FY1999 Inpatient PPS Changes: ICD-9-CM Revisions

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All of the inpatient DRG and other inpatient Prospective Payment System (PPS) changes described below became effective with discharges occurring on or after October 1, 1998. Complete details of these changes can be found in the Federal Register.[1]

Transfers to Postacute Settings

The definition of "transfer" has been expanded to encompass certain postacute services. Medicare patients discharged from one of 10 DRGs will be classified as transfers for reimbursement purposes when one of the following criteria are met:

- transferred to a hospital or hospital unit that is not a PPS hospital[2]
- transferred to a skilled nursing facility
- provided home health services within three days after hospital discharge when the services relate to the condition or diagnosis for which the patient received inpatient hospital services

For reimbursement purposes, qualified transfers to postacute care settings will be treated the same as transfers to acute care hospitals. The hospital will be paid a per diem rate instead of the full DRG payment when the patient is discharged prior to the geometric mean length of stay and meets the criteria of the new postacute transfer provision.

See Table 1 for a list of the 10 selected DRGs. One important distinction between the final rule and the proposed rule (published May 8, 1998) is that the final rule excludes transfers to swing beds from the new transfer definition.

Table 1 -- Selected DRGs for Postacute Transfer Payment Provisions

DRG	Description
14	Specific cerebrovascular disorders except transient ischemic attack
113	Amputation for circulatory system disorders excluding upper limb and toe
209	Major joint limb reattachment procedures of lower extremity
210	Hip and femur procedures except major joint age >17 with CC
211	Hip and femur procedures except major joint age >17 without CC
236	Fractures of hip and pelvis
263	Skin graft and/or debridement for skin ulcer or cellulitis with CC
264	Skin graft and/or debridement for skin ulcer or cellulitis without CC
429	Organic disturbances and mental retardation
483	Tracheostomy except for face, mouth, and neck diagnoses

The hospital is responsible for reporting the correct discharge status code. If the hospital determines after the claim has been submitted that it should have been coded as a transfer instead of a discharge, an adjustment bill should be submitted. The applicable discharge status codes are: 03, Discharged/transferred to a SNF; 05, Discharged/transferred to another type of institution (including distinct parts) or Referred for outpatient services to another institution; and 06, Discharged/transferred to home under care of organized home health service organization. Status code 05 should be used for transfers to non-PPS hospitals or hospital units. (At press time, the National Uniform Billing Committee was considering whether changes to the discharge status or condition codes reported on the UB-92 claim form would be necessary in order to properly identify the types of postacute transfers covered in this new payment provision.)

Both the proposed and final rules indicate that home health services would be considered related to the hospital discharge if the patient is discharged from the hospital with a written plan of care for the provision of home health services from a home health agency. However, the Health Care Financing Administration (HCFA) noted in the final rule that it would designate a case as a transfer if care related to the discharge was provided within three days after the date of discharge even if the hospital had no written plan of care. HCFA plans to compare inpatient claims with home health service claims for care provided within three days after a hospital discharge. If it finds that home health services were provided within the three-day window, the hospital will be notified and the hospital payment adjusted unless the hospital can submit documentation verifying the discharge status of the patient.

HCFA will compare hospitals' reported discharge status codes with claims for postacute services to verify that hospitals are billing transfers to postacute care appropriately. If HCFA finds a continued pattern in which a hospital bills for cases from one of the 10 DRGs as discharges and HCFA's records indicate the patients are receiving postacute services included in the new transfer definition, the hospital may be investigated for fraudulent or abusive billing practices.

Highlights of DRG Changes

Coronary Bypass

Since FY1997 Medicare data indicate that the average standardized charges for coronary bypass cases with PTCA (percutaneous transluminal coronary angioplasty) are significantly higher than those without PTCA, a new DRG for coronary bypass with PTCA has been created. This change necessitates revisions to the titles of DRGs 106 and 107.

Table 2 -- Coronary Bypass DRG Revisions

DRG	Description
106	Coronary bypass with PTCA
107	Coronary bypass with cardiac catheterization
109	Coronary bypass without cardiac catheterization

Implantable Heart Assist System and Annuloplasty

Implantable heart assist system (code 37.66) and annuloplasty (code 35.33) have been moved from DRG 108 to DRGs 104 and 105 in order to compensate hospitals more appropriately for these procedures. The titles of DRGs 104 and 105 have been modified to more accurately reflect the cases assigned to these DRGs. DRG 104 has been retitled "Cardiac valve and other major cardiothoracic procedures with cardiac catheterization" and DRG 105 has been retitled "Cardiac valve and other major cardiothoracic procedures without cardiac catheterization."

