DOD Outcome Measures Guidebook for Amputation Care

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Acknowledgement

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Disclaimer

The views expressed in this Guidebook are those of the author and do not necessarily reflect the official policy or position of the Defense Health Agency, Department of Defense, nor the U.S. Government.

Note: this document contains links to DOD sites that may not be accessible from non DOD sites.

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Chapter 1. Introduction

Purpose

The Extremity Trauma and Amputation Center of Excellence (EACE) developed this guidebook to describe the development of the Department of Defense (DOD) outcome measures program in amputation care. The guidebook also describes the digital platform, outcome measure psychometric profiles, clinical workflow, and available education and training that support best practices when selecting, completing, reporting, and utilizing Patient Reported Outcomes (PRO) and Performance Based Outcome (PBO) measures for individuals with amputations. Using standardized outcome measures ensures consistency throughout the Department of Defense and Defense Health Agency (DHA). Outcome utilization as described in this guidebook will improve understanding and communication among providers, provide an effective mechanism for tracking a patient's progress throughout their continuum of care, promotes consistency and compliance with Management of Upper Limb Amputation Rehabilitation (ULA) and Rehabilitation for the Individual with Lower Limb Amputation (LLA) Clinical Practice Guidelines (CPG).[1,2] The core medical specialties for this guidebook include physical therapy (PT), occupational therapy (OT), orthotists, prosthetists, adaptive sports, recreational therapy, and physical medicine and rehabilitation (PM&R) physicians. However, it can be a valuable tool for all providers, especially primary care providers who are often the gate keepers to the lifelong care required of individuals following amputation.

Background

The advancements in medical techniques and evacuation capabilities have reduced the mortality rate of Service Members with complex injuries by over 44% when compared to previous conflicts.[3] While this medical feat has saved an extraordinary number of lives, it has also challenged the multi-disciplinary teams who provide care for this complex, poly-trauma patient population. This population requires new tools and techniques to optimize patient outcomes. Outcome measures are essential to document patient progress and support clinical decision-making. The utilization of outcome measures works best when the medical teams maintain the same standards, and the results are readily accessible and understandable by everyone.

[1] Management of Upper Limb Amputation Rehabilitation (ULA) – https://www.healthquality.va.gov/guidelines/Rehab/ULA/index.asp

[2] Rehabilitation of the Individual with Lower Limb Amputation (LLA) - https://www.healthquality.va.gov/guidelines/Rehab/amp/

[3] Howard JT, Kotwal RS, Stern CA, et al. Use of Combat Casualty Care Data to Assess the US Military Trauma System During the Afghanistan and Iraq Conflicts, 2001-2017. JAMA Surg. 2019;154(7):600–608. doi:10.1001/jamasurg.2019.015

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Objectives

The objective of this guidebook is to provide a resource for clinicians to ensure standardization of outcome measures' implementation and utilization for patients with limb loss.

Clinical Assessment Management Portal (CAMP)

In 2020, and because the DOD Electronic Medical Record (EMS) (AHLTA and GENESIS) cannot digitally perform, record, calculate or track outcome measures, The National Intrepid Center of Excellence (NICoE) developed the Clinical Assessment Management Portal (CAMP) to manage traumatic brain injury (TBI). This portal has become the DHA's enterprise solution for outcomes measures.

The EACE developed the EACE Clinical Community as an automated system for managing amputation related outcome measures. Clinicians must seek access to this site. Access can be granted by going to https://carepoint.health.mil. CarePoint is a HIPAA compliant Common Access Card (CAC) enabled web portal that allows for the secure collection of clinical outcome measures to promote improved communication among DHA medical providers around the world. CAMP training and step-by-step instructions on requesting CAMP access are available at https://carepoint.health.mil/sites/TBIDocs/SitePages/CAMP_ResourceCenter.aspx.

