Medical Policy

BlueCross BlueShield of Kansas
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Title: Positron Emission Tomography (PET) Scanning: Miscellaneous (Non-cardiac, Non-Oncologic) Applications

See also: *Positron Emission Tomography (PET) Scanning: Cardiac Applications*
Positron Emission Tomography (PET) Scanning: Oncologic Applications
Positron Emission Tomography (PET) Scanning: In Oncology to Detect Early Response during Treatment

Professional
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Institutional
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Current Effective Date: October 30, 2013

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DESCRIPTION

Positron emission tomography (PET) images biochemical and physiological functions by measuring concentrations of radioactive chemicals that are partially metabolized in the body region of interest. Radiopharmaceuticals used for PET are generated in a cyclotron or nuclear generator and introduced into the body by intravenous injection or by respiration.

A variety of PET radiopharmaceuticals have been investigated; however, only a few have received approval by the U.S. Food and Drug Administration (FDA) for clinical use (see Benefit Application: Regulatory Issues). The scanners used for PET imaging are somewhat similar to those used for x-ray computed tomography (CT), but PET requires complicated technology and computerized mathematical models of physiologic functions and tracer kinetics for the generation of images.

Note: This policy only addresses the use of radiotracers detected with the use of dedicated full-ring PET scanners. Radiotracers such as fluorodeoxyglucose (FDG) may be detected using single-photon emission computed tomography (SPECT) cameras, a hybrid PET/SPECT procedure that may be referred to as FDG-SPECT or molecular coincidence detection.

Regulatory Status
The 1997 U.S. Food and Drug Administration (FDA) Modernization Act (FDAMA) established FDA authority over the safety and effectiveness of locally manufactured radiotracers and developed streamlined regulations for good manufacturing practices (GMP) with which each PET facility must comply.

The following radiotracers have been approved by the FDA:

- ^{18}F-FDG for evaluation of glucose metabolism in oncology
- ^{18}F-FDG for evaluation of myocardial hibernation
- ^{13}N-ammonia for evaluation of myocardial blood flow
- 82-rubidium chloride injection (NDA-19-414) was approved in 1989 “for assessing regional myocardial perfusion in the diagnosis and localization of myocardial infarction.”
- ^{18}F FDG (NDA 20-306) was approved in 1994 for “the identification of regions of abnormal glucose metabolism associated with foci of epileptic seizures.”
- ^{18}F sodium fluoride injection (NDA 17-042) was approved in 1972 for “injection as a bone imaging agent to define areas of altered osteogenic activity.” The original company ceased making this drug product in 1975, and it is now being marketed again by PETNET Solutions (a Siemens company).

In September 2005, the FDA issued a draft rule and draft guidance on current good manufacturing practice for PET drug products. The final current good manufacturing practices (CGMP) regulation for the production of PET drugs was issued on December 9, 2009 and takes effect on December 12, 2011. More detailed information is available online at: http://www.fda.gov/Drugs/DevelopmentApprovalProcess/Manufacturing/ucm085783.htm.

POLICY

A. Positron emission tomography (PET) using 2-[fluorine-18]-fluoro-2-deoxy-D-glucose (FDG) may be considered **medically necessary**
   1. the assessment of selected patients with epileptic seizures who are candidates for surgery (see Policy Guidelines) in:
   2. the diagnosis of chronic osteomyelitis

B. The use of PET for all other miscellaneous indications is **experimental / investigational**

1. Degenerative motor neuron diseases, including: , including, but not limited to:
   a. Friedreich's ataxia
   b. Olivopontocerebellar atrophy
   c. Parkinson's disease

2. Dementias, including:
   a. Alzheimer's disease
   b. multi-infarct dementia
   c. Pick's disease
   d. frontotemporal dementia
   e. dementia with Lewy-Bodies
   f. presenile dementia
   g. Demyelinating diseases, such as multiple sclerosis

3. Psychiatric diseases and disorders

4. Viral infections, including:
   a. acquired immune deficiency syndrome (AIDS)
   b. AIDS dementia complex
   c. Creutzfeldt-Jakob syndrome
   d. progressive multifocal leukoencephalopathy
   e. progressive rubella encephalopathy
   f. subacute sclerosing panencephalitis

5. Emphysema

Policy Guidelines

1. For this policy, PET scanning is discussed for the following 4 applications in oncology.

   Diagnosis
   Diagnosis refers to use of PET as part of the testing used in establishing whether or not a patient has cancer.

