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*If Veterans don't help Veterans, who will?*

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### LONG-TERM CARE FOLLOWING TRAUMATIC AMPUTATION

The Veterans Health Administration (VHA) has long recognized that the Veteran with a traumatic amputation epitomizes the sacrifices of military service made on our Nation’s behalf. Formal recognition of Veterans with amputations as a special population has been accomplished through both the Veterans Medical Programs Amendments of 1992 and the Veterans Health Care Eligibility Act of 1996. VHA remains fully committed to providing optimal care and cutting-edge prosthetic technology to this Veteran population.

#### OVERVIEW

Veterans with traumatic amputations represent a population with wide-ranging medical needs.

These medical needs can include issues directly related to the amputation itself, issues related to traumatic injury of other body parts, as well as more long-term secondary complications.

Some of these issues are more prevalent and significant in the early recovery period following the traumatic event whereas others develop later and have the potential for progressive worsening over time.

Individuals with trauma-related amputations typically sustain their injuries at a relatively young age and have a long life expectancy, emphasizing the need for longitudinal care considerations.

#### VA AMPUTATION SYSTEM OF CARE (ASoC)

The wide-ranging and longitudinal medical care considerations were one of the driving forces behind implementation of VHA’s Amputation System of Care (ASoC). VHA developed the ASoC in partnership with the VHA Polytrauma System of Care to assure that Veterans with both traumatic amputation and polytrauma can be provided comprehensive and coordinated services.

The Veterans Health Administration Amputation System of Care (ASoC) is an integrated health care delivery system that provides patient-centered, lifelong, holistic care and care coordination for Veterans and Servicemembers with amputations.



The ASoC provides care for over 30,000 Veterans with extremity amputations including those with amputations secondary to combat and other types of traumatic injuries.

VHA Outpatient Amputation Clinics provide interdisciplinary and comprehensive services to meet the complex needs of the Veteran with a traumatic amputation.

Amputation Clinic providers have specialized training and are responsible for ensuring that all medical, rehabilitation, and prosthetic needs of the Veteran with a traumatic amputation are met.





# AMPUTATION SYSTEM OF CARE

## Traumatic Amputation

### AMPUTATION SPECIFIC CONSIDERATIONS

#### Residual Limb Care

Following amputation, the residual limb undergoes a number of changes over time, which have the potential to result in secondary complications and result in a limited ability to wear a prosthesis for functional activities including:

- Soft tissue and muscle atrophy
- Skin irritation and breakdown
- Joint contracture
- Infection (soft tissue and bone)
- Proximal Osteoarthritis / musculoskeletal complications
- Heterotopic Ossification
- Osteopenia and Osteoporosis

#### Pain Management

Pain may require longitudinal management following traumatic amputation. Pain following amputation can generally be classified as residual limb pain or phantom limb pain. Residual limb pain typically improves following amputation surgery, but can be persistent and associated with prosthetic use.

Phantom limb pain (pain that is perceived in the part of the body that is missing) can be chronic and severe enough to interfere with prosthetic use and function.

### OTHER TRAUMATIC INJURY CONSIDERATIONS

Amputations related to combat and other trauma are commonly associated with moderate to severe injury severity scores and multiple other co-morbid injuries.

These other injuries frequently require long-term management and care. It is important to appreciate how commonly these associated injuries occur, and the potential impact of these injuries on outcomes such as functional independence, satisfaction, and quality of life.

Frequently associated injuries include:

- Traumatic Brain Injury (TBI)
- Fractures and other musculoskeletal injuries
- Soft tissue injuries and burns
- Peripheral nerve injuries
- Abdominal injuries
- Hearing loss and Tinnitus
- Vision impairment or loss
- Genitourinary injuries (common with dismounted blast explosions)
- Mental Health conditions such as PTSD, Depression, and Adjustment Disorder

### SECONDARY COMPLICATIONS

Amputation of one or more limbs has a longitudinal impact on many areas outside of the residual limb itself. The 2 areas most commonly affected are the musculoskeletal and the cardiovascular systems. Many of the considerations in these areas gradually progress or worsen over time whereas other conditions may be more intermittent.

These conditions highlight the importance of comprehensive prevention strategies including proper nutrition, exercise, tobacco cessation, and wellness counseling for individuals with amputations. Wellness promotion and preventive measures should be part of one's lifestyle. Medical monitoring and education should be routine in amputation clinics and rehabilitation services.

#### Musculoskeletal Considerations

Longitudinal considerations for musculoskeletal conditions include:

- Osteoarthritis in the non-amputated extremity
- Overuse Syndromes – remaining extremities and proximal joints
- Delayed amputation after initial limb salvage
- Low Back Pain





# AMPUTATION SYSTEM OF CARE

## Traumatic Amputation

### Weight Gain/Obesity

Decreased activity levels and metabolic changes can result in weight gain and obesity. This weight gain can lead to a vicious cycle where weight gain makes prosthetic fitting and use more difficult, thus resulting in even greater declines in activity.

### Cardiovascular Disease

The aging amputee population has significantly worse cardiovascular and metabolic issues that appear to be directly related to their traumatic amputation and not accounted for by obesity, sedentary lifestyle, or tobacco use. Persons with traumatic amputations have been identified as having increased hypertension, ischemic heart disease, and diabetes mellitus. Lower extremity amputees should be monitored for aortic aneurysms; occurring at a reported rate of 6% versus 1% in the non-amputee population.

### Prostheses/Orthoses/Equipment

Individuals with traumatic amputations have lifetime needs in the area of prostheses, orthoses, and equipment. These needs include the following areas:

#### Artificial Limbs

- Initial prosthetic prescription, fabrication, and fitting
- Routine repairs and replacement

- Need for new prostheses as needs and functional abilities change
- Need for new prostheses as new technology becomes available

#### Mobility Assistive Devices

- Standard devices such as crutches, canes, and walkers
- Wheelchairs: Manual and/or Power

#### Durable Medical Equipment

- Bath benches, shower chairs, grab bars, hand-held showers

#### Rehabilitation Therapy Services

Veterans with traumatic amputation generally require physical therapy services for initial prosthesis and gait training.

Individuals may also need additional courses of therapy over time if there is a change in medical status, a desire to learn new skills, or if a new prosthesis with advanced technology is prescribed.

Occupational Therapy (OT) is recommended for improving independence in activities of daily living and upper extremity amputation prosthetic training.

Individuals with traumatic amputations are commonly interested in maintaining an active lifestyle.

Recreational Therapy services can assist these individuals to achieve

their recreation, leisure, and adaptive sports goals.

Vocational Rehabilitation provides the support and resources for these individuals to return to productive and meaningful careers.

#### Amputation Clinic Services

Veterans with traumatic amputations are recommended to have long-term follow-up in an Amputation Clinic at least on an annual basis.

Providers in the Amputation Clinic provide care in an interdisciplinary fashion, and they work closely with both Primary Care and other Specialty Care services such as wound care and pain management to assure all the needs of the Veteran are met.

