

Gastroenteritis Admission Rate (PDI 16)
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(NOTE: majority of materials found at: www.qualityindicators.ahrq.gov)

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Gastroenteritis Admission Rate

Technical Specifications

Pediatric Quality Indicators #16 (PDI #16)

AHRQ Quality Indicators™, Version 4.5, May 2013

Area-Level Indicator

Type of Score: Rate

Description

Admissions for a principal diagnosis of gastroenteritis, or for a principal diagnosis of dehydration with a secondary diagnosis of gastroenteritis per 100,000 population, ages 3 months to 17 years. Excludes cases transferred from another facility, cases with gastrointestinal abnormalities or bacterial gastroenteritis, and obstetric admissions.

[NOTE: The software provides the rate per population. However, common practice reports the measure as per 100,000 population. The user must multiply the rate obtained from the software by 100,000 to report admissions per 100,000 population.]

Numerator

Discharges, for patients ages 3 months through 17 years, with either

- a principal ICD-9-CM diagnosis code for gastroenteritis; or
- any secondary ICD-9-CM diagnosis codes for gastroenteritis and a principal ICD-9-CM diagnosis code for dehydration

ICD-9-CM Gastroenteritis diagnosis codes:

00861	INTES INFEC ROTAVIRUS	00869	OTHER VIRAL INTES INFEC
00862	INTES INFEC ADENOVIRUS	0088	VIRAL ENTERITIS NOS
00863	INT INF NORWALK VIRUS	0090	INFECTIOUS ENTERITIS NOS
00864	INT INF OTH SML RND VRUS	0091	ENTERITIS OF INFECT ORIG
00865	ENTERITIS D/T CALICIVIRUS	0092	INFECTIOUS DIARRHEA NOS
00866	INTES INFEC ASTROVIRUS	0093	DIARRHEA OF INFECT ORIG
00867	INT INF ENTEROVIRUS NEC	5589	NONINF GASTROENTERIT NEC

ICD-9-CM Dehydration diagnosis codes¹:

2765	<i>HYPOVOLEMIA</i>	27651	DEHYDRATION
27650	VOLUME DEPLETION NOS	27652	HYPOVOLEMIA

¹ The procedure or diagnosis codes are continuously updated. The current list of ICD-9-CM codes is valid for October 2012 through September 2013. Italicized codes are not active in Fiscal Year 2013.

Exclude cases:

- with any-listed ICD-9-CM diagnosis codes for gastrointestinal abnormalities
- with any-listed ICD-9-CM diagnosis codes for bacterial gastroenteritis
- transfer from a hospital (different facility)
- transfer from a Skilled Nursing Facility (SNF) or Intermediate Care Facility (ICF)

- transfer from another health care facility
- neonates if age in days is missing
- MDC 14 (pregnancy, childbirth, and puerperium)
- with missing gender (SEX=missing), age (AGE=missing), quarter (DQTR=missing), year (YEAR=missing), principal diagnosis (DX1=missing), or county (PSTCO=missing)

See *Pediatric Quality Indicators Appendices*:

- Appendix I – Definitions of Neonate, Newborn, Normal Newborn, and Outborn
- Appendix J – Admission Codes for Transfers

ICD-9-CM Gastrointestinal abnormalities diagnosis codes:

53570	EOSINOPHIL GASTRT WO HEM	5568	OTHER ULCERATIVE COLITIS
53571	EOSINOPHILC GASTRT W HEM	5569	ULCERATIVE COLITIS UNSPCF
538	GI MUCOSITIS (ULCERATIVE)	5581	RADIATION GASTROENTERIT
5550	REG ENTERITIS, SM INTEST	5582	TOXIC GASTROENTERITIS
5551	REG ENTERITIS, LG INTEST	5583	ALLERGIC GASTRO & COLITIS
5552	REG ENTERIT SM/LG INTEST	55841	EOSINOPHILIC GASTROENT
5559	REGIONAL ENTERITIS NOS	55842	EOSINOPHILIC COLITIS
5560	ULCERATIVE ENTEROCOLITIS	5790	CELIAC DISEASE
5561	ULCERATIVE ILEOCOLITIS	5791	TROPICAL SPRUE
5562	ULCERATIVE PROCTITIS	5792	BLIND LOOP SYNDROME
5563	ULCERATIVE PRCTOSIGMOIDITIS	5793	INTEST POSTOP NONABSORB
5564	PSEUDOPOLYPOSIS COLON	5794	PANCREATIC STEATORRHEA
5565	LFTSDED ULCERATIVE COLITIS	5798	INTEST MALABSORPTION NEC
5566	UNIVRSAL ULCERATIVE COLITIS	5799	INTEST MALABSORPTION NOS

ICD-9-CM Bacterial gastroenteritis diagnosis codes¹:

0030	SALMONELLA ENTERITIS	0075	CYCLOSPORIASIS
0040	SHIGELLA DYSENTERIAE	0078	PROTOZOAL INTEST DIS NEC
0041	SHIGELLA FLEXNERI	0079	PROTOZOAL INTEST DIS NOS
0042	SHIGELLA BOYDII	0080	<i>ESCHERICHIA COLI</i>
0043	SHIGELLA SONNEI	00800	INTEST INFEC E COLI NOS
0048	SHIGELLA INFECTION NEC	00801	INT INF E COLI ENTRPATH
0049	SHIGELLOSIS NOS	00802	INT INF E COLI ENTRTOXGN
0050	STAPH FOOD POISONING	00803	INT INF E COLI ENTRNVSV
0051	BOTULISM FOOD POISONING	00804	INT INF E COLI ENTRHMRG
0052	FOOD POIS D/T C. PERFRIN	00809	INT INF E COLI SPCF NEC
0053	FOOD POIS: CLOSTRID NEC	0081	ARIZONA ENTERITIS
0054	FOOD POIS: V. PARAHAEEM	0082	AEROBACTER ENTERITIS
0058	<i>OTHER BACTERIAL FOOD POISONING</i>	0083	PROTEUS ENTERITIS
00581	FOOD POISN D/T V. VULNIF	0084	<i>OTHER SPECIFIED BACTERIA</i>
00589	BACT FOOD POISONING NEC	00841	STAPHYLOCOCC ENTERITIS
0059	FOOD POISONING NOS	00842	PSEUDOMONAS ENTERITIS
0060	AC AMEBIASIS W/O ABSCESS	00843	INT INFEC CAMPYLOBACTER
0061	CHR AMEBIASIS W/O ABSCESS	00844	INT INF YRSNIA ENTRCLTCA
0062	AMEBIC NONDYSENT COLITIS	00845	INT INF CLSTRIDIUM DFCILE
0070	BALANTIDIASIS	00846	INTES INFEC OTH ANEROBES
0071	GIARDIASIS	00847	INT INF OTH GRM NEG BCTR
0072	COCCIDIOSIS	00849	BACTERIAL ENTERITIS NEC
0073	INTEST TRICHOMONIASIS	0085	BACTERIAL ENTERITIS NOS
0074	CRYPTOSPORIDIOSIS	11285	CANDIDAL ENTERITIS

¹ The procedure or diagnosis codes are continuously updated. The current list of ICD-9-CM codes is valid for October 2012 through September 2013. Italicized codes are not active in Fiscal Year 2013.

Denominator

Population ages 3 months through 17 years in metropolitan area[†] or county. Discharges in the numerator are assigned to the denominator based on the metropolitan area or county of the patient residence, not the metropolitan area or county of the hospital where the discharge occurred.

[†] The term “metropolitan area” (MA) was adopted by the U.S. Census in 1990 and referred collectively to metropolitan statistical areas (MSAs), consolidated metropolitan statistical areas (CMSAs), and primary metropolitan statistical areas (PMSAs). In addition, “area” could refer to either 1) FIPS county, 2) modified FIPS county, 3) 1999 OMB Metropolitan Statistical Area, or 4) 2003 OMB Metropolitan Statistical Area. Micropolitan Statistical Areas are not used in the QI software.



TECHNICAL SPECIFICATIONS: PEDIATRIC QUALITY INDICATORS APPENDICES

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Appendix A – Operating Room Procedure Codes

ICD-9-CM Operating room procedure codes¹:

0049	SUPERSAT 02 THERAPY	0206	CRANIAL OSTEOPLASTY NEC
0050	IMPL CRT PACEMAKER SYS	0207	SKULL PLATE REMOVAL
0051	IMPL CRT DEFIBRILLAT SYS	0211	SIMPLE SUTURE OF DURA
0052	IMP/REP LEAD LF VEN SYS	0212	BRAIN MENINGE REPAIR NEC
0053	IMP/REP CRT PACEMAKR GEN	0213	MENINGE VESSEL LIGATION
0054	IMP/REP CRT DEFIB GENAT	0214	CHOROID PLEXECTOMY
0056	INS/REP SENS-CRD/VSL MTR	022	VENTRICULOSTOMY
0057	IMP/REP SUBCUE CARD DEV	0221	INSERT/REPLACE EVD
0058	INS INTRA-ANSM PRES MNTR	0222	INTRCRAN VENT SHUNT/ANAS
0059	INTRAVASC MSMNT COR ART	0231	VENTRICL SHUNT-HEAD/NECK
0061	PERC ANGIO EXTRACRAN VES	0232	VENTRI SHUNT-CIRCULA SYS
0062	PERC ANGIO INTRACRAN VES	0233	VENTRICL SHUNT-THORAX
0066	PTCA	0234	VENTRICL SHUNT-ABDOMEN
0067	INTRAVAS MSMNT THORC ART	0235	VENTRI SHUNT-UNINARY SYS
0068	INTRAVAS MSMT PERIPH ART	0239	VENT SHUNT EXTRACRAN NEC
0069	INTRAVS MSMT VES NEC/NOS	0242	REPLACE VENTRICLE SHUNT
0070	REV HIP REPL-ACETAB/FEM	0243	REMOVE VENTRICLE SHUNT
0071	REV HIP REPL-ACETAB COMP	0291	LYSIS CORTICAL ADHESION
0072	REV HIP REPL-FEM COMP	0292	BRAIN REPAIR
0073	REV HIP REPL-LINER/HEAD	0293	IMP/REPL BRAIN STIM LEAD
0080	REV KNEE REPLACENT-TOTAL	0294	INSERT/REPLAC SKULL TONG
0081	REV KNEE REPL-TIBIA COMP	0299	SKULL & BRAIN OP NEC
0082	REV KNEE REPL-FEMUR COMP	0301	REMOVAL FB SPINAL CANAL
0083	REV KNEE REPLACE-PATELLA	0302	REOPEN LAMINECTOMY SITE
0084	REV KNEE REPL-TIBIA LIN	0309	SPINAL CANAL EXPLOR NEC
0085	RESRF HIP,TOTAL-ACET/FEM	031	INTRASPIN NERVE ROOT DIV
0086	RESRF HIP,PART-FEM HEAD	0321	PERCUTANEOUS CHORDOTOMY
0087	RESRF HIP,PART-ACETABLUM	0329	OTHER CHORDOTOMY
0094	INTRA-OP NEUROPHYS MONTR	0332	SPINAL CORD/MENINGES BX
0110	INTRACRAN PRESSURE MONTR	0339	OTHER SPINAL DX PROC
0112	OPEN CEREB MENINGES BX	034	EXCIS SPINAL CORD LESION
0114	OPEN BRAIN BIOPSY	0351	SPINE MENINGOCELE REPAIR
0115	SKULL BIOPSY	0352	MYELOMENINGOCEL REPAIR
0116	INTRACRANIAL 02 MONITOR	0353	VERTEBRAL FX REPAIR
0117	BRAIN TEMP MONITORING	0359	SPINAL STRUCT REPAIR NEC
0118	OTHER BRAIN DX PROCEDURE	036	SPINAL CORD ADHESIOLYSIS
0119	OTHER SKULL DX PROCEDURE	0371	SUBARACH-PERITON SHUNT
0121	CRANIAL SINUS I & D	0372	SUBARACH-URETERAL SHUNT
0122	REMOVAL BRAIN STIM LEAD	0379	OTH SPINAL THECAL SHUNT
0123	REOPEN CRANIOTOMY SITE	0393	IMP/REPL SPINE STIM LEAD
0124	OTHER CRANIOTOMY	0394	REMOVAL SPINE STIM LEAD
0125	OTHER CRANIECTOMY	0397	REVISE SPINE THECA SHUNT
0128	INTRACEREB CTH-BURR HOLE	0398	REMOVE SPINE THECA SHUNT
0131	INCISE CEREBRAL MENINGES	0399	SPINE CANAL STRUC OP NEC
0132	LOBOTOMY & TRACTOTOMY	0401	EXCISION ACOUSTC NEUROMA
0139	OTHER BRAIN INCISION	0402	TRIGEMINAL NERV DIVISION
0141	THALAMUS OPERATIONS	0403	PERIPH NERVE DIV NEC
0142	GLOBUS PALLIDUS OPS	0404	PERIPH NERVE INCIS NEC
0151	EX CEREB MENINGEAL LES	0405	GASSERIAN GANGLIONECTOMY
0152	HEMISPHERECTOMY	0406	PERIPH GANGLIONECT NEC
0153	BRAIN LOBECTOMY	0407	PERIPH NERV EXCISION NEC
0159	OTHER BRAIN EXCISION	0412	OPEN PERIPH NERVE BIOPSY
016	EXCISE SKULL LESION	0419	PERIPH NERVE DX PROC NEC
0201	LINEAR CRANIECTOMY	043	PERIPHERAL NERVE SUTURE
0202	ELEVATE SKULL FX FRAGMNT	0441	DECOMPRESS TRIGEM ROOT
0203	SKULL FLAP FORMATION	0442	CRAN NERV ROOT DECOM NEC
0204	BONE GRAFT TO SKULL	0443	CARPAL TUNNEL RELEASE
0205	SKULL PLATE INSERTION	0444	TARSAL TUNNEL RELEASE

0449	PER NERVE ADHESIOLYS NEC	0742	ADRENAL NERVE DIVISION
045	PERIPHERAL NERVE GRAFT	0743	ADRENAL VESSEL LIGATION
046	PERIPH NERVE TRANSPOSIT	0744	ADRENAL REPAIR
0471	HYPOGLOSS-FACIAL ANASTOM	0745	ADRENAL REIMPLANTATION
0472	ACCESSORY-FACIAL ANASTOM	0749	ADRENAL OPERATION NEC
0473	ACCESS-HYPOGLOSS ANASTOM	0751	PINEAL FIELD EXPLORATION
0474	PERIPH NERV ANASTOM NEC	0752	PINEAL GLAND INCISION
0475	POSTOP REVIS PER NERV OP	0753	PARTIAL PINEALECTOMY
0476	LATE REPAIR PER NERV INJ	0754	TOTAL PINEALECTOMY
0479	OTHER NEUROPLASTY	0759	PINEAL OPERATION NEC
0491	NEURECTASIS	0761	EXC PITUIT LES-TRANSFRON
0492	IMP/REPL PERI STIM LEAD	0762	EXC PITUIT LES-TRANSPHEN
0493	REMOVAL PERI STIM LEAD	0763	PART EXCIS PITUITARY NOS
0499	PERIPHERAL NERVE OPS NEC	0764	TOT EXC PITUIT-TRANSFRON
050	SYMPATH NERVE DIVISION	0765	TOT EXC PITUIT-TRANSPHEN
0511	SYMPATHETIC NERVE BIOPSY	0768	TOTAL EXC PITUITARY NEC
0519	SYMPATH NRV DX PROC NEC	0769	TOTAL EXC PITUITARY NOS
0521	SPHENOPALATIN GANGLIONEC	0771	PITUITARY FOSSA EXPLORAT
0522	CERVICAL SYMPATHECTOMY	0772	PITUITARY GLAND INCISION
0523	LUMBAR SYMPATHECTOMY	0779	PITUITARY OPERATION NEC
0524	PRESACRAL SYMPATHECTOMY	0780	THYMECTOMY NOS
0525	PERIART SYMPATHECTOMY	0781	OTH PART EXCISION THYMUS
0529	OTHER SYMPATHECTOMY	0782	OTH TOTL EXCISION THYMUS
0581	SYMPATHETIC NERVE REPAIR	0783	THORAC PART EXISN THYMUS
0589	SYMPATHETIC NERVE OP NEC	0784	THORAC TOTAL EXC THYMUS
0602	REOPEN THYROID FIELD WND	0791	THYMUS FIELD EXPLORATION
0609	INCIS THYROID FIELD NEC	0792	OTHER INCISION OF THYMUS
0612	OPEN THYROID GLAND BX	0793	REPAIR OF THYMUS
0613	PARATHYROID BIOPSY	0794	THYMUS TRANSPLANTATION
0619	THYR/PARATHY DX PROC NEC	0795	THORAC INCISION THYMUS
062	UNILAT THYROID LOBECTOMY	0798	OTH THORAC OP THYMUS NOS
0631	EXCISION THYROID LESION	0799	OTHER THYMUS OPS NOS
0639	PART THYROIDECTOMY NEC	0811	EYELID BIOPSY
064	COMPLETE THYROIDECTOMY	0820	REMOVE EYELID LESION NOS
0650	SUBSTERN THYROIDECT NOS	0821	CHALAZION EXCISION
0651	PART SUBSTERN THYROIDECT	0822	EXCISE MINOR LES LID NEC
0652	TOT SUBSTERN THYROIDECT	0823	EXC MAJ LES LID PRT-THIC
066	LINGUAL THYROID EXCISION	0824	EXC MAJ LES LID FUL-THIC
0681	TOTAL PARATHYROIDECTOMY	0825	DESTRUCTION LID LESION
0689	OTHER PARATHYROIDECTOMY	0831	PTOSIS REP-FRONT MUS SUT
0691	THYROID ISTHMUS DIVISION	0832	PTOSIS REP-FRON MUS SLNG
0692	THYROID VESSEL LIGATION	0833	PTOSIS REP-LEVAT MUS ADV
0693	THYROID SUTURE	0834	PTOSIS REP-LEVAT MUS NEC
0694	THYROID REIMPLANTATION	0835	PTOS REP-TARSAL TECHNIQ
0695	PARATHYROID REIMPLANT	0836	BLEPHAROPTOS REPAIR NEC
0698	OTHER THYROID OPERATIONS	0837	REDUC OVERCORRECT PTOSIS
0699	OTHER PARATHYROID OPS	0838	CORRECT LID RETRACTION
0700	ADRENAL EXPLORATION NOS	0841	THERMOCAUT/ENTROPION REP
0701	UNILAT ADRENAL EXPLORAT	0842	SUTURE ENTROPION REPAIR
0702	BILAT ADRENAL EXPLORAT	0843	WEDG RESEC ENTROPION REP
0712	OPEN ADRENAL GLAND BX	0844	LID RECONS ENTROPION REP
0713	TRANSFRONT PITUITARY BX	0849	ENTROPION/ECTROP REP NEC
0714	TRANSPHEN PITUITARY BX	0851	CANTHOTOMY
0715	PITUITARY BIOPSY NOS	0852	BLEPHARORRHAPHY
0716	THYMUS BIOPSY	0859	ADJUST LID POSITION NEC
0717	PINEAL BIOPSY	0861	LID RECONST W SKIN GRAFT
0719	ENDOCRINE DX PROC NEC	0862	LID RECONST W MUC GRAFT
0721	ADRENAL LESION EXCISION	0863	LID RECONST W HAIR GRAFT
0722	UNILATERAL ADRENALECTOMY	0864	LID RECON-TARSOCONJ FLAP
0729	PART ADRENALECTOMY NEC	0869	LID RECONSTR W GRAFT NEC
073	BILATERAL ADRENALECTOMY	0870	LID RECONSTRUCTION NOS
0741	ADRENAL INCISION	0871	LID MARG RECON-PART THIC

0872	LID RECONS-PART THIC NEC	1151	SUTURE CORNEA LACERATION
0873	LID MARG RECONS FUL THIC	1152	REP CORNEA POSTOP DEHISC
0874	LID RECONST-FUL THIC NEC	1153	RX CORNEA LAC W CONJ FLP
0891	ELECTROSURG LID EPILAT	1159	CORNEAL REPAIR NEC
0892	CRYOSURG LID EPILATION	1160	CORNEAL TRANSPLANT NOS
0893	EYELID EPILATION NEC	1161	LAM KERATPLAST W AUTGRFT
0899	EYELID OPERATION NEC	1162	LAMELLAR KERATOPLAST NEC
090	LACRIMAL GLAND INCISION	1163	PERF KERATOPL W AUTOGRFT
0911	LACRIMAL GLAND BIOPSY	1164	PERFORAT KERATOPLAST NEC
0912	LACRIMAL SAC BIOPSY	1169	CORNEAL TRANSPLANT NEC
0919	LACRIMAL SYS DX PROC NEC	1171	KERATOMILEUSIS
0920	EXC LACRIMAL GLAND NOS	1172	KERATOPHAKIA
0921	EXCIS LES LACRIMAL GLAND	1173	KERATOPROSTHESIS
0922	PART DACRYOADENECT NEC	1174	THERMOKERATOPLASTY
0923	TOTAL DACRYOADENECTOMY	1175	RADIAL KERATOTOMY
093	OTHER LACRIMAL GLAND OPS	1176	EPIKERATOPHAKIA
0941	LACRIMAL PUNCTUM PROBE	1179	CORNEA RECONSTRUCT NEC
0942	LAC CANALICULI PROBE	1191	CORNEAL TATTOOING
0943	NASOLACRIMAL DUCT PROBE	1192	REMOVE CORNEAL IMPLANT
0944	NASOLAC DUCT INTUBAT	1199	CORNEAL OPERATION NEC
0949	LAC PASSAGE MANIP NEC	1200	REMOV ANT SEGMENT FB NOS
0951	LAC PUNCTUM INCISION	1201	MAGNET REMOV ANT SEG FB
0952	LAC CANALICULI INCISION	1202	NONMAG REMOV ANT SEG FB
0953	LACRIMAL SAC INCISION	1211	IRIDOTOMY W TRANSFIXION
0959	LACRIM PASSAGE INCIS NEC	1212	IRIDOTOMY NEC
096	LACRIM SAC/PASSAGE EXCIS	1213	PROLAPSED IRIS EXCISION
0971	CORRECT EVERTED PUNCTUM	1214	IRIDECTOMY NEC
0972	PUNCTUM REPAIR NEC	1221	DX ASPIRAT-ANT CHAMBER
0973	CANALICULUS REPAIR	1222	IRIS BIOPSY
0981	DACRYOCYSTORHINOSTOMY	1229	ANT SEGMENT DX PROC NEC
0982	CONJUNCTIVOCYSTORHINOST	1231	GONIOSYNECHIAE LYSIS
0983	CONJUNCTIVORHINOS W TUBE	1232	ANT SYNECHIA LYSIS NEC
0991	LAC PUNCTUM OBLITERATION	1233	POST SYNECHIAE LYSIS
0999	LACRIMAL SYSTEM OP NEC	1234	CORNEOVITREAL ADHESIO LYS
100	INCISE/REMOV CONJUNCT FB	1235	COREOPLASTY
101	CONJUNCTIVA INCISION NEC	1239	IRIDOPLASTY NEC
1021	CONJUNCTIVAL BIOPSY	1240	REMOV ANT SEGMENT LES NOS
1029	CONJUNCTIVA DX PROC NEC	1241	NONEXC DESTRUC IRIS LES
1031	EXCISE CONJUNCTIV LESION	1242	EXCISION OF IRIS LESION
1032	DESTRUCT CONJUNCT LES NEC	1243	NONEXC DESTR CIL BOD LES
1033	OTH CONJUNCT DESTRUC PROC	1244	EXCISE CILIARY BODY LES
1041	SYMBLEPH REP W FREE GRFT	1251	GONIOPUNCTURE
1042	GRAFT CONJUNCT CUL-DE-SAC	1252	GONIOTOMY
1043	CONJUNCT CUL-DE-SAC RX NEC	1253	GONIOTOMY W GONIOPUNCTUR
1044	CONJUNCT FREE GRAFT NEC	1254	TRABECULOTOMY AB EXTERNO
1049	CONJUNCTIVOPLASTY NEC	1255	CYCLODIALYSIS
105	CONJUNCT/LID ADHESIO LYSIS	1259	FACILIT INTRAOC CIRC NEC
106	REPAIR CONJUNCT LACERAT	1261	TREPHIN SCLERA W IRIDECT
1091	SUBCONJUNCTIVAL INJECT	1262	THERMCAUT SCLER W IRIDEC
1099	CONJUNCTIVAL OP NEC	1263	IRIDENCLEISIS/IRIDOTASIS
110	MAGNET REMOVAL CORNEA FB	1264	TRABECULECTOM AB EXTERNO
111	CORNEAL INCISION	1265	SCLER FISTULIZ W IRIDECT
1121	CORNEAL SCRAPE FOR SMEAR	1266	POSTOP REVIS SCL FISTUL
1122	CORNEAL BIOPSY	1267	INSERT AQUEOUS DRAIN DEV
1129	CORNEAL DX PROC NEC	1269	SCLER FISTULIZING OP NEC
1131	PTERYGIUM TRANSPOSITION	1271	CYCLODIATHERMY
1132	PTERYG EXC W CORNEA GRFT	1272	CYCLOCRYOTHERAPY
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1141	MECH REMOV CORNEA EPITH	1274	CIL BODY DIMINUTION NOS
1142	THERMOCAUT CORNEA LESION	1279	GLAUCOMA PROCEDURE NEC
1143	CRYOTHERAP CORNEA LESION	1281	SUTURE SCLERAL LACER
1149	DESTRUCT CORNEA LES NEC	1282	SCLERAL FISTULA REPAIR

1283	REVIS ANT SEG OP WND NEC	1475	VITREOUS SUBSTITUT INJEC
1284	DESTRUCT SCLERAL LESION	1479	VITREOUS OPERATION NEC
1285	REPAIR STAPHYLOM W GRAFT	149	OTHER POST SEGMENT OPS
1286	REP SCLER STAPHYLOMA NEC	1501	EXTRAOC MUSC-TEND BIOPSY
1287	GRAFT REINFORCE SCLERA	1509	EXTRAOC MUSC DX PROC NEC
1288	SCLERA REINFORCEMENT NEC	1511	ONE EXTRAOC MUS RECESS
1289	SCLERAL OPERATION NEC	1512	1 EXTRAOC MUSCL ADVANCE
1291	THERAPEUT EVAC ANT CHAMB	1513	1 EXTRAOC MUSCL RESECT
1292	ANTERIOR CHAMBER INJECT	1519	XTRAOC MUS OP/DETACH NEC
1293	REMOV EPITHEL DOWNGROWTH	1521	LENGTHEN 1 EXTRAOC MUSC
1297	IRIS OPERATION NEC	1522	SHORTEN 1 EXTRAOC MUSC
1298	CILIARY BODY OP NEC	1529	OP ON 1 EXTRAOC MUSC NEC
1299	ANTERIOR CHAMBER OP NEC	153	TEMP DETACH >1 XTROC MUS
1300	REMOVE FB LENS NOS	154	OTH OP ON >L EXTRAOC MUS
1301	MAGNET REMOVE FB LENS	155	EXTRAOCUL MUS TRANSPOSIT
1302	NONMAGNET REMOVE FB LENS	156	REVIS EXTRAOC MUSC SURG
1311	TEMP-INF INTRCAP LENS EX	157	EXTRAOC MUSC INJ REPAIR
1319	INTRACAPSUL LENS EXT NEC	159	OTH EXTRAOC MUS-TEND OP
132	LINEAR EXTRACAP LENS EXT	1601	ORBITOTOMY W BONE FLAP
133	SIMPL ASPIR LENS EXTRACT	1602	ORBITOTOMY W IMPLANT
1341	CATARAC PHACOEMULS/ASPIR	1609	ORBITOTOMY NEC
1342	POST CATARAC FRAG/ASPIR	161	REMOVE PENETRAT FB EYE
1343	CATARACT FRAG/ASPIR NEC	1622	DIAGNOSTIC ASP OF ORBIT
1351	TEMP-INF XTRACAP LENS EX	1623	EYEBALL & ORBIT BIOPSY
1359	EXTRACAP LENS EXTRAC NEC	1629	EYEBAL/ORBIT DX PROC NEC
1364	AFTER-CATAR DISCISSION	1631	EYE EVISC W SYNCH IMPLAN
1365	AFTER-CATARACT EXCISION	1639	EYEBALL EVISCERATION NEC
1366	AFTER CATAR FRAGMENTATION	1641	EYE ENUC/IMPLAN/MUSC ATT
1369	CATARACT EXTRACTION NEC	1642	EYE ENUC W IMPLANT NEC
1370	INSERT PSEUDOPHAKOS NOS	1649	EYEBALL ENUCLEATION NEC
1371	INSERT LENS AT CATAR EXT	1651	RADICAL ORBITOMAXILLECT
1372	SECONDARY INSERT LENS	1652	ORBIT EXENT W BONE REMOV
138	IMPLANTED LENS REMOVAL	1659	ORBITAL EXENTERATION NEC
139	OTHER OPERATIONS ON LENS	1661	2NDRY OCULAR IMP INSERT
1390	OPERATION ON LENS NEC	1662	REVIS/REINSERT OCUL IMP
1391	IMPL INTRAOC TElesc PROS	1663	REVIS ENUC SOCKET W GRFT
1400	REMOV POST SEGMENT FB NOS	1664	ENUC SOCKET REVIS NEC
1401	MAGNET REMOV POST SEG FB	1665	2NDRY EXENT CAVITY GRAFT
1402	NONMAG REMOV POST SEG FB	1666	REVIS EXENTER CAVITY NEC
1411	DIAGNOST VITREOUS ASPIR	1669	2ND OP POST EYE REM NEC
1419	DX PROC POST SEG NEC	1671	REMOVE OCULAR IMPLANT
1421	CHORIORET LES DIATHERMY	1672	REMOVE ORBITAL IMPLANT
1422	CHORIORETIN LES CRYOTHER	1681	REPAIR OF ORBITAL WOUND
1426	CHORIORET LES RADIOTHER	1682	REPAIR EYEBALL RUPTURE
1427	CHORIORET LES RAD IMPLAN	1689	EYE/ORBIT INJ REPAIR NEC
1429	CHORIORET LES DESTR NEC	1692	EXCISION ORBITAL LESION
1431	RETINAL TEAR DIATHERMY	1693	EXCISION EYE LESION NOS
1432	RETINAL TEAR CRYOTHERAPY	1698	OPERATION ON ORBIT NEC
1439	RETINAL TEAR REPAIR NEC	1699	OPERATION ON EYEBALL NEC
1441	SCLERAL BUCKLE W IMPLANT	1711	LAP DIR ING HERN-GRAFT
1449	SCLERAL BUCKLING NEC	1712	LAP INDIR ING HERN-GRAFT
1451	DETACH RETINA-DIATHERMY	1713	LAP ING HERN-GRAFT NOS
1452	DETACH RETINA-CRYOTHERAP	1721	LAP BIL DIR ING HRN-GRFT
1453	DETACH RETINA XENON COAG	1722	LAP BI INDIR ING HRN-GRF
1454	DETACH RETINA LASER COAG	1723	LAP BI DR/IND ING HRN-GR
1455	DETACH RET PHOTOCOAG NOS	1724	LAP BIL ING HERN-GRF NOS
1459	REPAIR RETINA DETACH NEC	1731	LAP MUL SEG RES LG INTES
146	REMOV PROS MAT POST SEG	1732	LAPAROSCOPIC CECECTOMY
1471	ANTERIOR REMOV VITREOUS	1733	LAP RIGHT HEMICOLECTOMY
1472	VITREOUS REMOVAL NEC	1734	LAP RES TRANSVERSE COLON
1473	ANTERIOR MECHAN VITRECT	1735	LAP LEFT HEMICOLECTOMY
1474	MECH VITRECTOMY NEC	1736	LAP SIGMOIDECTOMY

1739	LAP PT EX LRG INTEST NEC	2109	EPISTAXIS CONTROL NEC
1751	IMPLANT CCM,TOTAL SYSTEM	214	RESECTION OF NOSE
1752	IMPLANT CCM PULSE GENRTR	215	SUBMUC NASAL SEPT RESECT
1753	PERC ATHER EXTRACRAN VSL	2161	DIATHER/CRYO TURBINECTOM
1754	PERC ATHER INTRACRAN VSL	2162	TURBINATE FRACTURE
1755	TRANSLUM COR ATHERECTOMY	2169	TURBINECTOMY NEC
1756	ATHER OTH NON-VOR VESSEL	2172	OPEN REDUCTION NASAL FX
1761	LITT LESN BRAIN,GUIDANCE	2182	NASAL FISTULA CLOSURE
1762	LITT LES HD/NCK,GUIDANCE	2183	TOT NASAL RECONSTRUCTION
1763	LITT LESN LIVER,GUIDANCE	2184	REVISION RHINOPLASTY
1769	LITT LESN, GUIDE OTH/NOS	2185	AUGMENTATION RHINOPLASTY
1770	IV INFUSION CLOFARABINE	2186	LIMITED RHINOPLASTY
1821	PREAURICULAR SINUS EXCIS	2187	RHINOPLASTY NEC
1831	RAD EXCIS EXT EAR LES	2188	SEPTOPLASTY NEC
1839	EXCIS EXTERNAL EAR NEC	2189	NASAL REPAIR NEC
185	CORRECTION PROMINENT EAR	2199	NASAL OPERATION NEC
186	EXT AUDIT CANAL RECONSTR	2212	OPEN BIOPSY NASAL SINUS
1871	CONSTRUCTION EAR AURICLE	2231	RADICAL MAXILLARY ANTROT
1872	REATTACH AMPUTATED EAR	2239	EXT MAXILLARY ANTROT NEC
1879	PLASTIC REP EXT EAR NEC	2241	FRONTAL SINUSOTOMY
189	OTHER EXT EAR OPERATIONS	2242	FRONTAL SINUSECTOMY
190	STAPES MOBILIZATION	2250	SINUSOTOMY NOS
1911	STAPEDECT W REPLAC INCUS	2251	ETHMOIDOTOMY
1919	STAPEDECTOMY NEC	2252	SPHENOIDOTOMY
1921	REV STAPDEC W INCUS REPL	2253	MULTIPLE SINUS INCISION
1929	STAPEDECTOMY REVIS NEC	2260	SINUSECTOMY NOS
193	OSSICULAR CHAIN OP NEC	2261	C-LUC EXC MAX SINUS LES
194	MYRINGOPLASTY	2262	EXC MAX SINUS LESION NEC
1952	TYPE 2 TYMPANOPLASTY	2263	ETHMOIDECTOMY
1953	TYPE 3 TYMPANOPLASTY	2264	SPHENOIDECTOMY
1954	TYPE 4 TYMPANOPLASTY	2271	NASAL SINUS FISTULA CLOS
1955	TYPE 5 TYMPANOPLASTY	2279	NASAL SINUS REPAIR NEC
196	TYMPANOPLASTY REVISION	229	OTHER NASAL SINUS OPS
199	MIDDLE EAR REPAIR NEC	242	GINGIVOPLASTY
2001	MYRINGOTOMY W INTUBATION	244	EXC OF DENTAL LES OF JAW
2021	MASTOID INCISION	245	ALVEOLOPLASTY
2022	PETRUS PYRAM AIR CEL INC	2502	OPEN BIOPSY OF TONGUE
2023	MIDDLE EAR INCISION	251	DESTRUCTION TONGUE LES
2032	MID & INNER EAR BIOPSY	252	PARTIAL GLOSSECTOMY
2039	MID/IN EAR DX PROC NEC	253	COMPLETE GLOSSECTOMY
2041	SIMPLE MASTOIDECTOMY	254	RADICAL GLOSSECTOMY
2042	RADICAL MASTOIDECTOMY	2559	REPAIR OF TONGUE NEC
2049	MASTOIDECTOMY NEC	2594	OTHER GLOSSOTOMY
2051	EXCISE MIDDLE EAR LESION	2599	TONGUE OPERATION NEC
2059	MIDDLE EAR EXCISION NEC	2612	OPEN BX SALIV GLAND/DUCT
2061	INNER EAR FENESTRATION	2621	SALIVARY CYST MARSUPIAL
2062	REVIS INNER EAR FENESTRA	2629	SALIV LESION EXCIS NEC
2071	ENDOLYMPHATIC SHUNT	2630	SIALOADENECTOMY NOS
2072	INNER EAR INJECTION	2631	PARTIAL SIALOADENECTOMY
2079	INC/EXC/DESTR IN EAR NEC	2632	COMPLETE SIALOADENECTOMY
2091	TYMPANOSYMPATHECTOMY	2641	SUTURE OF SALIV GLND LAC
2092	MASTOIDECTOMY REVISION	2642	SALIVARY FISTULA CLOSURE
2093	REPAIR OVAL/ROUND WINDOW	2649	SALIVARY REPAIR NEC
2095	ELECMAG HEAR DEV IMPLANT	2699	SALIVARY OPERATION NEC
2096	IMPLT COCHLEAR PROST NOS	270	DRAIN FACE & MOUTH FLOOR
2097	IMP/REP SCHAN COCH PROS	271	INCISION OF PALATE
2098	IMP/REP MCHAN COCHL PROS	2721	BONY PALATE BIOPSY
2099	MID-INNER EAR OPS NEC	2722	UVULA AND SOFT PALATE BX
2104	ETHMOID ART LIGAT-EPIST	2731	LOC EXC BONY PALATE LES
2105	MAX ART LIG FOR EPISTAX	2732	WIDE EXC BONY PALATE LES
2106	EXT CAROT ART LIG-EPIST	2742	WIDE EXCISION OF LIP LES
2107	NASAL SEPT GRFT-EPISTAX	2743	EXCISION OF LIP LES NEC

2749	EXCISION OF MOUTH NEC	3171	SUTURE OF TRACHEAL LACER
2753	CLOSURE OF MOUTH FISTULA	3172	CLOSURE OF TRACHEOSTOMY
2754	REPAIR OF CLEFT LIP	3173	TRACHEA FISTULA CLOS NEC
2755	FULL-THICK GRFT TO MOUTH	3174	REVISION OF TRACHEOSTOMY
2756	SKIN GRAFT TO MOUTH NEC	3175	TRACHEAL RECONSTRUCTION
2757	PEDICLE ATTACH TO MOUTH	3179	OTHER TRACHEAL REPAIR
2759	MOUTH REPAIR NEC	3191	LARYNGEAL NERV DIVISION
2761	SUTURE OF PALATE LACERAT	3192	LYSIS TRACH/LARYNX ADHES
2762	CLEFT PALATE CORRECTION	3198	OTH LARYNGEAL OPERATION
2763	REVIS CLEFT PALAT REPAIR	3199	OTHER TRACHEAL OPERATION
2769	OTH PLASTIC REPAIR PALAT	320	<i>OTHER TRACHEAL OPERATION</i>
2771	INCISION OF UVULA	3209	OTHER DESTRUC BRONC LES
2772	EXCISION OF UVULA	321	OTHER BRONCHIAL EXCISION
2773	REPAIR OF UVULA	3220	THORAC EXC LUNG LESION
2779	OTHER UVULA OPERATIONS	3221	EMPHYSEMA BLEB PLICATION
2792	MOUTH INCISION NOS	3222	LUNG VOL REDUCTION SURG
2799	ORAL CAVITY OPS NEC	3223	OPEN ABLTN LUNG LES/TISS
280	PERITONSILLAR I & D	3224	PERC ABLTN LUNG LES/TISS
2811	TONSIL&ADENOID BIOPSY	3225	THOR ABLTN LUNG LES/TISS
2819	TONSIL&ADENOID DX OP NEC	3226	ABLTN LUNG TISS NEC/NOS
282	TONSILLECTOMY	3229	DESTROY LOC LUNG LES NEC
283	TONSILLECTOMY/ADENOIDE	323	<i>SEGMENTAL LUNG RESECTION</i>
284	EXCISION OF TONSIL TAG	3230	THORAC SEG LUNG RESECT
285	EXCISION LINGUAL TONSIL	3239	OTH SEG LUNG RESECT NOS
286	ADENOIDECTOMY	324	<i>LOBECTOMY OF LUNG</i>
287	HEMORR CONTRL POST T & A	3241	THORAC LOBECTOMY LUNG
2891	INCIS TO REMOV TONSIL FB	3249	LOBECTOMY OF LUNG NEC
2892	EXCIS TONSIL/ADENOID LES	325	<i>COMPLETE PNEUMONECTOMY</i>
2899	TONSIL/ADENOID OPS NEC	3250	THORACOSPC PNEUMONECTOMY
290	PHARYNGOTOMY	3259	OTHER PNEUMONECTOMY NOS
292	EXC BRANCHIAL CLEFT CYST	326	RAD DISSEC THORAC STRUCT
293	<i>EXC BRANCHIAL CLEFT CYST</i>	329	OTHER EXCISION OF LUNG
2931	CRICOPHARYNGEAL MYOTOMY	330	INCISION OF BRONCHUS
2932	PHARYNGEAL DIVERTICULEC	331	INCISION OF LUNG
2933	PHARYNGECTOMY	3320	THORACOSCOPC LUNG BIOPSY
2939	EXCIS/DESTR LES PHAR NEC	3325	OPEN BRONCHIAL BIOPSY
294	PLASTIC OP ON PHARYNX	3327	CLOS ENDOSCOPIC LUNG BX
2951	SUTURE OF PHARYNGEAL LAC	3328	OPEN LUNG BIOPSY
2952	CLOS BRANCH CLEFT FISTUL	3329	BRONCH/LUNG DX PROC NEC
2953	CLOS PHARYNX FISTULA NEC	3334	THORACOPLASTY
2954	LYSIS PHARYNGEAL ADHES	3339	SURG COLLAPS OF LUNG NEC
2959	PHARYNGEAL REPAIR NEC	3341	BRONCHIAL LACERAT SUTURE
2992	DIVIS GLOSSOPHARYNG NERV	3342	BRONCHIAL FISTULA CLOS
2999	PHARYNGEAL OPERATION NEC	3343	LUNG LACERATION CLOSURE
3001	LARYNX CYST MARSUPIALIZ	3348	BRONCHIAL REPAIR NEC
3009	DESTRUCT LARYNX LES NEC	3349	LUNG REPAIR NEC
301	HEMILARYNGECTOMY	335	LUNG REPAIR NEC
3021	EPIGLOTTIDECTOMY	3350	LUNG TRANSPLANT NOS
3022	VOCAL CORDECTOMY	3351	UNILAT LUNG TRANSPLANT
3029	OTHER PART LARYNGECTOMY	3352	BILAT LUNG TRANSPLANT
303	COMPLETE LARYNGECTOMY	336	COMB HEART/LUNG TRANSPLA
304	RADICAL LARYNGECTOMY	3373	ENDO INS/RE BRNC VAL,MUL
3121	MEDIASTINAL TRACHEOSTOMY	3392	BRONCHIAL LIGATION
3129	OTHER PERM TRACHEOSTOMY	3393	PUNCTURE OF LUNG
313	INCIS LARYNX TRACHEA NEC	3398	BRONCHIAL OPERATION NEC
3145	OPN BX LARYNX OR TRACHEA	3399	LUNG OPERATION NEC
315	LOCAL DESTRUC TRACH LES	3402	EXPLORATORY THORACOTOMY
3161	SUTURE OF LARYNGEAL LAC	3403	REOPEN THORACOTOMY SITE
3162	LARYNGEAL FISTULA CLOS	3406	THORAC DRAIN PLEURL CAV
3163	LARYNGOSTOMY REVISION	341	INCISION OF MEDIASTINUM
3164	LARYNGEAL FX REPAIR	3420	THORACOSCOPIC PLEURAL BX
3169	OTHER LARYNGEAL REPAIR	3421	TRANSPLEURA THORACOSCOPY

3422	MEDIASTINOSCOPY	3563	GRFT REP ENDOCAR CUSHION
3426	OPEN MEDIASTINAL BIOPSY	3570	HEART SEPTA REPAIR NOS
3427	BIOPSY OF DIAPHRAGM	3571	ATRIA SEPTA DEF REP NEC
3428	DX PROCEDURE THORAX NEC	3572	VENTR SEPTA DEF REP NEC
3429	DX PROC MEDIASTINUM NEC	3573	ENDOCAR CUSHION REP NEC
343	DESTRUCT MEDIASTIN LES	3581	TOT REPAIR TETRAL FALLOT
344	DESTRUCT CHEST WALL LES	3582	TOTAL REPAIR OF TAPVC
3451	DECORTICATION OF LUNG	3583	TOT REP TRUNCUS ARTERIOS
3452	THORACOSCOPC DECORT LUNG	3584	TOT COR TRANSPOS GRT VES
3459	OTHER PLEURAL EXCISION	3591	INTERAT VEN RETRN TRANSP
346	SCARIFICATION OF PLEURA	3592	CONDUIT RT VENT-PUL ART
3473	CLOS THORACIC FISTUL NEC	3593	CONDUIT LEFT VENTR-AORTA
3474	PECTUS DEFORMITY REPAIR	3594	CONDUIT ARTIUM-PULM ART
3479	OTHER CHEST WALL REPAIR	3595	HEART REPAIR REVISION
3481	EXCISE DIAPHRAGM LESION	3596	PERC HEART VALVULOPLASTY
3482	SUTURE DIAPHRAGM LACERAT	3598	OTHER HEART SEPTA OPS
3483	CLOSE DIAPHRAGM FISTULA	3599	OTHER HEART VALVE OPS
3484	OTHER DIAPHRAGM REPAIR	3600	<i>OTHER HEART VALVE OPS</i>
3485	IMPLANT DIAPHRA PACEMAKE	3601	<i>PTCA-1 VES/ATH W/O AGENT</i>
3489	DIAPHRAGM OPERATION NEC	3602	<i>PTCA-1 VES/ATH W AGENT</i>
3493	REPAIR OF PLEURA	3603	OPEN CORONRY ANGIOPLASTY
3499	THORACIC OPERATION NEC	3605	<i>PTCA-MULTIPLE VESSEL/ATH</i>
3500	CLOSED VALVOTOMY NOS	3609	REM OF COR ART OBSTR NEC
3501	CLOSED AORTIC VALVOTOMY	3610	AORTOCORONARY BYPASS NOS
3502	CLOSED MITRAL VALVOTOMY	3611	AORTOCOR BYPAS-1 COR ART
3503	CLOSED PULMON VALVOTOMY	3612	AORTOCOR BYPAS-2 COR ART
3504	CLOSED TRICUSP VALVOTOMY	3613	AORTOCOR BYPAS-3 COR ART
3505	ENDOVAS REPL AORTC VALVE	3614	AORTCOR BYPAS-4+ COR ART
3506	TRNSAPCL REP AORTC VALVE	3615	1 INT MAM-COR ART BYPASS
3507	ENDOVAS REPL PULM VALVE	3616	2 INT MAM-COR ART BYPASS
3508	TRNSAPCL REPL PULM VALVE	3617	ABD-CORON ARTERY BYPASS
3509	ENDOVAS REPL UNS HRT VLV	3619	HRT REVAS BYPS ANAS NEC
3510	OPEN VALVULOPLASTY NOS	362	ARTERIAL IMPLANT REVASC
3511	OPN AORTIC VALVULOPLASTY	363	<i>ARTERIAL IMPLANT REVASC</i>
3512	OPN MITRAL VALVULOPLASTY	3631	OPEN CHEST TRANS REVASC
3513	OPN PULMON VALVULOPLASTY	3632	OTH TRANSMYO REVASCULAR
3514	OPN TRICUS VALVULOPLASTY	3633	ENDO TRANSMYO REVASCULAR
3520	OPN/OTH REP HRT VLV NOS	3634	PERC TRANSMYO REVASCULAR
3521	OPN/OTH REP AORT VLV-TIS	3639	OTH HEART REVASCULAR
3522	OPN/OTH REP AORTIC VALVE	3691	CORON VESS ANEURYSM REP
3523	OPN/OTH REP MRTL VLV-TIS	3699	HEART VESSEL OP NEC
3524	OPN/OTH REP MITRAL VALVE	3710	INCISION OF HEART NOS
3525	OPN/OTH REP PULM VLV-TIS	3711	CARDIOTOMY
3526	OPN/OTH REPL PUL VALVE	3712	PERICARDIOTOMY
3527	OPN/OTH REP TCSPD VLV-TS	3724	PERICARDIAL BIOPSY
3528	OPN/OTH REPL TCSP VALVE	3731	PERICARDIECTOMY
3531	PAPILLARY MUSCLE OPS	3732	HEART ANEURYSM EXCISION
3532	CHORDAE TENDINEAE OPS	3733	EXC/DEST HRT LESION OPEN
3533	ANNULOPLASTY	3734	EXC/DEST HRT LES OTHER
3534	INFUNDIBULECTOMY	3735	PARTIAL VENTRICULECTOMY
3535	TRABECUL CARNEAE CORD OP	374	<i>HEART & PERICARD REPAIR</i>
3539	TISS ADJ TO VALV OPS NEC	3741	IMPL CARDIAC SUPPORT DEV
3542	CREATE SEPTAL DEFECT	3749	HEART/PERICARD REPR NEC
3550	PROSTH REP HRT SEPTA NOS	375	<i>HEART & PERICARD REPAIR</i>
3551	PROS REP ATRIAL DEF-OPN	3751	HEART TRANSPLANTATION
3552	PROS REPAIR ATRIA DEF-CL	3752	IMP TOT INT BI HT RP SYS
3553	PROS REP VENTRIC DEF-OPN	3753	REPL/REP THR UNT TOT HRT
3554	PROS REP ENDOCAR CUSHION	3754	REPL/REP OTH TOT HRT SYS
3555	PROS REP VENTRC DEF-CLOS	3755	REM INT BIVENT HRT SYS
3560	GRFT REPAIR HRT SEPT NOS	3760	IMP BIVN EXT HRT AST SYS
3561	GRAFT REPAIR ATRIAL DEF	3761	PULSATION BALLOON IMPLAN
3562	GRAFT REPAIR VENTRIC DEF	3762	INSRT NON-IMPL CIRC DEV

3763	REPAIR HEART ASSIST SYS	3846	ABD ARTERY RESEC W REPLA
3764	REMOV EXT HRT ASSIST SYS	3847	ABD VEIN RESECT W REPLAC
3765	IMP VENT EXT HRT AST SYS	3848	LEG ARTERY RESEC W REPLA
3766	IMPLANTABLE HRT ASSIST	3849	LEG VEIN RESECT W REPLAC
3767	IMP CARDIOMYOSTIMUL SYS	3850	VARICOSE V LIG-STRIP NOS
3768	PERCUTAN HRT ASSIST SYST	3851	INTRACRAN VAR V LIG-STRIP
3774	INT OR REPL LEAD EPICAR	3852	HEAD/NECK VAR V LIG-STR
3775	REVISION OF LEAD	3853	ARM VARICOSE V LIG-STRIP
3776	REPL TV ATRI-VENT LEAD	3855	THORAC VAR V LIG-STRIP
3777	REMOVAL OF LEAD W/O REPL	3857	ABD VARICOS V LIGA-STRIP
3779	REV/RELOC CARD DEV POCKET	3859	LEG VARICOS V LIGA-STRIP
3780	INT OR REPL PERM PACEMKR	3860	EXCISION OF VESSEL NOS
3785	REPL PACEM W 1-CHAM, NON	3861	INTRACRAN VESSEL EXCIS
3786	REPL PACEM 1-CHAM, RATE	3862	HEAD/NECK VESSEL EXCIS
3787	REPL PACEM W DUAL-CHAM	3863	ARM VESSEL EXCISION
3789	REVISE OR REMOVE PACEMAK	3864	EXCISION OF AORTA
3791	OPN CHEST CARDIAC MASSAG	3865	THORACIC VESSEL EXCISION
3794	IMPLT/REPL CARDDEFIB TOT	3866	ABDOMINAL ARTERY EXCIS
3795	IMPLT CARDIODEFIB LEADS	3867	ABDOMINAL VEIN EXCISION
3796	IMPLT CARDIODEFIB GENATR	3868	LEG ARTERY EXCISION
3797	REPL CARDIODEFIB LEADS	3869	LEG VEIN EXCISION
3798	REPL CARDIODEFIB GENRATR	3880	SURG VESSEL OCCLUS NEC
3799	OTHER HEART/PERICARD OPS	3881	OCCLUS INTRACRAN VES NEC
3800	INCISION OF VESSEL NOS	3882	OCCLUS HEAD/NECK VES NEC
3801	INTRACRAN VESSEL INCIS	3883	OCCLUDE ARM VESSEL NEC
3802	HEAD/NECK VES INCIS NEC	3884	OCCLUDE AORTA NEC
3803	UPPER LIMB VESSEL INCIS	3885	OCCLUDE THORACIC VES NEC
3804	INCISION OF AORTA	3886	OCCLUDE ABD ARTERY NEC
3805	THORACIC VESSEL INC NEC	3887	OCCLUDE ABD VEIN NEC
3806	ABDOMEN ARTERY INCISION	3888	OCCLUDE LEG ARTERY NEC
3807	ABDOMINAL VEIN INCISION	3889	OCCLUDE LEG VEIN NEC
3808	LOWER LIMB ARTERY INCIS	390	SYSTEMIC-PULM ART SHUNT
3809	LOWER LIMB VEIN INCISION	391	INTRA-ABD VENOUS SHUNT
3810	ENDARTERECTOMY NOS	3921	CAVAL-PULMON ART ANASTOM
3811	INTRACRAN ENDARTERECTOMY	3922	AORTA-SUBCLV-CAROT BYPAS
3812	HEAD & NECK ENDARTER NEC	3923	INTRATHORACIC SHUNT NEC
3813	UPPER LIMB ENDARTERECTOM	3924	AORTA-RENAL BYPASS
3814	ENDARTERECTOMY OF AORTA	3925	AORTA-ILIAC-FEMOR BYPASS
3815	THORACIC ENDARTERECTOMY	3926	INTRA-ABDOMIN SHUNT NEC
3816	ABDOMINAL ENDARTERECTOMY	3927	DIALYSIS ARTERIOVENOSTOM
3818	LOWER LIMB ENDARTERECT	3928	EXTRACRAN-INTRACRAN BYPASS
3821	BLOOD VESSEL BIOPSY	3929	VASC SHUNT & BYPASS NEC
3824	INTRAVAS IMG COR VES OCT	3930	SUTURE OF VESSEL NOS
3825	INTRAVAS IMG NON-COR OCT	3931	SUTURE OF ARTERY
3826	INSRT PRSR SNSR W/O LEAD	3932	SUTURE OF VEIN
3829	BLOOD VESSEL DX PROC NEC	3941	POSTOP VASC OP HEM CONTR
3830	VESSEL RESECT/ANAST NOS	3942	REVIS REN DIALYSIS SHUNT
3831	INTRACRAN VES RESEC-ANAS	3943	REMOV REN DIALYSIS SHUNT
3832	HEAD/NECK VES RESEC-ANAS	3949	VASC PROC REVISION NEC
3833	ARM VESSEL RESECT/ANAST	3950	ANGIO/ATH NON-CORO VES
3834	AORTA RESECTION & ANAST	3951	CLIPPING OF ANEURYSM
3835	THOR VESSEL RESECT/ANAST	3952	ANEURYSM REPAIR NEC
3836	ABD VESSEL RESECT/ANAST	3953	ARTERIOVEN FISTULA REP
3837	ABD VEIN RESECT & ANAST	3954	RE-ENTRY OPERATION
3838	LEG ARTERY RESECT/ANAST	3955	REIMPLAN ABERR RENAL VES
3839	LEG VEIN RESECT/ANASTOM	3956	REPAIR VESS W TIS PATCH
3840	VESSEL RESECT/REPLAC NOS	3957	REP VESS W SYNTH PATCH
3841	INTRACRAN VES RESEC-REPL	3958	REPAIR VESS W PATCH NOS
3842	HEAD/NECK VES RESEC-REPL	3959	REPAIR OF VESSEL NEC
3843	ARM VES RESECT W REPLACE	397	PER CARDIOPULMON BYPASS
3844	RESECT ABDM AORTA W REPL	3971	ENDO IMPL GRFT ABD AOR
3845	RESECT THORAC VES W REPL	3972	ENDOVASC EMBOL HD/NK VES

3973	ENDO IMP GRFT THOR AORTA	4251	THORAC ESOPHAGUESOPHAGOS
3974	ENDO REM OBS HD/NECK VES	4252	THORAC ESOPHAGOGASTROST
3975	ENDO EMB HD/NK, BARE COIL	4253	THORAC SM BOWEL INTERPOS
3976	ENDO EM HD/NK, BIOAC COIL	4254	THORAC ESOPHAGOENTER NEC
3977	TEMP ENDOVSC OCCLS VESSL	4255	THORAC LG BOWEL INTERPOS
3978	ENDOVAS IMPLN GRFT AORTA	4256	THORAC ESOPHAGOCOLOS NEC
3979	OTH ENDO PROC OTH VESSEL	4258	THORAC INTERPOSITION NEC
398	<i>CARTD BODY/SINUS/VASC OP</i>	4259	THORAC ESOPHAG ANAST NEC
3991	FREEING OF VESSEL	4261	STERN ESOPHAGUESOPHAGOST
3992	VEIN INJECT-SCLEROS AGNT	4262	STERN ESOPHAGOGASTROSTOM
3993	INSERT VES-TO-VES CANNUL	4263	STERN SM BOWEL INTERPOS
3994	REPLAC VES-TO-VES CANNUL	4264	STERN ESOPHAGOENTER NEC
3998	HEMORRHAGE CONTROL NOS	4265	STERN LG BOWEL INTERPOS
3999	VESSEL OPERATION NEC	4266	STERN ESOPHAGOCOLOS NEC
400	INCIS LYMPHATIC STRUCTUR	4268	STERN INTERPOSITION NEC
4011	LYMPHATIC STRUCT BIOPSY	4269	STERN ESOPHAG ANAST NEC
4019	LYMPHATIC DIAG PROC NEC	427	ESOPHAGOMYOTOMY
4021	EXCIS DEEP CERVICAL NODE	4282	SUTURE ESOPHAGEAL LACER
4022	EXCISE INT MAMMARY NODE	4283	ESOPHAGOSTOMY CLOSURE
4023	EXCISE AXILLARY NODE	4284	ESOPH FISTULA REPAIR NEC
4024	EXCISE INGUINAL NODE	4285	ESOPHAG STRICTURE REPAIR
4029	SIMP EXC LYMPH STRUC NEC	4286	PROD SUBQ TUNNEL NO ANAS
403	REGIONAL LYMPH NODE EXC	4287	ESOPHAGEAL GRAFT NEC
4040	RAD NECK DISSECTION NOS	4289	ESOPHAGEAL REPAIR NEC
4041	UNILAT RAD NECK DISSECT	4291	LIGATION ESOPH VARIX
4042	BILAT RAD NECK DISSECT	430	GASTROTOMY
4050	RAD NODE DISSECTION NOS	431	<i>GASTROTOMY</i>
4051	RAD DISSEC AXILLARY NODE	432	<i>OTHER GASTROSTOMY</i>
4052	RAD DISSEC PERIAORT NODE	433	PYLOROMYOTOMY
4053	RAD DISSECT ILIAC NODES	4342	LOCAL GASTR EXCISION NEC
4054	RADICAL GROIN DISSECTION	4349	LOCAL GASTR DESTRUCT NEC
4059	RAD NODE DISSECTION NEC	435	PROXIMAL GASTRECTOMY
4061	THORAC DUCT CANNULATION	436	DISTAL GASTRECTOMY
4062	THORACIC DUCT FISTULIZAT	437	PART GASTREC W JEJ ANAST
4063	CLOSE THORACIC DUCT FIST	4381	PART GAST W JEJ TRANSPOS
4064	LIGATE THORACIC DUCT	4382	LAP VERTICAL GASTRECTOMY
4069	THORACIC DUCT OP NEC	4389	OPN/OTH PART GASTRECTOMY
409	LYMPH STRUCTURE OP NEC	4391	TOT GAST W INTES INTERPO
412	SPLENOTOMY	4399	TOTAL GASTRECTOMY NEC
4133	OPEN SPLEEN BIOPSY	4400	VAGOTOMY NOS
4141	SPLENIC CYST MARSUPIAL	4401	TRUNCAL VAGOTOMY
4142	EXC SPLENIC LESION/TISS	4402	HIGHLY SELECT VAGOTOMY
4143	PARTIAL SPLENECTOMY	4403	SELECTIVE VAGOTOMY NEC
415	TOTAL SPLENECTOMY	4411	TRANSABDOMIN GASTROSCOPY
4193	EXC OF ACCESSORY SPLEEN	4415	OPEN GASTRIC BIOPSY
4194	SPLEEN TRANSPLANTATION	442	<i>GASTRIC DIAGNOS PROC NEC</i>
4195	REPAIR OF SPLEEN	4421	DILATE PYLORUS, INCISION
4199	SPLEEN OPERATION NEC	4429	OTHER PYLOROPLASTY
4201	ESOPHAGEAL WEB INCISION	4431	HIGH GASTRIC BYPASS
4209	ESOPHAGEAL INCISION NEC	4432	PERCU GASTROJEJUNOSTOMY
4210	ESOPHAGOSTOMY NOS	4438	LAP GASTROENTEROSTOMY
4211	CERVICAL ESOPHAGOSTOMY	4439	GASTROENTEROSTOMY NEC
4212	ESOPH POUCH EXTERIORIZAT	4440	SUTURE PEPTIC ULCER NOS
4219	EXT FISTULIZAT ESOPH NEC	4441	SUT GASTRIC ULCER SITE
4221	ESOPHAGOSCOPY BY INCIS	4442	SUTURE DUODEN ULCER SITE
4225	OPEN BIOPSY OF ESOPHAGUS	445	REVISION GASTRIC ANASTOM
4231	LOC EXCIS ESOPH DIVERTIC	4461	SUTURE GASTRIC LACERAT
4232	LOCAL EXCIS ESOPHAG NEC	4463	CLOSE GASTRIC FISTUL NEC
4239	DESTRUCT ESOPHAG LES NEC	4464	GASTROPEXY
4240	ESOPHAGECTOMY NOS	4465	ESOPHAGOGASTROPLASTY
4241	PARTIAL ESOPHAGECTOMY	4466	CREAT ESOPHAGASTR SPHINC
4242	TOTAL ESOPHAGECTOMY	4467	LAP CREAT ESOPH SPHINCT

4468	LAPAROSCOP GASTROPLSTY	4650	INTEST STOMA CLOSURE NOS
4469	GASTRIC REPAIR NEC	4651	SM BOWEL STOMA CLOSURE
4491	LIGATE GASTRIC VARICES	4652	LG BOWEL STOMA CLOSURE
4492	INTRAOP GASTRIC MANIPUL	4660	INTESTINAL FIXATION NOS
4495	LAP GASTRIC RESTRIC PROC	4661	SM BOWEL-ABD WALL FIXAT
4496	LAP REV GAST RESTRI PROC	4662	SMALL BOWEL FIXATION NEC
4497	LAP REM GAST RESTRIC DEV	4663	LG BOWEL-ABD WALL FIXAT
4498	ADJUST GAST RESTRICT DEV	4664	LARGE BOWEL FIXATION NEC
4499	GASTRIC OPERATION NEC	4671	DUODENAL LACERAT SUTURE
4500	INTESTINAL INCISION NOS	4672	DUODENAL FISTULA CLOSURE
4501	DUODENAL INCISION	4673	SMALL BOWEL SUTURE NEC
4502	SMALL BOWEL INCISION NEC	4674	CLOSE SM BOWEL FIST NEC
4503	LARGE BOWEL INCISION	4675	SUTURE LG BOWEL LACERAT
4511	TRANSAB SM BOWEL ENDOSC	4676	CLOSE LG BOWEL FISTULA
4515	OPEN SMALL BOWEL BIOPSY	4679	REPAIR OF INTESTINE NEC
4521	TRANSAB LG BOWEL ENDOSC	4680	INTRA-AB BOWEL MANIP NOS
4526	OPEN LARGE BOWEL BIOPSY	4681	INTRA-ABD SM BOWEL MANIP
4531	OTH EXCISE DUODENUM LES	4682	INTRA-ABD LG BOWEL MANIP
4532	DESTRUCT DUODEN LES NEC	4686	ENDO INSRT COLONIC STENT
4533	LOCAL EXCIS SM BOWEL NEC	4687	INSERT COLONIC STENT NEC
4534	DESTR SM BOWEL LES NEC	4691	MYOTOMY OF SIGMOID COLON
4541	EXCISE LG INTESTINE LES	4692	MYOTOMY OF COLON NEC
4549	DESTRUC LG BOWEL LES NEC	4693	REVISE SM BOWEL ANASTOM
4550	INTEST SEG ISOLAT NOS	4694	REVISE LG BOWEL ANASTOM
4551	SM BOWEL SEGMENT ISOLAT	4697	TRANSPLANT OF INTESTINE
4552	LG BOWEL SEGMENT ISOLAT	4699	INTESTINAL OP NEC
4561	MULT SEG SM BOWEL EXCIS	470	<i>INTESTINAL OP NEC</i>
4562	PART SM BOWEL RESECT NEC	4701	LAP APPENDECTOMY
4563	TOTAL REMOVAL SM BOWEL	4709	OTHER APPENDECTOMY
4571	OPN MUL SEG LG INTES NEC	471	<i>OTHER APPENDECTOMY</i>
4572	OPEN CECECTOMY NEC	4711	LAP INCID APPENDECTOMY
4573	OPN RT HEMICOLECTOMY NEC	4719	OTHER INCID APPENDECTOMY
4574	OPN TRANSV COLON RES NEC	472	DRAIN APPENDICEAL ABSC
4575	OPN LFT HEMICOLECTOMY NEC	4791	APPENDICOSTOMY
4576	OPEN SIGMOIDECTOMY NEC	4792	CLOSE APPENDICEAL FISTUL
4579	PRT LG INTES EXC NEC/NOS	4799	APPENDICEAL OPS NEC
458	<i>TOT INTRA-ABD COLECTOMY</i>	480	PROCTOTOMY
4581	LAP TOT INTR-AB COLECTMY	481	PROCTOSTOMY
4582	OP TOT INTR-ABD COLECTMY	4821	TRANSAB PROCTOSIGMOIDOSC
4583	TOT ABD COLECTMY NEC/NOS	4825	OPEN RECTAL BIOPSY
4590	INTESTINAL ANASTOM NOS	4835	LOCAL EXCIS RECTAL LES
4591	SM-TO-SM BOWEL ANASTOM	4840	PULL-THRU RES RECTUM NOS
4592	SM BOWEL-RECT STUMP ANAS	4841	SOAVE SUBMUC RECT RESECT
4593	SMALL-TO-LARGE BOWEL NEC	4842	LAP PULL-THRU RES RECTUM
4594	LG-TO-LG BOWEL ANASTOM	4843	OPN PULL-THRU RES RECTUM
4595	ANAL ANASTOMOSIS	4849	PULL-THRU RECT RESEC NEC
4601	SM BOWEL EXTERIORIZATION	485	<i>ABDPERINEAL RECT RESECT</i>
4602	RESECT EXT SEG SM BOWEL	4850	ABDPERNEAL RES RECTM NOS
4603	LG BOWEL EXTERIORIZATION	4851	LAP ABDPERNEAL RESC REC
4604	RESECT EXT SEG LG BOWEL	4852	OPN ABDPERNEAL RESC REC
4610	COLOSTOMY NOS	4859	ABDPERNEAL RESC RECT NEC
4611	TEMPORARY COLOSTOMY	4861	TRANSSAC RECTOSIGMOIDECT
4612	TEMPORARY COLOSTOMY	4862	ANT RECT RESECT W COLOST
4613	PERMANENT COLOSTOMY	4863	ANTERIOR RECT RESECT NEC
4620	ILEOSTOMY NOS	4864	POSTERIOR RECT RESECTION
4621	TEMPORARY ILEOSTOMY	4865	DUHAMEL RECTAL RESECTION
4622	CONTINENT ILEOSTOMY	4866	<i>DUHAMEL RECTAL RESECTION</i>
4623	PERMANENT ILEOSTOMY NEC	4869	RECTAL RESECTION NEC
4640	INTEST STOMA REVIS NOS	4871	SUTURE OF RECTAL LACER
4641	SM BOWEL STOMA REVISION	4872	CLOSURE OF PROCTOSTOMY
4642	PERICOLOST HERNIA REPAIR	4873	CLOSE RECTAL FIST NEC
4643	LG BOWEL STOMA REVIS NEC	4874	RECTORECTOSTOMY

4875	ABDOMINAL PROCTOPEXY	5123	LAPAROSCOPIC CHOLECYSTEC
4876	PROCTOPEXY NEC	5124	LAP PART CHOLECYSTECTOMY
4879	REPAIR OF RECTUM NEC	5131	GB-TO-HEPAT DUCT ANAST
4881	PERIRECTAL INCISION	5132	GB-TO-INTESTINE ANASTOM
4882	PERIRECTAL EXCISION	5133	GB-TO-PANCREAS ANASTOM
4891	INCIS RECTAL STRICTURE	5134	GB-TO-STOMACH ANASTOMOS
4892	ANORECTAL MYOMECTOMY	5135	GALLBLADDER ANASTOM NEC
4893	REPAIR PERIRECT FISTULA	5136	CHOLEDOCHOENTEROSTOMY
4899	RECTAL PERIRECT OP NEC	5137	HEPATIC DUCT-GI ANASTOM
4901	INCIS PERIANAL ABSCESS	5139	BILE DUCT ANASTOMOS NEC
4902	PERIANAL INCISION NEC	5141	CDE FOR CALCULUS REMOV
4904	PERIANAL EXCISION NEC	5142	CDE FOR OBSTRUCTION NEC
4911	ANAL FISTULOTOMY	5143	CHOLEDOCHOHEPAT INTUBAT
4912	ANAL FISTULECTOMY	5149	INCIS OBSTR BILE DUC NEC
493	<i>ANAL/PERIAN DX PROC NEC</i>	5151	COMMON DUCT EXPLORATION
4939	OTHER DESTRUC ANUS LES	5159	BILE DUCT INCISION NEC
4944	HEMORRHOID CRYOTHERAPY	5161	EXCIS CYST DUCT REMNANT
4945	HEMORRHOID LIGATION	5162	EXCIS AMPULLA OF VATER
4946	HEMORRHOIDECTOMY	5163	COMMON DUCT EXCIS NEC
4949	HEMORRHOID PROCEDURE NEC	5169	BILE DUCT EXCISION NEC
4951	LEFT LAT SPHINCTEROTOMY	5171	SIMPLE SUT-COMMON DUCT
4952	POST SPHINCTEROTOMY	5172	CHOLEDOCHOPLASTY
4959	ANAL SPHINCTEROTOMY NEC	5179	BILE DUCT REPAIR NEC
496	EXCISION OF ANUS	5181	SPHINCTER OF ODDI DILAT
4971	SUTURE ANAL LACERATION	5182	PANCREAT SPHINCTEROTOM
4972	ANAL CERCLAGE	5183	PANCREAT SPHINCTEROPLAS
4973	CLOSURE OF ANAL FISTULA	5189	SPHINCT OF ODDI OP NEC
4974	GRACILIS MUSC TRANSPLAN	5191	REPAIR GB LACERATION
4975	IMPL OR REV ART ANAL SPH	5192	CLOSURE CHOLECYSTOSTOMY
4976	REMOV ART ANAL SPHINCTER	5193	CLOS BILIARY FISTUL NEC
4979	ANAL SPHINCT REPAIR NEC	5194	REVIS BILE TRACT ANASTOM
4991	INCISION OF ANAL SEPTUM	5195	REMOVE BILE DUCT PROSTH
4992	INSERT SUBQ ANAL STIMUL	5199	BILIARY TRACT OP NEC
4993	ANAL INCISION NEC	5201	CATH DRAIN-PANCREAT CYST
4994	REDUCTION ANAL PROLAPSE	5209	PANCREATOTOMY NEC
4995	CONTROL ANAL HEMORRHAGE	5212	OPEN PANCREATIC BIOPSY
4999	ANAL OPERATION NEC	5219	PANCREATIC DX PROC NEC
500	HEPATOTOMY	522	<i>PANCREATIC DX PROC NEC</i>
5012	OPEN LIVER BIOPSY	5222	OTHER DESTRU PANCREA LES
5013	TRANSJUGULAR LIVER BX	523	PANCREAT CYST MARSUPIALI
5014	LAPAROSCOPIC LIVER BX	524	INT DRAIN PANCREAT CYST
5019	HEPATIC DX PROC NEC	5251	PROXIMAL PANCREATECTOMY
5021	MARSUPIALIZAT LIVER LES	5252	DISTAL PANCREATECTOMY
5022	PARTIAL HEPATECTOMY	5253	RAD SUBTOT PANCREATECTOM
5023	OPN ABLTN LIVER LES/TISS	5259	PARTIAL PANCREATECT NEC
5024	PERC ABLTN LIVER LES/TIS	526	TOTAL PANCREATECTOMY
5025	LAP ABLTN LIVER LES/TISS	527	RAD PANCREATICODUODENECT
5026	ABLTN LIVER LES/TISS NEC	5280	PANCREAT TRANSPLANT NOS
5029	DESTRUC HEPATIC LES NEC	5281	REIMPLANT PANCREATIC TIS
503	HEPATIC LOBECTOMY	5282	PANCREATIC HOMOTRANSPLAN
504	TOTAL HEPATECTOMY	5283	PANCREATIC HETEROTRANSPL
5051	AUXILIARY LIVER TRANSPL	5291	<i>TRNSPLNT ISLETS LANG NOS</i>
5059	LIVER TRANSPLANT NEC	5292	CANNULATION PANCREA DUC
5061	CLOSURE LIVER LACERAT	5295	PANCREATIC REPAIR NEC
5069	LIVER REPAIR NEC	5296	PANCREATIC ANASTOMOSIS
5102	TROCAR CHOLECYSTOSTOMY	5299	PANCREATIC OPERATION NEC
5103	CHOLECYSTOSTOMY NEC	5300	UNILAT ING HERN REP NOS
5104	CHOLECYSTOTOMY NEC	5301	OPN REP DIR ING HERN NEC
5113	OPEN BILIARY TRACT BX	5302	OPN REP IND ING HERN NEC
5119	BILIARY TR DX PROC NEC	5303	OPN DIR ING HERN-GFT NEC
5121	OTH PART CHOLECYSTECTOMY	5304	OPN IND ING HERN-GFT NEC
5122	CHOLECYSTECTOMY	5305	ING HERNIA REP-GRAFT NOS

5310	BILAT ING HERNIA REP NOS	5511	PYELOTOMY
5311	OPN BIL DIR ING HERN NEC	5512	PYELOSTOMY
5312	OPN BIL IND ING HERN NEC	5524	OPEN RENAL BIOPSY
5313	OPN BI DR/IN ING HRN NEC	5529	RENAL DIAGNOST PROC NEC
5314	OPN BI DR ING HRN-GR NEC	5531	RENAL LES MARSUPIALIZAT
5315	OP BI IN ING HRN-GRF NEC	5532	OPN ABLTN RENAL LES/TISS
5316	OP BI DR/IN IG HR-GR NEC	5533	PERC ABLTN RENL LES/TISS
5317	BIL ING HRN REP-GRFT NOS	5534	LAP ABLTN RENAL LES/TISS
5321	UNIL FEMOR HRN REP-GRFT	5535	ABLTN RENAL LES/TISS NEC
5329	UNIL FEMOR HERN REP NEC	5539	LOC DESTR RENAL LES NEC
5331	BIL FEM HERN REPAIR-GRFT	554	PARTIAL NEPHRECTOMY
5339	BIL FEM HERN REPAIR NEC	5551	NEPHROURETERECTOMY
5341	UMBIL HERNIA REPAIR-GRFT	5552	SOLITARY KIDNEY NEPHRECT
5342	LAP UMBIL HERNIA-GRAFT	5553	REJECTED KIDNEY NEPHRECT
5343	LAP UMBILICAL HERNIA NEC	5554	BILATERAL NEPHRECTOMY
5349	OPEN REP UMBIL HERN NEC	5561	RENAL AUTOTRANSPLANT
5351	INCISIONAL HERNIA REPAIR	5569	KIDNEY TRANSPLANT NEC
5359	ABD WALL HERN REPAIR NEC	557	NEPHROPEXY
5361	OPEN INCIS HERN-GRFT NEC	5581	SUTURE KIDNEY LACERATION
5362	LAP INCIS HERN REPR-GRFT	5582	CLOSE NEPHROST & PYELOST
5363	LAP HERN ANT ABD-GFT NEC	5583	CLOSE RENAL FISTULA NEC
5369	OPN HERN ANT ABD-GRF NEC	5584	REDUCE RENAL PEDICL TORS
537	<i>ABD REPAIR-DIAPHR HERNIA</i>	5585	SYMPHYSIOTOMY
5371	LAP ABD REP-DIAPHR HERN	5586	RENAL ANASTOMOSIS
5372	OPN ABD DIAPHRM HERN NEC	5587	CORRECT URETEROPELV JUNC
5375	ABD REP-DIAPHR HERN NOS	5589	RENAL REPAIR NEC
5380	THOR REP-DIAPH HERN NOS	5591	RENAL DECAPSULATION
5381	DIAPHRAGMATIC PLICATION	5597	IMPLANT MECHANIC KIDNEY
5382	PARASTERN HERNIA REPAIR	5598	REMOV MECHANICAL KIDNEY
5383	LAP THORC APP-DIAPH HERN	5599	RENAL OPERATION NEC
5384	OPN THORC DIAPH HERN NEC	560	TU REMOV URETER OBSTRUCT
539	OTHER HERNIA REPAIR	561	URETERAL MEATOTOMY
540	ABDOMINAL WALL INCISION	562	URETEROTOMY
5411	EXPLORATORY LAPAROTOMY	5634	OPEN URETERAL BIOPSY
5412	REOPEN RECENT LAP SITE	5639	URETERAL DX PROCEDUR NEC
5419	LAPAROTOMY NEC	5640	URETERECTOMY NOS
5421	LAPAROSCOPY	5641	PARTIAL URETERECTOMY
5422	ABDOMINAL WALL BIOPSY	5642	TOTAL URETERECTOMY
5423	PERITONEAL BIOPSY	5651	FORM CUTAN ILEOURETEROST
5429	ABD REGION DX PROC NEC	5652	REVIS CUTAN ILEOURETEROS
543	DESTRUCT ABD WALL LESION	5661	FORM CUTAN URETEROSTOMY
544	DESTRUCT PERITONEAL TISS	5662	REVIS CUTAN URETEROS NEC
545	<i>DESTRUCT PERITONEAL TISS</i>	5671	URIN DIVERSION TO BOWEL
5451	LAP PERITON ADHESIOLYSIS	5672	REVIS URETEROENTEROSTOMY
5459	OTH PERITON ADHESIOLYSIS	5673	NEPHROCYSTANASTOMOSI NOS
5461	RECLOSE POST OP DISRUPT	5674	URETERONEOCYSTOSTOMY
5462	DELAYED CLOS ABD WOUND	5675	TRANSURETEROURETEROSTOMY
5463	ABD WALL SUTURE NEC	5679	URETERAL ANASTOMOSIS NEC
5464	PERITONEAL SUTURE	5681	INTRALUM URETE ADHESIOLY
5471	REPAIR OF GASTROSCHISIS	5682	SUTURE URETERAL LACERAT
5472	ABDOMEN WALL REPAIR NEC	5683	URETEROSTOMY CLOSURE
5473	PERITONEAL REPAIR NEC	5684	CLOSE URETER FISTULA NEC
5474	OMENTAL REPAIR NEC	5685	URETEROPEXY
5475	MESENTERIC REPAIR NEC	5686	REMOVE URETERAL LIGATURE
5492	REMOVE FB FROM PERITON	5689	REPAIR OF URETER NEC
5493	CREATE CUTANPERITON FIST	5692	IMPLANT URETERAL STIMUL
5494	CREAT PERITONEOVAS SHUNT	5693	REPLACE URETERAL STIMUL
5495	PERITONEAL INCISION	5694	REMOVE URETERAL STIMULAT
5501	NEPHROTOMY	5695	LIGATION OF URETER
5502	NEPHROSTOMY	5699	URETERAL OPERATION NEC
5503	PERCU NEPHROSTM W/O FRAG	5712	CYSTOTOMY & ADHESIOLYSIS
5504	PERCU NEPHROSTMY W FRAG	5718	OTHER SUPRAPU CYSTOSTOMY

5719	CYSTOTOMY NEC	6012	OPEN PROSTATIC BIOPSY
5721	VESICOSTOMY	6014	OPEN SEMINAL VESICLES BX
5722	REVISE CLO VESICOSTOMY	6015	PERIPROSTATIC BIOPSY
5733	CLOS TRANSURETH BLADD BX	6018	PROSTATIC DX PROCED NEC
5734	OPEN BLADDER BIOPSY	6019	SEMIN VES DX PROCED NEC
5739	BLADDER DIAGNOS PROC NEC	602	SEMIN VES DX PROCED NEC
5741	TU ADHESIOLYSIS BLADDER	6021	TRANSURETH PROSTATECTOMY
5749	TU DESTRUC BLADD LES NEC	6029	OTH TRANSURETH PROSTATEC
5751	EXCISION OF URACHUS	603	SUPRAPUBIC PROSTATECTOMY
5759	BLADDER LES DESTRUCT NEC	604	RETROPUBIC PROSTATECTOMY
576	PARTIAL CYSTECTOMY	605	RADICAL PROSTATECTOMY
5771	RADICAL CYSTECTOMY	6061	LOS EXCIS PROSTATIC LES
5779	TOTAL CYSTECTOMY NEC	6062	PERINEAL PROSTATECTOMY
5781	SUTURE BLADDER LACERAT	6069	PROSTATECTOMY NEC
5782	CYSTOSTOMY CLOSURE	6072	SEMINAL VESICLE INCISION
5783	ENTEROVESICO FIST REPAIR	6073	SEMINAL VESICLE EXCISION
5784	VESIC FISTULA REPAIR NEC	6079	SEMINAL VESICLE OP NEC
5785	CYSTOURETHROPLASTY	6081	PERIPROSTATIC INCISION
5786	BLADDER EXSTROPHY REPAIR	6082	PERIPROSTATIC EXCISION
5787	BLADDER RECONSTRUCTION	6093	REPAIR OF PROSTATE
5788	BLADDER ANASTOMOSIS NEC	6094	CONTROL PROSTATE HEMORR
5789	BLADDER REPAIR NEC	6095	TRANS BAL DIL PROS URETH
5791	BLADDER SPHINCTEROTOMY	6096	TU DESTR PROSTATE BY MT
5793	CONTROL BLADD HEMORRHAGE	6097	OTH TU DESTR PROS - RT
5796	IMPLANT BLADDER STIMULAT	6099	PROSTATIC OPERATION NEC
5797	REPLACE BLADDER STIMULAT	612	EXCISION OF HYDROCELE
5798	REMOVE BLADDER STIMULAT	6142	SCROTAL FISTULA REPAIR
5799	BLADDER OPERATION NEC	6149	SCROTUM/TUNIC REPAIR NEC
580	URETHROTOMY	6192	EXCISION TUNICA LES NEC
581	URETHRAL MEATOTOMY	6199	SCROTUM & TUNICA OP NEC
5841	SUTURE URETHRAL LACERAT	620	INCISION OF TESTES
5842	URETHROSTOMY CLOSURE	6212	OPEN TESTICULAR BIOPSY
5843	CLOSE URETH FISTULA NEC	6219	TESTES DX PROCEDURE NEC
5844	URETHRAL REANASTOMOSIS	622	TESTICULAR LES DESTRUCT
5845	HYPO-EPISPADIUS REPAIR	623	UNILATERAL ORCHIECTOMY
5846	URETH RECONSTRUCTION NEC	6241	REMOVE BOTH TESTES
5847	URETHRAL MEATOPLASTY	6242	REMOVE SOLITARY TESTIS
5849	URETHRAL REPAIR NEC	625	ORCHIOPEXY
585	URETH STRICTURE RELEASE	6261	SUTURE TESTICULAR LACER
5891	PERIURETHRAL INCISION	6269	TESTICULAR REPAIR NEC
5892	PERIURETHRAL EXCISION	627	INSERT TESTICULAR PROSTH
5893	IMPLT ARTF URIN SPHINCT	6299	TESTICULAR OPERATION NEC
5899	URETH/PERIURETH OP NEC	6309	SPERMAT CORD/VAS DX NEC
5900	RETROPERIT DISSECT NOS	631	EXC SPERMATIC VARICOCELE
5901	RETROPERIT DISSECT NOS	632	EXCISE EPIDIDYMIS CYST
5902	PERIREN ADHESIOLYS NEC	633	EXCISE CORD/EPID LES NEC
5903	LAP LYS PERIREN/URET ADH	634	EPIDIDYMECTOMY
5909	PERIREN/URETER INCIS NEC	6351	SUTURE CORD & EPID LACER
5911	OTH LYS PERIVES ADHESIO	6353	TRANSPLANT SPERMAT CORD
5912	LAP LYS PERIVESURETH ADH	6359	CORD & EPIDID REPAIR NEC
5919	PERIVESICAL INCISION NEC	6381	SUTURE VAS & EPIDID LAC
5921	PERIREN/URETERAL BIOPSY	6382	POSTOP VAS RECONSTRUCT
5929	PERIREN/URET DX PROC NEC	6383	EPIDIDYMOVASOSTOMY
593	URETHROVES JUNCT PLICAT	6385	REMOV VAS DEFERENS VALVE
594	SUPRAPUBIC SLING OP	6389	VAS & EPIDIDY REPAIR NEC
595	RETROPUBIC URETH SUSPENS	6392	EPIDIDYNOTOMY
596	PARAURETHRAL SUSPENSION	6393	SPERMATIC CORD INCISION
5971	LEVATOR MUSC SUSPENSION	6394	SPERM CORD ADHESIOLYSIS
5979	URIN INCONTIN REPAIR NEC	6395	INSERT VALVE IN VAS DEF
5991	PERIREN/VESICLE EXCISION	6399	CORD/EPID/VAS OPS NEC
5992	PERIREN/VESICLE OP NEC	6411	PENILE BIOPSY
600	INCISION OF PROSTATE	642	LOCAL EXCIS PENILE LES

643	AMPUTATION OF PENIS	6611	FALLOPIAN TUBE BIOPSY
6441	SUTURE PENILE LACERATION	6619	FALLOP TUBE DX PROC NEC
6442	RELEASE OF CHORDEE	6621	BILAT ENDOSC CRUSH TUBE
6443	CONSTRUCTION OF PENIS	6622	BILAT ENDOSC DIVIS TUBE
6444	RECONSTRUCTION OF PENIS	6629	BILAT ENDOS OCC TUBE NEC
6445	REPLANTATION OF PENIS	6631	BILAT TUBAL CRUSHING NEC
6449	PENILE REPAIR NEC	6632	BILAT TUBAL DIVISION NEC
645	SEX TRANSFORMAT OP NEC	6639	BILAT TUBAL DESTRUCT NEC
6492	INCISION OF PENIS	664	TOTAL UNILAT SALPINGECT
6493	DIVISION OF PENILE ADHES	6651	REMOVE BOTH FALLOP TUBES
6495	INS NONINFL PENIS PROSTH	6652	REMOVE SOLITARY FAL TUBE
6496	REMOVE INT PENILE PROSTH	6661	DESTROY FALLOP TUBE LES
6497	INS INFLATE PENIS PROSTH	6662	REMOV TUBE & ECTOP PREG
6498	PENILE OPERATION NEC	6663	BILAT PART SALPINGEC NOS
6499	MALE GENITAL OP NEC	6669	PARTIAL SALPINGECTOM NEC
650	MALE GENITAL OP NEC	6671	SIMPL SUTURE FALLOP TUBE
6501	LAPAROSCOPIC OOPHOROTOMY	6672	SALPINGO-OOPHOROSTOMY
6509	OTHER OOPHOROTOMY	6673	SALPINGO-SALPINGOSTOMY
6511	OVARIAN ASPIRAT BIOPSY	6674	SALPINGO-UTEROSTOMY
6512	OVARIAN BIOPSY NEC	6679	FALLOP TUBE REPAIR NEC
6513	LAP BIOPSY OF OVARY	6692	UNILAT FALLOP TUBE DESTR
6514	OTH LAP DX PROC OVARIES	6693	IMPL FALLOP TUBE PROSTH
6519	OVARIAN DX PROCEDURE NEC	6694	REMOV FALLOP TUBE PROSTH
6521	OVARIAN CYST MARSUPIALIZ	6695	BLOW THERAPEUT INTO TUBE
6522	OVARIAN WEDGE RESECTION	6696	FALLOPIAN TUBE DILATION
6523	LAP MARSUP OVARIAN CYST	6697	BURY FIMBRIAE IN UTERUS
6524	LAP WEDGE RESECT OVARY	6699	FALLOPIAN TUBE OP NEC
6525	OTH LAP LOC EXC DEST OVA	6711	ENDOCERVICAL BIOPSY
6529	LOCAL DESTR OVA LES NEC	6712	CERVICAL BIOPSY NEC
653	LOCAL DESTR OVA LES NEC	6719	CERVICAL DX PROCEDUR NEC
6531	LAP UNILAT OOPHORECTOMY	672	CONIZATION OF CERVIX
6539	OTH UNILAT OOPHORECTOMY	6731	CERVICAL CYST MARSUPIAL
654	OTH UNILAT OOPHORECTOMY	6732	CERVICAL LES CAUTERIZAT
6541	LAP UNI SALPINGO-OOPHOR	6733	CERVICAL LES CRYOTHERAPY
6549	OTH UNI SALPINGO-OOPHOR	6739	CERVICAL LES DESTRUC NEC
6551	OTH REMOVE BOTH OVARIES	674	AMPUTATION OF CERVIX
6552	OTH REMOVE REMAIN OVARY	675	AMPUTATION OF CERVIX
6553	LAP REMOVE BOTH OVARIES	6751	TRANSAB CERCLAGE CERVIX
6554	LAP REMOVE REMAIN OVARY	6759	OTH REP INT CERVICAL OS
6561	OTH REMOVE OVARIES/TUBES	6761	SUTURE CERVICAL LACERAT
6562	OTH REMOVE REM OVA/TUBE	6762	CERVICAL FISTULA REPAIR
6563	LAP REMOVE OVARIES/TUBES	6769	CERVICAL REPAIR NEC
6564	LAP REMOVE REM OVA/TUBE	680	HYSTEROTOMY
6571	OTH SIMPLE SUTURE OVARY	6813	OPEN UTERINE BIOPSY
6572	OTH REIMPLANT OF OVARY	6814	OPEN UTERINE LIGAMENT BX
6573	OTH SALPINGO-OOPHOROPLAS	6815	CLOS UTERINE LIGAMENT BX
6574	LAP SIMPLE SUTURE OVARY	6816	CLOSED UTERINE BIOPSY
6575	LAP REIMPLANT OF OVARY	6819	UTERUS/ADNEX DX PROC NEC
6576	LAP SALPINGO-OOPHOROPLAS	6821	ENDOMET SYNECHIAE DIVIS
6579	REPAIR OF OVARY NEC	6822	INCISION UTERINE SEPTUM
658	REPAIR OF OVARY NEC	6823	ENDOMETRIAL ABLATION
6581	LAP ADHESIOLYS OVA/TUBE	6824	UTERINE ART EMB W COILS
6589	ADHESIOLYSIS OVARY/TUBE	6825	UTERINE ART EMB W/O COIL
6591	ASPIRATION OF OVARY	6829	UTERINE LES DESTRUCT NEC
6592	TRANSPLANTATION OF OVARY	683	UTERINE LES DESTRUCT NEC
6593	MANUAL RUPT OVARIAN CYST	6831	LAP SCERVIC HYSTERECTOMY
6594	OVARIAN DENERVATION	6839	SUBTOTL ABD HYST NEC/NOS
6595	OVARIAN TORSION RELEASE	684	TOTAL ABD HYSTERECTOMY
6599	OVARIAN OPERATION NEC	6841	LAP TOTAL ABDOMINAL HYST
660	OVARIAN OPERATION NEC	6849	TOTAL ABD HYST NEC/NOS
6601	SALPINGOTOMY	685	VAGINAL HYSTERECTOMY
6602	SALPINGOSTOMY	6851	LAP AST VAG HYSTERECTOMY

6859	VAG HYSTERECTOMY NEC/NOS	7109	INCIS VULVA/PERINEUM NEC
686	<i>RADICAL ABD HYSTERECTOMY</i>	7111	VULVAR BIOPSY
6861	LAP RADICAL ABDOMNL HYST	7119	VULVAR DIAGNOS PROC NEC
6869	RADICAL ABD HYST NEC/NOS	7122	INCISE BARTHOLIN'S GLAND
687	<i>RADICAL VAG HYSTERECTOMY</i>	7123	BARTHOLIN GLAND MARSUP
6871	LAP RADICAL VAGINAL HYST	7124	DESTRUC BARTHOLIN GLAND
6879	RADICAL VAG HYST NEC/NOS	7129	BARTHOLIN'S GLAND OP NEC
688	PELVIC EVISCERATION	713	LOCAL VULVAR EXCIS NEC
689	HYSTERECTOMY NEC/NOS	714	OPERATIONS ON CLITORIS
6901	D & C FOR PREG TERMINAT	715	RADICAL VULVECTOMY
6902	D & C POST DELIVERY	7161	UNILATERAL VULVECTOMY
6909	D & C NEC	7162	BILATERAL VULVECTOMY
6911	<i>D & C NEC</i>	7171	SUTURE VULVAR LACERATION
6919	DESTRUC UTER SUPPORT NEC	7172	REPAIR VULVAR FISTULA
6921	INTERPOSIT OP UTERIN LIG	7179	VULVAR/PERIN REPAIR NEC
6922	UTERINE SUSPENSION NEC	718	OTHER VULVAR OPERATIONS
6923	VAG REPAIR INVERS UTERUS	719	OTHER FEMALE GENITAL OPS
6929	UTERUS/ADNEXA REPAIR NEC	7394	PUBIOTOMY TO ASSIST DEL
693	PARACERV UTERINE DENERV	7399	OPS ASSISTING DELIV NEC
6941	SUTURE UTERINE LACERAT	740	CLASSICAL C-SECTION
6942	CLOSURE UTERINE FISTULA	741	LOW CERVICAL C-SECTION
6949	UTERINE REPAIR NEC	742	EXTRAPERITONEAL C-SECT
6951	ASPIRAT CURET-PREG TERMI	743	REM EXTRATUB ECTOP PREG
6952	ASPIRAT CURET-POST DELIV	744	CESAREAN SECTION NEC
6995	INCISION OF CERVIX	7491	HYSTEROTOMY TO TERMIN PG
6997	REMOVE PENETRAT CERV FB	7499	CESAREAN SECTION NOS
6998	UTERINE SUPPORT OP NEC	7536	CORRECTION FETAL DEFECT
6999	UTERINE OPERATION NEC	7550	REPAIR OB LAC UTERUS NOS
7012	CULDOTOMY	7551	REPAIR OB LACERAT CERVIX
7013	INTRALUM VAG ADHESIO LYS	7552	REPAIR OB LAC CORP UTERI
7014	VAGINOTOMY NEC	7561	REPAIR OB LAC BLAD/URETH
7023	CUL-DE-SAC BIOPSY	7593	SURG CORR INVERT UTERUS
7024	VAGINAL BIOPSY	7599	OBSTETRIC OPERATION NEC
7029	VAGIN/CUL-DE-SAC DX NEC	7601	FACIAL BONE SEQUESTRECT
7031	HYMENECTOMY	7609	FACIAL BONE INCISION NEC
7032	EXCIS CUL-DE-SAC LESION	7611	FACIAL BONE BIOPSY
7033	EXCISION VAGINAL LESION	7619	FACIAL BONE DX PROC NEC
704	VAGINAL OBLITERATION	762	DESTRUCT FACIAL BONE LES
7050	CYSTOCEL/RECTOCEL REPAIR	7631	PARTIAL MANDIBULECTOMY
7051	CYSTOCELE REPAIR	7639	PART FACIAL OSTECTOM NEC
7052	RECTOCELE REPAIR	7641	TOT MANDIBULEC W RECONST
7053	CYSTO & RECTO W GRF/PROS	7642	TOTAL MANDIBULECTOMY NEC
7054	REP CYSTOCEL W GRFT/PROS	7643	MANDIBULAR RECONST NEC
7055	REP RECTOCELE W GRF/PROS	7644	TOT FACE OSTECT W RECONS
7061	VAGINAL CONSTRUCTION	7645	TOT FACE BONE OSTECT NEC
7062	VAGINAL RECONSTRUCTION	7646	FACIAL BONE RECONSTR NEC
7063	VAGINAL CONST W GRF/PROS	765	TEMPOROMAND ARTHROPLASTY
7064	VAG RECONST W GRFT/PROS	7661	CL OSTEOPLASTY MAND RAMI
7071	SUTURE VAGINA LACERATION	7662	OPEN OSTEOPLAS MAND RAMI
7072	REPAIR COLOVAGIN FISTULA	7663	OSTEOPLASTY MANDIBLE BDY
7073	REPAIR RECTOVAG FISTULA	7664	MAND ORTHOGNATHIC OP NEC
7074	REP VAGINOENT FISTUL NEC	7665	SEG OSTEOPLASTY MAXILLA
7075	REPAIR VAG FISTULA NEC	7666	TOT OSTEOPLASTY MAXILLA
7076	HYMENORRHAPHY	7667	REDUCTION GENIOPLASTY
7077	VAGINAL SUSPENS & FIXAT	7668	AUGMENTATION GENIOPLASTY
7078	VAG SUSP/FIX W GRFT/PROS	7669	FACIAL BONE REPAIR NEC
7079	VAGINAL REPAIR NEC	7670	REDUCTION FACIAL FX NOS
708	VAGINAL VAULT OBLITERAT	7672	OPN REDUCT MALAR/ZYGO FX
7091	VAGINAL OPERATION NEC	7674	OPEN REDUCT MAXILLARY FX
7092	CUL-DE-SAC OPERATION NEC	7676	OPEN REDUCT MANDIBLE FX
7093	CUL-DE-SAC GRF/PROS NEC	7677	OPEN REDUCT ALVEOLAR FX
7101	VULVAR ADHESIO LYSIS	7679	OPEN REDUCT FACE FX NEC