Legionnaires' Disease

Legionnaires' disease (code 482.84) has been added to the list of major related conditions for purposes of classification to DRG 489 (HIV with major related conditions). It has also been added to the list of major problems for purposes of classification to DRGs 387 (Prematurity with major problems) and 389 (Full-term neonate with major problems).

Burns

The burn DRGs have been restructured in order to better reflect the resources used to treat various categories of burn cases. HCFA determined that the most important distinguishing characteristic in terms of resource use was the amount of body surface affected by the burn and how much of that burn constituted a third-degree burn. The second most important factor was whether or not the patient received a skin graft. Patients with burns covering at least 20 percent of body area, with at least 10 percent of that being a third-degree burn, consumed the most resources. If a patient met these criteria and did not receive a skin graft, the costs dropped significantly. For patients not meeting these criteria for extensive burns, the next most expensive category was third-degree burns. Patients with third-degree (or full-thickness) burns that either had an inhalation injury or received a skin graft were more expensive than third-degree burns that did not meet one of these criteria. The restructuring of the burn DRGs is based on these conclusions drawn from HCFA's data analysis. The table on page 98 lists the new burn DRGs and the applicable diagnosis and procedure codes.

It is important to note that this DRG structure increases the importance of accurate assignment of codes in category 948, Burns classified according to extent of body surface involved. Additional coder education in coding of burns may be necessary to ensure accurate coding of burn cases and appropriate reimbursement. Coders should review Coding Clinic for ICD-9-CM3 for official guidance on the proper coding of burns.

Table 3 -- New Burn DRGs

DRG	Description	Diagnosis Codes	Procedure Codes
504	Extensive third-degree burns with skin graft	948.xx with fourth digit of 2 or higher and a fifth digit of 1 or higher	85.82, 85.83, 85.84, 86.60, 86.61, 86.62, 86.63, 86.65, 86.66, 86.67, 86.69, 86.70, 86.71, 86.72, 86.73, 86.74, 86.75, 86.93
505	Extensive third-degree burns without skin graft	948.xx with fourth digit of 2 or higher and a fifth digit of 1 or higher	Absence of any of the procedure codes listed above for DRG 504
506	Full-thickness burn with skin graft or inhalation injury with CC or significant trauma	941.xx through 946.xx, 949.xx, with fourth digit of 3 or higher; 948.00; 948.01; 948.1x through 948.9x with fifth digit of 0 **Inhalation injury codes:** [4] 518.5, 518.81, 518.84, 947.1, 987.9 There must also be a diagnosis code indicating a CC or significant trauma	See procedure codes listed for DRG 504[4]
507	Full-thickness burn with skin graft or inhalation injury without for CC or significant trauma	See diagnosis codes listed above for DRG 506 Absence of diagnosis code for CC or significant trauma	See procedure codes listed above for DRG 504
508	Full-thickness burn without skin graft or inhalation injury with CCor significant trauma	941.xx through 946.xx, 949.xx, with fourth digit of 3 or higher; 948.00; 948.01; 948.1x through 948.9x with fifth digit of 0 There must also be a diagnosis code indicating a CC or significant trauma Absence of any of the inhalation injury diagnosis codes	Absence of any of the procedure codes listed above for DRG 504
509	Full-thickness burn without skin graft or inhalation injury without CC or significant trauma	Same criteria as DRG 508, except absence of diagnosis code for CC or significant trauma	Same criteria as DRG 508
510	Non-extensive burns with CC or significant trauma	All burn cases not classifiable to DRGs 504-509 (and the presence of diagnosis code for CC or significant trauma)	All burn cases not classifiable to DRGs 504-509
511	Non-extensive burns without CC or significant trauma	Same criteria as DRG 510, except absence of diagnosis code for CC or significant trauma	Same criteria as DRG 510

ICD-9-CM Revisions (effective 10/1/98)

The revisions to ICD-9-CM became effective with discharges occurring on or after October 1, 1998. Highlights of the changes are summarized below. Since every revision is not described in this article, it is important to review the Official Authorized Addendum. The complete addendum is published in a special edition of the American Hospital Association's Coding Clinic for ICD-9-CM. The code additions and revisions are discussed in detail in Coding Clinic for ICD-9-CM.[5]

Diagnoses

New Codes

Diseases of the Nervous System and Sense Organs

Autonomic dysreflexia -- Autonomic dysreflexia is usually the result of a spinal cord injury at or above the T6 level. A noxious stimulus (such as a urinary tract infection or decubitus ulcer) produces ascending signals in the cord below the lesion and outward to the intact sympathetic chain. Because of lack of descending control within the spinal cord, this sympathetic activity is unchecked and results in hypertension and pounding headache through vasoconstriction. Above the lesion, a parasympathetic response from the brain is triggered, resulting in bradycardia, blurred vision, and sweating.

