94E-01	No
Abnormal findings on mammogram or breast exam	1580	401746	5635	3.04E-01	No
Polyp of female genital organs	10881	396384	1696	3.13E-01	No
Frequency of urination and polyuria	4037	384930	19994	3.19E-01	No
Benign mammary dysplasias	3379	401746	3836	3.28E-01	No
Ovarian cyst	4777	377857	26327	3.36E-01	No
Stricture/obstruction of ureter	913	397602	10446	3.39E-01	No
Renal colic	2055	401005	5901	3.40E-01	No
Other signs and symptoms in breast	704	406978	1279	3.43E-01	No
Postmenopausal bleeding	9109	377857	21995	3.67E-01	No
Cyst of kidney, acquired	1260	397602	10099	3.78E-01	No
Cystitis	2948	379936	26077	3.88E-01	No

stress incontinence, female	5924	399509	3528	4.02E-01	No
Calculus of kidney	3191	401005	4765	4.06E-01	No
Other abnormality of urination	1926	384930	22105	4.33E-01	No
Irregular menstrual bleeding	3817	377857	27287	4.57E-01	No
Postmenopausal atrophic vaginitis	1115	377857	29989	4.76E-01	No
Inflammatory disease of breast	723	406978	1260	4.85E-01	No
Symptoms involving female genital tract	6688	399509	2764	4.95E-01	No
Excessive or frequent menstruation	9820	377857	21284	4.99E-01	No
Cyst or abscess of Bartholin's gland	758	399757	8446	5.08E-01	No
Lump or mass in breast	1525	401746	5690	5.13E-01	No
Pelvic inflammatory disease (PID)	936	399757	8268	5.42E-01	No
Vaginal enterocele, congenital or acquired	681	396730	11550	5.54E-01	No
Dysuria	1199	384930	22832	5.66E-01	No
Uterine/Uterovaginal prolapse	5428	396730	6803	6.02E-01	No
Urinary calculus	6643	401005	1313	6.03E-01	No
Functional disorders of bladder	1664	394699	12598	6.71E-01	No
Noninflammatory disorders of vagina	1776	399629	7556	6.88E-01	No
Polyp of corpus uteri	7910	396384	4667	6.98E-01	No
Noninflammatory disorders of ovary, fallopian tube, and broad ligament	730	399629	8602	7.14E-01	No
Menopausal and postmenopausal disorders	10699	377857	20405	7.29E-01	No
Abnormal findings on examination of urine	3547	405414	0	7.76E-01	No
Hypertrophy of breast (Gynecomastia)	854	401746	6361	8.07E-01	No
Noninflammatory female genital disorders	9332	399629	0	8.47E-01	No

	Breast conditions, congenital or relating to hormones	942	401746	6273	8.53E-01	No
	Disorders of menstruation and other abnormal bleeding from female genital tract	18580	377857	12524	8.78E-01	No
	Benign neoplasm of breast	1553	401746	5662	8.93E-01	No
	Other specified benign mammary dysplasias	696	401746	6519	8.94E-01	No
	Calculus of lower urinary tract	778	401005	7178	8.96E-01	No
	Noninflammatory disorders of vulva and perineum	1355	399629	7977	9.04E-01	No
	Noninflammatory disorders of cervix	2884	399629	6448	9.15E-01	No
	Hypertrophy of female genital organs	1275	396384	11302	9.24E-01	No
	Disorders of uterus, NEC	3336	399629	5996	9.44E-01	No
	Dyspareunia	1192	399509	8260	9.51E-01	No
	Pain and other symptoms associated with female genital organs	3003	399509	6449	9.76E-01	No
	Genital prolapse	11966	396730	265	9.83E-01	No
	Irregular menstrual cycle/bleeding	15880	377857	15224	9.88E-01	No
hematopoietic	Pernicious anemia	754	390026	18181	2.23E-01	No
	Other diseases of blood and blood-forming organs	4177	401375	3409	2.44E-01	No
	Anemia of chronic disease	702	390026	18233	3.13E-01	No
	Other anemias	12256	390026	6679	3.34E-01	No
	Purpura and other hemorrhagic conditions	1791	406281	889	4.03E-01	No
	Neutropenia	3184	401375	4402	4.66E-01	No
	Decreased white blood cell count	3184	401375	4402	4.66E-01	No
	Diseases of white blood cells	3788	401375	3798	5.70E-01	No
	Thrombocytopenia	1563	406281	1117	6.97E-01	No
	Coagulation defects	941	406281	1739	7.02E-01	No

	Disorders of iron metabolism	669	406834	1458	8.04E-01	No
	Megaloblastic anemia	1076	390026	17859	8.69E-01	No
	Other deficiency anemia	1133	390026	17802	8.82E-01	No
	Iron deficiency anemias	7787	390026	11148	9.21E-01	No
	Diseases of spleen	515	401375	7071	9.26E-01	No
	Lymphadenitis	2622	401375	4964	9.32E-01	No
	Iron deficiency anemias, unspecified or not due to blood loss	7414	390026	11521	9.37E-01	No
infectious diseases	Infection/inflammation of internal prosthetic device; implant; and graft	2485	402343	4133	1.34E-03	No
	Bacterial enteritis	2737	399970	6254	4.81E-02	No
	Septicemia	4005	393897	11059	5.05E-02	No
	Gram negative septicemia	832	393897	14232	6.85E-02	No
	Sepsis	2811	406150	0	7.91E-02	No
	Sepsis and SIRS	2811	406150	0	7.91E-02	No
	Viral Enteritis	862	399970	8129	8.08E-02	No
	Candidiasis	2134	406301	526	8.47E-02	No
	Bacterial infection NOS	12187	393897	2877	1.44E-01	No
	Viral infection	2806	403316	2839	2.89E-01	No
	Intestinal infection	8991	399970	0	3.91E-01	No
	Viral hepatitis	1215	403316	4430	4.25E-01	No
	E. coli	2744	393897	12320	5.97E-01	No
	Postoperative infection	4489	402343	2129	6.84E-01	No
	Viral warts & HPV	1007	403316	4638	6.97E-01	No
	Intestinal infection due to C. difficile	650	399970	8341	8.03E-01	No

