

Table S1. Codes used to identify patients with immune thrombocytopenia

ICD-9-CM	
287.31	Immune thrombocytopenic purpura
287.3x	Primary thrombocytopenia
287.4x	Secondary thrombocytopenia
287.5x	Thrombocytopenia, unspecified

ICD-9-CM: International Classification of Diseases, 9th Revision, Clinical Modification

Table S2. Codes used to exclude patients with secondary thrombocytopenia

ICD-9-CM	
795.71	Nonspecific serologic evidence of human immunodeficiency virus
070.41	Acute hepatitis C with hepatic coma
070.44	Chronic hepatitis C with hepatic coma
070.51	Acute hepatitis C without mention of hepatic coma
070.54	Chronic hepatitis C without mention of hepatic coma
289.81	Primary hypercoagulable state
283.11	Hemolytic-uremic syndrome
710.0	Systemic lupus erythematosus
070.2	Viral hepatitis B with hepatic coma
070.3	Viral hepatitis B without mention of hepatic coma
070.7	Unspecified viral hepatitis C
799.4	Cachexia
238.7	Neoplasm of uncertain behavior of other lymphatic and hematopoietic tissues (including myelodysplastic syndromes)
446.6	Thrombotic microangiopathy
286.6	Defibrination syndrome
283.0	Autoimmune hemolytic anemias
042	Human immunodeficiency virus disease
V08	Asymptomatic human immunodeficiency virus infection status
200-208	Malignant neoplasm of lymphatic and hematopoietic tissue
140-199 & 209-234	Non-hematological malignancies

ICD-9-CM: International Classification of Diseases, 9th Revision, Clinical Modification

Table S3. Codes used to identify bleeding events and rescue therapy

Bleeding	
ICD-9-CM	
078.6	Hemorrhagic nephrosonephritis
246.3	Hemorrhage and infarction of thyroid
287.2	Other nonthrombocytopenic purpuras
287.8	Other specified hemorrhagic conditions
287.9	Unspecified hemorrhagic conditions
360.43	Hemophthalmos, except current injury
362.43	Hemorrhagic detachment of retinal pigment epithelium
362.81	Retinal hemorrhage
363.61	Choroidal hemorrhage, unspecified
363.62	Expulsive choroidal hemorrhage
363.72	Hemorrhagic choroidal detachment
372.72	Conjunctival hemorrhage
374.81	Hemorrhage of eyelid
376.32	Orbital hemorrhage
377.42	Hemorrhage in optic nerve sheaths
379.23	Vitreous hemorrhage
380.31	Hematoma of auricle or pinna
423.0	Hemopericardium
430	Subarachnoid hemorrhage
431	Intracerebral hemorrhage
432.x	432.0 Nontraumatic extradural hemorrhage
	432.1 Subdural hemorrhage
	432.9 Unspecified intracranial hemorrhage
456.0	Esophageal varices with bleeding
456.20	Esophageal varices in diseases classified elsewhere, with bleeding
459.0	Hemorrhage, unspecified
530.21	Ulcer of esophagus with bleeding
530.82	Esophageal hemorrhage
531.0x	531.00 Acute gastric ulcer with hemorrhage, without mention of obstruction
	531.01 Acute gastric ulcer with hemorrhage, with obstruction
531.2x	531.20 Acute gastric ulcer with hemorrhage and perforation, without mention of obstruction
	531.21 Acute gastric ulcer with hemorrhage and perforation, with obstruction
531.4x	531.40 Chronic or unspecified gastric ulcer with hemorrhage, without mention of obstruction
	531.41 Chronic or unspecified gastric ulcer with hemorrhage, with obstruction
531.6x	531.60 Chronic or unspecified gastric ulcer with hemorrhage and perforation, without mention of obstruction
	531.61 Chronic or unspecified gastric ulcer with hemorrhage and perforation, with obstruction
532.0x	532.00 Acute duodenal ulcer with hemorrhage, without mention of obstruction
	532.01 Acute duodenal ulcer with hemorrhage, with obstruction
532.2x	532.20 Acute duodenal ulcer with hemorrhage and perforation, without mention of obstruction
	532.21 Acute duodenal ulcer with hemorrhage and perforation, with obstruction
532.4x	532.40 Chronic or unspecified duodenal ulcer with hemorrhage, without mention of obstruction

