

POLICY TITLE	GAIT ANALYSIS
POLICY NUMBER	MP-2.019

Original Issue Date (Created):	7/1/2002
Most Recent Review Date (Revised):	10/31/2018
Effective Date:	1/1/2019

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I. POLICY

Comprehensive gait analysis may be considered **medically necessary** as an aid in surgical planning in patients with gait disorders associated with cerebral palsy.

Gait analysis may be considered **medically necessary** to evaluate requests for replacement of prosthesis with a microprocessor-controlled knee. An independent laboratory (i.e., not associated with a prosthetic supplier) must perform the gait analysis.

Note: A comprehensive gait analysis involves an assessment of coordinated muscle function, typically requiring a dedicated facility and staff, and also an analysis of a video recorded observation of a patient walking.

Comprehensive gait analysis is considered **investigational** for all other applications including but not limited to:

- Surgical planning for conditions other than gait disorders associated with cerebral palsy
- Postoperative evaluation of surgical outcomes and rehabilitation planning other than those related to cerebral palsy.

There is insufficient evidence to support a conclusion concerning the health outcomes or benefits associated with this procedure for these indications.

Cross-reference:

MP-6.042 Lower Limb Prostheses

II. PRODUCT VARIATIONS

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This policy is applicable to all programs and products administered by Capital BlueCross unless otherwise indicated below.

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FEP PPO - The FEP program dictates that all drugs, devices or biological products approved by the U.S. Food and Drug Administration (FDA) may not be considered investigational. Therefore, FDA-approved drugs, devices or biological products may be assessed on the basis of medical necessity.

III. DESCRIPTION/BACKGROUND

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Gait analysis has been proposed as an aid in surgical planning, primarily for children with cerebral palsy (CP). It is also a potential tool to help plan rehabilitative strategies for ambulatory problems related to cerebral palsy, aging, stroke, spinal cord injury, and other conditions.

Gait analysis is the quantitative assessment of coordinated muscle function; evaluation is conducted in a laboratory and typically involves a dedicated facility and staff. A visual assessment of walking is supplemented by video recording. Videos can be observed from several visual planes at slow speed, allowing detection of movements not observable at normal speed. Joint angles and various time-distance variables, including step length, stride length, cadence, and cycle time, can be measured. Electromyography (EMG), assessed during walking, measures timing and intensity of muscle contractions. This calculation allows determination of whether a certain muscle’s activity is normal, out of phase, continuous, or clonic.

Kinematics is the term used to describe movements of joints and limbs, such as angular displacement of joints and angular velocities and accelerations of limb segments. The central element of kinematic assessment is some type of marker system that is used to represent anatomic landmarks, which are then visualized and quantitatively assessed by videotaped observations or optoelectronic data. Movement data are compiled by computer from cameras oriented in several planes, and the movement data are processed so that the motion of joints and limbs can be assessed in 3 dimensions. The range and direction of motion of a particular joint can be isolated from all the other simultaneous motions that are occurring during walking. Graphic plots of individual joint and limb motion as a function of gait phase can be generated.

Inertial and magnetic measurement systems (IMMSs) are under investigation for the assessment of joints and limbs in 3-dimensions.^{1,2} Rather than videotaped or optoelectronic calibration of markers placed on anatomic landmarks, IMMS systems involve sensor units that are comprised of miniaturized 3- dimensional accelerometers, gyroscopes, and magnetometers that are attached to body segments. The 3-dimentional orientation of each sensor is measured in relationship to an earth-based coordinate system through the use of computerized algorithms. One protocol, the “Outwalk” protocol, has been developed to allow the use of an IMMS system for gait analysis.

Gait analysis has been proposed as an aid in surgical planning, primarily for cerebral palsy but also for other conditions such as clubfoot. In addition, gait analysis is being investigated as a means to plan rehabilitative strategies (i.e., orthotic-prosthetic devices) for ambulatory problems related to cerebral palsy, aging, stroke, spinal cord injury, etc.

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A nonprofit organization established in 1997, the Commission for Motion Laboratory Accreditation, evaluates and accredits motion laboratories within clinical facilities. A multidisciplinary team uses a set of criteria to evaluate laboratories in the areas of administration (e.g., staffing, policies, procedures), equipment (e.g., accuracy and precision), and data management and reporting (e.g., control and clinical data sets).

IV. RATIONALE

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Summary

Gait analysis is the quantitative assessment of coordinated muscle function. For patients with cerebral palsy undergoing surgery for gait disorders, one randomized controlled trial did not find improvement in health outcomes for patients who received gait analysis as part of surgical planning, and one non-randomized controlled trial did not find improvement in utilization parameters. Several studies conducted among patients with cerebral palsy and other conditions suggest that gait analysis recommendations impact treatment decisions, but the impact of these decisions on health outcomes is as yet unknown. Based on input from clinical reviewers, gait analysis, when comprehensive, may be medically necessary for planning prior to surgery in children with gait disorders associated with cerebral palsy. Due to insufficient evidence, gait analysis is considered investigational for all other indications.