	Staphylococcus infections	3149	393897	11915	8.56E-01	No
	Streptococcus infection	1644	393897	13420	9.80E-01	No
injuries & poisonings	Poisoning by psychotropic agents	1940	381797	25224	8.76E-05	No
	Complication of internal orthopedic device	3167	394929	10865	7.30E-04	No
	Poisoning by antibiotics	18430	381797	8734	2.56E-03	No
	Allergy/adverse effect of penicillin	16090	381797	11074	7.96E-03	No
	Complications of surgical and medical procedures	9140	399821	0	9.10E-03	No
	Opiates and related narcotics causing adverse effects in therapeutic use	1150	381797	26014	6.03E-02	No
	Mechanical complication of unspecified genitourinary device, implant, and graft	1241	394929	12791	8.98E-02	No
	Effects radiation NOS	3130	403295	2536	1.18E-01	No
	Adverse effects of sedatives or other central nervous system depressants and anesthetics	588	381797	26576	1.37E-01	No
	Fracture of pelvis	722	387765	20474	1.39E-01	No
	Fracture of ankle and foot	2339	387765	18857	1.71E-01	No
	Fracture of foot	1842	387765	19354	1.71E-01	No
	Fracture of vertebral column without mention of spinal cord injury	1352	387765	19844	1.87E-01	No
	Injuries to the nervous system	1315	407496	150	1.98E-01	No
	Fracture of unspecified bones	1304	387765	19892	1.99E-01	No
	Fracture of neck of femur	1814	387765	19382	2.02E-01	No
	Internal derangement of knee	15430	391457	2074	2.25E-01	No
	Poisoning by analgesics, antipyretics, and antirheumatics	6910	381797	20254	2.34E-01	No
	Open wounds of extremities	4219	400426	4316	2.60E-01	No
	Traumatic arthropathy	528	391457	16976	2.73E-01	No

Superficial injury without mention of infection	4289	403595	1077	2.94E-01	No
Fracture of humerus	1692	387765	19504	2.96E-01	No
Fracture of patella	768	387765	20428	3.05E-01	No
Poisoning/allergy of sulfonamides	874	381797	26290	3.28E-01	No
Complication due to other implant and internal device	3265	394929	10767	3.35E-01	No
Poisoning by other anti-infectives	1256	381797	25908	3.43E-01	No
Open wounds of head; neck; and trunk	3837	400426	4698	3.48E-01	No
Nonspecific abnormal findings on radiological and other examination of musculoskeletal system	698	408263	0	3.68E-01	No
Fracture of radius and ulna	5246	387765	15950	3.79E-01	No
Anaphylactic shock NOS	548	404817	3596	3.82E-01	No
Fracture of ribs	775	387765	20421	4.25E-01	No
Torus fracture	1674	385157	22130	4.41E-01	No
Contusion	1486	407475	0	4.45E-01	No
Skull and face fracture and other intercranial injury	2957	405554	450	4.74E-01	No
Fracture of tibia and fibula	2162	387765	19034	4.97E-01	No
Fracture of lower limb	7251	387765	13945	5.03E-01	No
Adverse drug events and drug allergies	695	381797	26469	5.47E-01	No
Fracture of clavicle or scapula	1521	387765	19675	5.64E-01	No
Foreign body injury	1210	407751	0	5.72E-01	No
Complications of cardiac/vascular device, implant, and graft	1789	394929	12243	5.93E-01	No
Other open wound of head and face	2919	400426	5616	6.03E-01	No
Intracranial hemorrhage (injury)	508	405554	2899	6.04E-01	No
Burns	579	408382	0	6.17E-01	No

	Fracture of upper limb	8521	387765	12675	7.15E-01	No
	Hemorrhage or hematoma complicating a procedure	5329	394929	8703	7.18E-01	No
	Injury, NOS	8440	400521	0	7.37E-01	No
	Fracture of hand or wrist	3357	387765	17839	7.42E-01	No
	Complication of colostomy or enterostomy	502	394929	13530	8.36E-01	No
	Dislocation	2094	391457	15410	8.95E-01	No
	Poisoning by anticonvulsants and anti-Parkinsonism drugs	509	381797	26655	9.32E-01	No
	Crushing or internal injury to organs	1007	407954	0	9.37E-01	No
mental disorders	Depression	11901	365476	31584	1.10E-05	Yes
	Mood disorders	12560	365476	30925	1.98E-05	Yes
	Tobacco use disorder	19780	379355	9826	7.84E-04	No
	Alcohol-related disorders	12922	379355	16684	3.95E-03	No
	Other mental disorder	28791	365476	14694	4.93E-03	No
	Alcoholism	8968	379355	20638	2.51E-02	No
	Alcoholic liver damage	802	379355	28804	2.65E-02	No
	Anxiety disorder	6375	365476	37110	3.85E-02	No
	Anxiety disorders	6939	365476	36546	5.39E-02	No
	Delirium dementia and amnesic and other cognitive disorders	1970	402383	4608	1.80E-01	No
	Neurological disorders	4655	402383	1923	3.11E-01	No
	Swelling, mass, or lump in head and neck [Space-occupying lesion, intracranial NOS]	907	405975	2079	3.46E-01	No
	Delirium due to conditions classified elsewhere	654	402383	5924	3.98E-01	No
	Schizophrenia and other psychotic disorders	850	365476	42635	4.13E-01	No
	Schizophrenia	571	365476	42914	4.47E-01	No

	Memory loss	700	402383	5878	4.66E-01	No
	Altered mental status	2189	402383	4389	4.85E-01	No
	Dementias	956	402383	5622	4.91E-01	No
	Psychogenic and somatoform disorders	529	365476	42956	6.87E-01	No
	Phobia	503	365476	42982	7.19E-01	No
	Bipolar	1064	365476	42421	7.60E-01	No
	Other specified nonpsychotic and/or transient mental disorders	641	402383	5937	8.31E-01	No
	Aphasia/speech disturbance	1514	402383	5064	8.40E-01	No
	Symptoms involving head and neck	2986	405975	0	8.84E-01	No
	Agoraphobia, social phobia, and panic disorder	709	365476	42776	9.37E-01	No
musculoskeletal	Spondylosis and allied disorders	7930	391917	9114	1.62E-02	No
	Other arthropathies	38715	365819	4427	2.09E-02	No
	Osteoarthritis, generalized	599	380522	27840	4.13E-02	No
	Arthropathy NOS	37043	365819	6099	4.29E-02	No
	Enthesopathy	9668	378711	20582	4.82E-02	No
	Peripheral enthesopathies and allied syndromes	14983	378711	15267	6.00E-02	No
	Other disorders of synovium, tendon, and bursa	7629	378711	22621	6.46E-02	No
	Osteomyelitis	565	365819	42577	6.62E-02	No
	Spinal stenosis	3733	391917	13311	7.22E-02	No
	Unspecified polyarthropathy or polyarthritis	3535	365819	39607	7.61E-02	No
	Ganglion and cyst of synovium, tendon, and bursa	3185	378711	27065	1.14E-01	No
	Osteomyelitis, periostitis, and other infections involving bone	612	365819	42530	1.18E-01	No
	Osteoarthritis	28439	380522	0	1.25E-01	No
	Spondylosis without myelopathy	5077	391917	11967	1.31E-01	No