532.6x	532.41 Chronic or unspecified duodenal ulcer with hemorrhage, with obstruction 532.60 Chronic or unspecified duodenal ulcer with hemorrhage and perforation, without mention of obstruction 532.61 Chronic or unspecified duodenal ulcer with hemorrhage and perforation, with obstruction
533.0x	533.00 Acute peptic ulcer of unspecified site with hemorrhage, without mention of obstruction
533.2x	533.01 Acute peptic ulcer of unspecified site with hemorrhage, with obstruction 533.20 Acute peptic ulcer of unspecified site with hemorrhage and perforation, without mention of obstruction 533.21 Acute peptic ulcer of unspecified site with hemorrhage and perforation, with obstruction
533.4x	533.40 Chronic or unspecified peptic ulcer of unspecified site with hemorrhage, without mention of obstruction 533.41 Chronic or unspecified peptic ulcer of unspecified site with hemorrhage, with obstruction
533.6x	533.60 Chronic or unspecified peptic ulcer of unspecified site with hemorrhage and perforation, without mention of obstruction 533.61 Chronic or unspecified peptic ulcer of unspecified site with hemorrhage and perforation, with obstruction
534.0x	534.00 Acute gastrojejunal ulcer with hemorrhage, without mention of obstruction 534.01 Acute gastrojejunal ulcer, with hemorrhage, with obstruction
534.2x	534.20 Acute gastrojejunal ulcer with hemorrhage and perforation, without mention of obstruction 534.21 Acute gastrojejunal ulcer with hemorrhage and perforation, with obstruction
534.4x	534.40 Chronic or unspecified gastrojejunal ulcer with hemorrhage, without mention of obstruction 534.41 Chronic or unspecified gastrojejunal ulcer, with hemorrhage, with obstruction
534.6x	534.60 Chronic or unspecified gastrojejunal ulcer with hemorrhage and perforation, without mention of obstruction 534.61 Chronic or unspecified gastrojejunal ulcer with hemorrhage and perforation, with obstruction
535.01	Acute gastritis, with hemorrhage
535.11	Atrophic gastritis, with hemorrhage
535.21	Gastric mucosal hypertrophy, with hemorrhage
535.31	Alcoholic gastritis, with hemorrhage
535.41	Other specified gastritis, with hemorrhage
535.51	Unspecified gastritis and gastroduodenitis, with hemorrhage
535.61	Duodenitis, with hemorrhage
535.71	Eosinophilic gastritis, with hemorrhage
562.02	Diverticulosis of small intestine with hemorrhage
562.03	Diverticulitis of small intestine with hemorrhage
562.12	Diverticulosis of colon with hemorrhage
562.13	Diverticulitis of colon with hemorrhage
568.81	Hemoperitoneum (nontraumatic)
569.3	Hemorrhage of rectum and anus
578.x	578.0 Hematemesis 578.1 Blood in stool 578.9 Hemorrhage of gastrointestinal tract, unspecified
596.7	Hemorrhage into bladder wall
599.7x	599.70 Hematuria, unspecified

