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CLINICAL APPROPRIATENESS GUIDELINES

ADVANCED IMAGING

Appropriate Use Criteria: Site of Care

Proprietary

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Description and Application of the Guidelines

The AIM Clinical Appropriateness Guidelines (hereinafter “the AIM Clinical Appropriateness Guidelines” or the “Guidelines”) are designed to assist providers in making the most appropriate treatment decision for a specific clinical condition for an individual. As used by AIM, the Guidelines establish objective and evidence-based criteria for medical necessity determinations where possible. In the process, multiple functions are accomplished:

- To establish criteria for when services are medically necessary
- To assist the practitioner as an educational tool
- To encourage standardization of medical practice patterns
- To curtail the performance of inappropriate and/or duplicate services
- To advocate for patient safety concerns
- To enhance the quality of health care
- To promote the most efficient and cost-effective use of services

The AIM guideline development process complies with applicable accreditation standards, including the requirement that the Guidelines be developed with involvement from appropriate providers with current clinical expertise relevant to the Guidelines under review and be based on the most up-to-date clinical principles and best practices. Relevant citations are included in the References section attached to each Guideline. AIM reviews all of its Guidelines at least annually.

AIM makes its Guidelines publicly available on its website twenty-four hours a day, seven days a week. Copies of the AIM Clinical Appropriateness Guidelines are also available upon oral or written request. Although the Guidelines are publicly-available, AIM considers the Guidelines to be important, proprietary information of AIM, which cannot be sold, assigned, leased, licensed, reproduced or distributed without the written consent of AIM.

AIM applies objective and evidence-based criteria, and takes individual circumstances and the local delivery system into account when determining the medical appropriateness of health care services. The AIM Guidelines are just guidelines for the provision of specialty health services. These criteria are designed to guide both providers and reviewers to the most appropriate services based on a patient’s unique circumstances. In all cases, clinical judgment consistent with the standards of good medical practice should be used when applying the Guidelines. Guideline determinations are made based on the information provided at the time of the request. It is expected that medical necessity decisions may change as new information is provided or based on unique aspects of the patient’s condition. The treating clinician has final authority and responsibility for treatment decisions regarding the care of the patient and for justifying and demonstrating the existence of medical necessity for the requested service. The Guidelines are not a substitute for the experience and judgment of a physician or other health care professionals. Any clinician seeking to apply or consult the Guidelines is expected to use independent medical judgment in the context of individual clinical circumstances to determine any patient’s care or treatment.

The Guidelines do not address coverage, benefit or other plan specific issues. Applicable federal and state coverage mandates take precedence over these clinical guidelines. If requested by a health plan, AIM will review requests based on health plan medical policy/guidelines in lieu of the AIM Guidelines.

The Guidelines may also be used by the health plan or by AIM for purposes of provider education, or to review the medical necessity of services by any provider who has been notified of the need for medical necessity review, due to billing practices or claims that are not consistent with other providers in terms of frequency or some other manner.

General Clinical Guideline

Clinical Appropriateness Framework

Critical to any finding of clinical appropriateness under the guidelines for a specific diagnostic or therapeutic intervention are the following elements:

- Prior to any intervention, it is essential that the clinician confirm the diagnosis or establish its pretest likelihood based on a complete evaluation of the patient. This includes a history and physical examination and, where applicable, a review of relevant laboratory studies, diagnostic testing, and response to prior therapeutic intervention.
- The anticipated benefit of the recommended intervention should outweigh any potential harms that may result (net benefit).
- Current literature and/or standards of medical practice should support that the recommended intervention offers the greatest net benefit among competing alternatives.
- Based on the clinical evaluation, current literature, and standards of medical practice, there exists a reasonable likelihood that the intervention will change management and/or lead to an improved outcome for the patient.

If these elements are not established with respect to a given request, the determination of appropriateness will most likely require a peer-to-peer conversation to understand the individual and unique facts that would supersede the requirements set forth above. During the peer-to-peer conversation, factors such as patient acuity and setting of service may also be taken into account.

Simultaneous Ordering of Multiple Diagnostic or Therapeutic Interventions

Requests for multiple diagnostic or therapeutic interventions at the same time will often require a peer-to-peer conversation to understand the individual circumstances that support the medical necessity of performing all interventions simultaneously. This is based on the fact that appropriateness of additional intervention is often dependent on the outcome of the initial intervention.

Additionally, either of the following may apply:

- Current literature and/or standards of medical practice support that one of the requested diagnostic or therapeutic interventions is more appropriate in the clinical situation presented; or
- One of the diagnostic or therapeutic interventions requested is more likely to improve patient outcomes based on current literature and/or standards of medical practice.

Repeat Diagnostic Intervention

In general, repeated testing of the same anatomic location for the same indication should be limited to evaluation following an intervention, or when there is a change in clinical status such that additional testing is required to determine next steps in management. At times, it may be necessary to repeat a test using different techniques or protocols to clarify a finding or result of the original study.

Repeated testing for the same indication using the same or similar technology may be subject to additional review or require peer-to-peer conversation in the following scenarios:

- Repeated diagnostic testing at the same facility due to technical issues
- Repeated diagnostic testing requested at a different facility due to provider preference or quality concerns
- Repeated diagnostic testing of the same anatomic area based on persistent symptoms with no clinical change, treatment, or intervention since the previous study

- Repeated diagnostic testing of the same anatomic area by different providers for the same member over a short period of time

Repeat Therapeutic Intervention

In general, repeated therapeutic intervention in the same anatomic area is considered appropriate when the prior intervention proved effective or beneficial and the expected duration of relief has lapsed. A repeat intervention requested prior to the expected duration of relief is not appropriate unless it can be confirmed that the prior intervention was never administered.

