Anthem

Clinical UM Guideline

Subject: Three-Dimensional (3-D) Rendering of Imaging Studies
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Description

This document addresses three-dimensional (3-D) rendering of imaging studies. 3-D rendering uses multiple thin sections of images and reconstructs them into 3-D images which can display anomalies or structures and enhance visualization of pathology. This technology may also be referred to as 3-D reconstruction or 3-D reformation.

Note: This document does not address CT Colonography (Virtual Colonoscopy), 3-D fetal ultrasound or 3-D mammography (digital breast tomosynthesis). Please see the following related document for additional information:

- RAD.00038 Use of 3-D, 4-D or 5-D Ultrasound in Maternity Care

Clinical Indications

Medically Necessary:

The use of 3-D image rendering is considered **medically necessary** for clinical evaluation or preoperative planning when the information provided cannot be obtained by traditional two-dimensional (2-D) imaging and is critical to the clinical management of the individual. Common indications for 3-D image rendering include, but are not limited to:

A. Aneurysms, suspected or known (computed tomography angiography [CTA]); **or**
B. Complex fractures (computed tomography [CT]); **or**
C. To localize and characterize blood supply to congenital abnormalities for the purpose of diagnosis and treatment planning (CTA); **or**
D. Eagle syndrome (CT); **or**
E. Gynecologic ultrasound (US) indications (3D should not be performed routinely with all pelvic sonograms):
    1. Abscess drainage in the pelvis and abdomen; **or**
    2. Congenital anomalies of the uterus; **or**
    3. Evaluation of the endometrium and uterine cavity, if symptomatic (for example, abnormal bleeding); or
    4. Infertility; **or**
    5. Planned myomectomy-mapping of uterine fibroids; **or**
    6. Cornual ectopic pregnancies; **or**
    7. Diethylstilbestrol (DES) exposure; **or**
    8. Intrauterine device location, if symptomatic (for example, abnormal bleeding or pain); **or**
    9. Imaging of adnexal lesions; **or**
F. Mass, tumor, or other abnormal structure previously identified on imaging (CT, MRI); **or**
G. Prior to computer-assisted endoscopic sinus surgery or stereotactic computer assisted volumetric intracranial surgery (CT); **or**
H. Pectus deformity (CT); **or**
I. Scoliosis, adolescent idiopathic (US); **or**
J. Thromboembolic disease (CTA); **or**
K. Prior to organ transplantation for anatomic mapping (CTA); **or**
L. Prior to kidney or renal surgery (CT); **or**
M. Trauma, to assess for presence and location of vascular, solid organ, and visceral organ injury and hemorrhage, and determine the appropriate management option (CTA); **or**
N. Trauma, complex facial (CT); **or**
O. When used with magnetic resonance cholangiopancreatography (MRCP); **or**
P. When used with echocardiography if the information produced from the 3D echocardiogram cannot be provided by a traditional 2D echocardiogram, or other testing for any of the following:
    1. Evaluation of congenital heart disease; **or**
    2. Preoperative planning of a cardiac procedure; **or**
    3. Planned use of cardiotoxic chemotherapy.

Not Medically Necessary:

The use of 3-D image rendering is considered **not medically necessary** when the criteria above are not met, and for the following:

- When information provided can be obtained by traditional 2-D imaging (such as US, CT, MRI);
- For use with an imaging study that is considered not medically necessary or investigational and not medically necessary;
- For routine use without specifically being ordered by the requesting physician (such as the routine use with ultrasound).

Coding

The following codes for treatments and procedures applicable to this guideline are included below for informational purposes. Inclusion or exclusion of a procedure, diagnosis or device code(s) does not constitute or imply member coverage or provider reimbursement policy. Please refer to the member's contract benefits in effect at the time of service to determine coverage or non-coverage of these services as it applies to an individual member.

When services may be Medically Necessary when criteria are met:

CPT	
76376	3D rendering with interpretation and reporting of computed tomography, magnetic resonance imaging, ultrasound, or other tomographic modality with image postprocessing under concurrent supervision; not requiring image postprocessing on an independent workstation

76377	3D rendering with interpretation and reporting of computed tomography, magnetic resonance imaging, ultrasound, or other tomographic modality with image postprocessing under concurrent supervision; requiring image postprocessing on an independent workstation

ICD-10 Diagnosis

All diagnoses (with the exception of maternity-related diagnoses)

When services are Not Medically Necessary:
For the procedure codes listed above when criteria are not met, or for situations designated in the Clinical Indications section as not medically necessary.