	599.71 Gross hematuria
	599.72 Microscopic hematuria
602.1	Congestion or hemorrhage of prostate
608.82	Hematospermia
620.7	Hematoma of broad ligament
621.4	Hematometra
624.5	Hematoma of vulva
626.3	Puberty bleeding
626.5	Ovulation bleeding
626.6	Metrorrhagia
626.7	Postcoital bleeding
626.8	Other disorders of menstruation and other abnormal bleeding from female genital tract
626.9	Unspecified disorders of menstruation and other abnormal bleeding from female genital tract
627.0	Premenopausal menorrhagia
627.1	Postmenopausal bleeding
629.0	Hematocele, female, not elsewhere classified
634.1x	634.10 Spontaneous abortion, unspecified, complicated by delayed or excessive hemorrhage
	634.11 Spontaneous abortion, incomplete, complicated by delayed or excessive hemorrhage
	634.12 Spontaneous abortion, complete, complicated by delayed or excessive hemorrhage
635.1x	635.10 Legally induced abortion, unspecified, complicated by delayed or excessive hemorrhage
	635.11 Legally induced abortion, incomplete, complicated by delayed or excessive hemorrhage
	635.12 Legally induced abortion, complete, complicated by delayed or excessive hemorrhage
636.1x	636.10 Illegally induced abortion, unspecified, complicated by delayed or excessive hemorrhage
	636.11 Illegally induced abortion, incomplete, complicated by delayed or excessive hemorrhage
	636.12 Illegally induced abortion, complete, complicated by delayed or excessive hemorrhage
637.1	Unspecified abortion complicated by delayed or excessive hemorrhage
637.1x	637.10 Unspecified type of abortion, unspecified, complicated by delayed or excessive hemorrhage
	637.11 Unspecified abortion, incomplete, complicated by delayed or excessive hemorrhage
	637.12 Unspecified abortion, complete, complicated by delayed or excessive hemorrhage
638.1	Failed attempted abortion complicated by delayed or excessive hemorrhage
639.1	Delayed or excessive hemorrhage following abortion or ectopic and molar pregnancies
640.8x	640.80 Other specified hemorrhage in early pregnancy, unspecified as to episode of care or not applicable
	640.81 Other specified hemorrhage in early pregnancy, delivered, with or without mention of antepartum condition
	640.83 Other specified hemorrhage in early pregnancy, antepartum condition or complication
640.9x	640.90 Unspecified hemorrhage in early pregnancy, unspecified as to episode of care or not applicable
	640.91 Unspecified hemorrhage in early pregnancy, delivered, with or without mention of antepartum condition

641.1x	640.93 Unspecified hemorrhage in early pregnancy, antepartum condition or complication
	641.10 Hemorrhage from placenta previa, unspecified as to episode of care or not applicable
	641.11 Hemorrhage from placenta previa, delivered, with or without mention of antepartum condition
641.3x	641.13 Hemorrhage from placenta previa, antepartum condition or complication
	641.30 Antepartum hemorrhage associated with coagulation defects, unspecified as to episode of care or not applicable
	641.31 Antepartum hemorrhage associated with coagulation defects, delivered, with or without mention of antepartum condition
	641.33 Antepartum hemorrhage associated with coagulation defects, antepartum condition or complication
641.8x	641.80 Other antepartum hemorrhage, unspecified as to episode of care or not applicable
	641.81 Other antepartum hemorrhage, delivered, with or without mention of antepartum condition
	641.83 Other antepartum hemorrhage, antepartum condition or complication
641.9x	641.90 Unspecified antepartum hemorrhage, unspecified as to episode of care or not applicable
	641.91 Unspecified antepartum hemorrhage, delivered, with or without mention of antepartum condition
	641.93 Unspecified antepartum hemorrhage, antepartum condition or complication
656.0x	656.00 Fetal-maternal hemorrhage affecting management of mother, unspecified as to episode of care or not applicable
	656.01 Fetal-maternal hemorrhage affecting management of mother, delivered, with or without mention of antepartum condition
	656.03 Fetal-maternal hemorrhage affecting management of mother, antepartum condition or complication
665.7x	665.70 Obstetrical pelvic hematoma, unspecified as to episode of care or not applicable
	665.71 Obstetrical pelvic hematoma, delivered, with or without mention of antepartum condition
	665.72 Obstetrical pelvic hematoma, delivered, with mention of postpartum complication
	665.74 Obstetrical pelvic hematoma, postpartum condition or complication
666.0x	666.00 Third-stage postpartum hemorrhage, unspecified as to episode of care or not applicable
	666.02 Third-stage postpartum hemorrhage, delivered, with mention of postpartum complication
	666.04 Third-stage postpartum hemorrhage, postpartum condition or complication
666.1x	666.10 Other immediate postpartum hemorrhage, unspecified as to episode of care or not applicable
	666.12 Other immediate postpartum hemorrhage, delivered, with mention of postpartum complication
	666.14 Other immediate postpartum hemorrhage, postpartum condition or complication
666.2x	666.20 Delayed and secondary postpartum hemorrhage, unspecified as to episode of care or not applicable
	666.22 Delayed and secondary postpartum hemorrhage, delivered, with mention of postpartum complication
	666.24 Delayed and secondary postpartum hemorrhage, postpartum condition or complication
719.1x	719.10 Hemarthrosis, site unspecified
	719.11 Hemarthrosis involving shoulder region
	719.12 Hemarthrosis involving upper arm