   Staging
   This refers to use of PET to determine the stage (extent) of the cancer at the time of diagnosis, before any treatment is given. Imaging at this time is generally to determine whether or not the cancer is localized. This may also be referred to as initial staging.

Restaging
This refers to imaging following treatment in 2 situations. Restaging is part of the evaluation of a patient in whom a disease recurrence is suspected based on signs and/or symptoms. Restaging also includes determining the extent of malignancy following completion of a full course of treatment.

Surveillance
This refers to use of imaging in asymptomatic patients (patients without objective signs or symptoms of recurrent disease). This imaging is completed 6 months or more (12 months or more for lymphoma) following completion of treatment.

2. As with any imaging technique, the medical necessity of positron emission tomography (PET) scanning depends in part on what imaging techniques are used either before or after the PET scanning. Due to its expense, PET scanning is typically considered after other techniques, such as computed tomography (CT), magnetic resonance imaging (MRI), or ultrasonography, provide inconclusive or discordant results. In patients with melanoma or lymphoma, PET scanning may be considered an initial imaging technique. If so, the medical necessity of subsequent imaging during the same diagnostic evaluation is unclear. Thus, PET should be considered for the medically necessary indications above only when standard imaging, such as CT or MRI, is inconclusive or not indicated.

3. In patients with epileptic seizures, appropriate candidates are patients with complex partial seizures that have failed to respond to medical therapy and who have been advised to have a resection of a suspected epileptogenic focus located in a region of the brain accessible to surgery. Conventional techniques for seizure localization must have been tried and provided data that suggested a seizure focus but were not sufficiently conclusive to permit surgery. In addition, the purpose of the positron emission tomography (PET) examination should be to avoid subjecting the patient to extended preoperative electroencephalographic recording with implanted electrodes or to help localize and minimize the number of sites for implanted electrodes to reduce the morbidity of that procedure.

RATIONALE

Policies on positron emission tomography (PET) were originally based on 4 TEC Assessments that addressed various applications of PET. (1-4) In terms of miscellaneous (i.e., non-cardiac, non-oncologic) applications of PET, PET using fluorodeoxyglucose (FDG) was initially considered medically necessary for the assessment of selected patients with epileptic seizures and investigational for other indications. The literature was updated regularly with searches of the MEDLINE database. Based on additional literature, the policy was changed in 2007 to state that PET for diagnosing chronic osteomyelitis may be considered medically necessary. The most recent literature search using MEDLINE was for the period October 2011 through November 2012. The key literature identified in updated literature searches is described below:

Epilepsy

A 2007 meta-analysis on the use of fluorodeoxyglucose [FDG]-PET for preoperative evaluation of patients with temporal lobe epilepsy found that ipsilateral PET hypometabolism had a predictive value for a good outcome of 86%. The authors note, however, the difficulty of the analysis because of differences in study design and lack of precise patient data, which made the incremental value of PET unclear. PET may not add value for patients well-localized by ictal scalp electroencephalography and magnetic resonance imaging (MRI). (5) A meta-analysis on predictors of long-term seizure freedom after surgery for frontal lobe epilepsy found that PET findings did not predict seizure freedom. (6)