Table 4 -- New Diagnosis Codes, Nervous System adn Sense Organs

Code	Description	CC?	DRG
337.3	Autonomic dysreflexia	N	18,19

An additional code should be assigned to identify the underlying cause of the autonomic dysreflexia, such as decubitus ulcer, fecal impaction, or urinary tract infection. Although, in general, sequencing rules require the underlying condition to be sequenced first, this note follows the logic of coding a life-threatening manifestation before the chronic, underlying condition.

Table 5-- New Diagnosis Codes, Circulatory System

Code	Description	CC?	DRG
438.53	Late effects of cerebrovascular diseases, other paralytic syndrome, bilateral	N	18,19

Diseases of the Circulatory System

Bilateral paralytic syndrome -- A new code has been created to describe bilateral paralytic syndrome due to late effects of cerebrovascular disease.

Diseases of the Respiratory System

Staphylococcus aureus pneumonia -- For the purpose of capturing epidemiological data on pneumonia due to Staphylococcus aureus, a new code has been created. Respiratory failure-New codes permit delineation of acute, chronic, and acute and chronic respiratory failure.

Tracheostomy complications -- New codes will permit specificity in the coding of various types of tracheostomy complications. When the new code for infection of tracheostomy is assigned, additional codes should be assigned to identify the specific type of infection (such as cellulitis or septicemia) and the responsible organism. The new code for mechanical complication of tracheostomy includes tracheal stenosis due to tracheostomy. The code for "other tracheostomy complications" includes hemorrhage due to tracheostomy and tracheoesophageal fistula due to tracheostomy.

Table 6 -- New Diagnosis Codes, Respiratory System

Code	Description	CC?	DRG
482.40	Pneumonia due to Staphylococcus, unspecified	Y	79, 80, 81, 121, 387, 389, 489
482.41	Pneumonia due to Staphylococcus aureus	Y	79, 80, 81, 121, 387, 389, 489
482.49	Other Staphylococcus pneumonia	Y	79, 80, 81, 121, 387, 389, 489
518.83	Chronic respiratory failure	Y	87, 121
518.84	Acute and chronic respiratory failure	Y	87, 121, 506, 507
519.00	Tracheostomy complication, unspecified	Y	482, 101, 102
519.01	Infection of tracheostomy	Y	482, 101, 102
519.02	Mechanical complication of tracheostomy	Y	482, 101, 102
519.09	Other tracheostomy complications	Y	482, 101, 102

Diseases of the Digestive System

Gastrostomy complications -- New codes will permit specificity in the coding of various types of gastrostomy complications.

When the new code for infection of gastrostomy is assigned, additional codes should be assigned to identify the specific type of infection (such as cellulitis or septicemia) and the responsible organism.

Table 7 -- New Diagnosis Codes, Digestive System

Code	Description	CC?	DRG
536.40	Gastrostomy complication, unspecified	Y	188, 189, 190
536.41	Infection of gastrostomy	Y	188, 189, 190
536.42	Mechanical complication of gastrostomy	Y	188, 189, 190
536.49	Other gastrostomy complications	Y	188, 189, 190
564.81	Neurogenic bowel	N	182, 183, 184
564.89	Other functional disorders of intestine	N	182, 183, 184
569.62	Mechanical complication of colostomy and enterostomy	Y	188, 189, 190

Neurogenic bowel -- Neurogenic bowel results from disruption of normal afferent activity to the intestine, resulting in impaired defecation. It may involve disruption of upper motor neuronal innervation or lower motor innervation. It increases the risk of fecal impaction, adynamic ileus, and volvulus. Neurogenic bowel is often seen in spinal cord dysfunction due to any cause.

Mechanical complication of colostomy and enterostomy -- The new code for mechanical complication of colostomy and enterostomy includes colostomy and enterostomy malfunctions.

Complications of Pregnancy, Childbirth, and the Puerperium and Certain Conditions Originating in the Perinatal Period

Abnormality in fetal heart rate or rhythm -- The new maternal code for abnormality in fetal heart rate or rhythm includes depressed fetal heart tones, fetal bradycardia, fetal tachycardia, fetal heart rate decelerations, and non-reassuring fetal heart rate or rhythm.

New neonatal codes permit delineation of abnormality in fetal heart rate or rhythm before the onset of labor, abnormality in fetal heart rate or rhythm during labor, and abnormality in fetal heart rate or rhythm unspecified as to time of onset. (See Table 8).