	719.13 Hemarthrosis involving forearm
	719.14 Hemarthrosis involving hand
	719.15 Hemarthrosis involving pelvic region and thigh
	719.16 Hemarthrosis involving lower leg
	719.17 Hemarthrosis involving ankle and foot
	719.18 Hemarthrosis involving other specified sites
	719.19 Hemarthrosis involving multiple sites
762.1	Other forms of placental separation and hemorrhage affecting fetus or newborn
767.11	Epicranial subaponeurotic hemorrhage (massive)
770.3	Pulmonary hemorrhage of fetus or newborn
772.1x	772.10 Intraventricular hemorrhage, unspecified grade
	772.11 Intraventricular hemorrhage, Grade I
	772.12 Intraventricular hemorrhage, Grade II
	772.13 Intraventricular hemorrhage, Grade III
	772.14 Intraventricular hemorrhage, Grade IV
772.2	Subarachnoid hemorrhage of newborn
772.3	Umbilical hemorrhage after birth
772.4	Gastrointestinal hemorrhage of fetus or newborn
772.6	Cutaneous hemorrhage of fetus or newborn
772.8	Other specified hemorrhage of fetus or newborn
772.9	Unspecified hemorrhage of newborn
777.3	Hematemesis and melena due to swallowed maternal blood of newborn
782.7	Spontaneous ecchymoses
784.7	Epistaxis
784.8	Hemorrhage from throat
786.3	Hemoptysis
791.2	Hemoglobinuria
800.2x	Fracture of vault of skull, closed with subarachnoid, subdural, and extradural hemorrhage
800.3x	Fracture of vault of skull, closed with other and unspecified intracranial hemorrhage
800.7x	Fracture of vault of skull, open with subarachnoid, subdural, and extradural hemorrhage
800.8x	Fracture of vault of skull, open with other and unspecified intracranial hemorrhage
801.2x	Fracture of base of skull, closed with subarachnoid, subdural, and extradural hemorrhage
801.3x	Fracture of base of skull, closed with other and unspecified intracranial hemorrhage
801.7x	Fracture of base of skull, open with subarachnoid, subdural, and extradural hemorrhage
801.8x	Fracture of base of skull, open with other and unspecified intracranial hemorrhage
803.2x	Other and unqualified skull fractures, closed with subarachnoid, subdural, and extradural hemorrhage
803.3x	Other and unqualified skull fractures, closed with other and unspecified intracranial hemorrhage
803.7x	Other and unqualified skull fractures, open with subarachnoid, subdural, and extradural hemorrhage
803.8x	Other and unqualified skull fractures, open with other and unspecified intracranial hemorrhage
804.2x	Multiple fractures involving skull or face with other bones, closed with subarachnoid, subdural, and extradural hemorrhage
804.3x	Multiple fractures involving skull or face with other bones, closed with other and unspecified intracranial hemorrhage
804.7x	Multiple fractures involving skull or face with other bones, open with subarachnoid, subdural, and extradural hemorrhage
804.8x	Multiple fractures involving skull or face with other bones, open with other and unspecified intracranial hemorrhage

