OPTUM360®

DESK REFERENCE

Coders` Desk Reference for Procedures

Answers to your toughest CPT® coding questions

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2022

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Contents

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Introduction

Coding is a complicated business. It's not enough to have a current copy of a CPT® book. Medical coders also need dictionaries and specialty texts if they are to accurately translate physicians' operative reports or patient charts into CPT codes.

That's why Optum360 originally developed *Coders' Desk Reference*—now known as *Coders' Desk Reference for Procedures*—to provide a resource with answers to CPT coding questions. We polled the medical reimbursement community and our technical staff to determine the issues causing bottlenecks in a coder's workload.

We know that experienced coders are frustrated by limited definitions accompanying many CPT codes. Beginning coders need guidelines on the use of CPT codes and basic information about medical and reimbursement issues. Everyone requires up-to-date information about the anticipated changes in procedural coding.

Coders' Desk Reference for Procedures (CDR) answers the questions of both experienced and novice medical coders. Coders, physicians, registered nurses, physician assistants, and physical therapists contributed to the technical information contained in CDR. The result is a compendium of answers to a wide variety of CPT coding questions.

Since the first release of CDR in 1995, coders' corrections, suggestions, and tips have been incorporated into every printing, making this book as informative and useful as possible. Changes reflecting the dynamic world of coding are ongoing, and Optum360 encourages input for inclusion in future editions of the book. Information in CDR has been updated to reflect 2021 CPT codes.

Format

CDR is divided into convenient sections for easy use, with each section organized in alphabetic or numeric order. Simply access the section by thumbing through the convenient tabbing system to find the specific item of interest.

Using CPT Codes

For the new coder, and even for the veteran, this chapter provides an overview of the CPT book: what it is and how best to use this coding system for identifying procedures.

Using CPT Modifiers

Modifiers augment CPT codes to the satisfaction of private and government payers. Optum360 coding experts interpret CPT modifiers and identify their advantage in reimbursement.

Using E/M Codes

Although some of the most commonly used codes by physicians of all specialties, evaluation and management (E/M) codes are amongst the least understood. These codes, introduced in the 1992 CPT book, were designed to increase accuracy and consistency in the reporting of non-procedural encounters. This section contains new 2021 guidelines and a summary of E/M services and guidelines, along with information from the 1995 and 1997 documentation guidelines.

Reimbursement Terms

In order to get reimbursed in a timely manner, it is important to have a clear understanding of the terminology used by major insurers and the federal government. This section includes up-to-date terminology that will help coders have a better understanding of the complex reimbursement climate.

Clinical Abbreviations, Prefixes, Suffixes, and Acronyms

The medical profession has its own shorthand for documentation. Here, acronyms, abbreviations, and symbols commonly seen on operative reports or medical charts are listed for easy reference.

The uniquely efficient language of medicine is based on prefixes and suffixes attached to root words to modify the meaning. Medical prefixes and suffixes evolved from the Greek and Latin used by pioneering physicians.

Procedural Eponyms

What is the Mitrofanoff operation? What is the Binet test? Eponyms honor the developer of a procedure or test, but do little to clarify what the procedure is. Subject matter experts have researched the procedural eponyms found in the index of the CPT book or used by surgeons and other medical personnel in medical reports, and provide simplified explanations of what the procedures are, along with applicable CPT codes.

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Using CPT® Modifiers

Modifiers allow coders to indicate that a service was altered in some way from the stated CPT® description without actually changing the basic definition of the service. Modifiers are considered an essential component of accurate coding. Some modifiers impact reimbursement and others identify special circumstances. Modifiers can indicate the following:

- A service or procedure represents only a professional or technical component
- A service or procedure was performed by more than one physician
- Only part of a service was performed
- An adjunctive service was performed
- A bilateral procedure was performed
- A service or procedure was provided more than once
- Unusual events occurred
- A procedure or service was more difficult or took longer or was less involved or required less time

Physical status modifiers, P1-P6, specifically used for anesthesia services, are not discussed in this chapter. HCPCS modifiers, beginning with an alpha character, may be appended to CPT codes in specific circumstances and are also not discussed in this chapter.