Table 8 -- New Diagnosis Codes, Pregnancy, Childbirth, Puerperium, and Perinatal Period

Code	Description	CC?	DRG
659.70	Abnormality in fetal heart rate or rhythm, unspecified as to episode of care or not applicable	N	370, 371, 372, 373, 374, 375
659.71	Abnormality in fetal heart rate or rhythm, delivered, with or without mention of antepartum condition	N	370, 371, 372, 373, 374,375
659.73	Abnormality in fetal heart rate or rhythm, antepartum condition	N	383, 384
763.81	Fetus or newborn affected by other complications of labor and delivery, Abnormality in fetal heart rate or rhythm before the onset of labor	N	390
763.82	Fetus or newborn affected by other complications of labor and delivery, Abnormality in fetal heart rate or rhythm during labor	N	390
763.83	Fetus or newborn affected by other complications of labor and delivery, Abnormality in fetal heart rate or rhythm, unspecified as to time of onset	N	390
763.89	Fetus or newborn affected by other complications of labor and delivery, Other specified complications of	N	390

	labor and delivery		

Symptoms, Signs, and Ill-defined Conditions

Chronic fatigue syndrome-A unique code has been created to identify chronic fatigue syndrome.

Respiratory symptoms-Respiratory symptoms such as apnea, Cheyne-Stokes respirations, shortness of breath, tachypnea, and wheezing now have unique codes. The new code for apnea excludes sleep apnea (780.51, 780.53, and 780.57). The new code for tachypnea excludes transitory tachypnea of newborn (770.6). The new code for wheezing excludes asthma (493.00-493.91). (See table 9).

Table 9 -- New Diagnosis Codes, Symptoms, Signs and Ill-Defined Conditions

Code	Description	CC?	DRG
780.71	Chronic fatigue syndrome	N	463, 464, 490
780.79	Other malaise and fatigue	N	464, 464, 490
786.03	Apnea	Y	99, 100, 490
786.04	Cheyne-Stokes respiration	Y	99, 100, 490
786.05	Shortness of breath	N	99, 100, 490
786.06	Tachypnea	N	99, 100, 490
786.07	Wheezing	N	99, 100, 490

Injury and Poisoning

Poisoning by propionic acid derivatives -- The code for poisoning by antirheumatics has been expanded to allow identification of propionic acid derivatives. The new code for poisoning by propionic acid derivatives includes Fenoprofen, Flurbiprofen, Ibuprofen, Ketoprofen, Naproxen, and Oxaprozin.

Malignant hyperthermia -- Malignant hyperthermia is an autosomal dominantly and multifactorially inherited condition occurring in patients undergoing general anesthesia. It causes a sudden, rapid rise in body temperature, associated with signs of increased muscle metabolism, such as tachycardia, tachypnea, sweating, cyanosis, and usually, muscle rigidity. This reaction is rapidly progressive and often fatal. Due to the severity of this condition, a unique code has been created.

Mechanical complication due to artificial skin graft and decellularized allodermis --A unique code for mechanical complication due to artificial skin graft and decellularized allodermis has been created in order to capture information on complications of these new technologies, which function to permanently regenerate the dermal layer of the skin. The new code for mechanical complication due to artificial skin graft and decellularized allodermis includes dislodgment, displacement, failure, non-adherence, poor incorporation, and shearing.

Complications due to peritoneal dialysis catheter -- New codes have been created for mechanical complications and infection and inflammatory reactions due to a peritoneal dialysis catheter. The code for infection and inflammatory reaction includes infection or inflammation of the exit site. (See table 10).

Table 10 -- New Diagnosis Codes, Injury and Poisoning

Code	Description	CC?	DRG
965.61	Poisoning by propionic acid derivatives	N	449, 450, 451
965.69	Poisoning by other antirheumatics	N	449, 450, 451
995.86	Malignant hyperthermia	Y	454, 455
996.55	Mechanical complication due to artificial skin graft and decellularized allodermis	Y	452, 453
996.56	Mechanical complication due to peritoneal dialysis catheter	Y	452, 453
996.68	Infection and inflammatory reaction due to peritoneal dialysis catheter	Y	452, 453

Supplementary Classification of Factors Influencing Health Status and Contact with Health Services

Group B streptococcus carrier status-Group B streptococcus in the vaginal canal can complicate the delivery of a fetus, so pregnant women with this status are considered to have high-risk pregnancies. A new code has been created to capture group B streptococcus carrier status.

History codes -- The "personal history" codes have been expanded to capture information on personal history of hypospadias and malignant neoplasm of epididymis.

The "family history" codes have been expanded to capture information on family history of malignant neoplasm of kidney and polycystic kidney disease.

