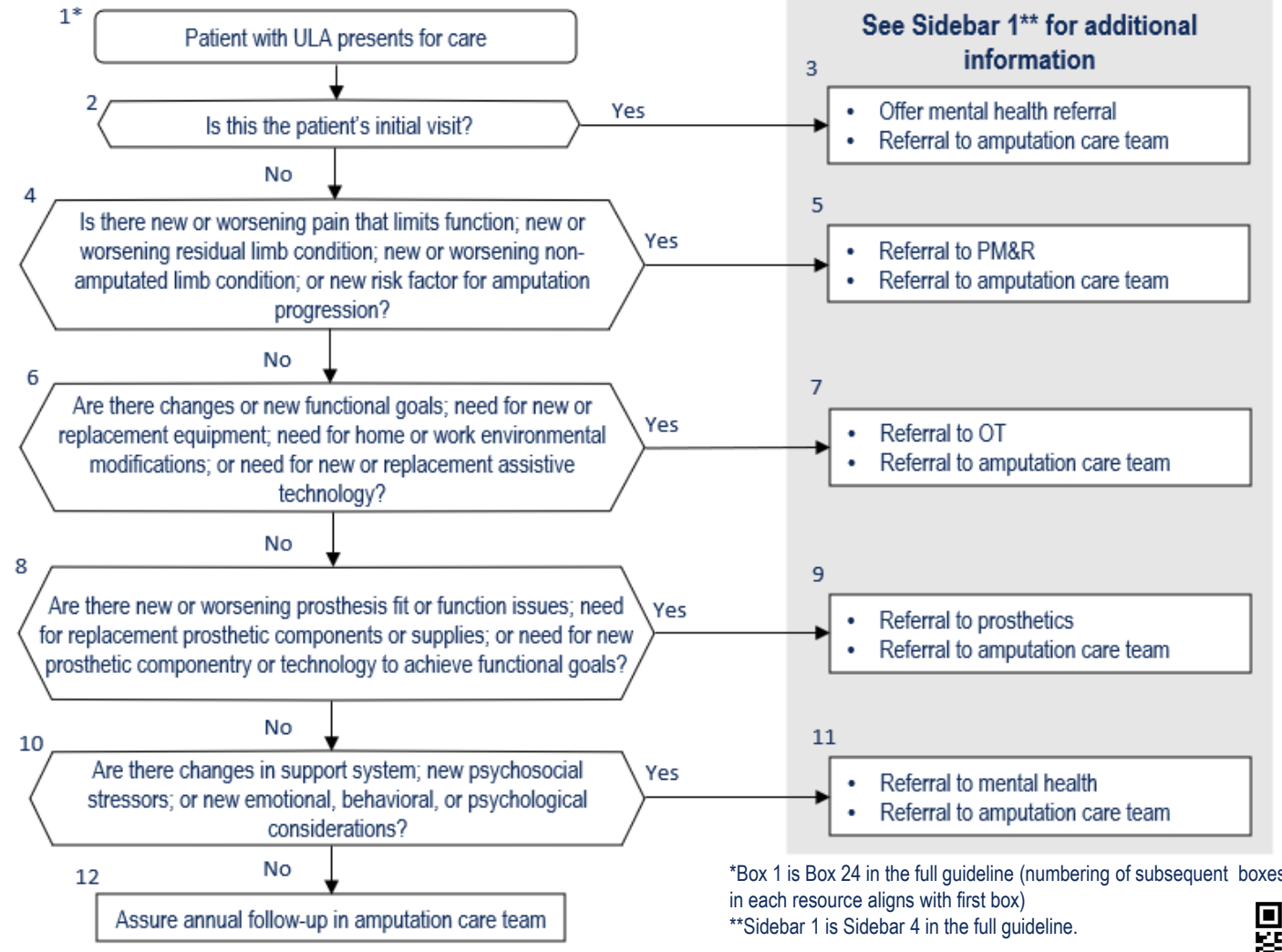
The Management of Upper Limb Amputation Rehabilitation

For Primary Care



*Box 1 is Box 24 in the full guideline (numbering of subsequent boxes in each resource aligns with first box)
**Sidebar 1 is Sidebar 4 in the full guideline.

