Myoelectric Prosthetic Components for the Upper Limb

Policy REIMB-027

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Disclaimer:

1. Policies are subject to change in accordance with State and Federal notice requirements.
2. Policies outline coverage determinations for U of U Health Plans Commercial, CHIP and Healthy U (Medicaid) plans. Refer to the "Policy" section for more information.
3. Services requiring prior-authorization may not be covered, if prior-authorization is not obtained.
4. This Medical Policy does not guarantee coverage or payment of the service. The service must be a benefit in the member's plan and the member must be eligible for coverage at the time of service. Additional payment guidelines may be applied that are not included in this policy.
5. Provisions and terms of the provider contract may supersede this policy.

Description:

Myoelectric prosthetic components are electrically powered prostheses designed to restore function to individuals with upper limb loss or deficiency. Compared to traditional body-powered prosthetic devices, myoelectric devices utilize muscle signals from the residual limb to control the movement of the prosthesis. Myoelectric devices allow for more natural and intuitive movement, reducing the physical strain on the residual limb and the contralateral upper limb. Studies have demonstrated that individuals meeting the prosthesis selection criteria experience significant benefits in daily activities, social participation, and independence; therefore increasing the quality of life.

Myoelectric prostheses require cognitive, physiological, and functional capabilities to ensure successful use.

Despite these advantages, proper patient selection is essential, ensuring that the prosthetic device is both necessary and beneficial for their daily activities. Research supports coverage for patients who demonstrate medical necessity and functional benefit from the device

Policy Statement and Criteria

1. Commercial Plans/CHIP

U of U Health Plans covers myoelectric prosthetic components* for the upper limb in limited circumstances when ALL of the following criteria are met:

A. The patient must have an amputation or congenital absence of the upper limb at the wrist or above.
B. Standard body-powered prosthetic devices are deemed unsuitable due to functional limitations or inability to operate them effectively.
C. The patient must demonstrate sufficient physiological, neurological, and cognitive ability to operate the myoelectric prosthesis effectively.
D. The patient must retain sufficient microvolt threshold in the residual limb to control the myoelectric prosthesis.
E. The patient must be free of comorbidities (e.g., significant contractures) that would interfere with the use of the myoelectric prosthesis.
F. A documented trial period with the device (when applicable) must demonstrate functional improvement and benefit.

U of U Health Plans coverage determination for replacement is made according to the average life (it cannot be less than three years) of the product as established by the manufacturer. Replacement of lost or stolen equipment and repairs (instead of replacement) of purchased equipment are covered at the discretion of the Plan. DME can be replaced in cases of loss or irreparable damage (i.e., specific accident or a natural disaster).

Requests for replacement DME items are covered when:

A. The request is due to normal wear and tear. Replacement due to wear is not covered during the reasonable useful lifetime of the equipment; OR
B. The ordering physician determines that the replacement device, or replacement part of such a device, is necessary due to any of the following:
    i. A change in the member's condition; OR
    ii. An irreparable change in the condition of the device, or in a part of the device; OR
    iii. The condition of the device, or the part of the device, requires repairs and the cost of such repairs would be more than 60 percent of the cost of a replacement device, or, as the case may be, of the part being replaced.

U of U Health Plans does NOT cover myoelectric prosthetic components in the following situations:

A. The patient does not meet the above functional and medical necessity criteria.
B. Body-powered prosthetic devices are determined to be sufficient for the patient's functional needs.

C. Use of the prosthesis is solely for cosmetic purposes.

D. The prosthesis is being requested as a secondary or duplicate device (except in cases where a backup device is deemed medically necessary).

E. Multigrip prosthetic devices.

F. LUKE arm® (sensor and myoelectric components).

2. Medicaid Plans

Coverage is determined by the State of Utah Medicaid program; if Utah State Medicaid has no published coverage position and InterQual criteria are not available, the U of U Health Plans Commercial criteria will apply. For the most up-to-date Medicaid policies and coverage, please visit their website at: https://medicaid.utah.gov/utah-medicaid-official-publications/ or the Utah Medicaid code Look-Up tool

CPT/HCPCS codes covered by Utah State Medicaid may still require further evaluation to determine medical necessity for coverage.

Clinical Rationale

The literature on myoelectric upper-limb prostheses mainly focuses on patient acceptance and rejection, with limited information on function and functional status.

Touillett (2023) conducted a randomized, controlled, cross-over trial to evaluate shoulder abduction and manual dexterity in transradial amputees (N = 8) fitted with two myoelectric prosthetic hooks, the Greifer and the Axon-Hook. It included comparisons with the non-affected (NA) side. Significantly higher shoulder abduction was noted with the Greifer (60.9 ± 20.3, p = 0.03) compared to the Axon-Hook (39.8 ± 16.9) and the NA side (37.6 ± 19.4, p = 0.02). There was no difference between devices and the NA side in the proportion of time spent with shoulder abduction > 60. A significant negative correlation was found between shoulder abduction and wrist position with the Axon-Hook only ($r = -0.86$; $p < 0.01$). There was no significant difference in manual dexterity and satisfaction between the two devices.

In comparative studies, subjects acted as their own control, using both myoelectric and body-powered prostheses in randomized order. Two trials involving 196 children using both types of prostheses for three months each found no clinically relevant differences.

A 2015 systematic review (SR) by Carey, analyzing 31 studies, found conflicting evidence regarding functional performance between myoelectric and body-powered prostheses, concluding that there is insufficient evidence to show a significant advantage of one system over the other.