Site of Care

General Information/Overview

Scope

These guidelines address site of care for advanced imaging. Specifically, the guideline addresses the medical necessity of imaging at a hospital outpatient department (HOPD) where a higher level of support may be available. The appropriate place of care is defined as the facility (HOPD or freestanding) with the proper equipment and level of support to perform advanced imaging when that request meets AIM's radiology guidelines for appropriate use. This guideline covers all requests for advanced imaging in both pediatric and adult patients.

See the Coding section for a list of modalities included in these guidelines.

Definitions

Phases of the care continuum are broadly defined as follows:

- **Screening** – testing in the absence of signs or symptoms of disease
- **Diagnosis** – testing based on a reasonable suspicion of a particular condition or disorder, usually due to the presence of signs or symptoms
- **Management** – testing to direct therapy of an established condition, which may include preoperative or postoperative imaging, or imaging performed to evaluate the response to nonsurgical intervention
- **Surveillance** – periodic assessment following completion of therapy, or for monitoring known disease that is stable or asymptomatic

Statistical terminology

- **Confidence interval (CI)** – range of values which is likely to contain the cited statistic. For example, 92% sensitivity (95% CI, 89%-95%) means that, while the sensitivity was calculated at 92% on the current study, there is a 95% chance that, if a study were to be repeated, the sensitivity on the repeat study would be in the range of 89%-95%.
- **Diagnostic accuracy** – ability of a test to discriminate between the target condition and health. Diagnostic accuracy is quantified using sensitivity and specificity, predictive values, and likelihood ratios.
- **Hazard ratio** – odds that an individual in the group with the higher hazard reaches the outcome first. Hazard ratio is analogous to odds ratio and is reported most commonly in time-to-event analysis or survival analysis. A hazard ratio of 1 means that the hazard rates of the 2 groups are equivalent. A hazard ratio of greater than 1 or less than 1 means that there are differences in the hazard rates between the 2 groups.
- **Likelihood ratio** – ratio of an expected test result (positive or negative) in patients *with* the disease to an expected test result (positive or negative) in patients *without* the disease. Positive likelihood ratios, especially those greater than 10, help rule in a disease (i.e., they substantially raise the post-test probability of the disease, and hence make it very likely and the test very useful in identifying the disease). Negative likelihood ratios, especially those less than 0.1, help rule out a disease (i.e., they substantially decrease the post-test probability of disease, and hence make it very unlikely and the test very useful in excluding the disease).
- **Odds ratio** – odds that an outcome will occur given a particular exposure, compared to the odds of the outcome occurring in the absence of that exposure. An odds ratio of 1 means that the exposure does not affect the odds of the outcome. An odds ratio greater than 1 means that the exposure is associated with higher odds of the outcome. An odds ratio less than 1 means that the exposure is associated with lower odds of the outcome.

- **Predictive value** – likelihood that a given test result correlates with the presence or absence of disease. Positive predictive value is defined as the number of true positives divided by the number of test positives. Negative predictive value is defined as the number of true negatives divided by the number of test negative patients. Predictive value is dependent on the prevalence of the condition.
- **Pretest probability** – probability that a given patient has a disease prior to testing. May be divided into very low (less than 5%), low (less than 20%), moderate (20%-75%), and high (greater than 75%) although these numbers may vary by condition.
- **Relative risk** – probability of an outcome when an exposure is present relative to the probability of the outcome occurring when the exposure is absent. Relative risk is analogous to odds ratio; however, relative risk is calculated by using percentages instead of odds. A relative risk of 1 means that there is no difference in risk between the 2 groups. A relative risk of greater than 1 means that the outcome is more likely to happen in the exposed group compared to the control group. A relative risk less than 1 means that the outcome is less likely to happen in the exposed group compared to the control group.
- **Sensitivity** – conditional probability that the test is positive, given that the patient has the disease. Defined as the true positive rate (number of true positives divided by the number of patients with disease). Excellent or high sensitivity is usually greater than 90%.
- **Specificity** – conditional probability that the test is negative, given that the patient does not have the disease. Defined as the true negative rate (number of true negatives divided by the number of patients without the disease). Excellent or high specificity is usually greater than 90%.

Clinical Indications

The following section includes indications for which advanced imaging is considered medically necessary, along with prerequisite information and supporting evidence where available. Indications, diagnoses, or imaging modalities not specifically addressed are considered not medically necessary.

It is recognized that imaging often detects abnormalities unrelated to the condition being evaluated. Such findings must be considered within the context of the clinical situation when determining whether additional imaging is required.