Selection

DOD amputation care related outcome measures were selected through a deliberate process beginning with the outcome measures listed in the CPGs and surveying clinicians. Once tools were identified, EACE Clinical Affairs and the clinicians from Advanced Rehabilitation Centers (ARCs) reviewed outcome measures' original research and follow-on studies as well as gray literature such as the Bridging Advanced Developments for Exceptional Rehabilitation (BADER) draft toolbox and Shirley Ryan Ability Lab's Rehabilitation Measures Database (sralab.org), to ensure accuracy in version consensus, clinical efficacy, and psychometric appropriateness. Final selections were serially cycled back for consensus across ARC clinicians.

Outcome Measures Future Development

As a part of implementation planning, the EACE developed a comparison chart for the selected outcome measures to analyze potential gaps, redundancies, and overlaps, and led clinician focus groups on timing and frequency. The results of the analysis reflected that the outcome measures should be used in combination to capture the most holistic picture possible of the patient, while recognizing individual patient presentation. While there is some overlap across outcome measures, there is not so much that outcome measures could be deleted or one outcome that could supersede others. See Appendix I for the summary table.

Further development is needed to determine which outcome measures can or should be grouped together, at what timing and frequency, to achieve the most holistic, actionable, and meaningful assessment of patient status, progress and potential. See Chapter 4 for further discussion on grouping, timing, and frequency.

EACE Clinical Community Outcome Measures

EACE Clinical Community Outcome Measure tools are currently available in the CAMP on:

- CarePoint website (https://carepoint.health.mil/sites/TBIDocs/SitePages/ARC_Docs.aspx)

Training videos for each tool are in development. Those completed are available on:

- ARCs Resource Page website (https://carepoint.health.mil/sites/TBIDocs/SitePages/ARC_Docs.aspx). References are included in the appendices and respective training videos.

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Chapter 2. EACE Clinical Community Outcome Measures

The following outcome measures are those included in the CAMP based EACE Clinical Community as of Calendar Year 2023. EACE clinical staff will continue to make quarterly updates to this guidebook as new outcome measures are added, modified, or deleted:

Performance Based Outcome Measures (PBOMs)

I. Lower Limb

A. **Amputee Mobility Predictor with Prosthesis** (**AMPPRO**) - Assesses the mobility of people with lower limb amputation and predicts function following prosthetic prescription. The AMPPRO was designed to assess the specific tasks identified in the 5-level Medicare functional classification system (MFCL), (K0, K1, K2, K3, and K4). (Amputee Mobility Predictor – Shirley Ryan)

B. **Amputee Mobility Predictor without Prosthesis (AMPnoPRO**) - Assesses the mobility of people with lower limb amputation prior to prosthetic fitting and predicts function following prosthetic prescription. The AMPnoPRO was also designed to assess the specific tasks identified in the 5-level Medicare functional classification system (MFCL), (K0, K1, K2, K3, and K4). (Amputee Mobility Predictor | RehabMeasures Database (sralab.org)

C. **Bilateral Amputee Mobility Predictor (BAMP)** - AMPPRO performed by the bilateral amputee. (Bilateral Amputee Mobility Predictor)

D. **Component Timed Up and Go (cTUG)** – Measures performing basic mobility tasks, including transfers, walking, and turns, while wearing their prosthesis. (Component Timed Up and Go (cTUG)

E. **L-Test** - Measures physical function, including dynamic balance ability in patients with a lower-limb amputation who are using a prosthesis. Test designed to overcome ceiling effect of the Timed Up and Go Test (TUG). (The L Test)

F. **Two Minute Walk Test (2MWT)** - Measures mobility assessing walking distance over two minutes. (2 Minute Walk Test | RehabMeasures Database (sralab.org))

G. **Six Minute Walk Test (6MWT)** – Assesses distance walked over six minutes as a sub-maximal test of function. (6 Minute Walk Test | RehabMeasures Database (sralab.org)

H. **Four Square Step Test (FSST)** - Measures dynamic stability and the ability of the subject to step over low objects forward, laterally, and backward. (Four Square Step Test | RehabMeasures Database (sralab.org)