Chronic Osteomyelitis

In 2005, Termaat and colleagues published a systematic review and meta-analysis of diagnostic imaging to assess chronic osteomyelitis. (7) The authors reviewed studies on 6 imaging approaches to chronic osteomyelitis, including fluorodeoxyglucose PET (FDG-PET) and concluded that PET is the most accurate mode (pooled sensitivity: 96% [95% (confidence interval) CI: 88–99%]; pooled specificity: 91% [95% CI: 81–95%]) for diagnosing chronic osteomyelitis. Leukocyte scintigraphy was adequate in the peripheral skeleton (sensitivity: 84% [95% CI: 72–91%]; specificity: 80% [95% CI: 61–91%]) but was inferior in the axial skeleton (sensitivity: 21% [95% CI: 11–38%]; specificity: 60% [95% CI: 39–78%]). The assessment of PET was based on 4 prospective, European studies published between 1998 and 2003, with a total of 1,660 patients. However, the study populations varied and included the following: 1) 57 patients with suspected spinal infection referred for FDG-PET and who had previous spinal surgery but not "recently" (8); 2) 22 trauma patients scheduled for surgery who had suspected metallic implant-associated infection (9); 3) 51 patients with recurrent osteomyelitis or osteomyelitis symptoms for more than 6 weeks, 36 in the peripheral skeleton and 15 in the central skeleton (10); and 4) 30 consecutive non-diabetic patients referred for possible chronic osteomyelitis. (11) The results appeared to be robust across fairly diverse clinical populations, which strengthen the conclusions.

Alzheimer's Disease (AD) and Dementia

The Centers for Medicare and Medicaid Services (CMS) issued a decision memorandum on April 16, 2003, that would not support coverage of FDG-PET in Alzheimer's disease (AD) because the evidence did not demonstrate its use for improved patient outcomes. This decision was based, in part, on a technology assessment conducted at Duke University through the Agency for Healthcare Research and Quality (AHRQ) Evidence-based Practice Center. (12) This assessment used decision-analysis modeling to examine whether the use of FDG-PET would improve health outcomes when used for diagnosis of AD in 3 clinical populations: patients with dementia, patients with mild cognitive impairment, or subjects with no symptoms but a first-degree relative with AD. PET was considered to have an 88% sensitivity (95% confidence interval [CI]: 79–94%) and 87% specificity (95% CI: 77–93%) for diagnosing AD. The report concluded that outcomes for all 3 groups of patients were better if all patients were treated with agents such as cholinesterase inhibitors rather than using FDG-PET to select patients for treatment based on PET results, since the complications of treatment were relatively mild, and treatment was considered to have some degree of efficacy in delaying the progression of AD. Thus, the adverse effect of not treating subjects with AD who had false-negative PET results was influential in this analysis. However, this conclusion was sensitive to the toxicity associated with treatment.

In October 2003, CMS agreed to reconsider its policy on PET for AD and dementia. On September 15, 2004, Medicare made public its final decision memorandum announcing a positive national coverage decision for a subset of patients "with a recent diagnosis of dementia and documented cognitive decline of at least 6 months, who meet diagnostic criteria for both Alzheimer's disease (AD) and fronto-temporal dementia (FTD), who have been evaluated for specific alternative neurodegenerative diseases or causative factors, and for whom the cause of the clinical symptoms remains uncertain." For its reconsideration, CMS requested an update of the original AHRQ assessment which concluded that no new publications provided direct evidence to evaluate the use of PET to either differentiate among different types of dementia or to identify those patients with mild cognitive impairment who were at greatest risk to progress to AD. (13) In addition, Medicare considered a consensus report by the Neuroimaging Work Group of the Alzheimer's Association (14) and proceedings of an expert panel discussion of neuroimaging in AD, convened by the National Institute of Aging and Medicare. (15)