Elderly primigravida -- There is a new code in the category for "supervision of high-risk pregnancy" for elderly primigravida. Elderly primigravida is defined as first pregnancy in a woman who will be 35 years of age or older at expected date of delivery. This code excludes elderly primigravida complicating pregnancy (659.5x).

Elderly multigravida -- There is a new code in the category for "supervision of high-risk pregnancy" for elderly multigravida. Elderly multigravida is defined as second or more pregnancy in a woman who will be 35 years of age or older at expected date of delivery. This code excludes elderly multigravida complicating pregnancy (659.6x).

Young primigravida -- There is a new code in the category for "supervision of high-risk pregnancy" for young primigravida. Young primigravida is defined as first pregnancy in a female less than 16 years old at expected date of delivery. This code excludes young primigravida complicating pregnancy (659.8x).

Young multigravida -- There is a new code in the category for "supervision of high-risk pregnancy" for young multigravida. Young multigravida is defined as second or more pregnancy in a female less than 16 years old at expected date of delivery. This code excludes young multigravida complicating pregnancy (659.8x).

Tubal ligation and vasectomy status -- Unique codes for tubal ligation and vasectomy status have been created in order to capture information on failed sterilization procedures.

Observation for suspected genetic or metabolic condition -- A unique code for observation for suspected genetic or metabolic condition will allow data capture on newborns being evaluated for genetic or metabolic conditions that are ruled out.

Organ or tissue replaced by artificial skin -- A status code for patients who have had skin replaced with artificial skin has been created.

Table 11 -- New Diagnosis Codes, Factors Influencing Health Status and Contact with Health Services

Code	Description	CC?
V02.51	Carrier or suspected carrier, group B streptococcus	N
V02.52	Carrier or suspected carrier, other streptococcus	N
V02.59	Carrier or suspected carrier, other specified bacterial diseases	N
V10.48	Personal history of malignant neoplasm of epididymis	N
V13.61	Personal history of hypospadias	N
V13.69	Personal history of other congenital malformations	N
V16.51	Family history of malignant neoplasm of kidney	N
V16.59	Family history of malignant neoplasm of other urinary organ	N
V18.61	Family history of polycystic kidney	N
V18.69	Family history of other kidney diseases	N
V23.81	Supervision of other high-risk pregnancy, elderly primigravida	Y
V23.82	Supervision of other high-risk pregnancy, elderly multigravida	Y
V23.83	Supervision of other high-risk pregnancy, young primigravida	Y
V23.84	Supervision of other high-risk pregnancy, young multigravida	Y
V23.89	Supervision of other high-risk pregnancy	Y
V26.51	Tubal ligation status	N
V26.52	Vasectomy status	N
V29.3	Observation for suspected genetic or metabolic condition	N
V43.83	Organ or tissue replaced by artificial skin	N
V44.50	Cystostomy status, unspecified	N
V44.51	Cutaneous-vesicostomy status	N
V44.52	Appendico-vesicostomy status	N
V44.59	Other cystostomy status	N
V56.2	Fitting and adjustment of peritoneal dialysis catheter	N
V58.62	Long-term (current) use of antibiotics	N
V76.44	Special screening for malignant neoplasm of prostate	N
V76.45	Special screening for malignant neoplasm of testis	N

Cystostomy status -- An expansion of the cystostomy status code allows identification of cutaneous-vesicostomy and appendico-vesicostomy status.

Fitting and adjustment of peritoneal dialysis catheter -- An additional code for any concurrent peritoneal dialysis (V56.8) should be assigned in conjunction with the new code for fitting and adjustment of peritoneal dialysis catheter. Long-term use of antibiotics-An expansion of the code for long-term (current) drug use allows classification of long-term use of antibiotics.

Special screening for malignant neoplasm of prostate and testis -- The screening codes have been expanded to capture screening for malignant neoplasm of the prostate and testis. (See table 11 and table 12).

Note Revisions

An inclusion term has been added under code 357.8, Other inflammatory and toxic neuropathy, to clarify that this code includes chronic inflammatory demyelinating polyneuritis.

An Excludes note has been added under code 384.2, Perforation of tympanic membrane, for "otitis media with perforation of tympanic membrane (382.00-382.9)."

Under subcategory 438.5, Late effects of cerebrovascular disease, other paralytic syndrome, a note has been added instructing coders to "use additional code to identify type of paralytic syndrome."

Under code 438.89, Other late effects of cerebrovascular disease, a note has been added instructing coders to "use additional code to identify the late effect."

Inclusion terms for "infarction of appendices epiploicae" and "necrosis of intestine" have been added under code 557.0, Acute vascular insufficiency of intestine.