22 Increased Procedural Services

Modifier 22 is not appropriate for CPT codes with the term "simple" as part of the code description, nor should it be appended to a code for an E/M service. Rather, modifier 22 is used to indicate that a procedure was complicated, complex, difficult, or took significantly more time than usually required by the provider to complete the procedure. Documentation, including notations to the amount of time involved, should be provided with the billing and kept in the medical record when this modifier is used. Time notations in the documentation should include start and stop times, as well as the total amount of additional time required to complete the procedure. The provider should clearly state *specifically*, and in detail, what issues made the procedure more complex rather than simply using vague statements such as, "The patient had a lot of adhesions." When modifier 22 is used, an operative report should always be attached to the claim.

The fee reported for modifier 22 should be the usual and customary amount for the procedure plus an additional amount for the unusual circumstances. If modifier 22 is appended to a code that is not the primary code, and modifier 51 has been appended, modifier 22 should be paid in addition to the cut contract rate paid for the code.

Modifier 22 often produces an automatic review or audit by payers. If the operative report attached to the claim does not indicate appropriate use of the modifier, the increase in payment will be denied. Periodic training for all involved in the coding process is important from both a legal and reimbursement perspective.

Because modifier 22 is often used when complications are encountered during surgical procedures, medical necessity is substantiated by additional diagnostic codes that identify the complication. These diagnostic codes should reflect the operative condition and the complication(s) encountered during the surgery.

23 Unusual Anesthesia

This modifier is used by anesthesiologists to indicate that this procedure is normally performed under local anesthesia or regional block but due to unusual circumstances, general anesthesia is needed. This modifier is not appropriate for use with codes that include the term "without anesthesia" in the descriptor, or for procedures normally performed under general anesthesia.

24 Unrelated Evaluation and Management Service by the Same Physician or Other Qualified Health Care Professional During a Postoperative Period

This modifier reports that an unrelated E/M service was provided by the surgeon within the global period. Use of this modifier needs to be correlated to a diagnosis code that is unrelated to the surgical diagnosis code.

25 Significant, Separately Identifiable Evaluation and Management Service by the Same Physician or Other Qualified Health Care Professional on the Same Day of the Procedure or Other Service

This modifier indicates that on the same day a procedure or service identified by a CPT code is performed, the patient's condition required a significant, separately identifiable E/M code beyond the usual level of service required for the procedure. In addition, the modifier denotes that the patient's condition required services that were over and above

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Using E/M Codes

This section provides an overview of evaluation and management (E/M) services, tables that identify the documentation elements associated with each code, and the federal documentation guidelines with emphasis on the 1997 exam guidelines. This set of guidelines represents the most complete discussion of the elements of the currently accepted versions. The 1997 version identifies both general multi-system physical examinations and single-system examinations, but providers may also use the original 1995 version of the E/M guidelines; both are currently supported by the Centers for Medicare and Medicaid Services (CMS) for audit purposes.

The levels of E/M services define the wide variations in skill, effort, and time and are required for preventing and/or diagnosing and treating illness or injury, and promoting optimal health. These codes are intended to represent physician work, and because much of this work involves the amount of training, experience, expertise, and knowledge that a provider may employ when treating a given patient, the true indications of the level of this work may be difficult to recognize without some explanation.

At first glance, selecting an E/M code may appear to be difficult, but the system of coding clinical visits may be mastered once the requirements for code selection are learned and used.

Providers

The AMA advises coders that while a particular service or procedure may be assigned to a specific section, the service or procedure itself is not limited to use only by that specialty group (see paragraphs 2 and 3 under "Instructions for Use of the CPT® Codebook" on page xiii of the CPT Book). Additionally, the procedures and services listed throughout the book are for use by any qualified physician or other qualified health care professional or entity (e.g., hospitals, laboratories, or home health agencies).

The use of the phrase "physician or other qualified health care professional" (OQHCP) was adopted to identify a health care provider other than a physician. This type of provider is further described in CPT as an individual "qualified by education, training, licensure/regulation (when applicable), and facility privileging (when applicable)." State licensure guidelines determine the scope of practice and a qualified health care professional must practice within these guidelines, even if more restrictive than the CPT guidelines. The qualified health care professional may report services independently or under incident-to guidelines. The professionals within this definition are separate from "clinical staff" and are able to practice independently. CPT defines clinical staff as "a person who works under the supervision of a physician or other qualified health care professional and who is allowed, by law, regulation, and facility policy to perform or assist in the performance of a specified professional service, but who does not individually report that professional service." Keep in mind that there may be other policies or guidance that can affect who may report a specific service.