7691	BONE GRAFT TO FACE BONE	7759	BUNIONECTOMY NEC
7692	SYN IMPLANT TO FACE BONE	7760	LOC EXC BONE LESION NOS
7694	OPEN REDUCT TM DISLOCAT	7761	EXC CHEST CAGE BONE LES
7697	REMOVE INT FIX FACE BONE	7762	LOC EXC BONE LES HUMERUS
7699	FACIAL BONE/JNT OP NEC	7763	LOC EXC LES RADIUS/ULNA
7700	SEQUESTRECTOMY NOS	7764	LOC EXC LES METACAR/CAR
7701	CHEST CAGE SEQUESTREC	7765	LOC EXC BONE LES FEMUR
7702	HUMERUS SEQUESTRECTOMY	7766	LOC EXC BONE LES PATELLA
7703	RADIUS & ULNA SEQUESTREC	7767	LOC EXC LES TIBIA/FIBULA
7704	METACARP/CARP SEQUESTREC	7768	LOC EXC LES METATAR/TAR
7705	FEMORAL SEQUESTRECTOMY	7769	LOC EXC BONE LESION NEC
7706	PATELLAR SEQUESTRECTOMY	7770	EXCISE BONE FOR GRFT NOS
7707	TIBIA/FIBULA SEQUESTREC	7771	EX CHEST CAGE BONE-GFT
7708	METATAR/TAR SEQUESTREC	7772	EXCISE HUMERUS FOR GRAFT
7709	SEQUESTRECTOMY NEC	7773	EXCIS RADIUS/ULNA-GRAFT
7710	OTHER BONE INCISION NOS	7774	EXCIS METACAR/CAR-GRAFT
7711	OTHER CHEST CAGE INCIS	7775	EXCISE FEMUR FOR GRAFT
7712	OTHER HUMERUS INCISION	7776	EXCISE PATELLA FOR GRAFT
7713	OTHER RADIUS/ULNA INCIS	7777	EXCISE TIB/FIB FOR GRAFT
7714	OTH METACARP/CARP INCIS	7778	EXCIS METATAR/TAR-GRAFT
7715	OTHER FEMORAL INCISION	7779	EXCISE BONE FOR GFT NEC
7716	OTHER PATELLAR INCISION	7780	OTH PART OSTEOTOMY NOS
7717	OTHER TIBIA/FIBULA INCIS	7781	OTH CHEST CAGE OSTEOTOMY
7718	OTH METATARS/TARS INCIS	7782	PARTIAL HUMERECTOMY NEC
7719	BONE INCIS W/O DIV NEC	7783	PART OSTEOT-RADIUS/ULNA
7720	WEDGE OSTEOTOMY NOS	7784	PART OSTEOT-METACAR/CAR
7721	CHEST CAGE WEDG OSTEOTOM	7785	PART OSTEOTOMY-FEMUR
7722	HUMERUS WEDGE OSTEOTOMY	7786	PARTIAL PATELLECTOMY
7723	RADIUS/ULNA WEDG OSTEOTO	7787	PART OSTEOT-TIBIA/FIBULA
7724	METACAR/CAR WEDG OSTEOTO	7788	PART OSTEOT-METATAR/TAR
7725	FEMORAL WEDGE OSTEOTOMY	7789	PARTIAL OSTEOTOMY NEC
7726	PATELLAR WEDGE OSTEOTOMY	7790	TOTAL OSTEOTOMY NOS
7727	TIBIA/FIBUL WEDG OSTEOT	7791	TOT CHEST CAGE OSTEOTOMY
7728	METATAR/TAR WEDG OSTEOT	7792	TOTAL OSTEOTOMY-HUMERUS
7729	WEDGE OSTEOTOMY NEC	7793	TOT OSTEOT-RADIUS/ULNA
7730	OTHER BONE DIVISION NOS	7794	TOT OSTEOT-METACARP/CARP
7731	CHEST CAGE BONE DIV NEC	7795	TOT OSTEOTOMY-FEMUR
7732	HUMERUS DIVISION NEC	7796	TOTAL PATELLECTOMY
7733	RADIUS/ULNA DIVISION NEC	7797	TOT OSTEOT-TIBIA/FIBULA
7734	METACAR/CAR DIVISION NEC	7798	TOT OSTEOT-METATARS/TARS
7735	FEMORAL DIVISION NEC	7799	TOTAL OSTEOTOMY NEC
7736	PATELLAR DIVISION NEC	7800	BONE GRAFT NOS
7737	TIBIA/FIBULA DIV NEC	7801	BONE GRAFT TO CHEST CAGE
7738	METATAR/TAR DIVISION NEC	7802	BONE GRAFT TO HUMERUS
7739	BONE DIVISION NEC	7803	BONE GRAFT-RADIUS/ULNA
7740	BONE BIOPSY NOS	7804	BONE GRFT TO METACAR/CAR
7741	CHEST CAGE BONE BIOPSY	7805	BONE GRAFT TO FEMUR
7742	HUMERUS BIOPSY	7806	BONE GRAFT TO PATELLA
7743	RADIUS & ULNA BIOPSY	7807	BONE GRAFT-TIBIA/FIBULA
7744	METACARPAL/CARPAL BIOPSY	7808	BONE GRAFT-METATAR/TAR
7745	FEMORAL BIOPSY	7809	BONE GRAFT NEC
7746	PATELLAR BIOPSY	7810	APPLIC EXT FIX DEV NOS
7747	TIBIA & FIBULA BIOPSY	7811	APPL EXT FIX-CHEST CAGE
7748	METATARSAL/TARSAL BIOPSY	7812	APPLIC EXT FIX-HUMERUS
7749	BONE BIOPSY NEC	7813	APPL EXT FIX-RADIUS/ULNA
7751	BUNIONECT/SFT/OSTEOTOMY	7814	APPL EXT FIX-METACAR/CAR
7752	BUNIONECT/SFT/ARTHRODES	7815	APPLIC EXT FIX DEV-FEMUR
7753	OTH BUNIONECT W SFT CORR	7816	APPL EXT FIX DEV-PATELLA
7754	EXC CORRECT BUNIONETTE	7817	APPL EXT FIX-TIB/FIBULA
7756	REPAIR OF HAMMER TOE	7818	APPL EXT FIX-METATAR/TAR
7757	REPAIR OF CLAW TOE	7819	APPLIC EXT FIX DEV NEC
7758	OTH EXC, FUS, REPAIR TOE	7820	LIMB SHORTEN PROC NOS

7822	LIMB SHORT PROC-HUMERUS	7886	OTH DX PROCED-PATELLA
7823	LIMB SHORTEN-RADIUS/ULNA	7887	OTH DX PROC-TIBIA/FIBULA
7824	LIMB SHORTEN-METACAR/CAR	7888	OTH DX PROC-METATAR/TAR
7825	LIMB SHORT PROC-FEMUR	7889	OTHER BONE DX PROC NEC
7827	LIMB SHORTEN-TIB/FIBULA	7890	INSERT BONE STIMUL NOS
7828	LIMB SHORTEN-METATAR/TAR	7891	INSERT BONE STIMUL-CHEST
7829	LIMB SHORTEN PROC NEC	7892	INSERT BONE STIM-HUMERUS
7830	LIMB LENGTHEN PROC NOS	7893	INSERT BONE STIM-RAD/ULNA
7831	LIMB LENGTHEN PROC NOS	7894	INSERT BONE STIM-META/CAR
7832	LIMB LENGTH PROC-HUMERUS	7895	INSERT BONE STIM-FEMUR
7833	LIMB LENGTH-RADIUS/ULNA	7896	INSERT BONE STIM-PATELLA
7834	LIMB LENGTH-METACAR/CAR	7897	INSERT BONE STIM-TIB/FIB
7835	LIMB LENGTH PROC-FEMUR	7898	INSERT BONE STIM-META/TAR
7837	LIMB LENGTHEN-TIB/FIBULA	7899	INSERT BONE STIMUL NEC
7838	LIMB LENGTHN-METATAR/TAR	7910	CL FX REDUC-INT FIX NOS
7839	LIMB LENGTHEN PROC NEC	7911	CLOS RED-INT FIX HUMERUS
7840	OTH BONE REPAIR/PLAST OP	7912	CL RED-INT FIX RAD/ULNA
7841	OTH CHEST CAGE REP/PLAST	7913	CL RED-INT FIX METAC/CAR
7842	OTH HUMERUS REPAIR/PLAST	7914	CLOSE RED-INT FIX FINGER
7843	OTH RAD/ULN REPAIR/PLAST	7915	CLOSED RED-INT FIX FEMUR
7844	OTH METAC/CARP REP/PLAST	7916	CL RED-INT FIX TIB/FIBU
7845	OTH FEMUR REPAIR/PLASTIC	7917	CL RED-INT FIX METAT/TAR
7846	OTH PATELLA REPAIR/PLAST	7918	CLOSE RED-INT FIX TOE FX
7847	OTH TIB/FIB REPAIR/PLAST	7919	CL FX REDUC-INT FIX NEC
7848	OTH META/TAR REPA/PLAST	7920	OPEN FX REDUCTION NOS
7849	OTH BONE REPA/PLAST NEC	7921	OPEN REDUC-HUMERUS FX
7850	INT FIX W/O FX REDUC NOS	7922	OPEN REDUC-RADIUS/ULN FX
7851	INT FIXATION-CHEST CAGE	7923	OPEN REDUC-METAC/CAR FX
7852	INT FIXATION-HUMERUS	7924	OPEN REDUCTION-FINGER FX
7853	INT FIXATION-RADIUS/ULNA	7925	OPEN REDUCTION-FEMUR FX
7854	INT FIXATION-METACAR/CAR	7926	OPEN REDUC-TIBIA/FIB FX
7855	INTERNAL FIXATION-FEMUR	7927	OPEN REDUC-METAT/TARS FX
7856	INTERNAL FIX-PATELLA	7928	OPEN REDUCTION-TOE FX
7857	INT FIXATION-TIBIA/FIBUL	7929	OPEN FX REDUCTION NEC
7858	INT FIXATION-METATAR/TAR	7930	OPN FX RED W INT FIX NOS
7859	INT FIX-NO FX REDUCT NEC	7931	OPEN RED-INT FIX HUMERUS
7860	REMOVE IMP DEVICE NOS	7932	OP RED-INT FIX RAD/ULNA
7861	REMOV IMP DEV-CHEST CAGE	7933	OP RED-INT FIX METAC/CAR
7862	REMOVE IMPL DEV-HUMERUS	7934	OPEN RED-INT FIX FINGER
7863	REMOV IMP DEV-RADIUS/ULN	7935	OPEN REDUC-INT FIX FEMUR
7864	REMOV IMP DEV-METAC/CARP	7936	OP RED-INT FIX TIB/FIBUL
7865	REMOVE IMP DEVICE-FEMUR	7937	OP RED-INT FIX METAT/TAR
7866	REMOV IMP DEVICE-PATELLA	7938	OPEN REDUCT-INT FIX TOE
7867	REMOV IMP DEV-TIB/FIBULA	7939	OPN FX RED W INT FIX NEC
7868	REMOVE IMP DEV-METAT/TAR	7940	CLS REDUC-SEP EPIPHY NOS
7869	REMOVE IMPL DEVICE NEC	7941	CLOSE RED-HUMERUS EPIPHY
7870	OSTEOCLASIS NOS	7942	CLS RED-RADIUS/UL EPIPHY
7871	OSTEOCLASIS-CHEST CAGE	7945	CLOSE REDUC-FEMUR EPIPHY
7872	OSTEOCLASIS-HUMERUS	7946	CLS RED-TIBIA/FIB EPIPHY
7873	OSTEOCLASIS-RADIUS/ULNA	7949	CLS REDUC-SEP EPIPHY NEC
7874	OSTEOCLASIS-METACAR/CAR	7950	OPEN RED-SEP EPIPHY NOS
7875	OSTEOCLASIS-FEMUR	7951	OPN RED-SEP EPIPHY-HUMER
7876	OSTEOCLASIS-PATELLA	7952	OP RED-RADIUS/ULN EPIPHY
7877	OSTEOCLASIS-TIBIA/FIBULA	7955	OPN RED-SEP EPIPHY-FEMUR
7878	OSTEOCLASIS-METATAR/TAR	7956	OP RED-TIBIA/FIB EPIPHYS
7879	OSTEOCLASIS NEC	7959	OPEN RED-SEP EPIPHY NEC
7880	OTHER BONE DX PROC NOS	7960	OPEN FX SITE DEBRIDE NOS
7881	OTH DX PROCED-CHEST CAGE	7961	DEBRID OPEN FX-HUMERUS
7882	OTH DX PROCED-HUMERUS	7962	DEBRID OPN FX-RADIUS/ULN
7883	OTH DX PROC-RADIUS/ULNA	7963	DEBRID OPN FX-METAC/CAR
7884	OTH DX PROC-METACAR/CAR	7964	DEBRID OPN FX-FINGER
7885	OTH DX PROCED-FEMUR	7965	DEBRID OPN FX-FEMUR

7966	DEBRID OPN FX-TIBIA/FIB	8048	FOOT JOINT STRUCT DIVIS
7967	DEBRID OPN FX-METAT/TAR	8049	JT STRUCTUR DIVISION NEC
7968	DEBRID OPN FX-TOE	805	<i>JT STRUCTUR DIVISION NEC</i>
7969	OPEN FX SITE DEBRIDE NEC	8050	EXC/DEST INTVRT DISC NOS
7980	OPEN REDUC-DISLOCAT NOS	8051	EXCISION INTERVERT DISC
7981	OPN REDUC DISLOC-SHOULDR	8053	REP ANULUS FIBROSUS-GRFT
7982	OPEN REDUC-ELBOW DISLOC	8054	REP ANULS FIBROS NEC/NOS
7983	OPEN REDUC-WRIST DISLOC	8059	OTH EXC/DEST INTVRT DISC
7984	OPN REDUC DISLOC-HAND	806	EXCIS KNEE SEMILUN CARTL
7985	OPEN REDUC-HIP DISLOCAT	8070	SYNOVECTOMY-SITE NOS
7986	OPEN REDUC-KNEE DISLOCAT	8071	SHOULDER SYNOVECTOMY
7987	OPEN REDUC-ANKLE DISLOC	8072	ELBOW SYNOVECTOMY
7988	OPN REDUC DISLOC-FT/TOE	8073	WRIST SYNOVECTOMY
7989	OPEN REDUC-DISLOCAT NEC	8074	HAND SYNOVECTOMY
7990	UNSPEC OP BONE INJ NOS	8075	HIP SYNOVECTOMY
7991	HUMERUS INJURY OP NOS	8076	KNEE SYNOVECTOMY
7992	RADIUS/ULNA INJ OP NOS	8077	ANKLE SYNOVECTOMY
7993	METACARP/CARP INJ OP NOS	8078	FOOT SYNOVECTOMY
7994	FINGER INJURY OP NOS	8079	SYNOVECTOMY-SITE NEC
7995	FEMUR INJURY OP NOS	8080	DESTRUCT JOINT LES NOS
7996	TIBIA/FIBULA INJ OP NOS	8081	DESTRUC-SHOULDER LES NEC
7997	METATARS/TARS INJ OP NOS	8082	DESTRUC-ELBOW LESION NEC
7998	TOE INJURY OPERATION NOS	8083	DESTRUC-WRIST LESION NEC
7999	UNSPEC OP-BONE INJ NEC	8084	DESTRUC-HAND JT LES NEC
8000	ARTH/PROS REM WO REP NOS	8085	DESTRUCT-HIP LESION NEC
8001	ARTH/PROS REM WO RE-SHLD	8086	DESTRUCT-KNEE LESION NEC
8002	ARTH/PROS REM WO REP-ELB	8087	DESTRUC-ANKLE LESION NEC
8003	ARTH/PROS REM WO RE-WRST	8088	DESTRUC-FOOT JT LES NEC
8004	ARTH/PROS REM WO REP-HND	8089	DESTRUCT JOINT LES NEC
8005	ARTH/PROS REM WO REP-HIP	8090	EXCISION OF JOINT NOS
8006	ARTH/PROS REM WO RE-KNEE	8091	EXCISION OF SHOULDER NEC
8007	ARTH/PROS REM WO REP-ANK	8092	EXCISION OF ELBOW NEC
8008	ARTH/PROS REM WO RE-FOOT	8093	EXCISION OF WRIST NEC
8009	ARTH/PROS REM WO REP NEC	8094	EXCISION HAND JOINT NEC
8010	OTHER ARTHROTOMY NOS	8095	EXCISION OF HIP NEC
8011	OTH ARTHROTOMY-SHOULDER	8096	EXCISION OF KNEE NEC
8012	OTH ARTHROTOMY-ELBOW	8097	EXCISION OF ANKLE NEC
8013	OTH ARTHROTOMY-WRIST	8098	EXCISION FOOT JOINT NEC
8014	OTH ARTHROTOMY-HAND/FNGR	8099	EXCISION OF JOINT NEC
8015	OTH ARTHROTOMY-HIP	8100	SPINAL FUSION NOS
8016	OTH ARTHROTOMY-KNEE	8101	ATLAS-AXIS FUSION
8017	OTH ARTHROTOMY-ANKLE	8102	OTH CERV FUSION ANT/ANT
8018	OTH ARTHROTOMY-FOOT/TOE	8103	OT CERV FUSION POST/POST
8019	OTHER ARTHROTOMY NEC	8104	DRSL/DRSLUMB FUS ANT/ANT
8020	ARTHROSCOPY NOS	8105	DRSL/DSLMB FUS POST/POST
8021	SHOULDER ARTHROSCOPY	8106	LUMB/LMBOSAC FUS ANT/ANT
8022	ELBOW ARTHROSCOPY	8107	LMB/LMBSAC FUS POST/POST
8023	WRIST ARTHROSCOPY	8108	LUMB/LMBSAC FUS ANT/POST
8024	HAND & FINGER ARTHROSCOP	8109	<i>LUMBAR/LUMBOSAC FUS POST</i>
8025	HIP ARTHROSCOPY	8111	ANKLE FUSION
8026	KNEE ARTHROSCOPY	8112	TRIPLE ARTHRODESIS
8027	ANKLE ARTHROSCOPY	8113	SUBTALAR FUSION
8028	FOOT & TOE ARTHROSCOPY	8114	MIDTARSAL FUSION
8029	ARTHROSCOPY NEC	8115	TARSOMETATARSAL FUSION
8040	JT STRUCTUR DIVISION NOS	8116	METATARSOPHALANGEAL FUS
8041	SHOULDER STRUCT DIVISION	8117	OTHER FUSION OF FOOT
8042	ELBOW STRUCTURE DIVISION	8118	SUBTALR JT ARTHROEREISIS
8043	WRIST STRUCTURE DIVISION	8120	ARTHRODESIS NOS
8044	HAND JOINT STRUCT DIVIS	8121	ARTHRODESIS OF HIP
8045	HIP STRUCTURE DIVISION	8122	ARTHRODESIS OF KNEE
8046	KNEE STRUCTURE DIVISION	8123	ARTHRODESIS OF SHOULDER
8047	ANKLE STRUCTURE DIVISION	8124	ARTHRODESIS OF ELBOW

8125	CARPORADIAL FUSION	8202	MYOTOMY OF HAND
8126	METACARPOCARPAL FUSION	8203	BURSOTOMY OF HAND
8127	METACARPOPHALANGEAL FUS	8209	INC SOFT TISSUE HAND NEC
8128	INTERPHALANGEAL FUSION	8211	TENOTOMY OF HAND
8129	ARTHRODESIS NEC	8212	FASCIOTOMY OF HAND
8130	SPINAL REFUSION NOS	8219	DIV SOFT TISSUE HAND NEC
8131	REFUSION OF ATLAS-AXIS	8221	EXC LES TEND SHEATH HAND
8132	REFUS OTH CERVCL ANT/ANT	8222	EXCISION HAND MUSCLE LES
8133	REFUS OF OTH CERV POST/POST	8229	EXC LES SFT TISS HND NEC
8134	REFUS DRS/DRSLMB ANT/ANT	8231	BURSECTOMY OF HAND
8135	REFUS DRS/DRSLMB PST/PST	8232	EXCIS HAND TEND FOR GRFT
8136	REFUS LMB/LMBSAC ANT/ANT	8233	HAND TENONECTOMY NEC
8137	REFUS LMB/LMBSAC PST/PST	8234	EXC HND MUS/FAS FOR GRFT
8138	REFUS LMB/LMBSAC ANT/POST	8235	HAND FASCIECTOMY NEC
8139	REFUSION OF SPINE NEC	8236	OTHER MYECTOMY OF HAND
8140	REPAIR OF HIP, NEC	8239	HAND SOFT TISSUE EXC NEC
8141	REPAIR OF HIP, NEC	8241	SUTURE TENDN SHEATH HAND
8142	FIVE-IN-ONE KNEE REPAIR	8242	DELAY SUT FLEX TEND HAND
8143	TRIAD KNEE REPAIR	8243	DELAY SUT HAND TEND NEC
8144	PATELLAR STABILIZATION	8244	SUTUR FLEX TEND HAND NEC
8145	CRUCIATE LIG REPAIR NEC	8245	SUTURE HAND TENDON NEC
8146	COLLATERL LIG REPAIR NEC	8246	SUTURE HAND MUSCLE/FASC
8147	OTHER REPAIR OF KNEE	8251	HAND TENDON ADVANCEMENT
8148	OTHER REPAIR OF KNEE	8252	HAND TENDON RECESSIO
8149	OTHER REPAIR OF ANKLE	8253	HAND TENDON REATTACHM
8151	TOTAL HIP REPLACEMENT	8254	HAND MUSCLE REATTACHM
8152	PARTIAL HIP REPLACEMENT	8255	CHNG HND MUS/TEN LNG NEC
8153	REVISE HIP REPLACEMENT NOS	8256	TRANSPLANT HAND TEND NEC
8154	TOTAL KNEE REPLACEMENT	8257	TRANSPOSIT HAND TEND NEC
8155	REVISE KNEE REPLACEMENT	8258	TRANSPLANT HAND MUSC NEC
8156	TOTAL ANKLE REPLACEMENT	8259	TRANSPOSIT HAND MUSC NEC
8157	REPL JOINT OF FOOT, TOE	8261	POLLICIZATION OPERATION
8159	REV JT REPL LOW EXT NEC	8269	THUMB RECONSTRUCTION NEC
8161	360 SPINAL FUSION	8271	HAND TEND PULLEY RECON
8162	FUS/REFUS 2-3 VERTEBRAE	8272	PLAST OP HND-MUS/FAS GRF
8163	FUS/REFUS 4-8 VERTEBRAE	8279	PLAST OP HAND W GRFT NEC
8164	FUS/REFUS 9 VERTEBRAE	8281	TRANSFER OF FINGER
8165	PERCUTAN VERTEBROPLASTY	8282	REPAIR OF CLEFT HAND
8166	PERCUT VERTEBRAL AUGMENT	8283	REPAIR OF MACRODACTYLY
8169	OTH HIP REPAIR JAN80--SEP89	8284	REPAIR OF MALLET FINGER
8171	ARTHROPLAS METACARP WIT	8285	OTHER TENODESIS OF HAND
8172	ARTHROPLASTY METACAR W/O	8286	OTHER TENOPLASTY OF HAND
8173	TOTAL WRIST REPLACEMENT	8289	HAND PLASTIC OP NEC
8174	ARTHROPLASTY CARPAL WIT	8291	LYSIS OF HAND ADHESIONS
8175	ARTHROPLASTY CARPAL W/O	8299	HAND MUS/TEN/FAS/OPS NEC
8179	OTH REPAIR HAN/FIN/WRIS	8301	TENDON SHEATH EXPLORAT
8180	OTH TOTL SHOULDR REPLACE	8302	MYOTOMY
8181	PARTIAL SHOULDER REPLACE	8303	BURSOTOMY
8182	REP RECUR SHLDR DISLOC	8309	SOFT TISSUE INCISION NEC
8183	SHOULDER ARTHROPLAST NEC	8311	ACHILLOTENOTOMY
8184	TOTAL ELBOW REPLACEMENT	8312	ADDUCTOR TENOTOMY OF HIP
8185	ELBOW ARTHROPLASTY NEC	8313	OTHER TENOTOMY
8186	ELBOW ARTHROPLASTY NEC	8314	FASCIOTOMY
8187	ELBOW ARTHROPLASTY NEC	8319	SOFT TISSUE DIVISION NEC
8193	SUTUR CAPSUL/LIGAMEN ARM	8321	OPEN BIOPSY SOFT TISSUE
8194	SUTURE CAPSUL/LIG ANK/FT	8329	SOFT TISSUE DX PROC NEC
8195	SUTUR CAPSUL/LIG LEG NEC	8331	EXCIS LES TENDON SHEATH
8196	OTHER REPAIR OF JOINT	8332	EXCIS LESION OF MUSCLE
8197	REV JT REPL UPPER EXTREM	8339	EXC LES SOFT TISSUE NEC
8198	OTHER JOINT DX PROCEDURE	8341	TENDON EXCISION FOR GRFT
8199	JOINT STRUCTURE OP NEC	8342	OTHER TENONECTOMY
8201	EXPLOR TEND SHEATH-HAND	8343	MUSC/FASC EXCIS FOR GRFT

8344	OTHER FASCIECTOMY	8448	IMPLANT LEG PROSTHESIS
8345	OTHER MYECTOMY	8458	IMP INTRSPINE DECOMP DEV
8349	OTHER SOFT TISSUE EXCIS	8459	INSERT OTH SPIN DEVICE
835	BURSECTOMY	8460	INSERT DISC PROS NOS
8361	TENDON SHEATH SUTURE	8461	INS PART DISC PROS CERV
8362	DELAYED TENDON SUTURE	8462	INS TOT DISC PROST CERV
8363	ROTATOR CUFF REPAIR	8463	INS SPIN DISC PROS THOR
8364	OTHER SUTURE OF TENDON	8464	INS PART DISC PROS LUMB
8365	OTHER MUSCLE/FASC SUTURE	8465	INS TOTL DISC PROS LUMB
8371	TENDON ADVANCEMENT	8466	REVISE DISC PROST CERV
8372	TENDON RECESSON	8467	REVISE DISC PROST THORA
8373	TENDON REATTACHMENT	8468	REVISE DISC PROSTH LUMB
8374	MUSCLE REATTACHMENT	8469	REVISE DISC PROSTH NOS
8375	TENDON TRNSFR/TRANSPLANT	8480	INS/REPL INTERSPINE DEV
8376	OTHER TENDON TRANSPOSIT	8481	REV INTERSPINE DEVICE
8377	MUSCLE TRNSFR/TRANSPLANT	8482	INS/REPL PDCL STABIL DEV
8379	OTHER MUSCLE TRANSPOSIT	8483	REV PEDCL DYN STABIL DEV
8381	TENDON GRAFT	8484	INS/REPL FACET REPLC DEV
8382	MUSCLE OR FASCIA GRAFT	8485	REV FACET REPLACE DEVICE
8383	TENDON PULLEY RECONSTRUC	8491	AMPUTATION NOS
8384	CLUBFOOT RELEASE NEC	8492	SEPARAT EQUAL JOIN TWIN
8385	MUSC/TEND LNG CHANGE NEC	8493	SEPARAT UNEQUL JOIN TWIN
8386	QUADRICEPSPLASTY	8499	MUSCULOSKELETAL OP NEC
8387	OTHER PLASTIC OPS MUSCLE	8512	OPEN BREAST BIOPSY
8388	OTHER PLASTIC OPS TENDON	8520	BREAST TISSU DESTRUC NOS
8389	OTHER PLASTIC OPS FASCIA	8521	LOCAL EXCIS BREAST LES
8391	ADHESIOLYSIS MUS/TEN/FAS	8522	QUADRANT RESECT BREAST
8392	INSERT SKEL MUSC STIMULA	8523	SUBTOTAL MASTECTOMY
8393	REMOV SKEL MUSC STIMULAT	8524	EXC ECTOPIC BREAST TISSU
8399	MUS/TEN/FAS/BUR OP NEC	8525	EXCISION OF NIPPLE
8400	UPPER LIMB AMPUTAT NOS	8531	UNILAT REDUCT MAMMOPLAST
8401	FINGER AMPUTATION	8532	BILAT REDUCT MAMMOPLASTY
8402	THUMB AMPUTATION	8533	UNIL SUBQ MAMMECT-IMPLNT
8403	AMPUTATION THROUGH HAND	8534	UNILAT SUBQ MAMMECT NEC
8404	DISARTICULATION OF WRIST	8535	BIL SUBQ MAMMECT-IMPLANT
8405	AMPUTATION THRU FOREARM	8536	BILAT SUBQ MAMMECTOM NEC
8406	DISARTICULATION OF ELBOW	8541	UNILAT SIMPLE MASTECTOMY
8407	AMPUTATION THRU HUMERUS	8542	BILAT SIMPLE MASTECTOMY
8408	SHOULDER DISARTICULATION	8543	UNILAT EXTEN SIMP MASTEC
8409	FOREQUARTER AMPUTATION	8544	BILAT EXTEND SIMP MASTEC
8410	LOWER LIMB AMPUTAT NOS	8545	UNILAT RADICAL MASTECTOM
8411	TOE AMPUTATION	8546	BILAT RADICAL MASTECTOMY
8412	AMPUTATION THROUGH FOOT	8547	UNIL EXT RAD MASTECTOMY
8413	DISARTICULATION OF ANKLE	8548	BIL EXTEN RAD MASTECTOMY
8414	AMPUTAT THROUGH MALLEOLI	8550	AUGMENT MAMMOPLASTY NOS
8415	BELOW KNEE AMPUTAT NEC	8553	UNILAT BREAST IMPLANT
8416	DISARTICULATION OF KNEE	8554	BILATERAL BREAST IMPLANT
8417	ABOVE KNEE AMPUTATION	856	MASTOPEXY
8418	DISARTICULATION OF HIP	857	TOTAL BREAST RECONSTRUCT
8419	HINDQUARTER AMPUTATION	8570	TOTL RECONSTC BREAST NOS
8421	THUMB REATTACHMENT	8571	LATISS DORSI MYOCUT FLAP
8422	FINGER REATTACHMENT	8572	TRAM FLAP, PEDICLED
8423	FOREARM/WRIST/HAND REATT	8573	TRAM FLAP, FREE
8424	UPPER ARM REATTACHMENT	8574	DIEP FLAP, FREE
8425	TOE REATTACHMENT	8575	SIEA FLAP, FREE
8426	FOOT REATTACHMENT	8576	GAP FLAP, FREE
8427	LOWER LEG/ANKLE REATTACH	8579	TOTL RECONST BREAST NEC
8428	THIGH REATTACHMENT	8582	BREAST SPLIT-THICK GRAFT
8429	REATTACHMENT NEC	8583	BREAST FULL-THICK GRAFT
843	AMPUTATION STUMP REVIS	8584	BREAST PEDICLE GRAFT
8440	IMPLNT/FIT PROS LIMB NOS	8585	BREAST MUSCLE FLAP GRAFT
8444	IMPLANT ARM PROSTHESIS	8586	TRANSPOSITION OF NIPPLE

8587	NIPPLE REPAIR NEC	8672	PEDICLE GRAFT ADVANCEMEN
8589	MAMMOPLASTY NEC	8673	ATTACH PEDICLE TO HAND
8593	BREAST IMPLANT REVISION	8674	ATTACH PEDICLE GRAFT NEC
8594	BREAST IMPLANT REMOVAL	8675	REVISION OF PEDICLE GRFT
8595	INSER BREAST TISSU EXPAN	8681	REPAIR FACIAL WEAKNESS
8596	REMOV BREAST TISSU EXPAN	8682	FACIAL RHYTIDECTOMY
8599	BREAST OPERATION NEC	8683	SIZE REDUCT PLASTIC OP
8606	INSERT INFUSION PUMP	8684	RELAXATION OF SCAR
8621	EXCISION OF PILONID CYST	8685	SYNDACTYLY CORRECTION
8622	EXC WOUND DEBRIDEMENT	8686	ONYCHOPLASTY
8625	DERMABRASION	8689	SKIN REPAIR & PLASTY NEC
864	RADICAL EXCIS SKIN LES	8691	SKIN EXCISION FOR GRAFT
8660	FREE SKIN GRAFT NOS	8693	INSERT TISSUE EXPANDER
8661	FULL-THICK HAND SKIN GRF	8694	INS/REPL SINGLE PUL GEN
8662	HAND SKIN GRAFT NEC	8695	INS/RE PLS GN NO RECHRG
8663	FULL-THICK SKIN GRFT NEC	8696	INSERT/REPL OTH NEUROST
8665	HETEROGRAFT TO SKIN	8697	INS/REP 1 PUL GEN, RECHRG
8666	HOMOGRAFT TO SKIN	8698	INS/REP MUL PUL GN,RECHG
8667	DERMAL REGENER GRAFT	8753	INTRAOPER CHOLANGIOGRAM
8669	FREE SKIN GRAFT NEC	9227	RADIOACTIVE ELEM IMPLANT
8670	PEDICLE GRAFT/FLAP NOS	9504	ANESTHETIZED EYE EXAM
8671	CUT & PREP PEDICLE GRAFT		

¹ The procedure or diagnosis codes are continuously updated. The current list of ICD-9-CM codes is valid for October 2012 through September 2013. Italicized codes are not active in Fiscal Year 2013.

Appendix B – Surgical DRGs

Surgical DRG codes¹:

003	CRANIOTOMY, AGE 0-17	109	CORONARY BYPASS W/O CARDIAC CATHETERIZATION
004	SPINAL PROCEDURES	110	MAJOR CARDIOVASCULAR PROCEDURES W CC
005	EXTRACRANIAL VASCULAR PROCEDURES	111	MAJOR CARDIOVASCULAR PROCEDURES W/O CC
006	CARPAL TUNNEL RELEASE	112	PERCUTANEOUS CARDIOVASCULAR PROCEDURES
007	PERIPH & CRANIAL NERVE & OTHER NERV SYST PROC W CC	113	AMPUTATION FOR CIRC SYSTEM DISORDERS EXCEPT UPPER LIMB & TOE
008	PERIPH & CRANIAL NERVE & OTHER NERV SYST PROC W/O CC	114	UPPER LIMB & TOE AMPUTATION FOR CIRC SYSTEM DISORDERS
014	INTRACRANIAL HEMORRHAGE OR CEREBRAL INFARCTION	115	PERMANENT CARDIAC PACEMAKER IMPLANT W/ ACUTE MYOCARDIAL INFARCTION, HEART FAILURE OR SHOCK OR ACID LEAD OR GENERATOR PROCEDURE
015	NONSPECIFIC CVA & PRECEREBRAL OCCLUSION W/O INFARCT	116	OTHER PERMANENT CARDIAC PACEMAKER IMPLANT OR PTCA W/ CORONARY ARTERIAL STENT
036	RETINAL PROCEDURES	117	CARDIAC PACEMAKER REVISION EXCEPT DEVICE REPLACEMENT
037	ORBITAL PROCEDURES	118	CARDIAC PACEMAKER DEVICE REPLACEMENT
038	PRIMARY IRIS PROCEDURES	119	VEIN LIGATION & STRIPPING
039	LENS PROCEDURES W/ OR W/O VITRECTOMY	120	OTHER CIRCULATORY SYSTEM O.R. PROCEDURES
041	EXTRAOCULAR PROCEDURES EXCEPT ORBIT, AGE >0-17	146	RECTAL RESECTION WCC
042	INTRAOCULAR PROCEDURES EXCEPT RETINA, IRIS & LENS	147	RECTAL RESECTION W/O CC
049	MAJOR HEAD & NECK PROCEDURES	148	MAJOR SMALL AND LARGE BOWEL PROCEDURES W/ CC
050	SIALOADENECTOMY	149	MAJOR SMALL & LARGE BOWEL PROCEDURES W/O CC
051	SALIVARY GLAND PROCEDURES EXCEPT SIALOADENECTOMY	150	PERITONEAL ADHESIOLYSIS W CC
052	CLEFT LIP & PALATE REPAIR	151	PERITONEAL ADHESIOLYSIS W/O CC
054	SINUS & MASTOID PROCEDURES, AGE 0-17	152	MINOR SMALL & LARGE BOWEL PROCEDURES W CC
055	MISCELLANEOUS EAR, NOSE, MOUTH AND THROAT PROCEDURES	153	MINOR SMALL & LARGE BOWEL PROCEDURES W/O CC
056	RHINOPLASTY	156	STOMACH, ESOPHAGEAL AND DUODENAL PROCEDURES, AGE 0-17
058	T&A PROC, EXCEPT TONSILLECTOMY &/OR ADENOIDECTOMY ONLY, AGE 0-17	157	ANAL & STOMAL PROCEDURES W CC
060	TONSILLECTOMY &/OR ADENOIDECTOMY ONLY, AGE 0 – 17	158	ANAL AND STOMAL PROCEDURES W/O CC
062	MYRINGOTOMY W/ TUBE INSERTION, AGE 0-17	163	HERNIA PROCEDURES AGE 0-17
063	OTHER EAR, NOSE, MOUTH AND THROAT O.R. PROCEDURES	164	APPENDECTOMY W COMPLICATED PRINCIPAL DIAG W CC
075	MAJOR CHEST PROCEDURES	165	APPENDECTOMY W/ COMPLICATED PRINCIPAL DIAG W/O CC
076	OTHER RESP SYSTEM O.R. PROCEDURES W CC	166	APPENDECTOMY W/O COMPLICATED PRINCIPAL DIAG W CC
077	OTHER RESP SYSTEM O.R. PROCEDURES W/O CC	167	APPENDECTOMY W/O COMPLICATED PRINCIPAL DIAG W/O CC
103	HEART TRANSPLANT OR IMPLANT OF HEART ASSIST SYSTEM	168	MOUTH PROCEDURES W CC
104	CARDIAC VALVE & OTH MAJOR CARDIOTHORACIC PROC W CARD CATH	169	MOUTH PROCEDURES W/O CC
105	CARDIAC VALVE & OTH MAJOR CARDIOTHORACIC PROC W/O CARD CATH	170	OTHER DIGESTIVE SYSTEM O.R. PROCEDURES W/ CC
106	CORONARY BYPASS W PTCA		
107	CORONARY BYPASS W/ CARDIAC CATHETERIZATION		
108	OTHER CARDIOTHORACIC PROCEDURES		

171	OTHER DIGESTIVE SYSTEM O.R. PROCEDURES W/O CC	257	TOTAL MASTECTOMY FOR MALIGNANCY W CC
191	PANCREAS, LIVER & SHUNT PROCEDURES W CC	258	TOTAL MASTECTOMY FOR MALIGNANCY W/O CC
192	PANCREAS, LIVER & SHUNT PROCEDURES W/O CC	259	SUBTOTAL MASTECTOMY FOR MALIGNANCY W CC
193	BILIARY TRACT PROC EXCEPT ONLY CHOLECYST W OR W/O C.D.E. W CC	260	SUBTOTAL MASTECTOMY FOR MALIGNANCY W/O CC
194	BILIARY TRACT PROC EXCEPT ONLY CHOLECYST W OR W/O C.D.E. W/O CC	261	BREAST PROC FOR NON-MALIGNANCY EXCEPT BIOPSY & LOCAL EXCISION
195	CHOLECYSTECTOMY W C.D.E. W CC	262	BREAST BIOPSY & LOCAL EXCISION FOR NON-MALIGNANCY
196	CHOLECYSTECTOMY W C.D.E. W/O CC	263	SKIN GRAFT &/OR DEBRID FOR SKN ULCER OR CELLULITIS W CC
197	CHOLECYSTECTOMY EXCEPT BY LAPAROSCOPE W/O C.D.E. W CC	264	SKIN GRAFT &/OR DEBRID FOR SKN ULCER OR CELLULITIS W/O CC
198	CHOLECYSTECTOMY EXCEPT BY LAPAROSCOPE W/O C.D.E. W/O CC	265	SKIN GRAFT &/OR DEBRID EXCEPT FOR SKIN ULCER OR CELLULITIS W CC
199	HEPATOBIILIARY DIAGNOSTIC PROCEDURE FOR MALIGNANCY	266	SKIN GRAFT &/OR DEBRID EXCEPT FOR SKIN ULCER OR CELLULITIS W/O CC
200	HEPATOBIILIARY DIAGNOSTIC PROCEDURE FOR NON-MALIGNANCY	267	PERIANAL AND PILONIDAL PROCEDURES
201	OTHER HEPATOBIILIARY OR PANCREAS O.R. PROCEDURES	268	SKIN, SUBCUTANEOUS TISSUE & BREAST PLASTIC PROCEDURES
209	<i>MAJOR JOINT AND LIMB REATTACHMENT PROCEDURES OF LOWER EXTREMITY</i>	269	OTHER SKIN, SUBCUT TISS & BREAST PROC W CC
212	HIP AND FEMUR PROCEDURES EXCEPT MAJOR JOINT AGE 0-17	270	OTHER SKIN, SUBCUT TISS & BREAST PROC W/O CC
213	AMPUTATION FOR MUSCULOSKELETAL SYSTEM & CONN TISSUE DISORDERS	285	AMPUTAT OF LOWER LIMB FOR ENDOCRINE, NUTRIT, & METABOL DISORDERS
214	<i>BACK & NECK PROCEDURES W CC</i>	286	ADRENAL & PITUITARY PROCEDURES
215	<i>BACK & NECK PROCEDURES W/O CC</i>	287	SKIN GRAFTS & WOUND DEBRID FOR ENDOC, NUTRIT & METAB DISORDERS
216	BIOPSIES OF MUSCULOSKELETAL SYSTEM & CONNECTIVE TISSUE	288	O.R. PROCEDURES FOR OBESITY
217	WND DEBRID & SKN GRFT EXCEPT HAND, FOR MUSCSKELET & CONN TISS DIS	289	PARATHYROID PROCEDURES
220	LOWER EXTREM & HUMER PROC EXCEPT HIP, FOOT, FEMUR AGE 0-17 W/O CC	290	THYROID PROCEDURES
221	<i>KNEE PROCEDURES W CC</i>	291	THYROGLOSSAL PROCEDURES
222	<i>KNEE PROCEDURES W/O CC</i>	292	OTHER ENDOCRINE, NUTRIT & METAB O.R. PROC W CC
223	MAJOR SHOULDER/ELBOW PROC, OR OTHER UPPER EXTREMITY PROC W CC	293	OTHER ENDOCRINE, NUTRIT & METAB O.R. PROC W/O CC
224	SHOULDER, ELBOW OR FOREARM PROC, EXC MAJOR JOINT PROC, W/O CC	302	KIDNEY TRANSPLANT
225	FOOT PROCEDURES	303	KIDNEY AND URETER PROCEDURES FOR NEOPLASM
226	SOFT TISSUE PROCEDURES W CC	304	KIDNEY AND URETER PROCEDURES FOR NON-NEOPLASM WITHOUT CC
227	SOFT TISSUE PROCEDURES W/O CC	305	KIDNEY AND URETER PROCEDURES FOR NON-NEOPLASM WITHOUT CC
228	MAJOR THUMB OR JOINT PROC, OR OTH HAND OR WRIST PROC W CC	306	PROSTATECTOMY W CC
229	HAND OR WRIST PROC, EXCEPT MAJOR JOINT PROC, W/O CC	307	PROSTATECTOMY W/O CC
230	LOCAL EXCISION & REMOVAL OF INT FIX DEVICES OF HIP & FEMUR	308	MINOR BLADDER PROCEDURES W CC
231	<i>LOCAL EXCISION AND REMOVAL OF INTERNAL FIXATION DEVICES EXCEPT HIP AND FEMUR</i>	309	MINOR BLADDER PROCEDURES W/O CC
232	ARTHROSCOPY	310	TRANSURETHRAL PROCEDURES W CC
233	OTHER MUSCULOSKELET SYS & CONN TISS O.R. PROC W CC	311	TRANSURETHRAL PROCEDURES W/O CC
234	OTHER MUSCULOSKELET SYS & CONN TISS O.R. PROC W/O CC	314	URETHRAL PROCEDURES, AGE 0-17
		315	OTHER KIDNEY AND URINARY TRACT O.R. PROCEDURES
		334	MAJOR MALE PELVIC PROCEDURES W CC

335	MAJOR MALE PELVIC PROCEDURES W/O CC	406	MYELOPROLIF DISORD OR POORLY DIFF NEOPL W MAJ O.R.PROC W CC
336	TRANSURETHRAL PROSTATECTOMY W CC	407	MYELOPROLIF DISORD OR POORLY DIFF NEOPL W MAJ O.R.PROC W/O CC
337	TRANSURETHRAL PROSTATECTOMY W/O CC	408	MYELOPROLIF DISORD OR POORLY DIFF NEOPL W OTHER O.R.PROC
338	TESTES PROCEDURES FOR MALIGNANCY	415	<i>OR PROCEDURE FOR INFECTIOUS AND PARASITIC DISEASES</i>
340	TESTES PROCEDURES FOR NONMALIGNANCY AGE 0-17	424	OR PROCEDURES W PRINCIPAL DIAGNOSIS OF MENTAL ILLNESS
341	PENIS PROCEDURES	439	SKIN GRAFTS FOR INJURIES
343	CIRCUMCISION AGE 0-17	440	WOUND DEBRIDEMENTS FOR INJURIES
344	OTHER MALE REPRODUCTIVE SYSTEM O.R. PROCEDURES FOR MALIGNANCY	441	HAND PROCEDURES FOR INJURIES
345	OTHER MALE REPRODUCTIVE SYSTEM O.R. PROC EXCEPT FOR MALIGNANCY	442	OTHER O.R. PROCEDURES FOR INJURIES W/ CC
353	PELVIC EVISCERATION, RADICAL HYSTERECTOMY & RADICAL VULVECTOMY	443	OTHER O.R. PROCEDURES FOR INJURIES W/O CC
354	UTERINE,ADNEXA PROC FOR NON-OVARIAN/ADNEXAL MALIG W CC	458	<i>NON-EXTENSIVE BURNS W SKIN GRAFT</i>
355	UTERINE,ADNEXA PROC FOR NON-OVARIAN/ADNEXAL MALIG W/O CC	459	<i>NON-EXTENSIVE BURNS W WOUND DEBRIDEMENT OR OTHER O.R. PROC</i>
356	FEMALE REPRODUCTIVE SYSTEM RECONSTRUCTIVE PROCEDURES	461	O.R. PROC W DIAGNOSES OF OTHER CONTACT W HEALTH SERVICES
357	UTERINE & ADNEXA PROCEDURES FOR OVARIAN OR ADNEXAL MALIGNANCY	468	EXTENSIVE O.R. PROCEDURE UNRELATED TO PRINCIPAL DIAGNOSIS
358	UTERINE AND ADNEXA PROC FOR NON-MALIGNANCY W CC	471	BILATERAL OR MULTIPLE MAJOR JOINT PROCS OF LOWER EXTREMITY
359	UTERINE & ADNEXA PROC FOR NON-MALIGNANCY W/O CC	472	<i>EXTENSIVE BURNS W O.R. PROCEDURE</i>
360	VAGINA, CERVIX AND VULVA PROCEDURES	476	PROSTATIC OR PROCEDURE UNRELATED TO PRINCIPAL DIAGNOSIS
361	LAPAROSCOPY & INCISIONAL TUBAL INTERRUPTION	477	NON-EXTENSIVE OR PROCEDURE UNRELATED TO PRINCIPAL DIAGNOSIS
362	ENDOSCOPIC TUBAL INTERRUPTION	478	<i>OTHER VASCULAR PROCEDURES W/ CC</i>
363	D&C, CONIZATION & RADIO-IMPLANT, FOR MALIGNANCY	479	OTHER VASCULAR PROCEDURES W/O CC
364	D & C, CONIZATION EXCEPT FOR MALIGNANCY	480	LIVER TRANSPLANT AND/OR INTESTINAL TRANSPLANT
365	OTHER FEMALE REPRODUCTIVE SYSTEM O.R. PROCEDURES	481	BONE MARROW TRANSPLANT
370	CESAREAN SECTION W/ CC	482	TRACHEOSTOMY FOR FACE, MOUTH & NECK DIAGNOSES
371	CESAREAN SECTION W/O CC	483	<i>TRACHEOSTOMY EXCEPT FOR FACE, MOUTH AND NECK DIAGNOSES</i>
374	VAGINAL DELIVERY W/ STERILIZATION AND/OR D AND C	484	CRANIOTOMY FOR MULTIPLE SIGNIFICANT TRAUMA
375	VAGINAL DELIVERY W/ OR PROCEDURE EXCEPT STERILIZATION AND/OR D AND C	485	LIMB REATTACHMENT, HIP AND FEMUR PROC FOR MULTIPLE SIGNIFICANT TRAUMA
377	POSTPARTUM AND POSTABORTION DIAGNOSES W/ OR PROCEDURE	486	OTHER O.R. PROCEDURES FOR MULTIPLE SIGNIFICANT TRAUMA
381	ABORTION W/ D AND C ASPIRATION CURETTAGE OR HYSTERECTOMY	488	HIV W EXTENSIVE O.R. PROCEDURE
393	SPLENECTOMY, AGE 0-17	491	MAJOR JOINT & LIMB REATTACHMENT PROCEDURES OF UPPER EXTREMITY
394	OTHER OR PROCEDURES OF THE BLOOD AND BLOOD-FORMING ORGANS	493	LAPAROSCOPIC CHOLECYSTECTOMY W/O C.D.E. W CC
400	<i>LYMPHOMA AND LEUKEMIA W/ MAJOR OR PROCEDURES</i>	494	LAPAROSCOPIC CHOLECYSTECTOMY W/O C.D.E. W/O CC
401	LYMPHOMA AND NONACUTE LEUKEMIA W/ OTHER O.R. PROC W CC	495	LUNG TRANSPLANT
402	LYMPHOMA AND NONACUTE LEUKEMIA W/ OTHER O.R. PROC W/O CC	496	COMBINED ANTERIOR/POSTERIOR SPINAL FUSION
		497	SPINAL FUSION W CC
		498	SPINAL FUSION W/O CC
		499	BACK & NECK PROCEDURES EXCEPT SPINAL FUSION W CC

500	BACK & NECK PROCEDURES EXCEPT SPINAL FUSION W/O CC	541	TRACH W MV 96+HRS OR PDX EXC FACE, MTH, FACE & NECK DX W/MAJ OR
501	KNEE PROCEDURES W PDX OF INFECTION W CC	542	TRACH W MV 96+HRS OR PDX EXC FACE, MTH, FACE & NECK DX W/O MJ OR
502	KNEE PROCEDURES W PDX OF INFECTION W/O CC	543	CRANIOTOMY W MAJOR DEVICE IMPLANT OR ACUTE COMPLEX CNS PRINCIPAL DIAGNOSIS
503	KNEE PROCEDURES W/O PDX OF INFECTION	544	MAJOR JOINT REPLACEMENT OR REATTACHMENT OF LOWER EXTREMITY
504	EXTEN. BURNS OR FULL THICKNESS BURN W/MV 96+HRS W/SKIN GFT	545	REVISION OF HIP OR KNEE REPLACEMENT
506	FULL THICKNESS BURN W SKIN GRAFT OR INHAL INJ W CC OR SIG TRAUMA	546	SPINAL FUSION EXC CERV WITH CURVATURE OF THE SPINE OR MALIG
507	FULL THICKNESS BURN W SKIN GRFT OR INHAL INJ W/O CC OR SIG TRAUMA	547	CORONARY BYPASS W CARDIAC CATH W MAJOR CV DX
512	SIMULTANEOUS PANCREAS/KIDNEY TRANSPLANT	548	CORONARY BYPASS W CARDIAC CATH W/O MAJOR CV DX
513	PANCREAS TRANSPLANT	549	CORONARY BYPASS W/O CARDIAC CATH W MAJOR CV DX
514	<i>CARDIAC DEFIBRILLATOR IMPLANT W CARDIAC CATH</i>	550	CORONARY BYPASS W/O CARDIAC CATH W/O MAJOR CV DX
515	CARDIAC DEFIBRILLATOR IMPLANT W/O CARDIAC CATH	551	PERMANENT CARDIAC PACEMAKER IMPL W MAJ CV DX OR AICD LEAD OR GNRTR
516	<i>PERCUTANEOUS CARDIOVASC PROC W AMI</i>	552	OTHER PERMANENT CARDIAC PACEMAKER IMPLANT W/O MAJOR CV DX
517	<i>PERC CARDIO PROC W NON-DRUG ELUTING STENT W/O AMI</i>	553	OTHER VASCULAR PROCEDURES W CC W MAJOR CV DX
518	PERC CARDIO PROC W/O CORONARY ARTERY STENT OR AMI	554	OTHER VASCULAR PROCEDURES W CC W/O MAJOR CV DX
519	CERVICAL SPINAL FUSION W CC	555	PERCUTANEOUS CARDIOVASCULAR PROC W MAJOR CV DX
520	CERVICAL SPINAL FUSION W/O CC	556	PERCUTANEOUS CARDIOVASC PROC W NON-DRUG-ELUTING STENT W/O MAJ CV DX
525	OTHER HEART ASSIST SYSTEM IMPLANT	557	PERCUTANEOUS CARDIOVASCULAR PROC W DRUG-ELUTING STENT W MAJOR CV DX
526	<i>PERCUTNEOUS CARDIOVASULAR PROC W DRUG ELUTING STENT W AMI</i>	558	PERCUTANEOUS CARDIOVASCULAR PROC W DRUG-ELUTING STENT W/O MAJ CV DX
527	<i>PERCUTNEOUS CARDIOVASULAR PROC W DRUG ELUTING STENT W/O AMI</i>	569	MAJOR SMALL & LARGE BOWEL PROCEDURES W CC W MAJOR GI DX
528	INTRACRANIAL VASCULAR PROC W PDX HEMORRHAGE	570	MAJOR SMALL & LARGE BOWEL PROCEDURES W CC W/O MAJOR GI DX
529	VENTRICULAR SHUNT PROCEDURES W CC	573	MAJOR BLADDER PROCEDURES
530	VENTRICULAR SHUNT PROCEDURES W/O CC	577	CAROTID ARTERY STENT PROCEDURE
531	SPINAL PROCEDURES W CC	578	INFECTIOUS & PARASITIC DISEASES W OR PROCEDURE
532	SPINAL PROCEDURES W/O CC	579	POSTOPERATIVE OR POST-TRAUMATIC INFECTIONS W OR PROCEDURE
533	EXTRACRANIAL PROCEDURES W CC		
534	EXTRACRANIAL PROCEDURES W/O CC		
535	CARDIAC DEFIB IMPLANT W CARDIAC CATH W AMI/HF/SHOCK		
536	CARDIAC DEFIB IMPLANT W CARDIAC CATH W/O AMI/HF/SHOCK		
537	LOCAL EXCIS & REMOV OF INT FIX DEV EXCEPT HIP & FEMUR W CC		
538	LOCAL EXCIS & REMOV OF INT FIX DEV EXCEPT HIP & FEMUR W/O CC		
539	LYMPHOMA & LEUKEMIA W MAJOR OR PROCEDURE W CC		
540	LYMPHOMA & LEUKEMIA W MAJOR OR PROCEDURE W/O CC		

¹ The DRG/MS-DRG codes are continuously updated. The current list of DRG/MS-DRG codes is valid for October 2012 through September 2013. Italicized codes are not active in Fiscal Year 2013.

Appendix C – Surgical MS-DRGs

For medical discharges using MS-DRGs (on or after October 1, 2007)

Surgical MS-DRG codes¹:

001	HEART TRANSPLANT OR IMPLANT OF HEART ASSIST SYSTEM W MCC	030	SPINAL PROCEDURES W/O CC/MCC
002	HEART TRANSPLANT OR IMPLANT OF HEART ASSIST SYSTEM W/O MCC	031	VENTRICULAR SHUNT PROCEDURES W MCC
003	ECMO OR TRACH W MV 96+ HRS OR PDX EXC FACE, MOUTH & NECK W MAJ O.R.	032	VENTRICULAR SHUNT PROCEDURES W CC
004	TRACH W MV 96+ HRS OR PDX EXC FACE, MOUTH & NECK W/O MAJ O.R.	033	VENTRICULAR SHUNT PROCEDURES W/O CC/MCC
005	LIVER TRANSPLANT W MCC OR INTESTINAL TRANSPLANT	034	CAROTID ARTERY STENT PROCEDURE W MCC
006	LIVER TRANSPLANT W/O MCC	035	CAROTID ARTERY STENT PROCEDURE W CC
007	LUNG TRANSPLANT	036	CAROTID ARTERY STENT PROCEDURE W/O CC/MCC
008	SIMULTANEOUS PANCREAS/KIDNEY TRANSPLANT	037	EXTRACRANIAL PROCEDURES W MCC
009	<i>BONE MARROW TRANSPLANT</i>	038	EXTRACRANIAL PROCEDURES W CC
010	PANCREAS TRANSPLANT	039	EXTRACRANIAL PROCEDURES W/O CC/MCC
011	TRACHEOSTOMY FOR FACE, MOUTH & NECK DIAGNOSES W MCC	040	PERIPH/CRANIAL NERVE & OTHER NERV SYST PROC W MCC
012	TRACHEOSTOMY FOR FACE, MOUTH & NECK DIAGNOSES W CC	041	PERIPH/CRANIAL NERVE & OTHER NERV SYST PROC W CC OR PERIPH NEUROSTIM
013	TRACHEOSTOMY FOR FACE, MOUTH & NECK DIAGNOSES W/O CC/MCC	042	PERIPH/CRANIAL NERVE & OTHER NERV SYST PROC W/O CC/MCC
014	ALLOGENIC BONE MARROW TRANSPLANT	113	ORBITAL PROCEDURES W CC/MCC
015	AUTOLOGOUS BONE MARROW TRANSPLANT	114	ORBITAL PROCEDURES W/O CC/MCC
016	AUTOLOGOUS BONE MARROW TRANSPLANT W CC/MCC	115	EXTRAOCULAR PROCEDURES EXCEPT ORBIT
017	AUTOLOGOUS BONE MARROW TRANSPLANT W/O CC/MCC	116	INTRAOCULAR PROCEDURES W CC/MCC
020	INTRACRANIAL VASCULAR PROCEDURES W PDX HEMORRHAGE W MCC	117	INTRAOCULAR PROCEDURES W/O CC/MCC
021	INTRACRANIAL VASCULAR PROCEDURES W PDX HEMORRHAGE W CC	129	MAJOR HEAD & NECK PROCEDURES W CC/MCC OR MAJOR DEVICE
022	INTRACRANIAL VASCULAR PROCEDURES W PDX HEMORRHAGE W/O CC/MCC	130	MAJOR HEAD & NECK PROCEDURES W/O CC/MCC
023	CRANIO W MAJOR DEV IMPL/ACUTE COMPLEX CNS PDX W MCC OR CHEMO IMPLANT	131	CRANIAL/FACIAL PROCEDURES W CC/MCC
024	CRANIO W MAJOR DEV IMPL/ACUTE COMPLEX CNS PDX W/O MCC	132	CRANIAL/FACIAL PROCEDURES W/O CC/MCC
025	CRANIOTOMY & ENDOVASCULAR INTRACRANIAL PROCEDURES W MCC	133	OTHER EAR, NOSE, MOUTH & THROAT O.R. PROCEDURES W CC/MCC
026	CRANIOTOMY & ENDOVASCULAR INTRACRANIAL PROCEDURES W CC	134	OTHER EAR, NOSE, MOUTH & THROAT O.R. PROCEDURES W/O CC/MCC
027	CRANIOTOMY & ENDOVASCULAR INTRACRANIAL PROCEDURES W/O CC/MCC	135	SINUS & MASTOID PROCEDURES W CC/MCC
028	SPINAL PROCEDURES W MCC	136	SINUS & MASTOID PROCEDURES W/O CC/MCC
029	SPINAL PROCEDURES W CC OR SPINAL NEUROSTIMULATORS	137	MOUTH PROCEDURES W CC/MCC
		138	MOUTH PROCEDURES W/O CC/MCC
		139	SALIVARY GLAND PROCEDURES
		163	MAJOR CHEST PROCEDURES W MCC
		164	MAJOR CHEST PROCEDURES W CC
		165	MAJOR CHEST PROCEDURES W/O CC/MCC

166	OTHER RESP SYSTEM O.R. PROCEDURES W MCC	240	AMPUTATION FOR CIRC SYS DISORDERS EXC UPPER LIMB & TOE W CC
167	OTHER RESP SYSTEM O.R. PROCEDURES W CC	241	AMPUTATION FOR CIRC SYS DISORDERS EXC UPPER LIMB & TOE W/O CC/MCC
168	OTHER RESP SYSTEM O.R. PROCEDURES W/O CC/MCC	242	PERMANENT CARDIAC PACEMAKER IMPLANT W MCC
215	OTHER HEART ASSIST SYSTEM IMPLANT	243	PERMANENT CARDIAC PACEMAKER IMPLANT W CC
216	CARDIAC VALVE & OTH MAJ CARDIOTHORACIC PROC W CARD CATH W MCC	244	PERMANENT CARDIAC PACEMAKER IMPLANT W/O CC/MCC
217	CARDIAC VALVE & OTH MAJ CARDIOTHORACIC PROC W CARD CATH W CC	245	AICD GENERATOR PROCEDURES
218	CARDIAC VALVE & OTH MAJ CARDIOTHORACIC PROC W CARD CATH W/O CC/MCC	246	PERC CARDIOVASC PROC W DRUG- ELUTING STENT W MCC OR 4+ VESSELS/STENTS
219	CARDIAC VALVE & OTH MAJ CARDIOTHORACIC PROC W/O CARD CATH W MCC	247	PERC CARDIOVASC PROC W DRUG- ELUTING STENT W/O MCC
220	CARDIAC VALVE & OTH MAJ CARDIOTHORACIC PROC W/O CARD CATH W CC	248	PERC CARDIOVASC PROC W NON- DRUG-ELUTING STENT W MCC OR 4+ VES/STENTS
221	CARDIAC VALVE & OTH MAJ CARDIOTHORACIC PROC W/O CARD CATH W/O CC/MCC	249	PERC CARDIOVASC PROC W NON- DRUG-ELUTING STENT W/O MCC
222	CARDIAC DEFIB IMPLANT W CARDIAC CATH W AMI/HF/SHOCK W MCC	250	PERC CARDIOVASC PROC W/O CORONARY ARTERY STENT W MCC
223	CARDIAC DEFIB IMPLANT W CARDIAC CATH W AMI/HF/SHOCK W/O MCC	251	PERC CARDIOVASC PROC W/O CORONARY ARTERY STENT W/O MCC
224	CARDIAC DEFIB IMPLANT W CARDIAC CATH W/O AMI/HF/SHOCK W MCC	252	OTHER VASCULAR PROCEDURES W MCC
225	CARDIAC DEFIB IMPLANT W CARDIAC CATH W/O AMI/HF/SHOCK W/O MCC	253	OTHER VASCULAR PROCEDURES W CC
226	CARDIAC DEFIBRILLATOR IMPLANT W/O CARDIAC CATH W MCC	254	OTHER VASCULAR PROCEDURES W/O CC/MCC
227	CARDIAC DEFIBRILLATOR IMPLANT W/O CARDIAC CATH W/O MCC	255	UPPER LIMB & TOE AMPUTATION FOR CIRC SYSTEM DISORDERS W MCC
228	OTHER CARDIOTHORACIC PROCEDURES W MCC	256	UPPER LIMB & TOE AMPUTATION FOR CIRC SYSTEM DISORDERS W CC
229	OTHER CARDIOTHORACIC PROCEDURES W CC	257	UPPER LIMB & TOE AMPUTATION FOR CIRC SYSTEM DISORDERS W/O CC/MCC
230	OTHER CARDIOTHORACIC PROCEDURES W/O CC/MCC	258	CARDIAC PACEMAKER DEVICE REPLACEMENT W MCC
231	CORONARY BYPASS W PTCA W MCC	259	CARDIAC PACEMAKER DEVICE REPLACEMENT W/O MCC
232	CORONARY BYPASS W PTCA W/O MCC	260	CARDIAC PACEMAKER REVISION EXCEPT DEVICE REPLACEMENT W MCC
233	CORONARY BYPASS W CARDIAC CATH W MCC	261	CARDIAC PACEMAKER REVISION EXCEPT DEVICE REPLACEMENT W CC
234	CORONARY BYPASS W CARDIAC CATH W/O MCC	262	CARDIAC PACEMAKER REVISION EXCEPT DEVICE REPLACEMENT W/O CC/MCC
235	CORONARY BYPASS W/O CARDIAC CATH W MCC	263	VEIN LIGATION & STRIPPING
236	CORONARY BYPASS W/O CARDIAC CATH W/O MCC	264	OTHER CIRCULATORY SYSTEM O.R. PROCEDURES
237	MAJOR CARDIOVASC PROCEDURES W MCC	265	AICD LEAD PROCEDURES
238	MAJOR CARDIOVASC PROCEDURES W/O MCC	326	STOMACH, ESOPHAGEAL & DUODENAL PROC W MCC
239	AMPUTATION FOR CIRC SYS DISORDERS EXC UPPER LIMB & TOE W MCC	327	STOMACH, ESOPHAGEAL & DUODENAL PROC W CC
		328	STOMACH, ESOPHAGEAL & DUODENAL PROC W/O CC/MCC
		329	MAJOR SMALL & LARGE BOWEL PROCEDURES W MCC

330	MAJOR SMALL & LARGE BOWEL PROCEDURES W CC	410	BILIARY TRACT PROC EXCEPT ONLY CHOLECYST W OR W/O C.D.E. W/O CC/MCC
331	MAJOR SMALL & LARGE BOWEL PROCEDURES W/O CC/MCC	411	CHOLECYSTECTOMY W C.D.E. W MCC
332	RECTAL RESECTION W MCC	412	CHOLECYSTECTOMY W C.D.E. W CC
333	RECTAL RESECTION W CC	413	CHOLECYSTECTOMY W C.D.E. W/O CC/MCC
334	RECTAL RESECTION W/O CC/MCC	414	CHOLECYSTECTOMY EXCEPT BY LAPAROSCOPE W/O C.D.E. W MCC
335	PERITONEAL ADHESIOLYSIS W MCC	415	CHOLECYSTECTOMY EXCEPT BY LAPAROSCOPE W/O C.D.E. W CC
336	PERITONEAL ADHESIOLYSIS W CC	416	CHOLECYSTECTOMY EXCEPT BY LAPAROSCOPE W/O C.D.E. W/O CC/MCC
337	PERITONEAL ADHESIOLYSIS W/O CC/MCC	417	LAPAROSCOPIC CHOLECYSTECTOMY W/O C.D.E. W MCC
338	APPENDECTOMY W COMPLICATED PRINCIPAL DIAG W MCC	418	LAPAROSCOPIC CHOLECYSTECTOMY W/O C.D.E. W CC
339	APPENDECTOMY W COMPLICATED PRINCIPAL DIAG W CC	419	LAPAROSCOPIC CHOLECYSTECTOMY W/O C.D.E. W/O CC/MCC
340	APPENDECTOMY W COMPLICATED PRINCIPAL DIAG W/O CC/MCC	420	HEPATOBIILIARY DIAGNOSTIC PROCEDURES W MCC
341	APPENDECTOMY W/O COMPLICATED PRINCIPAL DIAG W MCC	421	HEPATOBIILIARY DIAGNOSTIC PROCEDURES W CC
342	APPENDECTOMY W/O COMPLICATED PRINCIPAL DIAG W CC	422	HEPATOBIILIARY DIAGNOSTIC PROCEDURES W/O CC/MCC
343	APPENDECTOMY W/O COMPLICATED PRINCIPAL DIAG W/O CC/MCC	423	OTHER HEPATOBIILIARY OR PANCREAS O.R. PROCEDURES W MCC
344	MINOR SMALL & LARGE BOWEL PROCEDURES W MCC	424	OTHER HEPATOBIILIARY OR PANCREAS O.R. PROCEDURES W CC
345	MINOR SMALL & LARGE BOWEL PROCEDURES W CC	425	OTHER HEPATOBIILIARY OR PANCREAS O.R. PROCEDURES W/O CC/MCC
346	MINOR SMALL & LARGE BOWEL PROCEDURES W/O CC/MCC	453	COMBINED ANTERIOR/POSTERIOR SPINAL FUSION W MCC
347	ANAL & STOMAL PROCEDURES W MCC	454	COMBINED ANTERIOR/POSTERIOR SPINAL FUSION W CC
348	ANAL & STOMAL PROCEDURES W CC	455	COMBINED ANTERIOR/POSTERIOR SPINAL FUSION W/O CC/MCC
349	ANAL & STOMAL PROCEDURES W/O CC/MCC	456	SPINAL FUS EXC CERV W SPINAL CURV/MALIG/INFEC OR 9+ FUS W MCC
350	INGUINAL & FEMORAL HERNIA PROCEDURES W MCC	457	SPINAL FUS EXC CERV W SPINAL CURV/MALIG/INFEC OR 9+ FUS W CC
351	INGUINAL & FEMORAL HERNIA PROCEDURES W CC	458	SPINAL FUS EXC CERV W SPINAL CURV/MALIG/INFEC OR 9+ FUS W/O CC/MCC
352	INGUINAL & FEMORAL HERNIA PROCEDURES W/O CC/MCC	459	SPINAL FUSION EXCEPT CERVICAL W MCC
353	HERNIA PROCEDURES EXCEPT INGUINAL & FEMORAL W MCC	460	SPINAL FUSION EXCEPT CERVICAL W/O MCC
354	HERNIA PROCEDURES EXCEPT INGUINAL & FEMORAL W CC	461	BILATERAL OR MULTIPLE MAJOR JOINT PROCS OF LOWER EXTREMITY W MCC
355	HERNIA PROCEDURES EXCEPT INGUINAL & FEMORAL W/O CC/MCC	462	BILATERAL OR MULTIPLE MAJOR JOINT PROCS OF LOWER EXTREMITY W/O MCC
356	OTHER DIGESTIVE SYSTEM O.R. PROCEDURES W MCC	463	WND DEBRID & SKN GRFT EXC HAND, FOR MUSCULO-CONN TISS DIS W MCC
357	OTHER DIGESTIVE SYSTEM O.R. PROCEDURES W CC	464	WND DEBRID & SKN GRFT EXC HAND, FOR MUSCULO-CONN TISS DIS W CC
358	OTHER DIGESTIVE SYSTEM O.R. PROCEDURES W/O CC/MCC	465	WND DEBRID & SKN GRFT EXC HAND, FOR MUSCULO-CONN TISS DIS W/O CC/MCC
405	PANCREAS, LIVER & SHUNT PROCEDURES W MCC	466	REVISION OF HIP OR KNEE REPLACEMENT W MCC
406	PANCREAS, LIVER & SHUNT PROCEDURES W CC		
407	PANCREAS, LIVER & SHUNT PROCEDURES W/O CC/MCC		
408	BILIARY TRACT PROC EXCEPT ONLY CHOLECYST W OR W/O C.D.E. W MCC		
409	BILIARY TRACT PROC EXCEPT ONLY CHOLECYST W OR W/O C.D.E. W CC		

467	REVISION OF HIP OR KNEE REPLACEMENT W CC	497	LOCAL EXCISION & REMOVAL INT FIX DEVICES EXC HIP & FEMUR W/O CC/MCC
468	REVISION OF HIP OR KNEE REPLACEMENT W/O CC/MCC	498	LOCAL EXCISION & REMOVAL INT FIX DEVICES OF HIP & FEMUR W CC/MCC
469	MAJOR JOINT REPLACEMENT OR REATTACHMENT OF LOWER EXTREMITY W MCC	499	LOCAL EXCISION & REMOVAL INT FIX DEVICES OF HIP & FEMUR W/O CC/MCC
470	MAJOR JOINT REPLACEMENT OR REATTACHMENT OF LOWER EXTREMITY W/O MCC	500	SOFT TISSUE PROCEDURES W MCC
471	CERVICAL SPINAL FUSION W MCC	501	SOFT TISSUE PROCEDURES W CC
472	CERVICAL SPINAL FUSION W CC	502	SOFT TISSUE PROCEDURES W/O CC/MCC
473	CERVICAL SPINAL FUSION W/O CC/MCC	503	FOOT PROCEDURES W MCC
474	AMPUTATION FOR MUSCULOSKELETAL SYS & CONN TISSUE DIS W MCC	504	FOOT PROCEDURES W CC
475	AMPUTATION FOR MUSCULOSKELETAL SYS & CONN TISSUE DIS W CC	505	FOOT PROCEDURES W/O CC/MCC
476	AMPUTATION FOR MUSCULOSKELETAL SYS & CONN TISSUE DIS W/O CC/MCC	506	MAJOR THUMB OR JOINT PROCEDURES
477	BIOPSIES OF MUSCULOSKELETAL SYSTEM & CONNECTIVE TISSUE W MCC	507	MAJOR SHOULDER OR ELBOW JOINT PROCEDURES W CC/MCC
478	BIOPSIES OF MUSCULOSKELETAL SYSTEM & CONNECTIVE TISSUE W CC	508	MAJOR SHOULDER OR ELBOW JOINT PROCEDURES W/O CC/MCC
479	BIOPSIES OF MUSCULOSKELETAL SYSTEM & CONNECTIVE TISSUE W/O CC/MCC	509	ARTHROSCOPY
480	HIP & FEMUR PROCEDURES EXCEPT MAJOR JOINT W MCC	510	SHOULDER, ELBOW OR FOREARM PROC, EXC MAJOR JOINT PROC W MCC
481	HIP & FEMUR PROCEDURES EXCEPT MAJOR JOINT W CC	511	SHOULDER, ELBOW OR FOREARM PROC, EXC MAJOR JOINT PROC W CC
482	HIP & FEMUR PROCEDURES EXCEPT MAJOR JOINT W/O CC/MCC	512	SHOULDER, ELBOW OR FOREARM PROC, EXC MAJOR JOINT PROC W/O CC/MCC
483	MAJOR JOINT & LIMB REATTACHMENT PROC OF UPPER EXTREMITY W CC/MCC	513	HAND OR WRIST PROC, EXCEPT MAJOR THUMB OR JOINT PROC W CC/MCC
484	MAJOR JOINT & LIMB REATTACHMENT PROC OF UPPER EXTREMITY W/O CC/MCC	514	HAND OR WRIST PROC, EXCEPT MAJOR THUMB OR JOINT PROC W/O CC/MCC
485	KNEE PROCEDURES W PDX OF INFECTION W MCC	515	OTHER MUSCULOSKELETAL SYS & CONN TISS O.R. PROC W MCC
486	KNEE PROCEDURES W PDX OF INFECTION W CC	516	OTHER MUSCULOSKELETAL SYS & CONN TISS O.R. PROC W CC
487	KNEE PROCEDURES W PDX OF INFECTION W/O CC/MCC	517	OTHER MUSCULOSKELETAL SYS & CONN TISS O.R. PROC W/O CC/MCC
488	KNEE PROCEDURES W/O PDX OF INFECTION W CC/MCC	570	SKIN DEBRIDEMENT W MCC
489	KNEE PROCEDURES W/O PDX OF INFECTION W/O CC/MCC	571	SKIN DEBRIDEMENT W CC
490	BACK & NECK PROC EXC SPINAL FUSION W CC/MCC OR DISC DEVICE/NEUROSTIM	572	SKIN DEBRIDEMENT W/O CC/MCC
491	BACK & NECK PROC EXC SPINAL FUSION W/O CC/MCC	573	SKIN GRAFT FOR SKIN ULCER OR CELLULITIS W MCC
492	LOWER EXTREM & HUMER PROC EXCEPT HIP, FOOT, FEMUR W MCC	574	SKIN GRAFT FOR SKIN ULCER OR CELLULITIS W CC
493	LOWER EXTREM & HUMER PROC EXCEPT HIP, FOOT, FEMUR W CC	575	SKIN GRAFT FOR SKIN ULCER OR CELLULITIS W/O CC/MCC
494	LOWER EXTREM & HUMER PROC EXCEPT HIP, FOOT, FEMUR W/O CC/MCC	576	SKIN GRAFT EXC FOR SKIN ULCER OR CELLULITIS W MCC
495	LOCAL EXCISION & REMOVAL INT FIX DEVICES EXC HIP & FEMUR W MCC	577	SKIN GRAFT EXC FOR SKIN ULCER OR CELLULITIS W CC
496	LOCAL EXCISION & REMOVAL INT FIX DEVICES EXC HIP & FEMUR W CC	578	SKIN GRAFT EXC FOR SKIN ULCER OR CELLULITIS W/O CC/MCC
		579	OTHER SKIN, SUBCUT TISS & BREAST PROC W MCC
		580	OTHER SKIN, SUBCUT TISS & BREAST PROC W CC
		581	OTHER SKIN, SUBCUT TISS & BREAST PROC W/O CC/MCC
		582	MASTECTOMY FOR MALIGNANCY W CC/MCC
		583	MASTECTOMY FOR MALIGNANCY W/O CC/MCC

584	BREAST BIOPSY, LOCAL EXCISION & OTHER BREAST PROCEDURES W CC/MCC	663	MINOR BLADDER PROCEDURES W CC
585	BREAST BIOPSY, LOCAL EXCISION & OTHER BREAST PROCEDURES W/O CC/MCC	664	MINOR BLADDER PROCEDURES W/O CC/MCC
614	ADRENAL & PITUITARY PROCEDURES W CC/MCC	665	PROSTATECTOMY W MCC
615	ADRENAL & PITUITARY PROCEDURES W/O CC/MCC	666	PROSTATECTOMY W CC
616	AMPUTAT OF LOWER LIMB FOR ENDOCRINE,NUTRIT,& METABOL DIS W MCC	667	PROSTATECTOMY W/O CC/MCC
617	AMPUTAT OF LOWER LIMB FOR ENDOCRINE,NUTRIT,& METABOL DIS W CC	668	TRANSURETHRAL PROCEDURES W MCC
618	AMPUTAT OF LOWER LIMB FOR ENDOCRINE,NUTRIT,& METABOL DIS W/O CC/MCC	669	TRANSURETHRAL PROCEDURES W CC
619	O.R. PROCEDURES FOR OBESITY W MCC	670	TRANSURETHRAL PROCEDURES W/O CC/MCC
620	O.R. PROCEDURES FOR OBESITY W CC	671	URETHRAL PROCEDURES W CC/MCC
621	O.R. PROCEDURES FOR OBESITY W/O CC/MCC	672	URETHRAL PROCEDURES W/O CC/MCC
622	SKIN GRAFTS & WOUND DEBRID FOR ENDOC, NUTRIT & METAB DIS W MCC	673	OTHER KIDNEY & URINARY TRACT PROCEDURES W MCC
623	SKIN GRAFTS & WOUND DEBRID FOR ENDOC, NUTRIT & METAB DIS W CC	674	OTHER KIDNEY & URINARY TRACT PROCEDURES W CC
624	SKIN GRAFTS & WOUND DEBRID FOR ENDOC, NUTRIT & METAB DIS W/O CC/MCC	675	OTHER KIDNEY & URINARY TRACT PROCEDURES W/O CC/MCC
625	THYROID, PARATHYROID & THYROIDECTOMY PROCEDURES W MCC	707	MAJOR MALE PELVIC PROCEDURES W CC/MCC
626	THYROID, PARATHYROID & THYROIDECTOMY PROCEDURES W CC	708	MAJOR MALE PELVIC PROCEDURES W/O CC/MCC
627	THYROID, PARATHYROID & THYROIDECTOMY PROCEDURES W/O CC/MCC	709	PENIS PROCEDURES W CC/MCC
628	OTHER ENDOCRINE, NUTRIT & METAB O.R. PROC W MCC	710	PENIS PROCEDURES W/O CC/MCC
629	OTHER ENDOCRINE, NUTRIT & METAB O.R. PROC W CC	711	TESTES PROCEDURES W CC/MCC
630	OTHER ENDOCRINE, NUTRIT & METAB O.R. PROC W/O CC/MCC	712	TESTES PROCEDURES W/O CC/MCC
652	KIDNEY TRANSPLANT	713	TRANSURETHRAL PROSTATECTOMY W CC/MCC
653	MAJOR BLADDER PROCEDURES W MCC	714	TRANSURETHRAL PROSTATECTOMY W/O CC/MCC
654	MAJOR BLADDER PROCEDURES W CC	715	OTHER MALE REPRODUCTIVE SYSTEM O.R. PROC FOR MALIGNANCY W CC/MCC
655	MAJOR BLADDER PROCEDURES W/O CC/MCC	716	OTHER MALE REPRODUCTIVE SYSTEM O.R. PROC FOR MALIGNANCY W/O CC/MCC
656	KIDNEY & URETER PROCEDURES FOR NEOPLASM W MCC	717	OTHER MALE REPRODUCTIVE SYSTEM O.R. PROC EXC MALIGNANCY W CC/MCC
657	KIDNEY & URETER PROCEDURES FOR NEOPLASM W CC	718	OTHER MALE REPRODUCTIVE SYSTEM O.R. PROC EXC MALIGNANCY W/O CC/MCC
658	KIDNEY & URETER PROCEDURES FOR NEOPLASM W/O CC/MCC	734	PELVIC EVISCERATION, RAD HYSTERECTOMY & RAD VULVECTOMY W CC/MCC
659	KIDNEY & URETER PROCEDURES FOR NON-NEOPLASM W MCC	735	PELVIC EVISCERATION, RAD HYSTERECTOMY & RAD VULVECTOMY W/O CC/MCC
660	KIDNEY & URETER PROCEDURES FOR NON-NEOPLASM W CC	736	UTERINE & ADNEXA PROC FOR OVARIAN OR ADNEXAL MALIGNANCY W MCC
661	KIDNEY & URETER PROCEDURES FOR NON-NEOPLASM W/O CC/MCC	737	UTERINE & ADNEXA PROC FOR OVARIAN OR ADNEXAL MALIGNANCY W CC
662	MINOR BLADDER PROCEDURES W MCC	738	UTERINE & ADNEXA PROC FOR OVARIAN OR ADNEXAL MALIGNANCY W/O CC/MCC
		739	UTERINE,ADNEXA PROC FOR NON-OVARIAN/ADNEXAL MALIG W MCC
		740	UTERINE,ADNEXA PROC FOR NON-OVARIAN/ADNEXAL MALIG W CC

741	UTERINE,ADNEXA PROC FOR NON-OVARIAN/ADNEXAL MALIG W/O CC/MCC	830	MYELOPROLIF DISORD OR POORLY DIFF NEOPL W OTHER O.R. PROC W/O CC/MCC
742	UTERINE & ADNEXA PROC FOR NON-MALIGNANCY W CC/MCC	853	INFECTIOUS & PARASITIC DISEASES W O.R. PROCEDURE W MCC
743	UTERINE & ADNEXA PROC FOR NON-MALIGNANCY W/O CC/MCC	854	INFECTIOUS & PARASITIC DISEASES W O.R. PROCEDURE W CC
744	D&C, CONIZATION, LAPAROSCOPY & TUBAL INTERRUPTION W CC/MCC	855	INFECTIOUS & PARASITIC DISEASES W O.R. PROCEDURE W/O CC/MCC
745	D&C, CONIZATION, LAPAROSCOPY & TUBAL INTERRUPTION W/O CC/MCC	856	POSTOPERATIVE OR POST-TRAUMATIC INFECTIONS W O.R. PROC W MCC
746	VAGINA, CERVIX & VULVA PROCEDURES W CC/MCC	857	POSTOPERATIVE OR POST-TRAUMATIC INFECTIONS W O.R. PROC W CC
747	VAGINA, CERVIX & VULVA PROCEDURES W/O CC/MCC	858	POSTOPERATIVE OR POST-TRAUMATIC INFECTIONS W O.R. PROC W/O CC/MCC
748	FEMALE REPRODUCTIVE SYSTEM RECONSTRUCTIVE PROCEDURES	876	O.R. PROCEDURE W PRINCIPAL DIAGNOSES OF MENTAL ILLNESS
749	OTHER FEMALE REPRODUCTIVE SYSTEM O.R. PROCEDURES W CC/MCC	901	WOUND DEBRIDEMENTS FOR INJURIES W MCC
750	OTHER FEMALE REPRODUCTIVE SYSTEM O.R. PROCEDURES W/O CC/MCC	902	WOUND DEBRIDEMENTS FOR INJURIES W CC
765	CESAREAN SECTION W CC/MCC	903	WOUND DEBRIDEMENTS FOR INJURIES W/O CC/MCC
766	CESAREAN SECTION W/O CC/MCC	904	SKIN GRAFTS FOR INJURIES W CC/MCC
767	VAGINAL DELIVERY W STERILIZATION &/OR D&C	905	SKIN GRAFTS FOR INJURIES W/O CC/MCC
768	VAGINAL DELIVERY W O.R. PROC EXCEPT STERIL &/OR D&C	906	HAND PROCEDURES FOR INJURIES
769	POSTPARTUM & POST ABORTION DIAGNOSES W O.R. PROCEDURE	907	OTHER O.R. PROCEDURES FOR INJURIES W MCC
770	ABORTION W D&C, ASPIRATION CURETTAGE OR HYSTEROTOMY	908	OTHER O.R. PROCEDURES FOR INJURIES W CC
799	SPLENECTOMY W MCC	909	OTHER O.R. PROCEDURES FOR INJURIES W/O CC/MCC
800	SPLENECTOMY W CC	927	EXTENSIVE BURNS OR FULL THICKNESS BURNS W MV 96+ HRS W SKIN GRAFT
801	SPLENECTOMY W/O CC/MCC	928	FULL THICKNESS BURN W SKIN GRAFT OR INHAL INJ W CC/MCC
802	OTHER O.R. PROC OF THE BLOOD & BLOOD FORMING ORGANS W MCC	929	FULL THICKNESS BURN W SKIN GRAFT OR INHAL INJ W/O CC/MCC
803	OTHER O.R. PROC OF THE BLOOD & BLOOD FORMING ORGANS W CC	939	O.R. PROC W DIAGNOSES OF OTHER CONTACT W HEALTH SERVICES W MCC
804	OTHER O.R. PROC OF THE BLOOD & BLOOD FORMING ORGANS W/O CC/MCC	940	O.R. PROC W DIAGNOSES OF OTHER CONTACT W HEALTH SERVICES W CC
820	LYMPHOMA & LEUKEMIA W MAJOR O.R. PROCEDURE W MCC	941	O.R. PROC W DIAGNOSES OF OTHER CONTACT W HEALTH SERVICES W/O CC/MCC
821	LYMPHOMA & LEUKEMIA W MAJOR O.R. PROCEDURE W CC	955	CRANIOTOMY FOR MULTIPLE SIGNIFICANT TRAUMA
822	LYMPHOMA & LEUKEMIA W MAJOR O.R. PROCEDURE W/O CC/MCC	956	LIMB REATTACHMENT, HIP & FEMUR PROC FOR MULTIPLE SIGNIFICANT TRAUMA
823	LYMPHOMA & NON-ACUTE LEUKEMIA W OTHER O.R. PROC W MCC	957	OTHER O.R. PROCEDURES FOR MULTIPLE SIGNIFICANT TRAUMA W MCC
824	LYMPHOMA & NON-ACUTE LEUKEMIA W OTHER O.R. PROC W CC	958	OTHER O.R. PROCEDURES FOR MULTIPLE SIGNIFICANT TRAUMA W CC
825	LYMPHOMA & NON-ACUTE LEUKEMIA W OTHER O.R. PROC W/O CC/MCC	959	OTHER O.R. PROCEDURES FOR MULTIPLE SIGNIFICANT TRAUMA W/O CC/MCC
826	MYELOPROLIF DISORD OR POORLY DIFF NEOPL W MAJ O.R. PROC W MCC	969	HIV W EXTENSIVE O.R. PROCEDURE W MCC
827	MYELOPROLIF DISORD OR POORLY DIFF NEOPL W MAJ O.R. PROC W CC		
828	MYELOPROLIF DISORD OR POORLY DIFF NEOPL W MAJ O.R. PROC W/O CC/MCC		
829	MYELOPROLIF DISORD OR POORLY DIFF NEOPL W OTHER O.R. PROC W CC/MCC		

970	HIV W EXTENSIVE O.R. PROCEDURE W/O MCC	986	PROSTATIC O.R. PROCEDURE UNRELATED TO PRINCIPAL DIAGNOSIS W/O CC/MCC
981	EXTENSIVE O.R. PROCEDURE UNRELATED TO PRINCIPAL DIAGNOSIS W MCC	987	NON-EXTENSIVE O.R. PROC UNRELATED TO PRINCIPAL DIAGNOSIS W MCC
982	EXTENSIVE O.R. PROCEDURE UNRELATED TO PRINCIPAL DIAGNOSIS W CC	988	NON-EXTENSIVE O.R. PROC UNRELATED TO PRINCIPAL DIAGNOSIS W CC
983	EXTENSIVE O.R. PROCEDURE UNRELATED TO PRINCIPAL DIAGNOSIS W/O CC/MCC	989	NON-EXTENSIVE O.R. PROC UNRELATED TO PRINCIPAL DIAGNOSIS W/O CC/MCC
984	PROSTATIC O.R. PROCEDURE UNRELATED TO PRINCIPAL DIAGNOSIS W MCC		
985	PROSTATIC O.R. PROCEDURE UNRELATED TO PRINCIPAL DIAGNOSIS W CC		

¹The DRG/MS-DRG codes are continuously updated. The current list of DRG/MS-DRG codes is valid for October 2012 through September 2013. Italicized codes are not active in Fiscal Year 2013.