In 2005, a meta-analysis compared the ability of FDG-PET, single-photon emission computed tomography (SPECT), and structural MR imaging to predict patients' conversion from mild cognitive impairment to AD. (16) Using 24 articles identified among studies published between 1990 to April 2008 (6 on FDG-PET, published 2001-2005), the authors found no statistically significant difference among the 3 modalities in pooled sensitivity, pooled specificity, or negative likelihood ratio, FDG-PET had the highest odds ratio and positive likelihood ratio. However, there was strong evidence of between-study heterogeneity and marked asymmetry in the funnel plot (with studies missing from the bottom left quadrant), reducing confidence in the results. Efforts to identify sources of heterogeneity (e.g., publication year, age, male-female ratio, follow-up interval, years of education, mean mini-mental state examination [MMSE] score at baseline) yielded no significant results; only the imaging technique was associated with the log odds ratio. (In an apparent error, the article states that "[N]o statistically significant difference was found (P >.05) for each technique in pooled sensitivity and LR-" [emphasis added]. Also, in Table 5, the odds ratio for FDG-PET is reported as 40.146, 95% CI: 18.53 ~ 6.97. The last number appears to be incorrect.)

Research continues on efforts to use PET to identify AD and differentiate it from other types of dementia. For example, a 2008 multicenter, international study with 548 patients, including normal patients and those with mild cognitive impairment, AD, frontotemporal dementia, and dementia with Lewy bodies, used Neurological Statistical Image Analysis (Neurostat, University of Washington) to process the results. (17) Excluding the patients with mild cognitive impairment, the sample was split in half, with key PET findings identified on half of the data set and validated on the second half of the data set. The disease-specific PET patterns correctly classified 94% normal patients, 95% AD, 92% dementia with Lewy bodies, 94% frontotemporal dementia ($p<0.001$). The PET patterns were also 98% sensitive and 92% specific ($p<0.001$) in distinguishing mild cognitive impairment from normal patients. While interesting, these findings need to be replicated on a less selected sample, i.e., one in which mild cognitive impairment (MCI) patients are included in the mix. Also, the reference standard used was clinical diagnosis, so the incremental value, if any, of PET imaging over clinical judgment alone could not be determined. More generally, evidence of clinical utility would require demonstrating that PET improved diagnostic accuracy and that earlier or more accurate diagnosis led to treatment changes that improved health outcomes.

One of the challenges in evaluating the use of PET to distinguish among dementias is to identify what serves as the reference standard. Durand-Martel and colleagues noted in 2010 that the sensitivity of clinical diagnosis for AD varies between 75% and 98%, with an average of 82%. (18) Therefore, comparing PET results to clinical diagnosis can be confounded by the fact that the clinical diagnosis itself may not be accurate. Durand-Martel et al. asserted that autopsy results should serve as the reference standard in studies on the use of FDG-PET for dementia; they identified only 5 studies with 20 patients or more in which results of both FDG-PET imaging and autopsy were presented.

There is also research on alternative radiotracers to FDG in identifying AD. In particular, there is interest in amyloid PET tracers, because beta amyloid is the principal component of AD plaques in the brain. (19) (See MPRM Reference Policy 6.01.55, Beta Amyloid Imaging with Positron Emission Tomography (PET) for Alzheimer's Disease.)

Another recent research interest is the potential use of PET scan results as a biomarker for progression to Alzheimer's disease. It is difficult to evaluate treatments that may prevent or delay the onset of dementia in individuals with mild cognitive impairment (MCI) because a relatively small number of study participants will progress to AD during the follow-up period. A 2011 study by Herholz and colleagues in the U.K. used a quantitative PET score previously devised by this research group to evaluate disease progression; a software program was available to calculate the score. (20) The prospective study included 94 patients with MCI, 40 patients with mild AD and 44 healthy controls. Participants received 4 PET scans and clinical assessments over 2 years. By the 2-year follow-up, 30 of 94 (32%) had progressed to MCI, 7 (7%) reverted to normal cognitive function and 57 (61%) remained MCI. Two of 44 (4.5%) healthy controls had progressed to MCI. All of the individuals with AD at baseline remained in that category. The proportion of patients with abnormal PET scores at baseline was 85% in the AD group, 40% in the MCI group, and 11% in the control group. An abnormal PET score at baseline had a sensitivity to predict disease progression of 0.57 and a specificity of 0.67. The area under the receiver-operating characteristic (ROC) curve was 0.75 for PET scores. Areas under the ROC curve for predicting disease progression for the outcome measures Mini-Mental State Examination (MMSE) and the Alzheimer's Disease Assessment Scale-Cognitive (ADAS-cog), were 0.66 and 0.68, respectively. Conclusions about the utility of using this PET score in clinical practice cannot be drawn from the Herholz study; additional research is needed that evaluates whether patient management decisions using the PET score results in improved health outcomes.