Types of E/M Services

When approaching E/M, the first choice that a provider must make is what type of code to use. The following tables outline the E/M codes for different levels of care for:

- Office or other outpatient services—new patient
- Office or other outpatient services—established patient
- Hospital observation services—initial care, subsequent, and discharge
- Hospital inpatient services—initial care, subsequent, and discharge
- Observation or inpatient care (including admission and discharge services)
- Consultations—office or other outpatient
- Consultations—inpatient
- Emergency department services
- Critical care
- Nursing facility—initial services
- Nursing facility—subsequent services
- Nursing facility—discharge and annual assessment
- Domiciliary, rest home, or custodial care—new patient
- Domiciliary, rest home, or custodial care—established patient
- Home services—new patient
- Home services—established patient
- Prolonged services—with direct patient contact
- Prolonged services—without direct patient contact
- Prolonged clinical staff services with physician or other qualified health care professional supervision
- Standby services

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to improve the health of all U.S. citizens by making evidence-based recommendations about clinical preventive services such as screenings, counseling services, and preventive medications. Task Force recommendations are published on the organization's website and/or in a peer-reviewed journal. Members include experts in various fields such as preventive medicine and primary care, including internal medicine, family medicine, pediatrics, behavioral health, obstetrics and gynecology, and nursing. All of the expert recommendations go through rigorous reviews of existing peer-reviewed evidence with the goal and objective of assisting primary care clinicians and patients in determining whether a preventive service is right for the patient's needs. Recommendations from the organization receive a letter grade (e.g., A, B, C, or D) or an I statement that is assigned on the strength of the evidence and the balance of benefits and harms of a preventive service. The Task Force does not factor in costs when determining a recommendation grade. All Task Force recommendations are applicable only to patients who present without signs or symptoms of the specific disease or condition under evaluation, and the recommendations address only services offered in the primary care setting or services referred by a primary care clinician.

UB-04. Uniform institutional claim form developed by the NUBC that was implemented in May 2007.

UCR. Usual, customary, and reasonable. Fees charged for medical services that are considered normal, common, and in line with the prevailing fees in a given geographical area. May also be referred to as customary, prevailing, and reasonable charges.

unbundling. Separately packaging costs or services that might otherwise be billed together including billing separately for health care services that should be combined according to the industry standards or commonly accepted coding practices.

underwriting. Evaluating and determining the financial risk a member or member group has on an insurer.

unlisted procedure. Procedural descriptions used when the overall procedure and outcome of the procedure are not adequately described by an existing procedure code. Such codes are used as a last resort and only when there is not a more appropriate procedure code.

unspecified. Codes for use when documentation is insufficient to assign a more specific code.

upcoding. Practice of billing a code that represents a higher reimbursement than the code for the procedure actually performed.

URAC. Utilization Review Accreditation Commission. Accrediting body of case management.

urgent admission. Admission in which the patient requires immediate attention for treatment of a physical or psychiatric problem.

USP. United States pharmacopoeia.

USPHS. United States Public Health Service.

USPSTF. U.S. Preventive Services Task Force.

utilization review. Formal assessment of the medical necessity, efficiency, and/or appropriateness of health care services and treatment plans on a prospective, concurrent, or retrospective basis.

utilization review nurse. Nurse who evaluates cases for appropriateness of care and length of service and can plan discharge and services needed after discharge.

value-added network. Vendor of electronic data interchange data communications and translation services.

verification of eligibility. Process by which the payer or provider determines that the beneficiary is currently enrolled in a plan and that the requested services are covered by the plan.

violation. Disregard or abuse of the laws, rules, or guidelines, knowingly or unknowingly resulting in receipt of inappropriate reimbursement.

waived test. Laboratory test defined by CLIA standards that can be conducted in a minimal laboratory setting with minimal chance of error.

waiver of liability. Provision established by Medicare to protect beneficiaries and physicians from liability when services are denied as inappropriate or medically unnecessary. Under the provision, if the Medicare beneficiary knew or should have known that the services billed for were not covered, the beneficiary is liable for paying for the services. If neither the beneficiary nor the hospital knew or reasonably could have been expected to know that the services were not covered, Medicare is liable for paying the claim. If the provider should have known and the beneficiary is protected from liability, then liability falls with the provider, and the hospital cannot bill the beneficiary for services other than deductibles and coinsurance amounts, even though no Medicare payment has been made. Beneficiaries who do not know that services were noncovered are protected from liability when the services are not reasonable and/or necessary (including adverse level of care determinations) and when custodial care is involved.

waste. Spend or use federal funds carelessly.

weighting. Assigning more worth to a fee based on the number of times it is charged, weighting the resource-based relative value fees for an area.