Appendix D – Medical DRGs

Medical DRG codes¹:

009	SPINAL DISORDERS AND INJURIES	087	PULMONARY EDEMA & RESPIRATORY FAILURE
010	NERVOUS SYSTEM NEOPLASMS W/ CC	088	CHRONIC OBSTRUCTIVE PULMONARY DISEASE
011	NERVOUS SYSTEM NEOPLASMS W/O CC	091	SIMPLE PNEUMONIA & PLEURISY AGE 0-17
012	DEGENERATIVE NERVOUS SYSTEM DISORDERS	092	INTERSTITIAL LUNG DISEASE W CC
013	MULTIPLE SCLEROSIS AND CEREBELLAR ATAXIA	093	INTERSTITIAL LUNG DISEASE W/O CC
014	INTRACRANIAL HEMORRHAGE OR CEREBRAL INFARCTION	094	PNEUMOTHORAX W CC
015	NONSPECIFIC CVA & PRECEREBRAL OCCLUSION W/O INFARCT	095	PNEUMOTHORAX W/O CC
016	NONSPECIFIC CEREBROVASCULAR DISORDERS W CC	098	BRONCHITIS & ASTHMA AGE 0-17
017	NONSPECIFIC CEREBROVASCULAR DISORDERS W/O CC	099	RESPIRATORY SIGNS & SYMPTOMS W CC
018	CRANIAL & PERIPHERAL NERVE DISORDERS W CC	100	RESPIRATORY SIGNS & SYMPTOMS W/O CC
019	CRANIAL & PERIPHERAL NERVE DISORDERS W/O CC	101	OTHER RESPIRATORY SYSTEM DIAGNOSES W CC
020	<i>NERVOUS SYSTEM INFECTION EXCEPT VIRAL MENINGITIS</i>	102	OTHER RESPIRATORY SYSTEM DIAGNOSES W/O CC
021	VIRAL MENINGITIS	121	CIRCULATORY DISORDERS W AMI & MAJOR COMP, DISCHARGED ALIVE
022	HYPERTENSIVE ENCEPHALOPATHY	122	CIRCULATORY DISORDERS W AMI W/O MAJOR COMP, DISCHARGED ALIVE
023	NONTRAUMATIC STUPOR & COMA	123	CIRCULATORY DISORDERS W AMI, EXPIRED
026	SEIZURE & HEADACHE AGE 0-17	124	CIRCULATORY DISORDERS EXCEPT AMI, W CARD CATH & COMPLEX DIAG
027	TRAUMATIC STUPOR & COMA, COMA >1 HR	125	CIRCULATORY DISORDERS EXCEPT AMI, W CARD CATH W/O COMPLEX DIAG
030	TRAUMATIC STUPOR & COMA, COMA <1 HR AGE >17 W CC	126	ACUTE & SUBACUTE ENDOCARDITIS
033	CONCUSSION AGE 0-17	127	HEART FAILURE & SHOCK
034	OTHER DISORDERS OF NERVOUS SYSTEM W CC	128	DEEP VEIN THROMBOPHLEBITIS
035	OTHER DISORDERS OF NERVOUS SYSTEM W/O CC	129	CARDIAC ARREST, UNEXPLAINED
043	HYPHEMA	130	PERIPHERAL VASCULAR DISORDERS W CC
044	ACUTE MAJOR EYE INFECTIONS	131	PERIPHERAL VASCULAR DISORDERS W/O CC
045	NEUROLOGICAL EYE DISORDERS	132	ATHEROSCLEROSIS W CC
048	OTHER DISORDERS OF THE EYE AGE 0-17	133	ATHEROSCLEROSIS W/O CC
064	EAR, NOSE, MOUTH AND THROAT MALIGNANCY	134	HYPERTENSION
065	DISEQUILIBRIUM	137	CARDIAC CONGENITAL & VALVULAR DISORDERS AGE 0 – 17 W CC
066	EPISTAXIS	138	CARDIAC ARRHYTHMIA & CONDUCTION DISORDERS W CC
067	EPIGLOTTITIS	139	CARDIAC ARRHYTHMIA & CONDUCTION DISORDERS W/O CC
070	OTITIS MEDIA & URI AGE 0-17	140	ANGINA PECTORIS
071	LARYNGOTRACHEITIS	141	SYNCOPE AND COLLAPSE W CC
072	NASAL TRAUMA & DEFORMITY	142	SYNCOPE AND COLLAPSE W/O CC
074	OTHER EAR, NOSE, MOUTH & THROAT DIAGNOSES AGE 0-17	143	CHEST PAIN
078	PULMONARY EMBOLISM	144	OTHER CIRCULATORY SYSTEM DIAGNOSES W CC
081	RESPIRATORY INFECTIONS AND INFLAMMATIONS AGE 0-17	145	OTHER CIRCULATORY SYSTEM DIAGNOSES W/O CC
082	RESPIRATORY NEOPLASMS	172	DIGESTIVE MALIGNANCY W CC
083	MAJOR CHEST TRAUMA W CC	173	DIGESTIVE MALIGNANCY W/O CC
084	MAJOR CHEST TRAUMA W/O CC	174	G.I. HEMORRHAGE W CC
085	PLEURAL EFFUSION W CC	175	G.I. HEMORRHAGE W/O CC
086	PLEURAL EFFUSION W/O CC		

176	COMPLICATED PEPTIC ULCER	274	MALIGNANT BREAST DISORDERS W CC
177	UNCOMPLICATED PEPTIC ULCER W CC	275	MALIGNANT BREAST DISORDERS W/O CC
178	UNCOMPLICATED PEPTIC ULCER W/O CC	276	NON-MALIGNANT BREAST DISORDERS
179	INFLAMMATORY BOWEL DISEASE	279	CELLULITIS AGE 0-17
180	G.I. OBSTRUCTION W CC	282	TRAUMA TO SKIN, SUBCUT TISS & BREAST AGE 0-17
181	G.I. OBSTRUCTION W/O CC	283	MINOR SKIN DISORDERS W CC
184	ESOPHAGITIS, GASTROENT & MISC DIGEST DISORDERS AGE 0-17	284	MINOR SKIN DISORDERS W/O CC
186	DENTAL & ORAL DIS EXCEPT EXTRACTIONS & RESTORATIONS AGE 0-17	295	DIABETES AGE 0-35
187	DENTAL EXTRACTIONS & RESTORATIONS	298	NUTRITIONAL & MISC METABOLIC DISORDERS AGE 0-17
190	OTHER DIGESTIVE SYSTEM DIAGNOSES AGE 0-17	299	INBORN ERRORS OF METABOLISM
202	CIRRHOSIS & ALCOHOLIC HEPATITIS	300	ENDOCRINE DISORDERS W CC
203	MALIGNANCY OF HEPATOBILIARY SYSTEM OR PANCREAS	301	ENDOCRINE DISORDERS W/O CC
204	DISORDERS OF PANCREAS EXCEPT MALIGNANCY	316	RENAL FAILURE
205	DISORDERS OF LIVER EXCEPT MALIG,CIRR,ALC HEPA W CC	317	ADMISSION FOR RENAL DIALYSIS
206	DISORDERS OF LIVER EXCEPT MALIG,CIRR,ALC HEPA W/O CC	318	KIDNEY & URINARY TRACT NEOPLASMS W CC
207	DISORDERS OF THE BILIARY TRACT W CC	319	KIDNEY & URINARY TRACT NEOPLASMS W/O CC
208	DISORDERS OF THE BILIARY TRACT W/O CC	322	KIDNEY & URINARY TRACT INFECTIONS AGE 0-17
235	FRACTURES OF FEMUR	323	URINARY STONES W CC, &/ OR ESW LITHOTRIPSY
236	FRACTURES OF HIP & PELVIS	324	URINARY STONES W/O CC
237	SPRAINS, STRAINS & DISLOCATIONS OF HIP, PELVIS & THIGH	327	KIDNEY & URINARY TRACT SIGNS & SYMPTOMS AGE 0-17
238	OSTEOMYELITIS	330	URETHRAL STRICTURE AGE 0-17
239	PATHOLOGICAL FRACTURES & MUSCULOSKELETAL & CONN TISS MALIGNANCY	333	OTHER KIDNEY & URINARY TRACT DIAGNOSES AGE 0-17
240	CONNECTIVE TISSUE DISORDERS W CC	346	MALIGNANCY, MALE REPRODUCTIVE SYSTEM, W CC
241	CONNECTIVE TISSUE DISORDERS W/O CC	347	MALIGNANCY, MALE REPRODUCTIVE SYSTEM, W/O CC
242	SEPTIC ARTHRITIS	348	BENIGN PROSTATIC HYPERTROPHY W CC
243	MEDICAL BACK PROBLEMS	349	BENIGN PROSTATIC HYPERTROPHY W/O CC
244	BONE DISEASES & SPECIFIC ARTHROPATHIES W CC	350	INFLAMMATION OF THE MALE REPRODUCTIVE SYSTEM
245	BONE DISEASES & SPECIFIC ARTHROPATHIES W/O CC	351	STERILIZATION, MALE
246	NONSPECIFIC ARTHROPATHIES	352	OTHER MALE REPRODUCTIVE SYSTEM DIAGNOSES
247	SIGNS & SYMPTOMS OF MUSCULOSKELETAL SYSTEM & CONN TISSUE	366	MALIGNANCY, FEMALE REPRODUCTIVE SYSTEM W CC
248	TENDONITIS, MYOSITIS AND BURSITIS	367	MALIGNANCY, FEMALE REPRODUCTIVE SYSTEM W/O CC
249	AFTERCARE, MUSCULOSKELETAL SYSTEM & CONNECTIVE TISSUE	368	INFECTIONS, FEMALE REPRODUCTIVE SYSTEM
252	FX, SPRN, STRN & DISL OF FOREARM, HAND, FOOT AGE 0-17	369	MENSTRUAL & OTHER FEMALE REPRODUCTIVE SYSTEM DISORDERS
255	FX, SPRN, STRN & DISL OF UPARM,LOWLEG EX FOOT AGE 0-17	372	VAGINAL DELIVERY W COMPLICATING DIAGNOSES
256	OTHER MUSCULOSKELETAL SYSTEM & CONNECTIVE TISSUE DIAGNOSES	373	VAGINAL DELIVERY W/O COMPLICATING DIAGNOSES
271	SKIN ULCERS	376	POSTPARTUM & POST ABORTION DIAGNOSES W/O O.R. PROCEDURE
272	MAJOR SKIN DISORDERS W CC	378	ENTOPIC PREGNANCY
273	MAJOR SKIN DISORDERS W/O CC	379	THREATENED ABORTION
		380	ABORTION W/O D&C
		382	FALSE LABOR

383	OTHER ANTEPARTUM DIAGNOSES W MEDICAL COMPLICATIONS	434	ALCOHOL/DRUG ABUSE OR DEPENDENCE, DETOXIFICATION OR OTHER SYMPTOMATIC TREATMENT W/ CC
384	OTHER ANTEPARTUM DIAGNOSES W/O MEDICAL COMPLICATIONS	435	ALCOHOL/DRUG ABUSE OR DEPENDENCE, DETOXIFICATION OR OTHER SYMPTOMATIC TREATMENT W/O CC
385	NEONATES, DIED OR TRANSFERRED TO ANOTHER ACUTE FACILITY	436	ALCOHOL/DRUG DEPENDENCE W/ REHABILITATION THERAPY
386	EXTREME IMMATURITY OR RESPIRATORY DISTRESS SYNDROME, NEONATE	437	ALCOHOL DRUG DEPENDENCE W/ COMBINED REHABILITATION AND DETOXIFICATION THERAPY
387	PREMATURITY W MAJOR PROBLEMS	446	TRAUMATIC INJURY AGE 0-17
388	PREMATURITY W/O MAJOR PROBLEMS	448	ALLERGIC REACTIONS AGE 0-17
389	FULL TERM NEONATE W MAJOR PROBLEMS	451	POISONING & TOXIC EFFECTS OF DRUGS AGE 0-17
390	NEONATE W OTHER SIGNIFICANT PROBLEMS	452	COMPLICATIONS OF TREATMENT W CC
391	NORMAL NEWBORN	453	COMPLICATIONS OF TREATMENT W/O CC
396	RED BLOOD CELL DISORDERS AGE 0-17	454	OTHER INJURY, POISONING & TOXIC EFFECT DIAGNOSES W CC
397	COAGULATION DISORDERS	455	OTHER INJURY, POISONING & TOXIC EFFECT DIAGNOSES W/O CC
398	RETICULOENDOTHELIAL & IMMUNITY DISORDERS W CC	456	BURNS, TRANSFERRED TO ANOTHER ACUTE CARE FACILITY
399	RETICULOENDOTHELIAL AND IMMUNITY DISORDERS W/O CC	457	EXTENSIVE BURNS W/O O.R. PROCEDURE
403	LYMPHOMA & NON-ACUTE LEUKEMIA W CC	460	NON-EXTENSIVE BURNS W/O O.R. PROCEDURE
404	LYMPHOMA & NON-ACUTE LEUKEMIA W/O CC	462	REHABILITATION
405	ACUTE LEUKEMIA W/O MAJOR O.R. PROCEDURE AGE 0-17	463	SIGNS & SYMPTOMS W CC
409	RADIOTHERAPY	464	SIGNS & SYMPTOMS W/O CC
410	CHEMOTHERAPY W/O ACUTE LEUKEMIA AS SECONDARY DIAGNOSIS	465	AFTERCARE W HISTORY OF MALIGNANCY AS SECONDARY DIAGNOSIS
411	HISTORY OF MALIGNANCY W/O ENDOSCOPY	466	AFTERCARE W/O HISTORY OF MALIGNANCY AS SECONDARY DIAGNOSIS
412	HISTORY OF MALIGNANCY W ENDOSCOPY	467	OTHER FACTORS INFLUENCING HEALTH STATUS
413	OTHER MYELOPROLIF DIS OR POORLY DIFF NEOPL DIAG W CC	475	RESPIRATORY SYSTEM DIAGNOSIS W/ VENTILATOR SUPPORT
414	OTHER MYELOPROLIF DIS OR POORLY DIFF NEOPL DIAG W/O CC	487	OTHER MULTIPLE SIGNIFICANT TRAUMA
417	SEPTICEMIA AGE 0-17	489	HIV W MAJOR RELATED CONDITION
418	POSTOPERATIVE & POST-TRAUMATIC INFECTIONS	490	HIV W OR W/O OTHER RELATED CONDITION
422	VIRAL ILLNESS & FEVER OF UNKNOWN ORIGIN AGE 0-17	492	CHEMOTHERAPY W ACUTE LEUKEMIA OR W USE OF HI DOSE CHEMOAGENT
423	OTHER INFECTIOUS & PARASITIC DISEASES DIAGNOSES	505	EXTEN. BURNS OR FULL THICKNESS BURN W/MV 96+HRS W/O SKIN GRFT
425	ACUTE ADJUSTMENT REACTION & PSYCHOSOCIAL DYSFUNCTION	508	FULL THICKNESS BURN W/O SKIN GRFT OR INHAL INJ W CC OR SIG TRAUMA
426	DEPRESSIVE NEUROSES	509	FULL THICKNESS BURN W/O SKIN GRFT OR INH INJ W/O CC OR SIG TRAUMA
427	NEUROSES EXCEPT DEPRESSIVE	510	NON-EXTENSIVE BURNS W CC OR SIGNIFICANT TRAUMA
428	DISORDERS OF PERSONALITY & IMPULSE CONTROL	511	NON-EXTENSIVE BURNS W/O CC OR SIGNIFICANT TRAUMA
429	ORGANIC DISTURBANCES & MENTAL RETARDATION	521	ALCOHOL/DRUG ABUSE OR DEPENDENCE W CC
430	PSYCHOSES		
431	CHILDHOOD MENTAL DISORDERS		
432	OTHER MENTAL DISORDER DIAGNOSES		
433	ALCOHOL/DRUG ABUSE OR DEPENDENCE, LEFT AMA		

522	ALC/DRUG ABUSE OR DEPEND W REHABILITATION THERAPY W/O CC	565	RESPIRATORY SYSTEM DIAGNOSIS WITH VENTILATOR SUPPORT 96+ HOURS
523	ALC/DRUG ABUSE OR DEPEND W/O REHABILITATION THERAPY W/O CC	566	RESPIRATORY SYSTEM DIAGNOSIS WITH VENTILATOR SUPPORT < 96 HOURS
524	TRANSIENT ISCHEMIA	571	MAJOR ESOPHAGEAL DISORDERS
559	ACUTE ISCHEMIC STROKE WITH USE OF THROMBOLYTIC AGENT	572	MAJOR GASTROINTESTINAL DISORDERS AND PERITONEAL INFECTIONS
560	BACTERIAL & TUBERCULOUS INFECTIONS OF NERVOUS SYSTEM	574	MAJOR HEMATOLOGIC/IMMUNOLOGIC DIAG EXC SICKLE CELL CRISIS & COAGUL
561	NON-BACTERIAL INFECTIONS OF NERVOUS SYSTEM EXCEPT VIRAL MENINGITIS		

¹ The DRG/MS-DRG codes are continuously updated. The current list of DRG/MS-DRG codes is valid for October 2012 through September 2013. Italicized codes are not active in Fiscal Year 2013.

Appendix E – Medical MS-DRGs

For medical discharges using MS-DRGs (on or after October 1, 2007)

Medical MS-DRG codes:

052	SPINAL DISORDERS & INJURIES W CC/MCC	081	NONTRAUMATIC STUPOR & COMA W/O MCC
053	SPINAL DISORDERS & INJURIES W/O CC/MCC	082	TRAUMATIC STUPOR & COMA, COMA >1 HR W MCC
054	NERVOUS SYSTEM NEOPLASMS W MCC	083	TRAUMATIC STUPOR & COMA, COMA >1 HR W CC
055	NERVOUS SYSTEM NEOPLASMS W/O MCC	084	TRAUMATIC STUPOR & COMA, COMA >1 HR W/O CC/MCC
056	DEGENERATIVE NERVOUS SYSTEM DISORDERS W MCC	085	TRAUMATIC STUPOR & COMA, COMA <1 HR W MCC
057	DEGENERATIVE NERVOUS SYSTEM DISORDERS W/O MCC	086	TRAUMATIC STUPOR & COMA, COMA <1 HR W CC
058	MULTIPLE SCLEROSIS & CEREBELLAR ATAXIA W MCC	087	TRAUMATIC STUPOR & COMA, COMA <1 HR W/O CC/MCC
059	MULTIPLE SCLEROSIS & CEREBELLAR ATAXIA W CC	088	CONCUSSION W MCC
060	MULTIPLE SCLEROSIS & CEREBELLAR ATAXIA W/O CC/MCC	089	CONCUSSION W CC
061	ACUTE ISCHEMIC STROKE W USE OF THROMBOLYTIC AGENT W MCC	090	CONCUSSION W/O CC/MCC
062	ACUTE ISCHEMIC STROKE W USE OF THROMBOLYTIC AGENT W CC	091	OTHER DISORDERS OF NERVOUS SYSTEM W MCC
063	ACUTE ISCHEMIC STROKE W USE OF THROMBOLYTIC AGENT W/O CC/MCC	092	OTHER DISORDERS OF NERVOUS SYSTEM W CC
064	INTRACRANIAL HEMORRHAGE OR CEREBRAL INFARCTION W MCC	093	OTHER DISORDERS OF NERVOUS SYSTEM W/O CC/MCC
065	INTRACRANIAL HEMORRHAGE OR CEREBRAL INFARCTION W CC	094	BACTERIAL & TUBERCULOUS INFECTIONS OF NERVOUS SYSTEM W MCC
066	INTRACRANIAL HEMORRHAGE OR CEREBRAL INFARCTION W/O CC/MCC	095	BACTERIAL & TUBERCULOUS INFECTIONS OF NERVOUS SYSTEM W CC
067	NONSPECIFIC CVA & PRECEREBRAL OCCLUSION W/O INFARCT W MCC	096	BACTERIAL & TUBERCULOUS INFECTIONS OF NERVOUS SYSTEM W/O CC/MCC
068	NONSPECIFIC CVA & PRECEREBRAL OCCLUSION W/O INFARCT W/O MCC	097	NON-BACTERIAL INFECT OF NERVOUS SYS EXC VIRAL MENINGITIS W MCC
069	TRANSIENT ISCHEMIA	098	NON-BACTERIAL INFECT OF NERVOUS SYS EXC VIRAL MENINGITIS W CC
070	NONSPECIFIC CEREBROVASCULAR DISORDERS W MCC	099	NON-BACTERIAL INFECT OF NERVOUS SYS EXC VIRAL MENINGITIS W/O CC/MCC
071	NONSPECIFIC CEREBROVASCULAR DISORDERS W CC	100	SEIZURES W MCC
072	NONSPECIFIC CEREBROVASCULAR DISORDERS W/O CC/MCC	101	SEIZURES W/O MCC
073	CRANIAL & PERIPHERAL NERVE DISORDERS W MCC	102	HEADACHES W MCC
074	CRANIAL & PERIPHERAL NERVE DISORDERS W/O MCC	103	HEADACHES W/O MCC
075	VIRAL MENINGITIS W CC/MCC	121	ACUTE MAJOR EYE INFECTIONS W CC/MCC
076	VIRAL MENINGITIS W/O CC/MCC	122	ACUTE MAJOR EYE INFECTIONS W/O CC/MCC
077	HYPERTENSIVE ENCEPHALOPATHY W MCC	123	NEUROLOGICAL EYE DISORDERS
078	HYPERTENSIVE ENCEPHALOPATHY W CC	124	OTHER DISORDERS OF THE EYE W MCC
079	HYPERTENSIVE ENCEPHALOPATHY W/O CC/MCC	125	OTHER DISORDERS OF THE EYE W/O MCC
080	NONTRAUMATIC STUPOR & COMA W MCC	146	EAR, NOSE, MOUTH & THROAT MALIGNANCY W MCC
		147	EAR, NOSE, MOUTH & THROAT MALIGNANCY W CC

148	EAR, NOSE, MOUTH & THROAT MALIGNANCY W/O CC/MCC	207	RESPIRATORY SYSTEM DIAGNOSIS W VENTILATOR SUPPORT 96+ HOURS
149	DYSEQUILIBRIUM	208	RESPIRATORY SYSTEM DIAGNOSIS W VENTILATOR SUPPORT <96 HOURS
150	EPISTAXIS W MCC	280	ACUTE MYOCARDIAL INFARCTION, DISCHARGED ALIVE W MCC
151	EPISTAXIS W/O MCC	281	ACUTE MYOCARDIAL INFARCTION, DISCHARGED ALIVE W CC
152	OTITIS MEDIA & URI W MCC	282	ACUTE MYOCARDIAL INFARCTION, DISCHARGED ALIVE W/O CC/MCC
153	OTITIS MEDIA & URI W/O MCC	283	ACUTE MYOCARDIAL INFARCTION, EXPIRED W MCC
154	OTHER EAR, NOSE, MOUTH & THROAT DIAGNOSES W MCC	284	ACUTE MYOCARDIAL INFARCTION, EXPIRED W CC
155	OTHER EAR, NOSE, MOUTH & THROAT DIAGNOSES W CC	285	ACUTE MYOCARDIAL INFARCTION, EXPIRED W/O CC/MCC
156	OTHER EAR, NOSE, MOUTH & THROAT DIAGNOSES W/O CC/MCC	286	CIRCULATORY DISORDERS EXCEPT AMI, W CARD CATH W MCC
157	DENTAL & ORAL DISEASES W MCC	287	CIRCULATORY DISORDERS EXCEPT AMI, W CARD CATH W/O MCC
158	DENTAL & ORAL DISEASES W CC	288	ACUTE & SUBACUTE ENDOCARDITIS W MCC
159	DENTAL & ORAL DISEASES W/O CC/MCC	289	ACUTE & SUBACUTE ENDOCARDITIS W CC
175	PULMONARY EMBOLISM W MCC	290	ACUTE & SUBACUTE ENDOCARDITIS W/O CC/MCC
176	PULMONARY EMBOLISM W/O MCC	291	HEART FAILURE & SHOCK W MCC
177	RESPIRATORY INFECTIONS & INFLAMMATIONS W MCC	292	HEART FAILURE & SHOCK W CC
178	RESPIRATORY INFECTIONS & INFLAMMATIONS W CC	293	HEART FAILURE & SHOCK W/O CC/MCC
179	RESPIRATORY INFECTIONS & INFLAMMATIONS W/O CC/MCC	294	DEEP VEIN THROMBOPHLEBITIS W CC/MCC
180	RESPIRATORY NEOPLASMS W MCC	295	DEEP VEIN THROMBOPHLEBITIS W/O CC/MCC
181	RESPIRATORY NEOPLASMS W CC	296	CARDIAC ARREST, UNEXPLAINED W MCC
182	RESPIRATORY NEOPLASMS W/O CC/MCC	297	CARDIAC ARREST, UNEXPLAINED W CC
183	MAJOR CHEST TRAUMA W MCC	298	CARDIAC ARREST, UNEXPLAINED W/O CC/MCC
184	MAJOR CHEST TRAUMA W CC	299	PERIPHERAL VASCULAR DISORDERS W MCC
185	MAJOR CHEST TRAUMA W/O CC/MCC	300	PERIPHERAL VASCULAR DISORDERS W CC
186	PLEURAL EFFUSION W MCC	301	PERIPHERAL VASCULAR DISORDERS W/O CC/MCC
187	PLEURAL EFFUSION W CC	302	ATHEROSCLEROSIS W MCC
188	PLEURAL EFFUSION W/O CC/MCC	303	ATHEROSCLEROSIS W/O MCC
189	PULMONARY EDEMA & RESPIRATORY FAILURE	304	HYPERTENSION W MCC
190	CHRONIC OBSTRUCTIVE PULMONARY DISEASE W MCC	305	HYPERTENSION W/O MCC
191	CHRONIC OBSTRUCTIVE PULMONARY DISEASE W CC	306	CARDIAC CONGENITAL & VALVULAR DISORDERS W MCC
192	CHRONIC OBSTRUCTIVE PULMONARY DISEASE W/O CC/MCC	307	CARDIAC CONGENITAL & VALVULAR DISORDERS W/O MCC
193	SIMPLE PNEUMONIA & PLEURISY W MCC	308	CARDIAC ARRHYTHMIA & CONDUCTION DISORDERS W MCC
194	SIMPLE PNEUMONIA & PLEURISY W CC	309	CARDIAC ARRHYTHMIA & CONDUCTION DISORDERS W CC
195	SIMPLE PNEUMONIA & PLEURISY W/O CC/MCC	310	CARDIAC ARRHYTHMIA & CONDUCTION DISORDERS W/O CC/MCC
196	INTERSTITIAL LUNG DISEASE W MCC	311	ANGINA PECTORIS
197	INTERSTITIAL LUNG DISEASE W CC	312	SYNCOPE & COLLAPSE
198	INTERSTITIAL LUNG DISEASE W/O CC/MCC	313	CHEST PAIN
199	PNEUMOTHORAX W MCC		
200	PNEUMOTHORAX W CC		
201	PNEUMOTHORAX W/O CC/MCC		
202	BRONCHITIS & ASTHMA W CC/MCC		
203	BRONCHITIS & ASTHMA W/O CC/MCC		
204	RESPIRATORY SIGNS & SYMPTOMS		
205	OTHER RESPIRATORY SYSTEM DIAGNOSES W MCC		
206	OTHER RESPIRATORY SYSTEM DIAGNOSES W/O MCC		

314	OTHER CIRCULATORY SYSTEM DIAGNOSES W MCC	437	MALIGNANCY OF HEPATOBILIARY SYSTEM OR PANCREAS W/O CC/MCC
315	OTHER CIRCULATORY SYSTEM DIAGNOSES W CC	438	DISORDERS OF PANCREAS EXCEPT MALIGNANCY W MCC
316	OTHER CIRCULATORY SYSTEM DIAGNOSES W/O CC/MCC	439	DISORDERS OF PANCREAS EXCEPT MALIGNANCY W CC
368	MAJOR ESOPHAGEAL DISORDERS W MCC	440	DISORDERS OF PANCREAS EXCEPT MALIGNANCY W/O CC/MCC
369	MAJOR ESOPHAGEAL DISORDERS W CC	441	DISORDERS OF LIVER EXCEPT MALIG,CIRR,ALC HEPA W MCC
370	MAJOR ESOPHAGEAL DISORDERS W/O CC/MCC	442	DISORDERS OF LIVER EXCEPT MALIG,CIRR,ALC HEPA W CC
371	MAJOR GASTROINTESTINAL DISORDERS & PERITONEAL INFECTIONS W MCC	443	DISORDERS OF LIVER EXCEPT MALIG,CIRR,ALC HEPA W/O CC/MCC
372	MAJOR GASTROINTESTINAL DISORDERS & PERITONEAL INFECTIONS W CC	444	DISORDERS OF THE BILIARY TRACT W MCC
373	MAJOR GASTROINTESTINAL DISORDERS & PERITONEAL INFECTIONS W/O CC/MCC	445	DISORDERS OF THE BILIARY TRACT W CC
374	DIGESTIVE MALIGNANCY W MCC	446	DISORDERS OF THE BILIARY TRACT W/O CC/MCC
375	DIGESTIVE MALIGNANCY W CC	533	FRACTURES OF FEMUR W MCC
376	DIGESTIVE MALIGNANCY W/O CC/MCC	534	FRACTURES OF FEMUR W/O MCC
377	G.I. HEMORRHAGE W MCC	535	FRACTURES OF HIP & PELVIS W MCC
378	G.I. HEMORRHAGE W CC	536	FRACTURES OF HIP & PELVIS W/O MCC
379	G.I. HEMORRHAGE W/O CC/MCC	537	SPRAINS, STRAINS, & DISLOCATIONS OF HIP, PELVIS & THIGH W CC/MCC
380	COMPLICATED PEPTIC ULCER W MCC	538	SPRAINS, STRAINS, & DISLOCATIONS OF HIP, PELVIS & THIGH W/O CC/MCC
381	COMPLICATED PEPTIC ULCER W CC	539	OSTEOMYELITIS W MCC
382	COMPLICATED PEPTIC ULCER W/O CC/MCC	540	OSTEOMYELITIS W CC
383	UNCOMPLICATED PEPTIC ULCER W MCC	541	OSTEOMYELITIS W/O CC/MCC
384	UNCOMPLICATED PEPTIC ULCER W/O MCC	542	PATHOLOGICAL FRACTURES & MUSCULOSKELET & CONN TISS MALIG W MCC
385	INFLAMMATORY BOWEL DISEASE W MCC	543	PATHOLOGICAL FRACTURES & MUSCULOSKELET & CONN TISS MALIG W CC
386	INFLAMMATORY BOWEL DISEASE W CC	544	PATHOLOGICAL FRACTURES & MUSCULOSKELET & CONN TISS MALIG W/O CC/MCC
387	INFLAMMATORY BOWEL DISEASE W/O CC/MCC	545	CONNECTIVE TISSUE DISORDERS W MCC
388	G.I. OBSTRUCTION W MCC	546	CONNECTIVE TISSUE DISORDERS W CC
389	G.I. OBSTRUCTION W CC	547	CONNECTIVE TISSUE DISORDERS W/O CC/MCC
390	G.I. OBSTRUCTION W/O CC/MCC	548	SEPTIC ARTHRITIS W MCC
391	ESOPHAGITIS, GASTROENT & MISC DIGEST DISORDERS W MCC	549	SEPTIC ARTHRITIS W CC
392	ESOPHAGITIS, GASTROENT & MISC DIGEST DISORDERS W/O MCC	550	SEPTIC ARTHRITIS W/O CC/MCC
393	OTHER DIGESTIVE SYSTEM DIAGNOSES W MCC	551	MEDICAL BACK PROBLEMS W MCC
394	OTHER DIGESTIVE SYSTEM DIAGNOSES W CC	552	MEDICAL BACK PROBLEMS W/O MCC
395	OTHER DIGESTIVE SYSTEM DIAGNOSES W/O CC/MCC	553	BONE DISEASES & ARTHROPATHIES W MCC
432	CIRRHOISIS & ALCOHOLIC HEPATITIS W MCC	554	BONE DISEASES & ARTHROPATHIES W/O MCC
433	CIRRHOISIS & ALCOHOLIC HEPATITIS W CC	555	SIGNS & SYMPTOMS OF MUSCULOSKELETAL SYSTEM & CONN TISSUE W MCC
434	CIRRHOISIS & ALCOHOLIC HEPATITIS W/O CC/MCC	556	SIGNS & SYMPTOMS OF MUSCULOSKELETAL SYSTEM & CONN TISSUE W/O MCC
435	MALIGNANCY OF HEPATOBILIARY SYSTEM OR PANCREAS W MCC	557	TENDONITIS, MYOSITIS & BURSITIS W MCC
436	MALIGNANCY OF HEPATOBILIARY SYSTEM OR PANCREAS W CC		

558	TENDONITIS, MYOSITIS & BURSITIS W/O MCC	688	KIDNEY & URINARY TRACT NEOPLASMS W/O CC/MCC
559	AFTERCARE, MUSCULOSKELETAL SYSTEM & CONNECTIVE TISSUE W MCC	689	KIDNEY & URINARY TRACT INFECTIONS W MCC
560	AFTERCARE, MUSCULOSKELETAL SYSTEM & CONNECTIVE TISSUE W CC	690	KIDNEY & URINARY TRACT INFECTIONS W/O MCC
561	AFTERCARE, MUSCULOSKELETAL SYSTEM & CONNECTIVE TISSUE W/O CC/MCC	691	URINARY STONES W ESW LITHOTRIPSY W CC/MCC
562	FX, SPRN, STRN & DISL EXCEPT FEMUR, HIP, PELVIS & THIGH W MCC	692	URINARY STONES W ESW LITHOTRIPSY W/O CC/MCC
563	FX, SPRN, STRN & DISL EXCEPT FEMUR, HIP, PELVIS & THIGH W/O MCC	693	URINARY STONES W/O ESW LITHOTRIPSY W MCC
564	OTHER MUSCULOSKELETAL SYS & CONNECTIVE TISSUE DIAGNOSES W MCC	694	URINARY STONES W/O ESW LITHOTRIPSY W/O MCC
565	OTHER MUSCULOSKELETAL SYS & CONNECTIVE TISSUE DIAGNOSES W CC	695	KIDNEY & URINARY TRACT SIGNS & SYMPTOMS W MCC
566	OTHER MUSCULOSKELETAL SYS & CONNECTIVE TISSUE DIAGNOSES W/O CC/MCC	696	KIDNEY & URINARY TRACT SIGNS & SYMPTOMS W/O MCC
592	SKIN ULCERS W MCC	697	URETHRAL STRICTURE
593	SKIN ULCERS W CC	698	OTHER KIDNEY & URINARY TRACT DIAGNOSES W MCC
594	SKIN ULCERS W/O CC/MCC	699	OTHER KIDNEY & URINARY TRACT DIAGNOSES W CC
595	MAJOR SKIN DISORDERS W MCC	700	OTHER KIDNEY & URINARY TRACT DIAGNOSES W/O CC/MCC
596	MAJOR SKIN DISORDERS W/O MCC	722	MALIGNANCY, MALE REPRODUCTIVE SYSTEM W MCC
597	MALIGNANT BREAST DISORDERS W MCC	723	MALIGNANCY, MALE REPRODUCTIVE SYSTEM W CC
598	MALIGNANT BREAST DISORDERS W CC	724	MALIGNANCY, MALE REPRODUCTIVE SYSTEM W/O CC/MCC
599	MALIGNANT BREAST DISORDERS W/O CC/MCC	725	BENIGN PROSTATIC HYPERTROPHY W MCC
600	NON-MALIGNANT BREAST DISORDERS W CC/MCC	726	BENIGN PROSTATIC HYPERTROPHY W/O MCC
601	NON-MALIGNANT BREAST DISORDERS W/O CC/MCC	727	INFLAMMATION OF THE MALE REPRODUCTIVE SYSTEM W MCC
602	CELLULITIS W MCC	728	INFLAMMATION OF THE MALE REPRODUCTIVE SYSTEM W/O MCC
603	CELLULITIS W/O MCC	729	OTHER MALE REPRODUCTIVE SYSTEM DIAGNOSES W CC/MCC
604	TRAUMA TO THE SKIN, SUBCUT TISS & BREAST W MCC	730	OTHER MALE REPRODUCTIVE SYSTEM DIAGNOSES W/O CC/MCC
605	TRAUMA TO THE SKIN, SUBCUT TISS & BREAST W/O MCC	754	MALIGNANCY, FEMALE REPRODUCTIVE SYSTEM W MCC
606	MINOR SKIN DISORDERS W MCC	755	MALIGNANCY, FEMALE REPRODUCTIVE SYSTEM W CC
607	MINOR SKIN DISORDERS W/O MCC	756	MALIGNANCY, FEMALE REPRODUCTIVE SYSTEM W/O CC/MCC
637	DIABETES W MCC	757	INFECTIONS, FEMALE REPRODUCTIVE SYSTEM W MCC
638	DIABETES W CC	758	INFECTIONS, FEMALE REPRODUCTIVE SYSTEM W CC
639	DIABETES W/O CC/MCC	759	INFECTIONS, FEMALE REPRODUCTIVE SYSTEM W/O CC/MCC
640	NUTRITIONAL & MISC METABOLIC DISORDERS W MCC	760	MENSTRUAL & OTHER FEMALE REPRODUCTIVE SYSTEM DISORDERS W CC/MCC
641	NUTRITIONAL & MISC METABOLIC DISORDERS W/O MCC	761	MENSTRUAL & OTHER FEMALE REPRODUCTIVE SYSTEM DISORDERS W/O CC/MCC
642	INBORN ERRORS OF METABOLISM		
643	ENDOCRINE DISORDERS W MCC		
644	ENDOCRINE DISORDERS W CC		
645	ENDOCRINE DISORDERS W/O CC/MCC		
682	RENAL FAILURE W MCC		
683	RENAL FAILURE W CC		
684	RENAL FAILURE W/O CC/MCC		
685	ADMIT FOR RENAL DIALYSIS		
686	KIDNEY & URINARY TRACT NEOPLASMS W MCC		
687	KIDNEY & URINARY TRACT NEOPLASMS W CC		

774	VAGINAL DELIVERY W COMPLICATING DIAGNOSES	844	OTHER MYELOPROLIF DIS OR POORLY DIFF NEOPL DIAG W CC
775	VAGINAL DELIVERY W/O COMPLICATING DIAGNOSES	845	OTHER MYELOPROLIF DIS OR POORLY DIFF NEOPL DIAG W/O CC/MCC
776	POSTPARTUM & POST ABORTION DIAGNOSES W/O O.R. PROCEDURE	846	CHEMOTHERAPY W/O ACUTE LEUKEMIA AS SECONDARY DIAGNOSIS W MCC
777	ECTOPIC PREGNANCY	847	CHEMOTHERAPY W/O ACUTE LEUKEMIA AS SECONDARY DIAGNOSIS W CC
778	THREATENED ABORTION	848	CHEMOTHERAPY W/O ACUTE LEUKEMIA AS SECONDARY DIAGNOSIS W/O CC/MCC
779	ABORTION W/O D&C	849	RADIOTHERAPY
780	FALSE LABOR	862	POSTOPERATIVE & POST-TRAUMATIC INFECTIONS W MCC
781	OTHER ANTEPARTUM DIAGNOSES W MEDICAL COMPLICATIONS	863	POSTOPERATIVE & POST-TRAUMATIC INFECTIONS W/O MCC
782	OTHER ANTEPARTUM DIAGNOSES W/O MEDICAL COMPLICATIONS	864	FEVER
789	NEONATES, DIED OR TRANSFERRED TO ANOTHER ACUTE CARE FACILITY	865	VIRAL ILLNESS W MCC
790	EXTREME IMMATURITY OR RESPIRATORY DISTRESS SYNDROME, NEONATE	866	VIRAL ILLNESS W/O MCC
791	PREMATURITY W MAJOR PROBLEMS	867	OTHER INFECTIOUS & PARASITIC DISEASES DIAGNOSES W MCC
792	PREMATURITY W/O MAJOR PROBLEMS	868	OTHER INFECTIOUS & PARASITIC DISEASES DIAGNOSES W CC
793	FULL TERM NEONATE W MAJOR PROBLEMS	869	OTHER INFECTIOUS & PARASITIC DISEASES DIAGNOSES W/O CC/MCC
794	NEONATE W OTHER SIGNIFICANT PROBLEMS	870	SEPTICEMIA OR SEVERE SEPSIS W MV 96+ HOURS
795	NORMAL NEWBORN	871	SEPTICEMIA OR SEVERE SEPSIS W/O MV 96+ HOURS W MCC
808	MAJOR HEMATOL/IMMUN DIAG EXC SICKLE CELL CRISIS & COAGUL W MCC	872	SEPTICEMIA OR SEVERE SEPSIS W/O MV 96+ HOURS W/O MCC
809	MAJOR HEMATOL/IMMUN DIAG EXC SICKLE CELL CRISIS & COAGUL W CC	880	ACUTE ADJUSTMENT REACTION & PSYCHOSOCIAL DYSFUNCTION
810	MAJOR HEMATOL/IMMUN DIAG EXC SICKLE CELL CRISIS & COAGUL W/O CC/MCC	881	DEPRESSIVE NEUROSES
811	RED BLOOD CELL DISORDERS W MCC	882	NEUROSES EXCEPT DEPRESSIVE
812	RED BLOOD CELL DISORDERS W/O MCC	883	DISORDERS OF PERSONALITY & IMPULSE CONTROL
813	COAGULATION DISORDERS	884	ORGANIC DISTURBANCES & MENTAL RETARDATION
814	RETICULOENDOTHELIAL & IMMUNITY DISORDERS W MCC	885	PSYCHOSES
815	RETICULOENDOTHELIAL & IMMUNITY DISORDERS W CC	886	BEHAVIORAL & DEVELOPMENTAL DISORDERS
816	RETICULOENDOTHELIAL & IMMUNITY DISORDERS W/O CC/MCC	887	OTHER MENTAL DISORDER DIAGNOSES
834	ACUTE LEUKEMIA W/O MAJOR O.R. PROCEDURE W MCC	894	ALCOHOL/DRUG ABUSE OR DEPENDENCE, LEFT AMA
835	ACUTE LEUKEMIA W/O MAJOR O.R. PROCEDURE W CC	895	ALCOHOL/DRUG ABUSE OR DEPENDENCE W REHABILITATION THERAPY
836	ACUTE LEUKEMIA W/O MAJOR O.R. PROCEDURE W/O CC/MCC	896	ALCOHOL/DRUG ABUSE OR DEPENDENCE W/O REHABILITATION THERAPY W MCC
837	CHEMO W ACUTE LEUKEMIA AS SDX OR W HIGH DOSE CHEMO AGENT W MCC	897	ALCOHOL/DRUG ABUSE OR DEPENDENCE W/O REHABILITATION THERAPY W/O MCC
838	CHEMO W ACUTE LEUKEMIA AS SDX W CC OR HIGH DOSE CHEMO AGENT	913	TRAUMATIC INJURY W MCC
839	CHEMO W ACUTE LEUKEMIA AS SDX W/O CC/MCC	914	TRAUMATIC INJURY W/O MCC
840	LYMPHOMA & NON-ACUTE LEUKEMIA W MCC	915	ALLERGIC REACTIONS W MCC
841	LYMPHOMA & NON-ACUTE LEUKEMIA W CC	916	ALLERGIC REACTIONS W/O MCC
842	LYMPHOMA & NON-ACUTE LEUKEMIA W/O CC/MCC	917	POISONING & TOXIC EFFECTS OF DRUGS W MCC
843	OTHER MYELOPROLIF DIS OR POORLY DIFF NEOPL DIAG W MCC	918	POISONING & TOXIC EFFECTS OF DRUGS W/O MCC

919	COMPLICATIONS OF TREATMENT W MCC	950	AFTERCARE W/O CC/MCC
920	COMPLICATIONS OF TREATMENT W CC	951	OTHER FACTORS INFLUENCING HEALTH STATUS
921	COMPLICATIONS OF TREATMENT W/O CC/MCC	963	OTHER MULTIPLE SIGNIFICANT TRAUMA W MCC
922	OTHER INJURY, POISONING & TOXIC EFFECT DIAG W MCC	964	OTHER MULTIPLE SIGNIFICANT TRAUMA W CC
923	OTHER INJURY, POISONING & TOXIC EFFECT DIAG W/O MCC	965	OTHER MULTIPLE SIGNIFICANT TRAUMA W/O CC/MCC
933	EXTENSIVE BURNS OR FULL THICKNESS BURNS W MV 96+ HRS W/O SKIN GRAFT	974	HIV W MAJOR RELATED CONDITION W MCC
934	FULL THICKNESS BURN W/O SKIN GRFT OR INHAL INJ	975	HIV W MAJOR RELATED CONDITION W CC
935	NON-EXTENSIVE BURNS	976	HIV W MAJOR RELATED CONDITION W/O CC/MCC
945	REHABILITATION W CC/MCC	977	HIV W OR W/O OTHER RELATED CONDITION
946	REHABILITATION W/O CC/MCC		
947	SIGNS & SYMPTOMS W MCC		
948	SIGNS & SYMPTOMS W/O MCC		
949	AFTERCARE W CC/MCC		

Appendix F – High-Risk Immunocompromised State Diagnosis and Procedure Codes

ICD-9-CM High-risk immunocompromised state diagnosis codes¹:

042	HUMAN IMMUNO VIRUS DIS	20520	SBAC MYL LEU WO ACH RMSN
1363	PNEUMOCYSTOSIS	20521	SBAC MYL LEUK W RMSION
1992	MALIG NEOPL-TRANSP ORGAN	20522	SBAC MYL LEUK IN RELAPSE
20000	RETCLSRC UNSP XTRNDL ORG	2053	<i>MYELOID SARCOMA</i>
20001	RETICULOSARCOMA HEAD	20530	MYL SARCOMA WO ACHV RMSN
20002	RETICULOSARCOMA THORAX	20531	MYL SRCOMA W RMSION
20003	RETICULOSARCOMA ABDOM	20532	MYEL SARCOMA IN RELAPSE
20004	RETICULOSARCOMA AXILLA	2058	<i>MYELOID LEUKEMIA NEC</i>
20005	RETICULOSARCOMA INGUIN	20580	OTH MY LEUK WO ACHV RMSN
20006	RETICULOSARCOMA PELVIC	20581	OTH MYL LEUK W RMSION
20007	RETICULOSARCOMA SPLEEN	20582	OTH MYEL LEUK IN RELAPSE
20008	RETICULOSARCOMA MULT	2059	<i>MYELOID LEUKEMIA NOS</i>
20010	LYMPHSRC UNSP XTRNDL ORG	20590	UNS MY LEU WO ACH RMSN
20011	LYMPHOSARCOMA HEAD	20591	UNS MYL LEUK W RMSION
20012	LYMPHOSARCOMA THORAX	20592	MYEL LEUK NOS IN RELAPSE
20013	LYMPHOSARCOMA ABDOM	2060	<i>ACUTE MONOCYTIC LEUKEMIA</i>
20014	LYMPHOSARCOMA AXILLA	20600	AC MONO LEU WO ACHV RMSN
20015	LYMPHOSARCOMA INGUIN	20601	ACT MONO LEUK W RMSION
20016	LYMPHOSARCOMA PELVIC	20602	ACT MONO LEUK IN RELAPSE
20017	LYMPHOSARCOMA SPLEEN	2061	<i>CHR MONOCYTIC LEUKEMIA</i>
20018	LYMPHOSARCOMA MULT	20610	CH MONO LEU WO ACHV RMSN
20020	BRKT TMR UNSP XTRNDL ORG	20611	CHR MONO LEUK W RMSION
20021	BURKITT'S TUMOR HEAD	20612	CHR MONO LEUK IN RELAPSE
20022	BURKITT'S TUMOR THORAX	2062	<i>SUBAC MONOCYTIC LEUKEMIA</i>
20023	BURKITT'S TUMOR ABDOM	20620	SBAC MNO LEU WO ACH RMSN
20024	BURKITT'S TUMOR AXILLA	20621	SBAC MONO LEUK W RMSION
20025	BURKITT'S TUMOR INGUIN	20622	SBAC MONO LEU IN RELAPSE
20026	BURKITT'S TUMOR PELVIC	2068	<i>MONOCYTIC LEUKEMIA NEC</i>
20027	BURKITT'S TUMOR SPLEEN	20680	OT MONO LEU WO ACHV RMSN
20028	BURKITT'S TUMOR MULT	20681	OTH MONO LEUK W RMSION
20080	OTH VARN UNSP XTRNDL ORG	20682	OTH MONO LEUK IN RELAPSE
20081	MIXED LYMPHOSARC HEAD	2069	<i>MONOCYTIC LEUKEMIA NOS</i>
20082	MIXED LYMPHOSARC THORAX	20690	UNS MNO LEU WO ACH RMSN
20083	MIXED LYMPHOSARC ABDOM	20691	UNS MONO LEUK W RMSION
20084	MIXED LYMPHOSARC AXILLA	20692	MONO LEUK NOS RELAPSE
20085	MIXED LYMPHOSARC INGUIN	2070	<i>ACUTE ERYTHREMIA</i>
20086	MIXED LYMPHOSARC PELVIC	20700	AC ERTH/ERLK WO ACH RMSN
20087	MIXED LYMPHOSARC SPLEEN	20701	ACT ERTH/ERYLK W RMSION
20088	MIXED LYMPHOSARC MULT	20702	AC ERTH/ERYLK IN RELAPSE
20302	MULT MYELOMA IN RELAPSE	2071	<i>CHRONIC ERYTHREMIA</i>
20312	PLSM CEL LEUK IN RELAPSE	20710	CHR ERYTHRM W/O ACH RMSN
20382	OTH IMNPRLF NEO-RELAPSE	20711	CHR ERYTHRM W REMISION
20402	ACT LYMP LEUK IN RELAPSE	20712	CHR ERYTHRMIA IN RELAPSE
20412	CHR LYMP LEUK IN RELAPSE	2072	<i>MEGAKARYOCYTIC LEUKEMIA</i>
20422	SBAC LYM LEUK IN RELAPSE	20720	MGKRCYT LEUK WO ACH RMSN
20482	OTH LYM LEUK IN RELAPSE	20721	MGKRYCYT LEUK W RMSION
20492	LYMP LEUK NOS RELAPSE	20722	MGKRYCYT LEUK IN RELAPSE
2050	<i>ACUTE MYELOID LEUKEMIA</i>	2078	<i>SPECIFIED LEUKEMIA NEC</i>
20500	AC MYL LEUK WO ACHV RMSN	20780	OTH LEUK W/O ACHV RMSN
20502	ACT MYEL LEUK IN RELAPSE	20781	OTH SPF LEUK W REMSION
20501	ACT MYL LEUK W RMSION	20782	OTH SPF LEUK IN RELAPSE
2051	<i>CHRONIC MYELOID LEUKEMIA</i>	2080	<i>ACT LEUK UNS CL W/O RMSN</i>
20510	CH MYL LEUK WO ACHV RMSN	20800	AC LEU UN CL WO ACH RMSN
20511	CHR MYL LEUK W RMSION	20801	ACT LEUK UNS CL W RMSION
20512	CHR MYEL LEUK IN RELAPSE	20802	AC LEUK UNS CL RELAPSE
2052	<i>SUBACUT MYELOID LEUKEMIA</i>	2081	<i>CHRONIC LEUKEMIA NOS</i>

20810	CH LEU UN CL WO ACH RMSN	28803	DRUG INDUCED NEUTROPENIA
20811	CHR LEUK UNS CL W RMSON	28809	NEUTROPENIA NEC
20812	CH LEU UNS CL IN RELAPSE	2881	FUNCTION DIS NEUTROPHILS
2082	<i>SUBACUTE LEUKEMIA NOS</i>	2882	GENETIC ANOMALY LEUKOCYT
20820	SBC LEU UN CL WO AH RMSN	2884	HEMOPHAGOCYTIC SYNDROMES
20821	SBAC LEUK UNS CL W RMSON	28850	LEUKOCYTOPENIA NOS
20822	SBAC LEU UNS CL-RELAPSE	28851	LYMPHOCYTOPENIA
2088	<i>LEUKEMIA-UNSPEC CELL NEC</i>	28859	DECREASED WBC COUNT NEC
20880	OT LEU UN CL WO ACH RMSN	28953	NEUTROPENIC SPLENOMEGALY
20881	OTH LEUK UNS CL W RMSON	28983	MYELOFIBROSIS
20882	OTH LEUK UNS CL-RELAPSE	40301	MAL HYP KID W CR KID V
2089	<i>LEUKEMIA-UNSPEC CELL NOS</i>	40311	BEN HYP KID W CR KID V
20890	LEUK NOS W/O ACHV RMSN	40391	HYP KID NOS W CR KID V
20891	LEUKEMIA NOS W REMISSION	40402	MAL HY HT/KD ST V W/O HF
20892	LEUKEMIA NOS IN RELAPSE	40403	MAL HYP HT/KD STG V W HF
23873	HI GRDE MYELOYDYS SYN LES	40412	BEN HY HT/KD ST V W/O HF
23876	MYELOFI W MYELO METAPLAS	40413	BEN HYP HT/KD STG V W HF
23877	POST TPLYPMPHROLIF DIS	40492	HY HT/KD NOS ST V W/O HF
23879	LYMPH/HEMATPOITC TIS NEC	40493	HYP HT/KD NOS ST V W HF
260	KWASHIORKOR	5793	INTEST POSTOP NONABSORB
261	NUTRITIONAL MARASMUS	585	<i>CHRONIC KIDNEY DISEASE</i>
262	OTH SEVERE MALNUTRITION	5855	CHRON KIDNEY DIS STAGE V
27900	HYPOGAMMAGLOBULINEM NOS	5856	END STAGE RENAL DISEASE
27901	SELECTIVE IGA IMMUNODEF	9968	<i>COMPLICATIONS OF TRANSPLANTED ORGAN</i>
27902	SELECTIVE IGM IMMUNODEF		
27903	SELECTIVE IG DEFIC NEC	99680	COMP ORGAN TRANSPLNT NOS
27904	CONG HYPOGAMMAGLOBULINEM	99681	COMPL KIDNEY TRANSPLANT
27905	IMMUNODEFIC W HYPER-IGM	99682	COMPL LIVER TRANSPLANT
27906	COMMON VARIABL IMMUNODEF	99683	COMPL HEART TRANSPLANT
27909	HUMORAL IMMUNITY DEF NEC	99684	COMPL LUNG TRANSPLANT
27910	IMMUNDEF T-CELL DEF NOS	99685	COMPL MARROW TRANSPLANT
27911	DIGEORGE'S SYNDROME	99686	COMPL PANCREAS TRANSPLNT
27912	WISKOTT-ALDRICH SYNDROME	99687	COMP INTESTINE TRANSPLNT
27913	NEZELOF'S SYNDROME	99688	COMP TP ORGAN-STEM CELL
27919	DEFIC CELL IMMUNITY NOS	99689	COMP OTH ORGAN TRANSPLNT
2792	COMBINED IMMUNITY DEFIC	V420	KIDNEY TRANSPLANT STATUS
2793	IMMUNITY DEFICIENCY NOS	V421	HEART TRANSPLANT STATUS
2794	<i>AUTOIMMUNE DISEASE, NOT ELSEWHERE CLASSIFIED</i>	V426	LUNG TRANSPLANT STATUS
		V427	LIVER TRANSPLANT STATUS
27941	AUTOIMMUN LYMPHPROF SYND	V428	<i>OTHER SPECIFIED ORGAN OR TISSUE</i>
27949	AUTOIMMUNE DISEASE NEC	V4281	TRNSPL STATUS-BNE MARROW
27950	GRAFT-VERSUS-HOST NOS	V4282	TRSP L STS-PERIP STM CELL
27951	AC GRAFT-VERSUS-HOST DIS	V4283	TRNSPL STATUS-PANCREAS
27952	CHRONC GRAFT-VS-HOST DIS	V4284	TRNSPL STATUS-INTESTINES
27953	AC ON CHRN GRFT-VS-HOST	V4289	TRNSPL STATUS ORGAN NEC
2798	IMMUNE MECHANISM DIS NEC	V451	<i>RENAL DIALYSIS STATUS</i>
2799	IMMUNE MECHANISM DIS NOS	V4511	RENAL DIALYSIS STATUS
28409	CONST APLASTC ANEMIA NEC	V560	RENAL DIALYSIS ENCOUNTER
2841	<i>PANCYTOPENIA</i>	V561	FT/ADJ XTRCORP DIAL CATH
28411	ANTIN CHEMO INDCD PANCYT	V562	FIT/ADJ PERIT DIAL CATH
28412	OTH DRG INDCD PANCYTOPNA	V563	<i>ENCOUNTER FOR ADEQUACY TESTING FOR DIALYSIS</i>
28419	OTHER PANCYTOPENIA		
2880	<i>AGRANULOCYTOSIS</i>	V5631	HEMODIALYSIS TESTING
28800	NEUTROPENIA NOS	V5632	PERITONEAL DIALYSIS TEST
28801	CONGENITAL NEUTROPENIA	V568	DIALYSIS ENCOUNTER, NEC
28802	CYCLIC NEUTROPENIA		

¹ The procedure or diagnosis codes are continuously updated. The current list of ICD-9-CM codes is valid for October 2012 through September 2013. Italicized codes are not active in Fiscal Year 2013.

ICD-9-CM High-risk immunocompromised state procedure codes¹:

335	<i>LUNG TRANSPLANT</i>	4106	CORD BLD STEM CELL TRANS
3350	LUNG TRANSPLANT NOS	4107	AUTO HEM STEM CT W PURG
3351	UNILAT LUNG TRANSPLANT	4108	ALLO HEM STEM CT W PURG
3352	BILAT LUNG TRANSPLANT	4109	AUTO BONE MT W PURGING
336	COMB HEART/LUNG TRANSPLA	5051	AUXILIARY LIVER TRANSPL
375	<i>HEART TRANSPLANTATION</i>	5059	LIVER TRANSPLANT NEC
3751	HEART TRANSPLANTATION	5280	PANCREAT TRANSPLANT NOS
410	<i>OPERATIONS ON BONE MARROW AND SPLEEN</i>	5281	REIMPLANT PANCREATIC TIS
4100	BONE MARROW TRNSPLNT NOS	5282	PANCREATIC HOMOTRANSPLAN
4101	AUTO BONE MT W/O PURG	5283	PANCREATIC HETEROTRANSPL
4102	ALO BONE MARROW TRNSPLNT	5285	ALLOTRNSPLNT ISLETS LANG
4103	ALLOGRFT BONE MARROW NOS	5286	TRNSPLNT ISLETS LANG NOS
4104	AUTO HEM STEM CT W/O PUR	5569	KIDNEY TRANSPLANT NEC
4105	ALLO HEM STEM CT W/O PUR		

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Appendix G – Intermediate-Risk Immunocompromised State Diagnosis Codes

ICD-9-CM Intermediate-risk immunocompromised state diagnosis codes¹:

07022	HPT B CHRN COMA WO DLTA	58281	CHR NEPHRITIS IN OTH DIS
07023	HPT B CHRN COMA W DLTA	58289	CHRONIC NEPHRITIS NEC
07044	CHRN C HPT C W HEPAT COMA	5829	CHRONIC NEPHRITIS NOS
2894	HYPERSPLENISM	583	<i>NEPHRITIS AND NEPHROPATHY, NOT SPECIFIED AS ACUTE OR CHRONIC</i>
28950	SPLEEN DISEASE NOS	5830	PROLIFERAT NEPHRITIS NOS
28951	CHR CONGEST SPLENOMEGALY	5831	MEMBRANOUS NEPHRITIS NOS
28952	SPLENIC SEQUESTRATION	5832	MEMBRANOPROLIF NEPHR NOS
28959	SPLEEN DISEASE NEC	5834	RAPIDLY PROG NEPHRIT NOS
4560	ESOPHAG VARICES W BLEED	5836	RENAL CORT NECROSIS NOS
4561	ESOPH VARICES W/O BLEED	5837	NEPHR NOS/MEDULL NECROS
45620	BLEED ESOPH VAR OTH DIS	5838	<i>WITH OTHER SPECIFIED</i>
45621	ESOPH VARICE OTH DISNOS		<i>PATHOLOGICAL LESION IN KIDNEY</i>
5723	PORTAL HYPERTENSION	58381	NEPHRITIS NOS IN OTH DIS
5728	OTH SEQUELA, CHR LIV DIS	58389	NEPHRITIS NEC
5735	HEPATOPULMONARY SYNDROME	5839	NEPHRITIS NOS
580	<i>ACUTE GLOMERULONEPHRITIS</i>	7100	SYST LUPUS ERYTHEMATOSUS
5800	AC PROLIFERAT NEPHRITIS	7101	SYSTEMIC SCLEROSIS
5804	AC RAPIDLY PROGR NEPHRIT	7102	SICCA SYNDROME
5808	<i>WITH OTHER SPECIFIED</i>	7103	DERMATOMYOSITIS
	<i>PATHOLOGICAL LESION IN KIDNEY</i>	7104	POLYMYOSITIS
58081	AC NEPHRITIS IN OTH DIS	7105	EOSINOPHILIA MYALGIA SYND
58089	ACUTE NEPHRITIS NEC	7108	DIFF CONNECT TIS DIS NEC
5809	ACUTE NEPHRITIS NOS	7109	DIFF CONNECT TIS DIS NOS
581	<i>NEPHROTIC SYNDROME</i>	7590	ANOMALIES OF SPLEEN
5810	NEPHROTIC SYN, PROLIFER	7994	CACHEXIA
5811	EPIMEMBRANOUS NEPHRITIS	86500	SPLEEN INJURY NOS-CLOSED
5812	MEMBRANOPROLIF NEPHROSIS	86501	SPLEEN HEMATOMA-CLOSED
5813	MINIMAL CHANGE NEPHROSIS	86502	SPLEEN CAPSULAR TEAR
5818	<i>WITH OTHER SPECIFIED</i>	86503	SPLEEN PARENCHYMA LACER
	<i>PATHOLOGICAL LESION IN KIDNEY</i>	86504	SPLEEN DISRUPTION-CLOS
58181	NEPHROTIC SYN IN OTH DIS	86509	SPLEEN INJURY NEC-CLOSED
58189	NEPHROTIC SYNDROME NEC	86510	SPLEEN INJURY NOS-OPEN
5819	NEPHROTIC SYNDROME NOS	86511	SPLEEN HEMATOMA-OPEN
582	<i>CHRONIC GLOMERULONEPHRITIS</i>	86512	SPLEEN CAPSULAR TEAR-OPN
5820	<i>WITH LESION OF PROLIFERATIVE</i>	86513	SPLEEN PARNCHYM LAC-OPN
	<i>GLOMERULONEPHRITIS</i>	86514	SPLEEN DISRUPTION-OPEN
5821	PERINEAL URETHROSCOPY	86519	SPLEEN INJURY NEC-OPEN
5822	URETHROSCOPY NEC	V427	LIVER TRANSPLANT STATUS
5824	PERIURETHRAL BIOPSY		
5828	<i>WITH OTHER SPECIFIED</i>		
	<i>PATHOLOGICAL LESION IN KIDNEY</i>		

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Appendix H – Infection Diagnosis Codes

ICD-9-CM Infection diagnosis codes¹:

0010	CHOLERA D/T VIB CHOLERA E	0210	ULCEROGLANDULAR TULAREMIA
0011	CHOLERA D/T VIB EL TOR	0211	ENTERIC TULAREMIA
0019	CHOLERA NOS	0212	PULMONARY TULAREMIA
0020	TYPHOID FEVER	0213	OCULOGLANDULAR TULAREMIA
0021	PARATYPHOID FEVER A	0218	TULAREMIA NEC
0022	PARATYPHOID FEVER B	0219	TULAREMIA NOS
0023	PARATYPHOID FEVER C	0220	CUTANEOUS ANTHRAX
0029	PARATYPHOID FEVER NOS	0221	PULMONARY ANTHRAX
0030	SALMONELLA ENTERITIS	0222	GASTROINTESTINAL ANTHRAX
0031	SALMONELLA SEPTICEMIA	0223	ANTHRAX SEPTICEMIA
00320	LOCAL SALMONELLA INF NOS	0228	OTHER ANTHRAX MANIFEST
00321	SALMONELLA MENINGITIS	0229	ANTHRAX NOS
00322	SALMONELLA PNEUMONIA	0230	BRUCELLA MELITENSIS
00323	SALMONELLA ARTHRITIS	0231	BRUCELLA ABORTUS
00324	SALMONELLA OSTEOMYELITIS	0232	BRUCELLA SUI
00329	LOCAL SALMONELLA INF NEC	0233	BRUCELLA CANIS
0038	SALMONELLA INFECTION NEC	0238	BRUCELLOSIS NEC
0039	SALMONELLA INFECTION NOS	0239	BRUCELLOSIS NOS
0040	SHIGELLA DYSENTERIAE	024	GLANDERS
0041	SHIGELLA FLEXNERI	025	MELIOIDOSIS
0042	SHIGELLA BOYDII	0260	SPIRILLARY FEVER
0043	SHIGELLA SONNEI	0261	STREPTOBACILLARY FEVER
0048	SHIGELLA INFECTION NEC	0269	RAT-BITE FEVER NOS
0049	SHIGELLOSIS NOS	0270	LISTERIOSIS
0050	STAPHYLOCOCCUS FOOD POISONING	0271	ERYSIPELOTHRIX INFECTION
0051	BOTULISM FOOD POISONING	0272	PASTEURELLOSIS
0052	FOOD POIS D/T C. PERFRINGENS	0278	ZOONOTIC BACT DIS NEC
0053	FOOD POIS: CLOSTRIDIUM NEC	0279	ZOONOTIC BACT DIS NOS
0054	FOOD POIS: V. PARAHAEEM	0320	FAUCIAL DIPHTEIRIA
00581	FOOD POISN D/T V. VULNIFICANS	0321	NASOPHARYNX DIPHTEIRIA
00589	BACT FOOD POISONING NEC	0322	ANT NASAL DIPHTEIRIA
0059	FOOD POISONING NOS	0323	LARYNGEAL DIPHTEIRIA
00800	INTEST INFEC E COLI NOS	03281	CONJUNCTIVAL DIPHTEIRIA
00801	INT INF E COLI ENTEROPATH	03282	DIPHTEIRITIC MYOCARDITIS
00802	INT INF E COLI ENTEROTOXIGEN	03283	DIPHTEIRITIC PERITONITIS
00803	INT INF E COLI ENTEROTOXIN SV	03284	DIPHTEIRITIC CYSTITIS
00804	INT INF E COLI ENTEROHEMORR	03285	CUTANEOUS DIPHTEIRIA
00809	INT INF E COLI SPEC NEC	03289	DIPHTEIRIA NEC
0081	ARIZONA ENTERITIS	0329	DIPHTEIRIA NOS
0082	AEROBACTER ENTERITIS	0330	BORDETELLA PERTUSSIS
0083	PROTEUS ENTERITIS	0331	BORDETELLA PARAPERTUSSIS
00841	STAPHYLOCOCCUS ENTERITIS	0338	WHOOPING COUGH NEC
00842	PSEUDOMONAS ENTERITIS	0339	WHOOPING COUGH NOS
00843	INT INFEC CAMPYLOBACTER	0340	STREP SORE THROAT
00844	INT INF YERSINIA ENTEROCOLITICA	0341	SCARLET FEVER
00845	INT INF CLOSTRIDIUM DIFFICILE	035	ERYSIPELAS
00846	INTES INFEC OTH ANEROBES	0360	MENINGOCOCCAL MENINGITIS
00847	INT INF OTH GRM NEG BCTR	0361	MENINGOCOCC ENCEPHALITIS
00849	BACTERIAL ENTERITIS NEC	0362	MENINGOCOCCEMIA
0085	BACTERIAL ENTERITIS NOS	0363	MENINGOCOCC ADRENAL SYND
0200	BUBONIC PLAGUE	03640	MENINGOCOCC CARDITIS NOS
0201	CELLULOCELLANEOUS PLAGUE	03641	MENINGOCOCC PERICARDITIS
0202	SEPTICEMIC PLAGUE	03642	MENINGOCOCC ENDOCARDITIS
0203	PRIMARY PNEUMONIC PLAGUE	03643	MENINGOCOCC MYOCARDITIS
0204	SECONDARY PNEUMONIC PLAGUE	03681	MENINGOCOCC OPTIC NEURIT
0205	PNEUMONIC PLAGUE NOS	03682	MENINGOCOCC ARTHROPATHY
0208	OTHER TYPES OF PLAGUE	03689	MENINGOCOCCAL INFECT NEC
0209	PLAGUE NOS	0369	MENINGOCOCCAL INFECT NOS

037	TETANUS	09810	GC (ACUTE) UPPER GU NOS
0380	STREPTOCOCCAL SEPTICEMIA	09811	GC CYSTITIS (ACUTE)
03810	STAPHYLOCOCC SEPTICEM NOS	09812	GC PROSTATITIS (ACUTE)
03811	METH SUSC STAPH AUR SEPT	09813	GC ORCHITIS (ACUTE)
03812	MRSA SEPTICEMIA	09814	GC SEM VESICULIT (ACUTE)
03819	STAPHYLOCOCC SEPTICEM NEC	09815	GC CERVICITIS (ACUTE)
0382	PNEUMOCOCCAL SEPTICEMIA	09816	GC ENDOMETRITIS (ACUTE)
0383	ANAEROBIC SEPTICEMIA	09817	ACUTE GC SALPINGITIS
03840	GRAM-NEG SEPTICEMIA NOS	09819	GC (ACUTE) UPPER GU NEC
03841	H. INFLUENAE SEPTICEMIA	0982	CHR GC INFECT LOWER GU
03842	E COLI SEPTICEMIA	09830	CHR GC UPPER GU NOS
03843	PSEUDOMONAS SEPTICEMIA	09831	GC CYSTITIS, CHRONIC
03844	SERRATIA SEPTICEMIA	09832	GC PROSTATITIS, CHRONIC
03849	GRAM-NEG SEPTICEMIA NEC	09833	GC ORCHITIS, CHRONIC
0388	SEPTICEMIA NEC	09834	GC SEM VESICULITIS, CHR
0389	SEPTICEMIA NOS	09835	GC CERVICITIS, CHRONIC
0390	CUTANEOUS ACTINOMYCOSIS	09836	GC ENDOMETRITIS, CHRONIC
0391	PULMONARY ACTINOMYCOSIS	09837	GC SALPINGITIS (CHRONIC)
0392	ABDOMINAL ACTINOMYCOSIS	09839	CHR GC UPPER GU NEC
0393	CERVICOFAC ACTINOMYCOSIS	09840	GONOCOCCAL CONJUNCTIVIT
0394	MADURA FOOT	09841	GONOCOCCAL IRIDOCYCLITIS
0398	ACTINOMYCOSIS NEC	09842	GONOCOCCAL ENDOPHTHALMIA
0399	ACTINOMYCOSIS NOS	09843	GONOCOCCAL KERATITIS
0400	GAS GANGRENE	09849	GONOCOCCAL EYE NEC
0401	RHINOSCLEROMA	09850	GONOCOCCAL ARTHRITIS
0402	WHIPPLE'S DISEASE	09851	GONOCOCCAL SYNOVITIS
0403	NECROBACILLOSIS	09852	GONOCOCCAL BURSTITIS
04041	INFANT BOTULISM	09853	GONOCOCCAL SPONDYLITIS
04042	WOUND BOTULISM	09859	GC INFECT JOINT NEC
04081	TROPICAL PYOMYOSITIS	0986	GONOCOCCAL INFEC PHARYNX
04082	TOXIC SHOCK SYNDROME	0987	GC INFECT ANUS & RECTUM
04089	BACTERIAL DISEASES NEC	09881	GONOCOCCAL KERATOSIS
04100	STREPTOCOCCUS UNSPECIF	09882	GONOCOCCAL MENINGITIS
04101	STREPTOCOCCUS GROUP A	09883	GONOCOCCAL PERICARDITIS
04102	STREPTOCOCCUS GROUP B	09884	GONOCOCCAL ENDOCARDITIS
04103	STREPTOCOCCUS GROUP C	09885	GONOCOCCAL HEART DIS NEC
04104	ENTEROCOCCUS GROUP D	09886	GONOCOCCAL PERITONITIS
04105	STREPTOCOCCUS GROUP G	09889	GONOCOCCAL INF SITE NEC
04109	OTHER STREPTOCOCCUS	3200	HEMOPHILUS MENINGITIS
04110	STAPHYLOCOCCUS UNSPCFIED	3201	PNEUMOCOCCAL MENINGITIS
04111	MTH SUS STPH AUR ELS/NOS	3202	STREPTOCOCCAL MENINGITIS
04112	MRSA ELSEWHERE/NOS	3203	STAPHYLOCOCC MENINGITIS
04119	OTHER STAPHYLOCOCCUS	3207	MENING IN OTH BACT DIS
0412	PNEUMOCOCCUS INFECT NOS	32081	ANAEROBIC MENINGITIS
0413	KLEBSIELLA PNEUMONIAE	32082	MNINGTS GRAM-NEG BCT NEC
0414	<i>E. COLI</i> INFECT NOS	32089	MENINGITIS OTH SPCF BACT
04141	SHIGA TXN-PRODUCE E.COLI	3209	BACTERIAL MENINGITIS NOS
04142	SHGA TXN PROD E.COLI NEC	3229	MENINGITIS NOS
04143	SHGA TXN PROD E.COLI NOS	3240	INTRACRANIAL ABSCESS
04149	E.COLI INFECTION NEC/NOS	3241	INTRASPINAL ABSCESS
0415	H. INFLUENZAE INFECT NOS	3249	CNS ABSCESS NOS
0416	PROTEUS INFECTION NOS	36000	PURULENT ENDOPHTHALM NOS
0417	PSEUDOMONAS INFECT NOS	36001	ACUTE ENDOPHTHALMITIS
04182	BACTEROIDES FRAGILIS	36002	PANOPHTHALMITIS
04183	CLOSTRIDIUM PERFRINGENS	36004	VITREOUS ABSCESS
04184	OTHER ANAEROBES	37055	CORNEAL ABSCESS
04185	OTH GRAM NEGATV BACTERIA	37200	ACUTE CONJUNCTIVITIS NOS
04186	HELICOBACTER PYLORI	37203	MUCOPUR CONJUNCTIVIT NEC
04189	OTH SPECIF BACTERIA	37204	PSEUDOMEMB CONJUNCTIVIT
0419	BACTERIAL INFECTION NOS	37220	BLEPHAROCONJUNCTIVIT NOS
0783	CAT-SCRATCH DISEASE	37221	ANGULAR BLEPHAROCONJUNCT
0980	ACUTE GC INFECT LOWER GU	37230	CONJUNCTIVITIS NOS

37300	BLEPHARITIS NOS	48231	PNEUMONIA STRPTOCOCCUS A
37301	ULCERATIVE BLEPHARITIS	48232	PNEUMONIA STRPTOCOCCUS B
37311	HORDEOLUM EXTERNUM	48239	PNEUMONIA OTH STREP
37312	HORDEOLUM INTERNUM	48240	STAPHYLOCOCCAL PNEU NOS
37313	ABSCESS OF EYELID	48241	METH SUS PNEUM D/T STAPH
37500	DACRYOADENITIS NOS	48242	METH RES PNEU D/T STAPH
37501	ACUTE DACRYOADENITIS	48249	STAPH PNEUMONIA NEC
37530	DACRYOCYSTITIS NOS	48281	PNEUMONIA ANAEROBES
37531	ACUTE CANALICULITIS	48282	PNEUMONIA E COLI
37532	ACUTE DACRYOCYSTITIS	48283	PNEUMO OTH GRM-NEG BACT
37601	ORBITAL CELLULITIS	48284	LEGIONNAIRES' DISEASE
37602	ORBITAL PERIOSTITIS	48289	PNEUMONIA OTH SPCF BACT
37603	ORBITAL OSTEOMYELITIS	4829	BACTERIAL PNEUMONIA NOS
37604	ORBITAL TENONITIS	4843	PNEUMONIA IN WHOOP COUGH
38010	INFECTION OTITIS EXTERNA NOS	4845	PNEUMONIA IN ANTHRAX
38011	ACUTE INFECTION OF PINNA	4848	PNEUM IN INFECT DIS NEC
38012	ACUTE SWIMMERS' EAR	485	BRONCHOPNEUMONIA ORG NOS
38013	AC INFECT EXTERN EAR NEC	486	PNEUMONIA, ORGANISM NOS
38014	MALIGNANT OTITIS EXTERNA	490	<i>BRONCHITIS NOS</i>
38150	EUSTACHIAN SALPING NOS	49122	OBS CHR BRONC W AC BRONC
38151	AC EUSTACHIAN SALPING	4941	BRONCHIECTASIS W AC EXAC
38200	AC SUPP OTITIS MEDIA NOS	5100	EMPYEMA WITH FISTULA
38201	AC SUPP OM W DRUM RUPT	5109	EMPYEMA W/O FISTULA
38202	AC SUPP OM IN OTH DIS	5111	BACT PLEUR/EFFUS NOT TB
3821	CHR TUBOTYMPAN SUPPUR OM	5130	ABSCESS OF LUNG
3822	CHR ATTICOANTRAL SUP OM	5131	ABSCESS OF MEDIASTINUM
3823	CHR SUP OTITIS MEDIA NOS	51901	TRACHEOSTOMY INFECTION
3824	SUPPUR OTITIS MEDIA NOS	5192	MEDIASTINITIS
3829	OTITIS MEDIA NOS	5220	PULPITIS
38300	AC MASTOIDITIS W/O COMPL	5225	PERIAPICAL ABSCESS
38301	SUBPERI MASTOID ABSCESS	5227	PERIAPICAL ABSC W SINUS
38302	AC MASTOIDITIS-COMPL NEC	5230	<i>ACUTE GINGIVITIS</i>
38320	PETROSITIS NOS	52300	ACUTE GINGIVITIS, PLAQUE
38321	ACUTE PETROSITIS	52301	AC GINGIVITIS, NONPLAQUE
38400	ACUTE MYRINGITIS NOS	5233	<i>ACUTE PERIODONTITIS</i>
38633	SUPPURATIV LABYRINTHITIS	52330	AGGRES PERIODONTITIS NOS
4200	AC PERICARDIT IN OTH DIS	52331	AGGRES PERIODONTITIS, LOC
42090	ACUTE PERICARDITIS NOS	52332	AGGRES PERIODONTITIS, GEN
42099	ACUTE PERICARDITIS NEC	52333	ACUTE PERIODONTITIS
4210	AC/SUBAC BACT ENDOCARD	5264	INFLAMMATION OF JAW
4211	AC ENDOCARDIT IN OTH DIS	5273	SALIVARY GLAND ABSCESS
4219	AC/SUBAC ENDOCARDIT NOS	5283	CELLULITIS/ABSCESS MOUTH
42292	SEPTIC MYOCARDITIS	53641	GASTROSTOMY INFECTION
4610	AC MAXILLARY SINUSITIS	53901	INT D/T GASTRC BAND PROC
4611	AC FRONTAL SINUSITIS	53981	INF D/T OT BARIATRC PROC
4612	AC ETHMOIDAL SINUSITIS	5400	AC APPEND W PERITONITIS
4613	AC SPHENOIDAL SINUSITIS	5401	ABSCESS OF APPENDIX
4618	OTHER ACUTE SINUSITIS	5409	ACUTE APPENDICITIS NOS
4619	ACUTE SINUSITIS NOS	541	APPENDICITIS NOS
462	ACUTE PHARYNGITIS	542	OTHER APPENDICITIS
463	ACUTE TONSILLITIS	56201	DVRTCLI SML INT W/O HMRG
46430	AC EPIGLOTTITIS NO OBSTR	56203	DVRTCLI SML INT W HMRHG
46431	AC EPIGLOTTITIS W OBSTR	56211	DVRTCLI COLON W/O HMRHG
4660	ACUTE BRONCHITIS	56213	DVRTCLI COLON W HMRHG
475	PERITONSILLAR ABSCESS	566	ANAL & RECTAL ABSCESS
47822	PARAPHARYNGEAL ABSCESS	5670	PERITONITIS IN INFECTION
47824	RETROPHARYNGEAL ABSCESS	5671	PNEUMOCOCCAL PERITONITIS
481	PNEUMOCOCCAL PNEUMONIA	5672	<i>SUPPURAT PERITONITIS NEC</i>
4820	K. PNEUMONIAE PNEUMONIA	56721	PERITONITIS (ACUTE) GEN
4821	PSEUDOMONAL PNEUMONIA	56722	PERITONEAL ABSCESS
4822	H. INFLUENZAE PNEUMONIA	56723	SPONTAN BACT PERITONITIS
48230	STREPTOCOCCAL PNEUMONIA NOS	56729	SUPPURAT PERITONITIS NEC

56731	PSOAS MUSCLE ABSCESS	6149	FEM PELV INFLAM DIS NOS
56738	RETROPERITON ABSCESS NEC	6150	AC UTERINE INFLAMMATION
56739	RETROPERITON INFECT NEC	6159	UTERINE INFLAM DIS NOS
56781	CHOLEPERITONITIS	6160	CERVICITIS
56782	SCLEROSING MESENTERITIS	61610	VAGINITIS NOS
56789	PERITONITIS NEC	6163	BARTHOLIN'S GLND ABSCESS
5679	PERITONITIS NOS	6164	ABSCESS OF VULVA NEC
5695	INTESTINAL ABSCESS	63400	SPON ABOR W PELV INF-UNSP
56961	COLOSTY/ENTEROST INFECTN	63401	SPON ABOR W PELV INF-INC
5720	ABSCESS OF LIVER	63402	SPON ABOR W PELV INF-COMP
5721	PORTAL PYEMIA	63500	LEG ABOR W PELV INF-UNSP
57400	CHOLELITH W AC CHOLECYST	63501	LEG ABOR W PELV INF-INC
57401	CHOLELITH/AC GB INF-OBST	63502	LEG ABOR W PELV INF-COMP
57430	CHOLEDOCHOLITH/AC GB INF	63600	ILLEG AB W PELV INF-UNSP
57431	CHOLEDOCHLITH/AC GB-OBST	63601	ILLEG AB W PELV INF-INC
57460	GALL&BIL CAL W/AC W/O OB	63602	ILLEG AB W PELV INF-COMP
57461	GALL&BIL CAL W/AC W OBS	63700	ABORT NOS W PELV INF-UNSP
57480	GALL&BIL CAL W/AC&CHR W/O	63701	ABORT NOS W PELV INF-INC
57481	GALL&BIL CAL W/AC&CH W OB	63702	ABORT NOS W PELV INF-COMP
5750	ACUTE CHOLECYSTITIS	6380	ATTEM ABORT W PELVIC INF
57510	CHOLECYSTITIS NOS	6390	POSTABORTION GU INFECT
57512	ACTE & CHR CHOLECYSTITIS	64650	BACTERIURIA PREG-UNSPEC
5754	PERFORATION GALLBLADDER	64651	ASYM BACTERIURIA-DELIVER
5761	CHOLANGITIS	64652	ASY BACTERIURIA-DEL W P/P
5763	PERFORATION OF BILE DUCT	64653	ASY BACTERIURIA-ANTEPART
5770	ACUTE PANCREATITIS	64654	ASY BACTERIURIA-POSTPART
59010	AC PYELONEPHRITIS NOS	64660	GU INFECT IN PREG-UNSPEC
59011	AC PYELONEPHR W MED NECR	64661	GU INFECTION-DELIVERED
5902	RENAL/PERIRENAL ABSCESS	64662	GU INFECTION-DELIV W P/P
5903	PYELOURETERITIS CYSTICA	64663	GU INFECTION-ANTEPARTUM
59080	PYELONEPHRITIS NOS	64664	GU INFECTION-POSTPARTUM
59081	PYELONEPHRIT IN OTH DIS	64710	GONORRHEA IN PREG-UNSPEC
5909	INFECTION OF KIDNEY NOS	64711	GONORRHEA-DELIVERED
5950	ACUTE CYSTITIS	64712	GONORRHEA-DELIVER W P/P
5954	CYSTITIS IN OTH DIS	64713	GONORRHEA-ANTEPARTUM
59581	CYSTITIS CYSTICA	64714	GONORRHEA-POSTPARTUM
59589	CYSTITIS NEC	64780	INF DIS IN PREG NEC-UNSP
5959	CYSTITIS NOS	64781	INFECT DIS NEC-DELIVERED
59681	INFECTION OF CYSTOSTOMY	64782	INFECT DIS NEC-DEL W P/P
5970	URETHRAL ABSCESS	64783	INFECT DIS NEC-ANTEPART
5990	URIN TRACT INFECTION NOS	64784	INFECT DIS NEC-POSTPART
6010	ACUTE PROSTATITIS	64790	INFECT IN PREG NOS-UNSP
6012	ABSCESS OF PROSTATE	64791	INFECT NOS-DELIVERED
6013	PROSTATOCYSTITIS	64792	INFECT NOS-DELIVER W P/P
6014	PROSTATITIS IN OTH DIS	64793	INFECT NOS-ANTEPARTUM
6018	PROSTATIC INFLAM DIS NEC	64794	INFECT NOS-POSTPARTUM
6019	PROSTATITIS NOS	65840	AMNIOTIC INFECTION-UNSP
6031	INFECTED HYDROCELE	65841	AMNIOTIC INFECTION-DELIV
6040	ORCHITIS WITH ABSCESS	65843	AMNIOTIC INFECT-ANTEPART
60490	ORCHITIS/EPIDIDYMIT NOS	67000	MAJ PUERP INF NOS-UNSP
60491	ORCHITIS IN OTH DISEASE	67002	MAJ PUERP INF NOS-DEL P/P
6071	BALANOPOSTHITIS	67004	MAJOR PUERP INF NOS-P/P
6072	INFLAM DIS, PENIS NEC	67010	PUERP ENDOMETRITIS-UNSP
6080	SEMINAL VESICULITIS	67012	PUERP ENDOMET DEL W P/P
6084	MALE GEN INFLAM DIS NEC	67014	PUERP ENDOMET-POSTPART
6110	INFLAM DISEASE OF BREAST	67020	PUERPERAL SEPSIS-UNSP
6140	AC SALPINGO-OOPHORITIS	67022	PUERPRAL SEPSIS-DEL W P/P
6141	CHR SALPINGO-OOPHORITIS	67024	PUERPERAL SEPSIS-POSTPART
6142	SALPINGO-OOPHORITIS NOS	67030	PUERP SEPTIC THROMB-UNSP
6143	ACUTE PARAMETRITIS	67032	PRP SEPTIC THROMB-DEL W P/P
6144	CHRONIC PARAMETRITIS	67034	PRP SEPTIC THROMB-POSTPART
6145	AC PELV PERITONITIS-FEM	67080	MAJ PRP INFEC NEC-UNSPEC

67082	MAJ PRP INF NEC-DL W P/P	70707	PRESSURE ULCER, HEEL
67084	MAJ PUERP INFEC NEC-P/P	70709	PRESSURE ULCER, SITE NEC
67500	INFECT NIPPLE PREG-UNSP	70720	PRESSURE ULCER, STAGE NOS
67501	INFECT NIPPLE-DELIVERED	70722	PRESSURE ULCER, STAGE II
67502	INFECT NIPPLE-DEL W P/P	70723	PRESSURE ULCER, STAGE III
67503	INFECT NIPPLE-ANTEPARTUM	70724	PRESSURE ULCER, STAGE IV
67504	INFECT NIPPLE-POSTPARTUM	71100	PYOGEN ARTHRITIS-UNSPEC
67510	BREAST ABSCESS PREG-UNSP	71101	PYOGEN ARTHRITIS-SHLDER
67511	BREAST ABSCESS-DELIVERED	71102	PYOGEN ARTHRITIS-UP/ARM
67512	BREAST ABSCESS-DEL W P/P	71103	PYOGEN ARTHRITIS-FOREARM
67513	BREAST ABSCESS-ANTEPART	71104	PYOGEN ARTHRITIS-HAND
67514	BREAST ABSCESS-POSTPART	71105	PYOGEN ARTHRITIS-PELVIS
67580	BREAST INF PREG NEC-UNSP	71106	PYOGEN ARTHRITIS-L/LEG
67581	BREAST INFECT NEC-DELIV	71107	PYOGEN ARTHRITIS-ANKLE
67582	BREAST INF NEC-DEL W P/P	71108	PYOGEN ARTHRITIS NEC
67583	BREAST INF NEC-ANTEPART	71109	PYOGEN ARTHRITIS-MULT
67584	BREAST INF NEC-POSTPART	71190	INF ARTHRITIS NOS-UNSPEC
67590	BREAST INF PREG NOS-UNSP	71191	INF ARTHRITIS NOS-SHLDER
67591	BREAST INFECT NOS-DELIV	71192	INF ARTHRITIS NOS-UP/ARM
67592	BREAST INF NOS-DEL W P/P	71193	INF ARTHRIT NOS-FOREARM
67593	BREAST INF NOS-ANTEPART	71194	INF ARTHRIT NOS-HAND
67594	BREAST INF NOS-POSTPART	71195	INF ARTHRIT NOS-PELVIS
6800	CARBUNCLE OF FACE	71196	INF ARTHRIT NOS-L/LEG
6801	CARBUNCLE OF NECK	71197	INF ARTHRIT NOS-ANKLE
6802	CARBUNCLE OF TRUNK	71198	INF ARTHRIT NOS-OTH SITE
6803	CARBUNCLE OF ARM	71199	INF ARTHRITIS NOS-MULT
6804	CARBUNCLE OF HAND	7280	INFECTIVE MYOSITIS
6805	CARBUNCLE OF BUTTOCK	72886	NECROTIZING FASCIITIS
6806	CARBUNCLE OF LEG	73000	AC OSTEOMYELITIS-UNSPEC
6807	CARBUNCLE OF FOOT	73001	AC OSTEOMYELITIS-SHLDER
6808	CARBUNCLE, SITE NEC	73002	AC OSTEOMYELITIS-UP/ARM
6809	CARBUNCLE NOS	73003	AC OSTEOMYELITIS-FOREARM
68100	CELLULITIS, FINGER NOS	73004	AC OSTEOMYELITIS-HAND
68101	FELON	73005	AC OSTEOMYELITIS-PELVIS
68102	ONYCHIA OF FINGER	73006	AC OSTEOMYELITIS-L/LEG
68110	CELLULITIS, TOE NOS	73007	AC OSTEOMYELITIS-ANKLE
68111	ONYCHIA OF TOE	73008	AC OSTEOMYELITIS NEC
6819	CELLULITIS OF DIGIT NOS	73009	AC OSTEOMYELITIS-MULT
6820	CELLULITIS OF FACE	73010	CHR OSTEOMYELITIS-UNSP
6821	CELLULITIS OF NECK	73011	CHR OSTEOMYELIT-SHLDER
6822	CELLULITIS OF TRUNK	73012	CHR OSTEOMYELIT-UP/ARM
6823	CELLULITIS OF ARM	73013	CHR OSTEOMYELIT-FOREARM
6824	CELLULITIS OF HAND	73014	CHR OSTEOMYELIT-HAND
6825	CELLULITIS OF BUTTOCK	73015	CHR OSTEOMYELIT-PELVIS
6826	CELLULITIS OF LEG	73016	CHR OSTEOMYELIT-L/LEG
6827	CELLULITIS OF FOOT	73017	CHR OSTEOMYELIT-ANKLE
6828	CELLULITIS, SITE NEC	73018	CHR OSTEOMYELIT NEC
6829	CRLLULITIS NOS	73019	CHR OSTEOMYELIT-MULT
683	ACUTE LYMPHADENITIS	73020	OSTEOMYELITIS NOS-UNSPEC
684	IMPETIGO	73021	OSTEOMYELITIS NOS-SHLDER
68600	PYODERMA NOS	73022	OSTEOMYELITIS NOS-UP/ARM
68609	PYODERMA NEC	73023	OSTEOMYELIT NOS-FOREARM
6868	LOCAL SKIN INFECTION NEC	73024	OSTEOMYELITIS NOS-HAND
6869	LOCAL SKIN INFECTION NOS	73025	OSTEOMYELITIS NOS-PELVIS
69581	RITTER'S DISEASE	73026	OSTEOMYELITIS NOS-L/LEG
70700	PRESSURE ULCER, SITE NOS	73027	OSTEOMYELITIS NOS-ANKLE
70701	PRESSURE ULCER, ELBOW	73028	OSTEOMYELIT NOS-OTH SITE
70702	PRESSURE ULCER, UPR BACK	73029	OSTEOMYELITIS NOS-MULT
70703	PRESSURE ULCER, LOW BACK	73030	PERIOSTITIS-UNSPEC
70704	PRESSURE ULCER, HIP	73031	PERIOSTITIS-SHLDER
70705	PRESSURE ULCER, BUTTOCK	73032	PERIOSTITIS-UP/ARM
70706	PRESSURE ULCER, ANKLE	73033	PERIOSTITIS-FOREARM

73034	PERIOSTITIS-HAND	9125	INSECT BITE SHLD/ARM-INF
73035	PERIOSTITIS-PELVIS	9127	FB SHOULDER/ARM-INFECT
73036	PERIOSTITIS-L/LEG	9129	SUPERF INJ SHLDR NEC-INF
73037	PERIOSTITIS-ANKLE	9131	ABRASION FOREARM-INFECT
73038	PERIOSTITIS NEC	9133	BLISTER FOREARM-INFECTED
73039	PERIOSTITIS-MULT	9135	INSECT BITE FOREARM-INF
73080	BONE INFECT NEC-UNSPEC	9137	FOREIGN BODY FOREARM-INF
73081	BONE INFECT NEC-SHLDER	9139	SUPRF INJ FORARM NEC-INF
73082	BONE INFECT NEC-UP/ARM	9141	ABRASION HAND-INFECTED
73083	BONE INFECT NEC-FOREARM	9143	BLISTER HAND-INFECTED
73084	BONE INFECT NEC-HAND	9145	INSECT BITE HAND-INFECT
73085	BONE INFECT NEC-PELVIS	9147	FOREIGN BODY HAND-INFECT
73086	BONE INFECT NEC-L/LEG	9149	SUPERF INJ HAND NEC-INF
73087	BONE INFECT NEC-ANKLE	9151	ABRASION FINGER-INFECTED
73088	BONE INFECT NEC-OTH SITE	9153	BLISTER FINGER-INFECTED
73089	BONE INFECT NEC-MULT	9155	INSECT BITE FINGER-INFEC
73090	BONE INFEC NOS-UNSP SITE	9157	FOREIGN BODY FINGER-INF
73091	BONE INFECT NOS-SHLDER	9159	SUPRF INJ FINGER NEC-INF
73092	BONE INFECT NOS-UP/ARM	9161	ABRASION HIP/LEG-INFECT
73093	BONE INFECT NOS-FOREARM	9163	BLISTER HIP & LEG-INFECT
73094	BONE INFECT NOS-HAND	9165	INSECT BITE HIP/LEG-INF
73095	BONE INFECT NOS-PELVIS	9167	FOREIGN BDY HIP/LEG-INF
73096	BONE INFECT NOS-L/LEG	9169	SUPERF INJ LEG NEC-INFEC
73097	BONE INFECT NOS-ANKLE	9171	ABRASION FOOT/TOE-INFEC
73098	BONE INFECT NOS-OTH SITE	9173	BLISTER FOOT & TOE-INFEC
73099	BONE INFECT NOS-MULT	9175	INSECT BITE FOOT/TOE-INF
7713	TETANUS NEONATORUM	9177	FOREIGN BDY FOOT/TOE-INF
7714	OMPHALITIS OF NEWBORN	9179	SUPERF INJ FOOT NEC-INF
7715	NEONATAL INFEC MASTITIS	9191	ABRASION NEC-INFECTED
77181	NB SEPTICEMIA [SEPSIS]	9193	BLISTER NEC-INFECTED
77182	NB URINARY TRACT INFECTN	9195	INSECT BITE NEC-INFECTED
77183	BACTEREMIA OF NEWBORN	9197	SUPERFICIAL FB NEC-INFEC
77189	PERINATAL INFECTION NEC	9199	SUPERFIC INJ NEC-INFECT
7775	<i>NECROT ENTEROCOLITIS NB</i>	99590	SIRS, NOS
77750	NEC ENTEROCOLITIS NB NOS	99591	SEPSIS
77751	STG I NEC ENTEROCOL NB	99592	SEVERE SEPSIS
77752	STG II NEC ENTEROCOL NB	99660	REACTION-UNSP DEVIC/GRFT
77753	STG III NEC ENTEROCOL NB	99661	REACT-CARDIAC DEV/GRAFT
7854	GANGRENE	99662	REACT-OTH VASC DEV/GRAFT
78552	SEPTIC SHOCK	99663	REACT-NERV SYS DEV/GRAFT
7907	BACTEREMIA	99664	REACT-INDWELL URIN CATH
9101	ABRASION HEAD-INFECTED	99665	REACT-OTH GENITOURIN DEV
9103	BLISTER HEAD-INFECTED	99666	REACT-INTER JOINT PROST
9105	INSECT BITE HEAD-INFECT	99667	REACT-OTH INT ORTHO DEV
9107	FOREIGN BODY HEAD-INFECT	99669	REACT-INT PROS DEVIC NEC
9109	SUPERF INJ HEAD NEC-INF	99762	INFECTION AMPUTAT STUMP
9111	ABRASION TRUNK-INFECTED	99851	INFECTED POSTOP SEROMA
9113	BLISTER TRUNK-INFECTED	99859	OTHER POSTOP INFECTION
9115	INSECT BITE TRUNK-INFEC	9993	<i>INFEC COMPL MED CARE NEC</i>
9117	FOREIGN BODY TRUNK-INFEC	99931	OTH/UNS INF-CEN VEN CATH
9119	SUPERF INJ TRNK NEC-INF	99932	BLOOD INF DT CEN VEN CTH
9121	ABRASION SHLDR/ARM-INFEC	99933	LCL INF DT CEN VEN CTH
9123	BLISTER SHOULDER/ARM-INF	99934	AC INF FOL TRANS,INF BLD

¹ The procedure or diagnosis codes are continuously updated. The current list of ICD-9-CM codes is valid for October 2012 through September 2013. Italicized codes are not active in Fiscal Year 2013.

Appendix I – Definitions of Neonate, Newborn, Normal Newborn, and Outborn

A neonate is defined as any discharge with either:

- age in days at admission between zero and 28 days (inclusive); or
- age in days missing and age in years equal to zero and either:
 - an admission type of newborn (SID ATYPE=4); or
 - with any-listed ICD-9-CM diagnosis codes for in-hospital live birth; or
 - with any-listed ICD-9-CM diagnosis codes for neonatal observation and evaluation

ICD-9-CM In-hospital live birth diagnosis codes:

V3000	SINGLE LB IN-HOSP W/O CS	V3401	OTH MULT LB-IN HOSP W CS
V3001	SINGLE LB IN-HOSP W CS	V3500	OTH MULT SB-HOSP W/O CS
V3100	TWIN-MATE LB-HOSP W/O CS	V3501	OTH MULT SB-IN HOSP W CS
V3101	TWIN-MATE LB-IN HOS W CS	V3600	MULT LB/SB-IN HOS W/O CS
V3200	TWIN-MATE SB-HOSP W/O CS	V3601	MULT LB/SB-IN HOSP W CS
V3201	TWIN-MATE SB-HOSP W CS	V3700	MULT BRTH NOS-HOS W/O CS
V3300	TWIN-NOS-IN HOSP W/O CS	V3701	MULT BIRTH NOS-HOSP W CS
V3301	TWIN-NOS-IN HOSP W CS	V3900	LIVEBORN NOS-HOSP W/O CS
V3400	OTH MULT LB-HOSP W/O CS	V3901	LIVEBORN NOS-HOSP W CS

ICD-9-CM Neonatal observation and evaluation diagnosis codes:

V290	NB OBSRV SUSPCT INFECT	V293	NB OBS GENETC/METABL CND
V291	NB OBSRV SUSPCT NEURLGCL	V298	NB OBSRV OTH SUSPCT COND
V292	OBSRV NB SUSPC RESP COND	V299	NB OBSRV UNSP SUSPCT CND

A newborn is defined as any discharge meeting the definition of “neonate” (see above) with either:

- any-listed ICD-9-CM code for in-hospital live birth (see above) and age in days equal to zero or missing; or
- an admission type of newborn (SID ATYPE=4) and age in days equal to zero without any-listed ICD-9-CM diagnosis codes for out-of-hospital live birth; or
- an admission type of newborn (SID ATYPE=4) with point of origin for born inside this hospital (POINTOFORIGINUB04 code =5)

ICD-9-CM Out-of-hospital live birth diagnosis codes:

V301	SINGL LIVEBRN-BEFORE ADM	V342	OTH MULTIPLE NB-NONHOSP
V302	SINGLE LIVEBORN-NONHOSP	V351	OTH MULT SB-BEFORE ADM
V311	TWIN, MATE LB-BEFORE ADM	V352	OTH MULTIPLE SB-NONHOSP
V312	TWIN, MATE LB-NONHOSP	V361	MULT NB/SB-BEFORE ADM
V321	TWIN, MATE SB-BEFORE ADM	V362	MULTIPLE NB/SB-NONHOSP
V322	TWIN, MATE SB-NONHOSP	V371	MULT BRTH NOS-BEFORE ADM
V331	TWIN NOS-BEFORE ADMISSN	V372	MULT BIRTH NOS-NONHOSP
V332	TWIN NOS-NONHOSP	V391	LIVEBORN NOS-BEFORE ADM
V341	OTH MULT NB-BEFORE ADM	V392	LIVEBORN NOS-NONHOSP

A normal newborn is defined as any discharge meeting the definition of “newborn” (see above) with a DRG code of 391 or a MS-DRG code 795.

An outborn is defined as any discharge meeting the definition of “neonate” (see above) that does not meet the definition of “newborn” (see above) with either:

- age in days less than 2 days and not missing; or
- an admission type of newborn (SID ATYPE=4) and age in days missing; or
- an admission type of newborn (SID ATYPE=4) and point of origin for born outside this hospital (POINTOFORIGINUB04 code =6)

Appendix J – Admission Codes for Transfers

SID ASOURCE Codes

- 2 - Another hospital
- 3 - Another facility, including long term care

POINTOFORIGINUB04 Codes

- 4 - Transfer from a hospital
- 5 - Transfer from a Skilled Nursing Facility (SNF) or Intermediate Care Facility (ICF)
- 6 - Transfer from another health care facility

If Admission Type is newborn (ATYPE=4), POINTOFORIGINUB04 codes are as follows:

- 5 - Born inside this hospital
- 6 - Born outside of this hospital

Appendix K – Stratification

The PDI module reports rates stratified by age and/or birth weight and, in some cases, by specified clinical strata. Refer to the individual Technical Specifications documents for indicator-specific stratification. The values of three variables related to age and weight are used to assign cases to stratification categories: Pediatric Age in Years, Age in Days, and Birth Weight.