I. **Timed Star Ascent (TSA)** – Functional assessment of stair negotiation. (Timed Stair Ascent)

J. **Comprehensive High Activity Mobility Predictor (CHAMP**) - Measures ability to generate lower limb power, speed, agility, and coordination with fast, explosive movements, including directional changes in singular and multiple planes. For people with limb loss, the test measures prosthetic competency. (Comprehensive High Activity Mobility Predictor)
K. **Stair Assessment Index (SAI**) - Evaluates ramp and stair gait. (SAI)
L. **Hill Assessment Index (HAI)** - Quantifies ramp gait quality. (HAI)
M. **Five Times Sit to Stand Test (5xSTS)** - Assesses functional lower extremity strength, transitional movements, and balance. (Five Times Sit to Stand Test | RehabMeasures Database (sralab.org)

II. Upper Limb

A. **Box and Blocks Test (BBT)** - Measures unilateral gross manual dexterity. (Box and Block Test | RehabMeasures Database (sralab.org)
B. **Jebsen-Taylor Hand Function Test (JHFT)** - Evaluation of fine and gross motor hand function using simulated activities of daily living. (Jebsen Hand Function Test | RehabMeasures Database (sralab.org)
C. **University of New Brunswick (UNB) Test of Prosthetic Function** – Measures spontaneity and activities of daily living which can be used to determine an amputee's level of function and progress using their prosthesis. (University of New Brunswick Test of Prosthetic Function)
D. **Assessment of Capacity for Myoelectric Control (ACMC) version 2.0** - Measures the ability to use myoelectric prosthetic hand in bimanual activities. This assessment requires formal certification training (in development). Identified for use by Occupational Therapy. (Assessment of Capacity for Myoelectric Control version 2.0)

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Patient Reported Outcome Measures (PROMs)

A. **Patient Reported Outcomes Measurement Information System 29 (PROMIS-29)** – Assesses pain intensity using a single 0-10 numeric rating addressing seven health domains (physical, fatigue, pain interference, depressive symptoms, anxiety, ability to participate in social roles and activities, and sleep disturbance). Identified for use by Physical Medicine and Rehabilitation. (PROMIS – Ability to Participate in Social Roles and Activities | RehabMeasures Database (sralab.org)) https://www.sralab.org/rehabilitation-measures/promis-ability-participate-social-roles-and-activities
B. **Patient Specific Functional Screen (PSFS)** – This assessment is completed with the therapist in which the patient identifies and rates their ability to complete up to three important activities they are having difficulty with based on an 11-point scale. Identified for use by Occupational Therapy. (Patient Specific Functional Scale | RehabMeasures Database (sralab.org)) https://www.sralab.org/rehabilitation-measures/patient-specific-functional-scale
C. **Orthotics and Prosthetic Users' Survey Client Satisfaction with Device (OPUS-CSD)** – 21 item questionnaire assessing the individual's overall satisfaction with their service, prosthesis, training, and affordability. Identified for use by Orthotics and Prosthetics Service. (Orthotics Prosthetics Users Survey | RehabMeasures Database (sralab.org)) https://www.sralab.org/rehabilitation-measures/orthotics-prosthetics-users-survey
D. **Prosthetic Limb Users Survey- Mobility (PLUS-M)** -Measures lower limb loss prosthesis users' ability to move intentionally and independently from one place to another in terms of locomotion/postural transitions and the environment in which these occur. Identified for use by Physical Therapy. (PLUS-M Instruments)
E. **Orthotics and Prosthetic Users' Survey Lower Extremity Functional Status (OPUS LEFS)** - Measures the degree of functioning after a lower extremity unilateral amputation. Identified for use by Orthotics & Prosthetics Service. (OPUS LEFS)
F. **Trinity Amputation and Prosthesis Experience Scale Revised (TAPES-R)** – Measures the psychosocial experience evaluating overall quality of life of an individual using a lower limb prosthesis. Identified for use by Physical Therapy. (Trinity Amputation and Prosthesis Experience Scale-Revised (TAPES-R))
G. **Prosthesis Evaluation Questionnaire Mobility Subscale 12/5 (PEQ-MS12/5)** - Measures users' perceived mobility status about their prosthesis. Identified for use by Orthotics & Prosthetics Service. (Prosthesis Evaluation Questionnaire Mobility Subscale 12/5 (PEQ-MS12/5)
H. **Comprehensive Lower Limb Amputee Socket Survey (CLASS)** – Assesses multiple aspects of socket satisfaction including stability, comfort, suspension, and appearance. Identified for use by Orthotics & Prosthetics Service. (Comprehensive Lower Limb Amputee Socket Survey (CLASS)
I. **Orthotics and Prosthetic Users' Survey Upper Extremity Functional Status (OPUS UEFS)** - Clinicians and prosthetists use this tool to measure the upper extremity functional status. Identified for use by Orthotics & Prosthetics Service. (OPUS Surveys)