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Clinical Abbreviations, Prefixes, Suffixes, and Acronyms

The acronyms, abbreviations, prefixes, suffixes, and symbols used by health care providers speed communications. The following list includes the most often seen acronyms, abbreviations, and symbols. In some cases, abbreviations have more than one meaning. Multiple interpretations are separated by a slash (/). Abbreviations of Latin phrases are punctuated.

-agra	Severe pain.
-algia	Pain.
-ase	Denoting an enzyme.
-asthenia	Weakness.
-atresia	Closure, occlusion.
-blast	Incomplete cellular development.
-centesis	Puncture.
-cephal	Relating to the head.
-cle	Small or little.
-cyte	Having to do with cells.
-dactyl	Relating to the fingers or toes.
-desis	Binding or fusion.
-ectomy	Excision, removal.
-emia	Blood.
-ferous	Produces, causes, or brings about.
-fuge	Drive out or expel.
-genic	Production, causation, generation.
-gram	Drawn, written, and recorded.
-graphic	Written or drawn.
-ia	State of being, condition (abnormal).
-iasis	Condition.
-itis	Inflammation.
-lysis	Release, free, reduction of.
-lytic	Destroy, breakdown.
-metry	Scientific measurement.
-odynia	Indicates pain or discomfort.
-oid	Indicates likeness or resemblance.
-ology	Study of.
-oma	Tumor.
-opathy	Relating to disease.
-opexy	Surgical fixation.
-oplasty	Surgical repair.
-orraphy	Suturing.
-orrhagia	Hemorrhage.
-orrhaphy	Suturing.
-oscopy	To examine.
-osis	Condition, process.
-ostomy	Indicates a surgically created artificial opening.
-otomy	Indicates a cutting.
-otripsy	Crushing, destroying.
-pagus	Indicates fixed or joined together.
-paraesis	Indicates weakness.
-pathic	Indicates a feeling, diseased condition, or therapy.
-penia	Indicates a deficiency, less than normal.
-pexy	Fixation.
-philia	Inordinate love of or craving for something.
-phobia	Abnormal fear of or aversion to.
-plasia	Indicates growth, growing.
-plasty	Indicates surgically formed or molded.
-plegia	Indicates a stroke or paralysis.
-pnea	Relating to breath, breathing.
-poietic	Indicates producing or making.
-praxis	Indicates activity, action, condition, or use.
-rhage	Indicates bleeding or other fluid discharge.
-rhaphy	Indicates a suture or seam joining two structures.
-rrhagia	Indicates an abnormal or excessive fluid discharge.
-rrhexis	Splitting or breaking.
-sarcoma	Malignant tumor of flesh or connective tissue.
-spasm	Contraction.
-taxy	Arrangement, grouping.
-tomy	Incision.