Under code 569.61, Infection of colostomy and enterostomy, a note has been added instructing coders to "use additional code to specify type of infection." Inclusion terms for "fistula," "hernia," and "prolapse" have been added under code 569.69, Other complication of colostomy and enterostomy.

Inclusion terms for buttocks presentation, complete breech, and frank breech have been added under subcategory 652.2, Breech presentation without mention of version. An Excludes note has been added under subcategory 652.2 for footling presentation (652.8) and incomplete breech (652.8).

A note has been added under subcategory 659.5, Elderly primigravida, to clarify that these codes apply to the first pregnancy in a woman who will be 35 years of age or older at expected date of delivery. A note has also been added under 659.6, Elderly multigravida, to clarify that this subcategory applies to the second or more pregnancy in a woman who will be 35 years of age or older at expected date of delivery.

Table 12 -- Revised Diagnosis Descriptions

Code	Previous	Current
518.81	Respiratory failure	Acute respiratory failure
659.6x	Other advanced maternal age	Elderly multigravida
V56.1	Fitting and adjustment of dialysis (extracorporeal) (peritoneal) catheter	Fitting and adjustment of extracorporeal dialysis catheter
V82.4	Postnatal screening for chromosomal anomalies	Maternal postnatal screening for chromosomal anomalies

Inclusion terms for "pregnancy in a female less than 16 years old at expected date of delivery" and "very young maternal age" have been added under subcategory 659.8, Other specified indications for care or intervention related to labor and delivery.

Inclusion terms for fetal acidosis affecting newborn, fetal anoxia affecting newborn, fetal asphyxia affecting newborn, fetal hypercapnia affecting newborn, fetal hypoxia affecting newborn, and respiratory depression affecting newborn have been added under code 770.8, Other respiratory problems after birth. An excludes note has been added under category 948, Burns classified according to extent of body surface involved, for sunburn (692.71).

Excludes notes for concussion (850.1-850.0) and specified intracranial injuries (850.0-854.1) have been added under code 959.01, Head injury, unspecified. The note under code 995.5, Child maltreatment syndrome, has been revised to clarify that additional codes for any associated injuries should only be assigned if applicable.

A note has been added under subcategory 996.6, Infection and inflammatory reaction due to internal prosthetic device, implant, and graft, instructing coders to "use additional code to identify specified infections."

A note has been added under code V56.1, Fitting and adjustment of extracorporeal dialysis catheter, instructing coders to "use additional code for any concurrent extracorporeal dialysis (V56.0).

Procedures

New Codes

Heart revascularization -- New codes have been created for open chest transmyocardial revascularization and other transmyocardial revascularization. The code for other transmyocardial revascularization includes percutaneous and thoracoscopic transmyocardial revascularizations. Transmyocardial revascularization involves drilling channels through the heart wall with a laser. These channels allow improved blood flow through myocardial sinusoids, a sponge-like network of small vascular communications within the heart wall. (See table 13 on page 106).

Implantation of cardiomyostimulation system -- Implantation of a cardiomyostimulation system is performed on patients with congestive heart failure. It consists of using the patient's own latissimus dorsi muscle for cardiac assistance. Implantation of a cardiomyostimulation system is a two-step open procedure that involves transferring one end of the latissimus dorsi muscle, wrapping it around the heart, performing a rib resection, implanting epicardial cardiac pacing leads into the right ventricle, and tunneling and creating a pocket for the cardiomyostimulator.

Table -- New Procedure Codes

Amnioinfusion -- Amnioinfusion is the controlled intrauterine instillation of sterile normal saline or lactated Ringer's solution via transcervical or transabdominal approach. The most common use of amnioinfusion is in the treatment of variable decelerations in the fetal heart rate during labor. By artificially increasing the amniotic fluid volume, the umbilical cord is better protected from compression.

If an antibiotic is injected in conjunction with the amnioinfusion, the injection should be assigned an additional code (99.21).

Code	Description	OR Procedure?	DRG
36.31	Open chest transmyocardial revascularization	Y	108
36.32	Other transmyocardial revascularization	Y	108
36.39	Other heart revascularization	Y	108
37.67	Implantation of cardiomyostimulation system	Y	110, 111
75.37	Amnioinfusion	N	-
86.67	Dermal regenerative graft	Y	7, 8, 63, 120, 170, 171, 217, 263, 264, 265, 266, 287, 439, 486, 504, 506, 507
92.30	Stereotactic radiosurgery, not otherwise specified	N	7, 8, 292, 293, 401, 402, 408
92.31	Single source photon radiosurgery	N	7, 8, 292, 293, 401, 402, 408
92.32	Multisource photon radiosurgery	N	7, 8, 292, 293, 401, 402, 408
92.33	Particulate radiosurgery	N	7, 8, 292, 293, 401, 402, 408
92.39	Stereotactic radiosurgery, not elsewhere classified	N	7, 8, 292, 293, 401, 402, 408
96.29	Reduction of intussusception of alimentary tract	N	-