Pathologic fracture	514	401279	7168	1.44E-01	No
Rheumatism, unspecified and fibrositis	1010	378711	29240	1.48E-01	No
Other unspecified back disorders	1617	391917	15427	1.62E-01	No
Intervertebral disc disorders	9241	391917	7803	1.72E-01	No
Osteoarthritis; localized	17691	380522	10748	2.18E-01	No
Other specified osteoporosis	532	401279	7150	2.23E-01	No
Ankylosing spondylitis	620	365085	43256	2.31E-01	No
Osteopenia or other disorder of bone and cartilage	820	401279	6862	2.93E-01	No
Pain in joint	8037	400924	0	2.96E-01	No
Other and unspecified disorders of back	2077	391917	14967	3.30E-01	No
Unspecified monoarthritis	15790	365819	27352	3.44E-01	No
Other acquired musculoskeletal deformity	1921	394914	12126	3.55E-01	No
Rupture of synovium	593	378711	29657	3.80E-01	No
Degeneration of intervertebral disc	2846	391917	14198	3.81E-01	No
Hallux valgus (Bunion)	6699	394914	7348	3.87E-01	No
Osteoarthritis NOS	12436	380522	16003	3.88E-01	No
Hammer toe (acquired)	1939	394914	12108	3.93E-01	No
Other and unspecified disc disorder	4434	391917	12610	4.11E-01	No
Bursitis	858	378711	29392	4.18E-01	No
Osteoporosis NOS	5622	401279	2060	4.61E-01	No
Other acquired deformities of limbs	1649	394914	12398	4.72E-01	No
Osteoarthritis, localized, primary	9069	380522	19370	4.83E-01	No
Other inflammatory spondylopathies	1671	365085	42205	4.84E-01	No
Aseptic necrosis of bone	542	391041	17378	4.85E-01	No

Fasciitis	3843	378711	26407	4.86E-01	No
Malunion and nonunion of fracture	1268	391041	16652	5.03E-01	No
Contracture of palmar fascia [Dupuytren's disease]	3503	378711	26747	5.22E-01	No
Joint effusions	1425	402633	4903	5.51E-01	No
Symptoms and disorders of the joints	3634	402633	2694	5.56E-01	No
Polymyalgia Rheumatica	1152	407809	0	5.67E-01	No
Other disorders of cervical region	521	391917	16523	5.89E-01	No
Derangement of joint, non-traumatic	2913	402633	3415	6.06E-01	No
Acquired foot deformities	9865	394914	4182	7.22E-01	No
Hallux rigidus	1561	394914	12486	7.23E-01	No
Osteoporosis	6484	401279	1198	7.36E-01	No
Osteoporosis, osteopenia and pathological fracture	7682	401279	0	7.40E-01	No
Rheumatoid arthritis and other inflammatory polyarthropathies	4879	365085	38997	7.48E-01	No
Stiffness of joint	615	402633	5713	7.57E-01	No
Synovitis and tenosynovitis	2754	378711	27496	7.70E-01	No
Acquired toe deformities	5144	394914	8903	7.90E-01	No
Other derangement of joint	2000	402633	4328	8.12E-01	No
Disorders of muscle, ligament, and fascia	4488	378711	25762	8.33E-01	No
Rheumatoid arthritis	4412	365085	39464	8.63E-01	No
Displacement of intervertebral disc	513	391917	16531	8.77E-01	No
Curvature of spine	1134	394914	12913	8.86E-01	No
Other disorders of bone and cartilage	3773	391041	14147	8.88E-01	No
Other disorders of soft tissues	6170	378711	24080	9.26E-01	No
Acquired spondylolisthesis	1521	394914	12526	9.33E-01	No

	Kyphoscoliosis and scoliosis	1063	394914	12984	9.86E-01	No
neoplasms	Neoplasm of unspecified nature of digestive system	1056	393372	14533	1.03E-02	No
	Nevus, non-neoplastic	597	400618	7746	3.61E-02	No
	Secondary malignancy of respiratory organs	2211	370604	36146	4.78E-02	No
	Vascular hamartomas and non-neoplastic nevi	649	400618	7694	5.21E-02	No
	Cancer of other female genital organs	2463	389695	16803	6.52E-02	No
	Multiple myeloma	552	404466	3943	7.41E-02	No
	Malignant neoplasm of ovary	2103	389695	17163	8.24E-02	No
	Malignant neoplasm of ovary and other uterine adnexa	2127	389695	17139	8.55E-02	No
	Malignant neoplasm, other	15979	370604	22378	9.35E-02	No
	Malignant neoplasm of bladder	2146	404796	2019	1.03E-01	No
	Cervical cancer	1659	381902	25400	1.07E-01	No
	Secondary malignancy of bone	2151	370604	36206	1.20E-01	No
	Hemangioma and lymphangioma, any site	1603	407358	0	1.42E-01	No
	Secondary malignant neoplasm of digestive systems	1519	370604	36838	1.50E-01	No
	Cancer, suspected or other	16725	370604	21632	1.63E-01	No
	Manlignant and unknown neoplasms of brain and nervous system	655	407239	1067	1.75E-01	No
	Benign neoplasm of ovary	1482	380325	27154	1.83E-01	No
	Cancer of esophagus	720	393372	14869	1.83E-01	No
	Benign neoplasm of unspecified sites	2402	406559	0	1.90E-01	No
	Benign neoplasm of colon	20204	386011	2746	1.92E-01	No
Leukemia	1661	404466	2834	2.09E-01	No	
Cervical cancer and dysplasia	3653	381902	23406	2.12E-01	No	
Skin cancer	13752	395071	138	2.53E-01	No	

