Computer Assisted Surgical Navigation

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Guidance when you need it most

Medical Coverage Policy

Original Effective Date: 10/22/2009
Revised Date: 01/01/2011
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Policy Number: CPD-0489-003

Change Summary: Updated Provider Claims Codes

Disclaimer

Description

The terms computer assisted surgical navigation or image guided surgery system describes evolving technology in navigation systems that provide surgeons additional information during surgical procedures. These systems generate a digital map of the patient anatomy.

The hardware for these navigation systems includes common components; a computer workstation, a tracking system and specific surgical instruments for the determined surgery. Computer assisted navigation generally involves three steps, planning (data gathering), navigation (tracking) and registration (pre and intra-operative images).

When used as an adjunct to joint replacement surgeries, computer assisted navigation is thought to prevent misalignment. Misalignment is the leading cause of complications such as instability and reoperation for both hip and knee replacements.

Computer assisted stereotactic technology for cranial procedures, otherwise known as neuronavigation, combines preoperative imaging with navigational

computer software to localize surgical targets. This is designed to facilitate presurgical planning and to also provide intraoperative guidance to the surgeon.

Procedures that computer assisted surgical navigation systems may be used for include but may not be limited to:

- Neurosurgery
- Sinus surgery
- Total joint arthroplasty.

Coverage Determination

Humana members **may** be eligible under the Plan for **computer assisted surgical navigation** using Food and Drug Administration (FDA) approved systems according to their FDA approved indications.

Computer assisted surgical navigation systems include, but may not be limited to:

- BrainLab AG Vector Vision fluoro3D is intended as an intraoperative image-guided localization system. The system is approved for any medical condition in which the use of stereotactic surgery may be considered to be safe and effective and where a reference to a rigid anatomical structure, such as the skull, a long bone, or vertebra can be identified relative to a computed tomography (CT) scan or magnetic resonance (MR) based model of the anatomy.

- DePuy Ci™ Hip Instruments are reusable manual orthopedic surgical instruments modified with a navigation adapter for the use of BrainLab's Vector Vision Hip version software. This system is approved for total hip replacement procedures in which the use of stereotactic surgery may be appropriate and where reference to rigid anatomical structures, such as a long bone, can be identified relative to a computed tomography (CT) scan or magnetic resonance (MR) based model of the anatomy.

- InstaTrak 3500 Plus System was originally cleared under the name InstaTrak 3000. This device is intended as an aid to the surgeon for precisely locating anatomical structures anywhere on the human body during either open or percutaneous procedures. It is indicated for any

medical condition that may benefit from the use of stereotactic surgery and which provides reference to anatomical structures such as sinus, skull, long bone, or vertebra, visible on medical images such as CT, MR, or X-ray.

- OrthoMap® 3D Module is intended as a planning and guidance system to enable open or percutaneous computer assisted surgery. This system is approved for any medical condition in which the use of a computer assisted planning and surgery may be appropriate. The system can be used for guidance where a reference to a rigid anatomical structure can be identified.

- Orthopilot® Next Generation is intended to optimally position an endoprosthesis during arthroplasty surgery. It aids the surgeon in accurately positioning the cutting guides. It is approved to aid the surgeon in accurately positioning the cutting guides, drills and reamers for total endoprosthesis replacement surgery and provides intraoperative measurements of bone alignment.

- StealthStation® System is approved as an aid for precisely locating anatomical structures in either open or percutaneous procedures. It is indicated where a reference to a rigid anatomical structure such as the skull, the pelvis, a long bone or vertebra can be identified relative to a CT, MR, fluoroscopy, or digitized landmarks of the anatomy.

Computer assisted surgical navigation is considered integral to the primary procedure and not separately reimbursable.

Coverage Limitations

Humana members may **NOT** be eligible under the Plan for **computer assisted surgical navigation** if not utilized according to the system's FDA approved indications. This technology is considered experimental/investigational as it is not identified as widely used and generally accepted for the proposed use as reported in nationally recognized peer-reviewed medical literature published in the English language.

Background

Computer assisted surgical navigation is proposed for multiple types of surgeries including cranial surgeries. Common indications for cranial surgeries include removal of brain tumors, lobectomy and electrode placement for deep brain stimulation. In the United States there are more than 200,000 diagnoses of brain tumors each year.[1]

Total hip arthroplasty (THA) or total hip replacement is a treatment utilized for arthritis of the hip once conservative treatments have failed. The most common condition affecting the hip is osteoarthritis. This can lead to deformity, persistent pain, and loss of function of the hip. In the United States, more than 200,000 hip replacements are performed each year. The number is expected to increase with the aging population.[2]

Total knee arthroplasty (TKA) or total knee replacement is primarily a treatment for degenerative arthritis of the knee once conservative treatments have failed. The arthritis may be osteoarthritis or rheumatoid arthritis. Patients with arthritis of the knee complain with pain mostly when weight bearing. Pain may be constant and unrelieved by rest. Currently, there are about 500,000 TKAs performed annually and it is estimated that this number will increase to over 3.5 million by the year 2030.[3]

Medical Alternatives

Alternatives to computer assisted surgical navigation include, but may not be limited to, conventional imaging such as standard X-rays, computed tomography (CT) or magnetic resonance imaging (MRI).