Discussion/General Information

The process of 3-D rendering creates 2-D images that convey the 3-D relationship of objects. Three-dimensional rendering may take place on the same scanner the original studies were conducted on with built in 3-D software or by post-processing on an independent workstation. Complex 3-D image rendering may require extensive independent workstation processing by a supervising physician and specially trained technologist. This type of reconstruction has been applied to computed tomography (CT), magnetic resonance imaging (MRI), magnetic resonance angiography (MRA), computed tomography angiography (CTA), digital subtraction angiography (DSA), ultrasound (US) and other tomographic modalities. Studies vary widely for the scope of use of 3-D image rendering. However, the consensus of published literature supports the use of 3-D image rendering for a variety of indications.

Aneurysms

Multiple studies have compared 2-D to 3-D DSA for the detection and evaluation of intracranial aneurysms (Kucukay, 2012; Wong; 2012) and concluded that 3-D DSA improved detection of aneurysms compared to 2-D DSA. Chen and colleagues (2012) evaluated the clinical value of 3-D time of flight (TOF) MRA for the diagnosis and planning of 165 individuals with subarachnoid hemorrhage. Treatment planning with volume rendering (VR) 3-D-TOF-MRA was compared to actual treatment decisions that had been carried out on each aneurysm using DSA. The authors concluded that VR 3-D-TOF-MRA is a reliable diagnostic and screening tool in the detection or ruling out of aneurysms. HaiFeng and colleagues (2017) performed a meta-analysis of 18 studies (n=3463) and found that 3D-TOF-MRA had an “excellent diagnostic performance” for the assessment of intracranial aneurysms.

Complex Facial Trauma and Tumors

Significant benefits have been demonstrated with the use of 3-D rendering for head, neck and facial reconstruction secondary to soft tissue tumors or traumatic facial injuries. A 2007 literature and case review by Fernandes evaluated 3-D rendering of CT imaging for the treatment planning of complex reconstruction secondary to soft tissue and bony tumors of the head and neck, post-traumatic deformities such as gunshot wounds, and for correction of craniofacial deformities. The authors reported that the use of computer-aided rendering of 3-D images of the disease process or defects allowed the surgeon to manipulate the information in the preoperative setting to aid in the planning of the surgery.

Kaur and colleagues (2010) assessed 3-D CT reconstruction for the evaluation and surgical planning of mid-face fractures. A total of 100 cases of maxillofacial trauma with mid-face fractures were subjected to clinical examination, conventional plain film radiography and 3-D CT. Traffic accidents were the most common etiology of the trauma, followed by assault, fall, and sports related injuries. In 28 cases, 3-D CT had significant impact on the final diagnosis and treatment planning of the fractures. The authors concluded that 3-D CT was valuable in cases of severe facial injury, but much less useful in minor trauma.

Gynecologic Conditions

The role of 3-D sonography in gynecologic imaging is evolving and has proven beneficial in certain cases. In a consecutive series of 66 women, Benacerraf and colleagues (2008) evaluated whether a 3-D reconstructed coronal view of the uterus provided added benefit to standard gynecologic sonography. For all evaluations, a 2-D pelvic sonography was performed followed by 3-D sonography. The authors reported that 3-D coronal views of the uterus added value to the 2-D scan in 16 (24%) of the 66 women. In 5 of these 16 cases, the coronal view added information about findings not observed with 2-D imaging. In the other 11 cases, the diagnostic findings were more confidently seen using the coronal view. The coronal view was helpful in 4 (12.5%) of 32 women with an endometrium less than 5 mm, 1 of 6 women whose endometrium was incompletely seen with 2-D sonography, and 11 (39%) of 28 women whose endometrium measured at least 5 mm. For those with normal findings on 2-D scans, the coronal view did not provide benefit. There were 5 uterine anomalies in the series consisting of 4 cases of arcuate uterus and 1 case of subseptate uterus. Uterine shape anomalies were diagnosed using the coronal view in 3 women referred due to infertility.