A meta-analysis (21) pooled 7 studies of FDG PET and 6 studies of PET with carbon-11 Pittsburgh Compound B (PIB) for prediction of conversion to AD among patients with MCI. Areas under the ROC curve were 0.88 for FDG PET and 0.85 for PIB PET. This report lacks comparisons with other means of predicting conversion from MCI to AD. It also lacks a discussion of how PET might influence treatment decisions and whether use of PET improves health outcomes.

It should be noted that much of the present interest in detecting AD early is to develop and test treatments that might affect the progression of the disease. This is clearly an important goal, but several important challenges must be overcome before PET imaging is routinely used in clinical practice to detect preclinical AD, so that treatment can be started. At the same time, other methods of diagnosing AD that do not involve imaging are also being explored.

Due to the lack of direct evidence that this imaging technique will result in a change in management that will improve patient outcomes, PET for AD and dementia is considered investigational

Vasculitis

A systematic review of literature on PET and PET/CT (computed tomography) in patients with large-vessel vasculitis was published in 2011 by Treglia and colleagues. (22) The investigators identified 32 studies with a total of 604 vasculitis patients. The authors did not pool findings of the studies. They concluded that PET and PET/CT may be useful for initial diagnosis and assessment of severity of disease and that the role of these imaging methods in monitoring treatment response is unclear. They also concluded that "given the heterogeneity between studies with regard to PET analysis and diagnostic criteria, a standardization of the technique is needed." The studies cited in support of using PET for diagnosing large vessel vasculitis had small sample sizes; one study included 25 vasculitis patients and 44 controls; the others had total sample sizes of fewer than 20 patients.

Lehmann and colleagues in Germany published a study after the Treglia review. (23) PET scans of 20 patients with giant cell arthritis or Takayasu arthritis, and 20 healthy controls were retrospectively reviewed by 2 experienced nuclear medicine experts on a blinded basis. PET was found to have a sensitivity of 65% and a specificity of 80% for identifying patients with a known large vessel vasculitis diagnosis. The two reviewers agreed on the diagnosis in 34 of 40 (85%) of scans; the interrater agreement (Cohen's kappa) was 0.70. The authors concluded that, due to the low sensitivity and specificity, the diagnosis of large vessel vasculitis should not be based solely on PET findings. Study limitations include being retrospective and not including individuals with suspected, rather than established, large vessel vasculitis.

Other indications

Recent review articles on the use of PET with spinal infections (24); inflammatory diseases more generally (25); fever of unknown origin (26); hyperinsulinemic hypoglycemia (27); mycobacterium infection (28); inflammatory bowel disease (29); and multiple sclerosis (30) indicate insufficient evidence on the benefit of PET for these indications. Many of the studies cited in the reviews were small, retrospective, published in the 1990s to early 2000s and/or many studies did not directly compare one modality to another in the same patient group or connect the PET results in individual patients to improved clinical outcomes.

A 2008 meta-analysis on using FDG-PET to diagnose prosthetic joint infection following hip or knee replacement reported pooled estimates of the sensitivity of PET in detecting infection of 82.1% (95% CI: 68.0–90.8%) and a pooled specificity of 86.6% (95% CI: 79.7–91.4%). (31) The authors note, however, that the results should be interpreted with caution because of significant heterogeneity identified among the 11 studies included (which confers substantial uncertainty on the pooled estimates). Efforts to identify sources of heterogeneity were mostly unsuccessful; there were differences in performance based on location of prostheses (hip vs. knee) and whether filtered back projection or iterative reconstruction was used. The authors stated that a large, multicenter trial is needed to evaluate the use of FDG-PET for identifying infection around joint prostheses. Both this study and another study on the same clinical issue found that the specificity of PET was significantly greater for hip prostheses than for knee