Site of Care

Imaging at a hospital outpatient site of care (HOPD) is considered medically necessary for requests that meet criteria based on AIM's advanced imaging guidelines in **ANY** of the following scenarios:

- Advanced imaging which requires **ANY** of the following ancillary services:
 - Anesthesia (moderate sedation, deep sedation, or general anesthesia)
 - Obstetrical or perinatology observation
 - Additional resources for transfer or positioning in bedbound patients or in patients with advanced (stage 3 or stage 4) decubitus ulcers
 - Additional nursing or facility resources to support patients on contact or airborne precautions
 - Potential need for rapid response in patients due to underlying medical conditions (examples include documented contrast allergy to the agent requested for the exam, MRI with implantable cardiac devices, ventilated patient, or high risk of airway compromise)
- Advanced imaging which requires **ANY** of the following when not available or infrequently performed by freestanding centers within the same geography:
 - Modalities

- Specialized hardware and/or software
 - Expertise
 - Subspecialized radiologists when none are available in the community
 - Pediatric advanced imaging when performed in a Children’s Hospital or in HOPD that does the majority of pediatric imaging in a community without a Children’s Hospital
 - Technology
 - Open or large bore MRI in patients with documented claustrophobia
 - Equipment appropriate for the size of the individual
- Advanced imaging in **ANY** of the following continuity of care scenarios:
 - Follow up imaging previously performed at the HOPD when differences in imaging technique may limit assessment for small changes that would impact evidence based patient management
 - Imaging required for preprocedural planning when the procedure has been scheduled at the same hospital
 - When performance of imaging outside the HOPD would reasonably be expected to create clinically significant delays in care

Rationale

Despite the increasing frequency of HOPD imaging,¹ there are no studies formally comparing the quality of imaging care delivered in the HOPD and freestanding environments. The need to perform HOPD imaging is therefore based on the consideration of principle based patient, personnel, or technical factors that are expected to offer net benefit to HOPD imaging by making it safer or consistently more accurate than imaging in surrounding freestanding facilities when available.

HOPD is a higher site of care offering ancillary services that may be important to imaging safety in select high risk patients. While they may occur in the outpatient setting, the scenarios covered by this ancillary support principle are much more common in the inpatient level of care, which is beyond the scope of this document. For instance, anesthesia beyond minimal sedation (anxiolysis with normal verbal responsiveness) requires greater patient monitoring and potentially anesthesiologist supervision. Additional ancillary support may be required to help position bedbound patients or those with advanced decubitus ulcers. While many freestanding facilities are capable of managing established relevant contrast allergies, the additional rapid response services offered by HOPD are an important safety consideration in patients with medical or device comorbidities that increase the risk of an adverse event requiring immediate medical attention (contrast reaction, cardiac devices, and potential for airway compromise).

HOPD may offer specialized technology and expertise that is not widely available in freestanding facilities. While the exact availability of services varies from market to market, the vast majority of freestanding imaging centers can accommodate routine CT and MRI examinations. Some modalities require specialized equipment, software, and/or personnel that are not widespread in the freestanding environment. For instance, functional MRI may require engagement of a speech language pathologist and specialized post processing software, neither of which is available at the majority of freestanding institutions. Not all specialized software or hardware lead to improvements in diagnostic accuracy that would reasonably be expected to positively impact patient management and outcome. For instance, 1.5T strength magnets are non inferior to 3T in most clinical scenarios.^{2 3 4 5} Furthermore, the vast majority of advanced imaging exams can be performed without specialized and uncommon technology. In some cases, the HOPD may be the only source of subspecialized radiologists. Low to very low quality evidence suggests that subspecialized radiologists are more accurate than their general radiology counterparts in the interpretation of some types of studies for instance oncologic^{6, 7} and interstitial lung disease⁸ but not for appendicitis⁹ and not consistently for musculoskeletal conditions.^{10,11} Pediatric imaging requires consistent adherence to as low as reasonable achievable (ALARA) CT dosimetry. Children’s hospitals tend to use less radiation for similar or greater diagnostic accuracy.^{12, 13} They may also offer supportive services to facilitate the imaging experience for children, including pediatric sedation. Pediatric radiologists are also less common than other radiology subspecialties in community practice. Finally, the HOPD may be the only site to support the types of equipment needed in patients with claustrophobia or very high BMIs.

Continuity of care and service is a third principle for hospital based imaging in some patients. Comparison between studies is facilitated by having the same imaging protocol, performed by the same institution in the same PACS environment. It is uncommon for new episodes of care in patients without chronic disease to have relevant comparisons. However, comparison to prior studies is important for accurate diagnosis and management in patients with certain chronic conditions such as cancer and multiple sclerosis and is an indication for HOPD imaging when previously performed in that site of care. Not all patients with chronic conditions require follow up imaging at the HOPD. For instance, a patient with multiple sclerosis who requires a MRI of the knee would not meet the continuity of care principle outlined here. Relevance of the comparison to the exam indication and the importance of small changes to patient management determine applicability of the principle. Other continuity of care considerations include preprocedural imaging when surgery has been scheduled at the hospital and circumstances particular to an individual patient or community where imaging redirection to a free standing facility may result in clinical significant care delays such as untimely diagnosis for an acute or highly time sensitive condition.

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Codes

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The following code list is not meant to be all-inclusive. Authorization requirements will vary by health plan. Please consult the applicable health plan for guidance on specific procedure codes.

CPT/HCPCS

Specific CPT codes for services should be used when available. Non-specific or not otherwise classified codes may be subject to additional documentation requirements and review.