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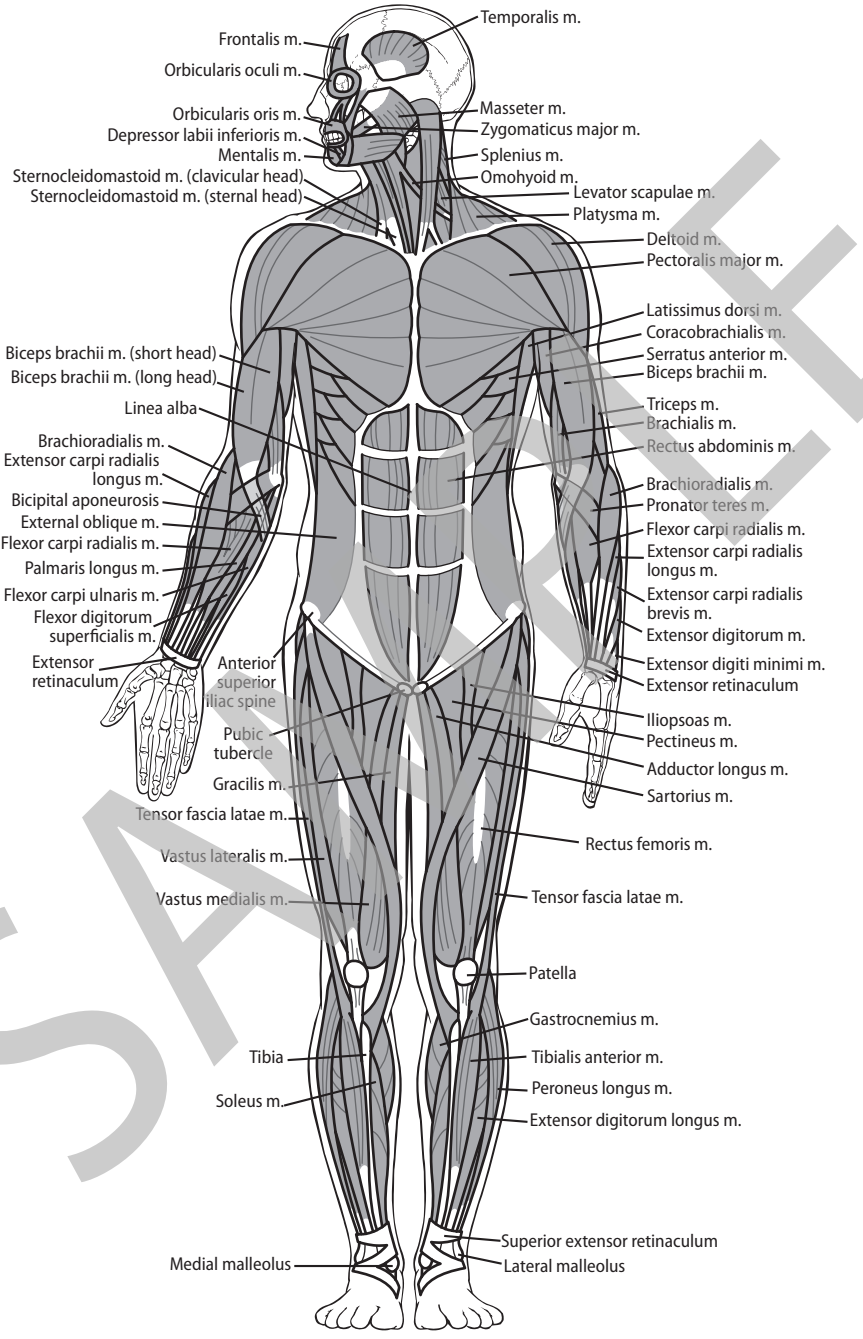
Muscles



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21600

The physician removes part of one rib. With the patient under anesthesia, the physician makes an incision in the skin of the chest overlying the rib. The tissues are dissected deep to the rib itself. The rib is identified. The physician removes the desired part of the rib using a saw and other instruments. The remaining pieces of the rib and the wound itself are irrigated and debrided. The incision is sutured in layers.

21601

The physician excises a chest wall tumor, including ribs. An incision in the skin of the chest overlying the site of the tumor is made. The tumor and surrounding tissue are excised. The tissue removed includes at least one adjacent rib above or below the tumor site and any associated intercostal muscles. It may also include rib cage resection and/or an en bloc resection of muscles, including the pectoralis minor or major, the serratus anterior, or the latissimus dorsi. The physician ligates or cauterizes bleeding vessels. A chest tube may be placed to re-expand the lung. The incision is repaired with layered closure and a pressure dressing is applied to the wound.

21602-21603

The physician excises a chest wall tumor, involving ribs, with plastic reconstruction. The physician makes an incision in the skin of the chest overlying the tumor. The tumor and surrounding tissue are excised and includes at least one adjacent rib above and below the tumor site and all intervening intercostal muscles. It may also include an en bloc resection of muscles, including the pectoralis minor or major, the serratus anterior, or the latissimus dorsi. In 21603, lymphatic tissue lying within the mediastinum is also removed. The physician ligates or cauterizes bleeding vessels. A chest tube may be placed to re-expand the lung. Plastic reconstruction is done and may involve rib grafts and/or a myocutaneous flap. A pressure dressing is applied to the wound.

21610

The physician resects the costovertebral joint. The physician makes a posterior incision overlying the joint. The tissues are dissected from the joint and the transverse process is cut from the vertebral body. The physician removes all or a portion of the adjacent rib. The incision is sutured in layers.