2018 Review

Review of the literature revealed no new information that would alter the current coverage position. Therefore, the policy statements are unchanged.

V. DEFINITIONS

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COMPREHENSIVE GAIT ANALYSIS- includes a quantitative assessment (kinematic parameters of gait, time-distance measurements and joint angles) of coordinated muscle function in a dedicated laboratory.

VI. BENEFIT VARIATIONS

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The existence of this medical policy does not mean that this service is a covered benefit under the member's contract. Benefit determinations should be based in all cases on the applicable contract language. Medical policies do not constitute a description of benefits. A member's individual or group customer benefits govern which services are covered, which are excluded, and which are subject to benefit limits and which require preauthorization. Members and

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providers should consult the member’s benefit information or contact Capital BlueCross for benefit information.

VII. DISCLAIMER

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Capital BlueCross’s medical policies are developed to assist in administering a member’s benefits, do not constitute medical advice and are subject to change. Treating providers are solely responsible for medical advice and treatment of members. Members should discuss any medical policy related to their coverage or condition with their provider and consult their benefit information to determine if the service is covered. If there is a discrepancy between this medical policy and a member’s benefit information, the benefit information will govern. Capital BlueCross considers the information contained in this medical policy to be proprietary and it may only be disseminated as permitted by law.

VIII. CODING INFORMATION

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Note: This list of codes may not be all-inclusive, and codes are subject to change at any time. The identification of a code in this section does not denote coverage as coverage is determined by the terms of member benefit information. In addition, not all covered services are eligible for separate reimbursement.

Covered when medically necessary:

CPT Codes ®							
96000	96001	96002	96003	96004			

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ICD-10-CM Diagnosis Code	Description
G80.1	Spastic diplegic cerebral palsy
G80.2	Spastic hemiplegic cerebral palsy
G80.3	Athetoid cerebral palsy
G80.4	Ataxic cerebral palsy
G80.8	Other cerebral palsy
G80.9	Cerebral palsy, unspecified
Q72.20	Congenital absence of both lower leg and foot, unspecified lower limb
Q72.21	Congenital absence of both lower leg and foot, right lower limb
Q72.22	Congenital absence of both lower leg and foot, left lower limb
Q72.23	Congenital absence of both lower leg and foot, bilateral
S88.111A	Complete traumatic amputation at level between knee and ankle, right lower leg, initial

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ICD-10-CM Diagnosis Code	Description
	encounter
S88.112A	Complete traumatic amputation at level between knee and ankle, left lower leg, initial encounter
S88.119A	Complete traumatic amputation at level between knee and ankle, unspecified lower leg, initial encounter
S88.121A	Partial traumatic amputation at level between knee and ankle, right lower leg, initial encounter
S88.122A	Partial traumatic amputation at level between knee and ankle, left lower leg, initial encounter
S88.129A	Partial traumatic amputation at level between knee and ankle, unspecified lower leg, initial encounter
Z89.611	Acquired absence of right leg above knee
Z89.612	Acquired absence of left leg above knee
Z89.619	Acquired absence of unspecified leg above knee

IX. REFERENCES

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MP 2.019	CAC 5/25/04
	CAC 10/26/04
	CAC 10/25/05
	CAC 9/26/06
	CAC 7/31/07
	CAC 7/29/08
	CAC 5/26/09
	CAC 1/26/10 Added medical necessity indication for one post-operative surgical gait analysis for patients with cerebral palsy who have gait disorders requiring surgical correction. References updated.
	CAC 4/26/11 Minor revision. Policy revised to now refer to “comprehensive” gait analysis. Investigational statements were further clarified to include: surgical planning for conditions other than gait disorders associated with cerebral palsy and postoperative evaluation of surgical outcomes and rehabilitation planning and/or evaluation for conditions other than replacement of microprocessor knee prosthesis.
	CAC 8/28/12 Adopt BCBSA. Title changed to Gait Analysis. Limitation to one evaluation removed. Information related to gait analysis to evaluate prosthesis replacement with a mechanical microprocessor knee criteria retained in the policy. FEP variation added. Code review 8/17/12
	CAC 7/30/13 Consensus review. References updated, but no changes to the policy statements. Admin code review complete.
	CAC 3/25/14 Consensus review. References updated, but no changes to the policy statements. Rationale added.
	CAC 3/24/15 Consensus review. References and rationale updated. No change to policy statements. Codes unranked.
	CAC 3/29/16 Consensus review. No change to policy statements. References and rationale reviewed. FEP archived MP 2.01.03- replaced with standard variation. Coding reviewed.
	Admin Update 11/9/16 – Variation Reformatting
CAC 1/31/17 Consensus review. No change to policy statements. References and rationale reviewed. Coding reviewed.	
12/7/17 Consensus review. Policy statements unchanged. Description/Background, Rationale and Reference sections updated.	
9/1/18 Coding reviewed and updated.	
10/31/18 Consensus. No change to policy statements.	

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