0042T	Cerebral perfusion analysis using computed tomography with contrast administration, including post-processing of parametric maps with determination of cerebral blood flow, cerebral blood volume, and mean transit time
0648T	Quantitative magnetic resonance for analysis of tissue composition (eg, fat, iron, water content), including multiparametric data acquisition, data preparation and transmission, interpretation and report, obtained without diagnostic MRI examination of the same anatomy (eg, organ, gland, tissue, target structure) during the same session; single organ
0649T	Quantitative magnetic resonance for analysis of tissue composition (eg, fat, iron, water content), including multiparametric data acquisition, data preparation and transmission, interpretation and report, obtained with diagnostic MRI examination of the same anatomy (eg, organ, gland, tissue, target structure); single organ (List separately in addition to code for primary procedure)
70336	Magnetic resonance (eg, proton) imaging, temporomandibular joint(s)
70450	Computed tomography, head or brain; without contrast material
70460	Computed tomography, head or brain; with contrast material(s)
70470	Computed tomography, head or brain; without contrast material, followed by contrast material(s) and further sections
70480	Computed tomography, orbit, sella, or posterior fossa or outer, middle, or inner ear; without contrast material
70481	Computed tomography, orbit, sella, or posterior fossa or outer, middle, or inner ear; with contrast material(s)
70482	Computed tomography, orbit, sella, or posterior fossa or outer, middle, or inner ear; without contrast material, followed by contrast material(s) and further sections
70486	Computed tomography, maxillofacial area; without contrast material
70487	Computed tomography, maxillofacial area; with contrast material(s)
70488	Computed tomography, maxillofacial area; without contrast material, followed by contrast material(s) and further sections
70490	Computed tomography, soft tissue neck; without contrast material
70491	Computed tomography, soft tissue neck; with contrast material(s)
70492	Computed tomography, soft tissue neck; without contrast material followed by contrast material(s) and further sections
70496	Computed tomographic angiography, head, with contrast material(s), including noncontrast images, if performed, and image postprocessing
70498	Computed tomographic angiography, neck, with contrast material(s), including noncontrast images, if performed, and image postprocessing
70540	Magnetic resonance (eg, proton) imaging, orbit, face, and/or neck; without contrast material(s)
70542	Magnetic resonance (eg, proton) imaging, orbit, face, and/or neck; with contrast material(s)
70543	Magnetic resonance (eg, proton) imaging, orbit, face, and/or neck; without contrast material(s), followed by contrast material(s) and further sequences
70544	Magnetic resonance angiography, head; without contrast material(s)
70545	Magnetic resonance angiography, head; with contrast material(s)
70546	Magnetic resonance angiography, head; without contrast material(s), followed by contrast material(s) and further sequences
70547	Magnetic resonance angiography, neck; without contrast material(s)
70548	Magnetic resonance angiography, neck; with contrast material(s)
70549	Magnetic resonance angiography, neck; without contrast material(s), followed by contrast material(s) and further sequences
70551	Magnetic resonance (eg, proton) imaging, brain (including brain stem); without contrast material
70552	Magnetic resonance (eg, proton) imaging, brain (including brain stem); with contrast material(s)
70553	Magnetic resonance (eg, proton) imaging, brain (including brain stem); without contrast material, followed by contrast material(s) and further sequences
70554	Magnetic resonance imaging, brain, functional MRI; including test selection and administration of repetitive body part movement and/or visual stimulation, not requiring physician or psychologist administration
70555	Magnetic resonance imaging, brain, functional MRI; requiring physician or psychologist administration of entire neurofunctional testing
71250	Computed tomography, thorax, diagnostic; without contrast material
71260	Computed tomography, thorax, diagnostic; with contrast material(s)
71270	Computed tomography, thorax, diagnostic; without contrast material, followed by contrast material(s) and further sections

