Myo-electric/Microprocessor Controlled Upper & Lower Prostheses

Origination: 04/15/10	**Revised:** 7/22/20	**Annual Review:** 11/12/24
Line of Business: Commercial Only ☐ QHP/Exchange Only ☐ Medicare Only ☐ Commercial & QHP/Exchange ☐ Commercial, QHP/Exchange, & Medicare ☒		

Purpose:

To provide Myo-electric/Microprocessor Controlled Upper & Lower Prostheses guidelines for Population Health and Provider Alliances associates to reference when making benefit determinations.

Coverage Guidelines

- Some benefit plans may specifically exclude or limit coverage for certain prosthetic devices. Replacement and/or repair may be limited in some benefit plans. Under some benefit plans, coverage is limited to the lowest-cost alternative.

If coverage for a myo-electric prosthetic device is available, the following conditions of coverage apply:

A.) For leg prosthesis (i.e., Otto Bock C-Leg; Intelligent Prosthesis or Ossur Rheo Knee), ALL of the following conditions must be met:

1.) Member must be otherwise healthy, active, ambulating adult, 18 year of age or older with sufficient amount of cognitive ability to utilize a microprocessor-controlled device.
2.) Functional level 3 or greater (Has the ability or potential for ambulation with variable cadence. Typical of the community ambulator which has the ability to traverse most environmental barriers and may have vocational, therapeutic, or exercise activity that demands prosthetic utilization beyond simple locomotion).
3.) Amputation is a trans-femoral type due to a non-vascular cause (trauma or tumor).
4.) A standard body powered prosthesis cannot be used or is insufficient to meet the functional needs in performing activities of daily living.
5.) Member has either a documented need for daily long distance ambulation (i.e., greater than 400 yards) at variable rates. (Use within the home or for basic community ambulation is not sufficient to justify a microprocessor-controlled device.) OR Member has a documented need for regular ambulation on uneven terrain or regular use on stairs. (Use for limited stair climbing in the home or place of employment is not sufficient to justify a microprocessor-controlled device.).

B.) For hand prosthesis, ALL of the following conditions must be met:

1.) Member must be otherwise healthy, active, adult, 18 year of age or older with sufficient amount of cognitive ability to utilize a microprocessor-controlled device.
2.) A standard body powered prosthesis cannot be used or is insufficient to meet the functional needs in performing activities of daily living.
3.) Amputation was due to trauma, or there is congenital absence of forearm and/or hand.
4.) The remaining musculature of the arm contains the minimum microvolt threshold to allow operation of a myo-electric prosthetic device.
5.) The Member does not function in an environment that would inhibit function of the prosthesis (i.e., a wet environment or situation involving electrical discharges that would affect the device).

Exclusion Criteria

- Power enhancements and/or power controls and microprocessor-controlled/computer-controlled devices, including myo-electric devices, are specifically excluded, and are not covered under some benefit plans.
- For ankle-foot prosthesis (i.e., Proprio Foot): Considered investigational and experimental.
- All other indications for leg and/or hand prostheses are considered investigational and are not covered.

References:

1. Chin T, Machida K, Sawamura S, et al. Comparison of different microprocessor-controlled knee joints on the energy consumption during walking in trans-femoral amputees: intelligent knee prosthesis (IP) versus C-leg. Prosthet Orthot Int. 2006; 30(1):73-80.
2. Datta D, Heller B, Howitt J. A comparative evaluation of oxygen consumption and gait pattern in amputees using Intelligent Prostheses and conventionally damped knee swing- phase control. Clin Rehabil. 2005; 19(4):398-403.
3. Hafner BJ, Willingham LL, Buell NC, et al. Evaluation of function, performance, and preference as transfemoral amputees transition from mechanical to microprocessor control of the prosthetic knee. Arch Phys Med Rehabil. 2007; 88(2):207-217.
4. Kahle JT, Highsmith MJ, Hubbard SL. Comparison of nonmicroprocessor knee mechanism versus C-Leg on Prosthesis Evaluation Questionnaire, stumbles, falls, walking tests, stair descent, and knee preference. JRRD. 2008; 45(1):1-14.
5. Kaufman KR, Levine JA, Brey RH, et al. Gait and balance of transfemoral amputees using passive mechanical and microprocessor-controlled prosthetic knees. Gait Posture. 2007; 26(4):489-493.

6. Seymour R, Engbretson B, Kott K, et al. Comparison between the C-leg microprocessor-controlled prosthetic knee and non-microprocessor control prosthetic knees: a preliminary study of energy expenditure, obstacle course performance, and quality of life survey. Prosthet Orthot Int. 2007; 31(1):51-61.
7. U.S. Department of Veteran's Affairs Technology Assessment Program. Short Report - Computerized lower limb prostheses.
8. U.S. Department of Veteran's Affairs. VHA Prosthetic and Sensory Aids Service Strategic Healthcare Group's Prescribing Guidelines for Computerized Lower Extremity Prosthesis.
9. Washington State Department of Labor and Industries, Office of the Medical Director. Microprocessor-controlled prosthetic knees. Technology Assessment.
10. Workers' Compensation Board of British Columbia, Evidence Based Practice Group. A Review of Microprocessor-Controlled Knee Prostheses.
11.

Disclaimer Information:

Coverage Issues Guidelines and Medical Technology Assessment Recommendations are developed to determine coverage for AvMed's benefits and are published to provide a better understanding of the basis upon which coverage decisions are made. AvMed makes coverage decisions using these guidelines, along with the Member's benefit document. The use of this guideline is neither a guarantee of payment nor a final prediction of how specific claim(s) will be adjudicated.

Coverage Issues Guidelines and Medical Technology Assessment Recommendations are developed for selected therapeutic or diagnostic services found to be safe, but proven effective in a limited, defined population of patients or clinical circumstances. They include concise clinical coverage criteria based on current literature review, consultation with practicing physicians in the AvMed service area who are medical experts in the particular field, FDA and other government agency policies, and standards adopted by national accreditation organizations.

Treating providers are solely responsible for the medical advice and treatment of Members. This guideline may be updated and therefore is subject to change.