A retrospective study (Ghates, 2008) evaluated 80 women that underwent sonohysterography with both conventional 2-D sonohysterography and 3-D multiplanar imaging (volume of data acquired and reconstructed in the transverse, sagittal, and coronal planes). Three readers interpreted the 2-D scans alone and then the 2-D and 3-D images together. Average blinded reader scores for identification of endometrial abnormality were not significantly different, and there was no significant difference when polyps, fibroids, and septations were evaluated separately. However, the average scores for definition of fundal contour were significantly different for 2-D alone versus 2-D and 3-D combined. The authors reported that 3-D reformations are a helpful adjunct to 2-D images alone for the evaluation and exclusion of uterine contour abnormalities. However, 3-D combined with 2-D transvaginal sonohysterography is not a significant improvement over 2-D imaging alone for detection of endometrial abnormalities.

More recently, Sakhel and colleagues (2013) evaluated the role of 3-D sonography as a first-line imaging technique for gynecologic pelvic disease. The authors reported that 3-D sonography should be the initial imaging of choice for “patients suspected of müllerian anomalies; and IUD localization in symptomatic patients.” Further noted was that “3-D sonography should also be considered as an adjunct to 2-D sonography in select adnexal masses, such as evaluation of a suspected hydrosalpinx.”

In a 2017 Cochrane review, Nieuwenhuis and colleagues evaluated 13 studies (1053 subjects) for the comparison of 3D saline infusion sonography (SIS) versus 2D SIS in diagnosing focally growing lesions in abnormal uterine bleeding (AUB) or subfertility. A meta-analysis that favored 3D SIS to hysteroscopy had a sensitivity of 94.5% (95% confidence interval [CI]; 90.6% to 96.9%) and a specificity of 99.4% (95% CI; 96.2% to 99.9%). A meta-analysis comparing 2D SIS to 3D SIS showed no statistically significant difference. The authors concluded that both 2D SIS and 3D SIS are very accurate and should be considered alternatives to hysteroscopy. However, the authors considered the quality of evidence low since some studies lacked sufficient study method reporting.

The American Institute of Ultrasound in Medicine (Benacerraf, 2005) convened a panel of physicians and scientists with expertise in 3-D ultrasound in obstetrics and gynecology to discuss the current state of the art for 3-D ultrasound (US). The panel reported the following gynecology applications as examples of clinical utility for 3-D US:

- Assessment for congenital anomalies of the uterus;
- Evaluation of the endometrium and uterine cavity with or without saline infusion sonohysterography;
- Mapping of myomata for planning myomectomy;
- Cornual ectopic pregnancies;
- Diethylstilbestrol (DES) exposure;
- Intrauterine device location and type;
- Imaging of adnexal lesions, to distinguish ovarian from tubal origin and ovarian from uterine origin;
- Abscess drainage in the pelvis and abdomen;
- Three-dimensional guidance in interventional procedures for infertility; and
- Evaluation and monitoring of patients with infertility, including patients with polycystic ovaries and tubal occlusion.

Cardiac Conditions

3-D echocardiography is more accurate than 2-D echocardiography for the detection of chemotherapy induced cardiotoxicity (Tann, 2014; Tann, 2012). Chemotherapy-induced cardiac dysfunction can include arrhythmias, heart failure, myocardial ischemia or infarction, hypertension, and thromboembolism. Limitations of 2-D echocardiography as compared to 3-D include poor endocardial definition, ventricular foreshortening, and the use of mathematical models and geometrical assumptions to calculate the LV volumes (Tann, 2012). Additionally, multiple studies (Jacobs, 2006; Takuma, 2001) demonstrate superiority of 3-D versus 2-D echocardiography.

Hu and colleagues (2008) demonstrated the reliability of multidetector CT (MDCT) angiography and 3-D reconstruction for diagnosing coarctation of the aorta. In this small study, 16 children underwent both color Doppler echocardiography (CDE) and MDCT. In addition to the CT axial slices, 3-D reconstructions such as volume rendering and multiple planar reformation were used to diagnose coarctation and other cardiac abnormalities. The authors concluded that MDCT angiography combined with 3-D reconstruction provides reliable diagnostic information about thoracic aortic anatomy for pediatric preoperative planning.

Galzerano and colleagues (2020) indicated that in infective endocarditis imaging, 3D transesophageal (TE) echocardiography, which allows a detailed real time anatomic image, has continued to play an emerging role, and has the potential for being considered a key adjunctive modality, for use when the anatomy is not clearly delineated according to 2D echocardiography and advanced surgical planning is required.