prostheses. (32) The articles also noted that these studies were based on the use of PET alone. CT is generally not useful in evaluating potential infections around joint prostheses because of the artifacts caused by the metallic implants, so additional research would be needed on combined PET/CT. The second study compared the accuracy of PET with a triple-phase scan and with white blood cell imaging. The authors concluded that the latter is the most accurate but also the most complex and time-consuming, while the former is readily available and the easiest to perform. However, these comparisons are open to question because the methods were poorly described and the authors appeared to mix together results from single-arm studies on one modality with comparative studies.

A 2011 systematic review addressed use of PET in evaluating disease activity in patients with sarcoidosis (33). The report does not include quality assessment of individual studies, a critical feature of a well-conducted systematic review. Only 3 small studies out of 9 reviewed included data from a comparator imaging modality, thus conclusions about comparative diagnostic performance cannot be reached.

Ongoing clinical trials

Metabolic cerebral imaging in incipient dementia (NCT00329706) (34): This is a randomized controlled trial (RCT) evaluating whether PET scanning can distinguish between patients with early Alzheimer's changes in their brains from patients with other types of cognitive impairment. All participants (estimated enrollment is n=710) will undergo scanning with FDG-PET. They will be randomized to immediate release of the PET report or a 2-year delay in the release of the report. Outcomes include change in cognitive function, utilization of health resources, and prescriptions for Alzheimer's-specific therapies. The expected study completion date is January 2016.

Summary

Positron emission tomography (PET) for selected patients with epilepsy and patients with chronic osteomyelitis may be considered medically necessary. There is insufficient evidence on the value of PET for other miscellaneous (non-cardiac, non-oncologic) indications. Studies are needed that demonstrate that PET will result in a change in management that will improve patient outcomes in order to determine that it is a clinically useful test.

Practice Guidelines and Position Statements

A 2006 Guideline practice parameter from the Quality Standards Subcommittee of the American Academy of Neurology states, in part:

"There is insufficient evidence to support or refute the following as a means of distinguishing PD from other parkinsonian syndromes: urodynamics, autonomic testing, urethral or anal electromyography (EMG), magnetic resonance imaging (MRI), brain parenchyma sonography, and 18F fluorodeoxyglucose positron emission tomography" (35)

CODING

The following codes for treatment and procedures applicable to this policy 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. 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.

CPT/HCPCS

78811	Positron emission tomography (PET) imaging; limited area (e.g. Chest, head/neck)
78812	Positron emission tomography (PET) imaging; skull base to mid-thigh
78813	Positron emission tomography (PET) imaging; whole body
78814	Tumor imaging, positron emission tomography (PET) with concurrently acquired computed tomography (CT) for attenuation correction and anatomical localization; limited area (e.g. chest, head/neck)
78815	Tumor imaging, positron emission tomography (PET) with concurrently acquired computed tomography (CT) for attenuation correction and anatomical localization; skull base to mid-thigh
78816	Tumor imaging, positron emission tomography (PET) with concurrently acquired computed tomography (CT) for attenuation correction and anatomical localization; whole body
A9526	Nitrogen N-13 ammonia, diagnostic, per study dose, up to 40 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
A9599	Radiopharmaceutical, diagnostic, for Beta-amyloid Positron Emission Tomography (PET) Imaging, per study dose *(New code, effective January 1, 2014)*
G0219	PET imaging whole body; melanoma for non covered indications
G0235	PET imaging, any site, not otherwise specified
78608	Brain imaging, positron emission tomography (PET); metabolic evaluation
78609	Brain imaging, positron emission tomography (PET); perfusion evaluation

