

Preventing Oral Anticoagulant Adverse Events

SAS™ Program for Formatting ICD 9 Codes Related to Treatment Indications for Warfarin, Bleeding and Thrombotic Events.

This document includes SAS™ programming designed to format and categorize ICD-9 codes associated with indications for oral anticoagulant use (e.g. warfarin) and thrombotic events. This program may be useful to organizations attempting to analyze discharge diagnosis data and to generate reports on related outcomes. For more information on this program or to obtain a non-pdf copy, contact Susan Wymer at swymer@nyqio.sdps.org.

Copy and paste code below into SAS.

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*Broad definitions of hemorrhage were taken with some edits from Leonard, et
al, (2008).
Diagnostic E-codes for commonly used, narrow therapeutic index
medications poorly predict adverse drug events. Journal of Clinical Epidemiology,
61:561-571.
*****;
*This paper examined hospitalizations of all people enrolled in Pennsylvania's PACE
program for drug
coverage - they could identify warfarin users who had filled prescriptions for
warfarin. Search of hospital records
deemed more admissions were due to warfarin adverse events than was indicated by
use of E code 9342.
Warfarin toxicity E code sens=0.255,spec=0.983, ppv=0.46, pnv=0.957.;
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*Additionally, I have updated the list with codes for bleeding into joints obtained from the CDC members of Coalition. I also added codes for post-phlebitis syndrome, atrial and mural thrombosis, portal vein thrombosis, a non-specific code for CVA, subdural-epidural hemorrhage following an injury, and V codes for coronary artery bypass, stents and angioplasty which were given to us by Gary Liska and Dr. Mark Wurster from Alere.;

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*Use order=formatted with proc freq;

/*FORMATTED ORDER controlled by
*Cat1 = Specific bleeding events known to occur with warfarin or other
anticoagulants
Cat2=less specific bleeding events
Cat 3=thrombotic events related management of anticoagulants or indications for
treatment with
anticoagulants
Cat4= indications for treatment with anticoagulants, diseases such atrial
fibrillation/flutter or
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infectious diseases which might indicate that antibiotics were being prescribed prior to an admission or emergency room visit for a bleeding or thrombotic event;*/

proc format;

value \$ broad_grouped_SW_edits

"V582"= "CatLSB:Blood Transfusion Without Reported Diagnosis"

"V5861"= "Cat1:Long-term Use of Anticoagulants"

"4500"="Cat4:Coronary Artery Stent"

"V4581"="Cat4:CABG"

"V4582"="Cat4:Angioplasty"

"V434"="Cat4:Blood vessel replacement by other means"

"2463"= "CatLSB:Hemorrhage & Infarction of Thyroid"

"2554"= "CatLSB:Corticoadrenal Insufficiency"

"2851"= "Cat1:Acute Posthemorrhagic Anemia"

"2865"= "Cat1:Hemorrhagic Disorder Due to Circ Anticoags"

"2867"= "Cat1:Acquired Coagulation Factor Deficiency"

"2869"="Cat1:Other and Unspecified Coagulation Defect"

"3361"= "CatLSB:Vascular Myelopathies"

"36281"= "CatLSB:Retinal Hemorrhage"

"3636"="CatLSB:Choroidal Hemorrhage & Rupture"

"36441" = "CatLSB:HypHEMA of Iris and Ciliary Body"

"3688"= "CatLSB:Other Specified Visual Disturbances"

"37272"= "CatLSB:Conjunctival Hemorrhage"

"37481"="CatLSB:Hemorrhage of Eyelid"

"37632"="CatLSB:Orbital Hemorrhage"

"37742"="CatLSB:Hemorrhage in Optic Nerve Sheaths"

"37923"="CatLSB:Vitreous Hemorrhage"

"38869"="CatLSB:Other Otorrhea"

"4230"="CatLSB:Hemopericardium"

"42979"="Cat2:Mural thrombosis"

"430"="Cat1:Subarachnoid Hemorrhage"

"431-43299"="Cat1:Intracerebral Hemorrhage"

"436"="CatLSB:Ill-defined cerebrovascular disease"

"444"- "44499"="Cat2:Atrial Thrombosis"

"458"= "CatLSB:Hypotension"

"4590"="Cat1:Hemorrhage Unspecified"

"4591"="CatLSB:Post-phlebotic syndrome"

"5238"="CatLSB:Other Specified Periodontal Diseases"