Cancer of brain and nervous system	531	407239	1191	2.64E-01	No
Pancreatic cancer	589	393372	15000	2.65E-01	No
Cancer of larynx, pharynx, nasal cavities	628	406821	1512	2.75E-01	No
Colon cancer	3051	382756	23154	2.84E-01	No
Secondary malignancy of brain/spine	806	370604	37551	2.85E-01	No
Colorectal cancer	4562	382756	21643	2.94E-01	No
Melanomas of skin	2691	395071	11199	3.09E-01	No
Melanomas of skin, dx or hx	2691	395071	11199	3.09E-01	No
Cancer of bladder	2427	404796	1738	3.51E-01	No
Malignant neoplasm of female breast	11874	388549	8538	4.06E-01	No
Cancer within the respiratory system	2700	406226	35	4.06E-01	No
Other non-epithelial cancer of skin	11149	395071	2741	4.16E-01	No
Breast cancer [female]	12671	388549	7741	4.71E-01	No
Cancer of mouth	643	406821	1497	4.78E-01	No
Breast cancer	12898	388549	7514	4.84E-01	No
Malignant neoplasm of rectum, rectosigmoid junction, and anus	2095	382756	24110	5.11E-01	No
Benign neoplasm of other parts of digestive system	5280	395301	8380	5.23E-01	No
Malignant neoplasm of other and ill-defined sites within the digestive organs and peritoneum	5584	393372	10005	5.24E-01	No
Lipoma of skin and subcutaneous tissue	4611	401613	2737	5.34E-01	No
Other benign neoplasm of connective and other soft tissue	1110	401613	6238	5.40E-01	No
Benign neoplasm of other endocrine glands and related structures	876	407399	686	5.44E-01	No
Secondary malignant neoplasm of liver	2638	370604	35719	5.70E-01	No
Benign neoplasm of brain, cranial nerves, meninges	774	407239	948	5.78E-01	No

Neoplasm of uncertain behavior	1412	370604	36945	5.78E-01	No
Cancer of urinary organs (incl. kidney and bladder)	4165	404796	0	5.86E-01	No
Myeloproliferative disease	995	404466	3500	6.00E-01	No
Secondary malignant neoplasm	9483	370604	28874	6.39E-01	No
Benign neoplasm of brain and other parts of nervous system	828	407239	894	6.51E-01	No
Large cell lymphoma	573	404466	3922	6.52E-01	No
Malignant neoplasm of kidney, except pelvis	1002	404796	3163	6.78E-01	No
Chemotherapy	21798	370604	16559	6.97E-01	No
Benign neoplasm of skin	7722	400618	621	7.34E-01	No
Malignant neoplasm of uterus	1284	381967	25710	7.43E-01	No
Benign neoplasm of lip, oral cavity, and pharynx	984	406821	1156	7.46E-01	No
Lymphoid leukemia, chronic	506	404466	3989	7.48E-01	No
Cancer of other lymphoid, histiocytic tissue	2270	404466	2225	8.17E-01	No
Cancer of kidney and renal pelvis	1045	404796	3120	8.17E-01	No
Cervical intraepithelial neoplasia [CIN] [Cervical dysplasia]	2090	381902	24969	8.38E-01	No
Lipoma	6271	401613	1077	8.53E-01	No
Cancer of stomach	554	393372	15035	8.68E-01	No
Cancer of bronchus; lung	2101	406226	634	8.68E-01	No
Uterine leiomyoma	10345	391653	6963	8.75E-01	No
Non-Hodgkins lymphoma	1793	404466	2702	8.77E-01	No
Benign neoplasm of uterus	10610	391653	6698	8.96E-01	No
Acquired absence of breast	2415	387566	18980	9.39E-01	No
Malignant neoplasm of testis	2981	401788	4192	9.50E-01	No
Lymphoid leukemia	578	404466	3917	9.54E-01	No

	Secondary malignancy of lymph nodes	5379	370604	32978	9.71E-01	No
	Carcinoma in situ of skin	667	395071	13223	9.92E-01	No
neurological	Other headache syndromes	7891	398780	2290	8.03E-04	No
	Disorders of other cranial nerves	1393	394067	13501	1.18E-02	No
	Facial nerve disorders [CN7]	880	394067	14014	3.94E-02	No
	Other peripheral nerve disorders	12592	394067	2302	7.38E-02	No
	Other cerebral degenerations	1112	395209	12640	1.60E-01	No
	Epilepsy, recurrent seizures, convulsions	5087	395209	8665	2.01E-01	No
	Sleep disorders	5238	403723	0	2.33E-01	No
	Other paralytic syndromes	660	395209	13092	2.94E-01	No
	Hemiplegia	1500	395209	12252	3.27E-01	No
	Extrapyramidal disease and abnormal movement disorders	891	395209	12861	4.34E-01	No
	Sleep apnea	4471	403723	767	5.00E-01	No
	Migraine	2870	398780	7311	5.19E-01	No
	Multiple sclerosis	1356	395209	12396	5.24E-01	No
	Abnormal movement	2744	406217	0	5.38E-01	No
	Abnormality of gait	1601	406217	1143	5.55E-01	No
	Abnormal involuntary movements	888	406217	1856	5.94E-01	No
	Parkinson's disease	1127	395209	12625	7.19E-01	No
	Convulsions	2232	395209	11520	7.60E-01	No
	Other conditions of brain	1426	395209	12326	8.15E-01	No
	Nerve root and plexus disorders	1139	394067	13755	8.96E-01	No
	Inflammatory and toxic neuropathy	1368	406852	741	9.29E-01	No
Epilepsy	901	395209	12851	9.55E-01	No	

	Degenerative disease of the spinal cord	1789	395209	11963	9.87E-01	No
pregnancy complications	Hemorrhage in early pregnancy	1083	400946	6932	2.66E-02	No
	Miscarriage; stillbirth	5463	400946	2552	6.25E-02	No
	Complications of labor and delivery NEC	2559	401037	5365	1.26E-01	No
	Antepartum hemorrhage, abruptio placentae, and placenta previa	866	400946	7149	1.81E-01	No
	Hemorrhage during pregnancy; childbirth and postpartum	2005	400946	6010	2.12E-01	No
	Early or threatened labor; hemorrhage in early pregnancy	2558	400946	5457	2.21E-01	No
	Other complications of pregnancy NEC	2235	406726	0	2.74E-01	No
	Hypertension complicating pregnancy, childbirth, and the puerperium	1114	407847	0	3.10E-01	No
	Late pregnancy and failed induction	1256	407705	0	5.19E-01	No
	Normal delivery	1928	407033	0	5.39E-01	No
	Problems associated with amniotic cavity and membranes	1404	405994	1563	5.55E-01	No
	Missed abortion/Hydatidiform mole	1251	400946	6764	6.60E-01	No
	Fetal distress and abnormal forces of labor	2272	401037	5652	7.76E-01	No
	Placenta previa and abruptio placenta	1274	400946	6741	8.34E-01	No
	Umbilical cord complications during labor and delivery	533	401037	7391	8.67E-01	No
	Early onset of delivery	617	400946	7398	8.75E-01	No
	Obstetrical/birth trauma	5335	401037	2589	9.54E-01	No
	Known or suspected fetal abnormality affecting management of mother	4325	404636	0	9.81E-01	No
respiratory	Obstructive chronic bronchitis	2698	375505	30758	2.88E-03	No
	Chronic bronchitis	2934	375505	30522	4.79E-03	No
	Pneumococcal pneumonia	5951	398538	4472	5.46E-03	No
	Chronic airway obstruction	10502	375505	22954	1.58E-02	No

