

# Computer-Assisted Navigation for Musculoskeletal Procedures

**Date of Origin:** 06/2012

**Last Review Date:** 08/28/2024

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**Developed By:** Medical Necessity Criteria Committee

## I. Description

Computer-assisted navigation (CAN) is the application of computer tracking systems to assist with alignment in a variety of orthopedic procedures (i.e. total hip arthroplasty, total knee arthroplasty). The goal of CAN is to increase surgical accuracy and reduce the chance of malposition of an implant.

CAN involves 3 steps; data acquisition, registration, and tracking. The data can be acquired from fluoroscopy, computed tomography (CT) scans or magnetic resonance imaging (MRI) scans, or imageless systems. The data is then used for registration and tracking. Registration is relating the images to the anatomical position of the surgical area using “fiducial markers”. Tracking is the feedback from the measurement devices regarding the orientation and relative position of tools to bone anatomy.

Currently, there is insufficient peer-reviewed scientific literature to support the long-term efficacy and safety as well as minimal data regarding surgical outcomes of CAN cases compared to more conventional techniques. More studies are needed to determine operating room time, radiation exposure, and improved long-term functional outcomes with CAN. It is considered an adjunct procedure to standard musculoskeletal procedure and is not separately billable.

## II. Criteria: CWQI HCS-0020

A. Summit Health considers CAN for musculoskeletal procedures experimental and investigational. It is a non-covered surgical service and if used is included under the existing code for the actual procedure performed.

## III. Information Submitted with the Prior Authorization Request:

1. The physician’s chart notes and request for coverage of the proposed primary procedure will be submitted for medical necessity review. The CAN portion of the procedure is considered investigational and is not covered.

#### IV. CPT or HCPC codes NOT covered:

Codes	Description
20985	Computer-assisted surgical navigation procedure for musculoskeletal procedures, image-less
0054T	Computer-assisted musculoskeletal surgical navigation orthopedic procedure, with image-guidance based on fluoroscopic images
0055T	Computer-assisted musculoskeletal surgical navigation orthopedic procedure with image-guidance based on CT/MRI images

#### V. Annual Review History

Review Date	Revisions	Effective Date
04/2013	Annual Review: Added table with review date, revisions, and effective date.	04/24/2013
03/2014	Annual Review: No changes	04/03/2014
04/2015	Annual Review:	06/24/2015
06/2016	Annual Review: No changes	06/29/2016
06/2017	Annual Review: No change; updated to new template	06/28/2017
08/2018	Annual Review: Minor wording changes	08/22/2018
08/2019	Annual Review: Removed deleted codes	09/01/2019
09/2020	Annual Review: Grammar changes. No content change	10/01/2020
09/2021	Annual Review: No content change	10/01/2021
07/2022	Annual Review: No changes	08/01/2022
08/2023	Annual Review: No changes	09/01/2023
08/2024	Annual Review: No changes	09/01/2024

#### VI. References

1. Novak EJ, Silverstein MD, Bozic KJ. The cost-effectiveness of computer-assisted navigation in total knee arthroplasty. *J Bone Joint Surg Am.* 2007 Nov;89(11):2389-97.
2. Seon JK, Song EK, Yoon TR, et al. Comparison of functional results with navigation-assisted minimally invasive and conventional techniques in bilateral total knee arthroplasty. *Comput Aided Surgery.* 2007 May;12(3):189-93.
3. Quack VM, Kathrein S, Rath B, Tingart M, Lüring C. Computer-assisted navigation in total knee arthroplasty: a review of literature. *Biomed Tech (Berl).* 2012 May 30;0(0):1-7. doi: 10.1515/bmt-2011-0096.
4. Reininga IH, Wagenmakers R, van den Akker-Scheek I, et al. Effectiveness of computer-navigated minimally invasive total hip surgery compared to conventional total hip arthroplasty: design of a randomized controlled trial. *BMC Musculoskelet Disord.* 2007 Jan 11; 8:4.
5. Hoffart HE, Langenstein E, Vasak N. A prospective study comparing the functional outcome of computer-assisted and conventional total knee replacement. *J Bone Joint Surg Br.* 2012 Feb;94(2):194-9
6. Huang TW, Hsu WH, Peng KT, Hsu RW, Weng YJ, Shen WJ. Total knee arthroplasty with use of computer-assisted navigation compared with conventional guiding systems in the same patient: radiographic results in Asian patients. *J Bone Joint Surg Am.* 2011 Jul 6;93(13):1197-202

7. Bauwens K, Matthes G, Wich M, et al. Navigated total knee replacement. A meta-analysis. J Bone Joint Surg Am. 2007 Feb; 89(2):261-9.
8. American Association of Hip and Knee Surgeons Position Statement on Computer Assisted Orthopedic Surgery (CAOS) for Total Hip and Knee Replacement: What Patient Should Consider. Accessed on June 25, 2012 at: <http://www.aahks.org/patients/resources/CAOSpositionstatement.pdf>
9. Dutton AQ et al. Computer-assisted minimally invasive total knee arthroplasty compared with standard total knee arthroplasty. A prospective, randomized study. J Bone Joint Surg Am. 91 Suppl 2 Pt 1:116-30, 2009 Mar 1.
10. Physician Advisors

## Appendix 1 – Centers for Medicare and Medicaid Services (CMS)

Medicare coverage for outpatient (Part B) drugs is outlined in the Medicare Benefit Policy Manual (Pub. 100-2), Chapter 15, §50 Drugs and Biologicals. In addition, National Coverage Determination (NCD) and Local Coverage Determinations (LCDs) may exist and compliance with these policies is required where applicable. They can be found at: <http://www.cms.gov/medicare-coverage-database/search/advanced-search.aspx>. Additional indications may be covered at the discretion of the health plan.

Medicare Part B Covered Diagnosis Codes (applicable to existing NCD/LCD):

Jurisdiction(s): 5, 8	NCD/LCD Document (s):

NCD/LCD Document (s):

Medicare Part B Administrative Contractor (MAC) Jurisdictions		
Jurisdiction	Applicable State/US Territory	Contractor
F (2 & 3)	AK, WA, OR, ID, ND, SD, MT, WY, UT, AZ	Noridian Healthcare Solutions, LLC