J. **Quick Disabilities of Arm, Shoulder, and Hand (Quick DASH)** - Measure of physical function and symptoms in musculoskeletal disorders of the upper limb. Identified for use by Occupational Therapy. (Quick DASH)

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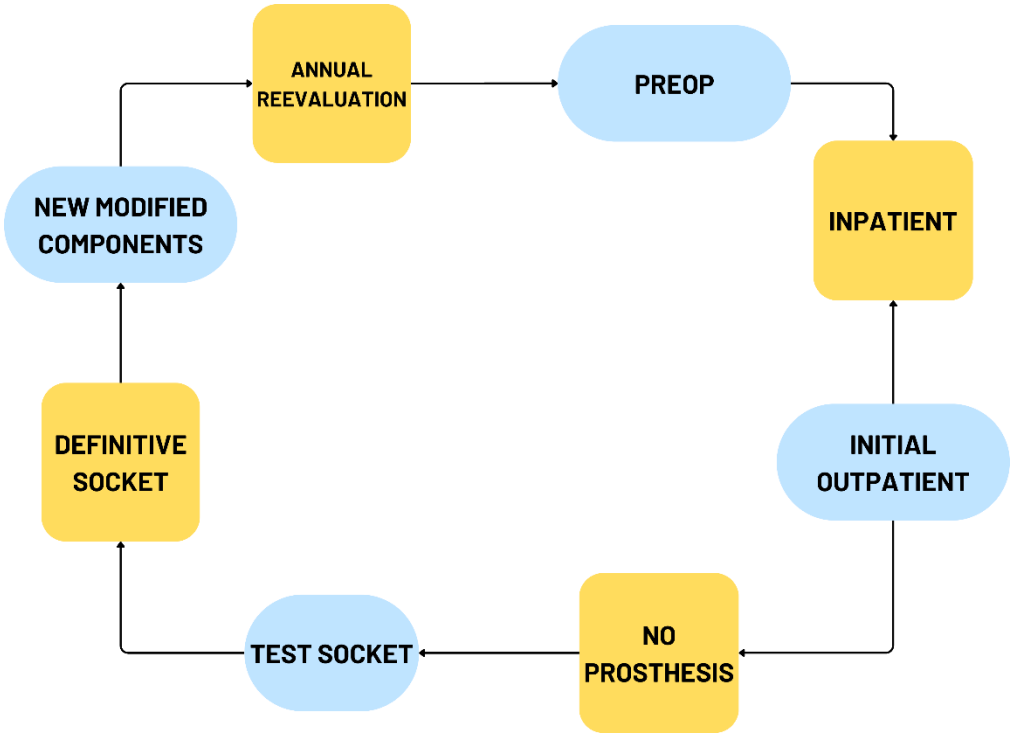
Chapter 3. Outcome Measures Decision Making Algorithms

Determining which outcome measure to use in which clinical situation has been studied for years with no authoritative guidance yet published. Clinicians may not have a specific methodology when they choose outcome measures. The DOD determined that a standardized approach to selection, grouping, timing, frequency (see Appendices ii and iii) and sequencing is necessary for standardized outcome implementation, true assessment of patient outcomes, and comparison of outcomes across patients, clinicians, clinics, and facilities.