852.xx	Subarachnoid, subdural, and extradural hemorrhage, following injury
853.xx	Other and unspecified intracranial hemorrhage following injury
864.01	Hematoma and contusion of liver without mention of open wound into cavity
864.11	Hematoma and contusion of liver with open wound into cavity
865.01	Hematoma of spleen, without rupture of capsule, without mention of open wound into cavity
865.11	Hematoma of spleen, without rupture of capsule, with open wound into cavity
866.01	Hematoma of kidney, without rupture of capsule, without mention of open wound into cavity
866.11	Hematoma of kidney, without rupture of capsule, with open wound into cavity
997.02	Iatrogenic cerebrovascular infarction or hemorrhage
998.11	Hemorrhage complicating a procedure
998.12	Hematoma complicating a procedure
Rescue therapy	
HCPCS / CPT	Immunoglobulins
90283	Immune globulin (IgIV), human, for intravenous use
90386	Rho(D) immune globulin, human, for intravenous use
C9270	Injection, immune globulin (Gammaplex), intravenous, non-lyophilized, 500 mg
J1459	Injection, immune globulin (Privigen), intravenous, nonlyophilized, 500 mg
J1557	Injection, immune globulin (Gammaplex), intravenous, nonlyophilized, 500 mg
J1559	Injection, immune globulin (Hizentra), 100 mg
J1561	Injection, immune globulin (Gamunex), intravenous, non-lyophilized, 500 mg
J1562	Injection, immune globulin (Vivaglobin), 100 mg
J1563	Injection, immune globulin, intravenous, 1g
J1564	Injection, immune globulin, intravenous, 10 mg
J1566	Injection, immune globulin, intravenous, lyophilized, not otherwise specified, 500 mg
J1567	Injection, immune globulin, intravenous, non-lyophilized, 500 mg
J1568	Injection, immune globulin (Octagam), intravenous, non-lyophilized, 500 mg
J1569	Injection, immune globulin (Gammagard liquid), intravenous, non-lyophilized, 500 mg
J1572	Injection, immune globulin (Flebogamma), intravenous, non-lyophilized, 500 mg
J1599	Injection, immune globulin, intravenous, non-lyophilized, not otherwise specified, 500 mg
J2788	Injection, Rho(D) immune globulin, human, minidose, 50 mcg
J2790	Injection, Rho(D) immune globulin, human, full dose, 300 mcg
J2791	Injection, Rho(D) immune globulin (human) (Rhophylac), intramuscular or intravenous, 100 IU
J2792	Injection, Rho(D) immune globulin, intravenous, human, solvent detergent, 100 IU
Q4087	Injection, immune globulin (Octagam), intravenous, non-lyophilized, 500 mg
Q4088	Injection, immune globulin (Gammagard liquid), intravenous, non-lyophilized, 500 mg
Q4089	Injection, Rho(D) immune globulin (human) (Rhophylac), intramuscular or intravenous, 100 IU
Q4091	Injection, immune globulin (Flebogamma), intravenous, non-lyophilized, 500 mg
Q4092	Injection, immune globulin (Gamunex), intravenous, non-lyophilized, 500 mg
Q4097	Injection, immune globulin (Privigen), intravenous, non-lyophilized
Q9941	Injection, immune globulin, intravenous, lyophilized, 1g
Q9942	Injection, immune globulin, intravenous, lyophilized, 10 mg
Q9943	Injection, immune globulin, intravenous, non-lyophilized, 1g
Q9944	Injection, immune globulin, intravenous, non-lyophilized, 10 mg
ICD-9-CM	
99.11	Injection of Rh immune globulin
99.14	Injection or infusion of gamma globulin

HCPCS / CPT	Steroids
J1020	Injection, methylprednisolone acetate, 20 mg
J1030	Injection, methylprednisolone acetate, 40 mg
J1040	Injection, methylprednisolone acetate, 80 mg
J1094	Injection, dexamethasone acetate, 1 mg
J1100	Injection, dexamethasone sodium phosphate, 1 mg
J1700	Injection, hydrocortisone acetate, up to 25 mg
J1710	Injection, hydrocortisone sodium phosphate, up to 50 mg
J1720	Injection, hydrocortisone sodium succinate, up to 100 mg
J2650	Injection, prednisolone acetate, up to 1 ml
J2920	Injection, methylprednisolone sodium succinate, up to 40 mg
J2930	Injection, methylprednisolone sodium succinate, up to 125 mg
J3300	Injection, triamcinolone acetonide, preservative free, 1 mg
J3301	Injection, triamcinolone acetonide, not otherwise specified, 10 mg
J3302	Injection, triamcinolone diacetate, per 5 mg
J3303	Injection, triamcinolone hexacetonide, per 5 mg
ICD-9-CM 99.23	Injection of steroid
HCPCS / CPT	Platelets
P9019	Platelets, each unit
P9020	Platelet rich plasma, each unit
P9031	Platelets, leukocytes reduced , each unit
P9032	Platelets, irradiated, each unit
P9033	Platelets, leukocytes reduced, irradiated, each unit
P9034	Platelets, pheresis, each unit
P9035	Platelets, pheresis, leukocytes reduced, each unit
P9036	Platelets, pheresis, irradiated, each unit
P9037	Platelets, pheresis, leukocytes reduced, irradiated, each unit
P9052	Platelets, HLA-matched leukocytes reduced, apheresis/pheresis, each unit
P9053	Platelets, pheresis, leukocytes reduced, CMV-negative, irradiated , each unit
P9055	Platelet, leukocytes reduced, CMV-negative, apheresis/pheresis, each unit
ICD-9-CM 99.05	Transfusion of platelets