21615-21616

The physician performs surgery to remove the first rib and/or an extraneous cervical rib. With the patient under anesthesia, an incision is made in the skin just above the clavicle on the affected side and carried deep to the rib. The rib is identified and the attached soft tissues are dissected from the bone. The physician excises the rib using a saw and other surgical instruments. The rib is freed from its articulation and removed. The wound is irrigated and closed in layers. A dressing is applied. Report 21616 if a sympathetic nerve pathway is cut during the procedure.

21620

The physician removes a portion of the sternum from the chest. With the patient under anesthesia, the physician makes an incision in the skin overlying the sternum. This is carried deep through the subcutaneous tissues to the bone. The sternum is identified and the attached soft tissues are dissected from the bone. The physician marks the portion of the sternum to be removed. The bone is cut in the appropriate places using a saw and other surgical instruments. The remaining portion of the bone is irrigated and smoothed as needed. The wound is closed in layers and a dressing is applied.

21627

The physician performs a debridement of the sternum. With the patient under anesthesia, the physician makes an incision in the skin overlying the sternum. The incision is carried deep to the bone. The sternum is debrided as warranted using any of a variety of hand or powered surgical instruments. Irrigation is used so that debridement can be completed as extensively as indicated. The wound may be loosely packed and a dressing applied or it may be closed in layers and a dressing applied.

21630-21632

The physician removes most or all of the sternum from the chest. With the patient under anesthesia, the physician makes a long incision overlying the sternum and anterior chest. This is carried deep to the bone. Dissection is performed around the sternum. Ribs are disarticulated as needed and thorough debridement is accomplished. Using saws and other surgical instruments, the physician removes the bone. Internal fixation devices (reported separately) are often needed to support the ribs and chest wall. The wound is irrigated and closed in layers. Report 21632 if a mediastinal lymphadenectomy is performed during the procedure.

21685

The hyoid bone is a small C-shaped bone in the neck above the Adam's apple, or thyroid cartilage, with muscles of the tongue and throat attached to it. Hyoid myotomy and suspension is done to open the orohypopharyngeal airway for correcting breathing in sleep apnea. It involves repositioning and fixating the hyoid bone to improve the airway. A submental incision is made to expose the hyoid bone in the neck. The muscles below the hyoid are transected and separated to expose a small, isolated, mid-portion of the hyoid bone. Strips of fascia lata (bands of fibrous tissue), nonresorbable suture, or other strong materials are wrapped around the body of the hyoid and used to pull it forward and secure it to the inferior mandibular border. An alternative method pulls the

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Respiratory

30000-30020

The physician makes an incision to decompress and drain a collection of pus or blood in the nasal mucosa for 30000 or septal mucosa for 30020. A hemostat bluntly penetrates the pockets and allows the fluid to evacuate. Once decompressed, a small latex drain may be placed into the incision site. This allows an escape for any fluids that may continue to enter the pocket. If a drain is used, it is removed within 48 hours. The nasal cavity may be packed with gauze or Telfa to provide pressure against the mucosa and assist decompression after drainage. The incision may be closed primarily or may be left to granulate without closure.

30100

The physician removes mucosa from inside the nose for biopsy. This biopsy is performed when the mucosa is suspicious for disease. Some normal tissue adjacent to the diseased mucosa is also removed during the biopsy. This allows the pathologist to compare diseased versus nondiseased tissues. The excision site may be closed primarily with sutures or may be allowed to granulate without closure.

30110

The physician removes a polyp from inside the nose. Nasal polyps may obstruct both the airway passages and sinus drainage ducts in the nose. The area is approached intranasally. Topical vasoconstrictive agents are applied to the nasal mucosa. Local anesthesia is injected underneath and around the polyp. A scalpel or biting forceps excise the polyp. Small polyps may leave mucosal defects that do not require closure. With larger defects, the mucosa is closed with sutures in a single layer. The physician may place Telfa to pack the nasal cavity during the first 24 hours.

30115

The physician removes complicated nasal polyps in a hospital setting. Nasal polyps may obstruct both the airway passages and sinus drainage ducts in the nose. The area is approached intranasally. Topical vasoconstrictive agents are applied to the nasal mucosa. Local anesthesia is injected underneath and around the polyp. Large polyps are removed with a wire snare stretching the polyp base; the snare or a scalpel can be used to detach the polyp from its mucosal base. A scalpel or biting forceps excise smaller polyps. Small polyps may leave mucosal defects that do not require closure. With larger defects, the mucosa is closed with sutures in a single layer. The physician may place Telfa to pack the nasal cavity during the first 24 hours.