Shortness of breath	5884	399833	3244	2.42E-02	No
Bacterial pneumonia	6710	398538	3713	3.47E-02	No
Pleurisy; pleural effusion	6448	397411	5102	4.72E-02	No
Asthma	26332	375505	7124	6.60E-02	No
Other symptoms of respiratory system	9128	399833	0	6.84E-02	No
Pulmonary collapse; interstitial and compensatory emphysema	2005	397411	9545	7.66E-02	No
Epistaxis or throat hemorrhage	2456	390045	16460	8.44E-02	No
Pneumonia	10059	398538	364	9.23E-02	No
Acute upper respiratory infections of multiple or unspecified sites	2335	406447	179	1.05E-01	No
Voice disturbance	1086	390045	17830	1.44E-01	No
Acute tonsillitis	614	390045	18302	1.60E-01	No
Bronchiectasis	1882	375505	31574	1.87E-01	No
Respiratory abnormalities	611	408350	0	2.82E-01	No
Postinflammatory pulmonary fibrosis	887	397411	10663	3.20E-01	No
Emphysema	1727	375505	31729	3.68E-01	No
Abnormal findings examination of lungs	2500	406461	0	3.81E-01	No
Other diseases of respiratory system, not elsewhere classified	9436	399525	0	4.64E-01	No
Allergic rhinitis	1060	390045	17856	4.98E-01	No
Other dyspnea	912	399833	8216	5.03E-01	No
Other diseases of respiratory system, NEC	8844	399525	592	5.76E-01	No
Bronchitis	631	375505	32825	5.81E-01	No
Acute and chronic tonsillitis	2013	390045	16903	5.83E-01	No
Diseases of the larynx and vocal cords	2630	390045	16286	6.05E-01	No
Septal Deviations/Turbinate Hypertrophy	4939	390045	13977	6.26E-01	No

	Pneumonitis due to inhalation of food or vomitus	586	397411	10964	6.40E-01	No
	Nasal polyps	3311	390045	15605	6.80E-01	No
	Respiratory failure, insufficiency, arrest	2565	397411	8985	6.84E-01	No
	Abnormal sputum	2167	406794	0	6.91E-01	No
	Hemoptysis	2073	406794	94	6.92E-01	No
	Chronic tonsillitis and adenoiditis	1126	390045	17790	6.98E-01	No
	Other diseases of lung	781	408180	0	7.23E-01	No
	Respiratory failure	2018	397411	9532	7.28E-01	No
	Cough	2884	399833	6244	7.36E-01	No
	Chronic pharyngitis and nasopharyngitis	966	390045	17950	7.91E-01	No
	Empyema and pneumothorax	1174	397411	10376	8.11E-01	No
	Acute pharyngitis	870	406447	1644	8.62E-01	No
	Other upper respiratory disease	4101	390045	14815	9.26E-01	No
	Chronic sinusitis	2602	390045	16314	9.37E-01	No
	Respiratory insufficiency	1749	397411	9801	9.44E-01	No
sense organs	Otitis externa	524	407510	927	1.50E-02	No
	Vertiginous syndromes and other disorders of vestibular system	6134	402827	0	8.44E-02	No
	Epiphora	899	401245	6817	1.06E-01	No
	Disorders of conjunctiva	765	399306	8890	1.10E-01	No
	Meniere's disease	578	402827	5556	1.39E-01	No
	Ectropion or entropion	1068	399306	8587	1.45E-01	No
	Senile cataract	8369	388609	11983	1.46E-01	No
	Myopia	1257	406530	1174	1.63E-01	No
	Disorders of vitreous body	1372	401245	6344	1.98E-01	No

Other disorders of eyelids	5726	399306	3929	2.27E-01	No
Labyrinthitis	767	402827	5367	2.31E-01	No
Retinal detachments and defects	3263	397761	7937	2.44E-01	No
Inflammation of the eye	3174	399306	6481	2.46E-01	No
Dizziness and giddiness (Light-headedness and vertigo)	4611	402827	1523	2.85E-01	No
Open-angle glaucoma	1043	397761	10157	3.01E-01	No
Primary open angle glaucoma	1037	397761	10163	3.07E-01	No
Glaucoma	4462	397761	6738	3.07E-01	No
Otitis media and Eustachian tube disorders	2259	404888	1814	3.29E-01	No
Tinnitus	515	404562	3884	3.41E-01	No
Disorders of external ear	1451	407510	0	4.61E-01	No
Otitis media	1824	404888	2249	4.61E-01	No
Disorders of lacrimal system	2218	401245	5498	5.04E-01	No
Hearing loss	4256	404562	143	5.06E-01	No
Disorders of refraction and accommodation; blindness and low vision	2431	406530	0	5.11E-01	No
Other disorders of middle ear and mastoid	828	404888	3245	5.30E-01	No
Cholesteatoma	608	404888	3465	5.48E-01	No
Strabismus (not specified as paralytic)	918	401245	6798	5.56E-01	No
Strabismus and other disorders of binocular eye movements	1442	401245	6274	5.89E-01	No
Inflammation of eyelids	2396	399306	7259	6.25E-01	No
Blindness and low vision	723	406530	1708	6.42E-01	No
Other retinal disorders	3867	396859	8235	6.72E-01	No
Primary angle-closure glaucoma	705	397761	10495	6.89E-01	No
Macular degeneration (senile) of retina NOS	2188	396859	9914	6.89E-01	No