DIAGNOSES

345.41	Partial epilepsy, with impairment of consciousness; with intractable epilepsy, so stated
345.51	Partial epilepsy, without impairment of consciousness; with intractable epilepsy, so stated
730.10	Osteomyelitis, periostitis, and other infections involving bone; chronic osteomyelitis, site unspecified
730.11	Osteomyelitis, periostitis, and other infections involving bone; chronic osteomyelitis, shoulder region
730.12	Osteomyelitis, periostitis, and other infections involving bone; chronic osteomyelitis, upper arm
730.13	Osteomyelitis, periostitis, and other infections involving bone; chronic osteomyelitis, forearm
730.14	Osteomyelitis, periostitis, and other infections involving bone; chronic osteomyelitis, hand
730.15	Osteomyelitis, periostitis, and other infections involving bone; chronic osteomyelitis, pelvic region and thigh
730.16	Osteomyelitis, periostitis, and other infections involving bone; chronic osteomyelitis, lower leg

730.17 Osteomyelitis, periostitis, and other infections involving bone; chronic osteomyelitis, ankle and foot
730.18 Osteomyelitis, periostitis, and other infections involving bone; chronic osteomyelitis, other specified sites
730.19 Osteomyelitis, periostitis, and other infections involving bone; chronic osteomyelitis, multiple sites

ICD-10 Diagnosis *(Effective October 1, 2014)*
G40.011 Localization-related (focal) (partial) idiopathic epilepsy and epileptic syndromes with seizures of localized onset, intractable, with status epilepticus
G40.019 Localization-related (focal) (partial) idiopathic epilepsy and epileptic syndromes with seizures of localized onset, intractable, without status epilepticus
G40.111 Localization-related (focal) (partial) symptomatic epilepsy and epileptic syndromes with simple partial seizures, intractable, with status epilepticus
G40.119 Localization-related (focal) (partial) symptomatic epilepsy and epileptic syndromes with simple partial seizures, intractable, without status epilepticus
G40.211 Localization-related (focal) (partial) symptomatic epilepsy and epileptic syndromes with complex partial seizures, intractable, with status epilepticus
G40.219 Localization-related (focal) (partial) symptomatic epilepsy and epileptic syndromes with complex partial seizures, intractable, without status epilepticus
M86.311 Chronic multifocal osteomyelitis, right shoulder
M86.312 Chronic multifocal osteomyelitis, left shoulder
M86.321 Chronic multifocal osteomyelitis, right humerus
M86.322 Chronic multifocal osteomyelitis, left humerus
M86.331 Chronic multifocal osteomyelitis, right radius and ulna
M86.332 Chronic multifocal osteomyelitis, left radius and ulna
M86.341 Chronic multifocal osteomyelitis, right hand
M86.342 Chronic multifocal osteomyelitis, left hand
M86.351 Chronic multifocal osteomyelitis, right femur
M86.352 Chronic multifocal osteomyelitis, left femur
M86.361 Chronic multifocal osteomyelitis, right tibia and fibula
M86.362 Chronic multifocal osteomyelitis, left tibia and fibula
M86.371 Chronic multifocal osteomyelitis, right ankle and foot
M86.372 Chronic multifocal osteomyelitis, left ankle and foot
M86.38 Chronic multifocal osteomyelitis, other site
M86.39 Chronic multifocal osteomyelitis, multiple sites
M86.411 Chronic osteomyelitis with draining sinus, right shoulder
M86.412 Chronic osteomyelitis with draining sinus, left shoulder
M86.421 Chronic osteomyelitis with draining sinus, right humerus
M86.422 Chronic osteomyelitis with draining sinus, left humerus
M86.431 Chronic osteomyelitis with draining sinus, right radius and ulna
M86.432 Chronic osteomyelitis with draining sinus, left radius and ulna
M86.441 Chronic osteomyelitis with draining sinus, right hand
M86.442 Chronic osteomyelitis with draining sinus, left hand
M86.451 Chronic osteomyelitis with draining sinus, right femur
M86.452 Chronic osteomyelitis with draining sinus, left femur
M86.461 Chronic osteomyelitis with draining sinus, right tibia and fibula
M86.462 Chronic osteomyelitis with draining sinus, left tibia and fibula