30117-30118

The physician removes or destroys intranasal soft tissue lesions using techniques such as surgical excision, cryosurgery, chemical application, or laser surgery. The lesion is approached intranasally in 30117. The physician performs a lateral rhinotomy by retracting the lateral ala to expose the internal nose in 30118. Surgical excision can be utilized to remove the lesion. Cryosurgery freezes and kills soft tissue lesions. Laser surgery vaporizes and emulsifies the lesions. Chemical application of topical vasoconstrictive agents and local anesthesia cauterizes vessels and limits postsurgical hemorrhage. Postoperative wound closure or intranasal packing may not be necessary.

30120

Rhinophyma describes a chronic skin disorder categorized under part of an advanced staged rosacea called phymatous rosacea, identified with significant disfigurement from severe redness and a bulbous nose caused by hypertrophy and hyperplasia of the sebaceous nasal glands. The condition can also seriously impact the function of the nose and without surgery may produce a functional airway compromise (airway obstruction). The physician surgically removes diseased tissue caused by rhinophyma from the external nasal tip. Local anesthesia is injected into the nasal tip. The excess tissue is removed by carving and recontouring hyperplastic tissue from the area. Scalpels, dermabrasion (planing with fine sandpaper or wire brushes), and lasers are common methods of removing this excess tissue. A thin layer of epithelium is maintained over the nasal cartilages to ensure adequate healing. Separately reportable skin grafting may be necessary for very large lesions.

30124-30125

The physician removes a dermoid (developmental) cyst of the nose that may be associated with the soft tissue only in 30124 or may extend into bone and/or cartilage in 30125. If associated with the nasal bone, the usual location is at the bone-cartilage junction. Dependent on the size and location, the cyst may be removed using skin or intranasal incisions. A fistula opening may be present and its tract would be excised. Commonly, an incision is made overlying the cyst in the nasal skin. The cyst is removed from its cavity using curettes. The defect size dictates post-removal cavity packing and/or separately reportable reconstruction. Incisions may be closed in single and layers.

30130

The physician removes a part of or the entire inferior nasal turbinate located on the lateral wall of the nose. The turbinate is primarily removed in cases of hypertrophy that obstruct the nasal airway. The physician places topical vasoconstrictive drugs on the turbinate to shrink the blood vessels. A mucosal incision is made around the base of the turbinate. The physician fractures the bony turbinate from the lateral nasal wall with a chisel or drill. The turbinate is excised. Electrocautery may control bleeding. The nasal mucosa is sutured in single layers. The nasal cavity may be packed with gauze.

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64912-64913

The physician repairs a peripheral nerve injury using a processed human nerve allograft to restore innervation. Peripheral nerves, unlike nerves in the central nervous system, can heal but nerve function restoration may begin to diminish over a period of time. A processed human peripheral nerve graft is donated in the same manner as other tissues and organs involving donor screening. Donated nerves are processed and sterilized to avoid risk of disease transmission from the donor to the patient and, as a result of the processing procedure, the allograft does not require a patient to take immunosuppressant drugs. An allograft offers surgeons the ability to reconnect severed nerves without the potential complications or interactions associated with using another surgical site to harvest the donor nerve. In addition, a processed human nerve allograft may minimize costs and time requirements involved when the physician must harvest a nerve from the patient. The physician makes an incision over the damaged nerve and dissects tissues to locate the nerve. The damaged area of the nerve is resected and removed. Innervation is restored by building a bridge of the decellularized and processed human nerve allograft to each end of the resected nerve and suturing the proximal and distal ends of the bridge into place around each severed nerve end. This technique is usually limited to nerve gaps of 3 cm or less. The bridge is usually 1 cm longer than the defect so that it covers the distal and proximal ends of the resected nerve. Once the bridge is sutured into place, it is infused with a solution of heparin and saline to prevent clot formation. The operative wound is repaired in layers. The allograft is designed to function with the natural structural pathways for axon regeneration and over time is absorbed into, and becomes part of, the patient's own body. Report 64912 for the first strand and 64913 for each additional strand.