- 71550 Magnetic resonance (eg, proton) imaging, chest (eg, for evaluation of hilar and mediastinal lymphadenopathy); without contrast material(s)
- 71551 Magnetic resonance (eg, proton) imaging, chest (eg, for evaluation of hilar and mediastinal lymphadenopathy); with contrast material(s)
- 71552 Magnetic resonance (eg, proton) imaging, chest (eg, for evaluation of hilar and mediastinal lymphadenopathy); without contrast material(s), followed by contrast material(s) and further sequences
- 71555 Magnetic resonance angiography, chest (excluding myocardium), with or without contrast material(s)
- 72125 Computed tomography, cervical spine; without contrast material
- 72126 Computed tomography, cervical spine; with contrast material
- 72127 Computed tomography, cervical spine; without contrast material, followed by contrast material(s) and further sections
- 72128 Computed tomography, thoracic spine; without contrast material
- 72129 Computed tomography, thoracic spine; with contrast material
- 72130 Computed tomography, thoracic spine; without contrast material, followed by contrast material(s) and further sections
- 72131 Computed tomography, lumbar spine; without contrast material
- 72132 Computed tomography, lumbar spine; with contrast material
- 72133 Computed tomography, lumbar spine; without contrast material, followed by contrast material(s) and further sections
- 72141 Magnetic resonance (eg, proton) imaging, spinal canal and contents, cervical; without contrast material
- 72142 Magnetic resonance (eg, proton) imaging, spinal canal and contents, cervical; with contrast material(s)
- 72146 Magnetic resonance (eg, proton) imaging, spinal canal and contents, thoracic; without contrast material
- 72147 Magnetic resonance (eg, proton) imaging, spinal canal and contents, thoracic; with contrast material(s)
- 72148 Magnetic resonance (eg, proton) imaging, spinal canal and contents, lumbar; without contrast material
- 72149 Magnetic resonance (eg, proton) imaging, spinal canal and contents, lumbar; with contrast material(s)
- 72156 Magnetic resonance (eg, proton) imaging, spinal canal and contents, without contrast material, followed by contrast material(s) and further sequences; cervical
- 72157 Magnetic resonance (eg, proton) imaging, spinal canal and contents, without contrast material, followed by contrast material(s) and further sequences; thoracic
- 72158 Magnetic resonance (eg, proton) imaging, spinal canal and contents, without contrast material, followed by contrast material(s) and further sequences; lumbar
- 72159 Magnetic resonance angiography, spinal canal and contents, with or without contrast material(s)
- 72191 Computed tomographic angiography, pelvis, with contrast material(s), including noncontrast images, if performed, and image postprocessing
- 72192 Computed tomography, pelvis; without contrast material
- 72193 Computed tomography, pelvis; with contrast material(s)
- 72194 Computed tomography, pelvis; without contrast material, followed by contrast material(s) and further sections
- 72195 Magnetic resonance (eg, proton) imaging, pelvis; without contrast material(s)
- 72196 Magnetic resonance (eg, proton) imaging, pelvis; with contrast material(s)
- 72197 Magnetic resonance (eg, proton) imaging, pelvis; without contrast material(s), followed by contrast material(s) and further sequences
- 72198 Magnetic resonance angiography, pelvis, with or without contrast material(s)
- 73200 Computed tomography, upper extremity; without contrast material
- 73201 Computed tomography, upper extremity; with contrast material(s)
- 73202 Computed tomography, upper extremity; without contrast material, followed by contrast material(s) and further sections
- 73206 Computed tomographic angiography, upper extremity, with contrast material(s), including noncontrast images, if performed, and image postprocessing
- 73218 Magnetic resonance (eg, proton) imaging, upper extremity, other than joint; without contrast material(s)
- 73219 Magnetic resonance (eg, proton) imaging, upper extremity, other than joint; with contrast material(s)
- 73220 Magnetic resonance (eg, proton) imaging, upper extremity, other than joint; without contrast material(s), followed by contrast material(s) and further sequences
- 73221 Magnetic resonance (eg, proton) imaging, any joint of upper extremity; without contrast material(s)
- 73222 Magnetic resonance (eg, proton) imaging, any joint of upper extremity; with contrast material(s)
- 73223 Magnetic resonance (eg, proton) imaging, any joint of upper extremity; without contrast material(s), followed by contrast material(s) and further sequences
- 73225 Magnetic resonance angiography, upper extremity, with or without contrast material(s)
- 73700 Computed tomography, lower extremity; without contrast material
- 73701 Computed tomography, lower extremity; with contrast material(s)
- 73702 Computed tomography, lower extremity; without contrast material, followed by contrast material(s) and further sections

- 73706 Computed tomographic angiography, lower extremity, with contrast material(s), including noncontrast images, if performed, and image postprocessing
- 73718 Magnetic resonance (eg, proton) imaging, lower extremity other than joint; without contrast material(s)
- 73719 Magnetic resonance (eg, proton) imaging, lower extremity other than joint; with contrast material(s)
- 73720 Magnetic resonance (eg, proton) imaging, lower extremity other than joint; without contrast material(s), followed by contrast material(s) and further sequences
- 73721 Magnetic resonance (eg, proton) imaging, any joint of lower extremity; without contrast material
- 73722 Magnetic resonance (eg, proton) imaging, any joint of lower extremity; with contrast material(s)
- 73723 Magnetic resonance (eg, proton) imaging, any joint of lower extremity; without contrast material(s), followed by contrast material(s) and further sequences
- 73725 Magnetic resonance angiography, lower extremity, with or without contrast material(s)
- 74150 Computed tomography, abdomen; without contrast material
- 74160 Computed tomography, abdomen; with contrast material(s)
- 74170 Computed tomography, abdomen; without contrast material, followed by contrast material(s) and further sections
- 74174 Computed tomographic angiography, abdomen and pelvis, with contrast material(s), including noncontrast images, if performed, and image postprocessing
- 74175 Computed tomographic angiography, abdomen, with contrast material(s), including noncontrast images, if performed, and image postprocessing
- 74176 Computed tomography, abdomen and pelvis; without contrast material
- 74177 Computed tomography, abdomen and pelvis; with contrast material(s)
- 74178 Computed tomography, abdomen and pelvis; without contrast material in one or both body regions, followed by contrast material(s) and further sections in one or both body regions
- 74181 Magnetic resonance (eg, proton) imaging, abdomen; without contrast material(s)
- 74182 Magnetic resonance (eg, proton) imaging, abdomen; with contrast material(s)
- 74183 Magnetic resonance (eg, proton) imaging, abdomen; without contrast material(s), followed by with contrast material(s) and further sequences
- 74185 Magnetic resonance angiography, abdomen, with or without contrast material(s)
- 74261 Computed tomographic (CT) colonography, diagnostic, including image postprocessing; without contrast material
- 74262 Computed tomographic (CT) colonography, diagnostic, including image postprocessing; with contrast material(s) including non-contrast images, if performed
- 74263 Computed tomographic (CT) colonography, screening, including image postprocessing
- 74712 Magnetic resonance (eg, proton) imaging, fetal, including placental and maternal pelvic imaging when performed; single or first gestation
- 74713 Magnetic resonance (eg, proton) imaging, fetal, including placental and maternal pelvic imaging when performed; each additional gestation (List separately in addition to code for primary procedure)
- 75557 Cardiac magnetic resonance imaging for morphology and function without contrast material
- 75559 Cardiac magnetic resonance imaging for morphology and function without contrast material; with stress imaging
- 75561 Cardiac magnetic resonance imaging for morphology and function without contrast material(s), followed by contrast material(s) and further sequences
- 75563 Cardiac magnetic resonance imaging for morphology and function without contrast material(s), followed by contrast material(s) and further sequences; with stress imaging
- 75565 Cardiac magnetic resonance imaging for velocity flow mapping (List separately in addition to code for primary procedure)
- 75571 Computed tomography, heart, without contrast material, with quantitative evaluation of coronary calcium
- 75572 Computed tomography, heart, with contrast material, for evaluation of cardiac structure and morphology (including 3D image postprocessing, assessment of cardiac function, and evaluation of venous structures, if performed)
- 75573 Computed tomography, heart, with contrast material, for evaluation of cardiac structure and morphology in the setting of congenital heart disease (including 3D image postprocessing, assessment of left ventricular [LV] cardiac function, right ventricular [RV] structure and function and evaluation of vascular structures, if performed)
- 75574 Computed tomographic angiography, heart, coronary arteries and bypass grafts (when present), with contrast material, including 3D image postprocessing (including evaluation of cardiac structure and morphology, assessment of cardiac function, and evaluation of venous structures, if performed)
- 75635 Computed tomographic angiography, abdominal aorta and bilateral iliofemoral lower extremity runoff, with contrast material(s), including noncontrast images, if performed, and image postprocessing
- 76390 Magnetic resonance spectroscopy
- 76391 Magnetic resonance (eg, vibration) elastography
- 77046 Magnetic resonance imaging, breast, without contrast material; unilateral
- 77047 Magnetic resonance imaging, breast, without contrast material; bilateral