A 2007 SR by Biddis, which assessed upper limb prosthesis acceptance and abandonment over 25 years, reported mean rejection rates of 39% for passive, 26% for body-powered, and 23% for myoelectric prostheses. Body-powered hooks were generally acceptable, but body-powered hands had high rejection rates (80%-87%) due to issues such as slowness, awkward use, maintenance, weight, grip strength, and energy required. Rejection rates for myoelectric prostheses increased with longer follow-up, with no change in rejection rates over 25 years, limited by sampling bias and poor study quality.

Small non-randomized case series and surveys found limited evidence on whether myoelectric prostheses improve function and health-related quality of life. Myoelectric components may improve range of motion to some extent, have similar capability for light work, but reduced performance under

heavy working conditions. Acceptance rates for myoelectric and body-powered prostheses were similar, with self-selected use depending on daily activities. Appearance was frequently cited as an advantage of myoelectric prostheses.

Hayes conducted a health Technology assessment on the LUKE Arm (Mobius Bionics LLC) for Upper Extremity Amputation in 2021 (latest review Dec 2024). They found insufficient published evidence to assess the safety and/or impact on health outcomes or patient management (D2). In their annual review in December 2024, there was no change in their rating and the authors concluded that "A very low quality body of evidence suggests that the LUKE arm (referred to as DEKA arm in all eligible studies) appears safe and may allow some patients to perform certain, but not all, activities of daily living (ADLs) with less difficulty than their existing upper extremity prosthesis. However, the very low quality body of evidence is insufficient to draw conclusions regarding the efficacy and safety of the LUKE arm. The limited evidence does not suggest consistent improvement on measures of function or performance with the LUKE arm compared with existing prostheses or between control systems, and lacks adequate follow-up to compensate for the potential patient learning curve associated with the new prosthesis. Additionally, features of the LUKE arm, including weight, appearance, and need for frequent repair, may deter some patients from its use. Better quality studies with larger sample sizes that directly compare the LUKE arm with an existing prosthesis over an extended period are needed".

Applicable Coding

CPT Codes

No applicable codes

HCPCS Codes

L6715	Terminal device, multiple articulating digit, includes motor(s), initial issue or replacement
L6881	Automatic grasp feature, addition to upper limb electric prosthetic terminal device
L6882	Microprocessor control feature, addition to upper limb prosthetic terminal device
L6895	Addition to upper extremity prosthesis, glove for terminal device, any material, custom fabricated
L6925	Wrist disarticulation, external power, self-suspended inner socket, removable forearm shell, Otto Bock or equal electrodes, cables, 2 batteries and one charger, myoelectronic control of terminal device
L6935	Below elbow, external power, self-suspended inner socket, removable forearm shell, Otto Bock or equal electrodes, cables, two batteries and one charger, myoelectronic control of terminal device
L6945	Elbow disarticulation, external power, molded inner socket, removable humeral shell, outside locking hinges, forearm, Otto Bock or equal electrodes, cables, two batteries and one charger, myoelectronic control of terminal device

L6955 Above elbow, external power, molded inner socket, removable humeral shell, internal locking elbow, forearm, Otto Bock or equal electrodes, cables, two batteries and one charger, myoelectronic control of terminal device

L6965 Shoulder disarticulation, external power, molded inner socket, removable shoulder shell, shoulder bulkhead, humeral section, mechanical elbow, forearm, Otto Bock or equal electrodes, cables, two batteries and one charger, myoelectronic control of terminal device

L6975 Interscapular-thoracic, external power, molded inner socket, removable shoulder shell, shoulder bulkhead, humeral section, mechanical elbow, forearm, Otto Bock or equal electrodes, cables, two batteries and one charger, myoelectronic control of terminal device

L7007 Electric hand, switch or myoelectric controlled, adult

L7008 Electric hand, switch or myoelectric, controlled, pediatric

L7009 Electric hook, switch or myoelectric controlled, adult

L7045 Electric hook, switch or myoelectric controlled, pediatric

L7180 Electronic elbow, microprocessor sequential control of elbow and terminal device

L7181 Electronic elbow, microprocessor simultaneous control of elbow and terminal device

L7190 Electronic elbow, adolescent, Variety Village or equal, myoelectronically controlled

L7091 Electronic elbow, child, Variety Village or equal, myoelectronically controlled

L7259 Electronic wrist rotator, any type

L7510 Repair of prosthetic device, repair or replace minor parts

L7520 Repair prosthetic device, labor component, per 15 minutes

ICD-10 Codes

Q71.30 Congenital absence of unspecified hand and finger

Z89.011 Acquired absence of right thumb

Z89.012 Acquired absence of left thumb

Z89.111 Acquired absence of right hand

Z89.112 Acquired absence of left hand

Not Covered - Investigational

L6026 Transcarpal/metacarpal or partial hand disarticulation prosthesis, external power, self-suspended, inner socket with removable forearm section, electrodes and cables, two batteries, charger, myoelectric control of terminal device,

excludes terminal device(s) **(Prosthetic whole hand attachment with mechanical fingers (that uses full or partial myoelectric power)**

L6880 Electric hand, switch or myoelectric controlled, independently articulating digits, any grasp pattern or combination of grasp patterns, includes motor(s) **(Myoelectric partial hand prosthesis [e.g., i-limb digits, ProDigits, i-Digits, Vincent partial hand, Vincent finger, and others])**

L7499 Upper extremity prosthesis, not otherwise specified **(Advanced upper-limb prosthetic components with both sensor and myoelectric controls [e.g., the LUKE arm])**

L7600 Prosthetic donning sleeve, any material, each

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