Chest Wall Deformities

According to Daemen and colleagues (2020), 3-D imaging is being used progressively to create models of individuals with anterior chest wall deformities to be used for clinical decision-making, surgical planning, and analysis. The researchers conducted a single-center prospective case-control study wherein participants were their own control. The study was conducted at the Department of Oral and Maxillofacial Surgery in the Radboud University Medical Center, Nijmegen, the Netherlands. The aim of the study was to investigate the accuracy and reproducibility of three commercially available 3D imaging systems that are used to obtain images of the anterior chest wall. A sample size of 15 individuals was chosen based on previously reported series that assessed the reproducibility and accuracy of 3D facial images. The healthy male volunteers had a mean age of 27.8 years (standard deviation (SD):4.4) and a mean body mass index of 22.7 kg/m2 (SD: 2.2). All volunteers aged 18 years or above, physically fit on presentation, and able to hold their breath for at least 30 seconds were eligible for inclusion. Individuals with light hypersensitivity or a diagnosis of photosensitive epilepsy were excluded due to the use of light flashes during image acquisition. Three-dimensional images of the anterior chest wall were acquired twice per imaging device while the true accuracy was calculated by comparison of 3D image derived and calipered anthropometric measurements. A maximum difference of 1.00 mm. was considered clinically acceptable. Reproducibility was determined by comparison of consecutive images acquired per device while the true accuracy was calculated by comparison of 3D image derived and calipered anthropometric measurements. A maximum difference of 1.00 mm. was considered clinically acceptable.by three different imaging systems. These included the 3dMD system (3dMD, Atlanta, GA, USA), the Ein-Scan Pro 2X Plus (Shining 3D, Hangzhou, China), and the Artec Leo (Artec 3D, Luxembourg, Luxembourg). The 3dMD system was selected and used as reference standard because it was considered the most covered imaging system in the available scientific literature. The 3dMD setup consisted of four pods with three cameras each (one of which is a texture camera to capture surface color information). The EinScan Pro 2X Plus and Artec Leo were selected because they are versatile, easy to transport, and can be used in unconventional settings and places, such as the operating theater. Both devices consisted of two cameras and required circumferential translation to scan the desired body part. An additional camera was mounted to the EinScan Pro 2X Plus to capture surface texture. Three-dimensional images of the anterior chest wall were acquired by an experienced user and twice per imaging device. First, a 3dMD image was acquired, directly followed by an EinScan Pro 2X Plus image during the same breath hold. Next, a second 3dMD was captured and followed by an Artec Leo image. Again, during the same breath hold. The last two images (i.e., the second EinScan Pro 2X Plus and Artec Leo image) were acquired throughout different breath holds. The mean absolute difference included measures of variability between two images that were acquired with the same imaging system during different phases of breath hold. These values demonstrated a reproducibility of 0.59 mm. (SD: 1.05) for the 3dMD imaging system, compared with 0.54 mm. (SD: 2.08) for the EinScan Pro 2XPlus and 0.48mm (SD: 0.60) for the Artec Leo imaging system. Despite this inequality, repeated measures analysis of variance (ANOVA) with assumed sphericity found no statistically significant difference between the reproducibility of imaging systems. In addition, all imaging systems showed clinically acceptable levels of reproducibility. The study concluded that 3D imaging of the anterior chest wall is an upcoming and promising modality. Evaluating three different imaging systems, the 3dMD and Artec Leo system showed comparable and clinically acceptable reproducibility and accuracy while 3D images acquired by the EinScan Pro 2X Plus were reproducible but not accurate. Future research should focus to evaluate other available imaging systems and perpetuate the position of 3D imaging of chest wall deformities.

Other Indications

Various 3-D rendering imaging studies have effectively evaluated additional indications including:

- Anatomical assistance in endoscopic endonasal transsphenoidal surgery (3-D rendering of CT) (Inoue, 2015)
- Brace casting for adolescent idiopathic scoliosis (3-D ultrasound) (Lou, 2015)
- Chest wall deformities-pectus excavatum and pectus carinatum (3-D body scans) (Albes, 2001; Wong, 2014)
- Eagle syndrome (3-D CT) (Kosar, 2011)
- Extremity tumor regions (3-D reconstruction of CT/MRI) (Dong, 2011)
- Hepatobiliary disease (Magnetic resonance cholangiopancreatography [MRCP]) (Ringe, 2014)
- Laparoscopic colorectal resection (3-D CT) (Mari, 2013)