Clinicians reviewed the selected outcome measures and estimated the timing and the frequency for each outcome measure using either temporal milestones or clinical milestones. They ultimately arrived at a consensus to use clinical milestones as the basis for determining this. The grouping and sequencing of clinical milestones can be best understood by starting with a concept of a clinical care cycle that represents the clinical milestones (Figure 1). The Clinical Care Cycle tends to be consistent regardless of specialty.

Figure 1. Clinical Care Cycle



Clinicians developed algorithms to reflect the total picture of timing, grouping, and sequencing through review of the literature, assessment of clinical care cycles, and grouping outcome measures by assessed difficulty and what each measure primarily assesses. The final products included preoperative and routine care algorithms for the lower limb, and a general upper limb concept model.

Lower Limb Amputation Decision Algorithms

The lower limb amputation outcome measure decision algorithms were developed primarily on the generally accepted and well-known Amputee Mobility Predictor (AMP), with one algorithm for preoperative patients (Figure 2) and one for routine care (non-operative) healthcare (Figure 3). For non-ambulatory patients, or those unable to complete the AMP, alternatives are presented for clinical consideration.

Figure 2. Preoperative Lower Limb Amputation Outcome Measure Algorithm

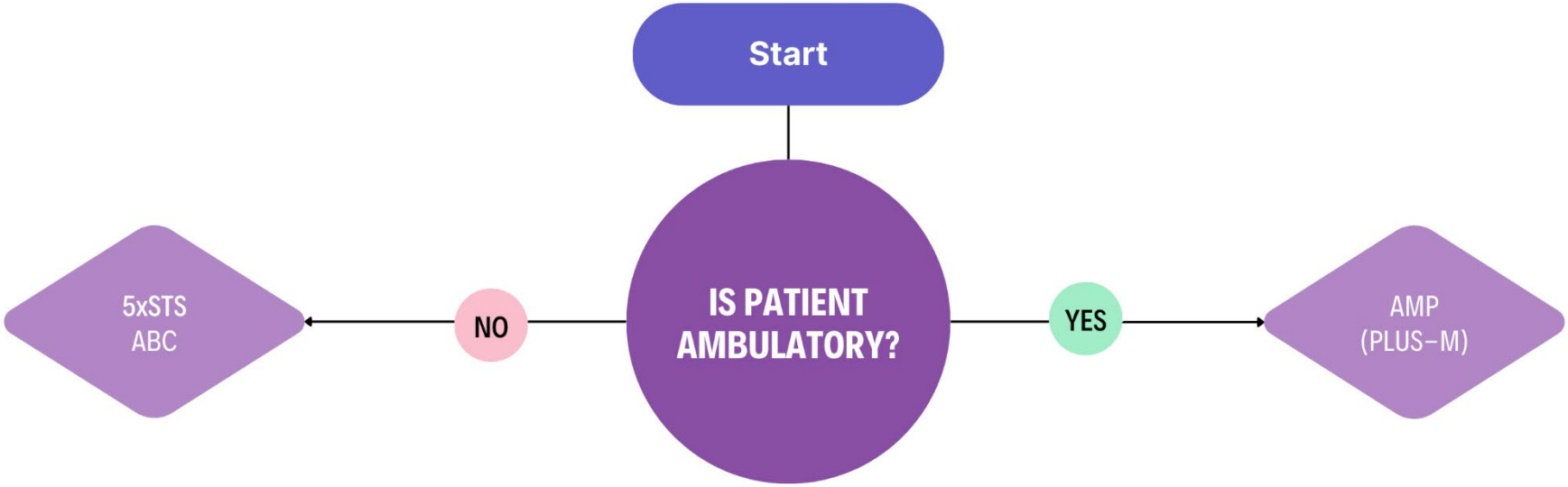
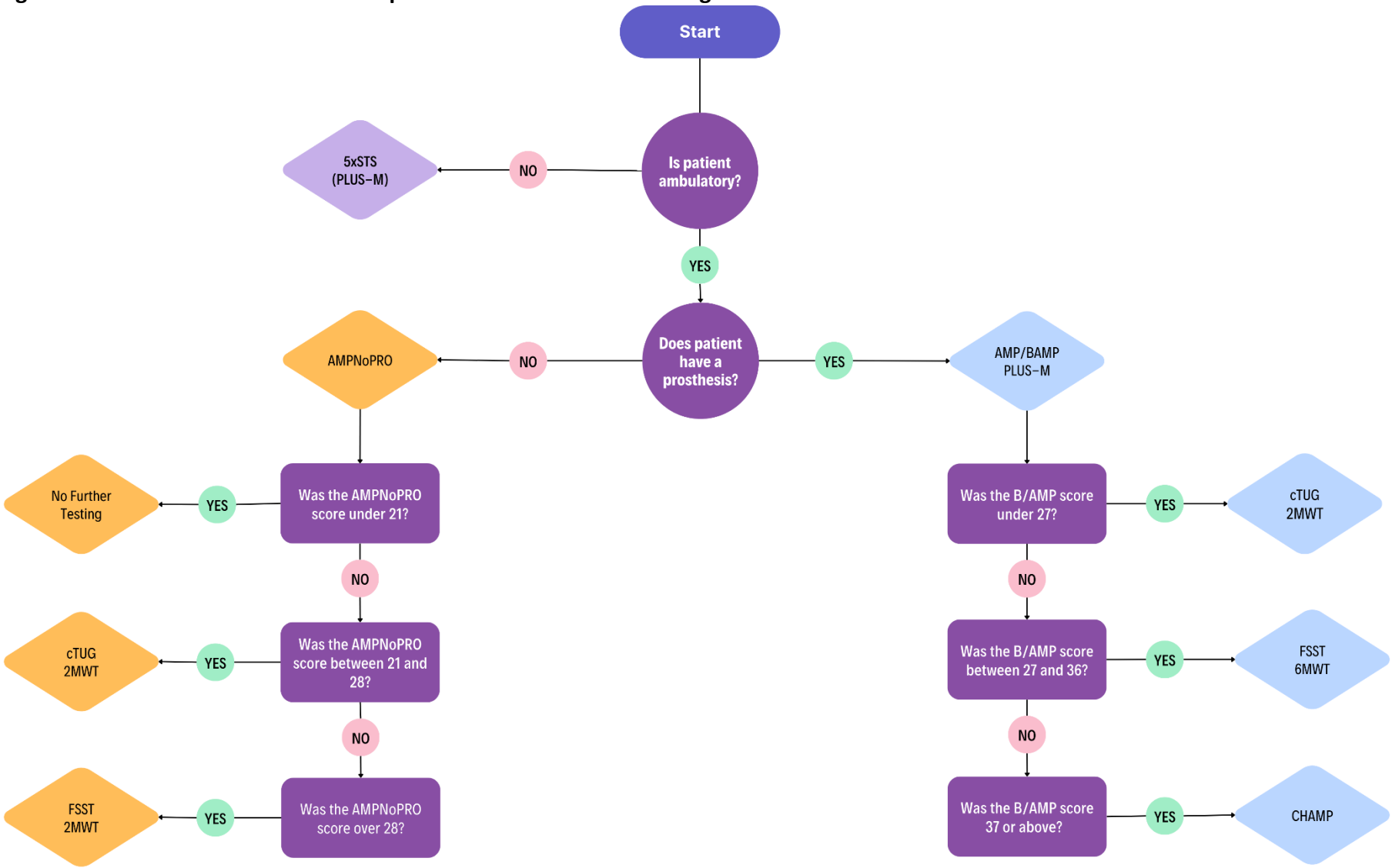


Figure 3. Routine Care Lower Limb Amputation Outcome Measure Algorithm.