	Other disorders of eye	3910	401245	3806	6.89E-01	No
	Degeneration of macula and posterior pole of retina	2191	396859	9911	7.04E-01	No
	Subjective visual disturbances	615	405654	2692	7.06E-01	No
	Infection of the eye	560	399306	9095	7.54E-01	No
	Retinal vascular changes and abnormalities	849	396859	11253	7.82E-01	No
	Cataract	20352	388609	0	8.20E-01	No
	Suppurative and unspecified otitis media	856	404888	3217	8.31E-01	No
	Ptosis of eyelid	1834	399306	7821	8.31E-01	No
	Aphakia and other disorders of lens	1825	401245	5891	8.65E-01	No
	Visual disturbances	3307	405654	0	8.67E-01	No
	Perforation of tympanic membrane	1044	404888	3029	8.71E-01	No
	Diplopia and disorders of binocular vision	732	405654	2575	9.04E-01	No
	Amblyopia	538	405654	2769	9.11E-01	No
	Retinal detachment with retinal defect	1392	397761	9808	9.32E-01	No
	Corneal opacity and other disorders of cornea	732	397761	10468	9.91E-01	No
	Other disorders of tympanic membrane	1364	404888	2709	9.93E-01	No
symptoms	Back pain	11274	397687	0	6.42E-03	No
	Pain	771	408190	0	1.04E-02	No
	Nausea and vomiting	11706	397255	0	1.29E-02	No
	Abdominal pain	41316	367645	0	2.28E-02	No
	Cervicalgia	1796	407165	0	3.75E-02	No
	Other symptoms	1222	407739	0	4.97E-02	No
	Syncope and collapse	9163	399798	0	1.43E-01	No
	Edema	1648	407145	168	1.47E-01	No

Effects of other external causes	4230	404731	0	1.85E-01	No
Symptoms of the muscles	698	408263	0	1.95E-01	No
Symptoms involving skin and other integumentary tissue	1816	407145	0	2.13E-01	No
Sciatica	2383	405481	1097	2.21E-01	No
Symptoms involving nervous and musculoskeletal systems	1886	407075	0	2.27E-01	No
Symptoms concerning nutrition, metabolism, and development	5512	403449	0	2.53E-01	No
Myalgia and myositis unspecified	642	408319	0	2.75E-01	No
Pain in limb	6327	402634	0	3.65E-01	No
Fever of unknown origin	3940	405021	0	3.85E-01	No
Chronic fatigue syndrome	593	405532	2836	4.41E-01	No
Other abnormal blood chemistry	6413	402342	206	5.46E-01	No
Nonspecific findings on examination of blood	6619	402342	0	6.06E-01	No
Other ill-defined and unknown causes of morbidity and mortality	16398	392563	0	7.15E-01	No
Other tests	5972	402989	0	7.20E-01	No
Gangrene	550	408411	0	7.40E-01	No
Neuralgia, neuritis, and radiculitis NOS	1181	405481	2299	7.85E-01	No
Swelling of limb	4663	403468	830	7.90E-01	No
Musculoskeletal symptoms referable to limbs	5493	403468	0	8.26E-01	No
Malaise and fatigue	3429	405532	0	9.61E-01	No

This table summarizes associations between genetically predicted *MKRNI* protein levels and multiple clinical phenotypes. Columns are: Category (disease system classification), Phenotype (disease trait tested), Number of cases, Number of controls, Number of excluded controls, P-value, and Significance (indicating whether the association surpassed the multiple testing threshold).

Supplementary Table S12 Differential Analysis of Methylation Sites within CPGs in the Promoter of *MKRNI*

Probe	Test methods	Statistic	Effects	P-value	P-adjusted	Significance
cg02897449	Student's t-test	6.01	hypermethylation	7.47E-07	1.19E-05	Yes
cg01154573	Student's t-test	4.89	hypermethylation	2.25E-05	2.93E-04	Yes
cg00151571	Student's t-test	3.32	hypermethylation	2.12E-03	1.91E-02	Yes
cg11464238	Student's t-test	0.026	hypermethylation	9.79E-01	9.79E-01	No
cg17228231	Mann-Whitney U test	-181	hypomethylation	3.22E-01	6.45E-01	No
cg20631969	Mann-Whitney U test	-209	hypomethylation	5.77E-02	2.88E-01	No
cg23396962	Mann-Whitney U test	-246	hypomethylation	1.95E-03	1.75E-02	Yes
cg19494591	Student's t-test	-0.86	hypomethylation	3.95E-01	7.90E-01	No
cg26422832	Student's t-test	-1.15	hypomethylation	2.59E-01	5.92E-01	No
cg16216674	Student's t-test	-2.3	hypomethylation	2.78E-02	1.67E-01	No
cg06784339	Student's t-test	-2.51	hypomethylation	1.70E-02	1.02E-01	No
cg01597741	Student's t-test	-2.6	hypomethylation	1.34E-02	9.39E-02	No
cg02976323	Student's t-test	-3.26	hypomethylation	2.50E-03	2.25E-02	Yes
cg05782078	Student's t-test	-5.02	hypomethylation	1.49E-05	1.94E-04	Yes
cg00123057	Student's t-test	-5.59	hypomethylation	2.71E-06	4.07E-05	Yes
cg23627057	Student's t-test	-7.99	hypomethylation	2.09E-09	3.55E-08	Yes
average	Student's t-test	-3.71	hypomethylation	7.24E-04	7.97E-03	Yes

This table lists the CpG probes located in the promoter of *MKRNI* and their methylation status in case-control comparison. Columns are: Probe (CpG identifier), Test methods, Statistic (test statistic), Effects (direction of methylation change), P-value, P-adjusted (Hommel correction adjusted P-value), and Significance (threshold-based significance). Student's t-test was applied when the data met the assumptions of normality and homogeneity of variance; otherwise, the Mann-Whitney U test was used.