- 77048 Magnetic resonance imaging, breast, without and with contrast material(s), including computer-aided detection (CAD real-time lesion detection, characterization and pharmacokinetic analysis), when performed; unilateral
- 77049 Magnetic resonance imaging, breast, without and with contrast material(s), including computer-aided detection (CAD real-time lesion detection, characterization and pharmacokinetic analysis), when performed; bilateral
- 77078 Computed tomography, bone mineral density study, 1 or more sites, axial skeleton (eg, hips, pelvis, spine)
- 78414 Determination of central c-v hemodynamics (non-imaging) (eg, ejection fraction with probe technique) with or without pharmacologic intervention or exercise, single or multiple determinations
- 78428 Cardiac shunt detection
- 78429 Myocardial imaging, positron emission tomography (PET), metabolic evaluation study (including ventricular wall motion[s] and/or ejection fraction[s], when performed), single study; with concurrently acquired computed tomography transmission scan
- 78430 Myocardial imaging, positron emission tomography (PET), perfusion study (including ventricular wall motion[s] and/or ejection fraction[s], when performed); single study, at rest or stress (exercise or pharmacologic), with concurrently acquired computed tomography transmission scan
- 78431 Myocardial imaging, positron emission tomography (PET), perfusion study (including ventricular wall motion[s] and/or ejection fraction[s], when performed); multiple studies at rest and stress (exercise or pharmacologic), with concurrently acquired computed tomography transmission scan
- 78432 Myocardial imaging, positron emission tomography (PET), combined perfusion with metabolic evaluation study (including ventricular wall motion[s] and/or ejection fraction[s], when performed), dual radiotracer (eg, myocardial viability)
- 78433 Myocardial imaging, positron emission tomography (PET), combined perfusion with metabolic evaluation study (including ventricular wall motion[s] and/or ejection fraction[s], when performed), dual radiotracer (eg, myocardial viability); with concurrently acquired computed tomography transmission scan
- 78451 Myocardial perfusion imaging, tomographic (SPECT) (including attenuation correction, qualitative or quantitative wall motion, ejection fraction by first pass or gated technique, additional quantification, when performed); single study, at rest or stress (exercise or pharmacologic)
- 78452 Myocardial perfusion imaging, tomographic (SPECT) (including attenuation correction, qualitative or quantitative wall motion, ejection fraction by first pass or gated technique, additional quantification, when performed); multiple studies, at rest and/or stress (exercise or pharmacologic) and/or redistribution and/or rest reinjection
- 78453 Myocardial perfusion imaging, planar (including qualitative or quantitative wall motion, ejection fraction by first pass or gated technique, additional quantification, when performed); single study, at rest or stress (exercise or pharmacologic)
- 78454 Myocardial perfusion imaging, planar (including qualitative or quantitative wall motion, ejection fraction by first pass or gated technique, additional quantification, when performed); multiple studies, at rest and/or stress (exercise or pharmacologic) and/or redistribution and/or rest reinjection
- 78459 Myocardial imaging, positron emission tomography (PET), metabolic evaluation study (including ventricular wall motion[s] and/or ejection fraction[s], when performed), single study
- 78466 Myocardial imaging, infarct avid, planar; qualitative or quantitative
- 78468 Myocardial imaging, infarct avid, planar; with ejection fraction by first pass technique
- 78469 Myocardial imaging, infarct avid, planar; tomographic SPECT with or without quantification
- 78472 Cardiac blood pool imaging, gated equilibrium; planar, single study at rest or stress (exercise and/or pharmacologic), wall motion study plus ejection fraction, with or without additional quantitative processing
- 78473 Cardiac blood pool imaging, gated equilibrium; multiple studies, wall motion study plus ejection fraction, at rest and stress (exercise and/or pharmacologic), with or without additional quantification
- 78481 Cardiac blood pool imaging (planar), first pass technique; single study, at rest or with stress (exercise and/or pharmacologic), wall motion study plus ejection fraction, with or without quantification
- 78483 Cardiac blood pool imaging (planar), first pass technique; multiple studies, at rest and with stress (exercise and/or pharmacologic), wall motion study plus ejection fraction, with or without quantification
- 78491 Myocardial imaging, positron emission tomography (PET), perfusion study (including ventricular wall motion[s] and/or ejection fraction[s], when performed); single study, at rest or stress (exercise or pharmacologic)
- 78492 Myocardial imaging, positron emission tomography (PET), perfusion study (including ventricular wall motion[s] and/or ejection fraction[s], when performed); multiple studies at rest and stress (exercise or pharmacologic)
- 78494 Cardiac blood pool imaging, gated equilibrium, SPECT, at rest, wall motion study plus ejection fraction, with or without quantitative processing
- 78496 Cardiac blood pool imaging, gated equilibrium, single study, at rest, with right ventricular ejection fraction by first pass technique (List separately in addition to code for primary procedure)
- 78811 Positron emission tomography (PET) imaging; limited area (eg, chest, head/neck)
- 78812 Positron emission tomography (PET) imaging; skull base to mid-thigh
- 78813 Positron emission tomography (PET) imaging; whole body
- 78814 Positron emission tomography (PET) with concurrently acquired computed tomography (CT) for attenuation correction and anatomical localization imaging; limited area (eg, chest, head/neck)