Pediatric Age in Years

The values for Pediatric Age in Years include the following:

- 1 = Less than one (1) year
- 2 = 1 to 2 years
- 3 = 3 to 5 years
- 4 = 6 to 12 years
- 5 = 13 to 17 years

Age in Days

Age in Days is defined on patients whose age is less than one year. Possible values for this category are as follows:

- 0 = N/A
- 1 = 0 to 28 days
- 2 = 29 to 60 days
- 3 = 61 to 90 days
- 4 = 91 to 365 days

Birth Weight

Values assigned to Birth Weight categories are based on ICD-9-CM diagnosis codes that specify infant weight in grams. The values are as follows:

- 0 = N/A
- 1 = 0 to 499 g
- 2 = 500 to 999 g
- 3 = 1000 to 1499 g
- 4 = 1500 to 1999 g
- 5 = 2000 to 2500 g

Appendix L – Low Birth Weight Categories

ICD-9-CM Birth Weight Category 1 (less than 500 grams) diagnosis codes:

76401	LIGHT-FOR-DATES <500G	76501	EXTREME IMMATUR <500G
76411	LT-FOR-DATE W/MAL <500G	76511	PRETERM NEC <500G
76421	FETAL MALNUTRITION <500G	V2131	LOW BIRTHWT STATUS <500G
76491	FET GROWTH RETARD <500G		

ICD-9-CM Birth Weight Category 2 (500 to 749 grams) diagnosis codes:

76402	LT-FOR-DATES 500-749G	76492	FET GROWTH RET 500-749G
76412	LT-DATE W/MAL 500-749G	76502	EXTREME IMMATUR 500-749G
76422	FETAL MALNUTR 500-749G	76512	PRETERM NEC 500-749G

ICD-9-CM Birth Weight Category 3 (750 to 999 grams) diagnosis codes:

76403	LT-FOR-DATES 750-999G	76503	EXTREME IMMATUR 750-999G
76413	LT-DATE W/MAL 750-999G	76513	PRETERM NEC 750-999G
76423	FETAL MAL 750-999G	V2132	LOW BIRTHWT 500-999G
76493	FET GROWTH RET 750-999G		

ICD-9-CM Birth Weight Category 4 (1,000 to 1,249 grams) diagnosis codes:

76404	LT-FOR-DATES 1000-1249G	76494	FET GRWTH RET 1000-1249G
76414	LT-DATE W/MAL 1000-1249G	76504	EXTREME IMMAT 1000-1249G
76424	FETAL MAL 1000-1249G	76514	PRETERM NEC 1000-1249G

ICD-9-CM Birth Weight Category 5 (1,250 to 1,499 grams) diagnosis codes:

76405	LT-FOR-DATES 1250-1499G	76505	EXTREME IMMAT 1250-1499G
76415	LT-DATE W/MAL 1250-1499G	76515	PRETERM NEC 1250-1499G
76425	FETAL MAL 1250-1499G	V2133	LOW BIRTHWT 1000-1499G
76495	FET GRWTH RET 1250-1499G		

ICD-9-CM Birth Weight Category 6 (1,500 to 1,749 grams) diagnosis codes:

76406	LT-FOR-DATES 1500-1749G	76496	FET GRWTH RET 1500-1749G
76416	LT-DATE W/MAL 1500-1749G	76506	EXTREME IMMAT 1500-1749G
76426	FETAL MAL 1500-1749G	76516	PRETERM NEC 1500-1749G

ICD-9-CM Birth Weight Category 7 (1,750 to 1,999 grams) diagnosis codes:

76407	LT-FOR-DATES 1750-1999G	76507	EXTREME IMMAT 1750-1999G
76417	LT-DATE W/MAL 1750-1999G	76517	PRETERM NEC 1750-1999G
76427	FETAL MALNUTR 1750-1999G	V2134	LOW BIRTHWT 1500-1999G
76497	FET GRWTH RET 1750-1999G		

ICD-9-CM Birth Weight Category 8 (2,000 to 2,499 grams) diagnosis codes:

76408	LT-FOR-DATES 2000-2499G	76508	EXTREME IMMAT 2000-2499G
76418	LT-DATE W/MAL 2000-2499G	76518	PRETERM NEC 2000-2499G
76428	FETAL MALNUTR 2000-2499G	V2135	LOW BIRTHWT 2000-2500G
76498	FET GRWTH RET 2000-2499G		

ICD-9-CM Birth Weight Category 9 (≥ 2,500 grams) diagnosis codes:

76409	LT-FOR-DATES 2500+G	76499	FET GRWTH RET 2500+G
76419	LT-DATE W/MAL 2500+G	76509	EXTREME IMMAT 2500+G
76429	FETAL MALNUTR 2500+G	76519	PRETERM NEC 2500+G



PEDIATRIC QUALITY INDICATORS (PDI) PARAMETER ESTIMATES

Version 4.5

Prepared for:

Agency for Healthcare Research and Quality
U.S. Department of Health and Human Services
540 Gaither Road
Rockville, MD 20850
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Executive Summary

This document provides statistical parameters associated with version 4.5 of Agency for Healthcare Research and Quality (AHRQ) Quality Indicators™ (QI) Pediatric Quality Indicators (PDI). The parameter estimates derived for the AHRQ QI are based on analysis of the 2010 Agency for Healthcare Research and Quality's Healthcare Cost and Utilization Project (HCUP) State Inpatient Databases (SID). HCUP is a family of health care databases and related software tools and products developed through a Federal-State-Industry partnership¹. HCUP includes the largest collection of longitudinal hospital care data in the United States, with all-payer, encounter-level information beginning in 1988. The SID contain all-payer, encounter-level information on inpatient discharges, including clinical and resource information typically found on a billing record, such as patient demographics, up to 30 *International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM)* diagnoses and procedures, length of stay (LOS), expected payer, admission and discharge dates and discharge disposition. In 2010, the HCUP databases represent more than 95 percent of all annual discharges in the U.S.²

Two types of parameters are listed here. The majority of the document is devoted to listing covariates and coefficients for risk adjustment logistic regression models. The document also lists weights used to calculate the composite indicator, PDI #19.

The regression coefficients are used by the prediction module to calculate risk-adjusted rates that account for differences in patient populations across providers or across areas. Covariates that are considered as potential risk adjusters include gender and age, birth weight, congenital anomalies, Major Diagnostic Categories (MDC), Modified Diagnosis-Related Group (MDRG) categories, patient point-of-origin and whether they were transferred from another facility, and

¹ The AHRQ QI program would like to acknowledge the HCUP Partner organizations that participated in the HCUP SID: **Alaska** State Hospital and Nursing Home Association, **Arizona** Department of Health Services, **Arkansas** Department of Health, **California** Office of Statewide Health Planning and Development, **Colorado** Hospital Association, **Connecticut** Hospital Association, **Florida** Agency for Health Care Administration, **Georgia** Hospital Association, **Hawaii** Health Information Corporation, **Illinois** Department of Public Health, **Indiana** Hospital Association, **Iowa** Hospital Association, **Kansas** Hospital Association, **Kentucky** Cabinet for Health and Family Services, **Louisiana** Department of Health and Hospitals, **Maine** Health Data Organization, **Maryland** Health Services Cost Review Commission, **Massachusetts** Center for Health Information and Analysis, **Michigan** Health & Hospital Association, **Minnesota** Hospital Association (provides data for Minnesota and North Dakota), **Mississippi** Department of Health, **Missouri** Hospital Industry Data Institute, **Montana** MHA - An Association of Montana Health Care Providers, **Nebraska** Hospital Association, **Nevada** Department of Health and Human Services, **New Hampshire** Department of Health & Human Services, **New Jersey** Department of Health, **New Mexico** Department of Health, **New York** State Department of Health, **North Carolina** Department of Health and Human Services, **North Dakota** (data provided by the Minnesota Hospital Association), **Ohio** Hospital Association, **Oklahoma** State Department of Health, **Oregon** Association of Hospitals and Health Systems, **Oregon** Health Policy and Research, **Pennsylvania** Health Care Cost Containment Council, **Rhode Island** Department of Health, **South Carolina** Budget & Control Board, **South Dakota** Association of Healthcare Organizations, **Tennessee** Hospital Association, **Texas** Department of State Health Services, **Utah** Department of Health, **Vermont** Association of Hospitals and Health Systems, **Virginia** Health Information, **Washington** State Department of Health, **West Virginia** Health Care Authority, **Wisconsin** Department of Health Services, **Wyoming** Hospital Association

² The states included in the analysis are Alaska, Arkansas, Arizona, California, Colorado, Connecticut, Florida, Georgia, Hawaii, Iowa, Illinois, Indiana, Kansas, Kentucky, Louisiana, Massachusetts, Maryland, Maine, Michigan, Minnesota, Missouri, Montana, North Carolina, Nebraska, New Jersey, New Mexico, Nevada, New York, Ohio, Oklahoma, Oregon, Pennsylvania, Rhode Island, South Carolina, South Dakota, Tennessee, Texas, Utah, Virginia, Vermont, Washington, Wisconsin, West Virginia, and Wyoming.

some indicator specific categories. Descriptions of some variable categories are provided in the Appendix tables at the end of the document. Every covariate in every model is a binary indicator variable, coded using 0 or 1. The AHRQ QI software user does not need to manipulate or adjust these coefficients; rather this document is intended to make it transparent to the user how the risk adjusted QI rates are calculated.

The document provides a risk adjustment coefficient table for each risk-adjusted PDI, with the exception of PDI #11 Postoperative Wound Dehiscence Rate. Certain indicators (such as PDI #11 Postoperative Wound Dehiscence Rate) are not risk-adjusted because materially important risk factors (e.g., post-operative coughing) are not available in the Healthcare Cost and Utilization Project (HCUP) State Inpatient Database (SID).

Several PDI have populations at risk that are complex, and are therefore stratified in a manner described in the technical specifications so analysts may examine observed rates for each stratum. Categorical variables are used to identify the strata. Whereas the risk adjustment models in some of the other AHRQ QI modules fit individual models for individual QI strata, which results in stratum-specific coefficients for each variable in the models, the PDI module includes at most one risk adjustment model per QI, pooling the data across strata to fit coefficients on the covariates, and using binary indicator covariates to fit a separate regression intercept for each stratum. The variables that identify the strata, and whose coefficients are used to calculate the stratum-specific intercepts, are described in Table A.6.

Additional information on the risk adjustment process and composite indicators maybe found in *Quality Indicator Empirical Methods*, available on the AHRQ QI™ website.
(<http://www.qualityindicators.ahrq.gov/modules/Default.aspx>)

Table 1. Risk Adjustment Coefficients for NQI #2 Neonatal Mortality Rate

PARAMETER	LABEL	DF	ESTIMATE	STANDARD ERROR	WALD CHI-SQUARE	PR > CHI-SQUARE
INTERCEPT		1	-6.5954	0.1772	1385.97	< 0.0001
SEX	Female	1	-0.4015	0.0245	268.07	< 0.0001
BIRTH WEIGHT	2500+	1	0.9675	0.0540	320.94	< 0.0001
BIRTH WEIGHT	2000 to 2499	1	1.1441	0.0530	465.17	< 0.0001
BIRTH WEIGHT	1750 to 1999	1	1.7939	0.0706	646.36	< 0.0001
BIRTH WEIGHT	1500 to 1749	1	2.3595	0.0675	1220.36	< 0.0001
BIRTH WEIGHT	1250 to 1499	1	2.6971	0.0673	1604.82	< 0.0001
BIRTH WEIGHT	1000 to 1249	1	3.5560	0.0559	4048.91	< 0.0001
BIRTH WEIGHT	750 to 999	1	4.6778	0.0452	10704.74	< 0.0001
BIRTH WEIGHT	<500 to 749	1	6.8426	0.0328	43574.23	< 0.0001
MDRG	416	1	4.1740	0.3068	185.10	< 0.0001
MDRG	505	1	-0.2257	0.2162	1.09	0.2966
MDRG	508	1	-0.4005	0.2429	2.72	0.0992
MDC	1	1	0.4161	0.2504	2.76	0.0965
MDC	4	1	2.3425	0.2343	99.97	< 0.0001
MDC	5	1	1.6794	0.1957	73.63	< 0.0001
MDC	6	1	-0.7176	0.2317	9.59	0.002
MDC	15	1	-0.7767	0.1726	20.24	< 0.0001
MDC	OTHER	1	-0.1243	0.2113	0.35	0.5564
CONGCAT	1	1	2.3713	0.0695	1165.32	< 0.0001
CONGCAT	2	1	3.7784	0.0589	4109.51	< 0.0001
CONGCAT	3	1	2.2168	0.0712	968.10	< 0.0001
CONGCAT	4	1	1.5146	0.0837	327.09	< 0.0001
CONGCAT	5	1	3.3051	0.0640	2667.03	< 0.0001
CONGCAT	6	1	5.2260	0.1645	1009.81	< 0.0001

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AHRQ Quality Indicators™
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PARAMETER	LABEL	DF	ESTIMATE	STANDARD ERROR	WALD CHI-SQUARE	PR > CHI-SQUARE
CONGCAT	7	1	3.5855	0.0935	1470.25	< 0.0001
CONGCAT	8	1	2.6276	0.0793	1098.04	< 0.0001
TRNSFER	Transfer-in	1	0.8353	0.0445	352.95	< 0.0001
NOPOUB04	UB-04 Point-of-Origin Data Not Available	1	-0.0869	0.0308	7.94	0.0048
NOPRDAY	Procedure Days Data Not Available	1	0.5911	0.0268	487.24	< 0.0001

c-statistic = 0.919

Table 2. Risk Adjustment Coefficients for NQI #3 Neonatal Blood Stream Infection Rate

PARAMETER	LABEL	DF	ESTIMATE	STANDARD ERROR	WALD CHI-SQUARE	PR > CHI-SQUARE
INTERCEPT		1	-4.4321	0.1000	1965.16	< 0.0001
BIRTH WEIGHT	1000 to 2499	1	0.1747	0.0963	3.29	0.0695
BIRTH WEIGHT	750 to 999	1	1.5000	0.1050	204.23	< 0.0001
BIRTH WEIGHT	<500 to 749	1	1.9451	0.1150	286.26	< 0.0001
MDRG	1501	1	0.0090	0.0865	0.01	0.9174
CONGCAT	1	1	0.6589	0.1041	40.04	< 0.0001
CONGCAT	5	1	0.4945	0.1552	10.15	0.0014
CONGCAT	8	1	-0.1343	0.2044	0.43	0.5112
TRANSFER	Transfer-in	1	-0.0333	0.1072	0.10	0.7560
NOPOUB04	UB-04 Point-of-Origin Data Not Available	1	0.0369	0.1095	0.11	0.7360

c-statistic = 0.626

Table 3. Risk Adjustment Coefficients for PDI #1 Accidental Puncture or Laceration Rate

PARAMETER	LABEL	DF	ESTIMATE	STANDARD ERROR	WALD CHI-SQUARE	PR > CHI-SQUARE
INTERCEPT		1	-9.7041	0.2355	1697.40	< 0.0001
MDC	5	1	-1.0631	0.1103	92.85	< 0.0001
MDC	6	1	-0.5362	0.1012	28.07	< 0.0001
MDC	8	1	-2.8787	0.1483	377.01	< 0.0001
MDC	11	1	-1.3590	0.1472	85.28	< 0.0001
MDC	15	1	-1.4487	0.1144	160.46	< 0.0001
MDC	OTHER	1	-1.8279	0.1042	307.79	< 0.0001
HPPD01	2	1	2.1627	0.2363	83.74	< 0.0001
HPPD01	3	1	3.7524	0.2399	244.74	< 0.0001
HPPD01	4 to 5	1	5.0460	0.2478	414.64	< 0.0001
HPPD01	6	1	6.2727	0.2324	728.74	< 0.0001
HPPD01	7	1	6.9796	0.2276	940.76	< 0.0001

c-statistic = 0.949

Table 4. Risk Adjustment Coefficients for PDI #2 Pressure Ulcer Rate

PARAMETER	LABEL	DF	ESTIMATE	STANDARD ERROR	WALD CHI-SQUARE	PR > CHI-SQUARE
INTERCEPT		1	-11.3641	0.5421	439.50	< 0.0001
PAGECAT	13 to 17	1	1.0873	0.4049	7.21	0.0073
PAGECAT	6 to 12	1	0.6175	0.3920	2.48	0.1152
MDC	1	1	0.2834	0.2700	1.10	0.2939
GPPD02	2	1	4.2160	0.4781	77.75	< 0.0001

c-statistic = 0.895

Table 5. Risk Adjustment Coefficients for PDI #5 Iatrogenic Pneumothorax Rate

PARAMETER	LABEL	DF	ESTIMATE	STANDARD ERROR	WALD CHI-SQUARE	PR > CHI-SQUARE
INTERCEPT		1	-9.2459	0.1095	7134.96	< 0.0001
PAGECAT	13 to 17	1	0.9421	0.1371	47.24	< 0.0001
PAGECAT	1 to 12	1	0.5507	0.1218	20.43	< 0.0001

c-statistic = 0.548

Table 6. Risk Adjustment Coefficients for PDI #6 RACHS-1 Pediatric Heart Surgery Mortality Rate

PARAMETER	LABEL	DF	ESTIMATE	STANDARD ERROR	WALD CHI-SQUARE	PR > CHI-SQUARE
INTERCEPT		1	-4.4761	0.1400	1022.56	< 0.0001
AGEDCAT	91+	1	0.8117	0.1493	29.54	< 0.0001
AGEDCAT	29 to 90	1	0.9159	0.1594	33.03	< 0.0001
AGEDCAT	0 to 28	1	2.0274	0.1472	189.76	< 0.0001
BWHTCAT	<500 to 2499	1	0.1695	0.1258	1.82	0.1778
CCS	217	1	0.3430	0.0852	16.21	0.0001
TRANSFER	Transfer-in	1	0.0062	0.1108	0.00	0.9556
HPPD06	2	1	-0.8451	0.1270	44.27	< 0.0001
HPPD06	3	1	0.0068	0.1310	0.00	0.9588
HPPD06	4	1	0.1455	0.1248	1.36	0.2439
HPPD06	5 to 6	1	0.9059	0.1722	27.66	< 0.0001
RACHS-1	Multiple	1	0.5337	0.0958	31.03	< 0.0001

c-statistic = 0.784

Table 7. Risk Adjustment Coefficients for PDI #8 Perioperative Hemorrhage or Hematoma Rate

PARAMETER	LABEL	DF	ESTIMATE	STANDARD ERROR	WALD CHI-SQUARE	PR > CHI-SQUARE
INTERCEPT		1	-5.9179	0.0867	4662.76	< 0.0001
MDC	5	1	2.0937	0.1229	290.33	< 0.0001

c-statistic = 0.629

Table 8. Risk Adjustment Coefficients for PDI #9 Postoperative Respiratory Failure Rate

PARAMETER	LABEL	DF	ESTIMATE	STANDARD ERROR	WALD CHI-SQUARE	PR > CHI-SQUARE
INTERCEPT		1	-3.8917	0.1484	687.92	< 0.0001
PAGECAT	13 to 17	1	-1.9002	0.1633	135.38	< 0.0001
PAGECAT	6 to 12	1	-1.5944	0.1634	95.24	< 0.0001
PAGECAT	3 to 5	1	-1.4687	0.1717	73.18	< 0.0001
PAGECAT	1 to 2	1	-1.1091	0.1609	47.49	< 0.0001
AGEDCAT	29 to 91+	1	-0.8010	0.1509	28.17	< 0.0001
MDRG	802	1	1.0791	0.1493	52.25	< 0.0001
MDC	1	1	0.3377	0.1066	10.04	0.0015
CCS	52	1	1.1102	0.1299	73.06	< 0.0001
CCS	58	1	0.8563	0.0928	85.06	< 0.0001
CCS	82	1	0.7288	0.1241	34.50	< 0.0001
CCS	95	1	0.6301	0.0988	40.70	< 0.0001
CCS	133	1	1.1227	0.1439	60.91	< 0.0001
CCS	217	1	0.5506	0.0860	41.00	< 0.0001
CCS	224	1	0.8335	0.1477	31.86	< 0.0001
TRANSFER	Transfer-in	1	1.6088	0.3127	26.47	< 0.0001

c-statistic = 0.765

Table 9. Risk Adjustment Coefficients for PDI #10 Postoperative Sepsis Rate

PARAMETER	LABEL	DF	ESTIMATE	STANDARD ERROR	WALD CHI-SQUARE	PR > CHI-SQUARE
INTERCEPT		1	-4.6208	0.1343	1184.41	< 0.0001
PAGECAT	13 to 17	1	-0.7263	0.0756	92.27	< 0.0001
PAGECAT	6 to 12	1	-0.8626	0.0869	98.54	< 0.0001
PAGECAT	3 to 5	1	-0.6527	0.1134	33.11	< 0.0001
CCS	62	1	0.9431	0.1274	54.77	< 0.0001
CCS	83	1	0.5239	0.1046	25.11	< 0.0001
CCS	108	1	0.7506	0.1114	45.43	< 0.0001
CCS	151	1	0.6228	0.1290	23.31	< 0.0001
CCS	213	1	0.6329	0.0971	42.50	< 0.0001
TRNSFER	Transfer-in	1	0.4982	0.0854	34.05	< 0.0001
GPPD10	2 to 3	1	0.2611	0.1251	4.35	0.0369
GPPD10	4 to 5	1	0.7768	0.1316	34.84	< 0.0001
HPPD10	2 to 3	1	1.4073	0.0767	336.98	< 0.0001

c-statistic = 0.758

Table 10. Risk Adjustment Coefficients for PDI #12 Central Venous Catheter-Related Blood Stream Infection Rate

PARAMETER	LABEL	DF	ESTIMATE	STANDARD ERROR	WALD CHI-SQUARE	PR > CHI-SQUARE
INTERCEPT		1	-7.1408	0.0726	9678.83	< 0.0001
PAGECAT	13 to 17	1	-0.7535	0.0954	62.39	< 0.0001
PAGECAT	6 to 12	1	-0.6861	0.0932	54.17	< 0.0001
PAGECAT	3 to 5	1	-0.4624	0.0982	22.19	< 0.0001
PAGECAT	1 to 2	1	-0.0751	0.0860	0.76	0.3825
BIRTH WEIGHT	1000 to 1249	1	2.0378	0.1384	216.92	< 0.0001
BIRTH WEIGHT	750 to 999	1	2.3797	0.1193	398.01	< 0.0001
BIRTH WEIGHT	<500 to 749	1	2.7759	0.1213	524.02	< 0.0001
MDRG	416	1	0.6588	0.1416	21.64	< 0.0001
MDRG	602	1	1.3831	0.1398	97.85	< 0.0001
MDRG	1711	1	1.2589	0.1478	72.51	< 0.0001
MDRG	7705	1	2.4387	0.1226	395.43	< 0.0001
MDC	5	1	0.4025	0.1025	15.42	0.0001
MDC	7	1	0.8861	0.1359	42.54	< 0.0001
MDC	10	1	0.2287	0.1505	2.31	0.1287
MDC	15	1	-1.1323	0.0853	176.26	< 0.0001
MDC	16	1	-0.0408	0.1356	0.09	0.7635
CCS	39	1	0.7694	0.1058	52.89	< 0.0001
CCS	52	1	0.3238	0.0926	12.23	0.0005
CCS	58	1	0.4406	0.0688	41.04	< 0.0001
CCS	63	1	-0.6275	0.1431	19.23	< 0.0001
CCS	81	1	0.2822	0.1449	3.79	0.0515
CCS	82	1	0.5089	0.1438	12.53	0.0004
CCS	83	1	0.3794	0.1125	11.38	0.0007
CCS	103	1	0.6020	0.1459	17.02	< 0.0001

(CONTINUED)

PARAMETER	LABEL	DF	ESTIMATE	STANDARD ERROR	WALD CHI-SQUARE	PR > CHI-SQUARE
CCS	138	1	0.1575	0.0827	3.63	0.0568
CCS	151	1	0.4509	0.1024	19.38	< 0.0001
CCS	213	1	1.0672	0.0679	246.79	< 0.0001
CCS	214	1	0.8629	0.1025	70.85	< 0.0001
CCS	217	1	0.1728	0.0765	5.11	0.0238
TRANSFER	Transfer-in	1	0.7140	0.0610	137.23	< 0.0001
NOPOUB04	UB-04 Point-of-Origin Data Not Available	1	0.4010	0.0499	64.46	< 0.0001
NOPRDAY	Procedure Days Data Not Available	1	-2.5682	0.1188	467.11	< 0.0001
GPPD12	2	1	0.8288	0.1542	28.87	< 0.0001
GPPD12	3	1	1.9160	0.0665	830.40	< 0.0001

c-statistic = 0.926

Table 11. Risk Adjustment Coefficients for PDI #14 Asthma Admission Rate

PARAMETER	LABEL	DF	ESTIMATE	STANDARD ERROR	WALD CHI-SQUARE	PR > CHI-SQUARE
INTERCEPT		1	-5.6860	0.0070	648244.7	< 0.0001
SEX	Female	1	-0.5190	0.0117	1963.33	< 0.0001
AGE2	Male, Age 5-9	1	-0.6460	0.0103	3928.66	< 0.0001
AGE3	Male, Age 10-14	1	-1.3880	0.0129	11607.62	< 0.0001
AGE4	Male, Age 15-17	1	-2.2890	0.0223	10539.28	< 0.0001
AGE2	Female, Age 5-9	1	0.0688	0.0169	16.59	< 0.0001
AGE3	Female, Age 10-14	1	0.1499	0.0207	52.36	< 0.0001
AGE4	Female, Age 15-17	1	0.6621	0.0315	441.42	< 0.0001

c-statistic = 0.608

Table 12. Risk Adjustment Coefficients for PDI #15 Diabetes Short-Term Complications Admission Rate

PARAMETER	LABEL	DF	ESTIMATE	STANDARD ERROR	WALD CHI-SQUARE	PR > CHI-SQUARE
INTERCEPT		1	-7.9890	0.0213	140774.1	< 0.0001
SEX	Female	1	0.2553	0.0287	79.13	< 0.0001
AGE2	Male, Age 5-9	1	-1.1200	0.0398	792.94	< 0.0001
AGE3	Male, Age 10-14	1	-0.2230	0.0286	61.29	< 0.0001
AGE2	Female, Age 5-9	1	-0.0190	0.0537	0.13	0.7169
AGE3	Female, Age 10-14	1	-0.0850	0.0388	4.82	0.0281

c-statistic: Measures of association between the observed and predicted values were not calculated because the predicted probabilities are indistinguishable when they are classified into intervals of length 0.002.

Table 13. Risk Adjustment Coefficients for PDI #16 Gastroenteritis Admission Rate

PARAMETER	LABEL	DF	ESTIMATE	STANDARD ERROR	WALD CHI-SQUARE	PR > CHI-SQUARE
INTERCEPT		1	-6.3580	0.0078	657889.9	< 0.0001
SEX	Female	1	-0.1310	0.0116	129.07	< 0.0001
AGE2	Male, Age 5-9	1	-1.2780	0.0164	6084.53	< 0.0001
AGE3	Male, Age 10-14	1	-2.0250	0.0222	8358.40	< 0.0001
AGE4	Male, Age 15-17	1	-2.0990	0.0280	5612.87	< 0.0001
AGE2	Female, Age 5-9	1	0.0060	0.0242	0.06	0.8037
AGE3	Female, Age 10-14	1	0.0988	0.0321	9.50	0.0021
AGE4	Female, Age 15-17	1	0.3906	0.0380	105.45	< 0.0001

c-statistic: Measures of association between the observed and predicted values were not calculated because the predicted probabilities are indistinguishable when they are classified into intervals of length 0.002.

Table 14. Risk Adjustment Coefficients for PDI #17 Perforated Appendix Admission Rate

PARAMETER	LABEL	DF	ESTIMATE	STANDARD ERROR	WALD CHI-SQUARE	PR > CHI-SQUARE
INTERCEPT		1	0.4560	0.0452	101.54	< 0.0001
SEX	Female	1	0.1669	0.0685	5.94	0.0148
AGE2	Male, Age 5-9	1	-1.0660	0.0496	461.68	< 0.0001
AGE3	Male, Age 10-14	1	-1.3630	0.0483	795.71	< 0.0001
AGE4	Male, Age 15-17	1	-1.6130	0.0505	1020.68	< 0.0001
AGE2	Female, Age 5-9	1	-0.0570	0.0755	0.59	0.4431
AGE3	Female, Age 10-14	1	-0.1620	0.0738	4.84	0.0278
AGE4	Female, Age 15-17	1	-0.5400	0.0782	47.89	< 0.0001

c-statistic = 0.609

Table 15. Risk Adjustment Coefficients for PDI #18 Urinary Tract Infection Admission Rate

PARAMETER	LABEL	DF	ESTIMATE	STANDARD ERROR	WALD CHI-SQUARE	PR > CHI-SQUARE
INTERCEPT		1	-7.9860	0.0177	204273.7	< 0.0001
SEX	Female	1	1.2556	0.0201	3889.73	< 0.0001
AGE2	Male, Age 5-9	1	-1.5760	0.0416	1434.33	< 0.0001
AGE3	Male, Age 10-14	1	-1.8940	0.0472	1608.92	< 0.0001
AGE4	Male, Age 15-17	1	-1.8780	0.0572	1079.69	< 0.0001
AGE2	Female, Age 5-9	1	0.6258	0.0453	190.85	< 0.0001
AGE3	Female, Age 10-14	1	0.1716	0.0530	10.49	0.0012
AGE4	Female, Age 15-17	1	1.3422	0.0600	501.11	< 0.0001

c-statistic: Measures of association between the observed and predicted values were not calculated because the predicted probabilities are indistinguishable when they are classified into intervals of length 0.002.

Table 16. Risk Adjustment Coefficients for PQI #9 Low Birth Weight Rate

PARAMETER	LABEL	DF	ESTIMATE	STANDARD ERROR	WALD CHI-SQUARE	PR > CHI-SQUARE
INTERCEPT		1	-2.7589	0.003	797816	< 0.0001
SEX	Female	1	0.0986	0.0043	519.667	< 0.0001

c-statistic = 0.512

Table 17. Risk Adjustment Coefficients for PDI #90 Pediatric Quality Overall Composite[§]

PARAMETER	LABEL	DF	ESTIMATE	STANDARD ERROR	WALD CHI-SQUARE	PR > CHI-SQUARE
INTERCEPT		1	-6.9610	0.0127	298370.3	< 0.0001
SEX	Female	1	0.6470	0.0159	1660.08	< 0.0001
AGE2	Male, Age 5-9	1	0.8574	0.0148	3362.92	< 0.0001
AGE3	Male, Age 10-14	1	0.3890	0.0153	649.81	< 0.0001
AGE2	Female, Age 5-9	1	-0.7610	0.0193	1551.48	< 0.0001
AGE3	Female, Age 10-14	1	-0.6880	0.0200	1185.17	< 0.0001

c-statistic = 0.532

[§] This PDI composite includes PDIs #14, #15, #16, and 18. For more information see *Quality Indicator User Guide: Pediatric Quality Indicators (PDI) Composite Measures*.

Table 18. Risk Adjustment Coefficients for PDI #91 Pediatric Quality Acute Composite **

PARAMETER	LABEL	DF	ESTIMATE	STANDARD ERROR	WALD CHI-SQUARE	PR > CHI-SQUARE
INTERCEPT		1	-8.2380	0.0241	116715.1	< 0.0001
SEX	Female	1	1.3036	0.0274	2271.62	< 0.0001
AGE2	Male, Age 5-9	1	0.6280	0.0289	473.00	< 0.0001
AGE3	Male, Age 10-14	1	0.0571	0.0305	3.49	0.0617
AGE2	Female, Age 5-9	1	-0.8190	0.0341	578.17	< 0.0001
AGE3	Female, Age 10-14	1	-0.8630	0.0365	558.62	< 0.0001

c-statistic: Measures of association between the observed and predicted values were not calculated because the predicted probabilities are indistinguishable when they are classified into intervals of length 0.002.

** This PDI composite includes PDIs #16 and #18. For more information see *Quality Indicator User Guide: Pediatric Quality Indicators (PDI) Composite Measures*.

Table 19. Risk Adjustment Coefficients for PDI #92 Pediatric Quality Chronic Composite^{††}

PARAMETER	LABEL	DF	ESTIMATE	STANDARD ERROR	WALD CHI-SQUARE	PR > CHI-SQUARE
INTERCEPT		1	-7.2890	0.0150	235845.3	< 0.0001
SEX	Female	1	0.2007	0.0205	96.02	< 0.0001
AGE2	Male, Age 5-9	1	0.9333	0.0172	2928.18	< 0.0001
AGE3	Male, Age 10-14	1	0.4927	0.0177	774.66	< 0.0001
AGE2	Female, Age 5-9	1	-0.5810	0.0245	562.83	< 0.0001
AGE3	Female, Age 10-14	1	-0.4090	0.0249	270.41	< 0.0001

c-statistic: Measures of association between the observed and predicted values were not calculated because the predicted probabilities are indistinguishable when they are classified into intervals of length 0.002.

^{††} This PDI composite includes PDIs #14 and #15. For more information see *Quality Indicator User Guide: Pediatric Quality Indicators (PDI) Composite Measures*.

Composite Weights for PDI #19

Users must use these “NQF Numerator Weights” when using the AHRQ QI software to compute the provider-level composite measure using their own data and when comparing the results of the software with the results reported under the Hospital Inpatient Quality Reporting (IQR) program. Table 3 provides the NQF weights for this composite measure. The sum of the weights for the indicators included in the same composite always equals one.

Note that the weight for some of the component indicators is zero. The reason is that the composite measures developed in the AHRQ workgroup final reports included all of the relevant indicators regardless whether the indicator was endorsed by NQF. However, the evaluation criteria applied by NQF required that the components of a composite be either NQF endorsed as individual measures or determined to have met the criteria for endorsement of an individual measure. In the version of the AHRQ QI composite measures submitted to NQF, component indicators that did not meet these criteria were assigned a weight of zero. This method is simply a way of operationalizing the concept that the NQF-endorsed composites do not include component indicators that were judged by the NQF not to meet the criteria for stand-alone endorsement.

Table 20. NQF Numerator Weights for PDI #19

INDICATOR	WEIGHT USEPOA = 0 ¹	WEIGHT USEPOA = 1 ¹
PDI #1 Accidental Puncture or Laceration Rate	0.2721	0.3119
PDI #2 Pressure Ulcer Rate	0.0317	0.0100
PDI #5 Iatrogenic Pneumothorax Rate	0.0678	0.0701
PDI #8 Perioperative Hemorrhage or Hematoma Rate ²	0.0000	0.0000
PDI #9 Postoperative Respiratory Failure Rate ²	0.0000	0.0000
PDI #10 Postoperative Sepsis Rate	0.2609	0.2655
PDI #11 Postoperative Wound Dehiscence Rate	0.0094	0.0121
PDI #12 Central Venous Catheter-Related Blood Stream Infection Rate	0.3581	0.3304
SUM	1.0000	1.0000

¹ The use of present on admission (POA) results in different weights for the composite. Without POA data, USEPOA = 0; With POA, USEPOA = 1.

² These weights are set to zero because these measures are not included in the NQF Endorsed Composite.

Table A.1. Population Age and Birth Weight Categories

AGE IN YEARS CATEGORIES (PAGECAT)	
5	13 to 17 years
4	6 to 12 years
3	3 to 5 years
2	1 to 2 years
1	< 1 year
AGE IN DAYS CATEGORIES (AGEDCAT)	
4	91+ days
3	61 to 90 days
2	29 to 60 days
1	< 29 days
BIRTH WEIGHT CATEGORIES (BWHTCAT)	
9	2500+ grams
8	2000-2499 grams
7	1750-1999 grams
6	1500-1749 grams
5	1250-1499 grams
4	1000-1249 grams
3	750-999 grams
2	500-749 grams
1	<500 grams

Table A.2. Modified Diagnosis-Related Group (MDRG) Categories

Column Headings

MDC – Major Diagnostic Category

M/S – Medical / Surgical DRG Indicator

MDRG – Modified DRG

CMS-DRG – Diagnosis-Related Group (DRG) Version 24 and earlier

MS-DRG – Diagnosis-Related Group (DRG) Version 25 and later

The modified DRG (MDRG) pools individual CMS-DRGs and MS-DRGs into a larger category. The MDRG is a four digit code. The first two digits are the MDC, and the second two digits are a sequence number (e.g., 01-04) within MDC. CMS-DRGs that are divided into separate CMS-DRGs due to the presence of complications and comorbidities (CC) are pooled into a single MDRG. MS-DRGs that are divided into separate MS-DRGs due to the presence of CC and Major CC (MCC) are pooled into a single MDRG. The CMS crosswalk was used to pool CMS-DRGs and MS-DRGs into a single MDRG.

MDC	M/S	MDRG	CMS-DRG	CMS-DRG DESCRIPTION	MS-DRG	MS-DRG DESCRIPTION
01	S	0101	528	INTRACRANIAL VASCULAR PROC W PDX HEMORRHAGE	020	INTRACRANIAL VASCULAR PROCEDURES W PDX HEMORRHAGE W MCC
01	S	0101	528	INTRACRANIAL VASCULAR PROC W PDX HEMORRHAGE	021	INTRACRANIAL VASCULAR PROCEDURES W PDX HEMORRHAGE W CC
01	S	0101	528	INTRACRANIAL VASCULAR PROC W PDX HEMORRHAGE	022	INTRACRANIAL VASCULAR PROCEDURES W PDX HEMORRHAGE W/O CC/MCC
01	S	0102	543	CRANIOTOMY W MAJOR DEVICE IMPLANT OR ACUTE COMPLEX CNS PRINCIPAL DIAGNOSIS	023	CRANIO W MAJOR DEV IMPL/ACUTE COMPLEX CNS PDX W MCC OR CHEMO IMPLANT
01	S	0102	543	CRANIOTOMY W MAJOR DEVICE IMPLANT OR ACUTE COMPLEX CNS PRINCIPAL DIAGNOSIS	024	CRANIO W MAJOR DEV IMPL/ACUTE COMPLEX CNS PDX W/O MCC
01	S	0103	001	CRANIOTOMY AGE >17 W CC	025	CRANIOTOMY & ENDOVASCULAR INTRACRANIAL PROCEDURES W MCC
01	S	0103	002	CRANIOTOMY AGE >17 W/O CC	026	CRANIOTOMY & ENDOVASCULAR INTRACRANIAL PROCEDURES W CC
01	S	0103	003	CRANIOTOMY AGE 0-17	027	CRANIOTOMY & ENDOVASCULAR INTRACRANIAL PROCEDURES W/O CC/MCC
01	S	0104	531	SPINAL PROCEDURES W CC	028	SPINAL PROCEDURES W MCC

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MDC	M/S	MDRG	CMS-DRG	CMS-DRG DESCRIPTION	MS-DRG	MS-DRG DESCRIPTION
01	S	0104	532	SPINAL PROCEDURES W/O CC	029	SPINAL PROCEDURES W CC OR SPINAL NEUROSTIMULATORS
01	S	0104	532	SPINAL PROCEDURES W/O CC	030	SPINAL PROCEDURES W/O CC/MCC
01	S	0104	004	SPINAL PROCEDURES (NO LONGER VALID)		
01	S	0105	529	VENTRICULAR SHUNT PROCEDURES W CC	031	VENTRICULAR SHUNT PROCEDURES W MCC
01	S	0105	530	VENTRICULAR SHUNT PROCEDURES W/O CC	032	VENTRICULAR SHUNT PROCEDURES W CC
01	S	0105	530	VENTRICULAR SHUNT PROCEDURES W/O CC	033	VENTRICULAR SHUNT PROCEDURES W/O CC/MCC
01	S	0106	577	CAROTID ARTERY STENT PROCEDURE	034	CAROTID ARTERY STENT PROCEDURE W MCC
01	S	0106	577	CAROTID ARTERY STENT PROCEDURE	035	CAROTID ARTERY STENT PROCEDURE W CC
01	S	0106	577	CAROTID ARTERY STENT PROCEDURE	036	CAROTID ARTERY STENT PROCEDURE W/O CC/MCC
01	S	0107	533	EXTRACRANIAL PROCEDURES W CC	037	EXTRACRANIAL PROCEDURES W MCC
01	S	0107	534	EXTRACRANIAL PROCEDURES W/O CC	038	EXTRACRANIAL PROCEDURES W CC
01	S	0107	534	EXTRACRANIAL PROCEDURES W/O CC	039	EXTRACRANIAL PROCEDURES W/O CC/MCC
01	S	0107	005	EXTRACRANIAL PROCEDURES (NO LONGER VALID)		
01	S	0108	006	CARPAL TUNNEL RELEASE	040	PERIPH & CRANIAL NERVE & OTHER NERV SYST PROC W MCC
01	S	0108	007	PERIPH & CRANIAL NERVE & OTHER NERV SYST PROC W CC	041	PERIPH/CRANIAL NERVE & OTHER NERV SYST PROC W CC OR PERIPH NEUROSTIM
01	S	0108	008	PERIPH & CRANIAL NERVE & OTHER NERV SYST PROC W/O CC	042	PERIPH & CRANIAL NERVE & OTHER NERV SYST PROC W/O CC/MCC
01	M	0109	009	SPINAL DISORDERS & INJURIES	052	SPINAL DISORDERS & INJURIES W CC/MCC
01	M	0109	009	SPINAL DISORDERS & INJURIES	053	SPINAL DISORDERS & INJURIES W/O CC/MCC
01	M	0110	010	NERVOUS SYSTEM NEOPLASMS W CC	054	NERVOUS SYSTEM NEOPLASMS W MCC
01	M	0110	011	NERVOUS SYSTEM NEOPLASMS W/O CC	055	NERVOUS SYSTEM NEOPLASMS W/O MCC
01	M	0111	012	DEGENERATIVE NERVOUS SYSTEM DISORDERS	056	DEGENERATIVE NERVOUS SYSTEM DISORDERS W MCC
01	M	0111	012	DEGENERATIVE NERVOUS SYSTEM DISORDERS	057	DEGENERATIVE NERVOUS SYSTEM DISORDERS W/O MCC
01	M	0112	013	MULTIPLE SCLEROSIS & CEREBELLAR ATAXIA	058	MULTIPLE SCLEROSIS & CEREBELLAR ATAXIA W MCC

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01	M	0112	013	MULTIPLE SCLEROSIS & CEREBELLAR ATAXIA	059	MULTIPLE SCLEROSIS & CEREBELLAR ATAXIA W CC
01	M	0112	013	MULTIPLE SCLEROSIS & CEREBELLAR ATAXIA	060	MULTIPLE SCLEROSIS & CEREBELLAR ATAXIA W/O CC/MCC
01	M	0113	559	ACUTE ISCHEMIC STROKE WITH USE OF THROMBOLYTIC AGENT	061	ACUTE ISCHEMIC STROKE W USE OF THROMBOLYTIC AGENT W MCC
01	M	0113	559	ACUTE ISCHEMIC STROKE WITH USE OF THROMBOLYTIC AGENT	062	ACUTE ISCHEMIC STROKE W USE OF THROMBOLYTIC AGENT W CC
01	M	0113	559	ACUTE ISCHEMIC STROKE WITH USE OF THROMBOLYTIC AGENT	063	ACUTE ISCHEMIC STROKE W USE OF THROMBOLYTIC AGENT W/O CC/MCC
01	M	0114	014	INTRACRANIAL HEMORRHAGE OR CEREBRAL INFARCTION	064	INTRACRANIAL HEMORRHAGE OR CEREBRAL INFARCTION W MCC
01	M	0114	014	INTRACRANIAL HEMORRHAGE OR CEREBRAL INFARCTION	065	INTRACRANIAL HEMORRHAGE OR CEREBRAL INFARCTION W CC
01	M	0114	014	INTRACRANIAL HEMORRHAGE OR CEREBRAL INFARCTION	066	INTRACRANIAL HEMORRHAGE OR CEREBRAL INFARCTION W/O CC/MCC
01	M	0115	015	NONSPECIFIC CVA & PRECEREBRAL OCCLUSION W/O INFARCT	067	NONSPECIFIC CVA & PRECEREBRAL OCCLUSION W/O INFARCT W MCC
01	M	0115	015	NONSPECIFIC CVA & PRECEREBRAL OCCLUSION W/O INFARCT	068	NONSPECIFIC CVA & PRECEREBRAL OCCLUSION W/O INFARCT W/O MCC
01	M	0116	524	TRANSIENT ISCHEMIA	069	TRANSIENT ISCHEMIA
01	M	0117	016	NONSPECIFIC CEREBROVASCULAR DISORDERS W CC	070	NONSPECIFIC CEREBROVASCULAR DISORDERS W MCC
01	M	0117	017	NONSPECIFIC CEREBROVASCULAR DISORDERS W/O CC	071	NONSPECIFIC CEREBROVASCULAR DISORDERS W CC
01	M	0117	017	NONSPECIFIC CEREBROVASCULAR DISORDERS W/O CC	072	NONSPECIFIC CEREBROVASCULAR DISORDERS W/O CC/MCC
01	M	0118	018	CRANIAL & PERIPHERAL NERVE DISORDERS W CC	073	CRANIAL & PERIPHERAL NERVE DISORDERS W MCC
01	M	0118	019	CRANIAL & PERIPHERAL NERVE DISORDERS W/O CC	074	CRANIAL & PERIPHERAL NERVE DISORDERS W/O MCC
01	M	0119	021	VIRAL MENINGITIS	075	VIRAL MENINGITIS W CC/MCC
01	M	0119	021	VIRAL MENINGITIS	076	VIRAL MENINGITIS W/O CC/MCC
01	M	0120	022	HYPERTENSIVE ENCEPHALOPATHY	077	HYPERTENSIVE ENCEPHALOPATHY W MCC
01	M	0120	022	HYPERTENSIVE ENCEPHALOPATHY	078	HYPERTENSIVE ENCEPHALOPATHY W CC

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MDC	M/S	MDRG	CMS-DRG	CMS-DRG DESCRIPTION	MS-DRG	MS-DRG DESCRIPTION
01	M	0120	022	HYPERTENSIVE ENCEPHALOPATHY	079	HYPERTENSIVE ENCEPHALOPATHY W/O CC/MCC
01	M	0121	023	NONTRAUMATIC STUPOR & COMA	080	NONTRAUMATIC STUPOR & COMA W MCC
01	M	0121	023	NONTRAUMATIC STUPOR & COMA	081	NONTRAUMATIC STUPOR & COMA W/O MCC
01	M	0122	027	TRAUMATIC STUPOR & COMA, COMA >1 HR	082	TRAUMATIC STUPOR & COMA, COMA >1 HR W MCC
01	M	0122	027	TRAUMATIC STUPOR & COMA, COMA >1 HR	083	TRAUMATIC STUPOR & COMA, COMA >1 HR W CC
01	M	0122	027	TRAUMATIC STUPOR & COMA, COMA >1 HR	084	TRAUMATIC STUPOR & COMA, COMA >1 HR W/O CC/MCC
01	M	0123	028	TRAUMATIC STUPOR & COMA, COMA <1 HR AGE >17 W CC	085	TRAUMATIC STUPOR & COMA, COMA <1 HR W MCC
01	M	0123	029	TRAUMATIC STUPOR & COMA, COMA <1 HR AGE >17 W/O CC	086	TRAUMATIC STUPOR & COMA, COMA <1 HR W CC
01	M	0123	030	TRAUMATIC STUPOR & COMA, COMA <1 HR AGE 0-17	087	TRAUMATIC STUPOR & COMA, COMA <1 HR W/O CC/MCC
01	M	0124	031	CONCUSSION AGE >17 W CC	088	CONCUSSION W MCC
01	M	0124	032	CONCUSSION AGE >17 W/O CC	089	CONCUSSION W CC
01	M	0124	033	CONCUSSION AGE 0-17	090	CONCUSSION W/O CC/MCC
01	M	0125	034	OTHER DISORDERS OF NERVOUS SYSTEM W CC	091	OTHER DISORDERS OF NERVOUS SYSTEM W MCC
01	M	0125	035	OTHER DISORDERS OF NERVOUS SYSTEM W/O CC	092	OTHER DISORDERS OF NERVOUS SYSTEM W CC
01	M	0125	035	OTHER DISORDERS OF NERVOUS SYSTEM W/O CC	093	OTHER DISORDERS OF NERVOUS SYSTEM W/O CC/MCC
01	M	0126	560	BACTERIAL & TUBERCULOUS INFECTIONS OF NERVOUS SYSTEM	094	BACTERIAL & TUBERCULOUS INFECTIONS OF NERVOUS SYSTEM W MCC
01	M	0126	560	BACTERIAL & TUBERCULOUS INFECTIONS OF NERVOUS SYSTEM	095	BACTERIAL & TUBERCULOUS INFECTIONS OF NERVOUS SYSTEM W CC
01	M	0126	560	BACTERIAL & TUBERCULOUS INFECTIONS OF NERVOUS SYSTEM	096	BACTERIAL & TUBERCULOUS INFECTIONS OF NERVOUS SYSTEM W/O CC/MCC
01	M	0127	561	NON-BACTERIAL INFECTIONS OF NERVOUS SYSTEM EXCEPT VIRAL MENINGITIS	097	NON-BACTERIAL INFECT OF NERVOUS SYS EXC VIRAL MENINGITIS W MCC
01	M	0127	561	NON-BACTERIAL INFECTIONS OF NERVOUS SYSTEM EXCEPT VIRAL MENINGITIS	098	NON-BACTERIAL INFECT OF NERVOUS SYS EXC VIRAL MENINGITIS W CC

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MDC	M/S	MDRG	CMS-DRG	CMS-DRG DESCRIPTION	MS-DRG	MS-DRG DESCRIPTION
01	M	0127	561	NON-BACTERIAL INFECTIONS OF NERVOUS SYSTEM EXCEPT VIRAL MENINGITIS	099	NON-BACTERIAL INFECT OF NERVOUS SYS EXC VIRAL MENINGITIS W/O CC/MCC
01	M	0128	026	SEIZURE & HEADACHE AGE 0-17	100	SEIZURES W MCC
01	M	0128	562	SEIZURE AGE > 17 W CC	101	SEIZURES W/O MCC
01	M	0128	563	SEIZURE AGE > 17 W/O CC	101	SEIZURES W/O MCC
01	M	0129	564	HEADACHES AGE >17	102	HEADACHES W MCC
01	M	0129	564	HEADACHES AGE >17	103	HEADACHES W/O MCC
01	M	0198	020	NERVOUS SYSTEM INFECTION EXCEPT VIRAL MENINGITIS (NO LONGER VALID)		
01	M	0198	024	SEIZURE & HEADACHE AGE >17 W CC (NO LONGER VALID)		
01	M	0198	025	SEIZURE & HEADACHE AGE >17 WO CC (NO LONGER VALID)		
04	M	0198	474	NO LONGER VALID		
02	S	0201	037	ORBITAL PROCEDURES	113	ORBITAL PROCEDURES W CC/MCC
02	S	0201	037	ORBITAL PROCEDURES	114	ORBITAL PROCEDURES W/O CC/MCC
02	S	0202	040	EXTRAOCULAR PROCEDURES EXCEPT ORBIT AGE >17	115	EXTRAOCULAR PROCEDURES EXCEPT ORBIT
02	S	0202	041	EXTRAOCULAR PROCEDURES EXCEPT ORBIT AGE 0-17	115	EXTRAOCULAR PROCEDURES EXCEPT ORBIT
02	S	0203	036	RETINAL PROCEDURES	116	INTRAOCULAR PROCEDURES W CC/MCC
02	S	0203	038	PRIMARY IRIS PROCEDURES	117	INTRAOCULAR PROCEDURES W/O CC/MCC
02	S	0203	039	LENS PROCEDURES WITH OR WITHOUT VITRECTOMY	117	INTRAOCULAR PROCEDURES W/O CC/MCC
02	S	0203	042	INTRAOCULAR PROCEDURES EXCEPT RETINA, IRIS & LENS	117	INTRAOCULAR PROCEDURES W/O CC/MCC
02	M	0204	044	ACUTE MAJOR EYE INFECTIONS	121	ACUTE MAJOR EYE INFECTIONS W CC/MCC
02	M	0204	044	ACUTE MAJOR EYE INFECTIONS	122	ACUTE MAJOR EYE INFECTIONS W/O CC/MCC
02	M	0205	045	NEUROLOGICAL EYE DISORDERS	123	NEUROLOGICAL EYE DISORDERS
02	M	0206	043	HYPHEMA	124	OTHER DISORDERS OF THE EYE W MCC
02	M	0206	046	OTHER DISORDERS OF THE EYE AGE >17 W CC	125	OTHER DISORDERS OF THE EYE W/O MCC
02	M	0206	047	OTHER DISORDERS OF THE EYE AGE >17 W/O CC	125	OTHER DISORDERS OF THE EYE W/O MCC

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MDC	M/S	MDRG	CMS-DRG	CMS-DRG DESCRIPTION	MS-DRG	MS-DRG DESCRIPTION
02	M	0206	048	OTHER DISORDERS OF THE EYE AGE 0-17	125	OTHER DISORDERS OF THE EYE W/O MCC
03	S	0301	049	MAJOR HEAD & NECK PROCEDURES	129	MAJOR HEAD & NECK PROCEDURES W CC/MCC OR MAJOR DEVICE
03	S	0301	049	MAJOR HEAD & NECK PROCEDURES	130	MAJOR HEAD & NECK PROCEDURES W/O CC/MCC
03	S	0301	049	MAJOR HEAD & NECK PROCEDURES	131	CRANIAL/FACIAL PROCEDURES W CC/MCC
03	S	0301	049	MAJOR HEAD & NECK PROCEDURES	132	CRANIAL/FACIAL PROCEDURES W/O CC/MCC
03	S	0302	052	CLEFT LIP & PALATE REPAIR	133	OTHER EAR, NOSE, MOUTH & THROAT O.R. PROCEDURES W CC/MCC
03	S	0302	055	MISCELLANEOUS EAR, NOSE, MOUTH & THROAT PROCEDURES	134	OTHER EAR, NOSE, MOUTH & THROAT O.R. PROCEDURES W/O CC/MCC
03	S	0302	056	RHINOPLASTY	134	OTHER EAR, NOSE, MOUTH & THROAT O.R. PROCEDURES W/O CC/MCC
03	S	0302	057	T&A PROC, EXCEPT TONSILLECTOMY &/OR ADENOIDECTOMY ONLY, AGE >17	134	OTHER EAR, NOSE, MOUTH & THROAT O.R. PROCEDURES W/O CC/MCC
03	S	0302	058	T&A PROC, EXCEPT TONSILLECTOMY &/OR ADENOIDECTOMY ONLY, AGE 0-17	134	OTHER EAR, NOSE, MOUTH & THROAT O.R. PROCEDURES W/O CC/MCC
03	S	0302	059	TONSILLECTOMY &/OR ADENOIDECTOMY ONLY, AGE >17	134	OTHER EAR, NOSE, MOUTH & THROAT O.R. PROCEDURES W/O CC/MCC
03	S	0302	060	TONSILLECTOMY &/OR ADENOIDECTOMY ONLY, AGE 0-17	134	OTHER EAR, NOSE, MOUTH & THROAT O.R. PROCEDURES W/O CC/MCC
03	S	0302	061	MYRINGOTOMY W TUBE INSERTION AGE >17	134	OTHER EAR, NOSE, MOUTH & THROAT O.R. PROCEDURES W/O CC/MCC
03	S	0302	062	MYRINGOTOMY W TUBE INSERTION AGE 0-17	134	OTHER EAR, NOSE, MOUTH & THROAT O.R. PROCEDURES W/O CC/MCC
03	S	0302	063	OTHER EAR, NOSE, MOUTH & THROAT O.R. PROCEDURES	134	OTHER EAR, NOSE, MOUTH & THROAT O.R. PROCEDURES W/O CC/MCC
03	S	0303	053	SINUS & MASTOID PROCEDURES AGE >17	135	SINUS & MASTOID PROCEDURES W CC/MCC
03	S	0303	054	SINUS & MASTOID PROCEDURES AGE 0-17	136	SINUS & MASTOID PROCEDURES W/O CC/MCC
03	S	0304	168	MOUTH PROCEDURES W CC	137	MOUTH PROCEDURES W CC/MCC
03	S	0304	169	MOUTH PROCEDURES W/O CC	138	MOUTH PROCEDURES W/O CC/MCC
03	S	0305	050	SIALOADENECTOMY	139	SALIVARY GLAND PROCEDURES
03	S	0305	051	SALIVARY GLAND PROCEDURES EXCEPT SIALOADENECTOMY	139	SALIVARY GLAND PROCEDURES

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MDC	M/S	MDRG	CMS-DRG	CMS-DRG DESCRIPTION	MS-DRG	MS-DRG DESCRIPTION
03	M	0306	064	EAR, NOSE, MOUTH & THROAT MALIGNANCY	146	EAR, NOSE, MOUTH & THROAT MALIGNANCY W MCC
03	M	0306	064	EAR, NOSE, MOUTH & THROAT MALIGNANCY	147	EAR, NOSE, MOUTH & THROAT MALIGNANCY W CC
03	M	0306	064	EAR, NOSE, MOUTH & THROAT MALIGNANCY	148	EAR, NOSE, MOUTH & THROAT MALIGNANCY W/O CC/MCC
03	M	0307	065	DYSEQUILIBRIUM	149	DYSEQUILIBRIUM
03	M	0308	066	EPISTAXIS	150	EPISTAXIS W MCC
03	M	0308	066	EPISTAXIS	151	EPISTAXIS W/O MCC
03	M	0309	067	EPIGLOTTITIS	152	OTITIS MEDIA & URI W MCC
03	M	0309	068	OTITIS MEDIA & URI AGE >17 W CC	153	OTITIS MEDIA & URI W/O MCC
03	M	0309	069	OTITIS MEDIA & URI AGE >17 W/O CC	153	OTITIS MEDIA & URI W/O MCC
03	M	0309	070	OTITIS MEDIA & URI AGE 0-17	153	OTITIS MEDIA & URI W/O MCC
03	M	0309	071	LARYNGOTRACHEITIS	153	OTITIS MEDIA & URI W/O MCC
03	M	0310	072	NASAL TRAUMA & DEFORMITY	154	NASAL TRAUMA & DEFORMITY W MCC
03	M	0310	073	OTHER EAR, NOSE, MOUTH & THROAT DIAGNOSES AGE >17	155	NASAL TRAUMA & DEFORMITY W CC
03	M	0310	074	OTHER EAR, NOSE, MOUTH & THROAT DIAGNOSES AGE 0-17	156	NASAL TRAUMA & DEFORMITY W/O CC/MCC
03	M	0311	185	DENTAL & ORAL DIS EXCEPT EXTRACTIONS & RESTORATIONS, AGE >17	157	DENTAL & ORAL DISEASES W MCC
03	M	0311	186	DENTAL & ORAL DIS EXCEPT EXTRACTIONS & RESTORATIONS, AGE 0-17	158	DENTAL & ORAL DISEASES W CC
03	M	0311	187	DENTAL EXTRACTIONS & RESTORATIONS	159	DENTAL & ORAL DISEASES W/O CC/MCC
04	S	0401	075	MAJOR CHEST PROCEDURES	163	MAJOR CHEST PROCEDURES W MCC
04	S	0401	075	MAJOR CHEST PROCEDURES	164	MAJOR CHEST PROCEDURES W CC
04	S	0401	075	MAJOR CHEST PROCEDURES	165	MAJOR CHEST PROCEDURES W/O CC/MCC
04	S	0402	076	OTHER RESP SYSTEM O.R. PROCEDURES W CC	166	OTHER RESP SYSTEM O.R. PROCEDURES W MCC
04	S	0402	077	OTHER RESP SYSTEM O.R. PROCEDURES W/O CC	167	OTHER RESP SYSTEM O.R. PROCEDURES W CC
04	S	0402	077	OTHER RESP SYSTEM O.R. PROCEDURES W/O CC	168	OTHER RESP SYSTEM O.R. PROCEDURES W/O CC/MCC
04	M	0403	078	PULMONARY EMBOLISM	175	PULMONARY EMBOLISM W MCC

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MDC	M/S	MDRG	CMS-DRG	CMS-DRG DESCRIPTION	MS-DRG	MS-DRG DESCRIPTION
04	M	0403	078	PULMONARY EMBOLISM	176	PULMONARY EMBOLISM W/O MCC
04	M	0404	079	RESPIRATORY INFECTIONS & INFLAMMATIONS AGE >17 W CC	177	RESPIRATORY INFECTIONS & INFLAMMATIONS W MCC
04	M	0404	080	RESPIRATORY INFECTIONS & INFLAMMATIONS AGE >17 W/O CC	178	RESPIRATORY INFECTIONS & INFLAMMATIONS W CC
04	M	0404	081	RESPIRATORY INFECTIONS & INFLAMMATIONS AGE 0-17	179	RESPIRATORY INFECTIONS & INFLAMMATIONS W/O CC/MCC
04	M	0405	082	RESPIRATORY NEOPLASMS	180	RESPIRATORY NEOPLASMS W MCC
04	M	0405	082	RESPIRATORY NEOPLASMS	181	RESPIRATORY NEOPLASMS W CC
04	M	0405	082	RESPIRATORY NEOPLASMS	182	RESPIRATORY NEOPLASMS W/O CC/MCC
04	M	0406	083	MAJOR CHEST TRAUMA W CC	183	MAJOR CHEST TRAUMA W MCC
04	M	0406	084	MAJOR CHEST TRAUMA W/O CC	184	MAJOR CHEST TRAUMA W CC
04	M	0406	084	MAJOR CHEST TRAUMA W/O CC	185	MAJOR CHEST TRAUMA W/O CC/MCC
04	M	0407	085	PLEURAL EFFUSION W CC	186	PLEURAL EFFUSION W MCC
04	M	0407	086	PLEURAL EFFUSION W/O CC	187	PLEURAL EFFUSION W CC
04	M	0407	086	PLEURAL EFFUSION W/O CC	188	PLEURAL EFFUSION W/O CC/MCC
04	M	0408	087	PULMONARY EDEMA & RESPIRATORY FAILURE	189	PULMONARY EDEMA & RESPIRATORY FAILURE
04	M	0409	088	CHRONIC OBSTRUCTIVE PULMONARY DISEASE	190	CHRONIC OBSTRUCTIVE PULMONARY DISEASE W MCC
04	M	0409	088	CHRONIC OBSTRUCTIVE PULMONARY DISEASE	191	CHRONIC OBSTRUCTIVE PULMONARY DISEASE W CC
04	M	0409	088	CHRONIC OBSTRUCTIVE PULMONARY DISEASE	192	CHRONIC OBSTRUCTIVE PULMONARY DISEASE W/O CC/MCC
04	M	0410	089	SIMPLE PNEUMONIA & PLEURISY AGE >17 W CC	193	SIMPLE PNEUMONIA & PLEURISY W MCC
04	M	0410	090	SIMPLE PNEUMONIA & PLEURISY AGE >17 W/O CC	194	SIMPLE PNEUMONIA & PLEURISY W CC
04	M	0410	091	SIMPLE PNEUMONIA & PLEURISY AGE 0-17	195	SIMPLE PNEUMONIA & PLEURISY W/O CC/MCC
04	M	0411	092	INTERSTITIAL LUNG DISEASE W CC	196	INTERSTITIAL LUNG DISEASE W MCC
04	M	0411	093	INTERSTITIAL LUNG DISEASE W/O CC	197	INTERSTITIAL LUNG DISEASE W CC
04	M	0411	093	INTERSTITIAL LUNG DISEASE W/O CC	198	INTERSTITIAL LUNG DISEASE W/O CC/MCC
04	M	0412	094	PNEUMOTHORAX W CC	199	PNEUMOTHORAX W MCC

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MDC	M/S	MDRG	CMS-DRG	CMS-DRG DESCRIPTION	MS-DRG	MS-DRG DESCRIPTION
04	M	0412	095	PNEUMOTHORAX W/O CC	200	PNEUMOTHORAX W CC
04	M	0412	095	PNEUMOTHORAX W/O CC	201	PNEUMOTHORAX W/O CC/MCC
04	M	0413	096	BRONCHITIS & ASTHMA AGE >17 W CC	202	BRONCHITIS & ASTHMA W CC/MCC
04	M	0413	097	BRONCHITIS & ASTHMA AGE >17 W/O CC	203	BRONCHITIS & ASTHMA W/O CC/MCC
04	M	0413	098	BRONCHITIS & ASTHMA AGE 0-17	203	BRONCHITIS & ASTHMA W/O CC/MCC
04	M	0414	099	RESPIRATORY SIGNS & SYMPTOMS W CC	204	RESPIRATORY SIGNS & SYMPTOMS
04	M	0414	100	RESPIRATORY SIGNS & SYMPTOMS W/O CC	204	RESPIRATORY SIGNS & SYMPTOMS
04	M	0415	101	OTHER RESPIRATORY SYSTEM DIAGNOSES W CC	205	OTHER RESPIRATORY SYSTEM DIAGNOSES W MCC
04	M	0415	102	OTHER RESPIRATORY SYSTEM DIAGNOSES W/O CC	206	OTHER RESPIRATORY SYSTEM DIAGNOSES W/O MCC
04	M	0416	565	RESPIRATORY SYSTEM DIAGNOSIS WITH VENTILATOR SUPPORT 96+ HOURS	207	RESPIRATORY SYSTEM DIAGNOSIS W VENTILATOR SUPPORT 96+ HOURS
04	M	0416	566	RESPIRATORY SYSTEM DIAGNOSIS WITH VENTILATOR SUPPORT < 96 HOURS	208	RESPIRATORY SYSTEM DIAGNOSIS W VENTILATOR SUPPORT <96 HOURS
04	M	0416	475	RESPIRATORY SYSTEM DIAGNOSIS WITH VENTILATOR SUPPORT (NO LONGER VALID)		
05	S	0501	525	OTHER HEART ASSIST SYSTEM IMPLANT	215	OTHER HEART ASSIST SYSTEM IMPLANT
05	S	0502	555	PERCUTANEOUS CARDIOVASCULAR PROC W MAJOR CV DX	248	PERC CARDIOVASC PROC W NON-DRUG-ELUTING STENT W MCC OR 4+ VES/STENTS
05	S	0502	556	PERCUTANEOUS CARDIOVASC PROC W NON-DRUG-ELUTING STENT W/O MAJ CV DX	249	PERC CARDIOVASC PROC W NON-DRUG-ELUTING STENT W/O MCC
05	S	0502	516	PERCUTANEOUS CARDIOVASC PROC W AMI		
05	S	0502	517	PERC CARDIO PROC W NON-DRUG ELUTING STENT WO AMI		
05	S	0503	104	CARDIAC VALVE & OTH MAJOR CARDIOTHORACIC PROC W CARD CATH	216	CARDIAC VALVE & OTH MAJ CARDIOTHORACIC PROC W CARD CATH W MCC
05	S	0503	104	CARDIAC VALVE & OTH MAJOR CARDIOTHORACIC PROC W CARD CATH	217	CARDIAC VALVE & OTH MAJ CARDIOTHORACIC PROC W CARD CATH W CC
05	S	0503	104	CARDIAC VALVE & OTH MAJOR CARDIOTHORACIC PROC W CARD CATH	218	CARDIAC VALVE & OTH MAJ CARDIOTHORACIC PROC W CARD CATH W/O CC/MCC

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MDC	M/S	MDRG	CMS-DRG	CMS-DRG DESCRIPTION	MS-DRG	MS-DRG DESCRIPTION
05	S	0503	105	CARDIAC VALVE & OTH MAJOR CARDIOTHORACIC PROC W/O CARD CATH	219	CARDIAC VALVE & OTH MAJ CARDIOTHORACIC PROC W/O CARD CATH W MCC
05	S	0503	105	CARDIAC VALVE & OTH MAJOR CARDIOTHORACIC PROC W/O CARD CATH	220	CARDIAC VALVE & OTH MAJ CARDIOTHORACIC PROC W/O CARD CATH W CC
05	S	0503	105	CARDIAC VALVE & OTH MAJOR CARDIOTHORACIC PROC W/O CARD CATH	221	CARDIAC VALVE & OTH MAJ CARDIOTHORACIC PROC W/O CARD CATH W/O CC/MCC
05	S	0504	535	CARDIAC DEFIB IMPLANT W CARDIAC CATH W AMI/HF/SHOCK	222	CARDIAC DEFIB IMPLANT W CARDIAC CATH W AMI/HF/SHOCK W MCC
05	S	0504	535	CARDIAC DEFIB IMPLANT W CARDIAC CATH W AMI/HF/SHOCK	223	CARDIAC DEFIB IMPLANT W CARDIAC CATH W AMI/HF/SHOCK W/O MCC
05	S	0504	536	CARDIAC DEFIB IMPLANT W CARDIAC CATH W/O AMI/HF/SHOCK	224	CARDIAC DEFIB IMPLANT W CARDIAC CATH W/O AMI/HF/SHOCK W MCC
05	S	0504	536	CARDIAC DEFIB IMPLANT W CARDIAC CATH W/O AMI/HF/SHOCK	225	CARDIAC DEFIB IMPLANT W CARDIAC CATH W/O AMI/HF/SHOCK W/O MCC
05	S	0504	515	CARDIAC DEFIBRILLATOR IMPLANT W/O CARDIAC CATH	226	CARDIAC DEFIBRILLATOR IMPLANT W/O CARDIAC CATH W MCC
05	S	0504	515	CARDIAC DEFIBRILLATOR IMPLANT W/O CARDIAC CATH	227	CARDIAC DEFIBRILLATOR IMPLANT W/O CARDIAC CATH W/O MCC
05	S	0505	108	OTHER CARDIOTHORACIC PROCEDURES	228	OTHER CARDIOTHORACIC PROCEDURES W MCC
05	S	0505	108	OTHER CARDIOTHORACIC PROCEDURES	229	OTHER CARDIOTHORACIC PROCEDURES W CC
05	S	0505	108	OTHER CARDIOTHORACIC PROCEDURES	230	OTHER CARDIOTHORACIC PROCEDURES W/O CC/MCC
05	S	0506	106	CORONARY BYPASS W PTCA	231	CORONARY BYPASS W PTCA W MCC
05	S	0506	106	CORONARY BYPASS W PTCA	232	CORONARY BYPASS W PTCA W/O MCC
05	S	0507	547	CORONARY BYPASS W CARDIAC CATH W MAJOR CV DX	233	CORONARY BYPASS W CARDIAC CATH W MCC
05	S	0507	548	CORONARY BYPASS W CARDIAC CATH W/O MAJOR CV DX	234	CORONARY BYPASS W CARDIAC CATH W/O MCC
05	S	0507	549	CORONARY BYPASS W/O CARDIAC CATH W MAJOR CV DX	235	CORONARY BYPASS W/O CARDIAC CATH W MCC
05	S	0507	550	CORONARY BYPASS W/O CARDIAC CATH W/O MAJOR CV DX	236	CORONARY BYPASS W/O CARDIAC CATH W/O MCC

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MDC	M/S	MDRG	CMS-DRG	CMS-DRG DESCRIPTION	MS-DRG	MS-DRG DESCRIPTION
05	S	0507	107	CORONARY BYPASS W CARDIAC CATH (NO LONGER VALID)		
05	S	0507	109	CORONARY BYPASS WO PTCA OR CARDIAC CATH (NO LONGER VALID)		
05	S	0508	110	MAJOR CARDIOVASCULAR PROCEDURES W CC	237	MAJOR CARDIOVASC PROCEDURES W MCC OR THORACIC AORTIC ANEURYSM REPAIR
05	S	0508	111	MAJOR CARDIOVASCULAR PROCEDURES W/O CC	238	MAJOR CARDIOVASCULAR PROCEDURES W/O MCC
05	S	0509	113	AMPUTATION FOR CIRC SYSTEM DISORDERS EXCEPT UPPER LIMB & TOE	239	AMPUTATION FOR CIRC SYS DISORDERS EXC UPPER LIMB & TOE W MCC
05	S	0509	113	AMPUTATION FOR CIRC SYSTEM DISORDERS EXCEPT UPPER LIMB & TOE	240	AMPUTATION FOR CIRC SYS DISORDERS EXC UPPER LIMB & TOE W CC
05	S	0509	113	AMPUTATION FOR CIRC SYSTEM DISORDERS EXCEPT UPPER LIMB & TOE	241	AMPUTATION FOR CIRC SYS DISORDERS EXC UPPER LIMB & TOE W/O CC/MCC
05	S	0510	551	PERMANENT CARDIAC PACEMAKER IMPL W MAJ CV DX OR AICD LEAD OR GNRTR	242	PERMANENT CARDIAC PACEMAKER IMPLANT W MCC
05	S	0510	552	OTHER PERMANENT CARDIAC PACEMAKER IMPLANT W/O MAJOR CV DX	243	PERMANENT CARDIAC PACEMAKER IMPLANT W CC
05	S	0510	552	OTHER PERMANENT CARDIAC PACEMAKER IMPLANT W/O MAJOR CV DX	244	PERMANENT CARDIAC PACEMAKER IMPLANT W/O CC/MCC
05	S	0510	552	OTHER PERMANENT CARDIAC PACEMAKER IMPLANT W/O MAJOR CV DX	245	AICD LEAD & GENERATOR PROCEDURES
05	S	0510	115	PRM CARD PACEM IMPL W AMI/HR/SHOCK OR AICD LEAD OR GNRTR (NO LONGER VALID)		
05	S	0510	116	OTHER PERMANENT CARDIAC PACEMAKER IMPLANT (NO LONGER VALID)		
05	S	0511	557	PERCUTANEOUS CARDIOVASCULAR PROC W DRUG-ELUTING STENT W MAJOR CV DX	246	PERC CARDIOVASC PROC W DRUG-ELUTING STENT W MCC OR 4+ VESSELS/STENTS
05	S	0511	558	PERCUTANEOUS CARDIOVASCULAR PROC W DRUG-ELUTING STENT W/O MAJ CV DX	247	PERC CARDIOVASC PROC W DRUG-ELUTING STENT W/O MCC
05	S	0511	526	PERCUTNEOUS CARDIOVASULAR PROC W DRUG ELUTING STENT W AM		
05	S	0511	527	PERCUTNEOUS CARDIOVASULAR PROC W DRUG ELUTING STENT WO A		
05	S	0513	518	PERC CARDIO PROC W/O CORONARY ARTERY STENT OR AMI	250	PERC CARDIOVASC PROC W/O CORONARY ARTERY STENT OR AMI W MCC

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MDC	M/S	MDRG	CMS-DRG	CMS-DRG DESCRIPTION	MS-DRG	MS-DRG DESCRIPTION
05	S	0513	518	PERC CARDIO PROC W/O CORONARY ARTERY STENT OR AMI	251	PERC CARDIOVASC PROC W/O CORONARY ARTERY STENT OR AMI W/O MCC
05	S	0514	479	OTHER VASCULAR PROCEDURES W/O CC	252	OTHER VASCULAR PROCEDURES W MCC
05	S	0514	553	OTHER VASCULAR PROCEDURES W CC W MAJOR CV DX	253	OTHER VASCULAR PROCEDURES W CC
05	S	0514	554	OTHER VASCULAR PROCEDURES W CC W/O MAJOR CV DX	254	OTHER VASCULAR PROCEDURES W/O CC/MCC
05	S	0514	478	OTHER VASCULAR PROCEDURES W CC		
05	S	0515	114	UPPER LIMB & TOE AMPUTATION FOR CIRC SYSTEM DISORDERS	255	UPPER LIMB & TOE AMPUTATION FOR CIRC SYSTEM DISORDERS W MCC
05	S	0515	114	UPPER LIMB & TOE AMPUTATION FOR CIRC SYSTEM DISORDERS	256	UPPER LIMB & TOE AMPUTATION FOR CIRC SYSTEM DISORDERS W CC
05	S	0515	114	UPPER LIMB & TOE AMPUTATION FOR CIRC SYSTEM DISORDERS	257	UPPER LIMB & TOE AMPUTATION FOR CIRC SYSTEM DISORDERS W/O CC/MCC
05	S	0516	118	CARDIAC PACEMAKER DEVICE REPLACEMENT	258	CARDIAC PACEMAKER DEVICE REPLACEMENT W MCC
05	S	0516	118	CARDIAC PACEMAKER DEVICE REPLACEMENT	259	CARDIAC PACEMAKER DEVICE REPLACEMENT W/O MCC
05	S	0517	117	CARDIAC PACEMAKER REVISION EXCEPT DEVICE REPLACEMENT	260	CARDIAC PACEMAKER REVISION EXCEPT DEVICE REPLACEMENT W MCC
05	S	0517	117	CARDIAC PACEMAKER REVISION EXCEPT DEVICE REPLACEMENT	261	CARDIAC PACEMAKER REVISION EXCEPT DEVICE REPLACEMENT W CC
05	S	0517	117	CARDIAC PACEMAKER REVISION EXCEPT DEVICE REPLACEMENT	262	CARDIAC PACEMAKER REVISION EXCEPT DEVICE REPLACEMENT W/O CC/MCC
05	S	0518	119	VEIN LIGATION & STRIPPING	263	VEIN LIGATION & STRIPPING
05	S	0519	120	OTHER CIRCULATORY SYSTEM O.R. PROCEDURES	264	OTHER CIRCULATORY SYSTEM O.R. PROCEDURES
05	M	0520	121	CIRCULATORY DISORDERS W AMI & MAJOR COMP, DISCHARGED ALIVE	280	ACUTE MYOCARDIAL INFARCTION, DISCHARGED ALIVE W MCC
05	M	0520	122	CIRCULATORY DISORDERS W AMI W/O MAJOR COMP, DISCHARGED ALIVE	281	ACUTE MYOCARDIAL INFARCTION, DISCHARGED ALIVE W CC
05	M	0520	122	CIRCULATORY DISORDERS W AMI W/O MAJOR COMP, DISCHARGED ALIVE	282	ACUTE MYOCARDIA INFARCTION, DISCHARGED ALIVE W/O CC/MCC
05	M	0521	123	CIRCULATORY DISORDERS W AMI, EXPIRED	283	ACUTE MYOCARDIAL INFARCTION, EXPIRED W MCC

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MDC	M/S	MDRG	CMS-DRG	CMS-DRG DESCRIPTION	MS-DRG	MS-DRG DESCRIPTION
05	M	0521	123	CIRCULATORY DISORDERS W AMI, EXPIRED	284	ACUTE MYOCARDIAL INFARCTION, EXPIRED W CC
05	M	0521	123	CIRCULATORY DISORDERS W AMI, EXPIRED	285	ACUTE MYOCARDIAL INFARCTION, EXPIRED W/O CC/MCC
05	M	0522	124	CIRCULATORY DISORDERS EXCEPT AMI, W CARD CATH & COMPLEX DIAG	286	CIRCULATORY DISORDERS EXCEPT AMI, W CARD CATH W MCC
05	M	0522	125	CIRCULATORY DISORDERS EXCEPT AMI, W CARD CATH W/O COMPLEX DIAG	287	CIRCULATORY DISORDERS EXCEPT AMI, W CARD CATH W/O MCC
05	M	0523	126	ACUTE & SUBACUTE ENDOCARDITIS	288	ACUTE & SUBACUTE ENDOCARDITIS W MCC
05	M	0523	126	ACUTE & SUBACUTE ENDOCARDITIS	289	ACUTE & SUBACUTE ENDOCARDITIS W CC
05	M	0523	126	ACUTE & SUBACUTE ENDOCARDITIS	290	ACUTE & SUBACUTE ENDOCARDITIS W/O CC/MCC
05	M	0524	127	HEART FAILURE & SHOCK	291	HEART FAILURE & SHOCK W MCC
05	M	0524	127	HEART FAILURE & SHOCK	292	HEART FAILURE & SHOCK W CC
05	M	0524	127	HEART FAILURE & SHOCK	293	HEART FAILURE & SHOCK W/O CC/MCC
05	M	0525	128	DEEP VEIN THROMBOPHLEBITIS	294	DEEP VEIN THROMBOPHLEBITIS W CC/MCC
05	M	0525	128	DEEP VEIN THROMBOPHLEBITIS	295	DEEP VEIN THROMBOPHLEBITIS W/O CC/MCC
05	M	0526	129	CARDIAC ARREST, UNEXPLAINED	296	CARDIAC ARREST, UNEXPLAINED W MCC
05	M	0526	129	CARDIAC ARREST, UNEXPLAINED	297	CARDIAC ARREST, UNEXPLAINED W CC
05	M	0526	129	CARDIAC ARREST, UNEXPLAINED	298	CARDIAC ARREST, UNEXPLAINED W/O CC/MCC
05	M	0527	130	PERIPHERAL VASCULAR DISORDERS W CC	299	PERIPHERAL VASCULAR DISORDERS W MCC
05	M	0527	131	PERIPHERAL VASCULAR DISORDERS W/O CC	300	PERIPHERAL VASCULAR DISORDERS W CC
05	M	0527	131	PERIPHERAL VASCULAR DISORDERS W/O CC	301	PERIPHERAL VASCULAR DISORDERS W/O CC/MCC
05	M	0528	132	ATHEROSCLEROSIS W CC	302	ATHEROSCLEROSIS W MCC
05	M	0528	133	ATHEROSCLEROSIS W/O CC	303	ATHEROSCLEROSIS W/O MCC
05	M	0529	134	HYPERTENSION	304	HYPERTENSION W MCC
05	M	0529	134	HYPERTENSION	305	HYPERTENSION W/O MCC
05	M	0530	135	CARDIAC CONGENITAL & VALVULAR DISORDERS AGE >17 W CC	306	CARDIAC CONGENITAL & VALVULAR DISORDERS W MCC
05	M	0530	136	CARDIAC CONGENITAL & VALVULAR DISORDERS AGE >17 W/O CC	307	CARDIAC CONGENITAL & VALVULAR DISORDERS W/O MCC

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MDC	M/S	MDRG	CMS-DRG	CMS-DRG DESCRIPTION	MS-DRG	MS-DRG DESCRIPTION
05	M	0530	137	CARDIAC CONGENITAL & VALVULAR DISORDERS AGE 0-17	307	CARDIAC CONGENITAL & VALVULAR DISORDERS W/O MCC
05	M	0531	138	CARDIAC ARRHYTHMIA & CONDUCTION DISORDERS W CC	308	CARDIAC ARRHYTHMIA & CONDUCTION DISORDERS W MCC
05	M	0531	139	CARDIAC ARRHYTHMIA & CONDUCTION DISORDERS W/O CC	309	CARDIAC ARRHYTHMIA & CONDUCTION DISORDERS W CC
05	M	0531	139	CARDIAC ARRHYTHMIA & CONDUCTION DISORDERS W/O CC	310	CARDIAC ARRHYTHMIA & CONDUCTION DISORDERS W/O CC/MCC
05	M	0532	140	ANGINA PECTORIS	311	ANGINA PECTORIS
05	M	0533	141	SYNCOPE & COLLAPSE W CC	312	SYNCOPE & COLLAPSE
05	M	0533	142	SYNCOPE & COLLAPSE W/O CC	312	SYNCOPE & COLLAPSE
05	M	0534	143	CHEST PAIN	313	CHEST PAIN
05	M	0535	144	OTHER CIRCULATORY SYSTEM DIAGNOSES W CC	314	OTHER CIRCULATORY SYSTEM DIAGNOSES W MCC
05	M	0535	145	OTHER CIRCULATORY SYSTEM DIAGNOSES W/O CC	315	OTHER CIRCULATORY SYSTEM DIAGNOSES W CC
05	M	0535	145	OTHER CIRCULATORY SYSTEM DIAGNOSES W/O CC	316	OTHER CIRCULATORY SYSTEM DIAGNOSES W/O CC/MCC
05	S	0599	112	PERCUTANEOUS CARDIOVASCULAR PROCEDURES (NO LONGER VALID)		
05	S	0599	514	CARDIAC DEFIB IMPLANT W CARDIAC CATH (NO LONGER VALID)		
06	S	0601	155	STOMACH, ESOPHAGEAL & DUODENAL PROCEDURES AGE >17 W/O CC	326	STOMACH, ESOPHAGEAL & DUODENAL PROC W MCC
06	S	0601	156	STOMACH, ESOPHAGEAL & DUODENAL PROCEDURES AGE 0-17	327	STOMACH, ESOPHAGEAL & DUODENAL PROC W CC
06	S	0601	567	STOMACH, ESOPHAGEAL & DUODENAL PROC AGE > 17 W CC W MAJOR GI DX	328	STOMACH, ESOPHAGEAL & DUODENAL PROC W/O CC/MCC
06	S	0601	568	STOMACH, ESOPHAGEAL & DUODENAL PROCEDURES PROC AGE > 17 W CC W/O MAJOR GI DX	328	STOMACH, ESOPHAGEAL & DUODENAL PROC W/O CC/MCC
06	S	0601	154	STOMACH, ESOPHAGEAL & DUODENAL PROCEDURES AGE >17 W CC (NO LONGER VALID)		
06	S	0602	149	MAJOR SMALL & LARGE BOWEL PROCEDURES W/O CC	329	MAJOR SMALL & LARGE BOWEL PROCEDURES W MCC

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MDC	M/S	MDRG	CMS-DRG	CMS-DRG DESCRIPTION	MS-DRG	MS-DRG DESCRIPTION
06	S	0602	569	MAJOR SMALL & LARGE BOWEL PROCEDURES W CC W MAJOR GI DX	330	MAJOR SMALL & LARGE BOWEL PROCEDURES W CC
06	S	0602	570	MAJOR SMALL & LARGE BOWEL PROCEDURES W CC W/O MAJOR GI DX	331	MAJOR SMALL & LARGE BOWEL PROCEDURES W/O CC/MCC
06	S	0602	148	MAJOR SMALL & LARGE BOWEL PROCEDURES W CC (NO LONGER VALID)		
06	S	0603	146	RECTAL RESECTION W CC	332	RECTAL RESECTION W MCC
06	S	0603	147	RECTAL RESECTION W/O CC	333	RECTAL RESECTION W CC
06	S	0603	147	RECTAL RESECTION W/O CC	334	RECTAL RESECTION W/O CC/MCC
06	S	0604	150	PERITONEAL ADHESIOLYSIS W CC	335	PERITONEAL ADHESIOLYSIS W MCC
06	S	0604	151	PERITONEAL ADHESIOLYSIS W/O CC	336	PERITONEAL ADHESIOLYSIS W CC
06	S	0604	151	PERITONEAL ADHESIOLYSIS W/O CC	337	PERITONEAL ADHESIOLYSIS W/O CC/MCC
06	S	0605	164	APPENDECTOMY W COMPLICATED PRINCIPAL DIAG W CC	338	APPENDECTOMY W COMPLICATED PRINCIPAL DIAG W MCC
06	S	0605	165	APPENDECTOMY W COMPLICATED PRINCIPAL DIAG W/O CC	339	APPENDECTOMY W COMPLICATED PRINCIPAL DIAG W CC
06	S	0605	165	APPENDECTOMY W COMPLICATED PRINCIPAL DIAG W/O CC	340	APPENDECTOMY W COMPLICATED PRINCIPAL DIAG W/O CC/MCC
06	S	0606	166	APPENDECTOMY W/O COMPLICATED PRINCIPAL DIAG W CC	341	APPENDECTOMY W/O COMPLICATED PRINCIPAL DIAG W MCC
06	S	0606	167	APPENDECTOMY W/O COMPLICATED PRINCIPAL DIAG W/O CC	342	APPENDECTOMY W/O COMPLICATED PRINCIPAL DIAG W CC
06	S	0606	167	APPENDECTOMY W/O COMPLICATED PRINCIPAL DIAG W/O CC	343	APPENDECTOMY W/O COMPLICATED PRINCIPAL DIAG W/O CC/MCC
06	S	0607	152	MINOR SMALL & LARGE BOWEL PROCEDURES W CC	344	MINOR SMALL & LARGE BOWEL PROCEDURES W MCC
06	S	0607	153	MINOR SMALL & LARGE BOWEL PROCEDURES W/O CC	345	MINOR SMALL & LARGE BOWEL PROCEDURES W CC
06	S	0607	153	MINOR SMALL & LARGE BOWEL PROCEDURES W/O CC	346	MINOR SMALL & LARGE BOWEL PROCEDURES W/O CC/MCC
06	S	0608	157	ANAL & STOMAL PROCEDURES W CC	347	ANAL & STOMAL PROCEDURES W MCC
06	S	0608	158	ANAL & STOMAL PROCEDURES W/O CC	348	ANAL & STOMAL PROCEDURES W CC
06	S	0608	158	ANAL & STOMAL PROCEDURES W/O CC	349	ANAL & STOMAL PROCEDURES W/O CC/MCC
06	S	0609	161	INGUINAL & FEMORAL HERNIA PROCEDURES AGE >17 W CC	350	INGUINAL & FEMORAL HERNIA PROCEDURES W MCC

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MDC	M/S	MDRG	CMS-DRG	CMS-DRG DESCRIPTION	MS-DRG	MS-DRG DESCRIPTION
06	S	0609	162	INGUINAL & FEMORAL HERNIA PROCEDURES AGE >17 W/O CC	351	INGUINAL & FEMORAL HERNIA PROCEDURES W CC
06	S	0609	163	HERNIA PROCEDURES AGE 0-17	352	INGUINAL & FEMORAL HERNIA PROCEDURES W/O CC/MCC
06	S	0610	159	HERNIA PROCEDURES EXCEPT INGUINAL & FEMORAL AGE >17 W CC	353	HERNIA PROCEDURES EXCEPT INGUINAL & FEMORAL W MCC
06	S	0610	160	HERNIA PROCEDURES EXCEPT INGUINAL & FEMORAL AGE >17 W/O CC	354	HERNIA PROCEDURES EXCEPT INGUINAL & FEMORAL W CC
06	S	0610	160	HERNIA PROCEDURES EXCEPT INGUINAL & FEMORAL AGE >17 W/O CC	355	HERNIA PROCEDURES EXCEPT INGUINAL & FEMORAL W/O CC/MCC
06	S	0611	170	OTHER DIGESTIVE SYSTEM O.R. PROCEDURES W CC	356	OTHER DIGESTIVE SYSTEM O.R. PROCEDURES W MCC
06	S	0611	171	OTHER DIGESTIVE SYSTEM O.R. PROCEDURES W/O CC	357	OTHER DIGESTIVE SYSTEM O.R. PROCEDURES W CC
06	S	0611	171	OTHER DIGESTIVE SYSTEM O.R. PROCEDURES W/O CC	358	OTHER DIGESTIVE SYSTEM O.R. PROCEDURES W/O CC/MCC
06	M	0612	571	MAJOR ESOPHAGEAL DISORDERS	368	MAJOR ESOPHAGEAL DISORDERS W MCC
06	M	0612	571	MAJOR ESOPHAGEAL DISORDERS	369	MAJOR ESOPHAGEAL DISORDERS W CC
06	M	0612	571	MAJOR ESOPHAGEAL DISORDERS	370	MAJOR ESOPHAGEAL DISORDERS W/O CC/MCC
06	M	0613	572	MAJOR GASTROINTESTINAL DISORDERS AND PERITONEAL INFECTIONS	371	MAJOR GASTROINTESTINAL DISORDERS & PERITONEAL INFECTIONS W MCC
06	M	0613	572	MAJOR GASTROINTESTINAL DISORDERS AND PERITONEAL INFECTIONS	372	MAJOR GASTROINTESTINAL DISORDERS & PERITONEAL INFECTIONS W CC
06	M	0613	572	MAJOR GASTROINTESTINAL DISORDERS AND PERITONEAL INFECTIONS	373	MAJOR GASTROINTESTINAL DISORDERS & PERITONEAL INFECTIONS W/O CC/MCC
06	M	0614	172	DIGESTIVE MALIGNANCY W CC	374	DIGESTIVE MALIGNANCY W MCC
06	M	0614	173	DIGESTIVE MALIGNANCY W/O CC	375	DIGESTIVE MALIGNANCY W CC
06	M	0614	173	DIGESTIVE MALIGNANCY W/O CC	376	DIGESTIVE MALIGNANCY W/O CC/MCC
06	M	0615	174	G.I. HEMORRHAGE W CC	377	G.I. HEMORRHAGE W MCC
06	M	0615	175	G.I. HEMORRHAGE W/O CC	378	G.I. HEMORRHAGE W CC
06	M	0615	175	G.I. HEMORRHAGE W/O CC	379	G.I. HEMORRHAGE W/O CC/MCC
06	M	0616	176	COMPLICATED PEPTIC ULCER	380	COMPLICATED PEPTIC ULCER W MCC
06	M	0616	176	COMPLICATED PEPTIC ULCER	381	COMPLICATED PEPTIC ULCER W CC
06	M	0616	176	COMPLICATED PEPTIC ULCER	382	COMPLICATED PEPTIC ULCER W/O CC/MCC

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MDC	M/S	MDRG	CMS-DRG	CMS-DRG DESCRIPTION	MS-DRG	MS-DRG DESCRIPTION
06	M	0617	177	UNCOMPLICATED PEPTIC ULCER W CC	383	UNCOMPLICATED PEPTIC ULCER W MCC
06	M	0617	178	UNCOMPLICATED PEPTIC ULCER W/O CC	384	UNCOMPLICATED PEPTIC ULCER W/O MCC
06	M	0618	179	INFLAMMATORY BOWEL DISEASE	385	INFLAMMATORY BOWEL DISEASE W MCC
06	M	0618	179	INFLAMMATORY BOWEL DISEASE	386	INFLAMMATORY BOWEL DISEASE W CC
06	M	0618	179	INFLAMMATORY BOWEL DISEASE	387	INFLAMMATORY BOWEL DISEASE W/O CC/MCC
06	M	0619	180	G.I. OBSTRUCTION W CC	388	G.I. OBSTRUCTION W MCC
06	M	0619	181	G.I. OBSTRUCTION W/O CC	389	G.I. OBSTRUCTION W CC
06	M	0619	181	G.I. OBSTRUCTION W/O CC	390	G.I. OBSTRUCTION W/O CC/MCC
06	M	0620	182	ESOPHAGITIS, GASTROENT & MISC DIGEST DISORDERS AGE >17 W CC	391	ESOPHAGITIS, GASTROENT & MISC DIGEST DISORDERS W MCC
06	M	0620	183	ESOPHAGITIS, GASTROENT & MISC DIGEST DISORDERS AGE >17 W/O CC	392	ESOPHAGITIS, GASTROENT & MISC DIGEST DISORDERS W/O MCC
06	M	0620	184	ESOPHAGITIS, GASTROENT & MISC DIGEST DISORDERS AGE 0-17	392	ESOPHAGITIS, GASTROENT & MISC DIGEST DISORDERS W/O MCC
06	M	0621	188	OTHER DIGESTIVE SYSTEM DIAGNOSES AGE >17 W CC	393	OTHER DIGESTIVE SYSTEM DIAGNOSES W MCC
06	M	0621	189	OTHER DIGESTIVE SYSTEM DIAGNOSES AGE >17 W/O CC	394	OTHER DIGESTIVE SYSTEM DIAGNOSES W CC
06	M	0621	190	OTHER DIGESTIVE SYSTEM DIAGNOSES AGE 0-17	395	OTHER DIGESTIVE SYSTEM DIAGNOSES W/O CC/MCC
07	S	0701	191	PANCREAS, LIVER & SHUNT PROCEDURES W CC	405	PANCREAS, LIVER & SHUNT PROCEDURES W MCC
07	S	0701	192	PANCREAS, LIVER & SHUNT PROCEDURES W/O CC	406	PANCREAS, LIVER & SHUNT PROCEDURES W CC
07	S	0701	192	PANCREAS, LIVER & SHUNT PROCEDURES W/O CC	407	PANCREAS, LIVER & SHUNT PROCEDURES W/O CC/MCC
07	S	0702	193	BILIARY TRACT PROC EXCEPT ONLY CHOLECYST W OR W/O C.D.E. W CC	408	BILIARY TRACT PROC EXCEPT ONLY CHOLECYST W OR W/O C.D.E. W MCC
07	S	0702	194	BILIARY TRACT PROC EXCEPT ONLY CHOLECYST W OR W/O C.D.E. W/O CC	409	BILIARY TRACT PROC EXCEPT ONLY CHOLECYST W OR W/O C.D.E. W CC
07	S	0702	194	BILIARY TRACT PROC EXCEPT ONLY CHOLECYST W OR W/O C.D.E. W/O CC	410	BILIARY TRACT PROC EXCEPT ONLY CHOLECYST W OR W/O C.D.E. W/O CC/MCC
07	S	0703	195	CHOLECYSTECTOMY W C.D.E. W CC	411	CHOLECYSTECTOMY W C.D.E. W MCC
07	S	0703	196	CHOLECYSTECTOMY W C.D.E. W/O CC	412	CHOLECYSTECTOMY W C.D.E. W CC