Supplementary Table S13 Data sources and results for differential expression analysis

Author	PMID	Species	Sample size	Source	Experiment type	Test methods	Statistic	P-value	P-adjusted
Guintivano J	23689534	Homo sapiens	N _{PPD} =12, N _{control} =25	blood	Methylation profiling by array	Student's t-test	-3.71	7.24E-04	7.97E-03
Ramaker RC	28754123	Homo sapiens	N _{MDD} =24, N _{control} =24	AnCg	Expression profiling by high throughput sequencing	Student's t-test	2.54	1.45E-02	4.36E-02
Miyata S	26926397	Homo sapiens	N _{MDD} =20, N _{control} =12	leukocytes	Expression profiling by array	Student's t-test	2.82	8.53E-03	2.91E-02
Leday GGR	28688579	Homo sapiens	N _{MDD} =128, N _{control} =64	whole blood	Expression profiling by array	Student's t-test	2.17	3.15E-02	4.77E-02
Hervé M	28848385	Mus musculus	N _{stress} =8, N _{control} =8	AnCg	Expression profiling by array	Student's one-tailed t-test	2.43	1.45E-02	4.35E-02
Miyata S	28054037	Mus musculus	N _{stress} =6, N _{control} =6	whole blood	Expression profiling by array	Student's one-tailed t-test	1.84	4.77E-02	4.77E-02

This table summarizes datasets and findings from transcriptomic and epigenomic analyses related to *MKRN1*. Columns are: Author, PMID, Species, Sample size, Source (tissue/cell type), Experiment type, Test methods, Statistic (test statistic), P-value, and P-adjusted (Hommel correction adjusted P-value).

Supplementary Table S14 The current medications targeting potential causal proteins

Target	Gene	Medication	Indication	Drug Group	Action
E3 ubiquitin-protein ligase makorin-1	<i>MKRN1</i>	N/A	N/A	N/A	N/A

Coiled-coil domain-containing protein 92	<i>CCDC92</i>	N/A	N/A	N/A	N/A
Aldehyde dehydrogenase family 5 member A1	<i>ALDH5A1</i>	Chlormerodrin	N/A	Approved, Withdrawn	inibitor
		NADH	Macrocytic anemia, Vitamin b12 deficiency	Approved, Nutraceutical	N/A
		Succinic acid	N/A	Approved, Nutraceutical	inibitor
		Valproic acid	Absence seizures, Bipolar disorder (Bd), Complex partial seizures, Depressive episode, Manic episode, Migraine headache	Approved, Investigational	inibitor
		Sodium oxybate	Cataplexy, Sleepiness, excessive daytime	Approved	inibitor
Metal transporter CNNM2	<i>CNNM2</i>	Magnesium carbonate	Acid indigestion, Bladder calculus, Heartburn, Renal calculi, Upset stomach,	Approved, Investigational	substrate
Aldo-keto reductase family 1 member A1	<i>AKR1A1</i>	Nicotinamide adenine dinucleotide phosphate	N/A	Experimental	N/A
		Tolrestat	N/A	Withdrawn	N/A

		NADH	Macrocytic anemia, Vitamin b12 deficiency	Approved, Nutraceutical	substrate
		Doxorubicin	Aids-related Kaposi's Sarcoma, Acute Lymphoblastic Leukemia (All), Acute Myeloid Leukemia, Advanced Endometrial Cancer, Advanced Ovarian Cancer, Breast Cancer, Hodgkin's Lymphoma, Metastatic Bone Sarcomas, Metastatic Breast Cancer, Metastatic Soft Tissue Sarcoma, Metastatic Thyroid Cancer, Metastatic Urothelial Cancer, Mycosis Fungoides (Mf), Sezary Syndrome, Waldenström's Macroglobulinemia (Wm), Advanced Thymoma, Advanced Uterine Sarcoma, Metastatic Bronchogenic Carcinoma, Metastatic Gastric Carcinoma, Metastatic Neuroblastoma, Metastatic Ovarian Carcinoma, Metastatic Wilms' Tumor, Non-hodgkin's Lymphoma (Nhl),	Approved, Investigational	substrate

			Hodgkin's Lymphoma, Multiple Myeloma		
		Ethanol	Bacterial infection, Hypertrophic obstructive cardiomyopathy, Skin irritation, Skin bacterial infection, Fat occlusion in central venous catheter	Approved	substrate
		Copper	N/A	Approved, Investigational	N/A
		Certolizumab pegol	Moderate-to-severe plaque psoriasis, Moderately to severely active rheumatoid arthritis, Nonradiographic axial spondyloarthritis, Severe psoriatic arthritis, Moderate psoriatic arthritis Active psoriatic arthritis, Severe rheumatoid arthritis, Moderate rheumatoid arthritis, Severe crohn's disease, Moderate crohn's disease, Psoriatic arthritis	Approved	substrate
		Silodosin	Benign prostatic hyperplasia	Approved	substrate
Protoporphyrinogen oxidase	<i>PPOX</i>	Aminolevulinic acid	Actinic cheilitis, Actinic keratoses of the face, Actinic keratoses of the scalp,	Approved	modulator

			Gliomas, Bowen's disease, Basal cell carcinoma		
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This table presents available drugs with known or potential interactions with proteins identified as candidate causal factors for postpartum depression. Columns are: Target (protein name), Gene, Medication (drug name), Indication (approved or tested clinical use), Drug Group (regulatory status and category), and Action (mechanism of interaction).

Supplementary Table S15 GO enrichment results of *MKRN1* co-expression network

ONTOLOGY	ID	Description	P-FDR	geneID
BP	GO:0020027	hemoglobin metabolic process	0.00084676473367849	ALAS2/EPB42/AHSP/SLC25A37
BP	GO:0048821	erythrocyte development	0.00084676473367849	ALAS2/EPB42/GATA1/SLC4A1/BPGM
BP	GO:0061515	myeloid cell development	0.00117128738193459	ALAS2/GP9/EPB42/GATA1/SLC4A1/BPGM
BP	GO:0050832	defense response to fungus	0.00160293830600644	S100A12/DEFA1/DEFA3/USP15/CLEC4D
BP	GO:0030593	neutrophil chemotaxis	0.00218566844554749	PF4/PPBP/CXCR1/S100A12/CXCR2/JAML
BP	GO:0030595	leukocyte chemotaxis	0.0022256042241248	PF4/PPBP/CXCR1/S100A12/CXCR2/DEFA1/FPR2/JAML
BP	GO:0009620	response to fungus	0.0022256042241248	S100A12/DEFA1/DEFA3/USP15/CLEC4D
BP	GO:0002262	myeloid cell homeostasis	0.0023962396951752	ALAS2/EPB42/AHSP/GATA1/CXCR2/SLC4A1/BPGM
BP	GO:0071621	granulocyte chemotaxis	0.00317284830017421	PF4/PPBP/CXCR1/S100A12/CXCR2/JAML
BP	GO:1990266	neutrophil migration	0.00317284830017421	PF4/PPBP/CXCR1/S100A12/CXCR2/JAML
BP	GO:0030218	erythrocyte differentiation	0.00347461342492432	ALAS2/EPB42/AHSP/GATA1/SLC4A1/BPGM
BP	GO:0061844	antimicrobial humoral immune response mediated by antimicrobial peptide	0.00347461342492432	PF4/PPBP/S100A12/DEFA1/DEFA3
BP	GO:0034101	erythrocyte homeostasis	0.00420083693218623	ALAS2/EPB42/AHSP/GATA1/SLC4A1/BPGM
BP	GO:0006935	chemotaxis	0.00420083693218623	PF4/PPBP/CXCR1/S100A12/PROK2/CXCR2/DEFA1/CMTM2/FPR2/JAML