- 78815 Positron emission tomography (PET) with concurrently acquired computed tomography (CT) for attenuation correction and anatomical localization imaging; skull base to mid-thigh
- 78816 Positron emission tomography (PET) with concurrently acquired computed tomography (CT) for attenuation correction and anatomical localization imaging; whole body
- 78830 Radiopharmaceutical localization of tumor, inflammatory process or distribution of radiopharmaceutical agent(s) (includes vascular flow and blood pool imaging, when performed); tomographic (SPECT) with concurrently acquired computed tomography (CT) transmission scan for anatomical review, localization and determination/detection of pathology, single area (eg, head, neck, chest, pelvis) or acquisition, single day imaging
- 78831 Radiopharmaceutical localization of tumor, inflammatory process or distribution of radiopharmaceutical agent(s) (includes vascular flow and blood pool imaging, when performed); tomographic (SPECT), minimum 2 areas (eg, pelvis and knees, chest and abdomen) or separate acquisitions (eg, lung ventilation and perfusion), single day imaging, or single area or acquisition over 2 or more days
- 78832 Radiopharmaceutical localization of tumor, inflammatory process or distribution of radiopharmaceutical agent(s) (includes vascular flow and blood pool imaging, when performed); tomographic (SPECT) with concurrently acquired computed tomography (CT) transmission scan for anatomical review, localization and determination/detection of pathology, minimum 2 areas (eg, pelvis and knees, chest and abdomen) or separate acquisitions (eg, lung ventilation and perfusion), single day imaging, or single area or acquisition over 2 or more days
- 93303 Transthoracic echocardiography for congenital cardiac anomalies; complete
- 93304 Transthoracic echocardiography for congenital cardiac anomalies; follow-up or limited study
- 93306 Echocardiography, transthoracic, real-time with image documentation (2D), includes M-mode recording, when performed, complete, with spectral Doppler echocardiography, and with color flow Doppler echocardiography
- 93307 Echocardiography, transthoracic, real-time with image documentation (2D), includes M-mode recording, when performed, complete, without spectral or color Doppler echocardiography
- 93308 Echocardiography, transthoracic, real-time with image documentation (2D), includes M-mode recording, when performed, follow-up or limited study
- 93312 Echocardiography, transesophageal, real-time with image documentation (2D) (with or without M-mode recording); including probe placement, image acquisition, interpretation and report
- 93313 Echocardiography, transesophageal, real-time with image documentation (2D) (with or without M-mode recording); placement of transesophageal probe only
- 93314 Echocardiography, transesophageal, real-time with image documentation (2D) (with or without M-mode recording); image acquisition, interpretation and report only
- 93315 Transesophageal echocardiography for congenital cardiac anomalies; including probe placement, image acquisition, interpretation and report
- 93316 Transesophageal echocardiography for congenital cardiac anomalies; placement of transesophageal probe only
- 93317 Transesophageal echocardiography for congenital cardiac anomalies; image acquisition, interpretation and report only
- 93320 Doppler echocardiography, pulsed wave and/or continuous wave with spectral display (List separately in addition to codes for echocardiographic imaging); complete
- 93321 Doppler echocardiography, pulsed wave and/or continuous wave with spectral display (List separately in addition to codes for echocardiographic imaging); follow-up or limited study (List separately in addition to codes for echocardiographic imaging)
- 93325 Doppler echocardiography color flow velocity mapping (List separately in addition to codes for echocardiography)
- 93350 Echocardiography, transthoracic, real-time with image documentation (2D), includes M-mode recording, when performed, during rest and cardiovascular stress test using treadmill, bicycle exercise and/or pharmacologically induced stress, with interpretation and report
- 93351 Echocardiography, transthoracic, real-time with image documentation (2D), includes M-mode recording, when performed, during rest and cardiovascular stress test using treadmill, bicycle exercise and/or pharmacologically induced stress, with interpretation and report; including performance of continuous electrocardiographic monitoring, with supervision by a physician or other qualified health care professional
- 93352 Use of echocardiographic contrast agent during stress echocardiography (List separately in addition to code for primary procedure)
- A9515 Choline c-11, diagnostic, per study dose up to 20 millicuries
- A9552 Fluorodeoxyglucose f-18 fdg, diagnostic, per study dose, up to 45 millicuries
- A9580 Sodium fluoride f-18, diagnostic, per study dose, up to 30 millicuries
- A9586 Florbetapir f18, diagnostic, per study dose, up to 10 millicuries
- A9587 Gallium ga-68, dotatate, diagnostic, 0.1 millicurie
- A9588 Fluciclovine f-18, diagnostic, 1 millicurie
- A9591 Fluoroestradiol f 18, diagnostic, 1 millicurie
- A9593 Gallium ga-68 psma-11, diagnostic, (ucsf), 1 millicurie
- A9594 Gallium ga-68 psma-11, diagnostic, (ucla), 1 millicurie
- A9597 Positron emission tomography radiopharmaceutical, diagnostic, for tumor identification, not otherwise classified