Other Considerations

According to a 2016 “Practice Parameter for the Performance and Interpretation of Body Computed CT Angiography (CTA)” developed jointly by the American College of Radiology (ACR), the North American Society of Cardiovascular Imagers (NASCI), the Society for Pediatric Radiology (SPR), and the Society of Interventional Radiology (SIR), indications for body CTA including

interpretation using 3-D renderings include the following:

- Aneurysmal disease: Diagnosis, localization, characterization, and pretreatment planning of vascular aneurysms
- Dissection and dissection variants: Diagnose presence, location, and extent of vascular dissection and intramural hematoma, and determine appropriate treatment
- Arterial occlusive disease: Diagnose, localize, characterize, and plan treatment of disease entities including, but not limited to, aortioiliac stenoses and occlusion, upper and lower-extremity peripheral arterial disease, renovascular disease, mesenteric ischemia, and vasculitis
- Trauma: Assess for presence and location of vascular, solid organ, and visceral organ injury and hemorrhage, and determine appropriate management option
- Thromboembolic disease: Diagnose presence and extent of arterial and venous thrombi and thromboembolic; guide endovascular treatment of thromboembolic and atheroembolic disease
- Oncology: Determine vascular anatomy of tumors for prognostication, planning endovascular and surgical treatment, and assessing treatment response
- Vascular malformations: Localize and characterize for the purpose of diagnosis and possible treatment planning as well as assessing treatment response
- Anatomic Mapping: Characterization of normal and variant vascular anatomy for planning organ transplantation, planning autografts for musculoskeletal and breast reconstruction, or treatment of uretero-pelvic junction obstruction, popliteal entrapment syndrome, thoracic outlet syndrome and transcatheter aortic valve replacement
- Localize and characterize blood supply to congenital abnormalities for purpose of diagnosis and treatment planning
- Diagnose and localize diseases with primary manifestations in the arterial wall, including vasculitides, infection, and degenerative disorders
- Venous disease: Diagnose normal and abnormal venous anatomy prior to venous sampling; determine presence of intrinsic/extrinsic, acute/chronic venous obstruction and dilated perforators in patients with venous hypertension; and evaluate portal hypertension–related venous abnormalities
- Nontraumatic hemorrhage: Assess for the presence, etiology, and location of nontraumatic arterial bleeding including, but not limited to, gastrointestinal bleeding, hemoptysis, intraperitoneal, or retroperitoneal bleeding, which may be spontaneous, postsurgical, or related to an infectious, inflammatory, or neoplastic process
- Assess the effectiveness of arterial and venous reconstruction or bypass using both traditional surgery and transluminal therapy; determine the patency, location, and/or integrity of grafts and other vascular devices, including but not limited to grafts, stent-grafts, stents, vena cava filters, and radio-opaque embolic material

A 2020 “Practice Parameter for the Performance of Cervicocerebral Magnetic Resonance Angiography (MRA)” developed jointly by the ACR, the American Society of Neuroradiology (ASNR), the Society of NeuroInterventional Surgery (SNIS), and the Society for Pediatric Radiology (SPR) reports that MRA is a general term that refers to a diverse group of MR pulse sequences and each sequence may be performed with 2-D or 3-D techniques.

According to the 2020 practice parameter for cervicocerebral MRA:

> Indications for Cervicocerebral MRA:
>
> MRI/MRA is typically the imaging modality of choice for the initial evaluation of the cervicocerebral vasculature in children. It is a noninvasive and low-risk examination free of ionizing radiation, as compared to conventional endovascular (catheter) or CT angiographic procedures. Studies of pediatric stroke that compared MRA to conventional angiography found MRA to be accurate in delineating stenosis and/or occlusion and able to demonstrate vascular anatomy in a variety of pathological conditions. In some clinical instances, follow-up CT ir or catheter angiography may be necessary to fully characterize the abnormality.
>
> Indications for cervicocerebral MRA include, but are not limited to, the detection and evaluation of the following:

- Atherosclerotic or nonatherosclerotic steno-occlusive disease, thromboembolism or vasospasm in the setting of cerebral ischemia, and infarction
- Traumatic injury to cervicocerebral vessels, including dissection
- Intracranial or extracranial aneurysms, pseudoaneurysms and venous varices
- Cerebral intracranial or extracranial, congenital or acquired arteriovenous malformations (AVMs), vein of Galen malformations, dural venous malformations, arteriovenous fistulas, proliferative angiopathy, hemangiomas, venous malformations, lymphatic malformations, or other low-flow vascular malformations
- Etiology of intracranial/intraspinal hemorrhage
- Vasculitis and vasculopathy including, but not limited to, collagen vascular disease, flow-mediated dilatation, sickle cell, moyamoya disease, or steno-occlusive vasculopathy, and nonatherosclerotic, noninflammatory vasculopathy
- Tumor vascular supply, tumor invasion, encasement, and constriction of vasculature
- Localization of relevant vascular anatomy/pathology for preoperative and/or radiation treatment planning
- Relevant vascular anatomy/pathology for preprocedural and/or postprocedural evaluation and determining the effect of therapeutic interventions, including endovascular embolization and/or stent placement in treatment of stenosis, dissections, aneurysms, AVMs, tumor embolization, and/or posttreatment changes following interventional/surgical procedures or radiation therapy
- Soft-tissue vascular anomalies in the head and neck
- Vascular status following extracorporeal membrane oxygenation (ECMO)
- Pulsatile tinnitus, bruits, and neuralgia that might result from vascular etiology
- Dural venous sinus thrombosis and intracranial venous occlusive disease.

> Evaluation of the aortic arch and subclavian arteries in adults and children may require separate techniques and sequences. Indications include, but are not limited to, the detection and evaluation of the following:

- Dissection of the aorta and great vessels
- Aneurysm of the aorta and/or great vessels
- Atherosclerotic occlusive disease of the great vessels and subclavian steal
- Congenital abnormalities of the aorta, including coarctation, double aortic arch, and aberrant subclavian artery
- Superior vena cava syndrome or unilateral upper extremity edema
- Normal vascular anatomy versus aneurysms/masses for preoperative planning

A 2015 “Practice Parameter for the Performance of Body Magnetic Resonance Angiography (MRA)” developed jointly by the ACR, NASCI and the SPR reports that contrast enhanced (CE)-MRA methods rely on enhancement of the blood signal by intravascular paramagnetic contrast agents, typically gadolinium-based, and use a rapid, three-dimensional (3D) T1-weighted gradient echo

acquisition. The parameter also states that a “body MRA is a proven and useful tool for the evaluation, assessment of severity, and follow-up of diseases of the vascular system.”

In 2019, the revised “Practice Parameter for the Performance of Pediatric Computed Tomography (CT)” developed jointly by the ACR, American Society of Emergency Radiology (ASER), the Society of Computed Body Tomography and Magnetic Resonance (SCBT-MR) and the SPR includes the following information:

> Chest- Postprocessing 2-D reformations, maximum intensity projection (MIP) reconstructions, and 3-D volume rendering may be useful adjuncts in displaying the anatomy. The 2-D reformation and sliding thin-slab MIP techniques have been found to increase sensitivity in the detection of lung nodules and arteriovenous malformations.
>
> Abdomen- Postprocessing 2-D reformations, MIP reconstructions, and 3-D volume rendering may be useful adjuncts in displaying the anatomy, especially in evaluation of vascular anatomy.

Definitions

Cornual pregnancy: A pregnancy in the interstitial segment of a unicornuate or bicornuate uterus.

Müllerian anomalies: Malformations of the fallopian tubes and uterus.

Subarachnoid hemorrhage: Bleeding in the space between the two membranes that surround the brain.

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The use of specific product names is illustrative only. It is not intended to be a recommendation of one product over another, and is not intended to represent a complete listing of all products available.

History

Status	Date	Action
Reviewed	08/10/2022	Medical Policy & Technology Assessment Committee (MPTAC). Updated References sections.
Reviewed	08/11/2022	(MPTAC. Updated Discussion/General Information and References sections.
Reviewed	08/12/2021	MPTAC. Updated Discussion/General Information and References sections.
Revised	08/13/2020	MPTAC review. Formatting updated in clinical indications section. Updated Discussion and References sections. Reformatted Coding section.
Reviewed	08/22/2019	MPTAC review. References section updated.
Reviewed	09/13/2018	MPTAC review. Rationale and References sections updated.
Reviewed	11/02/2017	MPTAC review. The document header wording updated from “Current Effective Date” to “Publish Date.” Updated Discussion/General Information and References sections.
Reviewed	11/03/2016	MPTAC review. Formatting updated in clinical indication section. Discussion/General Information and Reference sections updated.
Reviewed	11/05/2015	MPTAC review. Note in description section updated. Removed ICD-9 codes from Coding section.
New	08/06/2015	MPTAC review. Initial document development.