99.10	Injection or infusion of thrombolytic agent	N	-
99.20	Injection or infusion of platelet inhibitor	N	-

Dermal regenerative graft -- Dermal regenerative graft is a dermal, bilayer membrane system made up of a three-dimensional porous matrix of fibers of cross-linked bovine tendon collagen and a glycosaminoglycan (chondroitin-6-sulfate) that is manufactured with a controlled porosity and defined degradation rate. It is indicated for the postexcisional treatment of life-threatening full-thickness or deep partial-thickness dermal injury where sufficient autograft is not available at the time of excision or not desirable due to the physiological condition of the patient. The objective of this skin replacement system is to regenerate or replace injured human tissue with new functional tissue. The temporary epidermal substitute layer is made of synthetic polysiloxane polymer (silicone) and functions to control moisture loss from the wound. The collagen dermal replacement layer serves as a matrix for the infiltration of fibroblasts, macrophages, lymphocytes, and capillaries derived from the wound bed. As healing progresses, an endogenous collagen matrix is deposited by fibroblasts. At the same time, the dermal layer is degraded. Upon adequate vascularization of the dermal layer and availability of donor autograft tissue, the temporary silicone layer is removed and a thin, meshed layer of epidermal autograft is placed over the neodermis. Cells from the epidermal autograft grow and form a confluent stratum corneum, thereby closing the wound and reconstituting a functional dermis and epidermis. The artificial dermis is a permanent implant that is never excised from the wound bed.

The new code for dermal regenerative graft includes artificial skin NOS, creation of neodermis, decellularized allodermis, integumentary matrix implants, prosthetic implant of dermal layer of skin, and regeneration of the dermal layer of skin. This code excludes heterograft to skin (86.65) and homograft to skin (86.66).

Stereotactic radiosurgery -- Several new codes have been created for various types of stereotactic radiosurgery, including single source photon radiosurgery (includes high energy x ray and linear accelerator), multi-source photon radiosurgery (includes Cobalt-60 radiation and gamma irradiation), and particulate radiosurgery (includes particle beam radiation and proton accelerator). Radiosurgery, which is used to treat brain and skull lesions, is the noninvasive destruction of a discrete target area in the brain using the precise delivery of a single high dose of radiation. The linear accelerator produces radiation by using microwave energy to accelerate electrons. To decrease the damage to healthy tissue from the large beam, the linear accelerator targets the abnormality from different directions with a moving gantry. The high energy electrons collide with a heavy metal, producing a type of photon radiation called x rays. The multi-source photon technology (cobalt 60) naturally emits gamma ray photons from a fixed array of small cobalt 60 sources located within a large hemisphere that surrounds the patient's head. This technology targets multiple centers and performs selective beam blocking to optimally match the shape and volume of the tumor or lesion. This allows for maximum radiation dosing to the entire area being treated.

Particle beam (cyclotron) radiosurgery uses accelerated charged particles, including protons and helium ions, allowing a high dose of radiation to be applied within the boundaries of a deeply located intracranial lesion. This technology provides an initial region of low dose as the beam penetrates through tissue, followed by a region of high dose at the end of the range of the beam, and sharp lateral edges that can be shaped to conform to the lesion.

The new stereotactic radiosurgery codes exclude stereotactic biopsies.

Reduction of intussusception of alimentary tract -- Intussusception is the prolapse of one part of the intestine into the lumen of an immediately adjacent part, causing intestinal obstruction. Most cases occur in children during the first year of life, and some cases occur in the second year, but very few occur thereafter. Diagnosis is confirmed by barium enema, which in about 75 percent of uncomplicated cases has a therapeutic effect, reducing the invagination by a hydrostatic force. Treatment of intussusception includes hydrostatic enemas, air enemas, and ultrasound-guided reduction. In ultrasound-guided reduction, the intussusception is diagnosed sonographically and reduction is then performed by means of a normal saline enema with ultrasound guidance.

The new code for reduction of intussusception of the alimentary tract includes that with fluoroscopy, ionizing radiation enema, and ultrasonography guidance. It includes hydrostatic reduction and pneumatic reduction. This code excludes intra-abdominal manipulation of intestine NOS (46.80).