"4560", "45520", "45550", "45580",

"45620",

"53021",

"5310",

"5312",

"5314", "53140",

"5316",

"532", "5320",

"5322",

"5324",

"5326",

"5330",

"5332",

"5334",

"5336",

"5340",

"5342",

"5344",
"5346",
"53511", "53521", "53531", "53541", "53551", "53561",
"56202",
"56203",
"56212",
"56213",
"56881",
"5693", "5789", "5780",
"56985"= "Cat1:Gastrointestinal Hemorrhage"
"5351"="CatLSB:Atrophic Gastritis"
"5368"="CatLSB:Dyspepsia and Other Specified Disorders of Function of Stomach"
"53783"="CatLSB:Angiodysplasia of Stomach and Duodenum with Hemorrhage"
"5582"="CatLSB:Toxic Gastroenteritis and Colitis"
"5738"="CatLSB:Other Specified Disorders of Liver"
"5967"="Cat1:Hemorrhage into Bladder Wall"
"5968"= "CatLSB:Other Specified Disorders of Bladder"
"5997"="Cat1:Hematuria"
"59989"="CatLSB:Other Specified Disorders of Urinary Tract"
"6021"="CatLSB:Congestion or Hemorrhage of Prostate"
"6201" = "CatLSB:Corpus Luteum Cyst or Hematoma"
"6228"= "CatLSB:Other Specified Noninflammatory Disorders of Cervix"
"6238"= "CatLSB:Other Specified Noninflammatory Disorders of Vagina"
"6262"="Cat1:Excessive or Frequent Menstruation"
"6268"= "Cat1:Other Disorders of Menstruation and Other Abnormal Bleeding from Female"
"6269"= "Cat1:Unspecified Disorders of Menstruation and Abnormal Bleeding from female"
"71910"- "71918"="CatLSB:Hemoarthrosis"
"7802"="CatLSB:Syncope and Collapse"
"7804"="CatLSB:Dizziness and Giddiness"
"7807"="CatLSB:Malaise and Fatigue"
"78079"="Cat2:Other Malaise and Fatigue"
"7827"= "Cat1:Spontaneous Ecchymoses"
"7847"= "Cat1:Epistaxis"
"7848"= "Cat1:Hemorrhage from Throat"
"7855" = "Cat1:Shock Without Mention of Trauma"
"7863"="Cat1:Hemoptysis"
"7870"="CatLSB:Nausea & Vomiting"
"78799"="CatLSB:Other Symptoms Involving Digestive System"
"7890"="CatLSB:Abdominal Pain"
"7899"="CatLSB:Other Symptoms Involving Abdomen & Pelvis"
"7992"="CatLSB:Nervousness"
"800"- "91999"="Cat4:Injury from fall or other causes"
"925"- "95999"="Cat4:Other Injuries"
"E8582"= "Cat1:Accidental Poisoning by Agents Primarily Affecting Blood Constituents"
"E880"- "E88899"="Cat4:Accidental Falls"
"920"="Cat1:Contusion of Face Scalp and Neck Except Eye"
"921"= "Cat1:Contusion of Eye and Adnexa"
"922"="Cat1:Contusion of Trunk"
"923"="Cat1:Contusion of Upper Limb"
"924"="Cat1:Contusion of Lower Limb and Other Unspecified Sites"
"E9342"= "Cat1:Anticoagulants Causing Adverse Effects In Therapeutic Use"
"E9343"="Cat1:Vitamin K phytonadione Causing Adverse Effects In Therapeutic Use"
"E9504"= "CatLSB:Suicide and Self-Inflicted Poisoning by Other Specified Drugs Medicinal"
"E9620"= "CatLSB:Assault by Drugs and Medicinal Substances"

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"9642"="Cat1:Poisoning by Anticoagulants"  
"9643"= "Cat1:Poisoning by Vitamin K Phytonadione"  
"9645"= "Cat1:Poisoning by Anticoagulant Antagonists and OtherCoagulants"  
"E9804"= "CatLSB:Poisoning by Other Specified Drugs & Medicinal"  
"9952"= "CatLSB:Unspecified Adverse Effect of Drug Medicinal Biologic Substance"  
"9981"="Cat1:Hemorrhage or Hematoma or Seroma Complicating"  
"5781"="Cat1:Blood in stool"  
"79092"="Cat1:Abnormal Coagulation Profile"  
"038"- "03899"="Cat4:Sepsis"  
"486"="Cat4:Pneumonia"  
"5849"="CatLSB:Acute Renal Failure, unspecified"  
"4273", "42731"="Cat4:A Fib A flutter"  
"72992"="Cat1:Non-traumatic hematoma of soft tissue"  
"428"- "42899"="Cat4:Heart Failure"  
"49121", "51818"="Cat4:COPD"  
"5991", "599", "59970"="CatLSB:Urethral problems"  
"6826"="Cat4:Cellulitis"  
"5070"="Cat4:Foreign body pneumonia"  
"00845"="Cat4:C diff"  
"4151"- "41519"="Cat2:Pulmonary Embolism"  
"451"- "45399"="Cat2:Venous Thrombosis"  
"280"- "28099"="Cat1:Anemia not spec"  
"433"- "43599"="Cat2:Thrombotic Stroke"  
"410"- "41499"="Cat2:Myocardial Infarction"  
" "="Missing"  
other="Other"  
  
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run;
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This material was prepared by IPRO, the Medicare Quality Improvement Organization for New York State, under contract with the Centers for Medicare & Medicaid Services (CMS), an agency of the U.S. Department of Health and Human Services. The contents do not necessarily reflect CMS policy. 10SOW-NY-AIM7.3-12-21