BP	GO:0042330	taxis	0.00420083693218623	PF4/PPBP/CXCR1/S100A12/PROK2/CXCR2/DEFA1/CMTM2/FPR2/JAML
BP	GO:0097530	granulocyte migration	0.00533984848972916	PF4/PPBP/CXCR1/S100A12/CXCR2/JAML
BP	GO:0001906	cell killing	0.0053426639474584	FCGR3B/PF4/S100A12/DEFA1/DEFA3/IL18RAP/CR1L
BP	GO:0007599	hemostasis	0.00610457138068807	GP9/PF4/GATA1/NFE2/TUBB1/TREML1/SLC4A1
BP	GO:0097529	myeloid leukocyte migration	0.0064964230787671	PF4/PPBP/CXCR1/S100A12/CXCR2/FPR2/JAML
BP	GO:0060326	cell chemotaxis	0.0064964230787671	PF4/PPBP/CXCR1/S100A12/CXCR2/DEFA1/FPR2/JAML
BP	GO:0030099	myeloid cell differentiation	0.00981065679242457	ALAS2/GP9/EPB42/AHSP/PF4/GATA1/TUBB1/SLC4A1/BPGM
BP	GO:0042832	defense response to protozoan	0.0126739527815816	PF4/DEFA1/BPGM
BP	GO:0001562	response to protozoan	0.0164489828390899	PF4/DEFA1/BPGM
BP	GO:0019730	antimicrobial humoral response	0.0164489828390899	PF4/PPBP/S100A12/DEFA1/DEFA3
BP	GO:0071674	mononuclear cell migration	0.0165971428153361	CXCR1/S100A12/CXCR2/DEFA1/FPR2/JAML
BP	GO:0030168	platelet activation	0.017415917605938	GP9/PF4/GATA1/TUBB1/TREML1
BP	GO:0050900	leukocyte migration	0.019440500873327	PF4/PPBP/CXCR1/S100A12/CXCR2/DEFA1/FPR2/JAML
BP	GO:0046825	regulation of protein export from nucleus	0.021697489067906	FRAT1/PPM1A/FRAT2
BP	GO:0007596	blood coagulation	0.0233414901985387	GP9/PF4/GATA1/TUBB1/TREML1/SLC4A1
BP	GO:0050817	coagulation	0.0251905827530785	GP9/PF4/GATA1/TUBB1/TREML1/SLC4A1
BP	GO:0048872	homeostasis of number of cells	0.0251905827530785	ALAS2/EPB42/AHSP/GATA1/CXCR2/SLC4A1/BPGM
BP	GO:0031640	killing of cells of another organism	0.026307293603413	PF4/S100A12/DEFA1/DEFA3
BP	GO:0141061	disruption of cell in another organism	0.026307293603413	PF4/S100A12/DEFA1/DEFA3
BP	GO:0070098	chemokine-mediated signaling pathway	0.0280476617243709	PF4/PPBP/CXCR1/CXCR2
BP	GO:0141060	disruption of anatomical structure in another organism	0.0280476617243709	PF4/S100A12/DEFA1/DEFA3
BP	GO:0007204	positive regulation of cytosolic calcium ion concentration	0.0335941984177769	GATA1/CXCR1/PROK2/CXCR2/FPR2
BP	GO:1990868	response to chemokine	0.0344696734110887	PF4/PPBP/CXCR1/CXCR2
BP	GO:1990869	cellular response to chemokine	0.0344696734110887	PF4/PPBP/CXCR1/CXCR2
BP	GO:0006959	humoral immune response	0.0344696734110887	PF4/PPBP/S100A12/DEFA1/DEFA3/CR1L

BP	GO:0050878	regulation of body fluid levels	0.0436321689465178	GP9/PF4/GATA1/NFE2/TUBB1/TREML1/SLC4A1
BP	GO:0042541	hemoglobin biosynthetic process	0.0491260925844002	ALAS2/SLC25A37
CC	GO:0030667	secretory granule membrane	0.00151815645758995	FCGR3B/ADGRE3/CEACAM3/CXCR1/LY6G6F/ACRBP/CXCR2/FPR2/CL EC4D
CC	GO:0034774	secretory granule lumen	0.01384693243397	PF4/PPBP/GCA/S100A12/DEFA1/DEFA3/MNDA
CC	GO:0060205	cytoplasmic vesicle lumen	0.01384693243397	PF4/PPBP/GCA/S100A12/DEFA1/DEFA3/MNDA
CC	GO:0031983	vesicle lumen	0.01384693243397	PF4/PPBP/GCA/S100A12/DEFA1/DEFA3/MNDA
CC	GO:0031091	platelet alpha granule	0.01384693243397	PF4/PPBP/LY6G6F/TREML1
CC	GO:0035578	azurophil granule lumen	0.01384693243397	GCA/DEFA1/DEFA3/MNDA
CC	GO:0070820	tertiary granule	0.01384693243397	ADGRE3/PPBP/YPEL5/FPR2/CLEC4D
CC	GO:0005833	hemoglobin complex	0.0170686434952922	AHSP/HBM
CC	GO:0101002	ficolin-1-rich granule	0.0183809163682117	ADGRE3/MNDA/YPEL5/FPR2/CLEC4D
CC	GO:0101003	ficolin-1-rich granule membrane	0.0283346135514836	ADGRE3/FPR2/CLEC4D
CC	GO:0005766	primary lysosome	0.0481148321127484	GCA/DEFA1/DEFA3/MNDA
CC	GO:0042582	azurophil granule	0.0481148321127484	GCA/DEFA1/DEFA3/MNDA
MF	GO:0140375	immune receptor activity	0.00195212288119047	FCGR3B/CXCR1/KLRF1/CXCR2/IL18RAP/FPR2/LILRA1

This table summarizes the Gene Ontology (GO) enrichment results of the *MKRNI* co-expression network. Columns are: Ontology (GO category), ID (GO term identifier), Description (biological process name), P-FDR (BH-adjusted P-value), and geneID (genes contributing to each GO term).