Injection or infusion of thrombolytic agent -- An acute coronary thrombus causes the myocardial tissue distal to the occlusion to lose its blood and oxygen supply. The affected area becomes ischemic, but the ischemic tissue remains viable. If the occlusion persists and blood flow is not reestablished, the ischemic tissue gradually becomes necrotic. The goal of therapy

for an acute myocardial infarction is to rapidly reestablish the blood supply to the affected myocardial tissue and prevent progression to necrosis. The quickest way to reperfuse the myocardial tissue is to dissolve the coronary artery thrombus with a thrombolytic agent. Thrombolytic treatment dissolves the obstructive clot within the lumen of the affected coronary artery. The use of intra-arterial and intravenous thrombolytic agents is also being evaluated in stroke patients. Thrombolytic agents stimulate dissolution of the insoluble fibrin strands that form the backbone of the clot. When the thrombolytic agent comes into contact with fibrin, it becomes active and converts clot-bound plasminogen to clot-bound plasmin. The plasmin then breaks down the insoluble fibrin strands and the clot is dissolved.

The new code for injection of infusion of thrombolytic agent includes injection of infusion of Streptokinase, Tissue Plasminogen Activator, and Urokinase. The use of aspirin, GP IIB/IIIa platelet inhibitors, heparin, single vessel PTCA or coronary atherectomy with mention of thrombolytic agent, and warfarin are excluded from this code. No code should be assigned when aspirin or warfarin is used. The use of GP IIB/IIIa platelet inhibitors should be assigned code 99.20 (also a new code) and heparin should be assigned code 99.29, Injection or infusion of other therapeutic or prophylactic substance. A single vessel PTCA or coronary atherectomy with mention of thrombolytic agent should be assigned code 36.02.

Injection or infusion of platelet inhibitor -- Platelet aggregation plays a key role in the development of acute ischemic coronary syndromes. Platelets, which control bleeding and regulate hemostasis, normally circulate in an inactivated state, but transform to an activated state in the presence of plaque rupture or mechanical injury. When a vascular injury occurs, proteins in the blood and vessel wall are exposed, causing platelets to adhere to the wall of the damaged blood vessel. Platelets are then activated, followed by platelet aggregation. When this process becomes uncontrolled, vascular occlusion results. Each platelet contains approximately 100,000 copies of cell surface receptor GP IIb/IIIa. During the process of platelet aggregation, GP IIb/IIIa is expressed on the platelet, which then facilitates cross-linking of platelets by binding fibrinogen (a fibrin precursor). Multiple occurrences of this event result in thrombus formation.

New drug therapies focus on improved prevention of the aggregation of platelets to prevent thrombus formation and subsequent occlusion. Antagonists directed at the platelet receptor GP IIb/IIIa provide the most complete inhibition of platelet aggregation and arterial thrombus formation in the treatment of acute ischemic coronary syndromes known to date. This class of inhibitor drugs is also being studied in stroke patients.

The new code for injection or infusion of platelet inhibitor includes Glycoprotein IIB/IIIa inhibitor, GP IIIB/IIIa inhibitor, and GP IIB-IIIa inhibitor.

Note Revisions

An inclusion term has been added under code 37.32, Excision of aneurysm of heart, for "repair of aneurysm of heart."

An excludes note has been added under subcategory 39.3, Suture of vessel, for "any other vascular puncture closure device (omit code)."

Excludes notes have been added under code 54.23, Biopsy of peritoneum, for closed biopsy of omentum and peritoneum (54.24).

Inclusion terms for closed biopsy of omentum and peritoneum have been added under code 54.24, Closed [percutaneous] [needle] biopsy of intra-abdominal mass. Inclusion terms for loop electrosurgical excision procedure (LEEP) and large loop excision of the transformation zone (LLETZ) have been added under code 67.32, Destruction of lesion of cervix by cauterization.

An inclusion term for liposuction has been added under code 86.83, Size reduction plastic operation.

An inclusion term has been added under code 99.28, Injection or infusion of biological modifier [BRM] as an antineoplastic agent, for tumor vaccine.

In order to assure accurate code assignment, all notes in the Tabular List must be read carefully before assigning a code.

Notes

1. Department of Health and Human Services. *Federal Register* 63, no. 147 (1998): 40954.

2. Hospital and hospital units excluded from the PPS are psychiatric, rehabilitation, children's, long term care, and cancer hospitals.

3.American Hospital Association. *Coding Clinic for ICD-9-CM* 11, no. 4 (1994): 22-28.

4. Cases classified into DRGs 506 and 507 must have either a skin graft procedure code or an inhalation injury diagnosis code.

5. American Hospital Association. *Coding Clinic for ICD-9-CM* 11, no. 4 (1994).

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