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MDC	M/S	MDRG	CMS-DRG	CMS-DRG DESCRIPTION	MS-DRG	MS-DRG DESCRIPTION
07	S	0703	196	CHOLECYSTECTOMY W C.D.E. W/O CC	413	CHOLECYSTECTOMY W C.D.E. W/O CC/MCC
07	S	0704	197	CHOLECYSTECTOMY EXCEPT BY LAPAROSCOPE W/O C.D.E. W CC	414	CHOLECYSTECTOMY EXCEPT BY LAPAROSCOPE W/O C.D.E. W MCC
07	S	0704	198	CHOLECYSTECTOMY EXCEPT BY LAPAROSCOPE W/O C.D.E. W/O CC	415	CHOLECYSTECTOMY EXCEPT BY LAPAROSCOPE W/O C.D.E. W CC
07	S	0704	198	CHOLECYSTECTOMY EXCEPT BY LAPAROSCOPE W/O C.D.E. W/O CC	416	CHOLECYSTECTOMY EXCEPT BY LAPAROSCOPE W/O C.D.E. W/O CC/MCC
07	S	0705	493	LAPAROSCOPIC CHOLECYSTECTOMY W/O C.D.E. W CC	417	LAPAROSCOPIC CHOLECYSTECTOMY W/O C.D.E. W MCC
07	S	0705	494	LAPAROSCOPIC CHOLECYSTECTOMY W/O C.D.E. W/O CC	418	LAPAROSCOPIC CHOLECYSTECTOMY W/O C.D.E. W CC
07	S	0705	494	LAPAROSCOPIC CHOLECYSTECTOMY W/O C.D.E. W/O CC	419	LAPAROSCOPIC CHOLECYSTECTOMY W/O C.D.E. W/O CC/MCC
07	S	0706	199	HEPATOBIILIARY DIAGNOSTIC PROCEDURE FOR MALIGNANCY	420	HEPATOBIILIARY DIAGNOSTIC PROCEDURES W MCC
07	S	0706	200	HEPATOBIILIARY DIAGNOSTIC PROCEDURE FOR NON-MALIGNANCY	421	HEPATOBIILIARY DIAGNOSTIC PROCEDURES W CC
07	S	0706	200	HEPATOBIILIARY DIAGNOSTIC PROCEDURE FOR NON-MALIGNANCY	422	HEPATOBIILIARY DIAGNOSTIC PROCEDURES W/O CC/MCC
07	S	0707	201	OTHER HEPATOBIILIARY OR PANCREAS O.R. PROCEDURES	423	OTHER HEPATOBIILIARY OR PANCREAS O.R. PROCEDURES W MCC
07	S	0707	201	OTHER HEPATOBIILIARY OR PANCREAS O.R. PROCEDURES	424	OTHER HEPATOBIILIARY OR PANCREAS O.R. PROCEDURES W CC
07	S	0707	201	OTHER HEPATOBIILIARY OR PANCREAS O.R. PROCEDURES	425	OTHER HEPATOBIILIARY OR PANCREAS O.R. PROCEDURES W/O CC/MCC
07	M	0708	202	CIRRHOSIS & ALCOHOLIC HEPATITIS	432	CIRRHOSIS & ALCOHOLIC HEPATITIS W MCC
07	M	0708	202	CIRRHOSIS & ALCOHOLIC HEPATITIS	433	CIRRHOSIS & ALCOHOLIC HEPATITIS W CC
07	M	0708	202	CIRRHOSIS & ALCOHOLIC HEPATITIS	434	CIRRHOSIS & ALCOHOLIC HEPATITIS W/O CC/MCC
07	M	0709	203	MALIGNANCY OF HEPATOBIILIARY SYSTEM OR PANCREAS	435	MALIGNANCY OF HEPATOBIILIARY SYSTEM OR PANCREAS W MCC
07	M	0709	203	MALIGNANCY OF HEPATOBIILIARY SYSTEM OR PANCREAS	436	MALIGNANCY OF HEPATOBIILIARY SYSTEM OR PANCREAS W CC
07	M	0709	203	MALIGNANCY OF HEPATOBIILIARY SYSTEM OR PANCREAS	437	MALIGNANCY OF HEPATOBIILIARY SYSTEM OR PANCREAS W/O CC/MCC

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MDC	M/S	MDRG	CMS-DRG	CMS-DRG DESCRIPTION	MS-DRG	MS-DRG DESCRIPTION
07	M	0710	204	DISORDERS OF PANCREAS EXCEPT MALIGNANCY	438	DISORDERS OF PANCREAS EXCEPT MALIGNANCY W MCC
07	M	0710	204	DISORDERS OF PANCREAS EXCEPT MALIGNANCY	439	DISORDERS OF PANCREAS EXCEPT MALIGNANCY W CC
07	M	0710	204	DISORDERS OF PANCREAS EXCEPT MALIGNANCY	440	DISORDERS OF PANCREAS EXCEPT MALIGNANCY W/O CC/MCC
07	M	0711	205	DISORDERS OF LIVER EXCEPT MALIG,CIRR,ALC HEPA W CC	441	DISORDERS OF LIVER EXCEPT MALIG,CIRR,ALC HEPA W MCC
07	M	0711	206	DISORDERS OF LIVER EXCEPT MALIG,CIRR,ALC HEPA W/O CC	442	DISORDERS OF LIVER EXCEPT MALIG,CIRR,ALC HEPA W CC
07	M	0711	206	DISORDERS OF LIVER EXCEPT MALIG,CIRR,ALC HEPA W/O CC	443	DISORDERS OF LIVER EXCEPT MALIG,CIRR,ALC HEPA W/O CC/MCC
07	M	0712	207	DISORDERS OF THE BILIARY TRACT W CC	444	DISORDERS OF THE BILIARY TRACT W MCC
07	M	0712	208	DISORDERS OF THE BILIARY TRACT W/O CC	445	DISORDERS OF THE BILIARY TRACT W CC
07	M	0712	208	DISORDERS OF THE BILIARY TRACT W/O CC	446	DISORDERS OF THE BILIARY TRACT W/O CC/MCC
08	S	0801	496	COMBINED ANTERIOR/POSTERIOR SPINAL FUSION	453	COMBINED ANTERIOR/POSTERIOR SPINAL FUSION W MCC
08	S	0801	496	COMBINED ANTERIOR/POSTERIOR SPINAL FUSION	454	COMBINED ANTERIOR/POSTERIOR SPINAL FUSION W CC
08	S	0801	496	COMBINED ANTERIOR/POSTERIOR SPINAL FUSION	455	COMBINED ANTERIOR/POSTERIOR SPINAL FUSION W/O CC/MCC
08	S	0802	546	SPINAL FUSION EXC CERV WITH CURVATURE OF THE SPINE OR MALIG	456	SPINAL FUS EXC CERV W SPINAL CURV/MALIG/INFEC OR 9+ FUS W MCC
08	S	0802	546	SPINAL FUSION EXC CERV WITH CURVATURE OF THE SPINE OR MALIG	457	SPINAL FUS EXC CERV W SPINAL CURV/MALIG/INFEC OR 9+ FUS W CC
08	S	0802	546	SPINAL FUSION EXC CERV WITH CURVATURE OF THE SPINE OR MALIG	458	SPINAL FUS EXC CERV W SPINAL CURV/MALIG/INFEC OR 9+ FUS W/O CC/MCC
08	S	0803	497	SPINAL FUSION EXCEPT CERVICAL W CC	459	SPINAL FUSION EXCEPT CERVICAL W MCC
08	S	0803	498	SPINAL FUSION EXCEPT CERVICAL W/O CC	460	SPINAL FUSION EXCEPT CERVICAL W/O MCC
08	S	0804	471	BILATERAL OR MULTIPLE MAJOR JOINT PROCS OF LOWER EXTREMITY	461	BILATERAL OR MULTIPLE MAJOR JOINT PROCS OF LOWER EXTREMITY W MCC
08	S	0804	471	BILATERAL OR MULTIPLE MAJOR JOINT PROCS OF LOWER EXTREMITY	462	BILATERAL OR MULTIPLE MAJOR JOINT PROCS OF LOWER EXTREMITY W/O MCC
08	S	0805	217	WND DEBRID & SKN GRFT EXCEPT HAND, FOR MUSCSKELET & CONN TISS DIS	463	WND DEBRID & SKN GRFT EXC HAND, FOR MUSCULO-CONN TISS DIS W MCC

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MDC	M/S	MDRG	CMS-DRG	CMS-DRG DESCRIPTION	MS-DRG	MS-DRG DESCRIPTION
08	S	0805	217	WND DEBRID & SKN GRFT EXCEPT HAND, FOR MUSCULOSKELETAL & CONN TISS DIS	464	WND DEBRID & SKN GRFT EXC HAND, FOR MUSCULO-CONN TISS DIS W CC
08	S	0805	217	WND DEBRID & SKN GRFT EXCEPT HAND, FOR MUSCULOSKELETAL & CONN TISS DIS	465	WND DEBRID & SKN GRFT EXC HAND, FOR MUSCULO-CONN TISS DIS W/O CC/MCC
08	S	0806	545	REVISION OF HIP OR KNEE REPLACEMENT	466	REVISION OF HIP OR KNEE REPLACEMENT W MCC
08	S	0806	545	REVISION OF HIP OR KNEE REPLACEMENT	467	REVISION OF HIP OR KNEE REPLACEMENT W CC
08	S	0806	545	REVISION OF HIP OR KNEE REPLACEMENT	468	REVISION OF HIP OR KNEE REPLACEMENT W/O CC/MCC
08	S	0807	544	MAJOR JOINT REPLACEMENT OR REATTACHMENT OF LOWER EXTREMITY	469	MAJOR JOINT REPLACEMENT OR REATTACHMENT OF LOWER EXTREMITY W MCC
08	S	0807	544	MAJOR JOINT REPLACEMENT OR REATTACHMENT OF LOWER EXTREMITY	470	MAJOR JOINT REPLACEMENT OR REATTACHMENT OF LOWER EXTREMITY W/O MCC
08	S	0808	519	CERVICAL SPINAL FUSION W CC	471	CERVICAL SPINAL FUSION W MCC
08	S	0808	520	CERVICAL SPINAL FUSION W/O CC	472	CERVICAL SPINAL FUSION W CC
08	S	0808	520	CERVICAL SPINAL FUSION W/O CC	473	CERVICAL SPINAL FUSION W/O CC/MCC
08	S	0809	213	AMPUTATION FOR MUSCULOSKELETAL SYSTEM & CONN TISSUE DISORDERS	474	AMPUTATION FOR MUSCULOSKELETAL SYS & CONN TISSUE DIS W MCC
08	S	0809	213	AMPUTATION FOR MUSCULOSKELETAL SYSTEM & CONN TISSUE DISORDERS	475	AMPUTATION FOR MUSCULOSKELETAL SYS & CONN TISSUE DIS W CC
08	S	0809	213	AMPUTATION FOR MUSCULOSKELETAL SYSTEM & CONN TISSUE DISORDERS	476	AMPUTATION FOR MUSCULOSKELETAL SYS & CONN TISSUE DIS W/O CC/MCC
08	S	0810	216	BIOPSIES OF MUSCULOSKELETAL SYSTEM & CONNECTIVE TISSUE	477	BIOPSIES OF MUSCULOSKELETAL SYSTEM & CONNECTIVE TISSUE W MCC
08	S	0810	216	BIOPSIES OF MUSCULOSKELETAL SYSTEM & CONNECTIVE TISSUE	478	BIOPSIES OF MUSCULOSKELETAL SYSTEM & CONNECTIVE TISSUE W CC
08	S	0810	216	BIOPSIES OF MUSCULOSKELETAL SYSTEM & CONNECTIVE TISSUE	479	BIOPSIES OF MUSCULOSKELETAL SYSTEM & CONNECTIVE TISSUE W/O CC/MCC
08	S	0811	210	HIP & FEMUR PROCEDURES EXCEPT MAJOR JOINT AGE >17 W CC	480	HIP & FEMUR PROCEDURES EXCEPT MAJOR JOINT W MCC
08	S	0811	211	HIP & FEMUR PROCEDURES EXCEPT MAJOR JOINT AGE >17 W/O CC	481	HIP & FEMUR PROCEDURES EXCEPT MAJOR JOINT W CC
08	S	0811	212	HIP & FEMUR PROCEDURES EXCEPT MAJOR JOINT AGE 0-17	482	HIP & FEMUR PROCEDURES EXCEPT MAJOR JOINT W/O CC/MCC

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MDC	M/S	MDRG	CMS-DRG	CMS-DRG DESCRIPTION	MS-DRG	MS-DRG DESCRIPTION
08	S	0812	491	MAJOR JOINT & LIMB REATTACHMENT PROCEDURES OF UPPER EXTREMITY	483	MAJOR JOINT & LIMB REATTACHMENT PROC OF UPPER EXTREMITY W CC/MCC
08	S	0812	491	MAJOR JOINT & LIMB REATTACHMENT PROCEDURES OF UPPER EXTREMITY	484	MAJOR JOINT & LIMB REATTACHMENT PROC OF UPPER EXTREMITY W/O CC/MCC
08	S	0813	501	KNEE PROCEDURES W PDX OF INFECTION W CC	485	KNEE PROCEDURES W PDX OF INFECTION W MCC
08	S	0813	502	KNEE PROCEDURES W PDX OF INFECTION W/O CC	486	KNEE PROCEDURES W PDX OF INFECTION W CC
08	S	0813	502	KNEE PROCEDURES W PDX OF INFECTION W/O CC	487	KNEE PROCEDURES W PDX OF INFECTION W/O CC/MCC
08	S	0814	503	KNEE PROCEDURES W/O PDX OF INFECTION	488	KNEE PROCEDURES W/O PDX OF INFECTION W CC/MCC
08	S	0814	503	KNEE PROCEDURES W/O PDX OF INFECTION	489	KNEE PROCEDURES W/O PDX OF INFECTION W/O CC/MCC
08	S	0815	499	BACK & NECK PROCEDURES EXCEPT SPINAL FUSION W CC	490	BACK & NECK PROC EXC SPINAL FUSION W CC/MCC OR DISC DEVICE/NEUROSTIM
08	S	0815	500	BACK & NECK PROCEDURES EXCEPT SPINAL FUSION W/O CC	491	BACK & NECK PROC EXC SPINAL FUSION W/O CC/MCC
08	S	0816	218	LOWER EXTREM & HUMER PROC EXCEPT HIP,FOOT,FEMUR AGE >17 W CC	492	LOWER EXTREM & HUMER PROC EXCEPT HIP,FOOT,FEMUR W MCC
08	S	0816	219	LOWER EXTREM & HUMER PROC EXCEPT HIP,FOOT,FEMUR AGE >17 W/O CC	493	LOWER EXTREM & HUMER PROC EXCEPT HIP,FOOT,FEMUR W CC
08	S	0816	220	LOWER EXTREM & HUMER PROC EXCEPT HIP,FOOT,FEMUR AGE 0-17	494	LOWER EXTREM & HUMER PROC EXCEPT HIP,FOOT,FEMUR W/O CC/MCC
08	S	0817	537	LOCAL EXCIS & REMOV OF INT FIX DEV EXCEPT HIP & FEMUR W CC	495	LOCAL EXCISION & REMOVAL INT FIX DEVICES EXC HIP & FEMUR W MCC
08	S	0817	538	LOCAL EXCIS & REMOV OF INT FIX DEV EXCEPT HIP & FEMUR W/O CC	496	LOCAL EXCISION & REMOVAL INT FIX DEVICES EXC HIP & FEMUR W CC
08	S	0817	538	LOCAL EXCIS & REMOV OF INT FIX DEV EXCEPT HIP & FEMUR W/O CC	497	LOCAL EXCISION & REMOVAL INT FIX DEVICES EXC HIP & FEMUR W/O CC/MCC
08	S	0818	230	LOCAL EXCISION & REMOVAL OF INT FIX DEVICES OF HIP & FEMUR	498	LOCAL EXCISION & REMOVAL INT FIX DEVICES OF HIP & FEMUR W CC/MCC
08	S	0818	230	LOCAL EXCISION & REMOVAL OF INT FIX DEVICES OF HIP & FEMUR	499	LOCAL EXCISION & REMOVAL INT FIX DEVICES OF HIP & FEMUR W/O CC/MCC
08	S	0819	226	SOFT TISSUE PROCEDURES W CC	500	SOFT TISSUE PROCEDURES W MCC
08	S	0819	227	SOFT TISSUE PROCEDURES W/O CC	501	SOFT TISSUE PROCEDURES W CC

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MDC	M/S	MDRG	CMS-DRG	CMS-DRG DESCRIPTION	MS-DRG	MS-DRG DESCRIPTION
08	S	0819	227	SOFT TISSUE PROCEDURES W/O CC	502	SOFT TISSUE PROCEDURES W/O CC/MCC
08	S	0820	225	FOOT PROCEDURES	503	FOOT PROCEDURES W MCC
08	S	0820	225	FOOT PROCEDURES	504	FOOT PROCEDURES W CC
08	S	0820	225	FOOT PROCEDURES	505	FOOT PROCEDURES W/O CC/MCC
08	S	0821	228	MAJOR THUMB OR JOINT PROC,OR OTH HAND OR WRIST PROC W CC	506	MAJOR THUMB OR JOINT PROCEDURES
08	S	0822	223	MAJOR SHOULDER/ELBOW PROC, OR OTHER UPPER EXTREMITY PROC W CC	507	MAJOR SHOULDER OR ELBOW JOINT PROCEDURES W CC/MCC
08	S	0822	223	MAJOR SHOULDER/ELBOW PROC, OR OTHER UPPER EXTREMITY PROC W CC	508	MAJOR SHOULDER OR ELBOW JOINT PROCEDURES W/O CC/MCC
08	S	0823	232	ARTHROSCOPY	509	ARTHROSCOPY
08	S	0824	224	SHOULDER,ELBOW OR FOREARM PROC,EXC MAJOR JOINT PROC, W/O CC	510	SHOULDER,ELBOW OR FOREARM PROC,EXC MAJOR JOINT PROC W MCC
08	S	0824	224	SHOULDER,ELBOW OR FOREARM PROC,EXC MAJOR JOINT PROC, W/O CC	511	SHOULDER,ELBOW OR FOREARM PROC,EXC MAJOR JOINT PROC W CC
08	S	0824	224	SHOULDER,ELBOW OR FOREARM PROC,EXC MAJOR JOINT PROC, W/O CC	512	SHOULDER,ELBOW OR FOREARM PROC,EXC MAJOR JOINT PROC W/O CC/MCC
08	S	0825	229	HAND OR WRIST PROC, EXCEPT MAJOR JOINT PROC, W/O CC	513	HAND OR WRIST PROC, EXCEPT MAJOR THUMB OR JOINT PROC W CC/MCC
08	S	0825	229	HAND OR WRIST PROC, EXCEPT MAJOR JOINT PROC, W/O CC	514	HAND OR WRIST PROC, EXCEPT MAJOR THUMB OR JOINT PROC W/O CC/MCC
08	S	0826	233	OTHER MUSCULOSKELET SYS & CONN TISS O.R. PROC W CC	515	OTHER MUSCULOSKELET SYS & CONN TISS O.R. PROC W MCC
08	S	0826	234	OTHER MUSCULOSKELET SYS & CONN TISS O.R. PROC W/O CC	516	OTHER MUSCULOSKELET SYS & CONN TISS O.R. PROC W CC
08	S	0826	234	OTHER MUSCULOSKELET SYS & CONN TISS O.R. PROC W/O CC	517	OTHER MUSCULOSKELET SYS & CONN TISS O.R. PROC W/O CC/MCC
08	M	0827	235	FRACTURES OF FEMUR	533	FRACTURES OF FEMUR W MCC
08	M	0827	235	FRACTURES OF FEMUR	534	FRACTURES OF FEMUR W/O MCC
08	M	0828	236	FRACTURES OF HIP & PELVIS	535	FRACTURES OF HIP & PELVIS W MCC
08	M	0828	236	FRACTURES OF HIP & PELVIS	536	FRACTURES OF HIP & PELVIS W/O MCC
08	M	0829	237	SPRAINS, STRAINS, & DISLOCATIONS OF HIP, PELVIS & THIGH	537	SPRAINS, STRAINS, & DISLOCATIONS OF HIP, PELVIS & THIGH W CC/MCC
08	M	0829	237	SPRAINS, STRAINS, & DISLOCATIONS OF HIP, PELVIS & THIGH	538	SPRAINS, STRAINS, & DISLOCATIONS OF HIP, PELVIS & THIGH W/O CC/MCC

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MDC	M/S	MDRG	CMS-DRG	CMS-DRG DESCRIPTION	MS-DRG	MS-DRG DESCRIPTION
08	M	0830	238	OSTEOMYELITIS	539	OSTEOMYELITIS W MCC
08	M	0830	238	OSTEOMYELITIS	540	OSTEOMYELITIS W CC
08	M	0830	238	OSTEOMYELITIS	541	OSTEOMYELITIS W/O CC/MCC
08	M	0831	239	PATHOLOGICAL FRACTURES & MUSCULOSKELETAL & CONN TISS MALIGNANCY	542	PATHOLOGICAL FRACTURES & MUSCULOSKELET & CONN TISS MALIG W MCC
08	M	0831	239	PATHOLOGICAL FRACTURES & MUSCULOSKELETAL & CONN TISS MALIGNANCY	543	PATHOLOGICAL FRACTURES & MUSCULOSKELET & CONN TISS MALIG W CC
08	M	0831	239	PATHOLOGICAL FRACTURES & MUSCULOSKELETAL & CONN TISS MALIGNANCY	544	PATHOLOGICAL FRACTURES & MUSCULOSKELET & CONN TISS MALIG W/O CC/MCC
08	M	0832	240	CONNECTIVE TISSUE DISORDERS W CC	545	CONNECTIVE TISSUE DISORDERS W MCC
08	M	0832	241	CONNECTIVE TISSUE DISORDERS W/O CC	546	CONNECTIVE TISSUE DISORDERS W CC
08	M	0832	241	CONNECTIVE TISSUE DISORDERS W/O CC	547	CONNECTIVE TISSUE DISORDERS W/O CC/MCC
08	M	0833	242	SEPTIC ARTHRITIS	548	SEPTIC ARTHRITIS W MCC
08	M	0833	242	SEPTIC ARTHRITIS	549	SEPTIC ARTHRITIS W CC
08	M	0833	242	SEPTIC ARTHRITIS	550	SEPTIC ARTHRITIS W/O CC/MCC
08	M	0834	243	MEDICAL BACK PROBLEMS	551	MEDICAL BACK PROBLEMS W MCC
08	M	0834	243	MEDICAL BACK PROBLEMS	552	MEDICAL BACK PROBLEMS W/O MCC
08	M	0835	244	BONE DISEASES & SPECIFIC ARTHROPATHIES W CC	553	BONE DISEASES & ARTHROPATHIES W MCC
08	M	0835	245	BONE DISEASES & SPECIFIC ARTHROPATHIES W/O CC	554	BONE DISEASES & ARTHROPATHIES W/O MCC
08	M	0835	246	NON-SPECIFIC ARTHROPATHIES	554	BONE DISEASES & ARTHROPATHIES W/O MCC
08	M	0836	247	SIGNS & SYMPTOMS OF MUSCULOSKELETAL SYSTEM & CONN TISSUE	555	SIGNS & SYMPTOMS OF MUSCULOSKELETAL SYSTEM & CONN TISSUE W MCC
08	M	0836	247	SIGNS & SYMPTOMS OF MUSCULOSKELETAL SYSTEM & CONN TISSUE	556	SIGNS & SYMPTOMS OF MUSCULOSKELETAL SYSTEM & CONN TISSUE W/O MCC
08	M	0837	248	TENDONITIS, MYOSITIS & BURSITIS	557	TENDONITIS, MYOSITIS & BURSITIS W MCC
08	M	0837	248	TENDONITIS, MYOSITIS & BURSITIS	558	TENDONITIS, MYOSITIS & BURSITIS W/O MCC
08	M	0838	249	AFTERCARE, MUSCULOSKELETAL SYSTEM & CONNECTIVE TISSUE	559	AFTERCARE, MUSCULOSKELETAL SYSTEM & CONNECTIVE TISSUE W MCC

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MDC	M/S	MDRG	CMS-DRG	CMS-DRG DESCRIPTION	MS-DRG	MS-DRG DESCRIPTION
08	M	0838	249	AFTERCARE, MUSCULOSKELETAL SYSTEM & CONNECTIVE TISSUE	560	AFTERCARE, MUSCULOSKELETAL SYSTEM & CONNECTIVE TISSUE W CC
08	M	0838	249	AFTERCARE, MUSCULOSKELETAL SYSTEM & CONNECTIVE TISSUE	561	AFTERCARE, MUSCULOSKELETAL SYSTEM & CONNECTIVE TISSUE W/O CC/MCC
08	M	0839	250	FX, SPRN, STRN & DISL OF FOREARM, HAND, FOOT AGE >17 W CC	562	FX, SPRN, STRN & DISL EXCEPT FEMUR, HIP, PELVIS & THIGH W MCC
08	M	0839	251	FX, SPRN, STRN & DISL OF FOREARM, HAND, FOOT AGE >17 W/O CC	563	FX, SPRN, STRN & DISL EXCEPT FEMUR, HIP, PELVIS & THIGH W/O MCC
08	M	0839	252	FX, SPRN, STRN & DISL OF FOREARM, HAND, FOOT AGE 0-17	563	FX, SPRN, STRN & DISL EXCEPT FEMUR, HIP, PELVIS & THIGH W/O MCC
08	M	0839	253	FX, SPRN, STRN & DISL OF UPARM, LOW LEG EX FOOT AGE >17 W CC	563	FX, SPRN, STRN & DISL EXCEPT FEMUR, HIP, PELVIS & THIGH W/O MCC
08	M	0839	254	FX, SPRN, STRN & DISL OF UPARM, LOW LEG EX FOOT AGE >17 W/O CC	563	FX, SPRN, STRN & DISL EXCEPT FEMUR, HIP, PELVIS & THIGH W/O MCC
08	M	0839	255	FX, SPRN, STRN & DISL OF UPARM, LOW LEG EX FOOT AGE 0-17	563	FX, SPRN, STRN & DISL EXCEPT FEMUR, HIP, PELVIS & THIGH W/O MCC
08	M	0840	256	OTHER MUSCULOSKELETAL SYSTEM & CONNECTIVE TISSUE DIAGNOSES	564	OTHER MUSCULOSKELETAL SYS & CONNECTIVE TISSUE DIAGNOSES W MCC
08	M	0840	256	OTHER MUSCULOSKELETAL SYSTEM & CONNECTIVE TISSUE DIAGNOSES	565	OTHER MUSCULOSKELETAL SYS & CONNECTIVE TISSUE DIAGNOSES W CC
08	M	0840	256	OTHER MUSCULOSKELETAL SYSTEM & CONNECTIVE TISSUE DIAGNOSES	566	OTHER MUSCULOSKELETAL SYS & CONNECTIVE TISSUE DIAGNOSES W/O CC/MCC
08	S	0899	209	MAJOR JOINT & LIMB REATTACHMENT PROCEDURES OF LOWER EXTR		
08	S	0899	214	BACK & NECK PROC W CC (NO LONGER VALID)		
08	S	0899	215	BACK & NECK PROC WO CC (NO LONGER VALID)		
08	S	0899	221	KNEE PROC W CC (NO LONGER VALID)		
08	S	0899	222	KNEE PROC WO CC (NO LONGER VALID)		
08	S	0899	231	LOCAL EXCISION & REMOVAL OF INT FIX DEVICES EXCEPT HIP &		
09	S	0901	263	SKIN GRAFT &/OR DEBRID FOR SKN ULCER OR CELLULITIS W CC	570	SKIN DEBRIDEMENT W MCC
09	S	0901	264	SKIN GRAFT &/OR DEBRID FOR SKN ULCER OR CELLULITIS W/O CC	571	SKIN DEBRIDEMENT W CC

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MDC	M/S	MDRG	CMS-DRG	CMS-DRG DESCRIPTION	MS-DRG	MS-DRG DESCRIPTION
09	S	0901	264	SKIN GRAFT &/OR DEBRID FOR SKN ULCER OR CELLULITIS W/O CC	572	SKIN DEBRIDEMENT W/O CC/MCC
09	S	0901	263	SKIN GRAFT &/OR DEBRID FOR SKN ULCER OR CELLULITIS W CC	573	SKIN GRAFT FOR SKN ULCER OR CELLULITIS W MCC
09	S	0901	264	SKIN GRAFT &/OR DEBRID FOR SKN ULCER OR CELLULITIS W/O CC	574	SKIN GRAFT FOR SKN ULCER OR CELLULITIS W CC
09	S	0901	264	SKIN GRAFT &/OR DEBRID FOR SKN ULCER OR CELLULITIS W/O CC	575	SKIN GRAFT FOR SKN ULCER OR CELLULITIS W/O CC/MCC
09	S	0902	265	SKIN GRAFT &/OR DEBRID EXCEPT FOR SKIN ULCER OR CELLULITIS W CC	576	SKIN GRAFT EXC FOR SKIN ULCER OR CELLULITIS W MCC
09	S	0902	266	SKIN GRAFT &/OR DEBRID EXCEPT FOR SKIN ULCER OR CELLULITIS W/O CC	577	SKIN GRAFT EXC FOR SKIN ULCER OR CELLULITIS W CC
09	S	0902	266	SKIN GRAFT &/OR DEBRID EXCEPT FOR SKIN ULCER OR CELLULITIS W/O CC	578	SKIN GRAFT EXC FOR SKIN ULCER OR CELLULITIS W/O CC/MCC
09	S	0903	267	PERIANAL & PILONIDAL PROCEDURES	579	OTHER SKIN, SUBCUT TISS & BREAST PROC W MCC
09	S	0903	268	SKIN, SUBCUTANEOUS TISSUE & BREAST PLASTIC PROCEDURES	580	OTHER SKIN, SUBCUT TISS & BREAST PROC W CC
09	S	0903	269	OTHER SKIN, SUBCUT TISS & BREAST PROC W CC	581	OTHER SKIN, SUBCUT TISS & BREAST PROC W/O CC/MCC
09	S	0903	270	OTHER SKIN, SUBCUT TISS & BREAST PROC W/O CC	581	OTHER SKIN, SUBCUT TISS & BREAST PROC W/O CC/MCC
09	S	0904	257	TOTAL MASTECTOMY FOR MALIGNANCY W CC	582	MASTECTOMY FOR MALIGNANCY W CC/MCC
09	S	0904	258	TOTAL MASTECTOMY FOR MALIGNANCY W/O CC	583	MASTECTOMY FOR MALIGNANCY W/O CC/MCC
09	S	0905	259	SUBTOTAL MASTECTOMY FOR MALIGNANCY W CC	584	BREAST BIOPSY, LOCAL EXCISION & OTHER BREAST PROCEDURES W CC/MCC
09	S	0905	260	SUBTOTAL MASTECTOMY FOR MALIGNANCY W/O CC	585	BREAST BIOPSY, LOCAL EXCISION & OTHER BREAST PROCEDURES W/O CC/MCC
09	S	0905	261	BREAST PROC FOR NON-MALIGNANCY EXCEPT BIOPSY & LOCAL EXCISION	585	BREAST BIOPSY, LOCAL EXCISION & OTHER BREAST PROCEDURES W/O CC/MCC
09	S	0905	262	BREAST BIOPSY & LOCAL EXCISION FOR NON-MALIGNANCY	585	BREAST BIOPSY, LOCAL EXCISION & OTHER BREAST PROCEDURES W/O CC/MCC
09	M	0906	271	SKIN ULCERS	592	SKIN ULCERS W MCC
09	M	0906	271	SKIN ULCERS	593	SKIN ULCERS W CC

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MDC	M/S	MDRG	CMS-DRG	CMS-DRG DESCRIPTION	MS-DRG	MS-DRG DESCRIPTION
09	M	0906	271	SKIN ULCERS	594	SKIN ULCERS W/O CC/MCC
09	M	0907	272	MAJOR SKIN DISORDERS W CC	595	MAJOR SKIN DISORDERS W MCC
09	M	0907	273	MAJOR SKIN DISORDERS W/O CC	596	MAJOR SKIN DISORDERS W/O MCC
09	M	0908	274	MALIGNANT BREAST DISORDERS W CC	597	MALIGNANT BREAST DISORDERS W MCC
09	M	0908	275	MALIGNANT BREAST DISORDERS W/O CC	598	MALIGNANT BREAST DISORDERS W CC
09	M	0908	275	MALIGNANT BREAST DISORDERS W/O CC	599	MALIGNANT BREAST DISORDERS W/O CC/MCC
09	M	0909	276	NON-MALIGANT BREAST DISORDERS	600	NON-MALIGNANT BREAST DISORDERS W CC/MCC
09	M	0909	276	NON-MALIGANT BREAST DISORDERS	601	NON-MALIGNANT BREAST DISORDERS W/O CC/MCC
09	M	0910	277	CELLULITIS AGE >17 W CC	602	CELLULITIS W MCC
09	M	0910	278	CELLULITIS AGE >17 W/O CC	603	CELLULITIS W/O MCC
09	M	0910	279	CELLULITIS AGE 0-17	603	CELLULITIS W/O MCC
09	M	0911	280	TRAUMA TO THE SKIN, SUBCUT TISS & BREAST AGE >17 W CC	604	TRAUMA TO THE SKIN, SUBCUT TISS & BREAST W MCC
09	M	0911	281	TRAUMA TO THE SKIN, SUBCUT TISS & BREAST AGE >17 W/O CC	605	TRAUMA TO THE SKIN, SUBCUT TISS & BREAST W/O MCC
09	M	0911	282	TRAUMA TO THE SKIN, SUBCUT TISS & BREAST AGE 0-17	605	TRAUMA TO THE SKIN, SUBCUT TISS & BREAST W/O MCC
09	M	0912	283	MINOR SKIN DISORDERS W CC	606	MINOR SKIN DISORDERS W MCC
09	M	0912	284	MINOR SKIN DISORDERS W/O CC	607	MINOR SKIN DISORDERS W/O MCC
10	S	1001	286	ADRENAL & PITUITARY PROCEDURES	614	ADRENAL & PITUITARY PROCEDURES W CC/MCC
10	S	1001	286	ADRENAL & PITUITARY PROCEDURES	615	ADRENAL & PITUITARY PROCEDURES W/O CC/MCC
10	S	1002	285	AMPUTAT OF LOWER LIMB FOR ENDOCRINE,NUTRIT,& METABOL DISORDERS	616	AMPUTAT OF LOWER LIMB FOR ENDOCRINE,NUTRIT,& METABOL DIS W MCC
10	S	1002	285	AMPUTAT OF LOWER LIMB FOR ENDOCRINE,NUTRIT,& METABOL DISORDERS	617	AMPUTAT OF LOWER LIMB FOR ENDOCRINE,NUTRIT,& METABOL DIS W CC
10	S	1002	285	AMPUTAT OF LOWER LIMB FOR ENDOCRINE,NUTRIT,& METABOL DISORDERS	618	AMPUTAT OF LOWER LIMB FOR ENDOCRINE,NUTRIT,& METABOL DIS W/O CC/MCC
10	S	1003	288	O.R. PROCEDURES FOR OBESITY	619	O.R. PROCEDURES FOR OBESITY W MCC
10	S	1003	288	O.R. PROCEDURES FOR OBESITY	620	O.R. PROCEDURES FOR OBESITY W CC

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MDC	M/S	MDRG	CMS-DRG	CMS-DRG DESCRIPTION	MS-DRG	MS-DRG DESCRIPTION
10	S	1003	288	O.R. PROCEDURES FOR OBESITY	621	O.R. PROCEDURES FOR OBESITY W/O CC/MCC
10	S	1004	287	SKIN GRAFTS & WOUND DEBRID FOR ENDOC, NUTRIT & METAB DISORDERS	622	SKIN GRAFTS & WOUND DEBRID FOR ENDOC, NUTRIT & METAB DIS W MCC
10	S	1004	287	SKIN GRAFTS & WOUND DEBRID FOR ENDOC, NUTRIT & METAB DISORDERS	623	SKIN GRAFTS & WOUND DEBRID FOR ENDOC, NUTRIT & METAB DIS W CC
10	S	1004	287	SKIN GRAFTS & WOUND DEBRID FOR ENDOC, NUTRIT & METAB DISORDERS	624	SKIN GRAFTS & WOUND DEBRID FOR ENDOC, NUTRIT & METAB DIS W/O CC/MCC
10	S	1005	289	PARATHYROID PROCEDURES	625	THYROID, PARATHYROID & THYROGLOSSAL PROCEDURES W MCC
10	S	1005	290	THYROID PROCEDURES	626	THYROID, PARATHYROID & THYROGLOSSAL PROCEDURES W CC
10	S	1005	291	THYROGLOSSAL PROCEDURES	627	THYROID, PARATHYROID & THYROGLOSSAL PROCEDURES W/O CC/MCC
10	S	1006	292	OTHER ENDOCRINE, NUTRIT & METAB O.R. PROC W CC	628	OTHER ENDOCRINE, NUTRIT & METAB O.R. PROC W MCC
10	S	1006	293	OTHER ENDOCRINE, NUTRIT & METAB O.R. PROC W/O CC	629	OTHER ENDOCRINE, NUTRIT & METAB O.R. PROC W CC
10	S	1006	293	OTHER ENDOCRINE, NUTRIT & METAB O.R. PROC W/O CC	630	OTHER ENDOCRINE, NUTRIT & METAB O.R. PROC W/O CC/MCC
10	M	1007	294	DIABETES AGE >35	637	DIABETES W MCC
10	M	1007	295	DIABETES AGE 0-35	638	DIABETES W CC
10	M	1007	295	DIABETES AGE 0-35	639	DIABETES W/O CC/MCC
10	M	1008	296	NUTRITIONAL & MISC METABOLIC DISORDERS AGE >17 W CC	640	NUTRITIONAL & MISC METABOLIC DISORDERS W MCC
10	M	1008	297	NUTRITIONAL & MISC METABOLIC DISORDERS AGE >17 W/O CC	641	NUTRITIONAL & MISC METABOLIC DISORDERS W/O MCC
10	M	1008	298	NUTRITIONAL & MISC METABOLIC DISORDERS AGE 0-17	641	NUTRITIONAL & MISC METABOLIC DISORDERS W/O MCC
10	M	1009	299	INBORN ERRORS OF METABOLISM	642	INBORN ERRORS OF METABOLISM
10	M	1010	300	ENDOCRINE DISORDERS W CC	643	ENDOCRINE DISORDERS W MCC
10	M	1010	301	ENDOCRINE DISORDERS W/O CC	644	ENDOCRINE DISORDERS W CC
10	M	1010	301	ENDOCRINE DISORDERS W/O CC	645	ENDOCRINE DISORDERS W/O CC/MCC
11	S	1101	302	KIDNEY TRANSPLANT	652	KIDNEY TRANSPLANT
11	S	1102	573	MAJOR BLADDER PROCEDURES	653	MAJOR BLADDER PROCEDURES W MCC
11	S	1102	573	MAJOR BLADDER PROCEDURES	654	MAJOR BLADDER PROCEDURES W CC

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MDC	M/S	MDRG	CMS-DRG	CMS-DRG DESCRIPTION	MS-DRG	MS-DRG DESCRIPTION
11	S	1102	573	MAJOR BLADDER PROCEDURES	655	MAJOR BLADDER PROCEDURES W/O CC/MCC
11	S	1103	303	KIDNEY AND URETER PROCEDURES FOR NEOPLASM	656	KIDNEY & URETER PROCEDURES FOR NEOPLASM W MCC
11	S	1103	303	KIDNEY AND URETER PROCEDURES FOR NEOPLASM	657	KIDNEY & URETER PROCEDURES FOR NEOPLASM W CC
11	S	1103	303	KIDNEY AND URETER PROCEDURES FOR NEOPLASM	658	KIDNEY & URETER PROCEDURES FOR NEOPLASM W/O CC/MCC
11	S	1104	304	KIDNEY AND URETER PROCEDURES FOR NON-NEOPLASM WITHOUT CC	659	KIDNEY & URETER PROCEDURES FOR NON-NEOPLASM W MCC
11	S	1104	305	KIDNEY AND URETER PROCEDURES FOR NON-NEOPLASM WITHOUT CC	660	KIDNEY & URETER PROCEDURES FOR NON-NEOPLASM W CC
11	S	1104	305	KIDNEY AND URETER PROCEDURES FOR NON-NEOPLASM WITHOUT CC	661	KIDNEY & URETER PROCEDURES FOR NON-NEOPLASM W/O CC/MCC
11	S	1105	308	MINOR BLADDER PROCEDURES W CC	662	MINOR BLADDER PROCEDURES W MCC
11	S	1105	309	MINOR BLADDER PROCEDURES W/O CC	663	MINOR BLADDER PROCEDURES W CC
11	S	1105	309	MINOR BLADDER PROCEDURES W/O CC	664	MINOR BLADDER PROCEDURES W/O CC/MCC
11	S	1106	306	PROSTATECTOMY W CC	665	PROSTATECTOMY W MCC
11	S	1106	307	PROSTATECTOMY W/O CC	666	PROSTATECTOMY W CC
11	S	1106	307	PROSTATECTOMY W/O CC	667	PROSTATECTOMY W/O CC/MCC
11	S	1107	310	TRANSURETHRAL PROCEDURES W CC	668	TRANSURETHRAL PROCEDURES W MCC
11	S	1107	311	TRANSURETHRAL PROCEDURES W/O CC	669	TRANSURETHRAL PROCEDURES W CC
11	S	1107	311	TRANSURETHRAL PROCEDURES W/O CC	670	TRANSURETHRAL PROCEDURES W/O CC/MCC
11	S	1108	312	URETHRAL PROCEDURES, AGE >17 W CC	671	URETHRAL PROCEDURES W CC/MCC
11	S	1108	313	URETHRAL PROCEDURES, AGE >17 W/O CC	672	URETHRAL PROCEDURES W/O CC/MCC
11	S	1108	314	URETHRAL PROCEDURES, AGE 0-17	672	URETHRAL PROCEDURES W/O CC/MCC
11	S	1109	315	OTHER KIDNEY & URINARY TRACT O.R. PROCEDURES	673	OTHER KIDNEY & URINARY TRACT PROCEDURES W MCC
11	S	1109	315	OTHER KIDNEY & URINARY TRACT O.R. PROCEDURES	674	OTHER KIDNEY & URINARY TRACT PROCEDURES W CC
11	S	1109	315	OTHER KIDNEY & URINARY TRACT O.R. PROCEDURES	675	OTHER KIDNEY & URINARY TRACT PROCEDURES W/O CC/MCC
11	M	1110	316	RENAL FAILURE	682	RENAL FAILURE W MCC
11	M	1110	316	RENAL FAILURE	683	RENAL FAILURE W CC
11	M	1110	316	RENAL FAILURE	684	RENAL FAILURE W/O CC/MCC

AHRQ Quality Indicators™
Pediatric Quality Indicators (PDI) Parameter Estimates

MDC	M/S	MDRG	CMS-DRG	CMS-DRG DESCRIPTION	MS-DRG	MS-DRG DESCRIPTION
11	M	1111	317	ADMIT FOR RENAL DIALYSIS	685	ADMIT FOR RENAL DIALYSIS
11	M	1112	318	KIDNEY & URINARY TRACT NEOPLASMS W CC	686	KIDNEY & URINARY TRACT NEOPLASMS W MCC
11	M	1112	319	KIDNEY & URINARY TRACT NEOPLASMS W/O CC	687	KIDNEY & URINARY TRACT NEOPLASMS W CC
11	M	1112	319	KIDNEY & URINARY TRACT NEOPLASMS W/O CC	688	KIDNEY & URINARY TRACT NEOPLASMS W/O CC/MCC
11	M	1113	320	KIDNEY & URINARY TRACT INFECTIONS AGE >17 W CC	689	KIDNEY & URINARY TRACT INFECTIONS W MCC
11	M	1113	321	KIDNEY & URINARY TRACT INFECTIONS AGE >17 W/O CC	690	KIDNEY & URINARY TRACT INFECTIONS W/O MCC
11	M	1113	322	KIDNEY & URINARY TRACT INFECTIONS AGE 0-17	690	KIDNEY & URINARY TRACT INFECTIONS W/O MCC
11	M	1114	323	URINARY STONES W CC, &/OR ESW LITHOTRIPSY	691	URINARY STONES W ESW LITHOTRIPSY W CC/MCC
11	M	1114	323	URINARY STONES W CC, &/OR ESW LITHOTRIPSY	692	URINARY STONES W ESW LITHOTRIPSY W/O CC/MCC
11	M	1115	324	URINARY STONES W/O CC	693	URINARY STONES W/O ESW LITHOTRIPSY W MCC
11	M	1115	324	URINARY STONES W/O CC	694	URINARY STONES W/O ESW LITHOTRIPSY W/O MCC
11	M	1116	325	KIDNEY & URINARY TRACT SIGNS & SYMPTOMS AGE >17 W CC	695	KIDNEY & URINARY TRACT SIGNS & SYMPTOMS W MCC
11	M	1116	326	KIDNEY & URINARY TRACT SIGNS & SYMPTOMS AGE >17 W/O CC	696	KIDNEY & URINARY TRACT SIGNS & SYMPTOMS W/O MCC
11	M	1116	327	KIDNEY & URINARY TRACT SIGNS & SYMPTOMS AGE 0-17	696	KIDNEY & URINARY TRACT SIGNS & SYMPTOMS W/O MCC
11	M	1117	328	URETHRAL STRICTURE AGE >17 W CC	697	URETHRAL STRICTURE
11	M	1117	329	URETHRAL STRICTURE AGE >17 W/O CC	697	URETHRAL STRICTURE
11	M	1117	330	URETHRAL STRICTURE AGE 0-17	697	URETHRAL STRICTURE
11	M	1118	331	OTHER KIDNEY & URINARY TRACT DIAGNOSES AGE >17 W CC	698	OTHER KIDNEY & URINARY TRACT DIAGNOSES W MCC
11	M	1118	332	OTHER KIDNEY & URINARY TRACT DIAGNOSES AGE >17 W/O CC	699	OTHER KIDNEY & URINARY TRACT DIAGNOSES W CC
11	M	1118	333	OTHER KIDNEY & URINARY TRACT DIAGNOSES AGE 0-17	700	OTHER KIDNEY & URINARY TRACT DIAGNOSES W/O CC/MCC

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MDC	M/S	MDRG	CMS-DRG	CMS-DRG DESCRIPTION	MS-DRG	MS-DRG DESCRIPTION
12	S	1201	334	MAJOR MALE PELVIC PROCEDURES W CC	707	MAJOR MALE PELVIC PROCEDURES W CC/MCC
12	S	1201	335	MAJOR MALE PELVIC PROCEDURES W/O CC	708	MAJOR MALE PELVIC PROCEDURES W/O CC/MCC
12	S	1202	341	PENIS PROCEDURES	709	PENIS PROCEDURES W CC/MCC
12	S	1202	341	PENIS PROCEDURES	710	PENIS PROCEDURES W/O CC/MCC
12	S	1203	338	TESTES PROCEDURES, FOR MALIGNANCY	711	TESTES PROCEDURES W CC/MCC
12	S	1203	339	TESTES PROCEDURES, NON-MALIGNANCY AGE >17	712	TESTES PROCEDURES W/O CC/MCC
12	S	1203	340	TESTES PROCEDURES, NON-MALIGNANCY AGE 0-17	712	TESTES PROCEDURES W/O CC/MCC
12	S	1204	336	TRANSURETHRAL PROSTATECTOMY W CC	713	TRANSURETHRAL PROSTATECTOMY W CC/MCC
12	S	1204	337	TRANSURETHRAL PROSTATECTOMY W/O CC	714	TRANSURETHRAL PROSTATECTOMY W/O CC/MCC
12	S	1205	344	OTHER MALE REPRODUCTIVE SYSTEM O.R. PROCEDURES FOR MALIGNANCY	715	OTHER MALE REPRODUCTIVE SYSTEM O.R. PROC FOR MALIGNANCY W CC/MCC
12	S	1205	344	OTHER MALE REPRODUCTIVE SYSTEM O.R. PROCEDURES FOR MALIGNANCY	716	OTHER MALE REPRODUCTIVE SYSTEM O.R. PROC FOR MALIGNANCY W/O CC/MCC
12	S	1206	345	OTHER MALE REPRODUCTIVE SYSTEM O.R. PROC EXCEPT FOR MALIGNANCY	717	OTHER MALE REPRODUCTIVE SYSTEM O.R. PROC EXC MALIGNANCY W CC/MCC
12	S	1206	345	OTHER MALE REPRODUCTIVE SYSTEM O.R. PROC EXCEPT FOR MALIGNANCY	718	OTHER MALE REPRODUCTIVE SYSTEM O.R. PROC EXC MALIGNANCY W/O CC/MCC
12	S	1206	342	CIRCUMCISION AGE >17	718	OTHER MALE REPRODUCTIVE SYSTEM O.R. PROC EXC MALIGNANCY W/O CC/MCC
12	S	1206	343	CIRCUMCISION AGE 0-17	718	OTHER MALE REPRODUCTIVE SYSTEM O.R. PROC EXC MALIGNANCY W/O CC/MCC
12	M	1207	346	MALIGNANCY, MALE REPRODUCTIVE SYSTEM, W CC	722	MALIGNANCY, MALE REPRODUCTIVE SYSTEM W MCC
12	M	1207	347	MALIGNANCY, MALE REPRODUCTIVE SYSTEM, W/O CC	723	MALIGNANCY, MALE REPRODUCTIVE SYSTEM W CC
12	M	1207	347	MALIGNANCY, MALE REPRODUCTIVE SYSTEM, W/O CC	724	MALIGNANCY, MALE REPRODUCTIVE SYSTEM W/O CC/MCC
12	M	1208	348	BENIGN PROSTATIC HYPERTROPHY W CC	725	BENIGN PROSTATIC HYPERTROPHY W MCC
12	M	1208	349	BENIGN PROSTATIC HYPERTROPHY W/O CC	726	BENIGN PROSTATIC HYPERTROPHY W/O MCC

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MDC	M/S	MDRG	CMS-DRG	CMS-DRG DESCRIPTION	MS-DRG	MS-DRG DESCRIPTION
12	M	1209	350	INFLAMMATION OF THE MALE REPRODUCTIVE SYSTEM	727	INFLAMMATION OF THE MALE REPRODUCTIVE SYSTEM W MCC
12	M	1209	350	INFLAMMATION OF THE MALE REPRODUCTIVE SYSTEM	728	INFLAMMATION OF THE MALE REPRODUCTIVE SYSTEM W/O MCC
12	M	1210	351	STERILIZATION, MALE	729	OTHER MALE REPRODUCTIVE SYSTEM DIAGNOSES W CC/MCC
12	M	1210	352	OTHER MALE REPRODUCTIVE SYSTEM DIAGNOSES	730	OTHER MALE REPRODUCTIVE SYSTEM DIAGNOSES W/O CC/MCC
13	S	1301	353	PELVIC EVISCERATION, RADICAL HYSTERECTOMY & RADICAL VULVECTOMY	734	PELVIC EVISCERATION, RAD HYSTERECTOMY & RAD VULVECTOMY W CC/MCC
13	S	1301	353	PELVIC EVISCERATION, RADICAL HYSTERECTOMY & RADICAL VULVECTOMY	735	PELVIC EVISCERATION, RAD HYSTERECTOMY & RAD VULVECTOMY W/O CC/MCC
13	S	1302	357	UTERINE & ADNEXA PROC FOR OVARIAN OR ADNEXAL MALIGNANCY	736	UTERINE & ADNEXA PROC FOR OVARIAN OR ADNEXAL MALIGNANCY W MCC
13	S	1302	357	UTERINE & ADNEXA PROC FOR OVARIAN OR ADNEXAL MALIGNANCY	737	UTERINE & ADNEXA PROC FOR OVARIAN OR ADNEXAL MALIGNANCY W CC
13	S	1302	357	UTERINE & ADNEXA PROC FOR OVARIAN OR ADNEXAL MALIGNANCY	738	UTERINE & ADNEXA PROC FOR OVARIAN OR ADNEXAL MALIGNANCY W/O CC/MCC
13	S	1303	354	UTERINE,ADNEXA PROC FOR NON-OVARIAN/ADNEXAL MALIG W CC	739	UTERINE,ADNEXA PROC FOR NON-OVARIAN/ADNEXAL MALIG W MCC
13	S	1303	355	UTERINE,ADNEXA PROC FOR NON-OVARIAN/ADNEXAL MALIG W/O CC	740	UTERINE,ADNEXA PROC FOR NON-OVARIAN/ADNEXAL MALIG W CC
13	S	1303	355	UTERINE,ADNEXA PROC FOR NON-OVARIAN/ADNEXAL MALIG W/O CC	741	UTERINE,ADNEXA PROC FOR NON-OVARIAN/ADNEXAL MALIG W/O CC/MCC
13	S	1304	358	UTERINE & ADNEXA PROC FOR NON-MALIGNANCY W CC	742	UTERINE & ADNEXA PROC FOR NON-MALIGNANCY W CC/MCC
13	S	1304	359	UTERINE & ADNEXA PROC FOR NON-MALIGNANCY W/O CC	743	UTERINE & ADNEXA PROC FOR NON-MALIGNANCY W/O CC/MCC
13	S	1305	361	LAPAROSCOPY & INCISIONAL TUBAL INTERRUPTION	744	D&C, CONIZATION, LAPAROSCOPY & TUBAL INTERRUPTION W CC/MCC
13	S	1305	362	ENDOSCOPIC TUBAL INTERRUPTION	745	D&C, CONIZATION, LAPAROSCOPY & TUBAL INTERRUPTION W/O CC/MCC
13	S	1305	363	D&C, CONIZATION & RADIO-IMPLANT, FOR MALIGNANCY	745	D&C, CONIZATION, LAPAROSCOPY & TUBAL INTERRUPTION W/O CC/MCC
13	S	1305	364	D&C, CONIZATION EXCEPT FOR MALIGNANCY	745	D&C, CONIZATION, LAPAROSCOPY & TUBAL INTERRUPTION W/O CC/MCC

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Pediatric Quality Indicators (PDI) Parameter Estimates

MDC	M/S	MDRG	CMS-DRG	CMS-DRG DESCRIPTION	MS-DRG	MS-DRG DESCRIPTION
13	S	1306	360	VAGINA, CERVIX & VULVA PROCEDURES	746	VAGINA, CERVIX & VULVA PROCEDURES W CC/MCC
13	S	1306	360	VAGINA, CERVIX & VULVA PROCEDURES	747	VAGINA, CERVIX & VULVA PROCEDURES W/O CC/MCC
13	S	1307	356	FEMALE REPRODUCTIVE SYSTEM RECONSTRUCTIVE PROCEDURES	748	FEMALE REPRODUCTIVE SYSTEM RECONSTRUCTIVE PROCEDURES
13	S	1308	365	OTHER FEMALE REPRODUCTIVE SYSTEM O.R. PROCEDURES	749	OTHER FEMALE REPRODUCTIVE SYSTEM O.R. PROCEDURES W CC/MCC
13	S	1308	365	OTHER FEMALE REPRODUCTIVE SYSTEM O.R. PROCEDURES	750	OTHER FEMALE REPRODUCTIVE SYSTEM O.R. PROCEDURES W/O CC/MCC
13	M	1309	366	MALIGNANCY, FEMALE REPRODUCTIVE SYSTEM W CC	754	MALIGNANCY, FEMALE REPRODUCTIVE SYSTEM W MCC
13	M	1309	367	MALIGNANCY, FEMALE REPRODUCTIVE SYSTEM W/O CC	755	MALIGNANCY, FEMALE REPRODUCTIVE SYSTEM W CC
13	M	1309	367	MALIGNANCY, FEMALE REPRODUCTIVE SYSTEM W/O CC	756	MALIGNANCY, FEMALE REPRODUCTIVE SYSTEM W/O CC/MCC
13	M	1310	368	INFECTIONS, FEMALE REPRODUCTIVE SYSTEM	757	INFECTIONS, FEMALE REPRODUCTIVE SYSTEM W MCC
13	M	1310	368	INFECTIONS, FEMALE REPRODUCTIVE SYSTEM	758	INFECTIONS, FEMALE REPRODUCTIVE SYSTEM W CC
13	M	1310	368	INFECTIONS, FEMALE REPRODUCTIVE SYSTEM	759	INFECTIONS, FEMALE REPRODUCTIVE SYSTEM W/O CC/MCC
13	M	1311	369	MENSTRUAL & OTHER FEMALE REPRODUCTIVE SYSTEM DISORDERS	760	MENSTRUAL & OTHER FEMALE REPRODUCTIVE SYSTEM DISORDERS W CC/MCC
13	M	1311	369	MENSTRUAL & OTHER FEMALE REPRODUCTIVE SYSTEM DISORDERS	761	MENSTRUAL & OTHER FEMALE REPRODUCTIVE SYSTEM DISORDERS W/O CC/MCC
14	S	1401	370	CESAREAN SECTION W CC	765	CESAREAN SECTION W CC/MCC
14	S	1401	371	CESAREAN SECTION W/O CC	766	CESAREAN SECTION W/O CC/MCC
14	S	1402	374	VAGINAL DELIVERY W STERILIZATION &/OR D&C	767	VAGINAL DELIVERY W STERILIZATION &/OR D&C
14	S	1402	375	VAGINAL DELIVERY W O.R. PROC EXCEPT STERIL &/OR D&C	768	VAGINAL DELIVERY W O.R. PROC EXCEPT STERIL &/OR D&C
14	S	1403	377	POSTPARTUM & POST ABORTION DIAGNOSES W O.R. PROCEDURE	769	POSTPARTUM & POST ABORTION DIAGNOSES W O.R. PROCEDURE

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MDC	M/S	MDRG	CMS-DRG	CMS-DRG DESCRIPTION	MS-DRG	MS-DRG DESCRIPTION
14	S	1404	381	ABORTION W D&C, ASPIRATION CURETTAGE OR HYSTEROTOMY	770	ABORTION W D&C, ASPIRATION CURETTAGE OR HYSTEROTOMY
14	M	1405	372	VAGINAL DELIVERY W COMPLICATING DIAGNOSES	774	VAGINAL DELIVERY W COMPLICATING DIAGNOSES
14	M	1405	373	VAGINAL DELIVERY W/O COMPLICATING DIAGNOSES	775	VAGINAL DELIVERY W/O COMPLICATING DIAGNOSES
14	M	1406	376	POSTPARTUM & POST ABORTION DIAGNOSES W/O O.R. PROCEDURE	776	POSTPARTUM & POST ABORTION DIAGNOSES W/O O.R. PROCEDURE
14	M	1407	378	ECTOPIC PREGNANCY	777	ECTOPIC PREGNANCY
14	M	1408	379	THREATENED ABORTION	778	THREATENED ABORTION
14	M	1409	380	ABORTION W/O D&C	779	ABORTION W/O D&C
14	M	1410	382	FALSE LABOR	780	FALSE LABOR
14	M	1411	383	OTHER ANTEPARTUM DIAGNOSES W MEDICAL COMPLICATIONS	781	OTHER ANTEPARTUM DIAGNOSES W MEDICAL COMPLICATIONS
14	M	1412	384	OTHER ANTEPARTUM DIAGNOSES W/O MEDICAL COMPLICATIONS	782	OTHER ANTEPARTUM DIAGNOSES W/O MEDICAL COMPLICATIONS
15	M	1501	385	NEONATES, DIED OR TRANSFERRED TO ANOTHER ACUTE CARE FACILITY	789	NEONATES, DIED OR TRANSFERRED TO ANOTHER ACUTE CARE FACILITY
15	M	1502	386	EXTREME IMMATUREITY OR RESPIRATORY DISTRESS SYNDROME, NEONATE	790	EXTREME IMMATUREITY OR RESPIRATORY DISTRESS SYNDROME, NEONATE
15	M	1503	387	PREMATURITY W MAJOR PROBLEMS	791	PREMATURITY W MAJOR PROBLEMS
15	M	1504	388	PREMATURITY W/O MAJOR PROBLEMS	792	PREMATURITY W/O MAJOR PROBLEMS
15	M	1505	389	FULL TERM NEONATE W MAJOR PROBLEMS	793	FULL TERM NEONATE W MAJOR PROBLEMS
15	M	1506	390	NEONATE W OTHER SIGNIFICANT PROBLEMS	794	NEONATE W OTHER SIGNIFICANT PROBLEMS
15	M	1507	391	NORMAL NEWBORN	795	NORMAL NEWBORN
16	S	1601	392	SPLENECTOMY AGE >17	799	SPLENECTOMY W MCC
16	S	1601	393	SPLENECTOMY AGE 0-17	800	SPLENECTOMY W CC
16	S	1601	393	SPLENECTOMY AGE 0-17	801	SPLENECTOMY W/O CC/MCC
16	S	1602	394	OTHER O.R. PROCEDURES OF THE BLOOD AND BLOOD FORMING ORGANS	802	OTHER O.R. PROC OF THE BLOOD & BLOOD FORMING ORGANS W MCC
16	S	1602	394	OTHER O.R. PROCEDURES OF THE BLOOD AND BLOOD FORMING ORGANS	803	OTHER O.R. PROC OF THE BLOOD & BLOOD FORMING ORGANS W CC
16	S	1602	394	OTHER O.R. PROCEDURES OF THE BLOOD AND BLOOD FORMING ORGANS	804	OTHER O.R. PROC OF THE BLOOD & BLOOD FORMING ORGANS W/O CC/MCC

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MDC	M/S	MDRG	CMS-DRG	CMS-DRG DESCRIPTION	MS-DRG	MS-DRG DESCRIPTION
16	M	1603	574	MAJOR HEMATOLOGIC/IMMUNOLOGIC DIAG EXC SICKLE CELL CRISIS & COAGUL	808	MAJOR HEMATOL/IMMUN DIAG EXC SICKLE CELL CRISIS & COAGUL W MCC
16	M	1603	574	MAJOR HEMATOLOGIC/IMMUNOLOGIC DIAG EXC SICKLE CELL CRISIS & COAGUL	809	MAJOR HEMATOL/IMMUN DIAG EXC SICKLE CELL CRISIS & COAGUL W CC
16	M	1603	574	MAJOR HEMATOLOGIC/IMMUNOLOGIC DIAG EXC SICKLE CELL CRISIS & COAGUL	810	MAJOR HEMATOL/IMMUN DIAG EXC SICKLE CELL CRISIS & COAGUL W/O CC/MCC
16	M	1604	395	RED BLOOD CELL DISORDERS AGE >17	811	RED BLOOD CELL DISORDERS W MCC
16	M	1604	396	RED BLOOD CELL DISORDERS AGE 0-17	812	RED BLOOD CELL DISORDERS W/O MCC
16	M	1605	397	COAGULATION DISORDERS	813	COAGULATION DISORDERS
16	M	1606	398	RETICULOENDOTHELIAL & IMMUNITY DISORDERS W CC	814	RETICULOENDOTHELIAL & IMMUNITY DISORDERS W MCC
16	M	1606	399	RETICULOENDOTHELIAL & IMMUNITY DISORDERS W/O CC	815	RETICULOENDOTHELIAL & IMMUNITY DISORDERS W CC
16	M	1606	399	RETICULOENDOTHELIAL & IMMUNITY DISORDERS W/O CC	816	RETICULOENDOTHELIAL & IMMUNITY DISORDERS W/O CC/MCC
17	S	1707	539	LYMPHOMA & LEUKEMIA W MAJOR OR PROCEDURE W CC	820	LYMPHOMA & LEUKEMIA W MAJOR O.R. PROCEDURE W MCC
17	S	1707	540	LYMPHOMA & LEUKEMIA W MAJOR OR PROCEDURE W/O CC	821	LYMPHOMA & LEUKEMIA W MAJOR O.R. PROCEDURE W CC
17	S	1707	540	LYMPHOMA & LEUKEMIA W MAJOR OR PROCEDURE W/O CC	822	LYMPHOMA & LEUKEMIA W MAJOR O.R. PROCEDURE W/O CC/MCC
17	S	1708	401	LYMPHOMA & NON-ACUTE LEUKEMIA W OTHER O.R. PROC W CC	823	LYMPHOMA & NON-ACUTE LEUKEMIA W OTHER O.R. PROC W MCC
17	S	1708	402	LYMPHOMA & NON-ACUTE LEUKEMIA W OTHER O.R. PROC W/O CC	824	LYMPHOMA & NON-ACUTE LEUKEMIA W OTHER O.R. PROC W CC
17	S	1708	402	LYMPHOMA & NON-ACUTE LEUKEMIA W OTHER O.R. PROC W/O CC	825	LYMPHOMA & NON-ACUTE LEUKEMIA W OTHER O.R. PROC W/O CC/MCC
17	S	1709	406	MYELOPROLIF DISORD OR POORLY DIFF NEOPL W MAJ O.R.PROC W CC	826	MYELOPROLIF DISORD OR POORLY DIFF NEOPL W MAJ O.R. PROC W MCC
17	S	1709	407	MYELOPROLIF DISORD OR POORLY DIFF NEOPL W MAJ O.R.PROC W/O CC	827	MYELOPROLIF DISORD OR POORLY DIFF NEOPL W MAJ O.R. PROC W CC
17	S	1709	407	MYELOPROLIF DISORD OR POORLY DIFF NEOPL W MAJ O.R.PROC W/O CC	828	MYELOPROLIF DISORD OR POORLY DIFF NEOPL W MAJ O.R. PROC W/O CC/MCC
17	S	1710	408	MYELOPROLIF DISORD OR POORLY DIFF NEOPL W OTHER O.R.PROC	829	MYELOPROLIF DISORD OR POORLY DIFF NEOPL W OTHER O.R. PROC W CC/MCC

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MDC	M/S	MDRG	CMS-DRG	CMS-DRG DESCRIPTION	MS-DRG	MS-DRG DESCRIPTION
17	S	1710	408	MYELOPROLIF DISORD OR POORLY DIFF NEOPL W OTHER O.R.PROC	830	MYELOPROLIF DISORD OR POORLY DIFF NEOPL W OTHER O.R. PROC W/O CC/MCC
17	M	1711	405	ACUTE LEUKEMIA W/O MAJOR O.R. PROCEDURE AGE 0-17	834	ACUTE LEUKEMIA W/O MAJOR O.R. PROCEDURE W MCC
17	M	1711	473	ACUTE LEUKEMIA W/O MAJOR O.R. PROCEDURE AGE >17	835	ACUTE LEUKEMIA W/O MAJOR O.R. PROCEDURE W CC
17	M	1711	473	ACUTE LEUKEMIA W/O MAJOR O.R. PROCEDURE AGE >17	836	ACUTE LEUKEMIA W/O MAJOR O.R. PROCEDURE W/O CC/MCC
17	M	1712	492	CHEMOTHERAPY W ACUTE LEUKEMIA OR W USE OF HI DOSE CHEMOAGENT	837	CHEMO W ACUTE LEUKEMIA AS SDX OR W HIGH DOSE CHEMO AGENT W MCC
17	M	1712	492	CHEMOTHERAPY W ACUTE LEUKEMIA OR W USE OF HI DOSE CHEMOAGENT	838	CHEMO W ACUTE LEUKEMIA AS SDX W CC OR HIGH DOSE CHEMO AGENT
17	M	1712	492	CHEMOTHERAPY W ACUTE LEUKEMIA OR W USE OF HI DOSE CHEMOAGENT	839	CHEMO W ACUTE LEUKEMIA AS SDX W/O CC/MCC
17	M	1713	403	LYMPHOMA & NON-ACUTE LEUKEMIA W CC	840	LYMPHOMA & NON-ACUTE LEUKEMIA W MCC
17	M	1713	404	LYMPHOMA & NON-ACUTE LEUKEMIA W/O CC	841	LYMPHOMA & NON-ACUTE LEUKEMIA W CC
17	M	1713	404	LYMPHOMA & NON-ACUTE LEUKEMIA W/O CC	842	LYMPHOMA & NON-ACUTE LEUKEMIA W/O CC/MCC
17	M	1714	411	HISTORY OF MALIGNANCY W/O ENDOSCOPY	843	OTHER MYELOPROLIF DIS OR POORLY DIFF NEOPL DIAG W MCC
17	M	1714	412	HISTORY OF MALIGNANCY W ENDOSCOPY	844	OTHER MYELOPROLIF DIS OR POORLY DIFF NEOPL DIAG W CC
17	M	1714	413	OTHER MYELOPROLIF DIS OR POORLY DIFF NEOPL DIAG W CC	845	OTHER MYELOPROLIF DIS OR POORLY DIFF NEOPL DIAG W/O CC/MCC
17	M	1714	414	OTHER MYELOPROLIF DIS OR POORLY DIFF NEOPL DIAG W/O CC	845	OTHER MYELOPROLIF DIS OR POORLY DIFF NEOPL DIAG W/O CC/MCC
17	M	1715	410	CHEMOTHERAPY W/O ACUTE LEUKEMIA AS SECONDARY DIAGNOSIS	846	CHEMOTHERAPY W/O ACUTE LEUKEMIA AS SECONDARY DIAGNOSIS W MCC
17	M	1715	410	CHEMOTHERAPY W/O ACUTE LEUKEMIA AS SECONDARY DIAGNOSIS	847	CHEMOTHERAPY W/O ACUTE LEUKEMIA AS SECONDARY DIAGNOSIS W CC
17	M	1715	410	CHEMOTHERAPY W/O ACUTE LEUKEMIA AS SECONDARY DIAGNOSIS	848	CHEMOTHERAPY W/O ACUTE LEUKEMIA AS SECONDARY DIAGNOSIS W/O CC/MCC
17	M	1716	409	RADIOTHERAPY	849	RADIOTHERAPY
17	S	1799	400	LYMPHOMA & LEUKEMIA W MAJOR O.R. PROCEDURE (NO LONGER VA		

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MDC	M/S	MDRG	CMS-DRG	CMS-DRG DESCRIPTION	MS-DRG	MS-DRG DESCRIPTION
18	S	1801	578	INFECTIOUS & PARASITIC DISEASES W OR PROCEDURE	853	INFECTIOUS & PARASITIC DISEASES W O.R. PROCEDURE W MCC
18	S	1801	578	INFECTIOUS & PARASITIC DISEASES W OR PROCEDURE	854	INFECTIOUS & PARASITIC DISEASES W O.R. PROCEDURE W CC
18	S	1801	578	INFECTIOUS & PARASITIC DISEASES W OR PROCEDURE	855	INFECTIOUS & PARASITIC DISEASES W O.R. PROCEDURE W/O CC/MCC
18	S	1802	579	POSTOPERATIVE OR POST-TRAUMATIC INFECTIONS W OR PROCEDURE	856	POSTOPERATIVE OR POST-TRAUMATIC INFECTIONS W O.R. PROC W MCC
18	S	1802	579	POSTOPERATIVE OR POST-TRAUMATIC INFECTIONS W OR PROCEDURE	857	POSTOPERATIVE OR POST-TRAUMATIC INFECTIONS W O.R. PROC W CC
18	S	1802	579	POSTOPERATIVE OR POST-TRAUMATIC INFECTIONS W OR PROCEDURE	858	POSTOPERATIVE OR POST-TRAUMATIC INFECTIONS W O.R. PROC W/O CC/MCC
18	M	1803	418	POSTOPERATIVE & POST-TRAUMATIC INFECTIONS	862	POSTOPERATIVE & POST-TRAUMATIC INFECTIONS W MCC
18	M	1803	418	POSTOPERATIVE & POST-TRAUMATIC INFECTIONS	863	POSTOPERATIVE & POST-TRAUMATIC INFECTIONS W/O MCC
18	M	1804	419	FEVER OF UNKNOWN ORIGIN AGE >17 W CC	864	FEVER OF UNKNOWN ORIGIN
18	M	1804	420	FEVER OF UNKNOWN ORIGIN AGE >17 W/O CC	864	FEVER OF UNKNOWN ORIGIN
18	M	1805	421	VIRAL ILLNESS AGE >17	865	VIRAL ILLNESS W MCC
18	M	1805	422	VIRAL ILLNESS & FEVER OF UNKNOWN ORIGIN AGE 0-17	866	VIRAL ILLNESS W/O MCC
18	M	1806	423	OTHER INFECTIOUS & PARASITIC DISEASES DIAGNOSES	867	OTHER INFECTIOUS & PARASITIC DISEASES DIAGNOSES W MCC
18	M	1806	423	OTHER INFECTIOUS & PARASITIC DISEASES DIAGNOSES	868	OTHER INFECTIOUS & PARASITIC DISEASES DIAGNOSES W CC
18	M	1806	423	OTHER INFECTIOUS & PARASITIC DISEASES DIAGNOSES	869	OTHER INFECTIOUS & PARASITIC DISEASES DIAGNOSES W/O CC/MCC
18	M	1807	417	SEPTICEMIA AGE 0-17	870	SEPTICEMIA W MV 96+ HOURS
18	M	1807	575	SEPTICEMIA W MV96+ HOURS AGE >17	870	SEPTICEMIA W MV 96+ HOURS
18	M	1808	576	SEPTICEMIA W/O MV96+ HOURS AGE >17	871	SEPTICEMIA W/O MV 96+ HOURS W MCC
18	M	1808	576	SEPTICEMIA W/O MV96+ HOURS AGE >17	872	SEPTICEMIA W/O MV 96+ HOURS W/O MCC
18	M	1898	416	SEPTICEMIA AGE >17 (NO LONGER VALID)		
18	S	1899	415	O.R. PROCEDURE FOR INFECTIOUS & PARASITIC DISEASES (NO LONGER VALID)		

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MDC	M/S	MDRG	CMS-DRG	CMS-DRG DESCRIPTION	MS-DRG	MS-DRG DESCRIPTION
19	S	1909	424	O.R. PROCEDURE W PRINCIPAL DIAGNOSES OF MENTAL ILLNESS	876	O.R. PROCEDURE W PRINCIPAL DIAGNOSES OF MENTAL ILLNESS
19	M	1910	425	ACUTE ADJUSTMENT REACTION & PSYCHOSOCIAL DYSFUNCTION	880	ACUTE ADJUSTMENT REACTION & PSYCHOSOCIAL DYSFUNCTION
19	M	1911	426	DEPRESSIVE NEUROSES	881	DEPRESSIVE NEUROSES
19	M	1912	427	NEUROSES EXCEPT DEPRESSIVE	882	NEUROSES EXCEPT DEPRESSIVE
19	M	1913	428	DISORDERS OF PERSONALITY & IMPULSE CONTROL	883	DISORDERS OF PERSONALITY & IMPULSE CONTROL
19	M	1914	429	ORGANIC DISTURBANCES & MENTAL RETARDATION	884	ORGANIC DISTURBANCES & MENTAL RETARDATION
19	M	1915	430	PSYCHOSES	885	PSYCHOSES
19	M	1916	431	CHILDHOOD MENTAL DISORDERS	886	BEHAVIORAL & DEVELOPMENTAL DISORDERS
19	M	1917	432	OTHER MENTAL DISORDER DIAGNOSES	887	OTHER MENTAL DISORDER DIAGNOSES
20	M	2018	433	ALCOHOL/DRUG ABUSE OR DEPENDENCE, LEFT AMA	894	ALCOHOL/DRUG ABUSE OR DEPENDENCE, LEFT AMA
20	M	2019	521	ALCOHOL/DRUG ABUSE OR DEPENDENCE W CC	895	ALCOHOL/DRUG ABUSE OR DEPENDENCE W REHABILITATION THERAPY
20	M	2019	522	ALC/DRUG ABUSE OR DEPEND W REHABILITATION THERAPY W/O CC	895	ALCOHOL/DRUG ABUSE OR DEPENDENCE W REHABILITATION THERAPY
20	M	2020	523	ALC/DRUG ABUSE OR DEPEND W/O REHABILITATION THERAPY W/O CC	896	ALCOHOL/DRUG ABUSE OR DEPENDENCE W/O REHABILITATION THERAPY W MCC
20	M	2020	523	ALC/DRUG ABUSE OR DEPEND W/O REHABILITATION THERAPY W/O CC	897	ALCOHOL/DRUG ABUSE OR DEPENDENCE W/O REHABILITATION THERAPY W/O MCC
20	M	2098	434	ALC/DRUG ABUSE OR DEPEND, DETOX OR OTH SYMPT TREAT W CC		
20	M	2098	435	ALC/DRUG ABUSE OR DEPEND, DETOX OR OTH SYMPT TREAT WO CC		
20	M	2098	436	ALC/DRUG DEPENDENCE W REHABILITATION THERAPY (NO LONGER		
20	M	2098	437	ALC/DRUG DEPENDENCE, COMBINED REHAB & DETOX THERAPY (NO		
20	M	2098	438	NO LONGER VALID		
21	S	2101	440	WOUND DEBRIDEMENTS FOR INJURIES	901	WOUND DEBRIDEMENTS FOR INJURIES W MCC
21	S	2101	440	WOUND DEBRIDEMENTS FOR INJURIES	902	WOUND DEBRIDEMENTS FOR INJURIES W CC

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MDC	M/S	MDRG	CMS-DRG	CMS-DRG DESCRIPTION	MS-DRG	MS-DRG DESCRIPTION
21	S	2101	440	WOUND DEBRIDEMENTS FOR INJURIES	903	WOUND DEBRIDEMENTS FOR INJURIES W/O CC/MCC
21	S	2102	439	SKIN GRAFTS FOR INJURIES	904	SKIN GRAFTS FOR INJURIES W CC/MCC
21	S	2102	439	SKIN GRAFTS FOR INJURIES	905	SKIN GRAFTS FOR INJURIES W/O CC/MCC
21	S	2103	441	HAND PROCEDURES FOR INJURIES	906	HAND PROCEDURES FOR INJURIES
21	S	2104	442	OTHER O.R. PROCEDURES FOR INJURIES W CC	907	OTHER O.R. PROCEDURES FOR INJURIES W MCC
21	S	2104	443	OTHER O.R. PROCEDURES FOR INJURIES W/O CC	908	OTHER O.R. PROCEDURES FOR INJURIES W CC
21	S	2104	443	OTHER O.R. PROCEDURES FOR INJURIES W/O CC	909	OTHER O.R. PROCEDURES FOR INJURIES W/O CC/MCC
21	M	2105	444	TRAUMATIC INJURY AGE >17 W CC	913	TRAUMATIC INJURY W MCC
21	M	2105	445	TRAUMATIC INJURY AGE >17 W/O CC	914	TRAUMATIC INJURY W/O MCC
21	M	2105	446	TRAUMATIC INJURY AGE 0-17	914	TRAUMATIC INJURY W/O MCC
21	M	2106	447	ALLERGIC REACTIONS AGE >17	915	ALLERGIC REACTIONS W MCC
21	M	2106	448	ALLERGIC REACTIONS AGE 0-17	916	ALLERGIC REACTIONS W/O MCC
21	M	2107	449	POISONING & TOXIC EFFECTS OF DRUGS AGE >17 W CC	917	POISONING & TOXIC EFFECTS OF DRUGS W MCC
21	M	2107	450	POISONING & TOXIC EFFECTS OF DRUGS AGE >17 W/O CC	918	POISONING & TOXIC EFFECTS OF DRUGS W/O MCC
21	M	2107	451	POISONING & TOXIC EFFECTS OF DRUGS AGE 0-17	918	POISONING & TOXIC EFFECTS OF DRUGS W/O MCC
21	M	2108	452	COMPLICATIONS OF TREATMENT W CC	919	COMPLICATIONS OF TREATMENT W MCC
21	M	2108	453	COMPLICATIONS OF TREATMENT W/O CC	920	COMPLICATIONS OF TREATMENT W CC
21	M	2108	453	COMPLICATIONS OF TREATMENT W/O CC	921	COMPLICATIONS OF TREATMENT W/O CC/MCC
21	M	2109	454	OTHER INJURY, POISONING & TOXIC EFFECT DIAG W CC	922	OTHER INJURY, POISONING & TOXIC EFFECT DIAG W MCC
21	M	2109	455	OTHER INJURY, POISONING & TOXIC EFFECT DIAG W/O CC	923	OTHER INJURY, POISONING & TOXIC EFFECT DIAG W/O MCC
22	S	2201	506	FULL THICKNESS BURN W SKIN GRAFT OR INHAL INJ W CC OR SIG TRAUMA	928	FULL THICKNESS BURN W SKIN GRAFT OR INHAL INJ W CC/MCC
22	S	2201	507	FULL THICKNESS BURN W SKIN GRFT OR INHAL INJ W/O CC OR SIG TRAUMA	929	FULL THICKNESS BURN W SKIN GRAFT OR INHAL INJ W/O CC/MCC

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MDC	M/S	MDRG	CMS-DRG	CMS-DRG DESCRIPTION	MS-DRG	MS-DRG DESCRIPTION
22	S	2210	504	EXTEN. BURNS OR FULL THICKNESS BURN W/MV 96+HRS W/SKIN GFT	927	EXTENSIVE BURNS OR FULL THICKNESS BURNS W MV 96+ HRS W SKIN GRAFT
22	M	2212	505	EXTEN. BURNS OR FULL THICKNESS BURN W/MV 96+HRS W/O SKIN GFT	933	EXTENSIVE BURNS OR FULL THICKNESS BURNS W MV 96+ HRS W/O SKIN GRAFT
22	M	2213	508	FULL THICKNESS BURN W/O SKIN GRFT OR INHAL INJ W CC OR SIG TRAUMA	934	FULL THICKNESS BURN W/O SKIN GRFT OR INHAL INJ
22	M	2213	509	FULL THICKNESS BURN W/O SKIN GRFT OR INH INJ W/O CC OR SIG TRAUMA	934	FULL THICKNESS BURN W/O SKIN GRFT OR INHAL INJ
22	M	2214	510	NON-EXTENSIVE BURNS W CC OR SIGNIFICANT TRAUMA	935	NON-EXTENSIVE BURNS
22	M	2214	511	NON-EXTENSIVE BURNS W/O CC OR SIGNIFICANT TRAUMA	935	NON-EXTENSIVE BURNS
22	M	2298	456	BURNS, TRANSFERRED TO ANOTHER ACUTE CARE FACILITY (NO LO		
22	M	2298	457	EXTENSIVE BURNS WO O.R. PROCEDURE (NO LONGER VALID)		
22	M	2298	458	NON-EXTENSIVE BURNS W SKIN GRAFT (NO LONGER VALID)		
22	M	2298	459	NON-EXTENSIVE BURNS W WOUND DEBRIDEMENT OR OTHER O.R. PR		
22	M	2298	460	NON-EXTENSIVE BURNS WO O.R. PROCEDURE (NO LONGER VALID)		
22	S	2299	472	BILATERAL OR MULTIPLE MAJOR JOINT PROCS OF LOWER EXTREMI		
23	S	2301	461	O.R. PROC W DIAGNOSES OF OTHER CONTACT W HEALTH SERVICES	939	O.R. PROC W DIAGNOSES OF OTHER CONTACT W HEALTH SERVICES W MCC
23	S	2301	461	O.R. PROC W DIAGNOSES OF OTHER CONTACT W HEALTH SERVICES	940	O.R. PROC W DIAGNOSES OF OTHER CONTACT W HEALTH SERVICES W CC
23	S	2301	461	O.R. PROC W DIAGNOSES OF OTHER CONTACT W HEALTH SERVICES	941	O.R. PROC W DIAGNOSES OF OTHER CONTACT W HEALTH SERVICES W/O CC/MCC
23	M	2302	462	REHABILITATION	945	REHABILITATION W CC/MCC
23	M	2302	462	REHABILITATION	946	REHABILITATION W/O CC/MCC
23	M	2303	463	SIGNS & SYMPTOMS W CC	947	SIGNS & SYMPTOMS W MCC
23	M	2303	464	SIGNS & SYMPTOMS W/O CC	948	SIGNS & SYMPTOMS W/O MCC
23	M	2304	465	AFTERCARE W HISTORY OF MALIGNANCY AS SECONDARY DIAGNOSIS	949	AFTERCARE W CC/MCC

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MDC	M/S	MDRG	CMS-DRG	CMS-DRG DESCRIPTION	MS-DRG	MS-DRG DESCRIPTION
23	M	2304	466	AFTERCARE W/O HISTORY OF MALIGNANCY AS SECONDARY DIAGNOSIS	950	AFTERCARE W/O CC/MCC
23	M	2305	467	OTHER FACTORS INFLUENCING HEALTH STATUS	951	OTHER FACTORS INFLUENCING HEALTH STATUS
24	S	2406	484	CRANIOTOMY FOR MULTIPLE SIGNIFICANT TRAUMA	955	CRANIOTOMY FOR MULTIPLE SIGNIFICANT TRAUMA
24	S	2407	485	LIMB REATTACHMENT, HIP AND FEMUR PROC FOR MULTIPLE SIGNIFICANT TRAUMA	956	LIMB REATTACHMENT, HIP & FEMUR PROC FOR MULTIPLE SIGNIFICANT TRAUMA
24	S	2408	486	OTHER O.R. PROCEDURES FOR MULTIPLE SIGNIFICANT TRAUMA	957	OTHER O.R. PROCEDURES FOR MULTIPLE SIGNIFICANT TRAUMA W MCC
24	S	2408	486	OTHER O.R. PROCEDURES FOR MULTIPLE SIGNIFICANT TRAUMA	958	OTHER O.R. PROCEDURES FOR MULTIPLE SIGNIFICANT TRAUMA W CC
24	S	2408	486	OTHER O.R. PROCEDURES FOR MULTIPLE SIGNIFICANT TRAUMA	959	OTHER O.R. PROCEDURES FOR MULTIPLE SIGNIFICANT TRAUMA W/O CC/MCC
24	M	2409	487	OTHER MULTIPLE SIGNIFICANT TRAUMA	963	OTHER MULTIPLE SIGNIFICANT TRAUMA W MCC
24	M	2409	487	OTHER MULTIPLE SIGNIFICANT TRAUMA	964	OTHER MULTIPLE SIGNIFICANT TRAUMA W CC
24	M	2409	487	OTHER MULTIPLE SIGNIFICANT TRAUMA	965	OTHER MULTIPLE SIGNIFICANT TRAUMA W/O CC/MCC
25	S	2501	488	HIV W EXTENSIVE O.R. PROCEDURE	969	HIV W EXTENSIVE O.R. PROCEDURE W MCC
25	S	2501	488	HIV W EXTENSIVE O.R. PROCEDURE	970	HIV W EXTENSIVE O.R. PROCEDURE W/O MCC
25	M	2502	489	HIV W MAJOR RELATED CONDITION	974	HIV W MAJOR RELATED CONDITION W MCC
25	M	2502	489	HIV W MAJOR RELATED CONDITION	975	HIV W MAJOR RELATED CONDITION W CC
25	M	2502	489	HIV W MAJOR RELATED CONDITION	976	HIV W MAJOR RELATED CONDITION W/O CC/MCC
25	M	2503	490	HIV W OR W/O OTHER RELATED CONDITION	977	HIV W OR W/O OTHER RELATED CONDITION
PR	S	7701	103	HEART TRANSPLANT OR IMPLANT OF HEART ASSIST SYSTEM	001	HEART TRANSPLANT OR IMPLANT OF HEART ASSIST SYSTEM W MCC
PR	S	7701	103	HEART TRANSPLANT OR IMPLANT OF HEART ASSIST SYSTEM	002	HEART TRANSPLANT OR IMPLANT OF HEART ASSIST SYSTEM W/O MCC
PR	S	7702	480	LIVER TRANSPLANT AND/OR INTESTINAL TRANSPLANT	005	LIVER TRANSPLANT W MCC OR INTESTINAL TRANSPLANT
PR	S	7702	480	LIVER TRANSPLANT AND/OR INTESTINAL TRANSPLANT	006	LIVER TRANSPLANT W/O MCC
PR	S	7703	495	LUNG TRANSPLANT	007	LUNG TRANSPLANT

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MDC	M/S	MDRG	CMS-DRG	CMS-DRG DESCRIPTION	MS-DRG	MS-DRG DESCRIPTION
PR	S	7704	512	SIMULTANEOUS PANCREAS/KIDNEY TRANSPLANT	008	SIMULTANEOUS PANCREAS/KIDNEY TRANSPLANT
PR	S	7705	481	BONE MARROW TRANSPLANT	009	BONE MARROW TRANSPLANT
PR	S	7705	481	BONE MARROW TRANSPLANT	014	ALLOGENEIC BONE MARROW TRANSPLANT
PR	S	7705	481	BONE MARROW TRANSPLANT	015	AUTOLOGOUS BONE MARROW TRANSPLANT (NO LONGER VALID)
PR	S	7705	481	BONE MARROW TRANSPLANT	016	AUTOLOGOUS BONE MARROW TRANSPLANT W CC/MCC
PR	S	7705	481	BONE MARROW TRANSPLANT	017	AUTOLOGOUS BONE MARROW TRANSPLANT W/O CC/MCC
PR	S	7706	513	PANCREAS TRANSPLANT	010	PANCREAS TRANSPLANT
PR	S	7799	541	ECMO OR TRACH W MV 96+HRS OR PDX EXC FACE, MOUTH & NECK W MAJ O.R.	003	ECMO OR TRACH W MV 96+ HRS OR PDX EXC FACE, MOUTH & NECK W MAJ O.R.
PR	S	7799	542	TRACH W MV 96+HRS OR PDX EXC FACE, MOUTH & NECK W/O MAJ O.R.	004	TRACH W MV 96+ HRS OR PDX EXC FACE, MOUTH & NECK W/O MAJ O.R.
PR	S	7799	482	TRACHEOSTOMY FOR FACE,MOUTH & NECK DIAGNOSES	011	TRACHEOSTOMY FOR FACE,MOUTH & NECK DIAGNOSES W MCC
PR	S	7799	482	TRACHEOSTOMY FOR FACE,MOUTH & NECK DIAGNOSES	012	TRACHEOSTOMY FOR FACE,MOUTH & NECK DIAGNOSES W CC
PR	S	7799	482	TRACHEOSTOMY FOR FACE,MOUTH & NECK DIAGNOSES	013	TRACHEOSTOMY FOR FACE,MOUTH & NECK DIAGNOSES W/O CC/MCC
PR ¹	S	7799	483	TRAC W MECH VENT 96+HRS OR PDX EXCEPT FACE,MOUTH & NECK		
* ²	M	8898	469	PRINCIPAL DIAGNOSIS INVALID AS DISCHARGE DIAGNOSIS	998	PRINCIPAL DIAGNOSIS INVALID AS DISCHARGE DIAGNOSIS
*	M	8898	470	UNGROUPABLE	999	UNGROUPABLE
*	S	8899	468	EXTENSIVE O.R. PROCEDURE UNRELATED TO PRINCIPAL DIAGNOSIS	981	EXTENSIVE O.R. PROCEDURE UNRELATED TO PRINCIPAL DIAGNOSIS W MCC
*	S	8899	468	EXTENSIVE O.R. PROCEDURE UNRELATED TO PRINCIPAL DIAGNOSIS	982	EXTENSIVE O.R. PROCEDURE UNRELATED TO PRINCIPAL DIAGNOSIS W CC
*	S	8899	468	EXTENSIVE O.R. PROCEDURE UNRELATED TO PRINCIPAL DIAGNOSIS	983	EXTENSIVE O.R. PROCEDURE UNRELATED TO PRINCIPAL DIAGNOSIS W/O CC/MCC
*	S	8899	476	PROSTATIC O.R. PROCEDURE UNRELATED TO PRINCIPAL DIAGNOSIS	984	PROSTATIC O.R. PROCEDURE UNRELATED TO PRINCIPAL DIAGNOSIS W MCC
*	S	8899	476	PROSTATIC O.R. PROCEDURE UNRELATED TO PRINCIPAL DIAGNOSIS	985	PROSTATIC O.R. PROCEDURE UNRELATED TO PRINCIPAL DIAGNOSIS W CC

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MDC	M/S	MDRG	CMS-DRG	CMS-DRG DESCRIPTION	MS-DRG	MS-DRG DESCRIPTION
*	S	8899	476	PROSTATIC O.R. PROCEDURE UNRELATED TO PRINCIPAL DIAGNOSIS	986	PROSTATIC O.R. PROCEDURE UNRELATED TO PRINCIPAL DIAGNOSIS W/O CC/MCC
*	S	8899	477	NON-EXTENSIVE O.R. PROCEDURE UNRELATED TO PRINCIPAL DIAGNOSIS	987	NON-EXTENSIVE O.R. PROC UNRELATED TO PRINCIPAL DIAGNOSIS W MCC
*	S	8899	477	NON-EXTENSIVE O.R. PROCEDURE UNRELATED TO PRINCIPAL DIAGNOSIS	988	NON-EXTENSIVE O.R. PROC UNRELATED TO PRINCIPAL DIAGNOSIS W CC
*	S	8899	477	NON-EXTENSIVE O.R. PROCEDURE UNRELATED TO PRINCIPAL DIAGNOSIS	989	NON-EXTENSIVE O.R. PROC UNRELATED TO PRINCIPAL DIAGNOSIS W/O CC/MCC

¹ These procedure-based DRG are not assigned to an MDC.

² These unrelated procedures are not assigned to an MDC.