- A9598 Positron emission tomography radiopharmaceutical, diagnostic, for non-tumor identification, not otherwise classified
- C8900 Magnetic resonance angiography with contrast, abdomen
- C8901 Magnetic resonance angiography without contrast, abdomen
- C8902 Magnetic resonance angiography without contrast followed by with contrast, abdomen
- C8903 Magnetic resonance imaging with contrast, breast; unilateral
- C8905 Magnetic resonance imaging without contrast followed by with contrast, breast; unilateral
- C8906 Magnetic resonance imaging with contrast, breast; bilateral
- C8908 Magnetic resonance imaging without contrast followed by with contrast, breast; bilateral
- C8909 Magnetic resonance angiography with contrast, chest (excluding myocardium)
- C8910 Magnetic resonance angiography without contrast, chest (excluding myocardium)
- C8911 Magnetic resonance angiography without contrast followed by with contrast, chest (excluding myocardium)
- C8912 Magnetic resonance angiography with contrast, lower extremity
- C8913 Magnetic resonance angiography without contrast, lower extremity
- C8914 Magnetic resonance angiography without contrast followed by with contrast, lower extremity
- C8918 Magnetic resonance angiography with contrast, pelvis
- C8919 Magnetic resonance angiography without contrast, pelvis
- C8920 Magnetic resonance angiography without contrast followed by with contrast, pelvis
- C8931 Magnetic resonance angiography with contrast, spinal canal and contents
- C8932 Magnetic resonance angiography without contrast, spinal canal and contents
- C8933 Magnetic resonance angiography without contrast followed by with contrast, spinal canal and contents
- C8934 Magnetic resonance angiography with contrast, upper extremity
- C8935 Magnetic resonance angiography without contrast, upper extremity
- C8936 Magnetic resonance angiography without contrast followed by with contrast, upper extremity
- G0219 Pet imaging whole body; melanoma for non-covered indications
- G0235 Pet imaging, any site, not otherwise specified
- G0252 Pet imaging, full and partial-ring pet scanners only, for initial diagnosis of breast cancer and/or surgical planning for breast cancer (e.g., initial staging of axillary lymph nodes)
- Q9982 Flutemetamol f18, diagnostic, per study dose, up to 5 millicuries
- Q9983 Florbetaben f18, diagnostic, per study dose, up to 8.1 millicuries
- S8037 Magnetic resonance cholangiopancreatography (mrCP)
- S8085 Fluorine-18 fluorodeoxyglucose (f-18 fdg) imaging using dual-head coincidence detection system (non-dedicated pet scan)
- S8092 Electron beam computed tomography (also known as ultrafast ct, cine ct)
- 0501T Noninvasive estimated coronary fractional flow reserve (FFR) derived from coronary computed tomography angiography data using computation fluid dynamics physiologic simulation software analysis of functional data to assess the severity of coronary artery disease; data preparation and transmission, analysis of fluid dynamics and simulated maximal coronary hyperemia, generation of estimated FFR model, with anatomical data review in comparison with estimated FFR model to reconcile discordant data, interpretation and report
- 0502T Noninvasive estimated coronary fractional flow reserve (FFR) derived from coronary computed tomography angiography data using computation fluid dynamics physiologic simulation software analysis of functional data to assess the severity of coronary artery disease; data preparation and transmission
- 0503T Noninvasive estimated coronary fractional flow reserve (FFR) derived from coronary computed tomography angiography data using computation fluid dynamics physiologic simulation software analysis of functional data to assess the severity of coronary artery disease; analysis of fluid dynamics and simulated maximal coronary hyperemia, and generation of estimated FFR model
- 0504T Noninvasive estimated coronary fractional flow reserve (FFR) derived from coronary computed tomography angiography data using computation fluid dynamics physiologic simulation software analysis of functional data to assess the severity of coronary artery disease; anatomical data review in comparison with estimated FFR model to reconcile discordant data, interpretation and report
- 0633T Computed tomography, breast, including 3D rendering, when performed, unilateral; without contrast material
- 0634T Computed tomography, breast, including 3D rendering, when performed, unilateral; with contrast material(s)
- 0635T Computed tomography, breast, including 3D rendering, when performed, unilateral; without contrast, followed by contrast material(s)
- 0636T Computed tomography, breast, including 3D rendering, when performed, bilateral; without contrast material(s)
- 0637T Computed tomography, breast, including 3D rendering, when performed, bilateral; with contrast material(s)
- 0638T Computed tomography, breast, including 3D rendering, when performed, bilateral; without contrast, followed by contrast material(s)

ICD-10 Diagnosis

Refer to the ICD-10 CM manual

History

Status	Review Date	Effective Date	Action
Created	09/21/2022, 08/31/2021	04/01/2022	Independent Multispecialty Physician Panel (IMPP) review. Original effective date.