

Microprocessor Controlled Prosthetic Knee*

Medical Policy: 01.01.07

Original Effective Date: August 2002

Reviewed: January 2008

Revised: October 2006

This policy applies to all products unless specific contract limitations, exclusions or exceptions apply. Please refer to the member's coverage manual for benefit availability. Managed care guidelines related to referral authorization, and precertification of inpatient hospitalization, home health, home infusion and hospice services apply.

Description:

Pneumatic and hydraulic prosthetic knee joints enable the trans-femoral amputee to demonstrate a comfortable gait and a wide range of walking speeds. By adding a microprocessor to the pneumatic and hydraulic prosthesis, the amputee's walking style may be improved. Microprocessor controlled knee-shin prosthesis devices (e.g. C-Leg® and Intelligent Prosthesis) electronically controls the prosthesis through the stance and the swing phase, allowing increased safety and speed on even and uneven surfaces, as well as on stairs. The microprocessor control of this prosthesis is based on scientific gait analysis and biomechanical studies that detect step time and alter knee extension level to suit walking speed. Some more advanced models, such as the Otto-Bock C-Leg®, have multiple sensors that gather and calculate data on various parameters such as the amount of vertical load, ankle movement, and knee joint movement in an attempt to mimic more natural leg function to provide stability and gait fluidity as needed on uneven terrains and/or during sports activities.

A microprocessor-controlled knee may be considered in amputees who demonstrate a need for long distance ambulation at variable rates (use of the limb in the home or for basic community ambulation is not sufficient to justify provision of the computerized limb over standard limb applications) or demonstrate need for regular ambulation on uneven terrain or for regular use on stairs (use of the limb for limited stair climbing in the home or employment environment is not sufficient evidence for prescription of this device over stand prosthetic application).

Policy:

Prior approval is recommended for the microprocessor controlled prosthetic knees, which may be considered medically necessary when all the criteria listed in

either section one or section two are met:

1. For patients who are successfully utilizing a hydraulic or pneumatic swing and stance control knee prosthesis;

- The patient should not have any major cardiovascular, musculoskeletal or neuromuscular problems
- A gait analysis must be performed by an independent orthopaedic gait lab facility using the patient's existing hydraulic or pneumatic swing and stance control knee prosthesis
- The patient's gait analysis must demonstrate potential for improved gait efficiency as stated in our Medical Policy on Gait Analysis (Policy 02.01.10). **Note:** If a patient who **has not** met the manufacturer's specifications is referred to a gait lab for analysis, the gait lab charges will be the responsibility of the referring provider.
- The microprocessor must meet orthotics and prosthetics guidelines
- The patient must meet the manufacturer's specifications and limitations for a microprocessor-controlled system and must be fitted by a prosthetist certified by the manufacturer
- Second opinion is required for the early replacement of the prosthesis.

2. For patients who have recently undergone an amputation;

- The patient should not have any major cardiovascular, musculoskeletal or neuromuscular problems
- The microprocessor must meet orthotics and prosthetics guidelines
- The patient must meet the manufacturer's specifications and limitations for a microprocessor-controlled system and must be fitted by a prosthetist certified by the manufacturer
- Second opinion is required for the early replacement of the prosthesis

The use of the microprocessor controlled prosthetic knee is considered investigational if the criteria listed above, either in section one or section two are not met.

Prior approval is recommended. [Submit a prior approval now.](#)

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Procedure Codes and Billing Guidelines:

- To report provider services, use appropriate CPT** codes, Alpha Numeric

- (HCPCS level 2) codes, Revenue codes, and/or ICD-9 diagnostic codes
- Use HCPCS codes L5856, L5857 and L5858 as appropriate.

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Selected References:

- Datta D, Howitt J. **Conventional versus microchip controlled pneumatic swing phase control for trans-femoral amputees: user's verdict.** *Prosthetics and orthotics International* 1998; 22:129-135.
- VA Technology Assessment Program, Short Report- **Computerized Lower Limb Prostheses.** March 2000, Number 2.
- State of Washington, Department of Labor and Industries, Office of the Medical Directory Technology Assessment. **Microprocessor-Controlled Prosthetic Knees.** Rev August 2002
- Stinus H **Biomechanics and evaluation of the microprocessor-controlled C-Leg exoprosthesis knee joint.** *Z Orthop Ihre Grenzgeb.* 2000 May-Jun;138(3):278-82. (Abstract viewed on Pub Med)
- Wetz HH, Hafkemeyer U, Drerup B. **The influence of the C-leg knee-shin system from the Otto Bock Company in the care of above-knee amputees A clinical-biomechanical study to define indications.** *Orthopade.* 2005 Apr;34(4):298-319
- Wellmark Prosthetics and Orthotics guidelines can be found at <http://www.wellmark.com/products/providers/publications/HME.pdf>

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New information or technology that would be relevant for Wellmark to consider when this policy is next reviewed may be submitted to:

Wellmark Blue Cross and Blue Shield
Medical Policy Analyst
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Des Moines, IA 50309

*Prior Approval is recommended for this policy.

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