M86.471 Chronic osteomyelitis with draining sinus, right ankle and foot
M86.472 Chronic osteomyelitis with draining sinus, left ankle and foot
M86.48 Chronic osteomyelitis with draining sinus, other site
M86.49 Chronic osteomyelitis with draining sinus, multiple sites
M86.511 Other chronic hematogenous osteomyelitis, right shoulder
M86.512 Other chronic hematogenous osteomyelitis, left shoulder
M86.521 Other chronic hematogenous osteomyelitis, right humerus
M86.522 Other chronic hematogenous osteomyelitis, left humerus
M86.531 Other chronic hematogenous osteomyelitis, right radius and ulna
M86.532 Other chronic hematogenous osteomyelitis, left radius and ulna
M86.541 Other chronic hematogenous osteomyelitis, right hand
M86.542 Other chronic hematogenous osteomyelitis, left hand
M86.551 Other chronic hematogenous osteomyelitis, right femur
M86.552 Other chronic hematogenous osteomyelitis, left femur
M86.561 Other chronic hematogenous osteomyelitis, right tibia and fibula
M86.562 Other chronic hematogenous osteomyelitis, left tibia and fibula
M86.571 Other chronic hematogenous osteomyelitis, right ankle and foot
M86.572 Other chronic hematogenous osteomyelitis, left ankle and foot
M86.58 Other chronic hematogenous osteomyelitis, other site
M86.59 Other chronic hematogenous osteomyelitis, multiple sites
M86.60 Other chronic osteomyelitis, unspecified site
M86.611 Other chronic osteomyelitis, right shoulder
M86.612 Other chronic osteomyelitis, left shoulder
M86.621 Other chronic osteomyelitis, right humerus
M86.622 Other chronic osteomyelitis, left humerus
M86.631 Other chronic osteomyelitis, right radius and ulna
M86.632 Other chronic osteomyelitis, left radius and ulna
M86.641 Other chronic osteomyelitis, right hand
M86.642 Other chronic osteomyelitis, left hand
M86.651 Other chronic osteomyelitis, right thigh
M86.652 Other chronic osteomyelitis, left thigh
M86.661 Other chronic osteomyelitis, right tibia and fibula
M86.662 Other chronic osteomyelitis, left tibia and fibula
M86.671 Other chronic osteomyelitis, right ankle and foot
M86.672 Other chronic osteomyelitis, left ankle and foot
M86.68 Other chronic osteomyelitis, other site
M86.69 Other chronic osteomyelitis, multiple sites
M86.8x0 Other osteomyelitis, multiple sites
M86.8x1 Other osteomyelitis, shoulder
M86.8x2 Other osteomyelitis, upper arm
M86.8x3 Other osteomyelitis, forearm
M86.8x4 Other osteomyelitis, hand
M86.8x5 Other osteomyelitis, thigh
M86.8x6 Other osteomyelitis, lower leg
M86.8x7 Other osteomyelitis, ankle and foot
M86.8x8 Other osteomyelitis, other site
M86.8x9 Other osteomyelitis, unspecified sites

REVISONS

10-30-2013	Miscellaneous (Non-cardiac, Non-oncologic) Applications of PET Scanning was originally part of the Positron Emission Tomography (PET) medical policy. Miscellaneous (Non-cardiac, Non-oncologic) Applications of PET Scanning was separated out and placed into a separate medical policy, Positron Emission Tomography (PET) Scanning: Miscellaneous (Non-cardiac, Non-oncologic) Applications. The medical policy language was unchanged.
	Updated Description section.
	Updated Rationale section.
	In Coding section: ▪ Added ICD-10 Diagnosis codes *(Effective October 1,2014)*
	Updated Reference section.
12-31-2013	In Coding section: ▪ Added HCPCS code A9599 *(Effective January 1, 2014)*

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