Table A.3. Major Diagnostic Categories (MDC)

MDC	DESCRIPTION
1	DISEASES & DISORDERS OF THE NERVOUS SYSTEM
2	DISEASES & DISORDERS OF THE EYE
3	DISEASES & DISORDERS OF THE EAR, NOSE, MOUTH & THROAT
4	DISEASES & DISORDERS OF THE RESPIRATORY SYSTEM
5	DISEASES & DISORDERS OF THE CIRCULATORY SYSTEM
6	DISEASES & DISORDERS OF THE DIGESTIVE SYSTEM
7	DISEASES & DISORDERS OF THE HEPATOBILIARY SYSTEM & PANCREAS
8	DISEASES & DISORDERS OF THE MUSCULOSKELETAL SYSTEM & CONN TISSUE
9	DISEASES & DISORDERS OF THE SKIN, SUBCUTANEOUS TISSUE & BREAST
10	ENDOCRINE, NUTRITIONAL & METABOLIC DISEASES & DISORDERS
11	DISEASES & DISORDERS OF THE KIDNEY & URINARY TRACT
12	DISEASES & DISORDERS OF THE MALE REPRODUCTIVE SYSTEM
13	DISEASES & DISORDERS OF THE FEMALE REPRODUCTIVE SYSTEM
14	PREGNANCY, CHILDBIRTH & THE PUERPERIUM
15	NEWBORNS & OTHER NEONATES WITH CONDTN ORIG IN PERINATAL PERIOD
16	DISEASES & DISORDERS OF BLOOD, BLOOD FORMING ORGANS, IMMUNOLOG DISORD
17	MYELOPROLIFERATIVE DISEASES & DISORDERS, POORLY DIFFERENTIATED NEOPLASM
18	INFECTIOUS & PARASITIC DISEASES, SYSTEMIC OR UNSPECIFIED SITES
19	MENTAL DISEASES & DISORDERS
20	ALCOHOL/DRUG USE & ALCOHOL/DRUG INDUCED ORGANIC MENTAL DISORDERS
21	INJURIES, POISONINGS & TOXIC EFFECTS OF DRUGS
22	BURNS
23	FACTORS INFLUENCING HLTH STAT & OTHR CONTACTS WITH HLTH SERVCS
24	MULTIPLE SIGNIFICANT TRAUMA
25	HUMAN IMMUNODEFICIENCY VIRUS INFECTIONS
OTHER	REPRESENTS ALL OTHER MDCs NOT EXPLICITLY INCLUDED AS A PARAMETER IN THE QI RISK ADJUSTMENT MODEL

Table A.4. AHRQ Clinical Classification Software (CCS) Categories

CCS	CCS CATEGORY
4	Mycoses
6	Hepatitis
21	Cancer of bone and connective tissue
33	Cancer of kidney and renal pelvis
35	Cancer of brain and nervous system
38	Non-Hodgkins lymphoma
39	Leukemias
41	Cancer, other and unspecified primary
42	Secondary malignancies
48	Thyroid disorders
51	Other endocrine disorders
52	Nutritional deficiencies
56	Cystic fibrosis
57	Immunity disorders
58	Other nutritional, endocrine, and metabolic disorders
62	Coagulation and hemorrhagic disorders
63	Diseases of white blood cells
654	Developmental disorders
661	Substance-related disorders
81	Other hereditary and degenerative nervous system conditions
82	Paralysis
83	Epilepsy, convulsions
85	Coma, stupor, and brain damage
95	Other nervous system disorders
96	Heart valve disorders
98	Essential hypertension
103	Pulmonary heart disease
105	Conduction disorders
106	Cardiac dysrhythmias
108	Congestive heart failure, nonhypertensive

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CCS	CCS CATEGORY
133	Other lower respiratory disease
138	Esophageal disorders
151	Other liver diseases
158	Chronic renal failure
161	Other diseases of kidney and ureters
210	Systemic lupus erythematosus and connective tissue disorders
211	Other connective tissue disease
213	Cardiac and circulatory congenital anomalies
214	Digestive congenital anomalies
215	Genitourinary congenital anomalies
216	Nervous system congenital anomalies
217	Other congenital anomalies
219	Short gestation, low birth weight, and fetal growth retardation
221	Respiratory distress syndrome
224	Other perinatal conditions
227	Spinal cord injury

Source: <http://hcup-us.ahrq.gov/toolssoftware/ccs/ccs.jsp>

Table A.5. Congenital Anomalies

DIAGNOSTIC RISK GROUP	
1. Gastrointestinal (CONGCAT1)	
756.70	Anomaly of abdominal wall, unspecified
756.79	Other congenital anomalies of abdominal wall
750.3	Tracheoesophageal fistula, esophageal atresia and stenosis
750.4	Other specified anomalies of esophagus
750.5	Congenital hypertrophic pyloric stenosis
750.7	Other specified anomalies of stomach
750.8	Other specified anomalies of upper alimentary tract
750.9	Unspecified anomaly of upper alimentary tract
751.1	Atresia and stenosis of small intestine
751.5	Other anomalies of intestine
751.8	Other specified anomalies of digestive system
751.9	Unspecified anomaly of digestive system
560.2	Volvulus
751.4	Anomalies of intestinal fixation
751.0	Meckel's diverticulum
751.2	Atresia and stenosis of large intestine, rectum, and anal canal
751.3	Hirschsprung's disease and other congenital functional disorders of colon
771.1	Congenital cytomegalovirus infection
751.61	Biliary atresia
751.7	Anomalies of pancreas
751.60	Unspecified anomaly of gallbladder, bile ducts, and liver
751.69	Other anomalies of gallbladder, bile ducts, and liver
2. Genitourinary (CONGCAT2)	
753.0	Renal agenesis and dysgenesis
753.12	Polycystic kidney, unspecified type
753.14	Polycystic kidney, autosomal recessive
753.15	Renal dysplasia
753.10	Cystic kidney disease, unspecified
753.19	Other specified cystic kidney disease
753.3	Other specified anomalies of kidney

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DIAGNOSTIC RISK GROUP	
753.4	Other specified anomalies of ureter
753.21	Congenital obstruction of ureteropelvic junction
753.22	Congenital obstruction of ureterovesical junction
753.23	Congenital ureterocele
753.6	Atresia and stenosis of urethra and bladder neck
753.7	Anomalies of urachus
753.8	Other specified anomalies of bladder and urethra
753.9	Unspecified anomaly of urinary system
753.20	Unspecified obstructive defect of renal pelvis and ureter
756.71	Prune belly syndrome
3. CNS (CONGCAT3)	
741.00	With hydrocephalus, unspecified region
741.01	With hydrocephalus, cervical region
741.02	With hydrocephalus, dorsal (thoracic) region
741.03	With hydrocephalus, lumbar region
741.90	Without mention of hydrocephalus, unspecified region
741.91	Without mention of hydrocephalus, cervical region
741.92	Without mention of hydrocephalus, dorsal (thoracic) region
741.93	Without mention of hydrocephalus, lumbar region
742.59	Other specified anomalies of spinal cord, Other
742.0	Encephalocele
742.1	Microcephalus
742.4	Other specified anomalies of brain
742.2	Reduction deformities of brain
742.3	Congenital hydrocephalus
742.8	Other specified anomalies of nervous system
742.9	Unspecified anomaly of brain, spinal cord, and nervous system
4. Pulmonary (CONGCAT4)	
519.4	Disorders of diaphragm
553.3	Diaphragmatic hernia
750.6	Congenital hiatus hernia
756.6	Anomalies of diaphragm

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DIAGNOSTIC RISK GROUP	
748.3	Other anomalies of larynx, trachea, and bronchus
748.9	Unspecified anomaly of respiratory system
748.4	Congenital cystic lung
748.60	Other anomalies of lung, anomaly of lung, unspecified
748.69	Other anomalies of lung, other
748.8	Other specified anomalies of respiratory system
5. Cardiovascular (CONGCAT5)	
746.3	Congenital stenosis of aortic valve
746.4	Congenital insufficiency of aortic valve
424.1	Aortic valve disorders
747.10	Coarctation of aorta (preductal) (postductal)
747.21	Other anomalies of aorta, anomalies of aortic arch
747.29	Other anomalies of aorta, other
747.11	Interruption of aortic arch
747.22	Other anomalies of aorta, atresia and stenosis of aorta
746.81	Subaortic stenosis
746.7	Hypoplastic left heart syndrome
425.3	Endocardial fibroelastosis
746.5	Congenital mitral stenosis
424.0	Mitral valve disorders
746.6	Congenital mitral insufficiency
746.84	Obstructive anomalies of heart, NEC
745.10	Complete transposition of great vessels
745.19	Transposition of great vessels, other
745.12	Corrected transposition of great vessels
746.85	Coronary artery anomaly
425.1	Hypertrophic obstructive cardiomyopathy
745.3	Common ventricle
745.11	Double outlet right ventricle
745.0	Common truncus
746.01	Atresia, congenital
746.83	Infundibular pulmonic stenosis

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DIAGNOSTIC RISK GROUP	
746.2	Ebstein's anomaly
746.09	Anomalies of pulmonary valve, other
745.2	Tetralogy of Fallot
746.1	Tricuspid atresia and stenosis, congenital
745.60	Endocardial cushion defect, unspecified type
745.61	Ostium primum defect
745.69	Endocardial cushion defects, other
746.82	Cor triatriatum
747.41	Total anomalous pulmonary venous connection
747.42	Partial anomalous pulmonary venous connection
747.40	Anomaly of great veins, unspecified
747.49	Other anomalies of great veins
6. Skeletal (CONGCAT6)	
756.50	Osteodystrophy, unspecified
756.51	Osteogenesis imperfecta
756.55	Chondroectodermal dysplasia
756.59	Osteodystrophies, other
7. Chromosomal Syndromes (CONGCAT7)	
758.3	Autosomal deletion syndromes
758.5	Other conditions due to autosomal anomalies
758.89	Other conditions due to chromosome anomalies, other
758.9	Conditions due to anomaly of unspecified chromosome
759.89	Other specified anomalies, other
759.9	Congenital anomaly, unspecified
759.7	Multiple congenital anomalies, so described
759.4	Conjoined twins
8. Other (CONGCAT8)	
778.0	Hydrops fetalis not due to isoimmunization
759.6	Other hamartoses, NEC
776.5	Congenital anemia

Table A.6. Indicator Specific Risk Categories

COVARIATE	DEFINITION
GPPD02	Pressure Ulcer Rate Risk Category for PDI #2 (See technical specification for PDI #2 for diagnosis and procedure codes)
1	Low Risk (default)
2	High Risk a) An ICD-9-CM diagnosis code of hemiplegia, paraplegia, quadriplegia, spina bifida or anoxic brain damage in any field; OR b) An ICD-9-CM procedure code for other continuous mechanical ventilation code for 96 or more consecutive hours
GPPD10	Postoperative Sepsis Rate Risk Category for PDI #10 (See Table 2 for the wound classification of DRG codes using Modified DRGs)
1	Clean DRG, Elective
2	Clean DRG, Non-elective
3	Clean contaminated, potentially contaminated or unspecified DRG, Elective
4	Clean contaminated, potentially contaminated or unspecified DRG, Non-elective
5	Likely infected DRG
9	Other surgical DRG
GPPD12	Central Venous Catheter-Related Blood Stream Infection Rate Risk Category for PDI #12 (See technical specification for PDI #12 for diagnosis codes; See technical specification for PDI #11 for transplant procedure codes)
1	Low risk (default)
2	Intermediate risk An ICD-9-CM diagnosis code of Intermediate-risk Immune-compromised State, Cystic fibrosis, Hemophilia, or Hepatic Failure (cirrhosis and (hepatic coma or hepatorenal syndrome)) in any diagnosis field

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COVARIATE	DEFINITION
3	High risk a) An ICD-9-CM diagnosis code of High-risk Immune-compromised State or Cancer in any field; OR b) An ICD-9-CM procedure code for Transplant
HPPD01	Accidental Puncture or Laceration Rate Risk Category for PDI #1
1 2 3 4 5 6 7	No therapeutic procedure with any or no diagnostic procedures Only minor therapeutic procedure with any or no diagnostic procedures One major therapeutic without diagnostic procedure One major therapeutic with only minor diagnostic procedure(s) One major therapeutic with major diagnostic procedure(s) Two major therapeutic procedures with any or no diagnostic procedures Three or more major therapeutic procedures with any or no diagnostic procedures (See http://www.hcup-us.ahrq.gov/toolssoftware/procedure/procedure.jsp for the definitions of procedure classes)
HPPD06	RACHS-1 Pediatric Heart Surgery Mortality Rate Risk Category for PDI #6 RACHS-1 Risk Category (See http://www.ncbi.nlm.nih.gov/pubmed/15283367)
1	Risk category 1 (low risk)
2	Risk category 2
3	Risk category 3
4	Risk category 4
5	Risk category 5 (high risk)
6	Risk category 6 (unclassified risk)
HPPD10	Postoperative Sepsis Rate Risk Category for PDI #10 (See technical specification for PDI #12 for diagnosis codes; See technical specification for PDI #11 for transplant procedure codes)
1	Low risk (default)

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COVARIATE	DEFINITION
2	Intermediate risk An ICD-9-CM diagnosis code of Intermediate-risk Immune-compromised State, or Hepatic Failure (cirrhosis and (hepatic coma or hepatorenal syndrome)) in any diagnosis field
3	High risk a) An ICD-9-CM diagnosis code of High-risk Immune-compromised State in any field; OR b) An ICD-9-CM procedure code for Transplant
MDX4D	Premature Infant (See technical Specification for PDI #6 for diagnosis codes)
MULTIBTH	Multiple Births 65100 TWIN PREGNANCY-UNSPEC 65101 TWIN PREGNANCY-DELIVERED 65103 TWIN PREGNANCY-ANTEPART 65110 TRIPLET PREGNANCY-UNSPEC 65111 TRIPLET PREGNANCY-DELIV 65113 TRIPLET PREG-ANTEPARTUM 65120 QUADRUPLET PREG-UNSPEC 65121 QUADRUPLET PREG-DELIVER 65123 QUADRUPLET PREG-ANTEPART 65130 TWINS W FETAL LOSS-UNSP 65131 TWINS W FETAL LOSS-DEL 65133 TWINS W FETAL LOSS-ANTE 65140 TRIPLETS W FET LOSS-UNSP 65141 TRIPLETS W FET LOSS-DEL 65143 TRIPLETS W FET LOSS-ANTE 65150 QUADS W FETAL LOSS-UNSP 65151 QUADS W FETAL LOSS-DEL 65153 QUADS W FETAL LOSS-ANTE 65160 MULT GES W FET LOSS-UNSP 65161 MULT GES W FET LOSS-DEL 65163 MULT GES W FET LOSS-ANTE 65180 MULTI GESTAT NEC-UNSPEC 65181 MULTI GESTAT NEC-DELIVER 65183 MULTI GEST NEC-ANTEPART

COVARIATE	DEFINITION
	65190 MULTI GESTAT NOS-UNSPEC 65191 MULT GESTATION NOS-DELIV 65193 MULTI GEST NOS-ANTEPART 65260 MULT GEST MALPRESEN-UNSP 65261 MULT GEST MALPRES-DELIV 65263 MULT GES MALPRES-ANTEPAR 66050 LOCKED TWINS-UNSPECIFIED 66051 LOCKED TWINS-DELIVERED 66053 LOCKED TWINS-ANTEPARTUM 66230 DELAY DEL 2ND TWIN-UNSP 66231 DELAY DEL 2ND TWIN-DELIV 66233 DELAY DEL 2 TWIN-ANTEPAR 7615 MULT PREGNANCY AFF NB V271 DELIVER-SINGLE STILLBORN V272 DELIVER-TWINS, BOTH LIVE V273 DEL-TWINS, 1 NB, 1 SB V274 DELIVER-TWINS, BOTH SB V275 DEL-MULT BIRTH, ALL LIVE V276 DEL-MULT BRTH, SOME LIVE V277 DEL-MULT BIRTH, ALL SB
STRCABN	Non-cardiac Structural Anomalies (See http://www.ncbi.nlm.nih.gov/pubmed/15283367)

Table A.7. Categorical Variables Definitions: Transfer, Procedure Days, Point of Origin

CATEGORY	DESCRIPTION	DEFINITION
TRANSFER	Transfer-in	If admission type (ATYPE) not equal to '4' (newborn) and - admission source (ASOURCE) equal to '2' (Another Hospital) or - point of origin (POINTOFORIGINUB04) equal to '4' (Transfer from a Hospital), then TRANSFER=1
NOPOUB04	UB-04 Point-of-Origin Data Not Available	If admission source (ASOURCE) is not equal to missing and point of origin (POINTOFORIGINUB04) is equal to missing, then NOPOUB04=1
NOPRDAY	Procedure Days Data Not Available	If PRDAY1 and PRDAY2 and . . . PRDAYn is equal to missing, where n is the number of Procedure Codes reported in the user's data – then NOPRDAY = 1



PEDIATRIC QUALITY INDICATORS (PDI), LOG OF ICD-9-CM AND DRG CODING UPDATES AND REVISIONS TO PDI DOCUMENTATION AND SOFTWARE Version 4.5

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1.0 Log of ICD-9-CM and DRG Coding Updates and Revisions to PDI Documentation and Software

The following table summarizes the revisions made to the Pediatric Quality Indicators (PDI) software, software documentation and the technical specification documents, since the original release of these documents in February 2006. It also reflects changes to indicator specifications based on updates to ICD-9-CM and MS-DRG codes through Fiscal Year 2013 (effective October 1, 2012) and incorporates coding updates that were implemented in both versions of the PDI software (both SAS and Windows).

The table lists the version and revision number, the date the revision was made, the component(s) affected by the change and a short summary of the changes that were made. The nature of the change is categorized into one of three types:

- 1) fiscal year (FY) coding change: occurs because of coding changes to the most recent fiscal year codes dictated by the Centers for Disease Control and Prevention (CDC) National Center for Health Statistics (NCHS) and Centers for Medicare & Medicaid Services (CMS),
- 2) Specification/ Calculation change: may impact the measure result that is something other than the most recent fiscal year coding change, and
- 3) Software/ Documentation change: alteration to the software code to calculate the measure as specified, or to the documentation to clarify the measure intent or functionality.

For convenience and ease of use, the changes are listed in reverse chronological order with the most recent changes appearing first in the table. Please note that changes prior to version 4.4 are not classified according to the currently defined types of changes. In addition, each type of change has varied shading to enhance readability. All changes noted below have been incorporated into the software programming code, software documentation and the PDI technical specifications. With this software update, the PDI software now incorporates ICD-9-CM and DRG/MS-DRG codes valid from October 1, 1994 through September 30, 2013.

VERSION/ REVISION NUMBER	DATE	COMPONENT	NATURE OF CHANGE	CHANGES
V4.5	May 2013	All area PDI	Specification/Calculation	Updated data are used for population estimates (i.e., through 2013). The population data are used to calculate the denominator for the area-level QI.
V4.5	May 2013	All PDI	Specification/Calculation	Updated reference population rates were calculated using 44 state files from the 2010 State Inpatient Databases (SID). New risk adjustment coefficients were calculated using the updated reference population.
V4.5	May 2013	Neonatal Blood Stream Infection Rate (NQI 3)	Specification/Calculation	<ol style="list-style-type: none"> 1. Add numerator inclusion codes for any secondary diagnosis of methicillin resistant staphylococcus aureus septicemia to Criteria #1: 03812 METH RES STAPH AUR SEPT 2. Drop numerator inclusion code for secondary diagnosis of (non-neonatal) bacteremia from Criteria #2: 7907 BACTEREMIA 3. Add numerator inclusion codes for secondary diagnosis of methicillin resistant staphylococcus aureus and Escherichia coli infection to Criteria #3: 04112 MTH RES STAPH AUR 04141 SHIGA TOXIN-PROD E. COLI 04142 SPEC SHIGA TOXIN-PROD E. COLI OTH 04143 SHIGA TOXIN-PROD E. COLI UNS 04149 SHIGA TOXIN-PROD E. COLI OTH/UNS 4. Drop denominator inclusion for transfers into an acute care facility (DISP=2) 5. Add denominator inclusion for transfers from another healthcare facility within two days of birth 6. Add denominator exclusion codes for selected principal diagnosis of sepsis or bacteremia or secondary diagnosis present on admission of sepsis or bacteremia: 04104 ENTEROCOCCUS GROUP D 04110 STAPHYLOCOCCUS UNSPCFIED 04111 MTH SUS STPH AUR ELS/NOS 04112 MTH RES STAPH AUR

VERSION/ REVISION NUMBER	DATE	COMPONENT	NATURE OF CHANGE	CHANGES
				<p>04119 OTHER STAPHYLOCOCCUS 0413 KLEBSIELLA PNEUMONIAE 0414 E. COLI INFECT NOS 04141 SHIGA TOXIN-PROD E. COLI 04142 SPEC SHIGA TOXIN-PROD E. COLI OTH 04143 SHIGA TOXIN-PROD E. COLI UNS 04149 SHIGA TOXIN-PROD E. COLI OTH/UNS 0417 PSEUDOMONAS INFECT NOS 04185 OTH GRAM NEGATV BACTERIA 1125 DISSEMINATED CANDIDIASIS 77181 SEPTICEMIA OF NEWBORN 77183 BACT OF NEWBORN</p> <p>7. Add denominator exclusion codes for principal diagnosis (or secondary diagnosis present on admission only for those cases qualifying for the numerator) for sepsis or bacteremia: 1125 DISSEMINATED CANDIDIASIS 77181 SEPTICEMIA OF NEWBORN 77183 BACT OF NEWBORN 7907 BACTEREMIA</p> <p>8. Drop denominator exclusion codes for principal diagnosis of infection or secondary diagnosis present on admission: PDI Appendix H – Infection Diagnosis Codes</p> <p>9. Drop denominator exclusion for length of stay less than 2 days</p> <p>10. Add denominator exclusion for length of stay less than 7 days</p>

VERSION/ REVISION NUMBER	DATE	COMPONENT	NATURE OF CHANGE	CHANGES
V4.5	May 2013	Postoperative Hemorrhage or Hematoma Rate (PDI 8)	Specification/Calculation	<p>1. Add denominator exclusion codes for any diagnosis code of coagulation disorder:</p> <p>2860 CONG FACTOR VIII DISORDER 2861 CONG FACTOR IX DISORDER 2862 CONG FACTOR XI DISORDER 2863 CONG DEF CLOT FACTOR NEC 2864 VON WILLEBRAND'S DISEASE 28652 ACQUIRED HEMOPHILIA 28659 OT HEM D/T CIRC ANTICOAG 2866 DEFIBRATION SYNDROME 2867 ACQ COAGUL FACTOR DEF 2869 COAGUL DEFECT NEC NOS</p> <p>2. Add numerator inclusion codes for miscellaneous hemorrhage or hematoma-related procedures: Codes listed in Appendix C</p>
V4.5	May 2013	All mortality PDI and Postoperative Wound Dehiscence Rate (PDI 11)	Specification/Calculation	<p>Modify the parameters in the analysis module for measures that are never present on admission (this is, where $P=0$ for all cases) by increasing the estimated precision threshold, i.e., modify the precision parameter in the analysis module to less than 1×10^9. This change only affected the software. The user will not see the change in parameters as they are embedded in the regression intercept and coefficients that are used by the prediction module.</p> <p>Rationale: Effect will be to change the reference population rate used for shrinkage to be closer to empirically estimated reference population rate given $P=0$.</p>
V4.5	May 2013	All PDI	Software/Documentation	Respiratory complications diagnosis codes – Corrections were made to assure that three specific diagnosis codes were present in both the SAS and WinQI software. This change only affected the software.

VERSION/ REVISION NUMBER	DATE	COMPONENT	NATURE OF CHANGE	CHANGES
V4.5	May 2013	All PDI	Software/Documentation	In WinQI there was an error in the smoothed rate calculation involving the noise variance and signal variance. This error was not previously observed because it only became significant in particular cases with relatively unusual variances. This issue was fixed in WinQI Version 4.5.
V4.5	May 2013	All PDI	Software/Documentation	The variable DISCWT in SAS QI v4.5 was set equal to 1 and the variable DISCWT was removed from the KEEP statement associated with the input file. This change ensures that the SAS programs do not account for complex sampling design when calculating QI estimates and standard errors. The SAS QI software, beginning with Version 4.1, does not support weighted QI estimates or standard errors for weighted estimates. The WinQI software has never supported weighted QI estimates or standard errors for weighted estimates.
V4.5	May 2013	All PDI	Software/Documentation	The definitions of Newborn and Outborn were revised in WinQI to better align them with SAS. The differences affected cases where discharge records have some combinations of missing values for one or more of the required data fields (e.g., Age, Age in Days).
V4.5	May 2013	All PDI	Software/Documentation	The installation packages have been improved for Version 4.5 of the SAS and WinQI software, including the Prediction Module and 3M™ APR DRG software. Both the SAS and WinQI software are available in Version 4.5 as either 32-bit or 64-bit applications. The 32-bit applications are targeted for Windows XP operating systems, and the 64-bit applications are targeted for Windows 7 operating systems.

VERSION/ REVISION NUMBER	DATE	COMPONENT	NATURE OF CHANGE	CHANGES
V4.5	May 2013	All PDI	Software/Documentation	<p>The WinQI software was corrected to address the following issues:</p> <ol style="list-style-type: none"> 1. On Step 2 of the Sampling Wizard dialog, the Sample Data File text box was not working correctly. Users were not able to save the file specified using the Browse explorer function. This issue has been fixed in WinQI Version 4.5. 2. Denominators were not being adjusted (i.e., dividing by the number of discharge quarters) when the calculations were being stratified by quarter. This issue has been fixed in WinQI Version 4.5. 3. On the WinQI Additional Options for Data Analysis screen of the Report Wizard, if the “<i>Ref. Pop. Rate</i>” is deselected, and then the expected rate and O/E ratio are reported incorrectly. These rates should be disabled on this screen if “<i>Ref. Pop. Rate</i>” is not selected. This issue has been included in the software documentation. 4. The compiled C# program was named AHRQ.exe, and this was the same name used for the compiled Prediction Module C++ program. This potential conflict has been fixed in WinQI Version 4.5. 5. Excel files with an .xlsx extension were not recognized. MS Access file types also needed to be updated. These issues were fixed in WinQI Version 4.5.
V4.5	May 2013	Neonatal Blood Stream Infection Rate (NQI 3)	Software/Documentation	<ol style="list-style-type: none"> 1. WinQI was mistakenly including the operating room procedure code 640 which only applies to adults. And, SAS was not consistently excluding this code for all pediatric indicators and cases. This issue was fixed in SAS and WinQI Version 4.5. This change only affected the software. 2. WinQI was mistakenly allowing some adult discharges to be included in the QI calculations in cases where the discharge record presents contradictory information about patient age and admission type. Specifically, software testing found that some adult discharge records include Newborn admission type. WinQI was fixed to make sure these adult cases are properly excluded from any pediatric indicator calculations.

VERSION/ REVISION NUMBER	DATE	COMPONENT	NATURE OF CHANGE	CHANGES
V4.5	May 2013	Volume of Foreign Body Left during Procedure (PDI 3)	Software/Documentation	Rename indicator to “Retained Surgical Item or Unretrieved Device Fragment Count.” This change only affected the documentation. Rationale: NQF measure refinements agreed upon with the Surgery Endorsement Maintenance 2010 Steering Committee
V4.5	May 2013	Iatrogenic Pneumothorax Rate (PDI 5)	Software/Documentation	1. Add denominator exclusion codes for any cardiac procedure: 3597 PERC MTRL VLV REPR W IMP 3737 EXC/DEST HRT LES, THRSPC This change only affected the documentation.
V4.5	May 2013	Pediatric Heart Surgery Mortality Rate (PDI 6)	Software/Documentation	Rename indicator to “RACHS-1 Pediatric Heart Surgery Mortality Rate.” This change only affected the documentation. Rationale: NQF measure refinements agreed upon with the Surgery Endorsement Maintenance 2010 Steering Committee
V4.5	May 2013	Pediatric Heart Surgery Volume (PDI 7)	Software/Documentation	Rename indicator to “RACHS-1 Pediatric Heart Surgery Volume.” This change only affected the documentation. Rationale: NQF measure refinements agreed upon with the Surgery Endorsement Maintenance 2010 Steering Committee

VERSION/ REVISION NUMBER	DATE	COMPONENT	NATURE OF CHANGE	CHANGES
V4.5	May 2013	Postoperative Hemorrhage or Hematoma Rate (PDI 8)	Software/Documentation	<p>1. Rename indicator to “Perioperative Hemorrhage or Hematoma Rate.” This change only affected the documentation.</p> <p>Rationale: Cases identified included adverse events that occur both peri- and post-operatively</p> <p>2. For the denominator exclusion criterion that excludes cases where the procedure of interest occurs before the first operating room procedure, explicitly say that a secondary diagnosis for postoperative hemorrhage or postoperative hematoma must also be present in the discharge record for the record to be excluded. This change only affected the documentation.</p> <p>3. WinQI was mistakenly including the operating room procedure code 640 which only applies to adults. And, SAS was not consistently excluding this code for all pediatric indicators and cases. This issue was fixed in SAS and WinQI Version 4.5. This change only affected the software.</p>
V4.5	May 2013	Postoperative Respiratory Failure Rate (PDI 9)	Software/Documentation	<p>1. Added the following codes to Neuromuscular disorder diagnosis codes: 35921 MYOTONIC MUSCULAR DYSTROPHY 35929 OTHER MYOTONIC DISORDER This change affected both the software and documentation.</p> <p>2. Added the following code to Esophageal resection procedure codes in the technical specification (as it should have been included): 4399 TOTAL GASTRECTOMY NEC This change only affected the documentation.</p>
V4.5	May 2013	Transfusion Reaction Volume (PDI 13)	Software/Documentation	Rename indicator to “Transfusion Reaction Count.” This change only affected the documentation.
V4.5	May 2013	Urinary Tract Infection Admission Rate (PDI 18)	Software/Documentation	<p>Add numerator exclusion codes for any diagnosis of kidney/urinary tract disorder: 59000 CHR PYELONEPHRITIS NOS 59001 CHR PYELONEPH W MED NECR This change only affected the documentation.</p>

VERSION/ REVISION NUMBER	DATE	COMPONENT	NATURE OF CHANGE	CHANGES
V4.4	March 2012	All Area PDI	Specification/Calculation	Updated data are used for population estimates (i.e., through 2012). The population data are used to calculate the denominator for the area-level QI. The comparative data tables have been updated using Version 4.4 of the software. Because the risk adjustment models and reference population have not changed for Version 4.4, the Risk Adjustment Coefficients remain as they were in Version 4.3.
V4.4	March 2012	Accidental Puncture or Laceration Rate (PDI 1)	FY Coding Change	Add denominator inclusion for surgical MS-DRGs (PDI Appendix C) Add code: 016 AUTOLOGOUS BONE MARROW TRANSPLANT W CC/MCC 017 AUTOLOGOUS BONE MARROW TRANSPLANT W/O CC/MCC 570 SKIN DEBRIDEMENT W MCC 571 SKIN DEBRIDEMENT W CC 572 SKIN DEBRIDEMENT W/O CC/MCC

VERSION/ REVISION NUMBER	DATE	COMPONENT	NATURE OF CHANGE	CHANGES
V4.4	March 2012	Pressure Ulcer Rate (PDI 2)	FY Coding Change	<p>1. Add/remove denominator inclusion for operating room procedure codes (PDI Appendix A)</p> <p>Add code:</p> <p>0221 INSERT/REPLACE EVD 0222 INTRACRAN VENT SHUNT/ANAS 1267 INSERT AQUEOUS DRAIN DEV 1753 PERC ATHER EXTRACRAN VSL 1754 PERC ATHER INTRACRAN VSL 1755 TRANSLUM COR ATHERECTOMY 1756 ATHER OTH NON-VOR VESSEL 3500 CLOSED VALVOTOMY NOS 3505 ENDOVAS REPL AORTC VALVE 3506 TRNSAPCL REP AORTC VALVE 3507 ENDOVAS REPL PULM VALVE 3508 TRNSAPCL REPL PULM VALVE 3509 ENDOVAS REPL UNS HRT VLV 3826 INSRT PRSR SNSR W/O LEAD 3977 TEMP ENDOVSC OCCLS VESSL 3978 ENDOVAS IMPLN GRFT AORTA 4382 LAP VERTICAL GASTRECTOMY 6824 UTERINE ART EMB W COILS 6825 UTERINE ART EMB W/O COIL</p> <p>Remove code:</p> <p>0058 INS INTRA-ANSM PRES MNTR 0059 INTRAVASC MSMNT COR ART 0067 INTRAVAS MSMNT THORC ART 0068 INTRAVAS MSMT PERIPH ART 0069 INTRAVS MSMT VES NEC/NOS</p>

VERSION/ REVISION NUMBER	DATE	COMPONENT	NATURE OF CHANGE	CHANGES
				<p>2. Add denominator inclusion for surgical MS-DRGs (PDI Appendix C)</p> <p>Add code: 016 AUTOLOGOUS BONE MARROW TRANSPLANT W CC/MCC 017 AUTOLOGOUS BONE MARROW TRANSPLANT W/O CC/MCC 570 SKIN DEBRIDEMENT W MCC 571 SKIN DEBRIDEMENT W CC 572 SKIN DEBRIDEMENT W/O CC/MCC</p>
V4.4	March 2012	Volume of Foreign Body Left During Procedure (PDI 3)	FY Coding Change	<p>Add denominator inclusion for surgical MS-DRGs (PDI Appendix C)</p> <p>Add code: 016 AUTOLOGOUS BONE MARROW TRANSPLANT W CC/MCC 017 AUTOLOGOUS BONE MARROW TRANSPLANT W/O CC/MCC 570 SKIN DEBRIDEMENT W MCC 571 SKIN DEBRIDEMENT W CC 572 SKIN DEBRIDEMENT W/O CC/MCC</p>
V4.4	March 2012	Iatrogenic Pneumothorax Rate (PDI 5)	FY Coding Change	<p>1. Add denominator exclusions for cardiac procedure</p> <p>Add code: 3506 TRNSAPCL REP AORTC VALVE 3508 TRNSAPCL REPL PULM VALVE</p> <p>2. Add denominator inclusion for surgical MS-DRGs (PDI Appendix C)</p> <p>Add code: 016 AUTOLOGOUS BONE MARROW TRANSPLANT W CC/MCC 017 AUTOLOGOUS BONE MARROW TRANSPLANT W/O CC/MCC 570 SKIN DEBRIDEMENT W MCC 571 SKIN DEBRIDEMENT W CC 572 SKIN DEBRIDEMENT W/O CC/MCC</p>

VERSION/ REVISION NUMBER	DATE	COMPONENT	NATURE OF CHANGE	CHANGES
V4.4	March 2012	Pediatric Heart Surgery Mortality Rate (PDI 6)	FY Coding Change	<p>1. Add denominator inclusions for procedures to repair congenital heart defect</p> <p>Add code: 3500 CLOSED VALVOTOMY NOS 3505 ENDOVAS REPL AORTC VALVE 3506 TRNSAPCL REP AORTC VALVE 3507 ENDOVAS REPL PULM VALVE 3508 TRNSAPCL REPL PULM VALVE</p> <p>2. Add denominator inclusions for diagnosis of congenital heart disease</p> <p>Add code: 74731 PULMON ART COARCT/ATRES 74732 PULMONARY AV MALFORMATN 74739 OTH ANOM PUL ARTERY/CIRC</p>
V4.4	March 2012	Pediatric Heart Surgery Volume (PDI 7)	FY Coding Change	<p>1. Add numerator inclusions for procedures to repair congenital heart defect</p> <p>Add code: 3500 CLOSED VALVOTOMY NOS 3505 ENDOVAS REPL AORTC VALVE 3506 TRNSAPCL REP AORTC VALVE 3507 ENDOVAS REPL PULM VALVE 3508 TRNSAPCL REPL PULM VALVE</p> <p>2. Add numerator inclusion for diagnosis of congenital heart disease</p> <p>Add code: 74731 PULMON ART COARCT/ATRES 74732 PULMONARY AV MALFORMATN 74739 OTH ANOM PUL ARTERY/CIRC</p>

VERSION/ REVISION NUMBER	DATE	COMPONENT	NATURE OF CHANGE	CHANGES
V4.4	March 2012	Postoperative Hemorrhage or Hematoma Rate (PDI 8)	FY Coding Change	<p>1. Add stratification high risk inclusion codes for coagulopathies to high risk group</p> <p>Add code: 28652 ACQUIRED HEMOPHILIA 28653 ANTIPHOSPHOLIPID W HEMOR 28659 OT HEM D/T CIRC ANTICOAG</p> <p>2. Add/remove denominator inclusion for operating room procedure codes (PDI Appendix A)</p> <p>Add code: 0221 INSERT/REPLACE EVD 0222 INTRACRAN VENT SHUNT/ANAS 1267 INSERT AQUEOUS DRAIN DEV 1753 PERC ATHER EXTRACRAN VSL 1754 PERC ATHER INTRACRAN VSL 1755 TRANSLUM COR ATHERECTOMY 1756 ATHER OTH NON-VOR VESSEL 3500 CLOSED VALVOTOMY NOS 3505 ENDOVAS REPL AORTC VALVE 3506 TRNSAPCL REP AORTC VALVE 3507 ENDOVAS REPL PULM VALVE 3508 TRNSAPCL REPL PULM VALVE 3509 ENDOVAS REPL UNS HRT VLV 3826 INSRT PRSR SNSR W/O LEAD 3977 TEMP ENDOVSC OCCLS VESSL 3978 ENDOVAS IMPLN GRFT AORTA 4382 LAP VERTICAL GASTRECTOMY 6824 UTERINE ART EMB W COILS 6825 UTERINE ART EMB W/O COIL</p>

VERSION/ REVISION NUMBER	DATE	COMPONENT	NATURE OF CHANGE	CHANGES
				<p>Remove code:</p> <p>0058 INS INTRA-ANSM PRES MNTR</p> <p>0059 INTRAVASC MSMNT COR ART</p> <p>0067 INTRAVAS MSMNT THORC ART</p> <p>0068 INTRAVAS MSMT PERIPH ART</p> <p>0069 INTRAVS MSMT VES NEC/NOS</p> <p>3. Add denominator inclusion for surgical MS-DRGs (PDI Appendix C)</p> <p>Add code:</p> <p>016 AUTOLOGOUS BONE MARROW TRANSPLANT W CC/MCC</p> <p>017 AUTOLOGOUS BONE MARROW TRANSPLANT W/O CC/MCC</p> <p>570 SKIN DEBRIDEMENT W MCC</p> <p>571 SKIN DEBRIDEMENT W CC</p> <p>572 SKIN DEBRIDEMENT W/O CC/MCC</p>

VERSION/ REVISION NUMBER	DATE	COMPONENT	NATURE OF CHANGE	CHANGES
V4.4	March 2012	Postoperative Respiratory Failure Rate (PDI 9)	FY Coding Change	<p>1. Add numerator inclusions for diagnosis of acute respiratory failure</p> <p>Add code: 51851 AC RESP FLR FOL TRMA/SRG 51853 AC/CHR RSP FLR FOL TR/SG</p> <p>2. Remove numerator inclusions for diagnosis of acute respiratory failure</p> <p>Remove code: 51881 ACUTE RESPIRATORY FAILURE 51884 ACUTE & CHRONC RESP FAIL</p> <p>3. Add denominator exclusions for diagnosis of degenerative neurological disorder</p> <p>Add code: 31081 PSEUDOBULBAR AFFECT 31089 NONPSYCH MNTL DISORD NEC 3316 CORTICOBASAL DEGENERATION 34882 BRAIN DEATH</p> <p>4. Add denominator exclusions for diagnosis of neuromuscular disorders</p> <p>Add code: 35830 LAMBERT-EATON SYND NOS 35831 LAMBERT-EATON SYND NEOPL 35839 LAMBERT-EATON SYN OT DIS</p>

VERSION/ REVISION NUMBER	DATE	COMPONENT	NATURE OF CHANGE	CHANGES
				<p>5. Add/remove denominator inclusion for operating room procedure codes (PDI Appendix A)</p> <p>Add code:</p> <p>0221 INSERT/REPLACE EVD 0222 INTRACRAN VENT SHUNT/ANAS 1267 INSERT AQUEOUS DRAIN DEV 1753 PERC ATHER EXTRACRAN VSL 1754 PERC ATHER INTRACRAN VSL 1755 TRANSLUM COR ATHERECTOMY 1756 ATHER OTH NON-VOR VESSEL 3500 CLOSED VALVOTOMY NOS 3505 ENDOVAS REPL AORTC VALVE 3506 TRNSAPCL REP AORTC VALVE 3507 ENDOVAS REPL PULM VALVE 3508 TRNSAPCL REPL PULM VALVE 3509 ENDOVAS REPL UNS HRT VLV 3826 INSRT PRSR SNSR W/O LEAD 3977 TEMP ENDOVSC OCCLS VESSL 3978 ENDOVAS IMPLN GRFT AORTA 4382 LAP VERTICAL GASTRECTOMY 6824 UTERINE ART EMB W COILS 6825 UTERINE ART EMB W/O COIL</p> <p>Remove code:</p> <p>0058 INS INTRA-ANSM PRES MNTR 0059 INTRAVASC MSMNT COR ART 0067 INTRAVAS MSMNT THORC ART 0068 INTRAVAS MSMT PERIPH ART 0069 INTRAVS MSMT VES NEC/NOS</p>

VERSION/ REVISION NUMBER	DATE	COMPONENT	NATURE OF CHANGE	CHANGES
				<p>6. Add denominator inclusion for surgical MS-DRGs (PDI Appendix C)</p> <p>Add code:</p> <p>016 AUTOLOGOUS BONE MARROW TRANSPLANT W CC/MCC</p> <p>017 AUTOLOGOUS BONE MARROW TRANSPLANT W/O CC/MCC</p> <p>570 SKIN DEBRIDEMENT W MCC</p> <p>571 SKIN DEBRIDEMENT W CC</p> <p>572 SKIN DEBRIDEMENT W/O CC/MCC</p>

VERSION/ REVISION NUMBER	DATE	COMPONENT	NATURE OF CHANGE	CHANGES
V4.4	March 2012	Postoperative Sepsis Rate (PDI 10)	FY Coding Change	<p>1. Add denominator exclusions for diagnosis of infection (PDI Appendix H)</p> <p>Add code: 04141 SHIGA TXN-PRODUCE E.COLI 04142 SHGA TXN PROD E.COLI NEC 04143 SHGA TXN PROD E.COLI NOS 04149 E.COLI INFECTION NEC/NOS 53901 INT D/T GASTRC BAND PROC 53981 INF D/T OT BARIATRC PROC 59681 INFECTION OF CYSTOSTOMY 99931 OTH/UNS INF-CEN VEN CATH 99932 BLOOD INF DT CEN VEN CTH 99933 LCL INF DT CEN VEN CTH 99934 AC INF FOL TRANS,INF BLD</p> <p>2. Add code for high risk immunocompromised states (PDI Appendix F)</p> <p>Add code: 996.88 COMP TP ORGAN-STEM CELL</p> <p>3. Add numerator inclusions for diagnosis of sepsis</p> <p>Add code: 99800 POSTOPERATIVE SHOCK, NOS 99802 POSTOP SHOCK, SEPTIC</p> <p>4. Add codefor intermediate risk immunocompromised states (PDI Appendix G):</p> <p>Add code: 573.5 HEPATOPULMONARY SYNDROME</p>

VERSION/ REVISION NUMBER	DATE	COMPONENT	NATURE OF CHANGE	CHANGES
				<p>5. Remove numerator inclusion for diagnosis of sepsis</p> <p>Remove code: 998.0 POSTOPERATIVE SHOCK, NOS</p> <p>6. Add denominator inclusions operating room procedure codes (PDI Appendix A)</p> <p>Add code: 0221 INSERT/REPLACE EVD 0222 INTRACRAN VENT SHUNT/ANAS 1267 INSERT AQUEOUS DRAIN DEV 1753 PERC ATHER EXTRACRAN VSL 1754 PERC ATHER INTRACRAN VSL 1755 TRANSLUM COR ATHERECTOMY 1756 ATHER OTH NON-VOR VESSEL 3500 CLOSED VALVOTOMY NOS 3505 ENDOVAS REPL AORTC VALVE 3506 TRNSAPCL REP AORTC VALVE 3507 ENDOVAS REPL PULM VALVE 3508 TRNSAPCL REPL PULM VALVE 3509 ENDOVAS REPL UNS HRT VLV 3826 INSRT PRSR SNSR W/O LEAD 3977 TEMP ENDOVSC OCCLS VESSL 3978 ENDOVAS IMPLN GRFT AORTA 4382 LAP VERTICAL GASTRECTOMY 6824 UTERINE ART EMB W COILS 6825 UTERINE ART EMB W/O COIL</p> <p>Remove code: 0058 INS INTRA-ANSM PRES MNTR 0059 INTRAVASC MSMNT COR ART 0067 INTRAVAS MSMNT THORC ART 0068 INTRAVAS MSMT PERIPH ART 0069 INTRAVS MSMT VES NEC/NOS</p>

VERSION/ REVISION NUMBER	DATE	COMPONENT	NATURE OF CHANGE	CHANGES
				<p>7. Add denominator and stratification inclusion for surgical MS-DRGs (PDI Appendix C)</p> <p>Add code:</p> <p>016 AUTOLOGOUS BONE MARROW TRANSPLANT W CC/MCC</p> <p>017 AUTOLOGOUS BONE MARROW TRANSPLANT W/O CC/MCC</p> <p>570 SKIN DEBRIDEMENT W MCC</p> <p>571 SKIN DEBRIDEMENT W CC</p> <p>572 SKIN DEBRIDEMENT W/O CC/MCC</p>

VERSION/ REVISION NUMBER	DATE	COMPONENT	NATURE OF CHANGE	CHANGES
V4.4	March 2012	Postoperative Wound Dehiscence Rate (PDI 11)	FY Coding Change	<p>1. Add denominator inclusion for abdominopelvic procedures</p> <p>Add code: 4382 LAP VERTICAL GASTRECTOMY</p> <p>2. Add denominator exclusion for diagnosis of high-risk immunocompromised state (PDI Appendix F)</p> <p>Add code: 28411 ANTIN CHEMOP INDCD PANCYT 28412 OTH DRG INDCD PANCYTOPNA 28419 OTHER PANCYTOPENIA 99688 COMP TP ORGAN-STEM CELL</p> <p>3. Add denominator exclusion for diagnosis of intermediate-risk immunocompromised state (PDI Appendix G)</p> <p>Add code: 5735 HEPATOPULMONARY SYNDROME</p> <p>4. Add stratification inclusion for surgical MS-DRGs</p> <p>Add code: 016 AUTOLOGOUS BONE MARROW TRANSPLANT W CC/MCC 017 AUTOLOGOUS BONE MARROW TRANSPLANT W/O CC/MCC 570 SKIN DEBRIDEMENT W MCC 571 SKIN DEBRIDEMENT W CC 572 SKIN DEBRIDEMENT W/O CC/MCC</p>

VERSION/ REVISION NUMBER	DATE	COMPONENT	NATURE OF CHANGE	CHANGES
V4.4	March 2012	Central Venous Catheter-Related Blood Stream Infection Rate (PDI 12)	FY Coding Change	<p>1. Add numerator definition for diagnosis of central venous catheter-related blood stream infections diagnosed on or after October 1, 2011. Add code: 99931 OTH/UNS INF-CEN VEN CATH 99932 BLOOD INF DT CEN VEN CTH</p> <p>2. Add denominator inclusion for surgical MS-DRGs (PDI Appendix C) Add code: 016 AUTOLOGOUS BONE MARROW TRANSPLANT W CC/MCC 017 AUTOLOGOUS BONE MARROW TRANSPLANT W/O CC/MCC 570 SKIN DEBRIDEMENT W MCC 571 SKIN DEBRIDEMENT W CC 572 SKIN DEBRIDEMENT W/O CC/MCC</p> <p>3. Add denominator exclusion for diagnosis of high- risk immunocompromised state (PDI Appendix F) Add code: 28411 ANTIN CHEMOP INDCD PANCYT 28412 OTH DRG INDCD PANCYTOPNA 28419 OTHER PANCYTOPENIA 99688 COMP TP ORGAN-STEM CELL</p> <p>4. Add denominator exclusion for diagnosis of intermediate-risk immunocompromised state (PDI Appendix G) Add code: 5735 HEPATOPULMONARY SYNDROME</p>

VERSION/ REVISION NUMBER	DATE	COMPONENT	NATURE OF CHANGE	CHANGES
V4.4	March 2012	Transfusion Reaction Volume (PDI 13)	FY Coding Change	<p>Add denominator inclusion for surgical MS-DRGs (PDI Appendix C)</p> <p>Add code: 016 AUTOLOGOUS BONE MARROW TRANSPLANT W CC/MCC 017 AUTOLOGOUS BONE MARROW TRANSPLANT W/O CC/MCC 570 SKIN DEBRIDEMENT W MCC 571 SKIN DEBRIDEMENT W CC 572 SKIN DEBRIDEMENT W/O CC/MCC</p>
V4.4	March 2012	Asthma Admission Rate (PDI 14)	FY Coding Change	<p>Add denominator exclusion code for cystic fibrosis and anomalies of the respiratory system</p> <p>Add code: 51661 NEUROEND CELL HYPRPL INF 51662 PULM INTERSTITL GLYCOGEN 51663 SURFACTANT MUTATION LUNG 51664 ALV CAP DYSP W VN MISALN 51669 OTH INTRST LUNG DIS CHLD</p>
V4.4	March 2012	Urinary Tract Infection Admission Rate (PDI 18)	FY Coding Change	<p>1. Add denominator exclusion for diagnosis of high- risk immunocompromised state (PDI Appendix F)</p> <p>Add code for high-risk: 28411 ANTIN CHEMOP INDCD PANCYT 28412 OTH DRG INDCD PANCYTOPNA 28419 OTHER PANCYTOPENIA 99688 COMP TP ORGAN-STEM CELL</p> <p>2. Add denominator exclusion for diagnosis of intermediate-risk immunocompromised state (PDI Appendix G)</p> <p>Add code for intermediate risk: 5735 HEPATOPULMONARY SYNDROME</p>

VERSION/ REVISION NUMBER	DATE	COMPONENT	NATURE OF CHANGE	CHANGES
V4.4	March 2012	Neonatal Iatrogenic Pneumothorax Rate (NQI 1)	FY Coding Change	<p>1. Add denominator exclusion code for cardiac procedure</p> <p>Add code: 3506 TRNSAPCL REP AORTC VALVE 3508 TRNSAPCL REPL PULM VALVE</p> <p>2. Add denominator inclusion for surgical MS-DRGs (PDI Appendix C)</p> <p>Add code: 016 AUTOLOGOUS BONE MARROW TRANSPLANT W CC/MCC 017 AUTOLOGOUS BONE MARROW TRANSPLANT W/O CC/MCC 570 SKIN DEBRIDEMENT W MCC 571 SKIN DEBRIDEMENT W CC 572 SKIN DEBRIDEMENT W/O CC/MCC</p>

VERSION/ REVISION NUMBER	DATE	COMPONENT	NATURE OF CHANGE	CHANGES
V4.4	March 2012	Neonatal Blood Stream Infection Rate (NQI 3)	FY Coding Change	<p>1. Add denominator exclusions for diagnosis of infection (PDI Appendix H)</p> <p>Add code: 04141 SHIGA TXN-PRODUCE E.COLI 04142 SHGA TXN PROD E.COLI NEC 04143 SHGA TXN PROD E.COLI NOS 04149 E.COLI INFECTION NEC/NOS 53901 INT D/T GASTRC BAND PROC 53981 INF D/T OT BARIATRC PROC 59681 INFECTION OF CYSTOSTOMY 99931 OTH/UNS INF-CEN VEN CATH 99932 BLOOD INF DT CEN VEN CTH 99933 LCL INF DT CEN VEN CTH 99934 AC INF FOL TRANS,INF BLD</p> <p>2. Add denominator exclusions for diagnosis of sepsis</p> <p>Add code: 99800 POSTOPERATIVE SHOCK, NOS 99802 SHOCK FOLLOW TRAUMA OR SURGERY, SEPTIC</p> <p>3. Remove denominator exclusion for diagnosis of sepsis</p> <p>Remove code: 9980 POSTOPERATIVE SHOCK</p>

VERSION/ REVISION NUMBER	DATE	COMPONENT	NATURE OF CHANGE	CHANGES
				<p>4. Add/remove denominator inclusion for Operating Room Procedure Codes (PDI Appendix A)</p> <p>Add code:</p> <p>0221 INSERT/REPLACE EVD 0222 INTRCRAN VENT SHUNT/ANAS 1267 INSERT AQUEOUS DRAIN DEV 1753 PERC ATHER EXTRACRAN VSL 1754 PERC ATHER INTRACRAN VSL 1755 TRANSLUM COR ATHERECTOMY 1756 ATHER OTH NON-VOR VESSEL 3500 CLOSED VALVOTOMY NOS 3505 ENDOVAS REPL AORTC VALVE 3506 TRNSAPCL REP AORTC VALVE 3507 ENDOVAS REPL PULM VALVE 3508 TRNSAPCL REPL PULM VALVE 3509 ENDOVAS REPL UNS HRT VLV 3826 INSRT PRSR SNSR W/O LEAD 3977 TEMP ENDOVSC OCCLS VESSL 3978 ENDOVAS IMPLN GRFT AORTA 4382 LAP VERTICAL GASTRECTOMY 6824 UTERINE ART EMB W COILS</p> <p>Remove code:</p> <p>0058 INS INTRA-ANSM PRES MNTR 0059 INTRAVASC MSMNT COR ART 0067 INTRAVAS MSMNT THORC ART 0068 INTRAVAS MSMT PERIPH ART 0069 INTRAVS MSMT VES NEC/NOS 6825 UTERINE ART EMB W/O COIL</p>
V4.4	March 2012	Software	Software/ Documentaion	Revised the data step of creating permanent data set containing all records which are deleted from the analysis because key variable values having missing data

VERSION/ REVISION NUMBER	DATE	COMPONENT	NATURE OF CHANGE	CHANGES
V4.4	March 2012	Software	Software/ Documentaion	PDI 12: Modified inclusion logic to include time dependent logic to discharges before October 1, 2011 and after October 1, 2011 for central line-associated blood stream infection diagnosis codes
V4.4	March 2012	Software	Software/ Documentaion	WinQI v4.3 and v4.4 do not check for a possible issue with user-defined composite weighting – users must set weights for all possible individual indicators, including zero weights for indicators that are not to be included in the composite. This requirement has been included in the software documentation.
V4.4	March 2012	Software	Software/ Documentaion	PDI 09: Modified inclusion logic to include time dependent logic to discharges before October 1, 2011 and after October 1, 2011 for acute Respiratory Failure diagnosis codes
V4.4	March 2012	Software	Software/ Documentaion	Both SAS and WinQI v4.3 were improperly truncating the (Observed rate)/(Expected rate) ratio and associated upper confidence bound (95%) to be ≤ 1.0 in cases where a stratification of the rates was being implemented. This issue was fixed in both SAS and WinQI so that this truncation only applies in cases where no stratification is being performed.
V4.4	March 2012	Software	Software/ Documentaion	SAS and WinQI v4.4 remain 32-bit applications developed on a Windows XP operating system. Some limited testing has been performed to ensure that these applications will run successfully under a 64-bit, Windows 7 environment. One additional installation requirement related to administrator rights has been included in the software documentation.
V4.4	March 2012	Software	Software/ Documentaion	WinQI v4.3 was missing the PRPED5D code set and codes 7454 and 7455. This issue was fixed in v4.4 of WinQI and affects PDI 06 only.
V4.4	March 2012	Software	Software/ Documentaion	The WinQI v4.3 patient-level report showed incorrect POA exclusions in some cases. This issue was fixed in v4.4 of WinQI.
V4.4	March 2012	Software	Software/ Documentaion	WinQI v4.3 was not properly calculating quarterly rates when requested by the user. This issue was fixed in v4.4 of WinQI.

VERSION/ REVISION NUMBER	DATE	COMPONENT	NATURE OF CHANGE	CHANGES
V4.4	March 2012	Software	Software/ Documentaion	SAS v4.3 did not properly handle stratifications where the user requested a two-way stratification that overlapped with a one-way stratification (e.g., Age-by-Gender at the same time as Age by itself). This issue was in fixed in v4.4 of SAS.
V4.4	March 2012	Software	Software/ Documentaion	Sort routine was (PROC SORT) was introduced to PDSASP3 and PDSASA3 programs before merging all the indicators together to sorting problems in SAS whenever user selects multiple stata (e.g. stratifies by age, gender, and age by gender)
V4.4	March 2012	Software	Software/ Documentaion	WinQI v4.3 did not properly implement a user selection of years later than 2009 during area report generation. Users were unable to select the year 2010 or 2011 to derive the denominator for area indicators. This issue, which affected all area-level QI, was fixed in v4.4 of WinQI.
V4.4	March 2012	Software	Software/ Documentaion	The files of shrinkage factors (MSXPDP43.TXT) which were applied to the risk-adjusted were revised using re-calculated signal variance.
V4.4	March 2012	Software	Software/ Documentaion	PDI 09: Modified the order of denominator exclusion/inclusions and numerator flags.
V4.4	March 2012	Software	Software/ Documentaion	PDSASA2.SAS program was revised to include denominator adjustment when the population count for certain combination of strata was zero.
V4.4	March 2012	Software	Software/ Documentaion	Minor SAS versus WinQI coding differences were corrected in the implementation of the technical specifications (e.g., differences in the order in which statements were evaluated) for PDI 01 and PDI 02.
V4.4	March 2012	Software	Software/ Documentaion	PDI 15 (Diabetes Short-term Complications Admission Rate) can be calculated using the number of diabetics in the state as the denominator, stratified by age.

VERSION/ REVISION NUMBER	DATE	COMPONENT	NATURE OF CHANGE	CHANGES
V4.4	March 2012	Software	Software/ Documentaion	Changes were made to the SAS and WinQI software to implement a re-estimation of the signal variance in order to correct the fact that the smoothed rates in v4.3 of the software were constant for all providers for four indicators (IQI-11, IQI-14, NQI-01 and PSI-08).
V4.3	April 2011	Iatrogenic Pneumothorax (PDI 5) Denominator (Exclusion, thoracic procedure)	Coding	Add code: 3227 BRNC THRMPLSTY, ABLT MSCL
V4.3	April 2011	Iatrogenic Pneumothorax (PDI 5) Denominator (Exclusion, cardiac procedure)	Coding	Add code: 3597 PERC MRTL VLV REPR W IMP 3737 EXC/DEST HRT LES, THRSPC
V4.3	April 2011	Postoperative Hemorrhage or Hematoma (PDI 8)	Coding	Add to risk category for diagnosis of coagulopathy 28741 POSTTRANSFUSION PURPURA
V4.3	April 2011	Transfusion Reaction (PDI 13) Numerator (Inclusion, transfusion reaction)	Coding	Add code: 99960 ABO INCOMPAT REACT NOS 99961 ABO INCOMP/HTR NEC 99962 ABO INCOMPAT/ACUTE HTR 99963 ABO INCOMPAT/DELAY HTR 99969 ABO INCOMPAT REACTN NEC 99970 RH INCOMPAT REACTION NOS 99971 RH INCOMP/HTR NEC 99972 RH INCOMPAT/ACUTE HTR 99973 RH INCOMPAT/DELAY HTR 99974 RH INCOMPAT REACTION NEC

VERSION/ REVISION NUMBER	DATE	COMPONENT	NATURE OF CHANGE	CHANGES
V4.3	April 2011	AHRQ Procedure Class	Coding	Add to procedure class: Class 1: 1771 NON-CORONARY IFVA Class 2: 0060 INS D-E STNT SUP FEM ART 3897 CV CATH PLCMT W GUIDANCE Class 4: 0120 IMP/REPL BRAIN PULSE GEN 0129 REM BRAIN PULSE GENERATR 3227 BRNC THRMPLSTY ABLT MSCL 3597 PERC MTRL VLV REPR W IMP 3737 EXC/DEST HRT LES THRSPC 3981 IMP CRTD SINUS STMTOTL 3982 IMP/REP CRTD SINUS LEAD 3983 IMP/RED CRTD SINUS GNRTR 3984 REV CRTD SINUS STM LEADS 3985 REV CRTD SINUS PULSE GEN 3986 REM CRTD SINUS STM TOTL 3987 REM CRTD SINUS STM LEAD 3988 REM CRTD SINUS PULSE GEN 3989 OTH CARTD BODY/SINUS OP 8188 RVRS TOTL SHLDR REPLACMT 8494 INS STRN FIX W RGD PLATE 8555 FAT GRAFT TO BREST 8687 FAT GRFT SKIN/SUBQ TISS 8690 EXT FAT FOR GRFT/BANKING

VERSION/ REVISION NUMBER	DATE	COMPONENT	NATURE OF CHANGE	CHANGES
V4.3	April 2011	Major Operating Room Procedure	Coding	Add codes: 0120 IMP/REPL BRAIN PULSE GEN 0129 REM BRAIN PULSE GENERATR 3227 BRNC THRMPLSTY ABLT MSCL 3597 PERC MTRL VLV REPR W IMP 3737 EXC/DEST HRT LES THRSPC 3981 IMP CRTD SINUS STMTOTL 3982 IMP/REP CRTD SINUS LEAD 3983 IMP/REP CRTD SINUS GNRTR 3984 REV CRTD SIMUS STM LEADS 3985 REV CRTD SINUS PULSE GEN 3986 REM CRTF SINUS STM TOTL 3987 REM CRTD SINUS STM LEAD 3988 REM CRTD SINUS PULSE GEN 3989 OTH CARTD BODY/SINUS OP 8188 RVRS TOTL SHLDR REPLACMT 8494 INS STRN FIX W RGD PLATE 8555 FAT GRAFT TO BREAST 8587 FAT GRFT SKIN/SUBQ TISS 8690 EXT FAT FOR GRFT/BANKING

VERSION/ REVISION NUMBER	DATE	COMPONENT	NATURE OF CHANGE	CHANGES
V4.3	April 2011	AHRQ Clinical Classification Software	Coding	Add codes: CCS 58: 27501 HEREDIT HEMOCHROMATOSIS 27502 HEMOCHROMATOS-RBC TRANS 27503 HEMOCHROMATOSIS NEC 27509 DISORD IRON METABLISM NEC 27803 OBESITY HYPOVENTS SYND V8541 BMI 40.0-44.9, ADULT V8542 BMI 45.0-49.9, ADULT V8543 BMI 50.0-59.9, ADULT V8544 BMI 60-69.9, ADULT V8545 BMI 70 AND OVER, ADULT CCS 62: 28749 SEC THROMBOCYTPENIA NEC CCS 83: 78033 POST TRAUMATIC SEIZURES CCS 95: 78452 FLNCY DSORD COND ELSEWHR 79951 ATTN/CONCENTRATE DEFICIT 79952 COG COMMUNICATE DEFICIT 79953 VISUOSPATIAL DEFICIT 79954 PSYCHOMOTOR DEFICIT 79955 FRONTAL LOBE DEFICIT 79959 COGNITION SIGN/SYMPT NEC CCS 133: 78630 HEMOPTYSIS NOS 78631 AC IDIO PUL HEMRG INFANT 78639 HEMOPTYSIS NEC

VERSION/ REVISION NUMBER	DATE	COMPONENT	NATURE OF CHANGE	CHANGES
				CCS 213: V1365 HX-CONG MALFORM-HEART CCS 214: V1367 HX-CONG MALFORM-DIGEST CCS 215: 75231 AGENESIS OF UTERUS 75232 HYPOPLASIA OF UTERUS 75233 UNICORNUATE UTERUS 75234 BICORNUATE UTERUS 75235 SEPTATE UTERUS 75236 ARCUATE UTERUS 75239 ANOMALIES OF UTERUS NEC 75243 CERVIAL AGENESIS 75244 CERVICAL DUPLICATION 75245 VAGINAL AGENESIS 75246 TRANSV VAGINAL SEPTUM 75247 LONGITUD VAGINAL SEPTUM V1362 HX-CONG MALFORM-CU CCS 216: V1363 HX-CONG MALFORM-NERVOUS CCS 217: V1364 HX-CONG MALFORM-EYE,FACE V1366 HX-CONG MALFORM-RESP SYS V1368 HX-CONG MALFORM-SKIN,MS CCS 654: 31535 CHLDHD ONSET FLNCY DISOR
V4.3	April 2011	Surgical MS-DRG	Coding	Add to numerator inclusion for Surgical D RG 014 ALLOGENIC BONE MARROW TRANSPLANT 015 AUTOLOGOUS BONE MARROW TRANSPLANT
V4.3	April 2011	Software (SAS and WinQI) and Documentation	Software/ Documents	PDI #2: Modified inclusion logic to remove exclusion of pressure ulcer in stage I or II to capture diagnosis of stage III or IV ulcers.

VERSION/ REVISION NUMBER	DATE	COMPONENT	NATURE OF CHANGE	CHANGES
V4.3	April 2011	Software (SAS and WinQI) and Documentation	Software/ Documents	PDI #5: Added denominator exclusions for thoracic procedures (43.5, 43.99, 44.67, 77.81, 77.91)
V4.3	April 2011	Software (SAS and WinQI) and Documentation	Software/ Documents	PDI #9: Added denominator exclusion for esophageal resection procedure (MDC 4), lung cancer procedures (32.39, 32.49, 32.59), ENT/neck procedures (CCS 33), and degenerative neurological disorders (CCS 653)
V4.3	June 30, 2011	Software (SAS and WinQI) and Documentation	Software/ Documents	AHRQ Clinical Classification Software: Modified CCS 65 to CCS 654 and CCS 67 to CCS 661. Added codes: 307.0, 307.9, 315.00, 315.01, 315.02, 315.09, 315.1, 315.2, 315.31, 315.32, 315.34, 315.35, 315.39, 315.4, 315.5, 315.8, 315.9, V40.0, V40.1, 648.30, 648.31, 648.32, 648.33, 648.34, 655.50, 655.51, 655.53, 760.72, 760.73, 760.75, 779.5, 965.00, 965.01, 965.02, 965.09, V65.42. Removed codes: 305.1, 305.10, 305.11, 305.12, 305.13, V15.82
V4.3	June 30, 2011	Guide	Software/ Documents	Revised and updated all sections of the guide document to reflect current state of indicators, software and body of evidence.
V4.2	September 30, 2010	Pressure Ulcer (PDI 2)	Coding	Add diagnosis codes to stratifiers by hemiplegia, paraplegia, or quadriplegia 768.70 Hypoxic-ischemic encephalopathy, unspecified 768.72 Moderate hypoxic-ischemic encephalopathy 768.73 Severe hypoxic-ischemic encephalopathy
V4.2	September 30, 2010	Postoperative Respiratory Failure (PDI 9) Denominator (Exclusion, neuromuscular disorders)	Coding	359.71 Inclusion body myositis IBM 359.79 Other inflammatory and immune myopathies, NEC

VERSION/ REVISION NUMBER	DATE	COMPONENT	NATURE OF CHANGE	CHANGES
V4.2	September 30, 2010	Postoperative Sepsis (PDI 10) Denominator (Exclusion, Infection)	Coding	670.00 Major puerperal infection NOS-unsp 670.02 Major puerperal Infection NOS-del p/p 670.04 Major puerperal infection NOS-p/p 670.10 Puerperal endometritis-unsp 670.12 Puerperal endometritis del w p/p 670.14 Puerperal endometritis-postpart 670.20 Puerperal sepsis-unsp 670.22 Puerperal sepsis-del w p/p 670.24 Puerperal sepsis-postpart 670.30 Puerperal septic thrombophlebitis-unsp 670.32 Puerperal septic thrombophlebitis-del w p/p 670.34 Puerperal septic thrombophlebitis-postpart 670.80 Major puerperal infection NEC-suspec 670.82 Major puerperal infection NEC-dl w p/p 670.84 Major puerperal infection NEC-p/p
V4.2	September 30, 2010	Postoperative Wound Dehiscence (PDI 11) Denominator (Exclusion, high risk group)	Coding	279.41 Autoimmune lymphoproliferative syndrome ALPS 279.49 Autoimmune disease, not elsewhere classified

VERSION/ REVISION NUMBER	DATE	COMPONENT	NATURE OF CHANGE	CHANGES
V4.2	September 30, 2010	Multiple PDI Indicators	Coding	Add procedure codes: 0049 Superstat O2 Therapy 0058 Ins Intra-ansm Pres Mntr 0059 Intravasc Msmnt Cor Art 0067 Intravas Msmnt Thorc Art 0068 Intravas MsMt Periph Art 0069 Intravs Msmt Ves NEC/NOS 1751 Implant CCM, total system 1752 Implant CCM pulse gentr 1761 LITT lesn brain, guidance 1762 LITT les hd/nck, guidance 1763 LITT lesn liver, guidance 1769 LITT lesn, guide oth/NOS 1770 Intravenous Infusion of Clofarabine 3373 Endo ins/re brnc val, mul 3824 Intravas img corves OCT 3825 Intravas img non-cor OCT 3975 Endo emb hd/nk, bare coil 3976 Endo em hed/nk, bioac coil 4686 Endo insrt colonic stent 4687 Insert colonic stent NEC 3850 ABDPERNEAL RES RECTM NOS 8570 TOTL RECONSTC Breast NOS

VERSION/ REVISION NUMBER	DATE	COMPONENT	NATURE OF CHANGE	CHANGES
V4.2	September 30, 2010	Multiple PDI Indicators	Coding	Change procedure codes: 3760 Imp Bivn Ext Hrt Ast Sys 4840 Pull-thru Res Rectum NOS Change procedure codes category assignments: 0044 PROC-VESSEL BIFURCATION 0074 HIP REPL SURFMETAL/POLY 0075 HIP REP SURFMETAL/METAL 0076 HIP REP SURFCERMC/CERMC 0077 HIP REPL SURF- CERMC/POLY 0094 HITRA-OP NEUROPHYS MONTR 0110 INTRACRAN PRESSURE MONTR 0116 INTRACRANIAL 02 MONITOR 0117 BRAIN TEMP MONITORING 0126 INS CATHCRANIAL CAVITY 0127 REM CATHCRANIAL CAVITY 1741 OPEN ROBOTIC ASSIST PROC 1742 LAP ROBOTIC ASSIST PROC 1743 PERC ROBOTIC ASSIST PROC 1744 ENDO ROBOTIC ASSIST PROC 1745 THORACO ROBOTIC AST PROC 1749 ROBOTIC AST PROC NEC/NOS 3372 ENDO PULM ARWY FLOW MSMT 3736 EXC LEFT A TRAIL APPENDAG 3768 PERCUTAN HRT ASSIST SYST 3790 INS LEFT ATR APPEND DEV 3823 INTRAVASCLR SPECTROSCOPY 5013 TRANSJUGULAR LIVER BX 7094 INSERT BIOLOGICAL GRAFT 7095 INSERT SYNTH GRAFT/PROST 8472 APP EXT FIX DEVRING SYS 8473 APP HYBRID EXT FIX DEV 9227 RADIOACTIVE ELEM IMPLANT

VERSION/ REVISION NUMBER	DATE	COMPONENT	NATURE OF CHANGE	CHANGES
V4.2	September 30, 2010	Multiple PDI Indicators	Coding	<p>Add new operating procedure codes:</p> <p>1751 Implant CCM, total system 1752 Implant CCM pulse gentr 1761 LITT lesn brain, guidance 1762 LITT les hd/nck, guidance 1763 LITT lesn liver, guidance 1769 LITT lesn, guide oth/NOS 3975 Endo emb hd/nk, bare coil 3976 Endo em hed/nk, bioac coil 4850 ABDPERNEAL RES RECTM NOS 8570 TOTL RECONSTC BREAST NOS</p> <p>Modify:</p> <p>9227 RADIOACTIVE ELEM IMPLANT 3760 IMP BIVN EXT HRT AST SYS 4840 PULL-THRU RES RECTUM NOS 3768 PERCUTAN HRT ASSIST SYST</p>

VERSION/ REVISION NUMBER	DATE	COMPONENT	NATURE OF CHANGE	CHANGES
V4.2	September 30, 2010	Multiple PDI Indicators	Coding	Remove operating procedure codes: 0044 PROC-VESSEL BIFURCATION 0074 HIP REPL SURFMETAL/POLY 0075 HIP REP SURFMETAL/METAL 0076 HIP REP SURFCERMC/CERMC 0077 HIP REPL SURF- CERMC/POLY 0126 INS CATHCRANIAL CAVITY 0127 REM CATHCRANIAL CAVITY 1741 OPEN ROBOTIC ASSIST PROC 1742 LAP ROBOTIC ASSIST PROC 1743 PERC ROBOTIC ASSIST PROC 1744 ENDO ROBOTIC ASSIST PROC 1745 THORACO ROBOTIC AST PROC 1749 ROBOTIC AST PROC NEC/NOS 3372 ENDO PULM ARWY FLOW MSMT 3736 EXC LEFT A TRAIL APPENDAG 3790 INS LEFT ATR APPEND DEV 3823 INTRAVASCLR SPECTROSCOPY 7094 INSERT BIOLOGICAL GRAFT 7095 INSERT SYNTH GRAFT/PROST 8472 APP EXT FIX DEVRING SYS 8473 APP HYBRID EXT FIX DEV
V4.2	September 30, 2010	Multiple PDI Indicators	Coding	Add ICD-9-CM codes to the corresponding CCS categories, per Table 2 in Appendix.
V4.1	December 2, 2009	SAS Software and Documentation	Software/ Documents	PQI #9 – Low Birth Weight and PSI #17 – Birth Trauma Injury to Neonates – now calculated in the PDI SAS module. Technical Specifications for these indicators are distributed with their respective (PQI and PSI) set of documents.
V 4.0	June 30, 2009	Software and Documentation	Software/ Documents	PDI #2 – Pressure Ulcer (formerly Decubitus Ulcer) – added diagnosis code to denominator exclusion for hemi- and paraplegia (334.1)

VERSION/ REVISION NUMBER	DATE	COMPONENT	NATURE OF CHANGE	CHANGES
V 4.0	June 30, 2009	Software and Documentation	Software/ Documents	NQI #1 and PDI #5 – Iatrogenic Pneumothorax – 1) replaced the DRG denominator exclusion for cardiac surgery with procedure code denominator exclusion for cardiac procedures; 2) added procedure codes to denominator exclusion for thoracic procedures
V 4.0	June 30, 2009	Software and Documentation	Software/ Documents	PDI #4 – Iatrogenic Pneumothorax in Neonates has been redesignated as NQI #1. It is still calculated by the PDI SAS module.
V 4.0	June 30, 2009	Software and Documentation	Software/ Documents	PDI #9 – Postoperative respiratory failure – added denominator exclusion for craniofacial anomalies with 1) a procedure code for laryngeal or pharyngeal surgery or 2) a procedure on face and a diagnosis code of craniofacial abnormalities.
V 4.0	June 30, 2009	Software and Documentation	Software/ Documents	PDI #10 – Postoperative sepsis – removed diagnosis code from numerator inclusion for sepsis for discharges after 2004Q4 (effective October 1, 2004)
V 4.0	June 30, 2009	Software and Documentation	Software/ Documents	PDI #12 – Central Line-associated Bloodstream Infection – renamed the indicator from “Selected infections due to medical care”
V 4.0	June 30, 2009	Software and Documentation	Software/ Documents	PDI #16 – Gastroenteritis – added diagnosis code to numerator exclusion for gastrointestinal abnormalities (538 Gastrointestinal mucositis (ulcerative))
V 4.0	June 30, 2009	Software and Documentation	Software/ Documents	Multiple – Infection – 1) removed diagnosis codes for non-bacterial infections from denominator exclusion for infection; 2) Add diagnosis code to denominator exclusion for infection (078.3 CAT-SCRATCH DISEASE)
V 4.0	June 30, 2009	Software and Documentation	Software/ Documents	Multiple – Major Operating Room Procedures – removed selected procedure codes from the denominator inclusion for major operating room procedures
V 4.0	June 30, 2009	Software and Documentation	Software/ Documents	Medical DRGs – replaced the DRG denominator inclusion for medical discharges with the MS-DRG denominator inclusion for medical discharges for discharges after 2007Q4 (effective October 1, 2007).

VERSION/ REVISION NUMBER	DATE	COMPONENT	NATURE OF CHANGE	CHANGES
V 4.0	June 30, 2009	Software and Documentation	Software/ Documents	Surgical DRGs – replaced the DRG denominator inclusion for surgical discharges with the MS-DRG denominator exclusion for surgical discharges for discharges after 2007Q4 (effective October 1, 2007)
V 4.0	June 30, 2009	Software and Documentation	Software/ Documents	Adult DRGs – dropped the DRG denominator inclusion for adult DRGs.
V 4.0	June 30, 2009	Software and Documentation	Software/ Documents	Pediatric Heart Surgery Mortality (PDI #6) – excluded cases with any diagnosis of ASD or VSD with PDA as the only procedure
V 4.0	June 30, 2009	Software and Documentation	Software/ Documents	Iatrogenic Pneumothorax – Neonates (PDI #4) – renamed PDI #4 to NQI #1
V 4.0	June 30, 2009	Software and Documentation	Software/ Documents	Neonatal Mortality (NQI #2) – added the Neonatal Mortality indicator
V 4.0	June 30, 2009	Software and Documentation	Software/ Documents	Blood Stream Infection – Neonates (NQI #3) – added the Blood Stream Infection – Neonates indicator
V4.0	June 30,2009	Software and Documentation	Software/ Documents	Implement UB-04 – The UB-04 (effective October 1, 2007) changes were implemented including new data elements for point-of-origin and present on admission
V4.0	June 30,2009	Software and Documentation	Software/ Documents	Update Benchmarking Data to 2007 – used data from the 2007 SID for computation of benchmarks
V4.0	February 25, 2009	Accidental Puncture or Laceration (PDI 1) Denominator (Inclusion, spinal surgeries)	Coding	Add procedure codes to denominator inclusion for spinal surgeries (\$SPINEP) Add codes: 80.53 Repair of the annulus fibrosus with graft or prosthesis 80.54 Other and unspecified repair of the anulus fibrosus

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V4.0	February 25, 2009	Pressure Ulcer (PDI 2) Denominator (Exclusion, diagnosis of Stage I or Stage II)	Coding	Add denominator exclusion for diagnosis of Stage I or Stage II (\$DECUBVD) Add code: 707.20 PRESSURE ULCER, STAGE NOS 707.21 PRESSURE ULCER, STAGE I 707.22 PRESSURE ULCER, STAGE II
V4.0	February 25, 2009	Iatrogenic Pneumothorax (PDI 4 and 5) Denominator (Exclusion, diaphragmatic surgery repair)	Coding	Add procedure codes to denominator exclusion for diaphragmatic surgery repair (\$DIAPHRP) Add code: 53.71 Laparoscopic repair of diaphragmatic hernia, abdominal approach 53.72 Other and open repair of diaphragmatic hernia, abdominal approach 53.75 Repair of diaphragmatic hernia, abdominal approach, NOS 55.83 Laparoscopic repair of diaphragmatic hernia, with thoracic approach 55.84 Other and open repair of diaphragmatic hernia, with thoracic approach
V4.0	February 25, 2009	Iatrogenic Pneumothorax (PDI 4 and 5) Denominator (Exclusion, pleural effusion)	Coding	Add diagnosis codes to denominator exclusion for pleural effusion (\$PLEURAD) Add code: 511.81 Malignant pleural effusion 511.89 Other specified forms of effusion, except tuberculosis
V4.0	February 25, 2009	Iatrogenic Pneumothorax (PDI 4 and 5) Denominator (Exclusion)	Coding	Replace the DRG denominator exclusion for cardiac surgery (\$CARDSDR) with a procedure code denominator exclusion for cardiac procedures (\$CARDSIP). See Table 1 in Appendix for cardiac procedure codes. Add code: 37.36 Excision or destruction of left atrial appendage (LAA) 37.55 Removal of internal biventricular heart replacement system 37.60 Implantation or insertion of biventricular external heart assist system

VERSION/ REVISION NUMBER	DATE	COMPONENT	NATURE OF CHANGE	CHANGES
V4.0	February 25, 2009	Pediatric Heart Surgery (PDI 6 and 7) Denominator (Inclusion, procedures to repair congenital heart defect)	Coding	Add procedure code to denominator inclusion for procedures to repair congenital heart defect (\$PRPEDIP) Add code: 37.36 Excision or destruction of left atrial appendage (LAA)
V4.0	February 25, 2009	Postoperative Sepsis (PDI 10) Numerator (Inclusion, sepsis)	Coding	Add diagnosis code to numerator inclusion for sepsis (\$SEPTIID) Modify code: 038.11 Methicillin susceptible staphylococcus aureus septicemia Add code: 038.12 Methicillin resistant Staphylococcus aureus septicemia
V4.0	February 25, 2009	Postoperative Wound Dehiscence (PDI 11) Denominator (Inclusion, abdominopelvic procedures)	Coding	Add procedure codes to denominator inclusion for abdominopelvic procedures (\$ABDOMIP) Add codes: 17.31 Laparoscopic multiple segmental resection of large intestine 17.32 Laparoscopic cecectomy 17.33 Laparoscopic right hemicolectomy 17.34 Laparoscopic resection of transverse colon 17.35 Laparoscopic left hemicolectomy 17.36 Laparoscopic sigmoidectomy 17.39 Other laparoscopic partial excision of large intestine 45.81 Laparoscopic total intra-abdominal colectomy 45.82 Open total intra-abdominal colectomy 45.83 Other and unspecified total intra-abdominal colectomy 48.40 Pull-through resection of rectum, not otherwise specified 48.43 Open pull-through resection of rectum 48.50 Abdominoperineal resection of the rectum, NOS 48.52 Open abdominoperineal resection of the rectum 48.59 Other abdominoperineal resection of the rectum 53.75 Repair of diaphragmatic hernia, abdominal approach, NOS

VERSION/ REVISION NUMBER	DATE	COMPONENT	NATURE OF CHANGE	CHANGES
V4.0	February 25, 2009	Gastroenteritis (PDI 16) Numerator (Exclusion, gastrointestinal abnormalities)	Coding	Add diagnosis codes to numerator exclusion for gastrointestinal abnormalities (\$ACGDISD) Add codes: 53570 EOSINOPHIL GASTRT WO HEM 53571 EOSINOPHILC GASTRT W HEM 558.41 Eosinophilic gastroenteritis 558.42 Eosinophilic colitis

VERSION/ REVISION NUMBER	DATE	COMPONENT	NATURE OF CHANGE	CHANGES
V4.0	February 25, 2009	Multiple – Immunocompromised Denominator (Exclusion, high risk immuno- compromised)	Coding	<p>Add diagnosis codes to denominator exclusion for high risk immunocompromised (\$IMMUNHD)</p> <p>Add codes:</p> <p>199.2 Malignant neoplasm associated with transplanted organ 238.79 Other lymphatic and hematopoietic tissues 238.77 Post-transplant lymphoproliferative disorder 279.50 Graft-versus-host disease, unspecified 279.51 Acute graft-versus-host disease 279.52 Chronic graft-versus-host disease 279.53 Acute on chronic graft-versus-host disease V45.11 Renal dialysis status</p> <p>Add codes:</p> <p>203.02 MULT MYELOMA IN RELAPSE 203.12 PLSM CEL LEUK IN RELAPSE 203.82 OTH IMNPRLF NEO-RELAPSE 204.02 ACT LYMP LEUK IN RELAPSE 204.12 CHR LYMP LEUK IN RELAPSE 204.22 SBAC LYM LEUK IN RELAPSE 204.82 OTH LYM LEUK IN RELAPSE 204.92 LYMP LEUK NOS RELAPSE 205.02 ACT MYEL LEUK IN RELAPSE 205.12 CHR MYEL LEUK IN RELAPSE 205.22 SBAC MYL LEUK IN RELAPSE 205.32 MYEL SARCOMA IN RELAPSE 205.82 OTH MYEL LEUK IN RELAPSE 205.92 MYEL LEUK NOS IN RELAPSE 206.02 ACT MONO LEUK IN RELAPSE 206.12 CHR MONO LEUK IN RELAPSE 206.22 SBAC MONO LEU IN RELAPSE 206.82 OTH MONO LEUK IN RELAPSE 206.92 MONO LEUK NOS RELAPSE</p>

VERSION/ REVISION NUMBER	DATE	COMPONENT	NATURE OF CHANGE	CHANGES
				207.02 AC ERT/ERYLK IN RELAPSE 207.12 CHR ERYTHRMIA IN RELAPSE 207.22 MGKRYCYT LEUK IN RELAPSE 207.82 OTH SPF LEUK IN RELAPSE 208.02 AC LEUK UNS CL RELAPSE 208.12 CH LEU UNS CL IN RELAPSE 208.22 SBAC LEU UNS CL-RELAPSE 208.82 OTH LEUK UNS CL-RELAPSE 208.92 LEUKEMIA NOS IN RELAPSE

VERSION/ REVISION NUMBER	DATE	COMPONENT	NATURE OF CHANGE	CHANGES
V4.0	February 25, 2009	Multiple – Infection Denominator (Exclusion, infection)	Coding	<p>Add diagnosis codes to denominator exclusion for infection (\$INFECID)</p> <p>Modify codes: 038.11 Methicillin susceptible staphylococcus aureus septicemia 041.11 Methicillin susceptible staphylococcus aureus 482.41 Methicillin susceptible pneumonia due to staphylococcus aureus</p> <p>Add codes: 038.12 Methicillin resistant Staphylococcus aureus septicemia 041.12 Methicillin resistant Staphylococcus aureus (MRSA) 482.42 Methicillin resistant pneumonia due to staphylococcus aureus 707.20 Pressure ulcer unspecified stage 707.22 Pressure ulcer stage II 707.23 Pressure ulcer stage III 707.24 Pressure ulcer stage IV 777.50 Necrotizing enterocolitis in newborn, unspecified 777.51 Stage I necrotizing enterocolitis in newborn 777.52 Stage II necrotizing enterocolitis in newborn 777.53 Stage III necrotizing enterocolitis in newborn</p> <p>Delete codes (for discharges after 2008Q4 effective October 1, 2008): 707.00 PRESSURE ULCER, SITE NOS 707.01 PRESSURE ULCER, ELBOW 707.02 PRESSURE ULCER, UPR BACK 707.03 PRESSURE ULCER, LOW BACK 707.04 PRESSURE ULCER, HIP 707.05 PRESSURE ULCER, BUTTOCK 707.06 PRESSURE ULCER, ANKLE 707.07 PRESSURE ULCER, HEEL 707.09 PRESSURE ULCER, SITE NEC</p>

VERSION/ REVISION NUMBER	DATE	COMPONENT	NATURE OF CHANGE	CHANGES
V4.0	February 25, 2009	Pressure Ulcer (PDI 2) Denominator (Exclusion, hemi- and paraplegia)	Indicator Specification Change	Add diagnosis code to denominator exclusion for hemi- and paraplegia (\$HEMIPID) Add code: 334.1 Hereditary spastic paraplegia
V4.0	February 25, 2009	Iatrogenic Pneumothorax (PDI 4 and 5) Denominator (Exclusion)	Indicator Specification Change	Replace the DRG denominator exclusion for cardiac surgery (\$CARSDR) with procedure code denominator exclusion for cardiac procedures (\$CARDSIP). See Table 1 in Appendix for cardiac procedure codes.
V4.0	February 25, 2009	Iatrogenic Pneumothorax (PDI 4 and 5) Denominator (Exclusion, thoracic procedures)	Indicator Specification Change	Add procedure codes to denominator exclusion for thoracic procedures (\$THORAIP) Add codes: 05.22 Sympathectomy Cervical 05.23 Sympathectomy Lumbar 05.29 Other sympathectomy and ganglionectomy 07.80 Thymectomy, not otherwise specified 07.81 Other partial excision of thymus 07.82 Other total excision of thymus 07.83 Thoracoscopic partial excision of thymus 07.84 Thoracoscopic total excision of thymus 32.49 Other lobectomy of lung

VERSION/ REVISION NUMBER	DATE	COMPONENT	NATURE OF CHANGE	CHANGES
V4.0	February 25, 2009	Postoperative Respiratory Failure (PDI 9) Denominator (Exclusion)	Indicator Specification Change	<p>Add denominator exclusion for craniofacial anomalies with 1) a procedure code for laryngeal or pharyngeal surgery (\$CRANI1P) <i>or</i> 2) a procedure on face (\$CRANI2P) <i>and</i> a diagnosis code of craniofacial abnormalities (\$CRANIID).</p> <p>Add codes for pharyngeal surgery (\$CRANI1P):</p> <p>25.3 Complete glossectomy 25.4 Radical glossectomy 27.31 Local excision or destruction of lesion or tissue of bony palate 29.0 Pharyngotomy 29.33 Pharyngectomy (partial) 29.39 Other excision or destruction of lesion or tissue of pharynx 29.4 Plastic operation on pharynx 29.53 Closure of other fistula of pharynx 29.59 Other repair of pharynx 29.91 Dilation of pharynx 30.09 Other excision or destruction of lesion or tissue of larynx 30.21 Epiglottidectomy 30.22 Vocal cordectomy 30.29 Other partial laryngectomy 30.3 Complete laryngectomy 30.4 Radical laryngectomy 31.3 Other incision of larynx or trachea 31.5 Local excision or destruction of lesion or tissue of trachea 31.69 Other repair of larynx 31.73 Closure of other fistula of trachea 31.75 Reconstruction of trachea and construction of artificial larynx 31.79 Other repair and plastic operations on trachea 31.98 Other operations on larynx 31.99 Other operations on trachea</p>

VERSION/ REVISION NUMBER	DATE	COMPONENT	NATURE OF CHANGE	CHANGES
				<p>Add codes for procedure on face (\$CRANI2P):</p> <p>25.2 Partial glossectomy</p> <p>25.59 Other repair and plastic operations on tongue</p> <p>27.32 Wide excision or destruction of lesion or tissue of bony palate</p> <p>27.62 Correction of cleft palate</p> <p>27.63 Revision of cleft palate repair</p> <p>27.69 Other plastic repair of palate</p> <p>29.31 Cricopharyngeal myotomy</p> <p>76.65 Segmental osteoplasty [osteotomy] of maxilla</p> <p>76.66 Total osteoplasty [osteotomy] of maxilla</p> <p>76.46 Other reconstruction of other facial bone</p> <p>76.69 Other facial bone repair</p> <p>76.91 Bone graft to facial bone</p> <p>Add codes for craniofacial abnormalities (\$CRANIID).</p> <p>744.83 Macrostomia</p> <p>744.84 Microstomia</p> <p>744.9 Unspecified anomalies of face and neck</p> <p>748.3 Congenital anomalies of skull and face bones</p> <p>756.0 Tracheomalacia and congenital tracheal stenosis</p>
V4.0	February 25, 2009	Postoperative Sepsis (PDI 10) Numerator (Inclusion)	Indicator Specification Change	<p>Remove diagnosis code from numerator inclusion for sepsis (\$SEPTIID) for discharges after 2004Q4 (effective October 1, 2004)</p> <p>Drop code:</p> <p>785.59 Shock without mention of trauma, other</p>
V4.0	February 25, 2009	Hospital Acquired Vascular Catheter Related Infections (PDI 12)	Indicator Specification Change	Rename the indicator from “Selected infections due to medical care” to “Hospital acquired vascular catheter related infections”

VERSION/ REVISION NUMBER	DATE	COMPONENT	NATURE OF CHANGE	CHANGES
V4.0	February 25, 2009	Gastroenteritis (PDI 16) Numerator (Exclusion, gastrointestinal abnormalities)	Indicator Specification Change	Add diagnosis code to numerator exclusion for gastrointestinal abnormalities (\$ACGDISD) Add code: 538 Gastrointestinal mucositis (ulcerative)
V4.0	February 25, 2009	Multiple – Infection Denominator (Exclusion, infection)	Indicator Specification Change	Remove diagnosis codes for non-bacterial infections from denominator exclusion for infection (\$INFECID) Drop codes: 376.00 ACUTE INFLAM NOS, ORBIT 386.30 LABYRINTHITIS NOS 386.31 SEROUS LABYRINTHITIS 386.32 CIRCUMSCRI LABYRINTHITIS 598.00 URETHR STRICT:INFECT NOS 598.01 URETH STRICT:OTH INFECT 686.01 PYODERMA GANGRENOSUM Add diagnosis code to denominator exclusion for infection (\$INFECID) Add codes: 078.3 CAT-SCRATCH DISEASE

VERSION/ REVISION NUMBER	DATE	COMPONENT	NATURE OF CHANGE	CHANGES
V4.0	February 25, 2009	Multiple – Major Operating Room Procedures Denominator (Inclusion)	Indicator Specification Change	Remove procedure codes from the denominator inclusion for major operating room procedures (\$ORPROC) Drop codes: 38.7 INTERRUPTION VENA CAVA 41.0 LYMPH STRUCTURE OP NEC 41.00 BONE MARROW TRNSPLNT NOS 41.01 AUTO BONE MT W/O PURG 41.02 ALO BONE MARROW TRNSPLNT 41.03 ALLOGRFT BONE MARROW NOS 41.04 AUTO HEM STEM CT W/O PUR 41.05 ALLO HEM STEM CT W/O PUR 41.06 CORD BLD STEM CELL TRANS 41.07 AUTO HEM STEM CT W PURG 41.08 ALLO HEM STEM CT W PURG 41.09 AUTO BONE MT W PURGING
V4.0	February 25, 2009	Iatrogenic Pneumothorax – Neonates (PDI 4)	Indicator Specification Change	Rename PDI 4 to NQI 1
V4.0	February 25, 2009	Neonatal Mortality (NQI 2)	Indicator Specification Change	Add the Neonatal Mortality indicator
V4.0	February 25, 2009	Blood Stream Infection – Neonates (NQI 3)	Indicator Specification Change	Add the Blood Stream Infection – Neonates indicator

VERSION/ REVISION NUMBER	DATE	COMPONENT	NATURE OF CHANGE	CHANGES
V 3.2	March 10, 2008	Iatrogenic Pneumothorax (PDI #5) Denominator (Exclusion, Thoracic Surgery)	Coding	Added new codes: 32.20 THORAC EXC LUNG LESION 32.30 THORAC SEG LUNG RESECT 32.39 OTH SEG LUNG RESECT NOS 32.41 THORAC LOBECTOMY LUNG 32.50 THORACOSPC PNEUMONECTOMY 32.59 OTHER PNEUMONECTOMY NOS 33.20 THORACOSCOPC LUNG BIOPSY 34.20 THORACOSCOPIC PLEURAL BX 34.52 THORACOSCOPC DECORT LUNG
V 3.2	March 10, 2008	Selected Infections due to Medical Care (PDI #12) Numerator (Inclusion)	Coding	Added new code 999.31 INFECT D/T CENT VEN CATH
V 3.2	March 10, 2008	Multiple PDI Indicators Exclusion (Infection)	Coding	Add new codes 040.41 INFANT BOTULISM and 040.42 WOUND BOTULISM
V 3.2	March 10, 2008	Multiple PDI Indicators	Coding	Updated DRG to Version 25.0
V 3.2	March 10, 2008	Software and Documentation	Software/ Documents	PDI #1 (Accidental puncture or laceration) – Added an exclusion for discharges with an ICD-9-CM procedure code for spine surgery PDI #13 (Transfusion Reaction) – Revised the indicator from a rate to a count PDI #3 (Foreign Body left in During Procedure) – Revised the indicator from a rate to a count and to require the POA flag
V 3.1a	March 16, 2007	SAS Software and Documentation	Software/ Documents	Added program to calculate the pediatric patient safety composite measure. The new files are PDI_COMPOSITE.SAS and MSXPDC31.TXT.

VERSION/ REVISION NUMBER	DATE	COMPONENT	NATURE OF CHANGE	CHANGES
V 3.1a	March 16, 2007	Software (PDSASA2)	Software/ Documents	Amended the aggregation algorithm to correctly sum the numerator and denominator counts across stratifiers.
V 3.1	March 12, 2007	Software (SAS and Windows) and Technical Specifications	Software/ Documents	Revised numerator inclusion criteria for Postoperative Hemorrhage and Hematoma (PDI #8) to include a diagnosis of hemorrhage or hematoma and a procedure for control of hemorrhage or drainage of hematoma.
V 3.1	March 12, 2007	Covariates. Software (SAS and Windows),	Software/ Documents	Based on recommendations of the Risk Adjustment and Hierarchical Modeling (RAHM) Workgroup, computed covariates using logistic regression model with a hospital random-effect instead of the existing simple logistic model. Because the AHRQ QI use a large sample, the impact on the covariates of using the hierarchical model (and hence the impact on the risk-adjusted rates) is minor. Updated the coefficients used in the calculation of expected and risk-adjusted rates to the reference population, based on the 2002-2004 State Inpatient Data (SID).
V 3.1	March 12, 2007	Covariates, Software (SAS and Windows), Software Documentation	Software/ Documents	Included an option to incorporate the present on admission indicator into the specifications. In general, cases where the outcome of interest is present on admission will be excluded from the denominator, as these cases are no longer at risk of having the outcome of interest occur during the hospitalization. The release also includes alternative parameter files of risk-adjustment covariates and population rates using 2002-2004 SID data from California and New York.
V 3.1	March 12, 2007	Software (SAS and Windows)	Software/ Documents	Age-, race-, gender- and county-specific population estimates used for AHRQ QI area rates were updated to use revised post-censal estimates for years 2001 through 2005 and projections for the years 2006 and 2007. Added capability to apply weight value to each discharge. The syntax will compute risk-adjusted rates and observed-to-expected ratios for the pre-defined set of stratification variables (e.g., age, gender, payer, race). When stratifications other than hospital or area are selected, the RPPDxx variables and their confidence intervals are observed/expected ratios to avoid confounding with risk adjustment variables.

VERSION/ REVISION NUMBER	DATE	COMPONENT	NATURE OF CHANGE	CHANGES
V 3.0b	September 29, 2006	Windows	Software/ Documents	Implemented the pediatric risk adjustment.
V 3.0b	September 29, 2006	SAS Software	Software/ Documents	Changed the PAGECAT stratification data element to correctly assign non-integer AGE values. Changed PHS_RACHS1.TXT syntax to correctly assign the risk category when AGE > 0 and AGEDAY is missing. In general, these cases are now assigned to a lower risk category (impacts about 3% of cases).
V 3.0b	September 29, 2006	Technical Specifications and Software	Software/ Documents	PedQI #1, #3, #6, #10-12. Changed the exclusion from newborns less than 500g to neonates less than 500g.
V 3.0b	September 29, 2006	Measures	Software/ Documents	Revised the text to clarify clinical panel recommendations of indicators for inclusion in Pediatric module and those deferred for further development. Added description of Pediatric Heart Surgery Volume.
V 3.0a	May 1, 2006	SAS	Software/ Documents	Implemented the pediatric risk adjustment.
V 3.0a	May 1, 2006	SAS Software	Software/ Documents	PDSAS1.SAS – Corrected the principal diagnosis exclusion for PedQI #8. PDSASA2.SAS – Corrected the denominator calculation for PedQI #17
V 3.0a	May 1, 2006	Technical Specifications	Software/ Documents	PedQI #2 – Added exclusion for cases with an ICD-9-CM procedure code of debridement or pedicle graft as the only major operating room procedures (surgical cases only) PedQI #4/#5 – Added exclusion for cases with ICD-9-CM procedure code of diaphragmatic surgery repair PedQIs #16 and #18– Modified exclusion to cases with age less than or equal to 90 days (or neonates if age in days is missing) Deleted ICD-9-CM procedure code 41.0 from the list of major operating room procedure codes Intermediate Risk Immuno-compromised state – Clarified that codes for hepatic failure must be accompanied by codes for cirrhosis.