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88365-88366 [88364]

Fluorescence In Situ Hybridization, also known as DNA-to-DNA homology or simply FISH or FISH-IS ™ (Fluorescence In Situ Hybridization—In Suspension), involves isolating and detecting specific nucleotide (mRNA) sequences within morphologically preserved cells and tissues by hybridizing a complementary nucleic acid strand, called a probe, to the sequence of interest within the prepared cells. The cells of interest may be snap-frozen and fixed in paraformaldehyde; left in suspension for fixation, hybridization, and detection; spun out of suspension onto glass slides and fixed with methanol; or fixed in formalin and embedded in paraffin. The probe is first labeled with an easily detectable substance, such as a radioactive isotope, before hybridization. Types of probes used are oligonucleotides, single-stranded DNA, double-stranded DNA, and RNA or riboprobes. The labeled probe strand is added to the prepared cells. The pairing or bonding (hybridization) that occurs between the complementary sequences of nucleotide bases in the probe to the specific mRNA sequences allows the expression of the type of sequence being detected to be seen on the target gene. Report 88365 for the initial single probe stain per specimen; 88364 for each additional single probe stain; and 88366 for each multiplex probe stain.

88367-88369 [88373, 88374, 88377]

Morphometric analysis, also referred to as histomorphometry, is a quantitative or semiquantitative analysis done with in situ hybridization. In situ hybridization involves isolating and detecting specific nucleotide (mRNA) sequences within morphologically preserved cells and tissues by hybridizing a complementary nucleic acid strand, called a probe, to the sequence of interest within the prepared cells. The cells of interest may be snap frozen and fixed in paraformaldehyde, spun out of suspension onto glass slides and fixed with methanol, or formalin fixed embedded in paraffin. The probe is first labeled with an easily detectable substance, such as a radioactive isotope, before hybridization. Types of probes used are oligonucleotides, single-stranded DNA, double-stranded DNA, and RNA or riboprobes. The labeled probe strand is added to the prepared cells. The pairing or bonding (hybridization) that occurs between the complementary sequences of nucleotide bases in the probe to the specific mRNA sequences allows the expression of the type of sequence being detected to be seen on the target gene. Analysis is done to determine the organization, structure, form, and composition within the morphologically preserved cells being studied. Report 88367 for the initial single probe stain, per specimen, using computer-assisted technology; 88373 for each additional single probe stain using computer-assisted technology; and 88374 for each multiplex probe stain using computer-assisted technology. Report 88368 for the initial single probe stain analyzed manually; 88369 for each additional single probe stain analyzed manually; and 88377 for each multiplex probe stain analyzed manually.

88371-88372

Western blot is an immunoassay technique that detects and confirms certain viral antibodies. Protein analysis of tissue involves separation of protein and glycoprotein components by electrophoresis. For certain diagnoses, polyacrylamide gel electrophoresis is used to create substrate bands that are transferred by electrophoretic blotting to a membrane. Patient serum is placed on the substrate strips and any of the targeted antibodies present will bind to the viral antigens. Report 88372 when the protein analysis of tissue by Western blot includes an immunological probe for band identification. The band patterns are visualized by immunohistochemical methods. Either service requires interpretation and written report.

88375

The images captured using an optical endomicroscope during endoscopy are reviewed, interpreted, and a report is generated. The endomicroscope uses laser light to magnify the cells of the mucosa in order to identify the histopathology without a biopsy. This service can be performed during the procedure (real time) or at a later time. This code is reported per endoscopic procedure, not per image.

88380-88381

Laser capture microdissection (LCM) (88380) is a method for procuring pure cells from specific microscopic regions of tissue sections to study developing disease lesions in actual tissue. A transfer film is applied to the surface of the tissue section. Under the microscope, the diagnostic pathologist or researcher views the thin tissue section and chooses microscopic clusters of cells to study. When the cells of choice are in the center of the field of view, a pulsed laser beam activates a spot on the transfer film immediately above the cells of interest. At this location the film melts and fuses with the underlying cells. When the film is removed, the chosen cells are held, while the rest of the tissue is left behind. This allows multiple homogeneous samples within the tissue section to be targeted for analysis. If microdissection is performed utilizing a manual technique (using hand-held tools such as needles or mechanical micromanipulator-based approaches), report 88381.

88387-88388

The physician performs a macroscopic (visual) examination, dissection, and preparation of tissues for analytical studies that are non-microscopic, such as nucleic acid-based molecular studies. Report 88387 for each tissue preparation (e.g., a single lymph node). Report 88388 when this procedure is performed in conjunction with a touch imprint, intraoperative consultation, or frozen section.

SAMPLE

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