Provider Claims Codes

All provider claims codes surrounding this topic may not be included in the following table:

CPT© Codes	Description	Comments
+20985	Computer assisted surgical navigational procedure for musculoskeletal procedures, image-less (list separately in addition to code for primary procedure)	**No additional reimbursement for the use of computer assisted surgical navigation**
31627	Bronchoscopy, rigid or flexible, including fluoroscopic guidance, when performed; with computer-assisted, imageguided navigation (List separately in addition to code for primary procedure[s])	**New Code 01/01/2010** **No additional reimbursement for the use of computer assisted surgical navigation**
61781	Stereotactic computer-assisted (navigational) procedure; cranial, intradural (List separately in addition to code for	**New Code Effective 01/01/2011**

	primary procedure)	**No additional reimbursement for the use of computer assisted surgical navigation**
61782	Stereotactic computer-assisted (navigational) procedure; cranial, extradural (List separately in addition to code for primary procedure	**New Code Effective 01/01/2011** **No additional reimbursement for the use of computer assisted surgical navigation**
61783	Stereotactic computer-assisted (navigational) procedure; spinal (List separately in addition to code for primary procedure)	**New Code Effective 01/01/2011** **No additional reimbursement for the use of computer assisted surgical navigation**
+61795	Stereotactic computer assisted volumetric (navigational) procedure, intracranial, extracranial, or spinal (list separately in addition to code for primary procedure)	**Deleted Code** **Effective 01/01/2011** **No additional reimbursement for the use of computer assisted surgical navigation**
HCPCS© Codes	**Description**	**Comments**
+0054T	Computer assisted musculoskeletal surgical navigational orthopedic procedure, with image guidance based on fluoroscopic images (list separately in addition to code for primary procedure)	**No additional reimbursement for the use of computer assisted surgical navigation**

+0055T	Computer assisted musculoskeletal surgical navigational orthopedic procedure, with image guidance based on CT/MRI images (list separately in addition to code for primary procedure)	**No additional reimbursement for the use of computer assisted surgical navigation**

ICD-9© Procedure Codes	**Description**	**Comments**
00.31	Computer assisted surgery with CT/CTA	**No additional reimbursement for the use of computer assisted surgical navigation**
00.32	Computer assisted surgery with MR/MRA	**No additional reimbursement for the use of computer assisted surgical navigation**
00.33	Computer assisted surgery with fluoroscopy	**No additional reimbursement for the use of computer assisted surgical navigation**
00.34	Imageless computer assisted surgery	**No additional reimbursement for the use of computer assisted surgical navigation**
00.35	Computer assisted surgery with multiple datasets	**No additional reimbursement for the use of computer assisted surgical navigation**
00.39	Other computer assisted surgery	**No additional reimbursement for the use of computer assisted surgical navigation**

Medical Terms

Anatomy - The study of the structure of the body and the relationship between its parts.

Arthritis - An inflammatory condition that affects joints.

Arthroplasty - Creation of an artificial joint to correct advanced degenerative arthritis.

Conservative - To preserve, restore function and repair structures by nonradical methods.

Cranial - Pertaining to the cranium.

Cranium - The bones of the skull which contain the brain.

Degenerate - Having become worse; having declined.

Degenerative - Tending to degenerate.

Diagnose - To make a diagnosis.

Diagnosis - The determination of the nature of a case of disease.

Disciplines - An area of academic study.

Dysfunction - Disturbance, impairment or abnormality of the functioning of an organ.

Electrode - Any terminal that conducts an electric current into or away from various conducting substances in a circuit.

Endoprosthesis - A prosthetic device installed within the body.

Endoscope - An expensive and usually highly flexible viewing instrument with capabilities of diagnostic (biopsy) or even therapeutic functions through special channels.

Hardware - The physical, touchable, material parts of a computer or other system.

Indication - A circumstance which points to or shows the cause.

Instability - The quality or state of being unstable.

Integral - Essential to completeness.

Intraoperative - Occurring, carried out, or encountered in the course of surgery.

Lobectomy - Surgical removal of a lobe.

Misalignment - Not being in alignment.

Navigation - The science or art of conducting from one place to another.

Neurosurgery - A surgical specialty concerned with the treatment of diseases and disorders of the brain.

Nostril - The external openings of the nose, which give passage to the air breathed.

Orthopedic - Pertaining to the correction of deformities of the musculoskeletal system.

Osteoarthritis - Noninflammatory degenerative joint disease occurring chiefly in older persons.

Rheumatoid arthritis - A chronic, progressive, and disabling autoimmune inflammatory disorder that causes pain, stiffness, and limited function in multiple joints.

Stereotactic - Precise positioning in three dimensional spaces. Refers to surgery or radiation therapy directed by various scanning devices.

Surgery - An operation.

Technology - Jargon for "software", "hardware", "protocol" or something else too technical to name.

Tumor - Abnormal growth of cells.

Vertigo - An illusion of movement.

References

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[1]Hayes, Winfred S. Directory Report. Neuronavigation. February 21, 2009.

[2]ECRI Institute. Custom Hotline Report. Computer assisted navigation for total hip replacement. August 29, 2008.

[3]Blue Cross Blue Shield Association Website. Technology Evaluation Center (TEC). Computer assisted navigation for total knee arthroplasty. Available at: http://www.bcbs.com/blueresource/tec/. Accessed October 15, 2010.