VERSION/ REVISION NUMBER	DATE	COMPONENT	NATURE OF CHANGE	CHANGES
V 3.0a	May 1, 2006	Technical Specifications and Software	Software/ Documents	<p>Corrected ICD-9-CM diagnosis codes 590.00 and 590.01 in the numerator exclusion for PedQI #18.</p> <p>Dropped ICD-9-CM diagnosis codes 585.1, 585.2, 585.3, 585.4 and 585.9 from the high risk immunocompromised state specification.</p> <p>Added ICD-9-CM diagnosis codes 276.50, 276.51 and 276.52 to the numerator specification for PedQI #16.</p> <p>Refined the definition of neonate by dropping the DRG and MDC inclusion criteria.</p> <p>Refined the newborn definition by requiring that age in days be equal to zero (or missing if there is a liveborn diagnosis code).</p>
V 3.0	February 20, 2006	Technical Specifications and Software	Software/ Documents	<p>Dropped ICD-9-CM diagnosis code 5185 from numerator specification for PedQI #9.</p> <p>Dropped exclusion of all newborns and neonates transferring from another institution, added exclusion of neonates for PedQI #10.</p>

Appendices

Appendix A - Cardiac Procedure Codes as of February 2009

3510	OPEN VALVULOPLASTY NOS	3613	AORTOCOR BYPAS-3 COR ART
3511	OPN AORTIC VALVULOPLASTY	3614	AORTCOR BYPAS-4+ COR ART
3512	OPN MITRAL VALVULOPLASTY	3615	1 INT MAM-COR ART BYPASS
3513	OPN PULMON VALVULOPLASTY	3616	2 INT MAM-COR ART BYPASS
3514	OPN TRICUS VALVULOPLASTY	3617	ABD-CORON ARTERY BYPASS
3520	OPN/OTH REP HRT VLV NOS	3619	HRT REVAS BYPS ANAS NEC
3521	OPN/OTH REP AORT VLV-TIS	362	ARTERIAL IMPLANT REVASC
3522	OPN/OTH REP AORTIC VALVE	3631	OPEN CHEST TRANS REVASC
3523	OPN/OTH REP MTRL VLV-TIS	3632	OTH TRANSMYO REVASCULAR
3524	OPN/OTH REP MITRAL VALVE	3639	OTH HEART REVASCULAR
3525	OPN/OTH REP PULM VLV-TIS	3691	CORON VESS ANEURYSM REP
3526	OPN/OTH REPL PUL VALVE	3699	HEART VESSEL OP NEC
3527	OPN/OTH REP TCSPD VLV-TS	370	PERICARDIOCENTESIS
3528	OPN/OTH REPL TCSPD VALVE	3710	INCISION OF HEART NOS
3531	PAPILLARY MUSCLE OPS	3711	CARDIOTOMY
3532	CHORDAE TENDINEAE OPS	3712	PERICARDIOTOMY
3533	ANNULOPLASTY	3731	PERICARDIECTOMY
3534	INFUNDIBULECTOMY	3732	HEART ANEURYSM EXCISION
3535	TRABECUL CARNEAE CORD OP	3733	EXC/DEST HRT LESION OPEN
3539	TISS ADJ TO VALV OPS NEC	3735	PARTIAL VENTRICULECTOMY
3550	PROSTH REP HRT SEPTA NOS	3741	IMPL CARDIAC SUPPORT DEV
3551	PROS REP ATRIAL DEF-OPN	3749	HEART/PERICARD REPR NEC
3553	PROS REP VENTRIC DEF-OPN	3751	HEART TRANSPLANTATION
3554	PROS REP ENDOCAR CUSHION	3752	IMP TOT INT BI HT RP SYS
3560	GRFT REPAIR HRT SEPT NOS	3753	REPL/REP THR UNT TOT HRT
3561	GRAFT REPAIR ATRIAL DEF	3754	REPL/REP OTH TOT HRT SYS
3562	GRAFT REPAIR VENTRIC DEF	3761	PULSATION BALLOON IMPLAN
3563	GRFT REP ENDOCAR CUSHION	3762	INSRT NON-IMPL CIRC DEV
3570	HEART SEPTA REPAIR NOS	3763	REPAIR HEART ASSIST SYS
3571	ATRIA SEPTA DEF REP NEC	3764	REMV EXT HRT ASSIST SYS
3572	VENTR SEPTA DEF REP NEC	3765	IMP VENT EXT HRT AST SYS
3573	ENDOCAR CUSHION REP NEC	3766	IMPLANTABLE HRT ASSIST
3581	TOT REPAIR TETRAL FALLOT	3767	IMP CARDIOMYOSTIMUL SYS
3582	TOTAL REPAIR OF TAPVC	3791	OPN CHEST CARDIAC MASSAG
3583	TOT REP TRUNCUS ARTERIOS	3804	INCISION OF AORTA
3584	TOT COR TRANSPOS GRT VES	3805	THORACIC VESSEL INC NEC
3591	INTERAT VEN RETRN TRANSP	3844	RESECT ABDM AORTA W REPL
3592	CONDUIT RT VENT-PUL ART	3845	RESECT THORAC VES W REPL
3593	CONDUIT LEFT VENTR-AORTA	3864	EXCISION OF AORTA
3594	CONDUIT ARTIUM-PULM ART	3865	THORACIC VESSEL EXCISION
3595	HEART REPAIR REVISION	3884	OCCLUDE AORTA NEC
3598	OTHER HEART SEPTA OPS	3885	OCCLUDE THORACIC VES NEC
3599	OTHER HEART VALVE OPS	390	SYSTEMIC-PULM ART SHUNT
3603	OPEN CORONRY ANGIOPLASTY	3921	CAVAL-PULMON ART ANASTOM
3610	AORTOCORONARY BYPASS NOS	3922	AORTA-SUBCLV-CAROT BYPAS
3611	AORTOCOR BYPAS-1 COR ART	3923	INTRATHORACIC SHUNT NEC
3612	AORTOCOR BYPAS-2 COR ART		

Appendix B - ICD-9-CM codes for corresponding CCS categories as of September 2010

0700	HEPATITIS A WITH COMA	20048	MANTLE CELL LYMPH MULTIP
0701	HEPATITIS A W/O COMA	20050	PRIMARY CNS LYMPH XTRNDL
0702	HEPATITIS B WITH COMA*	20051	PRIMARY CNS LYMPH HEAD
07020	HPT B ACTE COMA WO DLTA	20052	PRIMARY CNS LYMPH THORAX
07021	HPT B ACTE COMA W DLTA	20053	PRIMARY CNS LYMPH ABDOM
07022	HPT B CHRNC COMA WO DLTA	20054	PRIMARY CNS LYMPH AXILLA
07023	HPT B CHRNC COMA W DLTA	20055	PRIMARY CNS LYM INGUIN
0703	HEPATITIS B W/O COMA*	20056	PRIMARY CNS LYMPH PELVIC
07030	HPT B ACTE WO CM WO DLTA	20057	PRIMARY CNS LYMPH SPLEEN
07031	HPT B ACTE WO CM W DLTA	20058	PRIMARY CNS LYMPH MULTIP
07032	HPT B CHRNC WO CM WO DLTA	20060	ANAPLASTIC LYMPH XTRNDL
07033	HPT B CHRNC WO CM W DLTA	20061	ANAPLASTIC LYMPH HEAD
0704	VIRAL HEPAT NEC W COMA*	20061	ANAPLASTIC LYMPH HEAD
07041	HPT C ACUTE W HEPAT COMA	20062	ANAPLASTIC LYMPH THORAX
07042	HPT DLT WO B W HPT COMA	20062	ANAPLASTIC LYMPH THORAX
07043	HPT E W HEPAT COMA	20063	ANAPLASTIC LYMPH ABDOM
07044	CHRN HPT C W HEPAT COMA	20063	ANAPLASTIC LYMPH ABDOM
07049	OTH VRL HEPAT W HPT COMA	20064	ANAPLASTIC LYMPH AXILLA
0705	VIRAL HEPAT NEC W/O COMA*	20064	ANAPLASTIC LYMPH AXILLA
07051	HPT C ACUTE WO HPAT COMA	20065	ANAPLASTIC LYMPH INGUIN
07052	HPT DLT WO B WO HPT COMA	20065	ANAPLASTIC LYMPH INGUIN
07053	HPT E WO HEPAT COMA	20066	ANAPLASTIC LYMPH PELVIC
07054	CHRN HPT C WO HPAT COMA	20066	ANAPLASTIC LYMPH PELVIC
07059	OTH VRL HPAT WO HPT COMA	20067	ANAPLASTIC LYMPH SPLEEN
0706	VIRAL HEPAT NOS W COMA	20067	ANAPLASTIC LYMPH SPLEEN
07070	HPT C W/O HEPAT COMA NOS	20068	ANAPLASTIC LYMPH MULTIP
07071	HPT C W HEPATIC COMA NOS	20068	ANAPLASTIC LYMPH MULTIP
0709	VIRAL HEPAT NOS W/O COMA	20070	LARGE CELL LYMPH XTRNDL
20030	MARGNL ZONE LYM XTRNDL	20070	LARGE CELL LYMPH XTRNDL
20030	MARGNL ZONE LYM XTRNDL	20071	LARGE CELL LYMPHOMA HEAD
20031	MARGIN ZONE LYM HEAD	20071	LARGE CELL LYMPHOMA HEAD
20031	MARGIN ZONE LYM HEAD	20072	LARGE CELL LYMPH THORAX
20032	MARGIN ZONE LYM THORAX	20072	LARGE CELL LYMPH THORAX
20032	MARGIN ZONE LYM THORAX	20073	LARGE CELL LYMPH ABDOM
20033	MARGIN ZONE LYM ABDOM	20073	LARGE CELL LYMPH ABDOM
20033	MARGIN ZONE LYM ABDOM	20074	LARGE CELL LYMPH AXILLA
20034	MARGIN ZONE LYM AXILLA	20074	LARGE CELL LYMPH AXILLA
20034	MARGIN ZONE LYM AXILLA	20075	LARGE CELL LYMPH INGUIN
20035	MARGIN ZONE LYM INGUIN	20075	LARGE CELL LYMPH INGUIN
20035	MARGIN ZONE LYM INGUIN	20076	LARGE CELL LYMPH PELVIC
20036	MARGIN ZONE LYM PELVIC	20077	LARGE CELL LYMPH SPLEEN
20037	MARGIN ZONE LYMPH SPLEEN	20078	LARGE CELL LYMPH MULTIP
20038	MARGIN ZONE LYMPH MULTIP	20270	PERIPH T CELL LYM XTRNDL
20040	MANTLE CELL LYM XTRNDL	20271	PERIPH T CELL LYMPH HEAD
20041	MANTLE CELL LYMPH HEAD	20272	PERIPH T CELL LYM THORAX
20042	MANTLE CELL LYMPH THORAX	20273	PERIPH T CELL LYM ABDOM
20043	MANTLE CELL LYMPH ABDOM	20274	PERIPH T CELL LYM AXILLA
20044	MANTLE CELL LYMPH AXILLA	20275	PERIPH T CELL LYM INGUIN
20045	MANTLE CELL LYMPH INGUIN	20276	PERIPH T CELL LYM PELVIC
20046	MANTLE CELL LYMPH PELVIC	20277	PERIPH T CELL LYM SPLEEN
20047	MANTLE CELL LYMPH SPLEEN	20278	PERIPH T CELL LYM MULTIP

20312	PLSM CEL LEUK IN RELAPSE	32730	CIRCADIAN RHYM SLEEP NOS
20402	ACT LYMP LEUK IN RELAPSE	32731	CIRCADIAN RHY-DELAY SLP
20412	CHR LYMP LEUK IN RELAPSE	32732	CIRCADIAN RHY-ADVC SLEEP
20422	SBAC LYM LEUK IN RELAPSE	32733	CIRCADIAN RHYM-IRREG SLP
20482	OTH LYM LEUK IN RELAPSE	32734	CIRCADIAN RHYM-FREE RUN
20482	OTH LYM LEUK IN RELAPSE	32735	CIRCADIAN RHYTHM-JETLAG
20492	LYMP LEUK NOS RELAPSE	32736	CIRCADIAN RHY-SHIFT WORK
20502	ACT MYEL LEUK IN RELAPSE	32737	CIRCADIAN RHYM OTH DIS
20512	CHR MYEL LEUK IN RELAPSE	32739	CIRCADIAN RHYM SLEEP NEC
20522	SBAC MYL LEUK IN RELAPSE	32753	SLEEP RELATED BRUXISM
20532	MYEL SARCOMA IN RELAPSE	3315	NORML PRESSURE HYDROCEPH
20582	OTH MYEL LEUK IN RELAPSE	33183	MILD COGNITIVE IMPAIREMT
20592	MYEL LEUK NOS IN RELAPSE	33700	IDIO PERPH AUTO NEUR NOS
20602	ACT MONO LEUK IN RELAPSE	33701	CAROTID SINUS SYNDROME
20612	CHR MONO LEUK IN RELAPSE	33709	IDIO PERPH AUTO NEUR NEC
20622	SBAC MONO LEU IN RELAPSE	34881	TEMPORAL SCLEROSIS
20682	OTH MONO LEUK IN RELAPSE	34889	BRAIN CONDITIONS NEC
20692	MONO LEUK NOS RELAPSE	34939	DURAL TEAR NEC
20702	AC ERTHERYLYK IN RELAPSE	35921	MYOTONIC MUSCLR DYSTRPHY
20712	CHR ERYTHRMIA IN RELAPSE	35922	MYOTONIA CONGENITA
20722	MGKRYCYT LEUK IN RELAPSE	35923	MYOTONIC CHONDRODYSTRPHY
20782	OTH SPF LEUK IN RELAPSE	35924	DRUG INDUCED MYOTONIA
20802	AC LEUK UNS CL RELAPSE	35929	MYOTONIC DISORDER NEC
20812	CH LEU UNS CL IN RELAPSE	35971	INCLUSION BODY MYOSITIS
20822	SBAC LEU UNS CL-RELAPSE	35979	INFLM/IMMUNE MYOPATH NEC
20882	OTH LEUK UNS CL-RELAPSE	4041	BEN HYPERT HRT/RENAL DIS*
20892	LEUKEMIA NOS IN RELAPSE	41512	SEPTIC PULMONARY EMBOLSM
20922	MALIG CARCINOID THYMUS	4162	CHR PULMONARY EMBOLISM
20924	MALIG CARCINOID KIDNEY	42682	LONG QT SYNDROME
20924	MALIG CARCINOID KIDNEY	51181	MALIGNANT PLEURAL EFFUSN
20925	MAL CARCNOID FOREGUT NOS	53013	EOSINOPHILIC ESOPHAGITIS
20926	MAL CARCINOID MIDGUT NOS	57142	AUTOIMMUNE HEPATITIS
20927	MAL CARCNOID HINDGUT NOS	72990	SOFT TISSUE DISORD NOS
20971	SEC NEUROEND TU DIST LYM	72991	POST-TRAUMATIC SEROMA
20972	SEC NEUROEND TUMOR-LIVER	72992	NONTRAUMA HEMA SOFT TISS
20973	SEC NEUROENDO TUMOR-BONE	72999	SOFT TISSUE DISORDER NEC
20974	SEC NEUROENDO TU-PERITON	75672	OMPHALOCELE
25541	GLUCOCORTICOID DEFICIENT	75673	GASTROSCHISIS
25542	MINERALCORTICOID DEFCNT	76061	AMNIOCENTESIS AFFECT NB
25801	MULT ENDO NEOPLAS TYPE I	76062	IN UTERO PROC NEC AFF NB
25950	ANDROGEN INSENSITVITY NOS	76063	MAT SURG DUR PREG AFF NB
25951	ANDROGEN INSENSITVITY SYN	76064	PREV MATERN SURG AFF NB
25952	PART ANDROGEN INSNSITVITY	77750	NEC ENTEROCOLITIS NB NOS
2755	HUNGRY BONE SYNDROME	77751	STG I NEC ENTEROCOL NB
27941	AUTOIMMUN LYMPHPROF SYND	77752	STG II NEC ENTEROCOL NB
27949	AUTOIMMUNE DISEASE NEC	77753	STG III NEC ENTEROCOL NB
2865	INTR CIRCUL ANTICOAG DIS#	77931	NB FEEDING PROBLEMS
2866	DEFIBRATION SYNDROME	77932	NB BILIOUS VOMITING
2867	ACQ COAGUL FACTOR DEFIC	77933	NB OTHER VOMITING
2874	SECOND THROMBOCYTOPENIA#	77934	NB FAILURE TO THRIVE
28866	BANDEMIA	78072	FUNCTIONAL QUADRIPLÉGIA
28982	SEC HYPERCOAGULABLE ST	782	SKIN/OTH INTEGUMENT SYMP*
28984	HEPARIN-INDU THROMBOCYTO	78451	DYSARTHRIA
32702	INSOMNIA DT MENTAL DISOR	78459	SPEECH DISTURBANCE NEC
32715	HYPERSOM DT MENTAL DISOR	78951	MALIGNANT ASCITES

78959	ASCITES NEC	V1053	HX MALIG RENAL PELVIS
7897	COLIC	V1053	HX MALIG RENAL PELVIS
79510	ABN GLAND PAP SMR VAGINA	V1090	HX MALIG NEOPLASM NOS
79511	PAP SMEAR VAG W ASC-US	V1091	HX MALIG NEUROENDO TUMOR
79512	PAP SMEAR VAGINA W ASC-H	V1359	HX MUSCULOSKLETL DIS NEC
79513	PAP SMEAR VAGINA W LGSIL	V4511	RENAL DIALYSIS STATUS
79514	PAP SMEAR VAGINA W HGSIL	V4512	NONCMPLNT W RENAL DIALYS

Appendix C – Miscellaneous Hemorrhage or Hematoma-related Procedure Codes as of December 2012

0121	CRANIAL SINUS I & D	2109	EPISTAXIS CONTROL NEC
0124	OTHER CRANIOTOMY	211	INCISION OF NOSE
0131	INCISE CEREBRAL MENINGES	2121	RHINOSCOPY
0139	OTHER BRAIN INCISION	2219	NASAL SINUS DX PROC NEC
0213	MENINGE VESSEL LIGATION	2239	EXT MAXILLARY ANTROT NEC
0239	VENT SHUNT EXTRACRAN NEC	2241	FRONTAL SINUSOTOMY
0241	IRRIGATE/EXPL VENT SHUNT	2251	ETHMOIDOTOMY
0309	SPINAL CANAL EXPLOR NEC	2252	SPHENOIDOTOMY
0401	EXCISION ACOUSTIC NEUROMA	260	INCIS SALIVARY GLND/DUCT
0404	PERIPH NERVE INCIS NEC	270	DRAIN FACE & MOUTH FLOOR
0443	CARPAL TUNNEL RELEASE	280	PERITONSILLAR I & D
0444	TARSAL TUNNEL RELEASE	2911	PHARYNGOSCOPY
0602	REOPEN THYROID FIELD WND	313	INCIS LARYNX TRACHEA NEC
0609	INCIS THYROID FIELD NEC	3141	TRACHEOSCOPY THRU STOMA
0692	THYROID VESSEL LIGATION	3142	LARYGNOSCOPY/TRACHEOSCOPY
0700	ADRENAL EXPLORATION NOS	330	INCISION OF BRONCHUS
0701	UNILAT ADRENAL EXPLORAT	331	INCISION OF LUNG
0702	BILAT ADRENAL EXPLORAT	3322	FIBER-OPTIC BRONCHOSCOPY
0741	ADRENAL INCISION	3323	OTHER BRONCHOSCOPY
0743	ADRENAL VESSEL LIGATION	3324	CLOSED BRONCHIAL BIOPSY
0751	PINEAL FIELD EXPLORATION	3402	EXPLORATORY THORACOTOMY
0752	PINEAL GLAND INCISION	3403	REOPEN THORACOTOMY SITE
0771	PITUITARY FOSSA EXPLORAT	3409	OTHER PLEURAL INCISION
0772	PITUITARY GLAND INCISION	341	INCISION OF MEDIASTINUM
0791	THYMUS FIELD EXPLORATION	3421	TRANSPLEURA THORACOSCOPY
0792	OTHER INCISION OF THYMUS	3422	MEDIASTINOSCOPY
0795	THORAC INCISION THYMUS	3582	TOTAL REPAIR OF TAPVC
0809	OTHER EYELID INCISION	3639	OTH HEART REVASCULAR
090	LACRIMAL GLAND INCISION	3699	HEART VESSEL OP NEC
0953	LACRIMAL SAC INCISION	370	PERICARDIOCENTESIS
1244	EXCISE CILIARY BODY LES	3711	CARDIOTOMY
1289	SCLERAL OPERATION NEC	3799	OTHER HEART/PERICARD OPS
149	OTHER POST SEGMENT OPS	3800	INCISION OF VESSEL NOS
1609	ORBITOTOMY NEC	3801	INTRACRAN VESSEL INCIS
1802	EXT AUDITORY CANAL INCIS	3802	HEAD/NECK VES INCIS NEC
1809	EXTERNAL EAR INCIS NEC	3803	UPPER LIMB VESSEL INCIS
1811	OTOSCOPY	3804	INCISION OF AORTA
2001	MYRINGOTOMY W INTUBATION	3805	THORACIC VESSEL INC NEC
2009	MYRINGOTOMY NEC	3806	ABDOMEN ARTERY INCISION
2021	MASTOID INCISION	3807	ABDOMINAL VEIN INCISION
2022	PETRUS PYRAM AIR CEL INC	3808	LOWER LIMB ARTERY INCIS
2023	MIDDLE EAR INCISION	3809	LOWER LIMB VEIN INCISION
2079	INC/EXC/DESTR IN EAR NEC	3850	VARICOSE V LIG-STRIP NOS
2100	CONTROL OF EPISTAXIS NOS	3851	INTCRAN VAR V LIG-STRIP
2101	ANT NASAL PACK FOR EPIST	3852	HEAD/NECK VAR V LIG-STR
2102	POST NASAL PAC FOR EPIST	3853	ARM VARICOSE V LIG-STRIP
2103	CAUTERY TO STOP EPISTAX	3855	THORAC VAR V LIG-STRIP
2104	ETHMOID ART LIGAT-EPIST	3857	ABD VARICOS V LIGA-STRIP
2105	MAX ART LIG FOR EPISTAX	3859	LEG VARICOS V LIGA-STRIP
2106	EXT CAROT ART LIG-EPIST	387	INTERRUPTION VENA CAVA
2107	NASAL SEPT GRFT-EPISTAX	3930	SUTURE OF VESSEL NOS

AHRQ Quality Indicators™**Pediatric Quality Indicators (PDI), Log of ICD-9-CM and DRG Coding Updates and Revisions to PDI Documentation and Software**

3931	SUTURE OF ARTERY	5184	ENDOSC DILATION AMPULLA
3932	SUTURE OF VEIN	5188	ENDOSC REMOVE BILE STONE
3952	ANEURYSM REPAIR NEC	5196	PERC EXTRAC COM DUC CALC
3953	ARTERIOVEN FISTULA REP	5198	OTH PERC PROC BIL TRCT
3972	ENDOVASC EMBOL HD/NK VES	5209	PANCREATOTOMY NEC
3979	OTH ENDO PROC OTH VESSEL	5213	ENDOSC RETRO PANCREATOG
398	CARTD BODY/SINUS/VASC OP#	5411	EXPLORATORY LAPAROTOMY
400	INCIS LYMPHATIC STRUCTUR	5419	LAPAROTOMY NEC
412	SPLENOTOMY	5421	LAPAROSCOPY
4209	ESOPHAGEAL INCISION NEC	5495	PERITONEAL INCISION
4221	ESOPHAGOSCOPY BY INCIS	5501	NEPHROTOMY
4222	ESOPHAGOSCOPY THRU STOMA	5511	PYELOTOMY
4223	ESOPHAGOSCOPY NEC	5521	NEPHROSCOPY
4233	ENDOSC DESTRUC ESOPH LES	5522	PYELOSCOPY
4239	DESTRUCT ESOPHAG LES NEC	562	URETEROTOMY
4291	LIGATION ESOPH VARIX	5631	URETEROSCOPY
430	GASTROTOMY	5719	CYSTOTOMY NEC
4341	ENDOSC DESTR STOMACH LES	5731	CYSTOSCOPY THRU STOMA
4411	TRANSABDOMIN GASTROSCOPY	5732	CYSTOSCOPY NEC
4412	GASTROSCOPY THRU STOMA	580	URETHROTOMY
4413	GASTROSCOPY NEC	5822	URETHROSCOPY NEC
4440	SUTURE PEPTIC ULCER NOS	5909	PERIREN/URETER INCIS NEC
4441	SUT GASTRIC ULCER SITE	600	INCISION OF PROSTATE
4442	SUTURE DUODEN ULCER SITE	6081	PERIPROSTATIC INCISION
4443	ENDOSC CONTROL GAST HEM	620	INCISION OF TESTES
4444	TRANSCATH EMBO GAST HEM	631	EXC SPERMATIC VARICOCELE
4449	OTHER CONTROL GAST HEM	636	VASOTOMY
4491	LIGATE GASTRIC VARICES	6372	SPERMATIC CORD LIGATION
4500	INTESTINAL INCISION NOS	6392	EPIDIDYMYOTOMY
4501	DUODENAL INCISION	6393	SPERMATIC CORD INCISION
4502	SMALL BOWEL INCISION NEC	6492	INCISION OF PENIS
4503	LARGE BOWEL INCISION	6501	LAPAROSCOPIC OOPHOROTOMY
4511	TRANSAB SM BOWEL ENDOSC	6509	OTHER OOPHOROTOMY
4512	ENDOSC SM BOWEL THRU ST	6601	SALPINGOTOMY
4513	SM BOWEL ENDOSCOPY NEC	680	HYSTEROTOMY
4516	EGD WITH CLOSED BIOPSY	6811	DIGITAL EXAM OF UTERUS
4521	TRANSAB LG BOWEL ENDOSC	6812	HYSTEROSCOPY
4522	ENDOSC LG BOWEL THRU ST	6995	INCISION OF CERVIX
4523	COLONOSCOPY	700	CULDOCENTESIS
4524	FLEXIBLE SIGMOIDOSCOPY	7012	CULDOTOMY
4543	ENDOSC DESTRU LG INT LES	7021	VAGINOSCOPY
4549	DESTRUC LG BOWEL LES NEC	7022	CULDOSCOPY
480	PROCTOTOMY	757	MANUAL EXPLOR UTERUS P/P
4822	PROCTOSIGMOIDOSC THRU ST	7710	OTHER BONE INCISION NOS
4823	RIGID PROCTOSIGMOIDOSCPY	8010	OTHER ARTHROTOMY NOS
4921	ANOSCOPY	8201	EXPLOR TEND SHEATH-HAND
4945	HEMORRHOID LIGATION	8202	MYOTOMY OF HAND
500	HEPATOTOMY	8203	BURSOTOMY OF HAND
5110	ENDOSC RETRO CHOLANGIOPA	8204	I & D PALMAR/THENAR SPAC
5111	ENDOSC RETRO CHOLANGIO	8209	INC SOFT TISSUE HAND NEC
5141	CDE FOR CALCULUS REMOV	8301	TENDON SHEATH EXPLORAT
5142	CDE FOR OBSTRUCTION NEC	8302	MYOTOMY
5149	INCIS OBSTR BILE DUC NEC	8303	BURSOTOMY
5151	COMMON DUCT EXPLORATION	8309	SOFT TISSUE INCISION NEC
5159	BILE DUCT INCISION NEC	850	MASTOTOMY

8603 INCISION PILONIDAL SINUS
8609 SKIN & SUBQ INCISION NEC
9621 DILAT FRONTAL NASAL DUCT

9925 INJECT CA CHEMOTHER NEC
9929 INJECT/INFUSE NEC



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Overview

This document describes the empirical methods used to calculate the AHRQ Quality Indicators™ (AHRQ QI). The QI measure health care quality and can be used to highlight potential quality concerns, identify areas that need further study and investigation, and track changes over time. The QIs are calculated using software that is freely available at www.qualityindicators.ahrq.gov

The current AHRQ QI modules represent various aspects of quality:

- Prevention Quality Indicators (PQI) identify hospital admissions in geographic areas that evidence suggests might have been avoided through access to high-quality outpatient care. (first released November 2000, last updated May 2013)
- Inpatient Quality Indicators (IQI) reflect quality of care inside hospitals, as well as across geographic areas, including inpatient mortality for medical conditions and surgical procedures. (first released May 2002, last updated May 2013)
- Patient Safety Indicators (PSI) reflect quality of care inside hospitals, as well as geographic areas, to focus on potentially avoidable complications and iatrogenic events. (first released March 2003, last updated May 2013)
- Pediatric Quality Indicators (PDI) use indicators from the other three modules with adaptations for use among children and neonates to reflect quality of care inside hospitals, as well as geographic areas, and identify potentially avoidable hospitalizations. (first released April 2006, last updated May 2013)

The input data for QI calculation consist of discharge-level administrative records from inpatient hospital stays; this document often refers to them as **discharge records**. Each indicator can be described as giving results at either the **provider-level** (i.e., Did the patient experience an adverse quality-related event while in the healthcare provider's facility?) or **area-level** (Was the inpatient admission for a condition that might have been avoided if the patient's area of the country had more or better preventive or outpatient care?). Some indicators report the number of times a hospital performed a medical **procedure of interest**. These **volume indicators** do not have denominators. Most of the AHRQ QI are ratios where the **numerator** is a count of hospitalizations with the condition or outcome of interest and the **denominator** is an estimate of the population (or hospitalizations) at risk for that outcome. The QI software calculates several rates:

Observed rate – Conceptually, provider-level rates are the number of discharge records where the patient experienced the QI adverse event divided by the number of discharge records at risk for the event; area-level rates are the number of hospitalizations for the condition of interest divided by the number of persons who live in that area who are at risk for the condition.

1. **Expected rate** – A comparative rate that incorporates information about a **reference population** that is not part of the user's input dataset – what rate would be observed if the expected level of care observed in the reference population and estimated with risk

adjustment regression models, were applied to the mix of patients with demographic and comorbidity distributions observed in the user's dataset? The expected rate is calculated only for risk-adjusted indicators. [Chapter 4](#) describes the QI reference population.

2. **Risk-adjusted rate** – A comparative rate that also incorporates information about a **reference population** that is not part of the input dataset – what rate would be observed if the level of care observed in the user's dataset were applied to a mix of patients with demographics and comorbidities distributed like the reference population? [Appendix A](#) lists which QIs are risk-adjusted.
3. **Smoothed rate** – A weighted average of the risk-adjusted rate from the user's input dataset and the rate observed in the **reference population**; the smoothed rate is calculated with a shrinkage estimator to result in a rate near that from the user's dataset if the provider's (or area's) rate is estimated in a stable fashion with minimal noise, or to result in a rate near that of the reference population if the rate from the input dataset is unstable and based on noisy data. In practice, the smoothed rate brings rates toward the mean, and does this more so for outliers (such as rural hospitals).

In data collected beginning October 1, 2007, each diagnosis code may be accompanied by a data element that indicates whether the diagnosed condition was **Present-on-Admission (POA)**, and is therefore a pre-existing **comorbidity**, or whether the condition developed during the hospitalization of interest and is therefore a **complication**. Some datasets include POA data, while others do not. Some datasets have POA data for many, but not all of the discharge records. POA is handled in different ways in the QI software depending on a) whether POA data are present in the discharge record and b) whether the user specifies that the software should use the POA data elements when calculating QI rates, or ignore the POA data elements.

This document begins with a brief description of the dataset that a user must assemble to run the QI software and then it describes the methods associated with various types of indicators. Simpler indicators are described first. Volume indicators are the simplest of the QI. Area-level indicators are described next, along with their several possible denominators, and the method used to risk adjust them. Building in complexity, the document describes the calculation of provider-level indicators, where the denominator is tailored to the indicator and the QI may be affected by the POA data element, and how the software accounts for missing POA data. Composite indicators are described next and then the document finishes with a description of the methods used to maintain the QI software – specifically the calculations performed to update the reference population and to update denominator data.

Other Helpful Documents

Readers may wish to access additional QI-related documentation. Helpful examples include:

QI Software Instructions

SAS: See <http://www.qualityindicators.ahrq.gov/software/SAS.aspx>

WinQI: See <http://www.qualityindicators.ahrq.gov/Software/WinQI.aspx>

QI Technical Specifications

PQI: See http://www.qualityindicators.ahrq.gov/Modules/PQI_TechSpec.aspx

IQI: See http://www.qualityindicators.ahrq.gov/Modules/IQI_TechSpec.aspx

PSI: See http://www.qualityindicators.ahrq.gov/Modules/PSI_TechSpec.aspx

PDI: See http://www.qualityindicators.ahrq.gov/Modules/PDI_TechSpec.aspx

QI Risk-adjustment Coefficient Tables

PQI: See http://www.qualityindicators.ahrq.gov/modules/pqi_resources.aspx

IQI: See http://www.qualityindicators.ahrq.gov/modules/iqi_resources.aspx

PSI: See http://www.qualityindicators.ahrq.gov/modules/psi_resources.aspx

PDI: See http://www.qualityindicators.ahrq.gov/modules/pdi_resources.aspx

QI Population Documentation File

See <http://www.qualityindicators.ahrq.gov/software/SAS.aspx>

QI Prediction Module Testing Report

See <http://www.qualityindicators.ahrq.gov/Modules/Default.aspx>

Healthcare Cost and Utilization Project (HCUP) State Inpatient Database (SID) Documentation
(to better understand the source of the reference population)

See <http://www.hcup-us.ahrq.gov/db/state/siddbdocumentation.jsp>

Chapter 1. The User's Dataset

An AHRQ QI software user should prepare the input dataset according to the software instructions.

Table 1.1 Required Data Elements

Data Element	Label	PQI	IQI	PSI	PDI
AGE	Age in years at admission	X	X	X	X
AGEDAY	Age in days (when age < 1 year)				X
ASCHED	Admission scheduled vs. unscheduled			X	X
ASOURCE	Admission source (uniform)	X	X	X	X
ATYPE	Admission type			X	X
DISPUNIFORM	Disposition of patient (uniform)		X	X	X
DQTR	Discharge quarter	X	X	X	X
DRG	DRG in effect on discharge date	X	X	X	X
DRGVER	DRG grouper version used on discharge date	X	X	X	X
DSHOSPID	Data source hospital identifier		X	X	X
DX1-DX30	Diagnosis	X	X	X	X
DXPOA1-DXPOA30	Diagnosis present on admission indicator		X	X	X
E_POA1-E_POA10	E code present on admission indicator		X	X	X
ECODE1-ECODE10	E code		X	X	X
HOSPST	Hospital state postal code		X	X	X
KEY	HCUP record identifier	X	X	X	X
LOS	Length of stay (cleaned)		X	X	X
MDC	MDC in effect on discharge date	X	X	X	X
PAY1	Primary expected payer (uniform)		X	X	X
PAY2	Secondary expected payer (uniform)		X	X	X
POINTOFORIGINUB04	Point of origin for admission or visit, UB-04 standard coding	X	X	X	X
PR1-PR30	Procedure	X	X	X	X
PRDAY1-PRDAY30	Number of days from admission			X	X
PSTCO	Patient state/county FIPS code	X	X	X	X
PSTCO2	Patient state/county FIPS code, possibly derived from ZIP Code	X	X	X	X
RACE	Race (uniform)	X	X	X	X
SEX	Sex	X	X	X	
YEAR	Calendar year	X	X	X	X

Note: The AHRQ QI software deletes discharge records with missing values for SEX.

In preparing a dataset for analysis, data elements and data values shown in the right side of Table 1.2 are constructed from the discharge data elements.

Table 1.2 Data Elements and Data Values To Be Constructed by the User

DISCHARGE DATA (e.g., SID)		AHRQ QI	
Data Element	Data Value	Data Element	Data Value
FEMALE	0 – Male 1 – Female	SEX	1 – Male 2 – Female
ATYPE, ASCHED and AGEDAY	IF ATYPE = Missing AND ASCHED = 1 (Scheduled admission) AND AGEDAY ~= 0	ATYPE	3- Elective
ECODE1-ECODE10	As reported	DX31-DX40	As reported
E_POA1-E_POA10	As reported	DXPOA31-DXPOA40	As reported

Discharge records in the dataset are analyzed as either adult or pediatric data based on age and Major Diagnostic Category (MDC) (Table 1.3). Discharges in MDC 14 (Pregnancy, Childbirth & the Puerperium) are assigned to the adult analysis data regardless of age.

Table 1.3 Analysis Data Inclusion Rule

Analysis data	Inclusion Rule
Adult	AGE greater than or equal to 18 or MDC equal to 14
Pediatric	AGE less than 18 and MDC not equal to 14

Adult analysis data are used to calculate Prevention Quality Indicators (PQI), Inpatient Quality Indicators (IQI), and Patient Safety Indicators (PSI). Pediatric records are used to calculate Pediatric Quality Indicators (PDI), Neonatal Quality Indicators (NQI) and indicators from other modules defined on pediatric discharges (i.e., PQI #9 Low Birth Weight Rate, PSI #17 Birth Trauma Rate – Injury to Neonate).

Chapter 2. Calculating Volume and Count Indicators

Table 2.1 lists the seven **volume indicators** for inpatient procedures for which there is evidence that a higher volume of procedures conducted by a provider is associated with lower mortality. The volume indicators are measured as counts of hospitalizations in which particular procedures were performed.

Table 2.1 AHRQ QI Volume Indicators

Name
IQI #1 – Esophageal Resection Volume*
IQI #2 – Pancreatic Resection Volume*
IQI #4 – Abdominal Aortic Aneurysm (AAA) Repair Volume*
IQI #5 – Coronary Artery Bypass Graft (CABG) Volume
IQI #6 – Percutaneous Coronary Intervention (PCI) Volume
IQI #7 – Carotid Endarterectomy Volume
PDI #7 – RACHS-1 Pediatric Heart Surgery Volume

*IQI 1, IQI 2 and IQI 4 are intended to be reported with IQI 8 IQI 9 and IQI 11, respectively.

Table 2.2 lists the four **count indicators** for serious reportable events.

Table 2.2 AHRQ QI Count Indicators

Name
PSI #15 – Retained Surgical Item or Unretrieved Device Fragment Count
PSI #16 – Transfusion Reaction Count
PDI #3 – Retained Surgical Item or Unretrieved Device Fragment Count
PDI #13 – Transfusion Reaction Count

Discharge Level Indicator Data Element (T)

The phrases **numerator** and **denominator** appear throughout the QI documentation. There are no denominators for volume or count indicators. The quantity of interest at the provider level is the magnitude of the number of times the procedure or the event occurs, and that number is not normalized by or divided by any denominator. The technical specifications do, however, use the phrase “numerator” to define the procedure of interest. Discharge records are flagged for inclusion or exclusion from the numerator of each volume QI based on the data elements, data values, and logic described in the technical specifications for each indicator.

For each discharge record, a binary flag variable is calculated by the software for each volume or count QI. In this document, we denote the discharge level indicator data element with the letter T. Each discharge record has a T variable for each QI, so in the software the data elements have longer names to clarify which QI they describe. (e.g., The variable for IQI #1 is called TPIQ01.)

Numerator

Discharges are flagged for inclusion in the numerator of each volume QI according to the specification for the **procedure of interest** (for volume indicators) or **outcome of interest** (for count indicators). Discharges flagged for inclusion in the numerator are assigned a value of “1” for T.

Exclusions

The specifications often stipulate that records should be excluded from calculation of a volume indicator if the record is missing an important data element. Discharges are also excluded from the numerator of a volume QI if the procedure of interest has more than one component, and the discharge is not in the population at risk for one component but remains in the population at risk for another component. These discharges are assigned a value of “0” for T.

The Observed Value

The observed provider-level value of a volume or count indicator is simply the sum of T over all records for that provider in the dataset.

Chapter 3. Calculating Area-Level Indicators – Observed Rates

Area-level indicators identify hospital admissions that evidence suggests might have been avoided through access to high-quality outpatient or preventive care. The numerator is a count of admissions for the condition of interest. The denominator is an estimate of the number of persons at risk for such a hospitalization. The denominator is usually a population estimate from a U.S. Census Bureau dataset.

Table 3.1 lists the area level indicators.

Table 3.1 AHRQ QI Area-Level Indicators

Name
IQI #26 – Coronary Artery Bypass Graft (CABG) Rate
IQI #27 – Percutaneous Coronary Intervention (PCI) Rate
IQI #28 – Hysterectomy Rate
IQI #29 – Laminectomy or Spinal Fusion Rate
PDI #14 – Asthma Admission Rate
PDI #15 – Diabetes Short-Term Complications Admission Rate
PDI #16 – Gastroenteritis Admission Rate
PDI #17 – Perforated Appendix Admission Rate
PDI #18 – Urinary Tract Infection Admission Rate
PQI #1 – Diabetes Short-Term Complications Admission Rate
PQI #2 – Perforated Appendix Admission Rate
PQI #3 – Diabetes Long-Term Complications Admission Rate
PQI #5 – Chronic Obstructive Pulmonary Disease (COPD) or Asthma in Older Adults Admission Rate
PQI #7 – Hypertension Admission Rate
PQI #8 – Heart Failure Admission Rate
PQI #9 – Low Birth Weight Rate
PQI #10 – Dehydration Admission Rate
PQI #11 – Bacterial Pneumonia Admission Rate
PQI #12 – Urinary Tract Infection Admission Rate
PQI #13 – Angina Without Procedure Admission Rate
PQI #14 – Uncontrolled Diabetes Admission Rate
PQI #15 – Asthma in Younger Adults Admission Rate
PQI #16 – Lower-Extremity Amputation Among Patients With Diabetes Rate

The software provides the user with the option of producing output by metropolitan area or by county. The term **metropolitan area (MA)** was adopted by the U.S. Census in 1990 and referred collectively to metropolitan statistical areas (MSAs), consolidated metropolitan statistical areas (CMSAs), and primary metropolitan statistical areas (PMSAs). In addition, “area” could refer to

either 1) FIPS county, 2) modified FIPS county, 3) 1999 OMB Metropolitan Statistical Area, or 4) 2003 OMB Metropolitan Statistical Area. As an aside, Micropolitan Statistical Areas are not used in the QI software.

For information about how the denominators are calculated from Census data, see the QI Population Documentation File at <http://www.qualityindicators.ahrq.gov/software/SAS.aspx>.

For diabetes-related area measures, the QI software user has an option of calculating rates where the denominator is an estimate of the number of persons living in the state who have diabetes. For information on how those **condition-specific denominators** are estimated, see [Chapter 3](#). The diabetes indicators are PQI #1 Diabetes Short-Term Complications Admission Rate, PQI #3 Diabetes Long-Term Complications Admission Rate, PQI #14 Uncontrolled Diabetes Admission Rate, and PQI #16 Lower-Extremity Amputation among Patients with Diabetes Rate. [Chapter 13](#) describes how the diabetes denominators are estimated.

Future versions of the QI software may include other condition-specific denominator options.

Discharge Level Indicator Data Element (T)

Numerator

Discharges are flagged for inclusion in the numerator of each area-level QI according to the specification for the condition of interest. Discharges flagged for inclusion in the numerator are assigned a value of “1” for T.

Exclusions

Generally, discharges may be flagged for exclusion from the numerator of an area-level AHRQ QI for one (or more) of several reasons.

1. The outcome of interest is very difficult to prevent, and therefore not an indication of substandard care.
2. The patient was transferred from another health care facility.
3. Some exclusion criteria are included for the purpose of enhancing face validity with clinicians.
4. Some exclusion criteria are an inherent part of the QI definition.

Discharge records that meet one or more of the exclusion criteria in the QI technical specification are assigned a value of “missing (.)” for T.

The Observed Rate

The observed rate of an area-level indicator is simply the sum of T over all records for that area of the country divided by the Census population estimate for the area (adult population for adult measures and child population for pediatric measures). For condition-specific indicators, if the

user requests it, the denominator is the estimated count of persons living in that area of the country who are living with the condition of interest.

Area Rates Stratified by Quarter of the Year

The WinQI software has an option to stratify area-level rates by quarter of the year in which they occurred. When the user selects that option, the rate reported for each quarter is the number of admissions for the condition of interest that occurred during that quarter, divided by the Census population for the area divided by four. The four quarterly rates sum to the annual rate.

Chapter 4. Risk Adjustment for Area-Level Indicators

In order to make meaningful comparisons of the area-level rate for one area with that of another area, it is helpful to account statistically for differences in demographics between areas. To do so for most QIs, the software calculates a **risk-adjusted rate** which answers the question: What QI rate would we expect to observe in a particular area of the country if the persons living there shared the same demographic profile of a reference population? In statistical language, the risk-adjustment **controls for demographic differences** via logistic regression.

For area rates, the risk-adjustment models adjust for age-group proportions by gender, and optionally for poverty. That is to say that the models include age (in 5 year groups), gender, and if it is statistically significant, the model includes the interaction between age and gender.

When comparing outcomes from different areas, there may be several reasons for differences in risk-adjusted rates. Some of the most important reasons may be related to the availability of quality preventive and outpatient care, and other reasons may contribute as well, but after risk-adjustment, the differences should not be attributable to differences in the age and gender profiles in the areas.

The AHRQ QI Reference Population

To accomplish risk adjustment, in annual updates of the QI software a **reference population** is analyzed that consists of all HCUP SID data that are available for the year most recently released by AHRQ at the time the QI software is updated. For example when version 4.5 of the QI software was updated in January of 2013 for the May 2013 software release, SID data were available from 2010 from 44 states, so those records serve as the reference population for AHRQ QI software version 4.5.

INSERT text on HCUP data. I believe we have some boilerplate text in some of the other documents – Chris may remember where

For area-level indicators, the reference population plays two important roles:

1. The **reference population rate** for each QI is calculated and included in the software to serve as a comparative standard for areas of the country. One can analyze data to determine which areas have higher or lower rates than the overall reference population. The reference population rates are published on the AHRQ QI website in documents named Benchmark Tables (formerly known as Comparative Data Tables). See the [links](#) in the Overview chapter of this document.
2. The **risk adjustment models** are re-estimated on the new reference population dataset in an annual process that is described in [Chapter 12](#) of this document. The models are distributed within the QI software, and they facilitate the calculation of risk-adjusted rates. The risk adjustment model covariates and regression coefficients are published on the AHRQ website. See the [links](#) in the Overview chapter of this document.

Chapter 5. Calculating Area-Level Indicators – Expected, Risk-Adjusted, & Smoothed Rates

In addition to observed rates, three other sets of QI rates are calculated for risk-adjusted area-level indicators.

The Expected Rate

The **expected rate** for an area-level QI is the rate that would be observed if the amount and quality of outpatient and preventive care available across the reference population were available to persons living in this specific area. It is predicted for each area using risk-adjustment model coefficients and covariates that summarize the age and gender distribution of the area's population.

The Risk-Adjusted Rate

The AHRQ QI use indirect standardization to calculate the risk-adjusted rate. The risk-adjusted rate equals the reference population rate multiplied by the ratio of observed rate divided by expected rate.

$$\text{Risk Adjusted Rate} = \text{Reference Population Rate} \times (\text{Observed Rate} / \text{Expected Rate})$$

Note that for the reference population, the observed rate equals the expected rate equals the reference population rate equals the risk-adjusted rate.

The software estimates the standard error of the risk adjusted rate for each area using a method recommended by Iezzoni and described by Hosmer and Lemeshow (1995) that represents the amount of within provider or area variance due to sampling (i.e. as the number of patients per provider or persons per area increases this variance tends to zero). This standard error is used to calculate lower and upper bound 95% confidence intervals around the risk adjusted rate as [risk adjusted rate +/- 1.96 * risk adjusted rate SE] (stored in a data element with a “L” and “U” prefix). (See [Chapter 10](#) section entitled: Computing the Risk-Adjusted Rate Variance. See also http://qualityindicators.ahrq.gov/Downloads/Resources/Publications/2011/Calculating_Confidence_Intervals_for_the_AHRQ_QI.pdf)

The Smoothed Rate

Each area's **smoothed rate** is a weighted average of the risk-adjusted rate and the reference population rate; the smoothed rate is calculated with an empirical Bayes shrinkage estimator to result in a rate near that from the input dataset if the area's rate is estimated in a stable fashion with minimal noise, or to result in a rate near that of the reference population if the rate from the area is unstable and based on noisy data. Thus, the smoothed rate for a hospital with stable estimates will be similar to the hospital's risk adjusted rate, while the smoothed rate for a hospital with unstable estimates will be more similar to the reference population rate.

The formula for the smoothed rate is:

$$\text{Smoothed Rate} = (\text{Risk Adjusted Rate} \times \text{Shrinkage Weight}) + \text{Reference Population Rate} * (1 - \text{Shrinkage Weight})$$

where

$$\text{Shrinkage Weight} = \frac{\text{Signal Variance}}{\text{Signal Variance} + \text{Noise Variance}}$$

The noise variance is an estimate of variability in the QI outcome within the area of interest (county), and the signal variance is an estimate of variability across all areas.

$$\begin{aligned} \text{Noise Variance } \hat{\sigma}_a^2 &= \left(\frac{\bar{Y}}{n_a E_a} \right)^2 \sum_{i \in A_a} \hat{Y}_i (1 - \hat{Y}_i) \\ \text{Signal Variance } \hat{\tau}^2 &= \frac{1}{A} \sum_{a=1}^A \frac{1}{(\sigma_a^2)^2} \sum_{a=1}^A \frac{1}{(\hat{\tau}^2 + \sigma_a^2)^2} \{ (RAR_a - \overline{RAR})^2 - \hat{\sigma}_a^2 \} \end{aligned}$$

where A is the number of areas with persons at risk for the measure, \bar{Y} is the observed rate for the reference population; \hat{Y}_i is the person-level predicted probability for area i ; and for area a , A_a is the collection of persons in the population at risk, n_a is the number of persons, E_a is the expected rate, and RAR_a is the risk-adjusted rate. Note that $\hat{\tau}^2$ appears on both sides of the signal variance equation; it is estimated in an iterative fashion.

For purposes of confidence interval estimation, the *smoothed rate* is assumed to follow a Gamma distribution $G(shape, scale)$ where

$$\begin{aligned} shape &= \frac{(\text{Smoothed Rate})^2}{\text{Posterior Variance}} \\ scale &= \frac{\text{Posterior Variance}}{\text{Smoothed Rate}} \end{aligned}$$

$$\text{Posterior Variance} = \text{Signal Variance} - (\text{Shrinkage Weight} * \text{Signal Variance})$$

When there is a fixed comparative rate of interest, it is possible to parameterize the smoothed rate posterior probability based on the Gamma distribution and calculate the probability that the smoothed area rate falls below or above the comparative rate that is of interest.

Chapter 6. Overview of Provider-Level QI & Present-on-Admission (POA)

Provider-level indicators address questions like: Did the patient experience an adverse quality-related event while in the care of a specific healthcare provider? Or did the patient have an inpatient procedure for which there are questions of overuse, underuse, or misuse?

Adverse-event indicators are for medical conditions and procedures that have been shown to have complication/adverse event rates that vary substantially across institutions and for which evidence suggests that high rates may be associated with deficiencies in the quality of care. They usually include only those cases where a secondary diagnosis code flags a potentially preventable complication. A few indicators are based on procedure codes that imply a potential preventable adverse event.

Mortality indicators are for medical conditions and surgical procedures that have been shown to have mortality rates that vary substantially across institutions and for which evidence suggests that high mortality may be associated with deficiencies in the quality of care.

Utilization indicators track procedures where there are questions of overuse, underuse, or misuse. The usage of the procedures being examined varies significantly across hospitals and areas, and high or low rates by themselves do not represent poor quality of care; rather the information is intended to inform consumers about local practice patterns.

Provider-level indicators are measured as rates—number of hospitalizations with the outcome (or procedure) of interest divided by the population at risk for the outcome (or procedure). Recall that area-level indicators each use the same denominator for each area – the Census-derived estimate of the count of persons who live in the area. Provider-level indicators are more complicated because they have **indicator-specific denominators**, to identify only the hospitalizations that were at risk for the outcome of interest.

Recall that area-level indicators all use similar risk-adjustment coefficients: age-groups by gender. But the risk-adjustment models for provider-level measures are more complicated. Each risk-adjusted provider-level indicator uses a customized list of regression covariates that are selected when the QI software is updated annually using methods described in [Chapter 12](#).

Present-on-Admission (POA) status is a third factor that makes provider-level indicators more complex than volume or area-level indicators. Current AHRQ QI that use POA are listed in [Appendix A](#). Some of the indicators look for adverse conditions that develop as **medical complications** during the hospitalization of interest. Evidence suggests that high rates may be associated with lower quality of care. Think, for instance, of pressure ulcers, which are measured with PSI #3. However, some of these complications may have been present on admission, which would not be related to the quality of inpatient care. The AHRQ QI software uses three methods to distinguish between **complications**, which develop during the hospitalization and should be counted in the QI numerator, and **comorbidities**, which are present on admission and should exclude the discharge record from the QI calculation, because the patient is not at risk for the

event. Table 6.1 summarizes those methods, and they are described in more detail in the following chapters, and in [Appendix C](#).

Table 6.1 Methods Used by QI Software to Distinguish Complications from Comorbidities

Method	Description	Can the QI User Turn This Off?
1. The POA-Related Exclusion Method (See Chapter 7 .)	Some QIs use data elements other than DX_POA to infer that the condition is more likely than not to be POA. Those records are excluded from the population at risk.	No. The WinQI software does not allow modifications to the exclusion criteria. However, the SAS software can be altered by the User, noting that the User should document any modifications to the program.
2. DX_POA Data Element (See Chapter 8 .)	If the diagnosis is flagged as POA using the DX_POA data element, then the record is excluded from the population of interest.	Yes. The user can specify %LET USEPOA = 0; in the CONTROL.SAS program or un-check the WinQI box entitled “Use POA in rate calculation”, either of which will cause the software to ignore DX_POA data that are present in the dataset. Every potential complication will be flagged as an adverse event, and if it does not meet any of the exclusion criteria, it will contribute to the QI numerator. For the purposes of risk-adjustment, a set of coefficients will be employed that were estimated ignoring POA; all complications will be treated as comorbidities.

<p>3. Model the effect of missing data when DX_POA is missing for a particular record, or for the entire dataset (See Chapter 9.)</p>	<p>Use a statistical model included with the QI software and updated annually using reference population data to estimate the probability that the outcome of interest is POA. Use that probability along with the other variables in the record to estimate the probability that the patient experienced the adverse event, conditional on the (possibly large or possibly small) probability that the event was <u>not</u> POA. See Chapter 9 and Appendix C.</p>	<p>Yes. The user can specify %LET USEPOA = 0; in the CONTROL.SAS program or un-check the WinQI box entitled “Use POA in rate calculation”, either of which will cause the software to skip modeling missing POA data.</p> <p>Alternatively, the user can provide complete POA data, so there is no missing data to be modeled. Note that for indicators where POA is a factor in the model, the predicted values are always calculated using the Prediction Module. If the user models the missing POA, then the downstream software uses predictions from the Markov Chain Monte Carlo simulation described in Chapter 9 and Appendix C. If the user ignores POA, then the downstream software uses predictions that the Prediction Module calculates using simple scalar multiplication of regression coefficients times covariate values.</p>
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POA Data Element - Background Information

Present-on -Admission was added as a data element to the uniform bill form (UB-04) effective October 1, 2007, and hospitals incurred a payment penalty for not including POA on Medicare records beginning October 1, 2008. Each of the several diagnoses in a discharge record can be flagged as “present at the time the order for inpatient admission occurs”¹ or not. This is accomplished with data element DX_POA_i which uses a one-character text code to characterize the POA status of the diagnosis in DX_i. Conditions that develop during an outpatient encounter, including treatment in an emergency department, are considered as present on admission. Most states have adopted POA in the discharge data submitted by hospitals to either the state department of health or the state hospital association.

¹ <http://www.cdc.gov/nchs/data/icd9/icdguide10.pdf>.

Table 6.2 lists the possible character values of the POA data elements (Y,N,U,W,E, or missing) along with corresponding numeric values (0 or 1) used in the AHRQ QI software. Additional information about the coding guidelines for POA can be found at:

www.cdc.gov/nchs/data/icd/icd9cm_guidelines_2011.pdf Again, current AHRQ QI that use POA are listed in [Appendix A](#).

Table 6.2 Values for the Present-on-Admission Data Element

ICD-9-CM Guidelines	Description	AHRQ QI POA Data Element	Description
Y - Yes	Diagnosis is present at the time of inpatient admission	1	Diagnosis present at admission
N – No	Diagnosis is not present at the time of inpatient admission	0	Diagnosis not present at admission
U - Unknown	Documentation is insufficient to determine if condition is present on admission	0	Diagnosis not present at admission
W – Clinically undetermined	Provider is unable to clinically determine whether condition was present on admission or not	1	Diagnosis present at admission
E - Unreported/Not used; Also includes UB-04 values previously coded as "1"	Exempt from POA reporting	1	Diagnosis present at admission

Source: http://www.cms.hhs.gov/HospitalAcqCond/05_Coding.asp#TopOfPage;
http://www.hcup-us.ahrq.gov/db/vars/siddistnote.jsp?var=e_poan.

An individual discharge record might include 20 or more diagnoses. For purposes of the AHRQ QI, the principal diagnosis is always assumed to be present on admission by definition, regardless of the coding of the POA data element in the principal field. Secondary diagnosis codes are considered present on admission if the POA data element is coded with a Y, W, E or 1. Secondary diagnosis codes are considered not present on admission if the POA data element is coded with a N, U or 0.

Chapter 7. Calculating Provider-Level Observed Rates – Ignoring POA

Provider-level QI calculations are simplest when POA is ignored altogether, so those calculations are described first. Later chapters describe what happens when POA data are present and accounted for, and how the calculations are performed when POA data are missing but modeled. The AHRQ QI software user may ignore the influence of DX_POA data, either present or missing, by specifying “%LET USEPOA = 0;” in the CONTROL.SAS file or by or un-checking the WinQI box entitled “Use POA in rate calculation”.

When ignoring POA, the main difference between area-level indicators and provider-level indicators is the way the denominator is calculated.

Discharge Level Indicator Data Element (T)

Each provider-level observed QI rate consists of a conceptually simple fraction where the denominator is the count of discharge records at risk and the numerator is the count of the records with the outcome of interest. This fraction is calculated using a single discharge level indicator data element, T, described in earlier chapters for volume and area-level indicators. In those earlier chapters, the T variable took on the value “1” if the discharge record met the definition for the numerator that is spelled out in the technical specifications. For volume and area-level indicators it does not matter whether the T variable takes the value “0” or “missing (.)” for other records, because the numerator is simply the count of records where T=1.

Provider-Level Denominator

Discharges are flagged for inclusion in the denominator of each AHRQ QI according to the specification for the **population at risk**. Discharges flagged for inclusion in the denominator are assigned a value of “0” for T unless the discharge also experienced the outcome of interest in which case the value of “1” is assigned. Discharges that experienced the outcome of interest are in the population at risk by definition.

Denominator Exclusions

Generally, discharges may be flagged for exclusion from the denominator of an AHRQ QI for one (or more) of several reasons.

1. The outcome of interest is more likely than not to be present on admission and conditions that are POA should not “count” as an adverse event.
2. The outcome of interest is very difficult to prevent, and therefore not an indication of substandard care.
3. The exclusion identifies populations who are at very low risk for the adverse event and who are excluded to keep from diluting the QI denominator.

4. Some exclusion criteria are included for the purpose of enhancing face validity with clinicians (e.g., exclude patients from being at risk of a pressure ulcer (PSI #3) if they have not been hospitalized for at least 5 days).
5. Some exclusion criteria are an inherent part of the QI definition (e.g., exclude persons from being at risk for a post-operative hip fracture if the hip repair is the only surgical procedure during the hospitalization).

Discharge records that meet one or more of the denominator exclusion criteria in the QI technical specification are assigned a value of “missing (.)” for T.

Three Values of T

To summarize:

- A “1” in the T variable means that the record was in the population at risk, experienced the outcome of interest, and was not excluded for any reason.
- A “0” in the T variable means the record was in the population at risk, did not experience the outcome of interest, and was not excluded for any reason.
- A “missing (.)” value for the T variable means that the record was not in the population of interest, either because it did not meet the denominator definition, or because it met one or more of the exclusion criteria.

The Observed Rate

For provider-level indicators, the observed rate is simply the arithmetic mean of the T variable over all of the provider’s discharge records.

Consequence of Ignoring POA Data

When POA data are ignored, the observed rate calculation will include records where the outcome of interest was indeed present on admission, and so will inflate the numerator, the denominator, and the observed rate, compared with an **unknown but true underlying rate** that excludes records from population at interest when the outcome was truly POA.

Chapter 8. Calculating Provider-Level Observed Rates – With Complete POA Data

Consideration of POA should improve the accuracy of QI rate calculation because pre-existing comorbidities can be distinguished from complications that develop during the hospital stay of interest. Records with outcomes that were POA will no longer appear erroneously in the numerator, denominator, or observed rate, and the risk adjustment models will no longer erroneously treat complications as comorbidities, thus yielding improvement in the comparative expected, risk-adjusted, and smoothed rates above and beyond that in the numerator, denominator, and observed rates.

The degree of improvement attained when accounting for POA will vary depending on the number of records where the outcomes were POA, and with the accuracy of POA coding. This document does not address the topic of POA accuracy. The QI software treats values in the DX_POA data elements as if they were completely accurate.

The QI calculation procedures are more complicated when some or all of the POA data are missing, so this chapter describes the calculations conducted when POA is present for every record. The following chapter addresses missing POA data.

Discharge Level POA Exclusion Data Element (Q)

When accounting for POA, the QI software codes the discharge level indicator data element, T, in the same manner described in [Chapter 7](#), using technical specifications to define which records are included in the denominator, numerator, and which should be excluded for one or more reasons. The meaning and possible values of T are described in [Chapter 7](#).

A second, POA-related binary flag is calculated, also. The **discharge level POA exclusion data element** is abbreviated with the letter Q.² Put simply, Q records whether the outcome of interest was present on admission or not. The outcome of interest is considered present on admission (Q is assigned “1”) if any of the diagnosis codes that define the outcome of interest are coded as present on admission. Otherwise a value of “0” is assigned to Q. For every record that includes POA data in the SID DX_POA data elements, Q will have a value of “0” or “1” and will not be “missing (.)”.

The Observed Rate

Before calculating the observed rate, Q is used to correct the value of T if the condition of interest was POA. If the value of Q is “1” (outcome was POA) then the record is removed from

² The letter P was not available, having been used already for the notion of population at risk. In this document the variables are denoted simply as T and Q, but each discharge record has a binary T variable and a binary Q variable for each QI, so the variables have longer names to clarify which QI they describe. (e.g., The variables for PSI #8 are called TPPS08 and QPPS08.)

the population at risk by setting T to “missing (.)”. The observed rate is simply the arithmetic mean of the T variable after this correction. Note that if POA had been ignored, as in [Chapter 7](#), every record removed from the population at risk by the Q variable would have appeared as a “1” in both the numerator and the denominator. So accounting for POA data yields lower observed rates than when the POA data are ignored. The magnitude of the difference between the rate estimated when POA are ignored and when POA are incorporated will depend on the proportion of records that are flagged as POA that do not meet any of the other indicator exclusion criterion. The accuracy of the difference between the rate estimated when POA are ignored and the rate estimated when POA are incorporated (via the Q flag) depends both on the magnitude of the difference, and the accuracy of the POA coding.

Chapter 9. Calculating Provider-Level Observed Rates – With Missing POA Data

When POA data are ignored ([Chapter 7](#)) or present in the discharge record ([Chapter 8](#)) then each record in the population at risk contributes a simple “0” or “1” to the QI denominator and if it is a “1” in the denominator, the record contributes a simple “0” or “1” to the numerator. When POA data are missing, the situation is not as simple. Records that do not meet the denominator criteria, regardless of POA, are still simple...they are not in the population at risk. Records where T=0 ignoring POA are simple because they did not experience the outcome of interest, so it could not have been POA. But for other records, the missing DX_POA flags would determine whether the record was in the population at risk, or not, and if so, whether the patient experienced the outcome of interest. Because we cannot confidently assign a simple 0 or 1 to the numerator and denominator, the QI software calculates expected values of both the numerator and denominator contribution – these expected values fall between 0 and 1, and the software uses them to calculate the observed rate.

The DX_POA flags can affect the patient record in three ways:

1. The outcome of interest is clearly POA and the record should be excluded from the population at risk.
2. The outcome of interest is clearly not POA and the record should be included in the population at risk.
3. DX_POA helps distinguish between comorbidities (present at the time of admission) and complications (developed after admission) which affects the assignment of APR-DRG and risk-adjustment.

If some or all of the discharge records in the user’s dataset are missing DX_POA data elements, the dataset can still be analyzed using methods that take POA into account. The missing POA data are modeled using information from the reference population records that had complete POA data to estimate the expected value of the probability that the outcome of interest was POA, and the expected value of the probability that the patient experienced the outcome of interest if it was not POA.

The expected value calculations use Markov Chain Monte Carlo (MCMC) methods and augmented datasets where the missing POA data are modeled based on relationships observed in the reference population. Specifically, the portion of the reference population dataset where POA was observed yields probabilistic insight into the relative frequency of APR-DRG assignment as well as comorbidities versus complications. In the user’s dataset, if POA data are missing from a discharge record, then the expected values of both the Q flag and the outcome of interest are estimated using an MCMC to approximate the weighted sums over all possible combinations of missing data. The weights in the sums are the probabilities of observing each combination of missing POA flags.

Prediction Module Nomenclature: $Y = T$ and $P = Q$ and POA improves Z to form X

There is a change of nomenclature between the QI software that calculates discharge level data elements and the Prediction Module (PM)³ software that models the effect of missing POA. In the PM, the outcome is called Y rather than T and the POA flag is called P rather than Q . In this document we observe this change, and refer to Y and P when talking about values that are calculated by the PM.

The set of relevant covariates as coded from the discharge record are collectively described as the vector Z . After a set of observed or imputed POA flags are applied to the Z vector, and the covariates are re-calculated, the improved covariates form a vector that we call X . Data elements that are not affected by POA (e.g., age and gender) take on the same values in the Z and X vectors. Data elements that might have changed if POA data had been included with the record (e.g., APR-DRG and comorbidities versus complications) may take different values in Z and X . Specifically, the APR-DRG might be changed altogether or shifted to a lower risk of mortality subclass if some of the secondary diagnoses are POA, and some conditions that meet the definition of comorbidity might be changed to complications or vice versa.

Run Prediction Module to Account for Missing POA

With regard to the observed rate, the Prediction Module does two important things:

1. It calculates the expected value of the probability that the outcome of interest was POA: $E[P=1 | Y, P, X, Z]$. Conceptually it does this by imputing POA flags many times and re-calculating whether the outcome of interest was POA. The specifics of the actual MCMC expected value calculation are described in [Appendix C](#). The expected value is a number between 0 and 1 and it is used to determine the record's contribution to the QI denominator. For records with complete POA data, the P flag takes the value 0 or 1, and the record contributes $1-P$ to the denominator. (It contributes 1 if the condition is not POA, and 0 if it is POA.) For records with missing POA data, the expected value of P falls between 0 and 1, and the contribution to the denominator is $1 - E[P=1 | Y, P, X, Z]$. That is to say that if there is a 50% chance that the outcome was POA, then the record contributes 0.5 to the denominator. If there is a 99% chance that it was POA, the record contributes 0.01 to the denominator.
2. It calculates the expected value of the contribution of the record to the numerator. If the contribution to the denominator is non-zero and $Y=1$, then this probability is equal to $(1 - \text{the denominator contribution})$. Otherwise it is zero. If $T=Y=0$ when POA is missing,

³ The word 'module' is a possible source of confusion. We refer to the four sets of QI as *QI modules: the PQI, IQI, PSI, and PDI*. In a different context, the word 'module' is also used to describe two C++ executable programs that a) estimate the risk-adjustment models during the QI software update process, (the so-called **Analysis Module**) and b) predict the expected value of the outcome in the user's data subject to uncertainty about missing POA (the so-called **Prediction Module**). The Prediction Module is an executable program that is called by SAS or WinQI when the user analyzes their dataset to calculate QI rates.

then Y would not be affected if POA data were present, and the record makes 0 contribution to the QI numerator.

Note that for observations where DX_POA is present in the user's dataset, the prediction module does not model an expected value. The expected value of Y and P is calculated with certainty as being equal to the observed values T and Q, respectively. These observations make contributions of 1-P (=1-Q) to the denominator, and Y * (1-P) (which = T * (1-Q)) to the numerator.

The Observed Rate

The formula for the observed rate is as follows:

$$\text{Observed Rate} = \frac{\text{Sum of expected value of discharges of the outcome of interest}}{\text{Sum of expected value of discharges in the population at risk}}$$

Chapter 10. Risk Adjustment for Provider-Level Indicators

This chapter describes risk-adjustment for provider-level QIs. Three special cases are described explicitly: ignoring POA data, accounting for POA in records with complete POA data, and accounting for POA in records with missing POA data.

Provider-level indicators are risk-adjusted in a manner similar to that described in Chapters [4](#) and [5](#) for area-level indicators. One important difference is that the list of covariates for provider-level indicators differs from indicator to indicator more than those for the area-level indicators. The next section describes the types of data elements that are considered as potential risk-adjusters.

Where possible, the logistic regression models use a generalized estimating equations (GEE) approach to account for correlation at the provider level. When GEE models do not converge during the annual AHRQ QI software update, then multivariable logistic regression models are employed that do not account for that correlation. See [Chapter 12](#) for more details.

Risk-adjustment Covariates

Each risk-adjusted QI (listed in [Appendix A](#)) has a set of covariates that have been identified as useful covariates in a logistic regression risk-adjustment model. [Chapter 12](#) describes the variable selection process.

For the PSIs, covariates indicate whether the discharge record meets the technical specification for gender, age, modified Diagnosis-Related Group (MDRG) and at least one of twenty-five (25) co-morbidities that are used as covariates in the risk-adjustment model.

For the IQIs, covariates indicate whether the discharge record meets the technical specification for gender, age, All Patient Refined Diagnosis Related Groups (APR-DRG) and risk-of-mortality subclass (minor, moderate, major, extreme) that are used as covariates in the risk-adjustment model.

For the PDIs, covariates indicate whether the discharge record meets the technical specification for birth weight, age in days, age in years, modified Diagnosis-Related Group (MDRG), at least one of forty-six (46) clinical classification software (CCS) co-morbidities and some indicator-specific risk categories that are used as covariates in the risk-adjustment model.

The Prediction Module

Regardless of whether POA data are ignored or accounted for, and whether the POA data are complete or missing, the provider-level risk adjustment is accomplished using the AHRQ QI Prediction Module software. In the case of accounting for missing POA, it uses an MCMC approach to calculate relevant expected values, as described below. If the user elects to ignore

POA data, or for records where the POA data are complete, then the Prediction Module simply performs scalar multiplication of covariates and coefficients, which is also described below.

Risk Adjustment Parameters CSV File

Each risk-adjusted provider-level indicator has its risk adjustment parameter estimates stored in a comma separated values (.csv) file that accompanies the QI software. Those files have 21 columns of numbers, and Table 10.1 describes their contents and how they are used in the QI software.

Table 10.1 Parameter Estimates CSV Files for Provider-Level Risk Adjustment

Column Number	Column Headings (if any)	Meaning
1-2	Variable Names	List of numbered Z and X covariate names
3-6	[X Z]	Probabilities used for imputation: $P(X=0 Z=0)$, $P(X=0 Z=1)$, $P(X=1 Z=0)$, $P(X=1 Z=1)$. Note that if these numbers are 1,0,0,1 respectively then the Markov Chain Monte Carlo (MCMC) imputation always imputes $X=Z$. If the numbers fall between 0 and 1, then sometimes $X = Z$ and sometimes $X \neq Z$.
7-9	[P X], mse, ese	Regression coefficients (col 7) for the model for $POA X$, and their standard errors

10-12	$[Y Z]$, mse, ese	Regression coefficients (col 10) for the model for the QI outcome, $Y Z$, and their standard errors. This is the model of the outcome that ignores POA. These are the model coefficients that are employed if the user elects to ignore POA. They are multiplied by the Z vector using simple scalar multiplication; the MCMC is not involved in the estimation of this model's parameters or in the computation of the predicted value using this model.
13-15	$[Y X]$, mse, ese	Regression coefficients (col 13) and their standard errors for the model that predicts Y given that POA was coded and therefore the vector X is observed. These coefficients are not used in any calculations that affect the user's output at this time.
16-18	$[Y X, P=0]$, mse, ese	Regression coefficients (col 16) and standard errors for the model that predicts Y given that POA was coded and the outcome Y is known to not have been POA. These coefficients are not used in any calculations that affect the user's output at this time.

19-21	[Y X,P=0, MCMC], mse, ese	Regression coefficients (col 19) and standard errors for the model that uses imputed values of POA in the MCMC to predict the probability of the adverse event. These are the coefficients that are typically published in the risk adjustment tables on the AHRQ QI website, and the ones that are used when the user elects to model the effects of missing POA in the data.
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CSV File for the Prediction Module

For each risk-adjusted QI, the software prepares a comma separated values (.csv) file that contains one row per discharge record in the population at risk. The csv file has the following columns:

- **Y** – For purposes of risk-adjustment, $Y=T$, the discharge level indicator data element; its value is 0 if the record does not meet the numerator definition, and 1 if it does. Records where T is missing are not at risk for the QI, and are excluded from the QI's csv file.
- **P** – This is the discharge level POA exclusion data element, Q; its value is 0 if $Y = 0$; its value is 0 if $Y=1$ and the outcome of interest was not POA; its value is 1 if $Y=1$ and the outcome of interest was POA or met a POA exclusion criterion. If POA is missing, its value is missing.
- **ZCV1 to ZCV n** – A set of n observed risk-adjustment covariates, each of which is coded using 0/1 indicator data elements. The number of data elements in the vector (n), varies from QI to QI. The covariate labels for each QI are listed in the Risk-adjustment Coefficient Tables. (See [links](#) in the Overview.)
- **XCV1 to XCV n** – A vector of n **enhanced risk-adjustment covariates**. When POA data are present, the vector of XCV values is exactly equal to the vector of ZCV values. When POA data are missing, the XCV values are missing and are modeled in the MCMC.

Prediction Module Output

The Prediction Module returns a dataset with one row per discharge record, and the following estimated quantities that are used to estimate QI rates. Note that these quantities correspond to the regression models listed in Table 10.1.

- **Y** – This is the outcome, T. If POA was observed and the outcome was known to be POA, then T would have been set to missing and the record would have been eliminated from this dataset.

- $E[Y|Z]$ – This is the expected value of the outcome using the risk-adjustment model that ignores POA data. All comorbidities are treated as POA for the purpose of APR-DRG assignment and for comorbidity terms in the risk-adjustment models. This is the contribution to the numerator of the expected rate if POA is being ignored.
- $E[Y|P=0]$ – This is the contribution to the numerator of the observed rate if POA is being accounted for. If $Y = 1$ and P is missing, then this value is $1 - E[P|YPXZ]$. If P is observed, accounted for, and 0, then this is the numerator contribution for the record. If P is modeled and accounted for, then this is the numerator contribution for the record.
- $E[Y|X, P=0]$ -MCMC – This is the risk-adjusted expected value of the outcome, given X and $P=0$. If POA data are observed, this is simply the scalar product of the risk adjustment coefficients and the risk adjustment covariates. If P is missing, this quantity is an expected value calculated with the MCMC. This is the contribution to the expected rate numerator if POA is being accounted for. (Note that in the software a small correction is applied to this figure to ensure that the reference population's observed rate equals its expected rate and equals its risk-adjusted rate.)
- $E[P|YPXZ]$ – is the MCMC modeled probability that the outcome was POA. When P is missing, the denominator contribution of the record is $1 - E[P|YPXZ]$ and the numerator contribution is between 0 and $1 - E[P|YPXZ]$.

The Expected Rate

To recap, the predicted rate for each discharge comes from the Prediction Module and its method of calculation depends on whether POA is present and being accounted for:

- POA Ignored: $E[Y|Z]$
- POA Present and accounted for: $E[Y|X, P=0]$ – MCMC holds the scalar product of the risk adjustment coefficients to calculate $Y|X, P=0$ and the X vector.
- POA Absent but accounted for: $E[Y|X, P=0]$ – MCMC holds the expected value of Y , calculated by using an MCMC to approximate the weighted average over all possible combinations of missing data.

$$\text{Expected rate} = \frac{\text{Sum of the predicted rate for each discharge}}{\text{Count of discharges in the population at risk}}$$

The Risk-Adjusted Rate

The AHRQ QI use indirect standardization to calculate the risk-adjusted rate.

$$\text{Risk Adjusted Rate} = \text{Reference Population Rate} \times (\text{Observed Rate} / \text{Expected Rate})$$

Note that for the reference population, the observed rate equals the expected rate equals the reference population rate equals the risk-adjusted rate.

The software estimates the standard error of the risk adjusted rate for each provider or area using a method recommended by Iezzoni and described by Hosmer and Lemeshow that represents the amount of within provider or area variance due to sampling (i.e. as the number of patients per provider or persons per area increases this variance tends to zero). This standard error is used to calculate lower and upper bound 95% confidence intervals around the risk adjusted rate as [risk adjusted rate +/- 1.96 * risk adjusted rate SE] (stored in a data element with a “L” and “U” prefix). (See the note below entitled: Computing the Risk-Adjusted Rate Variance. See also http://qualityindicators.ahrq.gov/Downloads/Resources/Publications/2011/Calculating_Confidence_Intervals_for_the_AHRQ_QI.pdf)

The Smoothed Rate

The formula for the smoothed rate is:

$$\text{Smoothed Rate} = (\text{Risk Adjusted Rate} \times \text{Shrinkage Weight}) + \text{Reference Population Rate} * (1 - \text{Shrinkage Weight})$$

where

$$\text{Shrinkage Weight} = \frac{\text{Signal Variance}}{\text{Signal Variance} + \text{Noise Variance}}$$

The noise variance is calculated for each hospital based on the user's data. The signal variance is a parameter calculated from the reference population. Beginning in Version 4.3, there are two signal variance estimates: one using POA and one ignoring POA data.

$$\begin{aligned} \text{Noise Variance } \hat{\sigma}_h^2 &= \left(\frac{\bar{Y}}{n_h E_h} \right)^2 \sum_{i \in A_h} \hat{Y}_i (1 - \hat{Y}_i) \\ \text{Signal Variance } \hat{\tau}^2 &= \frac{1}{H} \sum_{h=1}^H \frac{1}{(\hat{\tau}^2 + \sigma_h^2)^2} \sum_{h=1}^H \frac{1}{(\hat{\tau}^2 + \sigma_h^2)^2} \{ (RAR_h - \overline{RAR})^2 - \hat{\sigma}_h^2 \} \end{aligned}$$

where H is the number of hospitals with patents at risk for the QI, \bar{Y} is the observed rate for all discharges in the reference population; \hat{Y}_i is the patient-level predicted probability; and for hospital h , A_h is the collection of patients, n_h is the number of patients, E_h is the expected rate, and RAR_h is the risk-adjusted rate. Note that $\hat{\tau}^2$ appears on both sides of the signal variance equation; it is estimated in an iterative fashion.

For purposes of confidence interval estimation, the **smoothed rate** is assumed to follow a Gamma distribution $G(\text{shape}, \text{scale})$ where

$$\text{shape} = \frac{(\text{Smoothed Rate})^2}{\text{Posterior Variance}}$$

$$scale = \frac{Posterior\ Variance}{Smoothed\ Rate}$$

$$Posterior\ Variance = Signal\ Variance - (Shrinkage\ Weight * Signal\ Variance)$$

When there is a fixed comparative rate of interest, it is possible to parameterize the smoothed rate posterior probability based on the Gamma distribution and calculate the probability that the smoothed area rate falls below or above the comparative rate that is of interest.

Computing the Risk-Adjusted Rate Variance

Let

- E_i be the expected (predicted) rate;
- n_h be the number of discharges at hospital h ; and
- α be the reference population rate (average outcome in the entire sample).

We define the observed rate at hospital h as

$$O_h = \frac{1}{n_h} \sum_{\substack{i \\ h_i=h}} Y_i$$

the expected rate at hospital h as

$$E_h = \frac{1}{n_h} \sum_{\substack{i \\ h_i=h}} \hat{\Pi}_i$$

and the Risk Adjusted Rate

$$RAR_h = \alpha \times \frac{O_h}{E_h}$$

Using a Taylor expansion for the formula for the variance of the ratio of two stochastic variables R, S

$$Var\left(\frac{R}{S}\right) \cong \frac{E[R]^2}{E[R]^2} \left(\frac{Var(R)}{E[R]^2} - 2 \frac{Cov(R, S)}{E[R]E[S]} + \frac{Var(S)}{E[S]^2} \right)$$

we compute the variance on the risk-adjusted rate

$$Var(RAR_h) \cong \alpha^2 \frac{E[O_h]^2}{E_h^2} \left(\frac{Var(O_h)}{E[O_h]^2} - 2 \frac{Cov(O_h, E_h)}{E[O_h]E_h} + \frac{Var(E_h)}{E_h^2} \right)$$

It is common practice in these calculations to neglect the variance of the predictor $\hat{\Pi}_i$ (Hosmer & Lemeshow, 1995) and to consider a normal distribution for the Risk Adjusted Rate (only true in the limit $n_h \rightarrow \infty$). In this case the above formula simplifies to

$$Var(RAR_h) \cong \alpha^2 \frac{Var(O_h)}{E_h^2}$$

and the 95% confidence intervals are calculated assuming normality. However, arguments to support using non-approximate equations (see Luft & Brown, 1993 for an example) for the **RAR** confidence intervals (in particular when n_h is small) may be considered in future releases of the AHRQ QI software.

Computing the Smoothed Rate Variance

The detailed formula for calculating the probability interval around the smoothed rate is described in [Chapter 11](#) on composite measures. Calculation of the smoothed rate is a step in the process of computing the composite measures. However, the basic formula is:

$$\begin{aligned} \text{Smoothed Rate} &= (\text{Risk Adjusted Rate} \times \text{Shrinkage Weight}) \\ &+ \text{Reference Population Rate} * (1 - \text{Shrinkage Weight}) \end{aligned}$$

$$\text{Shrinkage Weight} = \frac{\text{Signal Variance}}{\text{Signal Variance} + \text{Noise Variance}}$$

$$\text{Posterior Variance} = \text{Signal Variance} - (\text{Shrinkage Weight} * \text{Signal Variance})$$

The *smoothed rate* follows a Gamma distribution $G(\text{shape}, \text{scale})$ where

$$\text{shape} = \frac{(\text{Smoothed Rate})^2}{\text{Posterior Variance}}$$

$$\text{scale} = \frac{\text{Posterior Variance}}{\text{Smoothed Rate}}$$

When there is a fixed comparative rate of interest, it is possible to parameterize the posterior probability based on the Gamma distribution and calculate the probability that the smoothed area rate falls below or above the comparative rate that is of interest.

Chapter 11. Estimating Composite Measures

The general methodology for the AHRQ QI **composite measures** might be described as constructing a “composite of composites.” The first “composite” is the reliability-adjusted ratio, which is a weighted average of the risk-adjusted ratio and the reference population ratio, where the weight is determined empirically as described below. The second “composite” is a weighted average of the component indicators, where the weights are selected based on the intended use of the composite measure. These weights might be determined empirically or based on non-empirical considerations.

Composite Value

The basic steps for computing the composite are as follows:

Step 1. Compute the risk-adjusted rate and confidence interval

The AHRQ QI risk-adjusted rate and confidence interval are computed as described above.

Step 2. Scale the risk-adjusted rate using the reference population

The levels of the rates vary from indicator to indicator. To combine the component indicators using a common scale, each indicator’s risk-adjusted rate is first divided by the reference population rate to yield a ratio. The components of the composite are therefore defined in terms of a ratio to the reference population rate for each indicator. The component indicators are scaled by the reference population rate so that each indicator reflects the degree of deviation from the overall average performance.

Step 3. Compute the reliability-adjusted ratio

The reliability-adjusted ratio is computed as the weighted average of the risk-adjusted ratio and the reference population ratio, where the weights vary from 0 to 1, depending on the degree of reliability for the indicator and provider (or other unit of analysis).

$$\begin{aligned} \text{Reliability Adjusted Ratio} = & (\text{risk-adjusted ratio} \times \text{weight}) \\ & + \text{reference population ratio} \times (1 - \text{weight}) \end{aligned}$$

For small providers, the weight is closer to 0. For large providers, the weight is closer to 1. For a given provider, if the denominator is 0, then the weight assigned is 0 (i.e., the reliability-adjusted ratio is the reference population ratio).

Step 4. Select the component weights

The composite measure is the weighted average of the scaled and reliability-adjusted ratios for the component indicators. The AHRQ QI software user has the ability to

modify these weights in the software, either in the SAS code, or in the WinQI user interface. Options for weights include:

Single indicator weight. In this case, the composite is simply the reliability-adjusted ratio for a single indicator. The reference population rate is the same among all providers.

Equal weight. In this case, each component indicator is assigned an identical weight based on the number of indicators. That is, the weight equals 1 divided by the number of indicators in the composite (e.g., $1/11 = 0.0909$).

Numerator weight. A numerator weight is based on the relative frequency of the numerator for each component indicator in the reference population. In general, a numerator weight reflects the amount of harm in the outcome of interest, in this case a potentially preventable adverse event. One might also use weights that reflect the amount of excess mortality or complications associated with the adverse event, or the amount of confidence one has in identifying events (i.e., the positive predictive value).

Denominator weight. A denominator weight is based on the relative frequency of the denominator for each component indicator in the reference population. In general, a denominator weight reflects the degree of risk of experiencing the outcome of interest in a given population. For example, the denominator weight might be based on the demographic composition of a health plan, the employees of a purchaser, a state, an individual hospital, or a single patient.

Factor weight. A factor weight is based on an analysis that assigns each component indicator a weight that reflects the contribution of that indicator to the common variation among the indicators. The component indicator that is most predictive of that common variation is assigned the highest weight. The weights for each composite are based on a principal components factor analysis of the reliability-adjusted ratios.

Note: The IQI composites (IQI #90 and #91) use denominator weights and the PSI and PDI composites (PSI #90 and PDI #19) use numerator weights.

Step 5. Construct the composite measure

The composite measure is the weighted average of the component indicators using the selected weights and the scaled and reliability-adjusted indicators.

$$\text{Composite} = (\text{indicator}_1 \text{ RAR} \times \text{weight}_1) + (\text{indicator}_2 \text{ RAR} \times \text{weight}_2) + \cdots + (\text{indicator}_N \text{ RAR} \times \text{weight}_N)$$

Composite Variance

The probability interval of the composite measure is based on its standard error, which is the square root of the variance. The variance is computed based on the signal variance-covariance matrix and the reliability weights.

Let M be a $1 \times K$ vector of observed quality measures (for a given hospital, suppress hospital subscript for convenience), noisy measures of the true underlying $1 \times K$ quality vector μ , such that:

$$M = \mu + \epsilon \quad (11.1)$$

where ϵ is a $1 \times K$ noise vector with zero mean and $K \times K$ variance-covariance matrix $Var(\epsilon) = \Omega_\epsilon$. Let the $K \times K$ signal variance-covariance be $Var(\mu) = \Omega_\mu$.

Let $\hat{\mu}$ a $1 \times K$ vector indicating the posterior (filtered) estimate of μ , such that:

$$\hat{\mu} = \mu + v \quad (11.2)$$

where v is a $1 \times K$ vector with zero mean and $K \times K$ variance-covariance matrix $Var(v)$ representing the prediction error of the posterior estimates.

The goal is to estimate the variance for any weighted average of the posterior estimates. For a given $1 \times K$ weighting vector w , this is given by:

$$Var(vw) = w'Var(v)w$$

where w' indicates the transpose of w .

Thus, we need an estimate of $Var(v)$. We simplify the calculation by assuming that the filtered estimates are formed in isolation for each measure (univariate) and the estimation error is assumed not correlated across measures (e.g., each measure is based on a different sample of patients or independent patient outcomes).

Forming each measure in isolation, using superscripts $k = 1, \dots, K$ to indicate the measure, we have:

$$\hat{\mu}^k = M^k \hat{\beta}^k = M^k (\Omega_\mu^{kk} + \Omega_\epsilon^{kk})^{-1} \Omega_\mu^{kk} \quad (11.3)$$

$$Var(v^k) = \Omega_\mu^{kk} (1 - \hat{\beta}^k) = \Omega_\mu^{kk} - \Omega_\mu^{kk} (\Omega_\mu^{kk} + \Omega_\epsilon^{kk})^{-1} \Omega_\mu^{kk} \quad (11.4)$$

where

$$\hat{\beta}^k = (\Omega_\mu^{kk} + \Omega_\epsilon^{kk})^{-1} \Omega_\mu^{kk}$$

is the signal ratio of measure k , the reliability of the measure, and is the r-squared which measures how much of the variation in the true measure can be explained with the filtered measure. Note that in this simplified case the filtered estimate is a univariate shrinkage estimator.

For the non-diagonal elements of the covariance matrix (for $j \neq k$):

$$Cov(v^j, v^k) = E[(\mu^j - \hat{\mu}^j)(\mu^k - \hat{\mu}^k)] \quad (11.5)$$

assuming independent estimation error in the two measures, one gets the following simplified expression (see supplemental notes below for the derivation):

$$Cov(v^j, v^k) = \Omega_{\mu}^{jk}(1 - \hat{\beta}^j)(1 - \hat{\beta}^k) \quad (11.6)$$

Note that this is just the signal covariance times 1 minus the signal ratio for each of the measures. Thus, if the signal ratio is 0 for each measure, the covariance in the estimates is simply the signal covariance. As either measure gets a stronger signal ratio (becomes more precise), the covariance in the estimates shrinks to 0.

Also note that if one measure is missing, then the signal ratio is simply set to 0. The filtered estimate is shrunk all the way back to the (conditional) mean, and the variance and covariance are as defined above.

The standard error on the composite is the square root of the variance, which is then used to compute the 95% probability interval.

The *composite value* follows a Gamma distribution $G(shape, scale)$ where

$$shape = \frac{(Composite\ Value)^2}{Posterior\ Variance}$$

$$scale = \frac{Posterior\ Variance}{Composite\ Value}$$

A 95% probability interval can be calculated using the inverse CDF of the gamma distribution as

$$lower\ bound = inv_cdf_gamma(0.025, shape, scale)$$

$$upper\ bound = inv_cdf_gamma(0.975, shape, scale)$$

Supplemental Notes:

To derive formula (11.6), we substitute

$$\hat{\mu} = M\hat{\beta} = (\mu + \epsilon)\hat{\beta}$$

into (11.5) and obtain (for $j \neq k$)

$$\begin{aligned} Cov(v^j, v^k) &= E[(\mu^j - (\mu^j + \epsilon^j)\hat{\beta}^j)(\mu^k - (\mu^k + \epsilon^k)\hat{\beta}^k)] = \\ &= E[(\mu^j(1 - \hat{\beta}^j) - \epsilon^j\hat{\beta}^j)(\mu^k(1 - \hat{\beta}^k) - \epsilon^k\hat{\beta}^k)] = \\ &= E[\mu^j\mu^k(1 - \hat{\beta}^j)(1 - \hat{\beta}^k) + \mu^k\epsilon^j(1 - \hat{\beta}^k)\hat{\beta}^j + \mu^j\epsilon^k(1 - \hat{\beta}^j)\hat{\beta}^k + \epsilon^j\epsilon^k\hat{\beta}^j\hat{\beta}^k] = \\ &= E[\mu^j\mu^k](1 - \hat{\beta}^j)(1 - \hat{\beta}^k) + E[\mu^k\epsilon^j](1 - \hat{\beta}^k)\hat{\beta}^j + E[\mu^j\epsilon^k](1 - \hat{\beta}^j)\hat{\beta}^k + E[\epsilon^j\epsilon^k]\hat{\beta}^j\hat{\beta}^k \end{aligned}$$

Assuming $E[\mu^j\epsilon^k] = E[\epsilon^j\mu^k] = E[\epsilon^j\epsilon^k] = 0$ and $E[\mu] = 0$, we have

$$\begin{aligned} Cov(v^j, v^k) &= E[\mu^j\mu^k](1 - \hat{\beta}^j)(1 - \hat{\beta}^k) = \\ &= Cov(\mu^j, \mu^k)(1 - \hat{\beta}^j)(1 - \hat{\beta}^k) - E[\mu^j]E[\mu^k](1 - \hat{\beta}^j)(1 - \hat{\beta}^k) = \\ &= Cov(\mu^j, \mu^k)(1 - \hat{\beta}^j)(1 - \hat{\beta}^k). \end{aligned}$$

QED.

Chapter 12. Software Maintenance – Updating the Reference Population

In order to maintain the scientific acceptability of the AHRQ QI, the indicators are updated annually to reflect the Uniform Bill (UB-04) coding updates effective each year on July 1st, and the International Classification of Diseases- Ninth Revision- Clinical Modification (ICD-9-CM) and Medicare Severity Diagnosis-related Group (MS-DRG) coding updates effective each fiscal year on October 1st of the prior year. In addition, the annual updates include new Census data on the population of counties and new Healthcare Cost and Utilization Project (HCUP) data for the reference population and risk-adjustment covariate coefficients. This chapter describes the methods employed to update the QI reference population and the associated risk-adjustment covariate coefficients.

If the user wishes to account for missing POA, or calculate comparative expected, risk-adjusted, or smoothed rates, then the software makes use of a data frequencies, QI rates, and model coefficients that were estimated using a reference population. In the AHRQ QI software, the reference population consists of all the AHRQ HCUP SID data that are available at the time of the QI update for the year most recently processed. The v4.5 software, released in May 2013, uses 2010 SID data from 44 states for its reference population.

There are several important steps in the annual update process upstream from risk-adjustment and rate estimation. Changes may be made to QI technical specifications for one reason or another. Those must be implemented in the software. ICD-9 (and soon ICD-10) code sets may be modified. Those need to be updated in the software as well. The software is designed to be backward compatible, applying the appropriate sets of codes to older datasets. This work is accomplished before risk-adjustment models are calculated. Those steps are described briefly in [Appendix D](#).

Estimating risk-adjustment models and calculating QI rates in the reference population involves running the QI software on the reference population dataset.

Assemble the Reference Population Dataset

The user should prepare the input dataset according to the software instructions.

- SID data from all available states are appended together and processed in the manner described in [Chapter 1](#).
- The APR-DRG grouper is run on the adult dataset for the purpose of calculating IQIs. The grouper is run once considering all secondary diagnoses to be POA, and run a second time with POA diagnoses removed. The resulting APR-DRG from the former run is part of the Z vector of IQI covariates and the APR-DRG from the latter run is part of the X vector. This difference captures the fact that when POA is ignored, complications are treated like comorbidities for risk adjustment, and the risk of mortality is probably overstated compared to the risk if the patient were classified using only the conditions that were truly present on admission.

- Missing values of SEX are set to “0” (Male) so they will not be dropped by the QI software. (An alternative would be to impute SEX based on other data elements, like diagnosis codes.)
- Beginning in Version 4.3, discharges from non-community hospitals are deleted from the adult and pediatric analysis data. Community hospitals, as defined by American Hospital Association (AHA), include "all nonfederal, short-term, general and other specialty hospitals, excluding hospital units of institutions." Included among community hospitals are academic medical centers and specialty hospitals such as obstetrics, gynecology, ear nose throat, short-term rehabilitation, orthopedic, and pediatric hospitals. Non-community hospitals include federal hospitals (Veterans Administration, Department of Defense, and Indian Health Service hospitals), long-term hospitals, psychiatric hospitals, alcohol/chemical dependency treatment facilities and hospitals units within institutions such as prisons. (See http://hcup-us.ahrq.gov/db/state/siddist/siddist_hospital.jsp#2008).
- No other edits are applied to the State Inpatient Databases (SID).

Calculate Discharge Level Flags

The discharge level T and Q flags are calculated as described in Chapters 3-8.

Estimate Risk-adjustment Models

There are several steps involved in estimating the QI risk-adjustment models.

1. Construct candidate covariates
2. Select model covariates
3. Estimate the models
4. Evaluate the models

Construct Candidate Covariates for Risk-adjustment

For the PSIs, potential risk-adjustment covariates indicate whether the discharge record meets the technical specification for gender, age, modified Diagnosis-Related Group (MDRG) and at least one of twenty-five (25) co-morbidities that are used as covariates in the risk-adjustment model.

For the IQIs, potential risk-adjustment covariates indicate whether the discharge record meets the technical specification for gender, age, All Patient Refined Diagnosis Related Groups (APR-DRG) and risk-of-mortality subclass (minor, moderate, major, extreme) that are used as covariates in the risk-adjustment model.

For the PDIs, potential risk-adjustment covariates indicate whether the discharge record meets the technical specification for birth weight, age in days, age in years, modified Diagnosis-Related Group (MDRG), at least one of forty-six (46) clinical classification software (CCS) co-morbidities and some indicator-specific risk categories that are used as covariates in the risk-adjustment model.

For the PQIs, potential risk-adjustment indicate whether the discharge record meets the technical specification for gender, age in 5-year groups and poverty category that are used as covariates in the risk-adjustment model.

Covariates are coded for each discharge record based on the data elements, data values, and logic described in the technical specifications and the appendices of the risk-adjustment coefficient tables. For a given covariate, if the discharge meets the technical specification for that covariate a value of “1” is assigned to the discharge level covariate data element. Otherwise a value of “0” is assigned to the discharge level covariate data element. For discharge records with POA data, the software creates a second set of data elements (i.e., the **Z** data elements used in the modeling described in [Appendix C](#)) that do not consider secondary diagnosis codes that are not present on admission when assigning comorbidity or risk-of-mortality flags.

Select Model Covariates

For the provider level indicators, each module has a standard set of covariates grouped into four categories: demographics, severity of illness, comorbidities and other (See [Appendix B](#)). The standard set is tailored to each indicator to create a parsimonious set of covariates for each indicator. Based on cross tabulations between each covariate and the outcome of interest, only those covariates with at least 30 cases with the outcome of interest are retained. For categories that are mutually exclusive, covariates with fewer than 30 cases are pooled into the next covariate along the risk gradient. For example, age 70 to 74 is combined with age 65 to 69, or risk of mortality subclass 3 is combined with subclass 2. For categories with no risk gradient, covariates are pooled into broader covariates. For example, MS-DRGs are pooled into MDCs.

The omitted covariate within mutually exclusive categories is the reference group for those categories. Reference categories are usually 1) the most common and/or 2) the least risk. The choice of omitted reference category does affect how one might use the model coefficients or odds ratios in an English language sentence, but it does not affect predicted probabilities or model performance.

Once the preliminary multivariable model is specified, it is estimated on the adult or pediatric analytic data, as appropriate. Only those covariates that are statistically significant ($p < .05$) are retained. For covariates that are not statistically significant in categories that are mutually exclusive, the pooling process described above is repeated until a complete, parsimonious model is specified.

For the area level indicators, the models use the complete set of covariates for gender, age in 5-year age groups, an interaction with gender * age. There is also an optional set of covariates for poverty category based on the county of patient residence.

The final multivariable model parameters are published on the AHRQ website in Risk Adjustment Coefficient Tables. (See [links](#) in the Overview chapter.)

Estimate the Models

For models where POA is ignored, the AHRQ QI Analysis Module fits a logistic regression model that can be used to calculate the expected value of Y given Z. When possible, the Analysis Module estimates a Generalized Estimating Equations (GEE) model to properly account for within-hospital correlation. If the GEE model does not converge then the Analysis Module fits a more naïve logistic regression model that ignores that extra correlation. Whether the model is a GEE or not may be inferred by the .CSV filename for the QI. For example, PSI #4 uses a file named gee_pps04_RegressionAnalysisGee.csv. The ‘Gee’ near the end of the filename indicates that the Analysis Module used a GEE model. On the other hand, PSI #3 uses gee_pps03_RegressionAnalysis.csv. The missing ‘Gee’ in the filename tells the user that the model is not a GEE.

When POA data is accounted for, the Analysis Module uses Markov Chain Monte Carlo (MCMC) methods to fit several models.

1. It estimates coefficients to predict the expected value of Y given X, P=0 for records where POA is observed.
2. It estimates coefficients for a model for the expected value of the discharge level POA exclusion data element (P) when POA is missing.
3. And it estimates coefficients for the Prediction Module to calculate the expected value of the outcome, Y given P=0 and the observed data, for missing POA.

Computational details are described in [Appendix C](#). The Analysis Module generates a comma-separated values (.csv) file for each risk-adjusted QI that the Prediction Module uses when applying the models to a user’s dataset. These files are part of the AHRQ QI software package that is made available on the AHRQ website. See Table 10.1 for a description of the contents of those .csv files.