CMV: cytomegalovirus; CPT: Current Procedural Terminology; g: gram; HCPCS: Healthcare Common Procedure Coding System; HLA: human leukocyte antigen; ICD-9-CM: International Classification of Diseases, 9th Revision, Clinical Modification; Ig: immunoglobulin; IU: International unit; IV: intravenous; mcg: microgram; mg: milligram

Table S4. Codes used to identify patients who underwent splenectomy

CPT 38100 38102 38120	Splenectomy; total (separate procedure) Splenectomy; total, en bloc for extensive disease, in conjunction with other procedure Laparoscopy, surgical, splenectomy
ICD-9 41.5	Total splenectomy
DRG 393 (before 10/01/2007) 799, 800, & 801 (after 10/01/2007)	Splenectomy Splenectomy

CPT: Current Procedural Terminology; DRG: Diagnosis-Related Group; ICD-9: International Classification of Diseases, 9th Revision

Table S5. Conditions and codes used to calculate the comorbidity index score

<p>ICD-9-CM 410-410.9; 412 428-428.9 443.9; 441-441.9; 785.4; V43.4; procedure 38.48</p> <p>430-438 290-290.9 490-496; 500-505; 506.4</p> <p>710.0; 710.1; 710.4; 714.0- 714.2; 714.81; 725</p> <p>531-534.9</p> <p>571.2; 571.5; 571.6; 571.4- 571.49 250-250.3; 250.7</p> <p>344.1; 342-342.9 582-582.9; 583-583.9; 585; 586; 588-588.9</p> <p>250.4-250.6</p> <p>140-172.9; 174-195.8</p> <p>200-203.8 204-208.9 572.2-572.8; 456-456.21</p> <p>196-199.1</p> <p>042</p>	<p>Acute myocardial infarction; old myocardial infarction Heart failure Peripheral vascular disease, unspecified; aortic aneurysm and dissection; gangrene; blood vessel replaced; resection and replacement of lower limb arteries Cerebrovascular disease Dementias Chronic obstructive pulmonary disease and allied conditions; pneumoconioses; chronic respiratory conditions due to fumes and vapors Systemic lupus erythematosus; systemic sclerosis; polymyositis; rheumatoid arthritis, Felty's syndrome, and other rheumatoid arthritis with visceral or systemic involvement; rheumatoid lung; polymyalgia rheumatica Gastric ulcer, duodenal ulcer, peptic ulcer site unspecified, and gastrojejunal ulcer Alcoholic cirrhosis of liver; cirrhosis of liver without mention of alcohol; biliary cirrhosis; chronic hepatitis Diabetes mellitus without mention of complication, diabetes with ketoacidosis, diabetes with hyperosmolarity, and diabetes with other coma; diabetes with peripheral circulatory disorders Paraplegia; hemiplegia and hemiparesis Chronic glomerulonephritis; nephritis and nephropathy; chronic kidney disease; renal failure, unspecified; disorders resulting from impaired renal function Diabetes with renal manifestations, diabetes with ophthalmic manifestations, and diabetes with neurological manifestations Neoplasms (excluding malignant neoplasm of skin other than melanoma and excluding lymphoma and leukemia) Lymphoma Leukemia Hepatic coma, portal hypertension, hepatorenal syndrome, and other sequelae of chronic liver disease; esophageal varices with bleeding, esophageal varices without mention of bleeding, and esophageal varices in diseases classified elsewhere Secondary and unspecified malignant neoplasm of lymph nodes, secondary malignant neoplasm of respiratory and digestive systems, secondary malignant neoplasm of other specified sites, and malignant neoplasm of other and unspecified sites (excluding malignant neoplasm associated with transplanted organ) Human immunodeficiency virus disease</p>
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