Abbreviations: OT: occupational therapy; PM&R: physical medicine and rehabilitation; TD: terminal device; ULA: upper limb amputation; VO: voluntary opening

Access to the full guideline and additional resources is available at: https://www.healthquality.va.gov/

Sidebar 1: Amputation Care Team**

The amputation care team is an interdisciplinary team consisting of, at a minimum, a physiatrist (or prescribing clinician), therapist and prosthetist, providing assessment and treatment for amputation-related needs. Other providers who may be included are mental health, social work, nursing, wound care, surgery, vocational planning, etc. Members of the team may participate face to face or via telehealth as appropriate.

Components of the Upper Limb Prosthesis Prescription

Comprehensive prescription for an upper limb prosthesis should include:

- Design (e.g., preparatory vs. definitive)
- Control strategy (e.g., passive, externally powered, body powered, task specific)
- The anatomical side and amputation level of the prosthesis
- Type of socket interface (e.g., soft insert, elastomer liner, flexible thermoplastic)
- Type of socket frame (e.g., thermoplastic or laminated)
- Suspension mechanism (e.g., harness, suction, anatomical)
- Terminal device (TD)
- Wrist unit (if applicable)
- Elbow unit (if applicable)
- Shoulder unit (if applicable)

Signs and Symptoms the Prosthesis May Need to Be Modified

Patients who use a prosthesis should be advised to report any of the following symptoms:

- Ongoing pain in the residual limb or associated with a prosthetic harness
- Skin breakdown
- Change in the ability to don and doff the prosthesis
- Change in limb volume (weight gain or loss)
- Change in pattern of usage

	Advantages and Disadvantages of Prostheses by Type	
	Advantages	**Disadvantages**
No Prosthesis	+ Comfort (no device/harness/suspension) + Tactile sensation through the residual limb + Proprioceptive feedback available through the residual limb	– No active prehension or mechanical grasp – Limited ability to do bimanual tasks – Increased potential for overuse injuries in the sound limb – Increased risk of asymmetry and back pain
Passive Prosthesis	+ Lightweight + Good cosmetic appearance + Minimal harnessing + Low maintenance + No control cables + Silicone products resist staining	– No functional grasp – Can be very expensive – Latex and PVC glove or prosthetic skin products stain easily
Body-powered Prosthesis	+ Durable and can be used in tasks or environments that could damage externally powered prosthesis (i.e., conditions involving excessive water, dust, or vibration) + Secondary proprioceptive feedback + Lower maintenance costs than electric options + Preferred for heavy duty jobs or activities + Less training required + Can be used with an activity specific TD	– Harnessing over shoulder is required – Less grip force with VO TD compared with electric options – Appearance of hook and cables
Hybrid Prosthesis	+ Simultaneous control of elbow and TD or wrist + Lighter than fully electric elbow prosthesis + Increased grip force compared with VO body-powered options + Advantage of electric TD and wrist operation	– Requires a harness for elbow – Susceptible to damage from moisture or excessive vibration – Requires battery maintenance
Externally Powered Prosthesis	+ Proportional or variable speed grip/rotation + Advantage of electric TD and wrist operation + Potential for a more natural/ cosmetic appearance + Potential for pattern recognition and simultaneous control + Less shoulder motion required for TD operation	– Increased training time – More complicated to control; inadvertent motions are common – Harness is required for TH level amputations – Requires battery maintenance – Typically, heavier than body-powered – Repairs are more complex – Susceptible to damage from moisture or excessive vibration – More expensive
Task-specific Prosthesis	+ TD and arm allow the capability to perform specific activities + May have minimal harnessing + Often has limited or no control cables + Durable, low maintenance + Protects primary prosthesis from damage	– No functional grip – Not appropriate for a broad range of functions – May need multiple TDs to perform different activities