Calculate Rates

After the new risk-adjustment models are fit, the Prediction Module is run on the data to calculate expected values for P and Y so that observed rates may be calculated for the reference population. Reference population rates and signal variances are calculated both ignoring POA altogether and accounting for missing POA. These rates are stored in .TXT files that are part of the SAS AHRQ QI software package. The rates and variances are entered directly into WinQI program code, and do not appear as separate files in the WinQI package. Updating the risk-adjustment .CSV files and the population rate and signal variance .TXT files are a substantial milestone in the annual update process.

Update Software

In addition to the aforementioned .CSV and .TXT files, the AHRQ QI software must be updated to generate and combine the correct set of covariate variables for each risk adjusted QI. These covariates are generated in the so-called ~SAS3.SAS programs, and whenever the list of covariates in a risk-adjustment model changes, that code must be changed accordingly. Note that

it possible to fit new risk-adjustment model coefficients without updating the list of covariates. In that case, the ~SAS3.SAS program may need very little revision, if any.

Evaluate Models

Two desirable qualities of risk-adjustment models are that they discriminate well between discharge records that experience the outcome of interest and those that do not, and that they be well calibrated, predicting that the outcome will occur in approximately the right proportions, over a wide range of predicted probability.

Discrimination

One common scalar measure of logistic regression discrimination is the c-statistic. This may be calculated by computing the area under the Receiver Operating Characteristic (ROC) curve. Alternatively, it may be calculated by forming every possible pair in a dataset where one member of the pair is a discharge with the outcome of interest and the other member is a discharge without the outcome of interest. The c-statistic is the proportion of such pairs where the predicted probability for the member with the outcome of interest is higher than the predicted probability for the other record. Pairs with tied probabilities each contribute one-half to the numerator and denominator of the proportion. A c-statistic of 0.5 is the same discrimination performance as flipping a coin. A c-statistic of 1.0 indicates perfect discrimination. Hosmer and Lemeshow (2000, p.162) have coined three widely adopted labels for discrimination performance based on the c-statistic:

- $0.70 \leq \text{c-statistic} < 0.80$ indicates **acceptable discrimination**
- $0.80 \leq \text{c-statistic} < 0.90$ indicates **excellent discrimination**
- $0.90 \leq \text{c-statistic}$ indicates **outstanding discrimination**

The c-statistics for the AHRQ QI risk-adjustment models are published in on the AHRQ QI website in the Risk Adjustment Coefficient Tables. (See [links](#) in the Overview chapter.)

Calibration

Calibration is often described by sorting the dataset based on predicted probability and dividing it into deciles of risk. It is meaningful to compare the proportion of records in each decile that were observed to have the outcome of interest with the proportion of records that are expected to have that outcome. Hosmer and Lemeshow's logistic regression goodness-of-fit statistic (1980) is based on a chi-square test statistic calculated using the observed and expected counts across the ten deciles. Unfortunately that statistic always rejects the null hypothesis good calibration when the number of observations is large, as is the case with the AHRQ QI reference population. Although the test statistic and its p-value are not informative for these models, the models are sometimes characterized by publishing or plotting the observed and expected counts in the ten deciles of risk.

Chapter 13. Software Maintenance – Other Updates

The AHRQ QI software uses several other files or datasets that are updated periodically. This chapter lists those, and either describes the methods used to generate them, or references other stand-alone documents that do so.

Population Reference File

The file that contains stratified population counts by county and metropolitan statistical area is crucial for calculating the denominators of the area-level measures. That file and the method to construct it are described in a file entitled *AHRQ QI Population File Documentation* on the AHRQ website: (<http://www.qualityindicators.ahrq.gov/software/SAS.aspx>)

Condition-Specific Population File

The AHRQ QI program is conducting current methods research into options for estimating condition-specific denominators. At this time, the only condition-specific denominators are related to diabetes. There is a file name QICTYC13.TXT that is included with the v4.5 AHRQ QI module. That file was calculated using the following steps:

1. Use the population reference file to estimate 2013 population for each combination of state and age category. In the QI software, age categories are coded as:

```
VALUE AGECCAT
0 = '00 to 17'
1 = '18 to 44'
2 = '45 to 64'
3 = '65 to 74'
4 = '75+'

```

2. Obtain the latest diabetes prevalence figures broken out by state and age category from the Centers for Disease Control at <http://www.statehealthfacts.org/comparebar.jsp?ind=73&cat=2>.
3. Apply the diabetes proportions to the populations, to estimate the number of adults in each state in each of the four age categories who would have diabetes in 2013. (Population data from 2013 and proportion data from 2010.)

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Appendix A. Table of AHRQ QI Risk-adjustment / POA

Appendix Table A.1 denotes which AHRQ QI are risk-adjusted and which use POA data and for what purpose (i.e., for technical specifications or risk-adjustment).

An entry of ‘AM/PM’ in the column entitled ‘Calculate Risk Adjusted Rate’ means that the indicator is a provider-level indicator and its risk adjustment model is estimated using the Analysis Module (AM) described in [Appendix C](#). The risk adjustment calculations are carried out using the Prediction Module (PM), also described in [Appendix C](#). An entry of ‘SAS’ in the column entitled ‘Calculate Risk Adjusted Rate’ means that the indicator is an area-level indicator and its risk adjustment model is estimated using PROC LOGISTIC in SAS.

An X in the column marked ‘Technical Specifications’ means that the indicator has an exclusion that explicitly references the POA data element. A QI software user may tell the software to ignore the DX_POA data element for purposes of risk-adjustment, but the software will never ignore DX_POA if it is referenced in the technical specifications for the purpose of defining exclusions, and if the data element is present in the discharge record. When a discharge record is missing the DX_POA data element, the Q flag will be set to “missing (.)” and the software will either ignore it (if USEPOA=0) or impute it (if USEPOA=1).

An X in the column marked ‘Risk Adjustment’ means that the risk adjustment logistic regression model includes covariates for conditions that are comorbidities if they are POA and are complications if they are not POA. When the discharge record is missing the DX_POA data element, the risk adjustment model will:

- Treat the covariates as comorbidities if the user elects to ignore POA data
- Model the missing POA data via the Markov Chain Monte Carlo (MCMC) if the user elects to account for POA data.

See [Chapter 10](#) for additional details on risk adjustment.

Appendix Table A.1. AHRQ QI Risk-adjustment and Uses of POA

	Calculate Risk Adjusted Rate	Use POA?	
		Technical Specifications	Risk Adjustment
IQI #1 - Esophageal Resection Volume			
IQI #2 - Pancreatic Resection Volume			
IQI #4 - Abdominal Aortic Aneurysm (AAA) Repair Volume			

IQI #5 - Coronary Artery Bypass Graft (CABG) Volume			
IQI #6 - Percutaneous Coronary Intervention (PCI) Volume			
IQI #7 - Carotid Endarterectomy Volume			
IQI #8 - Esophageal Resection Mortality Rate	AM/PM		X
IQI #9 - Pancreatic Resection Mortality Rate	AM/PM		X
IQI #11 - AAA Repair Mortality Rate	AM/PM		X
IQI #12 - CABG Mortality Rate	AM/PM		X
IQI #13 - Craniotomy Mortality Rate	AM/PM		X
IQI #14 - Hip Replacement Mortality Rate	AM/PM		X
IQI #15 - Acute Myocardial Infarction (AMI) Mortality Rate	AM/PM		X
IQI #16 - Heart Failure Mortality Rate	AM/PM		X
IQI #17 - Acute Stroke Mortality Rate	AM/PM		X
IQI #18 - Gastrointestinal Hemorrhage Mortality Rate	AM/PM		X
IQI #19 - Hip Fracture Mortality Rate	AM/PM		X
IQI #20 - Pneumonia Mortality Rate	AM/PM		X
IQI #21 - Cesarean Delivery Rate, Uncomplicated			
IQI #22 - Vaginal Birth After Cesarean (VBAC) Delivery Rate, Uncomplicated			
IQI #23 - Laparoscopic Cholecystectomy Rate			
IQI #24 - Incidental Appendectomy in the Elderly Rate			
IQI #25 - Bi-lateral Cardiac Catheterization Rate			
IQI #26 - Coronary Artery Bypass Graft (CABG) Rate	SAS		
IQI #27 - Percutaneous Coronary Intervention (PCI) Rate	SAS		
IQI #28 - Hysterectomy Rate	SAS		
IQI #29 - Laminectomy or Spinal Fusion Rate	SAS		
IQI #30 - Percutaneous Coronary Intervention (PCI) Mortality Rate	AM/PM		X
IQI #31 - Carotid Endarterectomy Mortality Rate	AM/PM		X
IQI #32 - Acute Myocardial Infarction (AMI) Mortality Rate, Without Transfer Cases	AM/PM		X
IQI #33 - Primary Cesarean Delivery Rate, Uncomplicated			
IQI #34 - Vaginal Birth After Cesarean (VBAC) Rate, All			

PSI #2 - Death Rate in Low-Mortality Diagnosis Related Groups (DRGs)	AM/PM		X
PSI #3 - Pressure Ulcer Rate	AM/PM	X	X
PSI #4 - Death Rate among Surgical Inpatients with Serious Treatable Complications	AM/PM		X
PSI #5 - Retained Surgical Item or Unretrieved Device Fragment Count		X	
PSI #6 - Iatrogenic Pneumothorax Rate	AM/PM	X	X
PSI #7 - Central Venous Catheter-Related Blood Stream Infection Rate	AM/PM	X	X
PSI #8 - Postoperative Hip Fracture Rate	AM/PM	X	X
PSI #9 - Perioperative Hemorrhage or Hematoma Rate	AM/PM	X	X
PSI #10 - Postoperative Physiologic and Metabolic Derangement Rate	AM/PM	X	X
PSI #11 - Postoperative Respiratory Failure Rate	AM/PM	X	X
PSI #12 - Perioperative Pulmonary Embolism or Deep Vein Thrombosis Rate	AM/PM	X	X
PSI #13 - Postoperative Sepsis Rate	AM/PM	X	X
PSI #14 - Postoperative Wound Dehiscence Rate	AM/PM		X
PSI #15 - Accidental Puncture or Laceration Rate	AM/PM	X	X
PSI #16 - Transfusion Reaction Count		X	
PSI #17 - Birth Trauma Rate – Injury to Neonate			
PSI #18 - Obstetric Trauma Rate – Vaginal Delivery With Instrument			
PSI #19 - Obstetric Trauma Rate – Vaginal Delivery Without Instrument			
PDI #1 - Accidental Puncture or Laceration Rate	AM/PM	X	X
PDI #2 - Pressure Ulcer Rate	AM/PM	X	X
PDI #3 - Retained Surgical Item or Unretrieved Device Fragment Count		X	
PDI #5 - Iatrogenic Pneumothorax Rate	AM/PM	X	X
PDI #6 - RACHS-1 Pediatric Heart Surgery Mortality Rate	AM/PM		X
PDI #7 - RACHS-1 Pediatric Heart Surgery Volume			
PDI #8 - Perioperative Hemorrhage or Hematoma Rate	AM/PM	X	X
PDI #9 - Postoperative Respiratory Failure Rate	AM/PM	X	X
PDI #10 - Postoperative Sepsis Rate	AM/PM	X	X
PDI #11 - Postoperative Wound Dehiscence Rate			X
PDI #12 - Central Venous Catheter-Related Blood Stream Infection Rate	AM/PM	X	X

PDI #13 - Transfusion Reaction Count		X	
PDI #14 – Asthma Admission Rate	SAS		
PDI #15 – Diabetes Short-Term Complications Admission Rate	SAS		
PDI #16 – Gastroenteritis Admission Rate	SAS		
PDI #17 – Perforated Appendix Admission Rate	SAS		
PDI #18 – Urinary Tract Infection Admission Rate	SAS		
NQI #01 - Neonatal Iatrogenic Pneumothorax Rate		X	X
NQI #02 - Neonatal Mortality Rate	AM/PM		X
NQI #03 - Neonatal Blood Stream Infection Rate	AM/PM	X	X
PQI #1 - Diabetes Short-Term Complications Admission Rate	SAS		
PQI #2 - Perforated Appendix Admission Rate	SAS		
PQI #3 - Diabetes Long-Term Complications Admission Rate	SAS		
PQI #5 - Chronic Obstructive Pulmonary Disease (COPD) or Asthma in Older Adults Admission Rate	SAS		
PQI #7 - Hypertension Admission Rate	SAS		
PQI #8 - Heart Failure Admission Rate	SAS		
PQI #9 - Low Birth Weight Rate	SAS		
PQI #10 - Dehydration Admission Rate	SAS		
PQI #11 - Bacterial Pneumonia Admission Rate	SAS		
PQI #12 - Urinary Tract Infection Admission Rate	SAS		
PQI #13 - Angina Without Procedure Admission Rate	SAS		
PQI #14 - Uncontrolled Diabetes Admission Rate	SAS		
PQI #15 - Asthma in Younger Adults Admission Rate	SAS		
PQI #16 - Lower-Extremity Amputation Among Patients With Diabetes Rate	SAS		

IQI = Inpatient Quality Indicator; PSI = Patient Safety Indicator; PDI = Pediatric Quality Indicator; NQI = Neonatal Quality Indicator

Appendix B. Table of AHRQ QI Provider-Level Risk-adjustment Covariates

The categories highlighted in blue are mutually exclusive and exhaustive, meaning that every discharge is assigned a value of “1” for one and only one covariate and there must be an omitted covariate (usually the most common or the least risk). If covariates within a highlighted category are excluded because $N < 30$ or $p < 0.05$ then the covariate is combined with another along the risk gradient. For example, combine birth weight 500-999g with 1000-1499g, age 18-24 with age 25-29 or combine ROM subclass “4” with ROM subclass “3”.

Appendix Table B.1 Table of AHRQ QI Risk-adjustment Covariates for Provider Level Indicators

Category	Mutually Exclusive	IQI	PSI	PDI	NQI
Demographics		Sex	Sex	Sex	Sex
		Age (5-year age groups)	Age (5-year age groups)	Birth weight (500g groups) Age in days (90 days to 1 year) Age in years (1 year and above)	Birth weight (500g groups)
Severity of Illness	DRGs pool into MDCs	APR-DRG Major Diagnosis Categories (MDC)	Modified MS-DRG* Major Diagnosis Categories (MDC)	Modified MS-DRG* Major Diagnosis Categories (MDC)	Modified MS-DRG* Major Diagnosis Categories (MDC)
Comorbidities		APR-DRG Risk of mortality subclass (1 – minor; 2 - moderate; 3 – major; 4 – extreme)	AHRQ Comorbidities	AHRQ Clinical Classification Software	Congenital anomalies
Other		Transfer-in status	Transfer-in status	Transfer-in status	Transfer-in status
		Point of Origin status	Point of Origin status Days to Procedure status	Point of Origin status Days to Procedure status Indicator-specific risk stratifiers	Point of Origin status Days to Procedure status

* Prior to October 1, 2007 use CMS-DRGs; highlighted categories are mutually exclusive with an omitted covariate.

Appendix C. Provider-Level Risk Adjustment - Detailed Methods

This appendix gives some statistical detail about how the provider-level risk adjustment models are fit and how they account for missing POA data. The Analysis Module is described first. It is used annually to fit models that are incorporated into updated AHRQ QI software. The Prediction Module is described second. It is called by the SASP3.SAS program for the IQI, PSI, and PDI indicators.

The Analysis Module

The purpose of the Analysis Module (AM) is to fit a set of regression coefficients using the data of the reference population. The input dataset is expected to have variables corresponding to the outcome of interest at discharge Y , one or more indicators of an outcome of interest present on admission (POA indicators P), and covariate vectors \mathbf{X} and \mathbf{Z} containing demographic, condition, co-morbidity, and potentially any other information, used as explanatory variables. The covariate \mathbf{X} is considered an improved measurement of the quantities measured by the covariate \mathbf{Z} .

Conceptually, there could be many ways in which \mathbf{X} might improve \mathbf{Z} . At this time, those improvements are the following:

1. In the \mathbf{Z} vector, the discharge level POA exclusion data element is sometimes observed and sometimes missing. In the \mathbf{X} vector, the missing values are modeled, when missing.
2. The \mathbf{Z} vector uses all secondary diagnoses to assign APR-DRG for the IQI, but the \mathbf{X} vector uses the DX_POA data element (observed or modeled) to take into account only the diagnoses that were present on admission.
3. The \mathbf{Z} vector considers all comorbidities to be complications for the purpose of calculating the observed rate and all to be comorbidities for the purpose of risk-adjustment. The \mathbf{X} vector uses the DX_POA data element (observed or modeled) to distinguish between complications and comorbidities.

The outcome Y and covariate \mathbf{Z} variables are never missing, but elements of the covariate \mathbf{X} and values of the present-on-admission indicators P can be missing. The dataset also contains a hospital identification number and a record identification number (a key identifying unique discharge records.)

Missing Data

Missing data are handled by integrating the likelihood over all the possible values of the missing variables. This technique for dealing with missing data is well-established in the statistical literature. Little and Rubin (2002) devote several chapters to analyzing missing data by integrating over the distribution, or likelihood, of the missing data. When the integral (or sum) of

the likelihood cannot be feasibly calculated, an alternative method known as the Expectation-Maximization (EM) algorithm can be used. The EM algorithm was developed in the 1970s by Dempster, Laird and Rubin (1977) to solve MLE equations in the presence of missing data. More recently, related methods based on Markov chain Monte Carlo (MCMC) algorithms have become popular for dealing with missing and censored data. MCMC algorithms include methods such as Metropolis-Hastings or Gibbs sampling which are widely used in Bayesian statistical analysis (Robert and Casella, 2004). MCMC methods are general and robust, and can be applied to a large variety of models. These methods are based on simulation, and they produce results that are approximations of the value being estimated. The approximation error can be controlled by the number of MCMC steps used in the simulation. In particular, as the number of MCMC steps goes to infinity, the approximation error goes to zero. We will give detail about the MCMC used in the Analysis and Prediction Modules in the following sections.

Data Notation

Here is the general statistical notation used to describe the model:

- h_i is the hospital associated with the i^{th} record (patient);
- Y_i is a binary variable indicating the outcome of interest at hospital discharge associated with the i^{th} record. $Y_i = 1$ if the patient experiences the outcome of interest, $Y_i = 0$ otherwise;
- P_i is a binary variable indicating whether an outcome of interest is present on admission. Notice that if $Y_i = 0$, then it is assumed that $P_i = 0$. If more than one POA indicators are present, the maximum value is considered;
- \mathbf{Z}_i is a vector of binary explanatory variables associated with the i^{th} record;
- \mathbf{X}_i is a vector of improved binary explanatory variables associated with the i^{th} record.

In the following formulae i indicates the record index while k indicates the component index of the covariate vectors. For example, indicating with K the number of components of the covariate vectors, then $\mathbf{X}_i \in R^K$ indicates the vector of covariates associated with the i^{th} record, X_{ik} indicates the value of the k^{th} covariate associated with the i^{th} record, while X_k without the record index is used to indicate the k^{th} covariate of a generic covariate vector.

The description of the Analysis Module proceeds with a brief outline of the MCMC calculations to account for missing POA data. The outline is a conceptual simplified description using formulae without explicit posterior parameters. The sections after the outline give additional detail

Outline of the MCMC algorithm to fit $[Y|X, P = 0]$ on data sets with missing data.

Before MCMC begins:

- Fit 2 by 2 binary tables $[X_k|Z_k]$ using observations where both X_k and Z_k are measured;
- Fit logistic regression model for $[P|X]$ using observations with complete data.

MCMC loop:

1. Build joint distribution $[Y, X, P, Z] = [Y|X, P][P|X][X|Z]$;
2. Use full conditional distribution $[X|Y, P, Z] = [Y, X, P, Z]/[Y, P, Z]$ to draw missing X s (Gibbs Sampling); write the drawn missing X values to the chain. This values can be referred to as *imputed data*;
3. Use full conditional distribution $[P|Y, X, Z] = [Y, X, P, Z]/[Y, X, Z]$ to draw missing P s (Gibbs Sampling); write the drawn missing P values to the chain. This values can be referred to as *imputed data*;
4. Fit logistic model $[Y|X, P = 0]$ using the available data, where measured, and the last imputed data, where X and P are missing (see 2. and 3.) Use either MLE or GEE (depending on the user's choice) to fit the model and obtain the estimated $\hat{\beta}$ and the estimated $\text{var}(\hat{\beta})$;
5. Draw a new set of regression coefficients β from a multivariate normal distribution with mean $\hat{\beta}$ and variance $\text{var}(\hat{\beta})$; write the drawn β values to the chain.
6. Go to 1 until total iterations equals that specified in the input XML file.

Note: the probability distribution density $[Y|X, P]$ is equal to the model probability distribution density $[Y|X, P = 0]$ when $P = 0$; and it is equal to the marginal probability $[Y = 1]$ when $P = 1$.

During the MCMC loop:

- Drop burn-in entries, as specified in input XML file.
- Thin the chain, as specified in input XML file.

After the loop:

- Estimate the regression coefficients $\hat{\beta}_{MCMC}$ and their standard error by calculating the expected values (mean) and the standard deviation of the components of the MCMC chain representing the regression coefficients β associated with the model $[Y|X, P = 0]$.

More Detailed Statistical Model

The main goal of the model is the estimation of Y given \mathbf{X} and $P = 0$. We assume the “conditional” binomial model

$$[Y|\mathbf{X}, P; \beta_Y] = \prod_i (\pi_{Y,i}^{1-P_i})^{Y_i} (1 - \pi_{Y,i}^{1-P_i})^{1-Y_i} \quad (\text{C.1})$$

with logistic link

$$\text{logit}(\pi_{Y,i}) = X_i \beta_Y$$

Another component of the model is the estimation of P given \mathbf{X} , which is used to predict P when that value is missing. We assume the binomial model

$$[P|\mathbf{X}; \boldsymbol{\beta}_P] = \prod_i \pi_{P,i}^{Y_i} (1 - \pi_{P,i})^{1-Y_i} \quad (\text{C.2})$$

with logistic link

$$\text{logit}(\pi_{P,i}) = X_i \boldsymbol{\beta}_P$$

Furthermore, we estimate \mathbf{X} when elements of that vector are missing by using the information contained in \mathbf{Z} . Since both \mathbf{X} and \mathbf{Z} contain binary variables, we model $[\mathbf{X}|\mathbf{Z}]$ using the two vectors of probabilities

$$\pi_{X,k}(0) = \Pr[X_k = 1|Z_k = 0]$$

$$\pi_{X,k}(1) = \Pr[X_k = 1|Z_k = 1]$$

and the likelihood

$$[\mathbf{X}|\mathbf{Z}; \boldsymbol{\pi}_X] = \prod_{ik} \pi_{X,ik}^{X_{ik}} (1 - \pi_{X,ik})^{1-X_{ik}} \quad (\text{C.3})$$

where

$$\pi_{X,ik} = \pi_{X,k}(Z_{ik})$$

Combining equations (C.1), (C.2) and (C.3), we obtain the likelihood

$$\begin{aligned} L(Y, \mathbf{X}, P, \mathbf{Z}; \boldsymbol{\beta}_Y, \boldsymbol{\beta}_P, \boldsymbol{\pi}_X) &= [Y, \mathbf{X}, P|\mathbf{Z}; \boldsymbol{\beta}_Y, \boldsymbol{\beta}_P, \boldsymbol{\pi}_X] = \\ &= [Y|\mathbf{X}, P; \boldsymbol{\beta}_Y] \times [P|\mathbf{X}; \boldsymbol{\beta}_P] \times [\mathbf{X}|\mathbf{Z}; \boldsymbol{\pi}_X] = \\ &= \prod_i (\pi_{Y,i}^{1-P_i})^{Y_i} (1 - \pi_{Y,i}^{1-P_i})^{1-Y_i} \pi_{P,i}^{P_i} (1 - \pi_{P,i})^{1-P_i} \pi_{X,ik}^{X_{ik}} (1 - \pi_{X,ik})^{1-X_{ik}} \end{aligned} \quad (\text{C.4})$$

Likelihood (C.4) is written as a distribution of Y, \mathbf{X}, P given \mathbf{Z} . In order to write the model for missing \mathbf{X} and P , we introduce the “true” variables \mathbf{X}', P' (to which we refer as “imputed”) and add the data model

$$[X'_{ik}|X_{ik}] = \begin{cases} X_{ik} & X_{ik} \text{ is measured} \\ 1/2 & \text{otherwise} \end{cases} \quad (\text{C.5})$$

$$[P'_i|P_i] = \begin{cases} P_i & P_i \text{ is measured} \\ 1/2 & \text{otherwise} \end{cases} \quad (\text{C.6})$$

The data model acts as a family of indicator variables, fixing the “imputed” variable to the measured value if the data are not missing. The likelihood integrated (summed) over the missing data can now be written as

$$\tilde{L}(Y, \mathbf{X}, P, \mathbf{Z}; \boldsymbol{\beta}_Y, \boldsymbol{\beta}_P, \boldsymbol{\pi}_X) = \sum_{P', \mathbf{X}'} L(Y, \mathbf{X}', P', \mathbf{Z}; \boldsymbol{\beta}_Y, \boldsymbol{\beta}_P, \boldsymbol{\pi}_X) \times [\mathbf{X}'|\mathbf{X}] \times [P'|P] =$$

$$= \sum_{P', X'} [Y|X', P'; \beta_Y] \times [P'|X'; \beta_P] \times [X'|Z; \pi_X] \times [X'|X] \times [P'|P] \quad (C.7)$$

Since the distribution inside the sum is the product of distributions for each record i , (see equation C.4), using the distributive property we can write

$$\begin{aligned} \tilde{L}(Y, X, P, Z; \beta_Y, \beta_P, \pi_X) &= \\ &= \prod_i \left\{ \sum_{P'_i, X'_i} [Y_i|X'_i, P'_i; \beta_Y] \times [P'_i|X'_i; \beta_P] \times [X'_i|Z_i; \pi_X] \times [X'_i|X_i] \times [P'_i|P_i] \right\} \end{aligned}$$

As the number of components of the covariate vector X increases, to compute the above sum deterministically becomes unfeasible. For example, if X_i has 30 components, then the number of sums for every record i with missing X_i data is $2^{30} > 10^9$, and if the number of components is 100, then the number of sums becomes $2^{100} > 10^{30}$. The AM and PM employ alternative methods for integrating (summing) the likelihood over the missing data.

Model Fitting Approach using MCMC

To fit the β_Y coefficients using the *marginal* likelihood (C.7) (that is, the likelihood integrated over the missing data), we use Gibbs sampling, which is a standard MCMC technique (see Robert and Casella, 2004).

After reading the data, the AM fits the coefficients $\hat{\beta}_P$ and $\hat{\pi}_X$ using only the records in the dataset that have no missing data. Then, given $\hat{\beta}_P$ and $\hat{\pi}_X$, a sample of values of β_Y , X' , and P' is drawn from the posterior distribution:

$$[X', P', \beta_Y]_{post} \propto [Y|X', P'; \beta_Y] \times [P'|X'; \hat{\beta}_P] \times [X'|Z; \hat{\pi}_X] \times [X'|X] \times [P'|P] \quad (C.8)$$

The posterior distribution factors as

$$[X', P', \beta_Y]_{post} = \prod_i [X'_i, P'_i, \beta_Y]_{post}$$

Univariate and multivariate Gibbs sampling is used to sample X' , P' , and β_Y . The sampling equations are the following:

- Sampling of P'_i (univariate Gibbs sampling)

$$P'_{i,new} \sim [P'_i|X'_i, \beta_Y]_{post} = \frac{[X'_i, P'_i, \beta_Y]_{post}}{[X'_i, \beta_Y]_{post}} = \frac{[X'_i, P'_i, \beta_Y]_{post}}{[X'_i, P'_i = 0, \beta_Y]_{post} + [X'_i, P'_i = 1, \beta_Y]_{post}}$$

Notice that posterior conditional distribution $[P'_i | \mathbf{X}'_i, \boldsymbol{\beta}_Y]_{post}$ is defined from the joint posterior on the left-hand-side of (C.8), and it is different from the conditional distribution $[P' | \mathbf{X}'; \hat{\boldsymbol{\beta}}_P]$, which appears on the right-hand-side of (C.8). Due to the constraint $Y_i = 0 \Rightarrow P_i = 0$, we have $P'_{i,new} = 0$ if $Y_i = 0$. When $Y_i = 1$, using equation (C.8) and simplifying the common factors in the numerator and the denominator, we can write

$$\begin{aligned} [P'_i = 1 | \mathbf{X}'_i, \boldsymbol{\beta}_Y; Y_i = 1]_{post} &= \\ &= \frac{[Y_i = 1 | \mathbf{X}'_i, P'_i = 1; \boldsymbol{\beta}_Y] \times \hat{\pi}_{P,i}}{[Y_i = 1 | \mathbf{X}'_i, P'_i = 0; \boldsymbol{\beta}_Y] \times (1 - \hat{\pi}_{P,i}) + [Y_i = 1 | \mathbf{X}'_i, P'_i = 1; \boldsymbol{\beta}_Y] \times \hat{\pi}_{P,i}} \end{aligned}$$

where $\hat{\pi}_{P,i}$ is the estimated probability⁴ $[P'_i = 1 | \mathbf{X}'_i; \hat{\boldsymbol{\beta}}_P]$. Noticing that $[Y_i = 1 | \mathbf{X}'_i, P'_i = 1; \boldsymbol{\beta}_Y] = 1$ and $[Y_i = 1 | \mathbf{X}'_i, P'_i = 0; \boldsymbol{\beta}_Y] = \pi_{Y,i}$, we obtain

$$[P'_i = 1 | \mathbf{X}'_i, \boldsymbol{\beta}_Y; Y_i = 1]_{post} = \frac{\hat{\pi}_{P,i}}{\pi_{Y,i}(1 - \hat{\pi}_{P,i}) + \hat{\pi}_{P,i}}$$

Hence, the sampling equations for $P'_{i,new}$ become

$$\begin{aligned} P'_{i,new} &= 0, \quad \text{if } Y_i = 0 \\ P'_{i,new} &\sim \text{Bernoulli}\left(\frac{\hat{\pi}_{P,i}}{\pi_{Y,i}(1 - \hat{\pi}_{P,i}) + \hat{\pi}_{P,i}}\right), \quad \text{if } Y_i = 1 \end{aligned}$$

- Sampling of X'_{ik} (univariate Gibbs sampling)

$$\begin{aligned} X'_{ik,new} \sim [X'_{ik} | \mathbf{X}'_{ik-}, P'_i, \boldsymbol{\beta}_Y]_{post} &= \frac{[X'_{ik}, \mathbf{X}'_{ik-}, P'_i, \boldsymbol{\beta}_Y]_{post}}{[\mathbf{X}'_{ik-}, P'_i, \boldsymbol{\beta}_Y]_{post}} = \\ &= \frac{[X'_{ik}, \mathbf{X}'_{ik-}, P'_i, \boldsymbol{\beta}_Y]_{post}}{[X'_{ik} = 0, \mathbf{X}'_{ik-}, P'_i, \boldsymbol{\beta}_Y]_{post} + [X'_{ik} = 1, \mathbf{X}'_{ik-}, P'_i, \boldsymbol{\beta}_Y]_{post}} \end{aligned}$$

where \mathbf{X}'_{ik-} indicates all the components of the vector \mathbf{X}'_i except the k -th one, and $[X'_{ik}, \mathbf{X}'_{ik-}, P'_i, \boldsymbol{\beta}_Y]_{post} \equiv [\mathbf{X}'_i, P'_i, \boldsymbol{\beta}_Y]_{post}$. Using equation (C.8) and simplifying the common factors in the numerator and the denominator, we can write

$$[X'_{ik} = 1 | \mathbf{X}'_{ik-}, P'_i, \boldsymbol{\beta}_Y]_{post} = \frac{f(X'_{ik} = 1) \times \hat{\pi}_{X,ik}}{f(X'_{ik} = 0) \times (1 - \hat{\pi}_{X,ik}) + f(X'_{ik} = 1) \times \hat{\pi}_{X,ik}}$$

where

⁴ As mentioned at the beginning of the paragraph, the Analysis Module estimates $\hat{\boldsymbol{\beta}}_P$ and $\hat{\boldsymbol{\pi}}_X$ using only the records with no-missing data before the MCMC analysis.

$$f(X'_{ik}) = [Y_i | X'_{ik}, \mathbf{X}'_{ik-}, P'_i; \boldsymbol{\beta}_Y] \times [P'_i | X'_{ik}, \mathbf{X}'_{ik-}; \hat{\boldsymbol{\beta}}_P]$$

and $\hat{\pi}_{X,ik}$ is the estimated probability⁴ $[X_{ik} = 1 | Z_{ik}]$. Hence, the sampling equation for $X'_{ik,new}$ become

$$X'_{ik,new} \sim \text{Bernoulli} \left(\frac{f(X'_{ik} = 1) \times \hat{\pi}_{X,ik}}{f(X'_{ik} = 0) \times (1 - \hat{\pi}_{X,ik}) + f(X'_{ik} = 1) \times \hat{\pi}_{X,ik}} \right)$$

- Sampling of $\boldsymbol{\beta}_Y$ (multivariate Gibbs sampling)

$$\boldsymbol{\beta}_{Y,new} \sim N(\boldsymbol{\mu}, \boldsymbol{\Sigma}) \times N(\mathbf{0}, \sigma^2 \mathbf{I})$$

where $N(\boldsymbol{\mu}, \boldsymbol{\Sigma})$ is the multivariate normal approximation of the function

$$\boldsymbol{\beta}_Y \rightarrow [Y | \mathbf{X}', P'; \boldsymbol{\beta}_Y] = \prod_i \left(\pi_{Y,i}^{1-P'_i} \right)^{Y_i} \left(1 - \pi_{Y,i}^{1-P'_i} \right)^{1-Y_i}$$

using a second order Taylor expansion of the log-likelihood, as standard practice in Generalized Linear Models.

The AM includes an option to use Generalized Estimating Equations (Zeger & Liang, 1986, Liang & Zeger, 1986, Fitzmaurice, Laird & Ware, 2004) with an exchangeable correlation model to account for within hospital h_i correlation. The normal distribution $N(\mathbf{0}, \sigma^2 \mathbf{I})$ represents a non-informative prior distribution (for small values of the precision $\tau = 1/\sigma^2$) added to regularize cases with separable data.

Analysis Module Output

In addition to the quantities $\hat{\boldsymbol{\beta}}_Y$, $\hat{\boldsymbol{\beta}}_P$, $\hat{\pi}_X$ discussed above, the Analysis Module also calculates, for comparison purposes, the regression coefficients of the binomial model $[Y | \mathbf{Z}]$ fitted using all the data, the binomial model $[Y | \mathbf{X}]$ fitted using all the non-missing data, and the binomial model $[Y | \mathbf{X}, P = 0]$ fitted using all the non-missing data with $P = 0$.

The Prediction Module

The purpose of the Prediction Module (PM) is to predict, for each discharge record, the expected value of the adverse health outcome. These predictions are based on: i) the user's input dataset containing the same information, and having the same format as the analysis input dataset; and ii) a set of regression coefficients previously fitted by the Analysis Module using the data from a reference population. Since the adverse health outcome is binary (either it is present or it is not), the expected value for each discharge can be viewed as the probability that the adverse health outcome would have occurred for that discharge. These calculations are straightforward when there are no missing data, but they require high dimensional sums when data are missing.

Overview

If POA data are being ignored, then the relevant output from the PM is the expected value of $Y|Z$. This is calculated with a simple scalar product of regression coefficients and covariates. The calculation is performed in the PM, but it results in the same number that would be obtained using SAS PROC SCORE. There is no MCMC involved in its calculation.

IF POA data are being accounted for in the calculations, then the relevant output from the PM is the expected value of $Y|X, P=0$.

- a) For discharge records where POA is observed, this, too, is calculated with a simple scalar product of regression coefficients and covariates. The MCMC is not involved.
- b) For discharge records where POA is missing, the expected value is calculated using a Gibbs Sampler MCMC as described below.

Outline of the MCMC algorithm to predict $[Y|X, P = 0]$ using records with missing data

Before the MCMC begins:

- Read the 2 by 2 binary tables $[X_k|Z_k]$ and the estimated regression coefficients of the model $[P|X]$ fitted before the MCMC analysis discussed in the previous section;
- Read the estimated regression coefficients $\hat{\beta}$ of the model $[Y, X, P = 0]$ fitted by the MCMC analysis discusses in the previous section.

MCMC loop:

1. Build joint distribution $[X, P, Z] = [P|X][X|Z]$;
2. Use full conditional distribution $[X|P, Z] = [X, P, Z]/[P, Z]$ to draw missing X s (Gibbs Sampling); write the drawn missing X values to the chain. These values can be referred to as *imputed data*.
3. Use full conditional distribution $[P|X, Z] = [X, P, Z]/[X, Z]$ to draw missing P s (Gibbs Sampling); write the drawn missing P values to the chain. These values can be referred to as *imputed data*.

4. Calculate predicted probability of an adverse outcome using the fitted regression coefficient $\hat{\beta}_{MCMC}$, the available X and P data, where measured, and the last imputed data, where X and P are missing (see 2. and 3.) The predicted probability, when $P = 0$, is calculated according to a logistic regression as the inverse logit of the scalar product $\hat{\beta}_{MCMC} \cdot X$.
5. Write the predicted probabilities of an adverse outcome when $P = 0$ to the MCMC chain.
6. Go to 1 until total iterations equals that specified in the input XML file.

Note: points 1 through 3 of this section are similar to points 1 through 3 of the Analysis Module MCMC, only here we do not have Y data, which is what we are predicting.

During the MCMC loop:

- Drop burn-in entries
- Thin the chain, if appropriate (e.g., if the MCMC missing X s, missing P s, and the regression coefficients β are correlated in the chain)

After the MCMC loop:

- Calculate the expected values (average) of the components of the MCMC chain representing the predicted adverse outcome when $P = 0$;

Note 1. The MCMC expected values are an unbiased estimated of the predicted adverse outcome assuming that no value is missing;

Note 2. The random numerical relative error introduced by the finiteness of the MCMC chain is inversely proportional to the square root of number of MCMC steps, and it becomes negligible compared to the statistical error of the predictions as the number of MCMC increases. See the 2011 report on Prediction Model accuracy posted on the AHRQ website.

(<http://www.qualityindicators.ahrq.gov/Modules/Default.aspx>)

More Detailed Statistical Model

Let $\hat{\beta}_Y$, $\hat{\beta}_P$, $\hat{\pi}_X$ be the regression coefficients fit by the AM as described in the previous section, and set

$$p(X', P') = [X', P' | Y, X', P', Z; \hat{\beta}_Y, \hat{\beta}_P, \hat{\pi}_X] \propto \\ \propto [Y | X', P'; \hat{\beta}_Y] \times [P' | X'; \hat{\beta}_P] \times [X' | Z; \hat{\pi}_X] \times [X' | X] \times [P' | P]$$

The main goal of the Prediction Module is to calculate

$$\Pr[Y_i = 1 | X_i, P_i = 0]$$

where we explicitly use the index i to indicate that the prediction is performed at the discharge record. For a record where both P_i and X_i are measured and $P_i = 0$, the predicted probability is simply given by

$$\Pr[Y_i = 1 | \mathbf{X}_i, P_i = 0] = \hat{\pi}_Y(\mathbf{X}_i) \equiv \text{logit}^{-1}(\mathbf{X}_i \hat{\boldsymbol{\beta}}_Y)$$

If P_i is missing, then we calculate the expected value of $\hat{\pi}_Y(\mathbf{X}_i)(1 - P_i')$ over the distribution of the missing data $p(\mathbf{X}'_i, P'_i)$, namely

$$E_i[\hat{\pi}_Y] = \sum_{P'_i \in \{0,1\}} \hat{\pi}_Y(\mathbf{X}_i)(1 - P'_i) p(\mathbf{X}'_i, P'_i) = \hat{\pi}_Y(\mathbf{X}_i) p(\mathbf{X}_i, 0) = \text{logit}^{-1}(\mathbf{X}_i \hat{\boldsymbol{\beta}}_Y) p(\mathbf{X}_i, 0)$$

which is quick to compute. The general case however, where P_i and/or any combination of components of the vector \mathbf{X}_i is missing, requires the sum over all the possible combinations of missing values:

$$\begin{aligned} E_i[\hat{\pi}_Y] &= \sum_{P'_i, \mathbf{X}'_i} \hat{\pi}_Y(\mathbf{X}'_i)(1 - P'_i) p(\mathbf{X}'_i, P'_i) = \\ &= \sum_{P'_i, \mathbf{X}'_i} \text{logit}^{-1}(\mathbf{X}'_i \hat{\boldsymbol{\beta}}_Y)(1 - P'_i) p(\mathbf{X}'_i, P'_i) \end{aligned} \quad (\text{C.9})$$

Following the same argument used in the previous section, as the number of components of the vector of covariate \mathbf{X} increases, the deterministic sum quickly becomes unfeasible and an alternative approach is necessary. In this case, we evaluated the multidimensional sum using a Gibbs sampling implementation of the Importance Sampling Monte Carlo integration method (see chapter 7, paragraphs 7.6, 7.7 of the celebrated Numerical Recipes book (Press et al., 1992) for a primer introduction on Monte Carlo integration, references (Hammersley & Handscomb, 1964; Ripley, 1987; Rubinstein, 1981) for a deeper discussion, or many of the papers on the subject that can be freely found online.)

The methods works as follows: we draw a sample of imputed \mathbf{X}'_i, P'_i values from the distribution $p(\mathbf{X}'_i, P'_i)$, namely

$$(\mathbf{X}'_{i,s}, P'_{i,s}) \sim p(\mathbf{X}'_i, P'_i) \quad s = 1, \dots, N$$

using Gibbs Sampling to sample \mathbf{X}'_i and P'_i discussed in the Analysis Module section, then we approximate the sum (C.9) with the sample sum

$$I_N = \frac{1}{N} \sum_{s=1}^N \hat{\pi}_Y(\mathbf{X}'_{i,s})(1 - P'_{i,s})$$

Because Gibbs sampling generates a Markov chain, this method can be considered a MCMC method.

The numerical approximation of the Monte Carlo integration is known to be controlled by the sample variance

$$V_N = \frac{1}{N-1} \sum_{s=1}^N \left(\hat{\pi}_Y(\mathbf{X}'_{i,s})(1 - P'_{i,s}) \right)^2 - \frac{N}{N-1} \left(\frac{1}{N} \sum_{s=1}^N \hat{\pi}_Y(\mathbf{X}'_{i,s})(1 - P'_{i,s}) \right)^2$$

Since the distribution p has compact support and the function $\hat{\pi}_Y(\mathbf{X}_i)$ is bounded, then the variance V_N is also bounded. Therefore, under the assumption that the sample $(\mathbf{X}'_{i,s}, P'_{i,s})$ is ergodic (i.e. random), it follows from the central limit theorem that

$$I_N \rightarrow E_i[\hat{\pi}_Y]$$

in a probabilistic sense with a standard error equal to

$$\sigma_N = \sqrt{V_N/N}$$

The value V_N can be calculated together with I_N to provide an estimate of the Monte Carlo approximation error. However, regardless of V_N , the error of the MCMC integration scales as $1/\sqrt{N}$.

The PM also calculates, for comparative purposes, the expected values of the predictor $\hat{\pi}_Y$ for the different sets of coefficients $\hat{\beta}_Y$ estimated in the Analysis Module, the expected values of the predictor $\hat{\pi}_P$, and the marginal posterior probability of $P'_i = 1$ given by

$$\sum_{\mathbf{X}'_i} p(\mathbf{X}'_i, 1)$$

Appendix D. Helpful Background Information

This appendix includes some helpful information on both annual coding updates and software that is related to, or used by the AHRQ QI software. This information is not specifically statistical in nature, but does inform and affect the methods described in the main body of the document.

A. Fiscal year coding updates

Each fiscal year there are new ICD-9-CM and MS-DRG codes and revisions to existing codes. These changes are effective on October 1st. For example, Version 29 (fiscal year 2012) codes were effective October 1, 2011 and were incorporated in the version 4.4 release of the QI software. Diagnosis and procedure codes are used in the numerator and denominator specifications for the Patient Safety Indicators (PSIs), Prevention Quality Indicators (PQIs), Pediatric Quality Indicators (PDIs), and Inpatient Quality Indicators (IQIs). ICD-9-CM procedure codes affect the Centers for Medicare and Medicaid Services (CMS) classification of “major operating room procedure” for postoperative PSIs and PDIs. Another use of ICD-9-CM is in risk stratification used in the AHRQ Comorbidity Software, AHRQ’s Clinical Classification System, and 3M’s All Patient Refined Diagnosis Related Groups (APR-DRGs). Diagnosis codes are maintained by the Centers for Disease Control and Prevention’s (CDC) National Center for Health Statistics (NCHS). Procedure and MS-DRG codes are maintained by the CMS. The activities of both agencies are conducted jointly through the ICD-9-CM Coordination and Maintenance Committee (the Committee). The Committee meets in September and March to consider proposals for new codes and revisions to existing codes.

The Committee has implemented a partial freeze of the ICD-9-CM and ICD-10-CM/PCS codes in preparation for the implementation of ICD-10 codes on October 1, 2013. As a result, the last regular, annual updates to both ICD-9-CM and ICD-10-CM/PCS codes were made on October 1, 2011 (fiscal year 2012). It is anticipated that October 1, 2012 will witness only limited coding updates (from the September 14-15, 2011 and March 5, 2012 meetings of the Committee) to both the ICD-9-CM and ICD-10-CM/PCS codes to capture new technologies and diseases. The Committee meeting agendas and ICD-9-CM timeline is located at the [CMS site](#).

Information on ICD-10-CM coding updates is located on both the NCHS (<http://www.cdc.gov/nchs/icd/icd10cm.htm>) and CMS (http://www.cms.gov/ICD10/11b14_2012_ICD10CM_and_GEMs.asp and http://www.cms.gov/ICD10/11b15_2012_ICD10PCS.asp#TopOfPage) web sites.

APR-DRG codes are maintained by 3M.

A.1 ICD-9-CM coding updates and coding guidelines

Information on ICD-9-CM coding updates is located on both the NCHS and CMS web sites: (<http://www.cdc.gov/nchs/icd/icd9cm.htm>)

(www.cdc.gov/nchs/data/icd/icd9cm_guidelines_2011.pdf)
(http://www.cms.gov/ICD9ProviderDiagnosticCodes/01_overview.asp)

The anticipated coding updates for the subsequent version of the AHRQ QIs will consist of:

- New codes, if released.
- Limited ICD-9-CM coding revisions or deletions.
- NQF related updates, which may affect one or more indicators (This activity is performed in collaboration with task C.08. A set of NQF requested refinements have been submitted by AHRQ).

Activities during the base year will focus on these coding updates for the subsequent version of the AHRQ QIs. In general, updates to diagnosis and procedure codes are available on the NCHS or CMS web site. Preliminary updates are posted in March and final updates are posted in July. Diagnosis code updates are reported in Volume 1 (a tabular listing containing a numerical list of the disease code numbers) and Volume 2 (an alphabetical index to the disease entries). Procedure code updates are reported in Volume 3 (an alphabetic index and tabular list for surgical, diagnostic, and therapeutic procedures in hospitals and inpatient settings).

The meeting calendar of the Committee will be monitored on an ongoing basis for meeting status and updates to the meeting minutes, and the published coding changes (Volumes 1 and 2 for the diagnosis codes and Volume 3 for the procedure codes) and errata, both preliminary and final, will be reviewed.

The processes for evaluating the updates are described within each subsection below.

Diagnosis Codes

An update consists of three documents.

- ICD-9-CM Index to Diseases Addenda – lists changes to the indexing of codes to diseases.
- ICD-9-CM Diagnosis Tabular Addenda – lists changes to the codes and code categories (defined as the first three digits).
- Conversion Table of New ICD-9-CM Codes – maps current codes to previous codes.

The update process consists of reviewing these documents to identify any coding changes that impact the numerator, denominator or exclusion logic of the AHRQ QI. There are two types of changes:

- A current code is split into two or more sub-codes and the current code is retired. Cases previously assigned to the current code are now assigned to the sub-codes.
- A new code or code category is created. Some cases previously assigned to a current code are now assigned to the new code.

Each change is evaluated to determine whether cases assigned to the codes belong in the numerator, denominator or exclusion logic of one or more AHRQ QI.

Procedure Codes

An update consists of two documents.

- ICD-9-CM Procedure Tabular Addenda – lists changes to the codes and code categories
- Conversion Table of New ICD-9-CM Codes – maps current codes to previous codes.

The update process consists of reviewing these documents to identify any coding changes that impact the numerator, denominator or exclusion logic of the AHRQ QI. There are two types of changes.

- A current code is split into two or more sub-codes and the current code is retired. Cases previously assigned to the current code are now assigned to the sub-codes.
- A new code or code category is created. Some cases previously assigned to a current code are now assigned to the new code.

Each change is evaluated to determine whether cases assigned to the codes belong in the numerator, denominator or exclusion logic of one or more AHRQ QI.

A.2 DRG coding updates

There are two editions of the DRGs. The first edition uses CMS-DRGs and the second edition uses MS-DRGs. The first edition is Version 24 and earlier; the second edition is Version 25 and later.

Updates to CMS-DRG are no longer supported by CMS.

Updates to MS-DRG codes are available on the CMS web site and in the Federal Register. Preliminary updates are posted in May and final updates or corrections are posted by August. (See <http://www.cms.gov/AcuteInpatientPPS>).

The update process consists of reviewing Table 5, which is a list of MS-DRGs, Relative Weighting Factors and Geometric and Arithmetic Mean Length of Stay and is one of the data tables from the fiscal year Inpatient Prospective Payment System from CMS. Ambiguity around the content of any update may usually be resolved through a review of the Federal Register notice. Prior to the implementation of the MS-DRGs, CMS would add and revise many DRGs annually. However, with the implementation of the MS-DRGs, changes are less frequent.

Activities during the base year will focus on reviewing the MS-DRG updates and determining what measure(s) are impacted with regards to the AHRQ QIs.

3M APR-DRG coding updates

There is no public posting of updates to the APR-DRG. The commercial product is released in October with an update in April. A research license for the commercial product is available from AHRQ. The limited license grouper used in the AHRQ QI software is available on an ad hoc

basis under a voluntary arrangement with 3M. Contact information for the APR-DRG is as follows:

Anne M. Boucher
Implementation Manager
Clinical and Economic Research
3M Health Information Systems
100 Barnes Road
Wallingford, CT 06492
Telephone: (203) 949 6497
Email: amboucher@mmm.com

Along with the limited license grouper, 3M provides documentation on changes to the APR-DRG logic. APR-DRG uses the same version numbering system used by NCHS and CMS. Prior to Version 23 (fiscal year 2006), 3M released a new version of the APR-DRG only once every five fiscal years with an ICD-9-CM mapping to maintain compatibility. Currently 3M releases a new version each fiscal year.

Updating the APR-DRG consists of the following steps:

1. Running the commercial product on the most recent year of Healthcare Cost and Utilization Project (HCUP) data available.
2. AHRQ has “pre-grouped” the HCUP data for selected states and made APR-DRG and risk-of-mortality subclass data elements available on the HCUP intramural databases. Step number 1 does not need to be done for these states.
3. Tabulating the frequency of APR-DRGs in the denominator of each IQI that uses the APR-DRG for risk-adjustment.
4. Retaining those APR-DRGs with at least 30 cases in the numerator.
5. Ensuring that those retained APR-DRGs are included in the covariate tables.

B. Related software maintained by HCUP at AHRQ

The AHRQ QI software uses other AHRQ software as components of the indicator specifications or risk-adjustment covariate specifications. These software components are also updated annually to reflect coding changes. The AHRQ QI support team does not independently review these changes; rather the coding changes are implemented without further review.

B.1 Comorbidity software

There are two editions of the comorbidity software. The first edition uses CMS-DRGs and the second edition uses MS-DRGs. The comorbidity software has its own version numbering system. The first edition is version 3.4 and earlier; the second edition is version 3.5 and later. (See <http://www.hcup-us.ahrq.gov/toolssoftware/comorbidity/comorbidity.jsp>).

The comorbidity software consists of two SAS programs. The first program, Creation of Format Library for Comorbidity Groups (Comformat.txt), creates a SAS format library that maps diagnosis codes into comorbidity indicators. Additional formats are also created to exclude conditions that may be complications or that may be related to the principal diagnosis. The second SAS program, Creation of Comorbidity Variables (Comoanaly.txt), applies the formats created above to a data set containing administrative data and then creates the comorbidity variables used to define the risk-adjustment covariates.

Updating the comorbidity software as used in the AHRQ QI software consists of the following steps:

- Comparing the current format program with the previous format program to identify any changes.
- Comparing the current analysis program with the analysis format program to identify any changes.
- Determine whether any of the changes present a problem for backwards compatibility and, if there is such a problem, design a solution.
- Implement any changes and solutions in the AHRQ QI software.

B.2 Clinical Classification Software (CCS)

The CCS for ICD-9-CM is a diagnosis and procedure categorization scheme that collapses individual codes into a smaller number of clinically meaningful categories. The AHRQ QI uses the single-level edition of the CCS for diagnoses and procedures. The software consists of a SAS formats program.

(See <http://www.hcup-us.ahrq.gov/toolssoftware/ccs/ccs.jsp>).

Updating the clinical classification software as used in the AHRQ QI software consists of the following steps:

- Comparing the current format program with the previous format program to identify any changes.
- Determine whether any of the changes present a problem for backwards compatibility and, if there is such a problem, design a solution.
- Implement any changes and solutions in the AHRQ QI software.

B.3 Procedure classes

The procedure classes assign ICD-9-CM procedure codes to one of four categories:

- Minor Diagnostic - Non-operating room procedures that are diagnostic.
- Minor Therapeutic - Non-operating room procedures that are therapeutic.
- Major Diagnostic - All procedures considered valid operating room procedures by the DRG grouper and that are performed for diagnostic reasons.
- Major Therapeutic - All procedures considered valid operating room procedures by the DRG grouper and that are performed for therapeutic reasons.

(See <http://www.hcup-us.ahrq.gov/toolssoftware/procedure/procedure.jsp>).

There is one file per fiscal year (PC.csv) that includes three elements: ICD-9-CM procedure codes, ICD-9-CM code labels, and procedure class assignments. In general, most of the changes relate to new procedure codes. However, sometimes the procedure class changes for an existing code. In these circumstances, the most recent assignment is used.

Updating the procedure classes as used in the AHRQ QI software consists of the following steps:

- Comparing the current procedure class assignments with the previous procedure class assignments to identify any changes.
- Special attention is given to operating room procedures in classes 3 and 4 (used to identify surgical discharges).
- Implement any changes in the AHRQ QI software.

C. Related classifications maintained by the AHRQ QI support team

The AHRQ QI software also uses other classifications as a component of the indicator specification or risk-adjustment covariate specification. These classification components are updated annually to reflect coding changes. The classifications include the Modified DRGs (MDRGs), birth weight (BWHTCAT), Congenital Anomalies (CONGCAT), and indicator-specification stratifications for the PDIs (HPPD01, GPPD02, GPPD10, HPPD10 and GPPD12).

C.1 Modified DRGs (MDRGs)

The purpose of the MDRG is to maintain a consistent mapping between CMS DRGs and MS-DRGs, and to pool MS-DRGs with and without CCs and MCCs. A new MS-DRG code either divides an existing MS-DRG into sub-MS-DRGs or re-assigns cases from multiple existing MS-DRGs. The MDRG is a four digit code. The first two digits are the Major Diagnosis Category (MDC), and the second two digits are a sequence number (e.g., 01-04) within the MDC.

Updating the modified DRGs consists of the following steps:

- Identify the relevant AHRQ QIs for which the fiscal year MS-DRG changes apply. The MS-DRG changes are identified in the CMS Table 5 (a list of MS-DRGs, Relative Weighting Factors and Geometric and Arithmetic Mean Length of Stay) from the fiscal year Inpatient Prospective Payment System.
- Use the CMS crosswalk to pool CMS-DRGs and MS-DRGs into a single MDRG and compare with the MDRG categories table in the relevant risk adjustment tables document.
- Implement any changes in the AHRQ QI software.

C.2 Birth weight (BWHTCAT)

BWHTCAT in 250g increments are defined by ICD-9-CM codes. Occasionally new codes are derived from existing codes.

Updating the birth weight categories consists of the following steps:

- Identify the relevant ICD-9-CM coding updates that pertain to the definition of the birth weight categories.
- Update the specifications, appendix and change log for the PDIs.
- Implement any changes in the AHRQ QI software.

C.3 Congenital anomalies (CONGCAT)

CONGCAT for gastrointestinal, genitourinary, central nervous system, pulmonary, cardiovascular, skeletal, chromosomal syndromes and selected other congenital anomalies are defined by ICD-9-CM codes (Original source Phibbs, et. al.⁵). Occasionally new codes are derived from existing codes.

Updating the CONGCATs consists of the following steps:

- Identify the relevant ICD-9-CM coding updates that pertain to the definition of the congenital anomalies.
- Update the specifications and change log for the relevant AHRQ QIs.
- Implement any changes in the AHRQ QI software.

C.4 Indicator-specific

Some PDIs have classifications used in stratification and as covariates in risk-adjustment. These classifications are procedure type risk category (HPPD01), pressure ulcer risk category (GPPD02), wound class procedure type (GPPD10), immune-compromised risk category (HPPD10) and bloodstream infection risk category (GPPD12). Occasionally new codes are derived from existing codes.

Updating the indicator-specific classifications consists of the following steps:

- Identify the relevant ICD-9-CM coding updates that pertain to the definition of the classifications.
- Update the specifications, appendix and change log for the relevant AHRQ QIs.
- Implement any changes in the AHRQ QI software.

D. Risk-adjustment for Congenital Heart Surgery (RACHS-1) software

RACHS-1 is a type of specification (the numerator and denominator inclusion and exclusion rules). The Pediatric Heart Surgery Mortality (PDI #6) measure uses the RACHS-1 software to assign pediatric heart surgery cases to risk strata depending on the type of surgery (HPPD06). The stratification occurs upon running the RACHS-1 syntax which is embedded in the

⁵ Phibbs CS, Baker LC, Caughey AB, Danielsen B, Schmitt SK, Phibbs RH. Level and volume of neonatal intensive care and mortality in very-low-birth-weight infants. *New England Journal of Medicine*. 2007;356(21):2165-2175 & Supplement.

software. The RACHS-1 software is maintained on an ad hoc basis by Children's Hospital in Boston.

(See <http://www.ncbi.nlm.nih.gov/pubmed/15283367>).

Updating the RACHS-1 software consists of confirming the coding updates that apply to RACHS-1 from the Children's Hospital in Boston. The RACHS-1 stratifications should be added to the risk adjustment documentation under C.12.4.6 in the C.12 work plan.



2013 POPULATION FILE FOR USE WITH AHRQ QUALITY INDICATORS™ Version 4.5

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1.0 Overview

The Agency for Healthcare Research and Quality (AHRQ) Quality Indicators (QI)™ include 36 area-level indicators (Table 1). These indicators are intended to measure healthcare quality across the population in a geographic area rather than for a single facility or provider. With a few exceptions, as noted in Table 1, the denominators for area-level indicators are the population of the area being examined, subset by age or (for some indicators) gender. The denominators for these indicators must be constructed from an outside source rather than drawn from a subset of discharges in the user's input file.

The objective of this document is to describe how the population data estimates are derived from public-use census data for use with the SAS QI Software Version 4.5 (SAS QI v4.5) and Windows QI Software Version 4.5 (WinQI v4.5). Population figures through 2013 for use with SAS QI v4.5 are provided in the file POP95T13.txt, available as a separate download on the AHRQ QI website. Population data are built into the installation package for WinQI v4.5.

Table 1. AHRQ QI Area-Level Indicators

IQI #26 Coronary Artery Bypass Graft (CABG) Rate	PQI #10 Dehydration Admission Rate
IQI #27 Percutaneous Coronary Intervention (PCI) Rate	PQI #11 Bacterial Pneumonia Admission Rate
IQI #28 Hysterectomy Rate	PQI #12 Urinary Tract Infection Admission Rate
IQI #29 Laminectomy or Spinal Fusion Rate	PQI #13 Angina Without Procedure Admission Rate
PSI #21 Retained Surgical Item or Unretrieved Device Fragment Rate	PQI #14 Uncontrolled Diabetes Admission Rate
PSI #22 Iatrogenic Pneumothorax Rate	PQI #15 Asthma in Younger Adults Admission Rate
PSI #23 Central Venous Catheter-Related Blood Stream Infection Rate	PQI #16 Lower-Extremity Amputation among Patients with Diabetes Rate
PSI #24 Postoperative Wound Dehiscence Rate	PQI #90 Prevention Quality Overall Composite
PSI #25 Accidental Puncture or Laceration Rate	PQI #91 Prevention Quality Acute Composite
PSI #26 Transfusion Reaction Rate	PQI #92 Prevention Quality Chronic Composite
PSI #27 Perioperative Hemorrhage or Hematoma Rate	PDI #14 Asthma Admission Rate
PQI #1 Diabetes Short-Term Complications Admission Rate	PDI #15 Diabetes Short-Term Complications Admission Rate
PQI #2 Perforated Appendix Admission Rate ¹	PDI #16 Gastroenteritis Admission Rate
PQI #3 Diabetes Long-Term Complications Admission Rate	PDI #17 Perforated Appendix Admission Rate ¹
PQI #5 Chronic Obstructive Pulmonary Disease (COPD) or Asthma in Older Adults Admission Rate	PDI #18 Urinary Tract Infection Admission Rate
PQI #7 Hypertension Admission Rate	PDI #90 Pediatric Quality Overall Composite
PQI #8 Heart Failure Admission Rate	PDI #91 Pediatric Quality Acute Composite
PQI #9 Low Birth Weight Rate ¹	PDI #92 Pediatric Quality Chronic Composite

¹These indicators use discharge data from the input data file to estimate the denominator rather than demographic data from the population file.

2.0 Data and Methodology

Every year, the Census Bureau releases postcensal population estimates[†] (as of July 1 of each year) that are generated with the assistance of the Federal State Cooperative Program for Population Estimates (FSCPE) using residence, total births, total deaths, and net migration. With each new issue of July 1 estimates from the Census Bureau, the Census Bureau makes revisions to all years back to the last decennial census. Each decade, after a decennial census, the Census Bureau produces a set of intercensal estimates that provide annual population estimates that are adjusted to smooth the transition from one decennial census to the next. These estimates are used to derive the AHRQ QI Population File to be used with the AHRQ QI software.

2.1 Census Data Files

Public-use files of intercensal and postcensal estimates of county-level population by five-year age group, sex, race, and Hispanic origin were acquired from the Census Bureau (<http://www.census.gov/popest/>) covering the years 1995 through 2011. Table 2 presents detailed information and sources for the specific files acquired and used to generate the POP95T13.txt file for use within the AHRQ QI software.

[†] “Estimates are for the past, while projections are based on assumptions about future demographic trends. Estimates generally use existing data collected from various sources, while projections must assume what demographic trends will be in the future” (<http://www.census.gov/population/www/projections/aboutproj.html>)

Table 2. Census Dataset Descriptions and Sources.

DATA NAME	YEARS	BASE DECENNIAL YEAR	TYPE	SOURCE
Intercensal Estimates of the Resident Population by Five-Year Age Groups, Sex, Race, and Hispanic Origin for Counties	2000-2010	2010	Intercensal	http://www.census.gov/popest/data/intercensal/county/CO-EST00INT-alldata.html
Annual Estimates of the Resident Population by Age, Sex, Race, and Hispanic Origin for Counties	2010-2011	2010	Postcensal	http://www.census.gov/popest/data/counties/asrh/2011/CC-EST2011-alldata.html
Intercensal Estimates of the Resident Population by Single Year of Age and Sex for States and the United States	2000-2010	2010	Intercensal	http://www.census.gov/popest/data/intercensal/state/state2010.html
State Single Year of Age and Sex Population Estimates	2010-2011	2010	Postcensal	http://www.census.gov/popest/data/state/asrh/2011/index.html
State and County Intercensal Estimates by Demographic Characteristics	1990-1999	2000	Intercensal	http://www.census.gov/popest/data/intercensal/st-co/characteristics.html

2.1.1 Notable Differences of Population Estimates from 2000 Census to 2010 Census

There are four counties that existed for the 2000 Census, but not for the 2010 Census (<http://www.census.gov/geo/www/tiger/tgrshp2010/usernotes.html>):

- 02201 - Prince of Wales-Outer Ketchikan Census Area, AK
- 02232 - Skagway-Hoonah-Angoon Census Area, AK
- 02280 - Wrangell-Petersburg Census Area, AK
- 51560 - Clifton Forge city, VA

In the 2010 Census, the populations from these four counties are distributed to other surrounding counties. This means that while the POP95T13.txt file contains estimates for these four defunct counties for the years 1995-1999, the POP95T13.txt file estimates for the years 2000-2013 are listed as “0” since they are based on 2010 Census county boundaries.

2.1.2 Modifications to Census Estimates for use in the POP95T13.txt File

Modifications to the census estimates were required to fit the specifications of the AHRQ QI software. The first is the categorization of race and Hispanic origin. Table 3 depicts how the race categories used by the AHRQ QI software were defined from the census race and Hispanic origin groupings. This set of race categorizations captures the entire US population.

Table 3. Race Category Aggregations Based on Census Reporting Categories.

RACE CATEGORY	DESCRIPTION
1	Non-Hispanic, White Alone
2	Non-Hispanic, Black Alone
3	Hispanic
4	Non-Hispanic, Asian Alone OR Non-Hispanic, Native Hawaiian and Other Pacific Islander Alone
5	Non-Hispanic, American Indian and Alaska Native Alone
6	Non-Hispanic, Two or More Races

In addition, the population of interest for the area-level indicators in the Pediatric Quality Indicator (PDI) module is the population ages 17 and under, while the population of interest for the other indicator modules is the population ages 18 and older. The default five-year age groups reported by the Census Bureau are 15-19 years of age and 20-24 years of age. To capture the separation between the pediatric and adult populations, the POP95T13.txt file contains an age range that spans the ages of 18-24 that is constructed using the two default census age groups. To generate the 18-24 year old age group, state-level estimates of population by sex and single year of age (see Table 2) were used to calculate the percent of the population between 15 and 19 years old (the age grouping for the county-level data) that are between 18 and 19 years old. Then, the county-level population of 18-19 year olds was subtracted from the census-defined age group of 15-19 (to form the 15-17 age group) and added to the 20-24 age group (to form the 18-24 age group).

2.1.3 Census Data File Mapping to AHRQ QI Population File

The POP95T13.txt file population estimates for 1995 through 1999 are based on intercensal estimates by demographic characteristics (Table 2). Since these data are adjusted to the 2000 Census, they are no longer updated by the Census Bureau with more recent postcensal estimates and the estimates are unchanged from version release to version release of the AHRQ QI software.

The POP95T13.txt file population estimates for 2000 through 2010 are based on intercensal estimates by demographic characteristics that are adjusted to the 2010 Census. The POP95T13.txt file population estimates for 2011 are based on postcensal estimates by demographic characteristics that use the 2010 Census as the base.

Public-use files of postcensal population estimates from the Census Bureau are currently available only through 2011. The POP95T13.txt file contains population estimates for 2012 and 2013 based on linear projections of the population counts for each county, sex, age group, and race combination. The projections were made according to the following model:

$$y_{ijt} = \alpha_{ij} + \beta_{ij}t,$$

where i is the county (1, 2, ..., 3147), j is an indicator of demographics representing a combination of sex, age group, and race (1, 2, ..., 216), and t is the year (2000, 2001, ..., 2011). That is, we fit a county-specific linear growth model for each demographic group. The population estimates for each county and demographic combination, \hat{y} , for 2012 and 2013 were calculated using the following equations:

$$\hat{y}_{ij2012} = \hat{\alpha}_{ij} + \hat{\beta}_{ij}2012$$

$$\hat{y}_{ij2013} = \hat{\alpha}_{ij} + \hat{\beta}_{ij}2013.$$

where $\hat{\alpha}_{ij}$ and $\hat{\beta}_{ij}$ are the coefficients estimated from the linear regression models.

2.2 Version History

The population file released with each version of the software is generated with the most recent data available at the time of software development. As such, this file will change from version to version (including the filename) as data are updated and released by the Census Bureau. The differences between population files for AHRQ QI software release versions can be caused by changes in population estimates themselves and/or changes in methodology. Table 4 summarizes the population files for AHRQ QI software release versions. Note that data for population files included with previous releases of the AHRQ QI software are not updated with each new release.

Table 4. Population Files Used With Various Versions of AHRQ QI Software

SOFTWARE RELEASE (FILENAME)	YEARS	BASE DECENNIAL YEAR	DATA SUMMARY	METHODOLOGY SUMMARY
v4.5 (POP95T13.TXT)	Estimates: 1995-1999	2000	(1) Sex/Age/Race by County (2) Age 18-24 by State	Permutated file of sex/age/race by county Used state estimate of population from 18-24 to break 15-19 and 20- 24 age groups into 15-17 and 18-24
	Estimates: 2000-2011 Projections: 2012-2013	2010	(1) Age/Sex/Race by County (2) Age (single year) by State	Permutated file of sex/age/race by county Used state estimate of single year of age to break 15-19 and 20-24 age groups into 15-17 and 18-24
v4.4 (POP95T12.TXT)	Estimates: 1995-1999	2000	(1) Sex/Age/Race by County (2) Age 18-24 by State	Permutated file of sex/age/race by county Used state estimate of population from 18-24 to break 15-19 and 20- 24 age groups into 15-17 and 18-24
	Estimates: 2000-2010 Projections: 2011-2012	2010	(1) Sex/Age by County (2) Sex/Race by County (3) Age (single year) by State	Combined sex/age and sex/race files by county to get estimates of sex/age/race Used state estimate of single year of age to break 15-19 and 20-24 age groups into 15-17 and 18-24
v4.3 (POP95T11.TXT)	Estimates: 1995-2009 Projections: 2010-2011	2000	(1) Sex/Age/Race by County (2) Age 18-24 by State	Permutated file of sex/age/race by county Used state estimate of population from 18-24 to break 15-19 and 20- 24 age groups into 15-17 and 18-24

2.2.1 Comparison of v4.4 and v4.5

At the time of the AHRQ QI v4.4 development, the Census Bureau had not yet released the intercensal estimates of population by age, sex, race, and Hispanic origin at the county level for the years 2000 through 2010 that were updated to be consistent with the 2010 Census. In order to use the most recent data available, two separate, county-level files (one containing sex and age and the other containing sex and race) were merged to generate the estimates by sex, age, and race. In this fashion, the distribution of age group categories was applied evenly across all race categories (e.g. the percentage of non-Hispanic white males estimated to be between 0-4 years old was equal to the percentage of Hispanic males estimated to be between 0-4 years old for a given county). A comparison of the v4.4 and v4.5 files (with the v4.5 files based on updated 2010 Census data) revealed that this assumption is not necessarily true for all counties and races.

For counties where the age group by race distribution is approximately equal to the total age group distribution (i.e., not race dependent), there are not large differences between the population file used in v4.4 and that used in v4.5. However, for counties that have significantly different age group distributions for different races, large differences may be observed. For example, Figure 1 shows a comparison of the population estimates for two small counties (total populations less than 30,000). Each individual symbol (n=216) on the plot represents a gender, age group, race observation for the county. The blue, dashed lines indicate a $\pm 10\%$ deviation from the one-to-one line indicating perfect agreement between the v4.4 and v4.5 estimates.

Madison County, Iowa has a predominantly non-Hispanic white population (>97% in 2009), resulting in estimates that agree very well between the two population files, while the estimates for Morehouse Parish, Louisiana, which has almost equal non-Hispanic white (51%) and African American (47%) populations, demonstrate some large differences. These differences between v4.4 and v4.5 occur because the two race categories in this county have different age group distributions, while the v4.4 methodology applied a single distribution across all races.

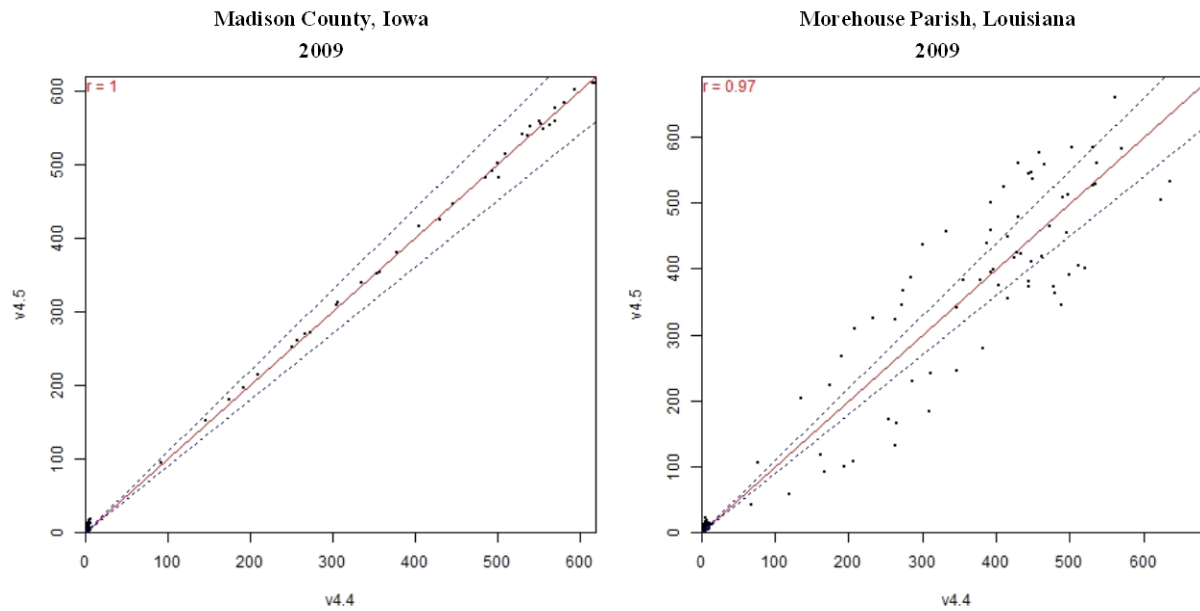


Figure 1. Comparison of population estimates for v4.4 and v4.5 by gender, age group and race for Madison County, Iowa (left) and Morehouse Parish, Louisiana (right) for the year 2009. The blue dashed lines represent $\pm 10\%$ deviation from the one-to-one line (red line).

While the previous example was for two small counties, similar results are observed for large counties. Figure 2 shows the comparison of population estimates by gender, race, and age group for Miami-Dade County, Florida and Maricopa County, Arizona (Phoenix). The estimates for Miami-Dade County are more similar between population file versions than for Maricopa County. The age group distributions for the three races that contribute most to the total population of Miami-Dade County, Hispanic (65%), African American (17%) and non-Hispanic white (16%) all follow a very similar pattern, resulting in smaller deviations in the v4.5 estimate from the v4.4 estimate. However, in Maricopa County, the distributions for the two largest-contributing race groups, non-Hispanic whites (59%) and Hispanics (29%), follow very different patterns, meaning that the age group distribution applied in v4.4 for all races was not representative of the age group distributions for both of these races.

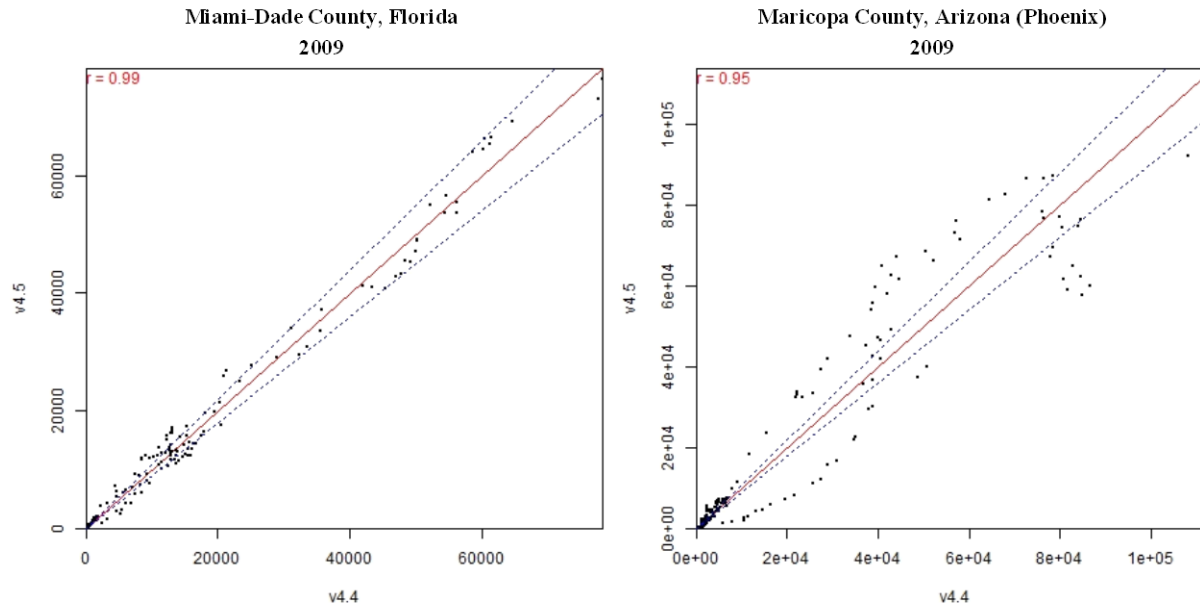


Figure 2. Comparison of population estimates for v4.4 and v4.5 by gender, age group and race for Miami-Dade County, Florida (left) and Maricopa County, Arizona (right) for the year 2009. The blue dashed lines represent $\pm 10\%$ deviation from the one-to-one line (red line).

To summarize, the largest effects of this change are realized in large counties that have two or more race groups that contribute large proportions to the total population, but have different age group distributions, such as Maricopa County, Arizona and Los Angeles, California (not shown here). Small counties with similar demographics (e.g. Morehouse Parish, Louisiana) will also see a difference, though the absolute differences (i.e. numbers of people) are not as large. Counties that have one dominant race category and those with more than one that have very similar age group distributions will still have changes to the population estimates, but they are likely to be relatively small.

3.0 POP95T13.txt File Specification

The POP95T13.txt file is an ASCII-based text file containing 679,752 records with a fixed logical record length of 150 bytes. It is in fixed column format. Table 5 presents the file's specific fields and the code schema used for each field.

The file is structured for use with AHRQ QI programs PQSASA2.SAS, PQSASA3.SAS, PSSASA2.SAS, IQSASA2.SAS, IQSASA3.SAS, PDSASA2.SAS, and PDSASA3.SAS, as well as the Windows QI (WinQI) software. As such, any modification to this file will affect the operation of these programs.

A given county is identified by the Federal Information Processing Standards code (FIPS code) for the state in which it is located and by the county's FIPS code. For each county within the U.S., the file contains 216 records: a record for each unique combination of gender, eighteen age groups, and six race groups. Each physical record represents a gender, age group, and race

group combination for that county and contains population estimates (rounded to integer values) for that combination for each year from 1995 through 2013.

The file has data for 3,147 counties or “equivalent areas”, defined to constitute primary divisions of their states. “Equivalent areas” include the independent cities of Baltimore, Maryland; St. Louis, Missouri; Carson City, Nevada; and 39 independent cities in Virginia. Because they are independent of any contiguous county, they are treated as separate counties with their own population records. Population figures for surrounding counties exclude them. Differences in the record count from previous population files are due to changes in county definitions or such independent cities. Definitions for state and county FIPS codes can be found at http://quickfacts.census.gov/qfd/meta/long_fips.htm.

Table 5. Data Fields in POP95T13.txt

FIELD	VARIABLE	COLUMN POSITION	FORMAT	CODES
1	State	1-2	Zero Filled Numeric	FIPS Code
2	County	3-5	Zero Filled Numeric	FIPS Code
3	Sex	7	Numeric	1=Male, 2=Female
4	Age Group	9-10	Numeric	1=0-4 years 2=5-9 years 3=10-14 years 4=15-17 years 5=18-24 years 6=25-29 years 7=30-34 years 8=35-39 years 9=40-44 years 10=45-49 years 11=50-54 years 12=55-59 years 13=60-64 years 14=65-69 years 15=70-74 years 16=75-79 years 17=80-84 years 18=85+ years
5	Race	12	Numeric	1=White, 2=Black, 3=Hispanic, 4=Asian & PI, 5=Amer. Indian, 6=Other
6	1995 Population	13-19	Numeric	Integer Totals
7	1996 Population	20-26	Numeric	
8	1997 Population	27-33	Numeric	
9	1998 Population	34-40	Numeric	
10	1999 Population	41-47	Numeric	
11	2000 Population	48-54	Numeric	
12	2001 Population	55-61	Numeric	
13	2002 Population	62-68	Numeric	
14	2003 Population	69-75	Numeric	
15	2004 Population	76-82	Numeric	
16	2005 Population	83-89	Numeric	
17	2006 Population	90-96	Numeric	
18	2007 Population	97-103	Numeric	
19	2008 Population	104-110	Numeric	
20	2009 Population	111-117	Numeric	
21	2010 Population	118-124	Numeric	
22	2011 Population	125-131	Numeric	
23	2012 Population	132-138	Numeric	
24	2013 Population	139-145	Numeric	

AHRQ Quality Indicators
Analytic Template
Version 4.5
 (Last Updated 11/15/2013)

Measure #: PDI 16
 Measure Name: Gastroenteritis Admission Rate

I. Sample

The area universe is defined as the county of the residence of the patient for discharges in the hospital universe. The hospital universe is defined as all hospitals located in the U.S. that are open during any part of the calendar year and designated as community hospitals in the AHA Annual Survey Database (Health Forum, LLC © 2011). The AHA defines community hospitals as follows: "All non-Federal, short-term, general, and other specialty hospitals, excluding hospital units of institutions." Starting in 2005, the AHA included long term acute care facilities in the definition of community hospitals. These facilities provide acute care services to patients who need long term hospitalization (stays of more than 25 days). Consequently, Veterans Hospitals and other Federal facilities (Department of Defense and Indian Health Service) are excluded. Beginning in 1998, we excluded short-term rehabilitation hospitals from the universe because the type of care provided and the characteristics of the discharges from these facilities were markedly different from other short-term hospitals.

http://hcup-us.ahrq.gov/db/nation/nis/NIS_Introduction_2011.pdf

II. Empirical Testing

A. Reference Population

Table 1. Reference Population

Year/ Characteristic	Areas	Outcome of Interest	Population at Risk	Observed Rate Per 100,000
2011	3,099	49,271	72,962,317	67.530
2010	3,087	47,470	73,176,737	64.870
2009	3,078	67,811	73,135,407	92.720
2008	3,077	68,809	72,983,540	94.280
2007	3,062	88,257	72,633,919	121.510
Performance Score Distribution 2011 (Rate per 100,000)				
5th	25th	Median	75th	95th
1.980	15.475	42.794	93.414	217.338

Source: HCUP State Inpatient Databases (SID). Healthcare Cost and Utilization Project (HCUP). 2007-2011. Agency for Healthcare Research and Quality, Rockville, MD. www.hcup-us.ahrq.gov/sidoverview.jsp. (AHRQ QI Software Version 4.5)

B. Reliability

Our metric of reliability is the signal to noise ratio, which is the ratio of the between area variance (signal) to the within area variance (noise). The formula is $\text{signal} / (\text{signal} + \text{noise})$. There is an area-specific signal to noise ratio, which is used as an Empirical Bayes univariate shrinkage estimator. The overall signal to noise ratio is a weighted average of the area-specific signal-to-noise ratio, where the weight is $[1 / (\text{signal} + \text{noise})^2]$. The signal is calculated using an iterative method. The analysis reports the reliability of the risk-adjusted rate (before applying the empirical Bayes univariate shrinkage estimator).

Table 2. Reliability by Area Size Decile

Size Decile	Number of Areas	Ave. Number of Persons per Area in Decile	Ave. Signal-to-Noise Ratio for Areas in Decile	Percent of Signal Variance Explained by Performance Score
1	310	634.1	0.52483	0.77013
2	310	1,607.3	0.76552	0.84475
3	310	2,563.6	0.84025	0.88138
4	310	3,647.0	0.88212	0.90613
5	310	5,151.1	0.91350	0.92727
6	310	7,144.6	0.93664	0.94430
7	310	10,175.7	0.95451	0.95862
8	310	16,063.8	0.97036	0.97217
9	310	31,922.7	0.98450	0.98503
10	309	156,958.7	0.99507	0.99514
Overall	3,099	23,543.8	0.97376	0.98487

Source: HCUP State Inpatient Databases (SID). Healthcare Cost and Utilization Project (HCUP). 2011. Agency for Healthcare Research and Quality, Rockville, MD. www.hcup-us.ahrq.gov/sidoverview.jsp. (AHRQ QI Software Version 4.5)

C. Validity

We conduct construct validity testing to examine the association between the risk-adjusted rate and area structural characteristics potentially associated with quality of care, including prior performance, using regression analysis.

Table 3. Structure Measures Used to Estimate Prior Probability

Measure	How it is measured	Less Access to High Quality Outpatient Care Construct (F1)	Less Market Competition Construct (F2)
MD Density	Number of Physicians in Patient Care per Person	Areas with less physicians per person have less access to high quality outpatient care	Areas with more physicians per person have less market competition
Excess Capacity	Percent of Available Short-term General Hospital Beds per Total Beds	Areas with greater excess bed capacity have supply side incentive to have greater rates of admission	Areas with less excess bed capacity have less market competition
Poverty Status	Percent of Persons in Poverty	Areas with greater persons in poverty have less access to high quality outpatient care	Areas with greater persons in poverty have less market competition
Insurance Status	Percent of Persons (Under 65) without Health Insurance	Areas with greater persons without health insurance have less access to high quality outpatient care	Areas with greater persons without health insurance have less market competition
Population Density	Population Density per Square Mile	Areas with less population density have less access to high quality outpatient care	Areas with more population density have less market competition

Source: Area Health Resource File (AHRF) 2012-2013. US Department of Health and Human Services, Health Resources and Services Administration, Bureau of Health Professions, Rockville, MD.

Given the stated rationale, the expectation for the regression analysis given the expected relationship between the “Less Access to High Quality Outpatient Care” construct validity measure (F1) and the area risk-adjusted rate is a positive, statistically significant coefficient. The expectation for the regression analysis given the expected relationship between the “More Market Competition” construct validity measure (F2) and the area risk-adjusted rate is a positive, statistically significant coefficient

Table 4. Regression on Structure Measures

Variable	Label	Coef.	Std. Err	t	P> t	[95% Conf. Interval]
F1	Access to Quality Care	0.000244	0.000029	8.52	0.0000	0.00019 0.00030
F2	Market Competition	0.000176	0.000025	7.15	0.0000	0.00013 0.00022
_cons	Constant	0.000781	0.000018	43.73	0.0000	0.00075 0.00082
F1	Access to Quality Care	0.000025	0.000006	3.92	0.0000	0.000013 0.000038
F2	Market Competition	0.000035	0.000009	3.89	0.0000	0.000017 0.000053
prior2	Prior Performance	0.909917	0.036917	24.65	0.0000	0.837534 0.982300
_cons	Constant	0.000147	0.000021	6.92	0.0000	0.000105 0.000188

Note: the dependent variable in the regression is the risk adjusted rate

D. Performance

We calculate the posterior probability distribution for each area parameterized using the Gamma distribution. We then calculate the probability that the area is better or worse than the reference population benchmark (20th percentile) or threshold (80th percentile) rate at a 95 percent probability overall and by area size decile. The analysis is with the computed performance scores for the measure as specified (including shrinkage estimator).

Table 5. Performance Categories by Area Size Decile

Size Decile	Number of Areas	Ave. Number of persons per Area in Decile	Benchmark		Threshold	
			Proportion Better	Proportion Worse	Proportion Better	Proportion Worse
1	310	634.1	0.00000	0.48710	0.34194	0.10645
2	310	1,607.3	0.00000	0.56774	0.49032	0.12258
3	310	2,563.6	0.00000	0.64194	0.49032	0.14194
4	310	3,647.0	0.00000	0.63871	0.59677	0.14516
5	310	5,151.1	0.00000	0.70968	0.58710	0.19355
6	310	7,144.6	0.03226	0.73226	0.64839	0.15161
7	310	10,175.7	0.02903	0.80645	0.66774	0.17419
8	310	16,063.8	0.03548	0.80968	0.75161	0.14194
9	310	31,922.7	0.02903	0.85806	0.81613	0.10645
10	309	156,958.7	0.02265	0.93851	0.84142	0.11003
	3,099	23,543.8	0.01484	0.71894	0.62310	0.13940
Patient weighted			0.01729	0.91138	0.80316	0.13266

Source: HCUP State Inpatient Databases (SID). Healthcare Cost and Utilization Project (HCUP). 2011. Agency for Healthcare Research and Quality, Rockville, MD. www.hcup-us.ahrq.gov/sidoverview.jsp. (AHRQ QI Software Version 4.5)

E. Model Discrimination and Calibration

One calculates the c-statistic by taking all possible pairs of cases consisting of one case that experienced the event of interest and one case that did not experience the event of interest. The c-statistic is the proportion of such pairs in which the case that experienced the event had a higher predicted probability of experiencing the event than the case that did not experience the event.

Table 6. Model Discrimination and Calibration

Predicted Rate Decile	Number of Persons per Decile	Predicted Rate	Observed Rate
1	7,299,550	0.000213	0.000185
2	7,295,375	0.000221	0.000209
3	7,288,145	0.000226	0.000188
4	7,302,101	0.000241	0.000221
5	7,288,786	0.000334	0.000323
6	7,319,069	0.000428	0.000487
7	7,268,117	0.000482	0.000510
8	7,294,758	0.001118	0.001198
9	7,294,574	0.001588	0.001666
10	7,292,959	0.001730	0.001769
C-statistic	0.720		

Source: HCUP State Inpatient Databases (SID). Healthcare Cost and Utilization Project (HCUP). 2011. Agency for Healthcare Research and Quality, Rockville, MD. www.hcup-us.ahrq.gov/sidoverview.jsp. (AHRQ QI Software Version 4.5)

A model that is well calibration will have observed values similar to predicted values across the predicted value deciles. Although there are statistical tests of such “goodness of fit” the tests generally are not informative for datasets with large sample sizes.

F. Forecasting

With respect to the persistence of the area risk adjusted rate, we conduct a descriptive analysis to examine the distribution of the current year risk-adjusted rate by the prior year performance score performance decile. The R-square is a statistic for the proportion of variation in the risk-adjusted rate captured by variation in the prior year performance score.

Table 7. Forecasting

Prior Year Performance Score Decile	Number of Areas Per Decile	Prior Year Performance Score	Current Year Risk-adjusted Rate
1	310	0.000046	0.000260
2	310	0.000165	0.000344
3	310	0.000269	0.000441
4	310	0.000356	0.000470
5	310	0.000452	0.000519
6	310	0.000564	0.000605
7	310	0.000698	0.000603
8	310	0.000906	0.000944
9	310	0.001279	0.001178
10	309	0.002855	0.002586
R-Squared		0.5124	

Source: HCUP State Inpatient Databases (SID). Healthcare Cost and Utilization Project (HCUP). 2010-2011. Agency for Healthcare Research and Quality, Rockville, MD. www.hcup-us.ahrq.gov/sidoverview.jsp. (AHRQ QI Software Version 4.5)

G. Preventability

Our metric of preventability is the proportion of events that are potentially preventable if patients selected areas performing at the level of the benchmark (i.e. the 20th percentile (better) in the probability distribution). The metric suggests that 85.8% of the events are potentially preventable.

Table 8. Preventability

Performance Score Decile	Ave. Performance Score	Number of Areas per Decile	Ave. Number of Persons per Area in Decile	Total Number of Persons in Decile	Total Events	Rate Potentially Preventable Events	Potentially Preventable Events	Expected Value of Information
1	0.000023	309.9	23,543.8	7,296,231.7	170	0.000000	0.0	
2	0.000083	309.9	23,543.8	7,296,231.7	605	0.000000	0.0	
3	0.000160	309.9	23,543.8	7,296,231.7	1,165	0.000045	327.5	
4	0.000254	309.9	23,543.8	7,296,231.7	1,851	0.000139	1,013.5	
5	0.000369	309.9	23,543.8	7,296,231.7	2,691	0.000254	1,853.5	
6	0.000512	309.9	23,543.8	7,296,231.7	3,738	0.000398	2,900.6	
7	0.000698	309.9	23,543.8	7,296,231.7	5,093	0.000583	4,254.9	
8	0.000955	309.9	23,543.8	7,296,231.7	6,966	0.000840	6,128.7	
9	0.001363	309.9	23,543.8	7,296,231.7	9,947	0.001248	9,109.3	
10	0.002806	309.9	23,543.8	7,296,231.7	20,470	0.002691	19,632.0	
Overall		3,099	23,543.8	72,962,317	52,696	0.000620	45,220	
Proportion Preventable							0.8581	

Source: HCUP State Inpatient Databases (SID). Healthcare Cost and Utilization Project (HCUP). 2011. Agency for Healthcare Research and Quality, Rockville, MD. (AHRQ QI Software Version 4.5)

H. Information Value

The expected value of information (EVI) is the change in the expected number of potentially preventable events (“opportunity loss”) accounting for the uncertainty and low information context in the performance score. A negative EVI means that there is some uncertainty in the expected number of potentially preventable events, while a positive EVI means that the effective sample size might be increased. Ideally the expected value of information would be close to zero.

Table 9. Expected Value of Information

Performance Score Decile	Ave. Performance Score	Number of Areas per Decile	Ave. Number of Persons per Area in Decile	Total Number of Persons in Decile	Total Events	Rate Potentially Preventable Events	Potentially Preventable Events	Expected Value of Information
1	0.000017	80	21,580.8	1,726,466	30	0.000015	26	-26
2	0.000084	129	8,390.5	1,082,376	90	0.000038	41	-41
3	0.000167	203	10,782.5	2,188,839	365	0.000074	163	165
4	0.000256	301	25,027.1	7,533,166	1,928	0.000145	1,095	-82
5	0.000360	422	32,379.2	13,664,027	4,922	0.000248	3,382	-1,528
6	0.000516	486	29,030.6	14,108,847	7,277	0.000403	5,687	-2,787
7	0.000704	472	28,315.0	13,364,661	9,414	0.000592	7,905	-3,650
8	0.000928	399	20,120.9	8,028,247	7,452	0.000816	6,550	-422
9	0.001313	300	26,745.6	8,023,671	10,537	0.001200	9,632	-522
10	0.002643	307	10,560.3	3,242,015	8,567	0.002531	8,207	11,425
Overall		3,099	23,543.8	72,962,317	50,585	0.000585	42,690	2,530
Proportion Preventable							0.8439	0.0576

Source: HCUP State Inpatient Databases (SID). Healthcare Cost and Utilization Project (HCUP). 2011. Agency for Healthcare Research and Quality, Rockville, MD. (AHRQ QI Software Version 4.5)

Admissions for pediatric gastroenteritis^a per 100,000 population, ages 3 months to 17 years (PDI 16)
Adjusted rates by patient and hospital characteristics, 2011 (HCUPnet)

Patient/hospital characteristic	2011 Adjusted Rate ^b		
	Estimate	Standard error	P-value (Ref= *)
Total U.S.	63.589	4.466	
Patient characteristic:			
Age groups for pediatric conditions			
0-4 [*]	153.040	10.872	
5-9	48.338	3.630	0.000
10-14	21.249	1.840	0.000
15-17	22.646	1.983	0.000
Gender:			
Male [*]	66.250	4.625	
Female	60.820	4.410	0.396
Median income of patient's ZIP Code:			
First quartile (lowest income)	84.605	8.147	0.002
Second quartile	62.182	4.813	0.210
Third quartile	54.382	5.149	0.738
Fourth quartile (highest income) [*]	51.453	7.084	
Location of patient residence (NCHS):			
Large central metropolitan	46.940	8.167	0.463
Large fringe metropolitan [*]	55.416	8.179	
Medium metropolitan	68.706	12.201	0.366
Small metropolitan	73.943	11.220	0.182
Micropolitan	85.434	9.069	0.014
Noncore	115.613	12.103	0.000
Hospital characteristic:			
Location of inpatient treatment:			
Northeast [*]	87.281	14.005	
Midwest	60.463	8.899	0.106
South	73.539	8.231	0.398
West	35.936	5.139	0.001

Source: Agency for Healthcare Research and Quality (AHRQ), Center for Delivery, Organization, and Markets, Healthcare Cost and Utilization Project, Nationwide Inpatient Sample, 2011, and AHRQ Quality Indicators, version 4.4.

^a Consistent with the AHRQ PDI software, gastroenteritis must be the principal diagnosis or a secondary diagnosis with a principal diagnosis of dehydration. Exclusions include admissions with gastrointestinal abnormalities or bacterial gastroenteritis, transfers from other institutions, neonates if age in days is missing, and obstetric admissions.

^b Rates are adjusted by age and gender using the total U.S. resident population for 2010 as the standard population; when reporting is by age, the adjustment is by gender only; when reporting is by gender, the adjustment is by age only.

*Reference for p-value test statistics.

NCHS - National Center for Health Statistics designation for urban-rural locations.