Upper Limb Amputation Decision Algorithms

There is no amputation specific outcome measure on which to base an upper limb decision algorithm. Clinicians determined a logical and stepwise approach to integrating the selected outcome measures as follows in Figure 4:

Figure 4. Pre/Postoperative Upper Limb Amputation Outcome Measure Algorithm (no prosthesis)

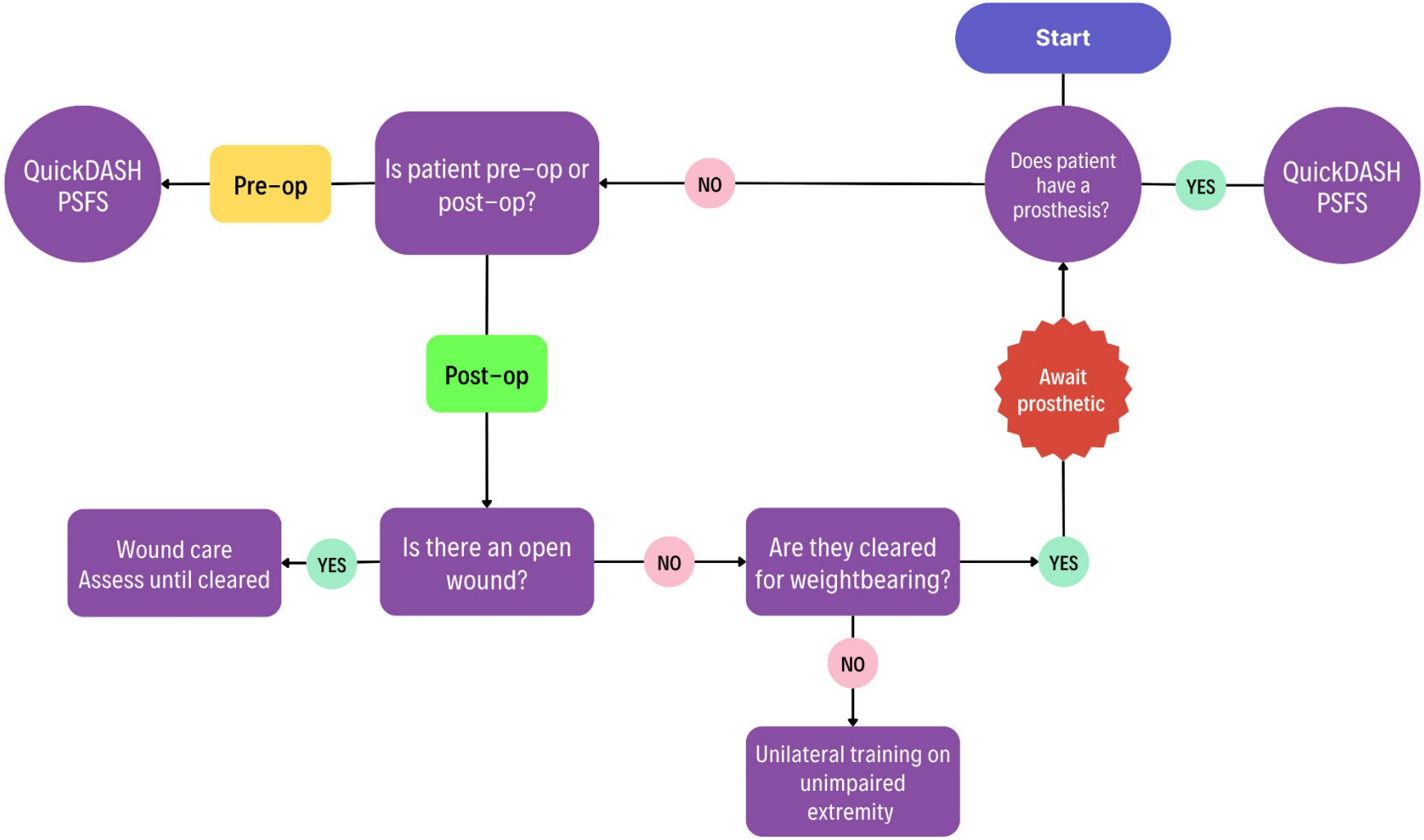
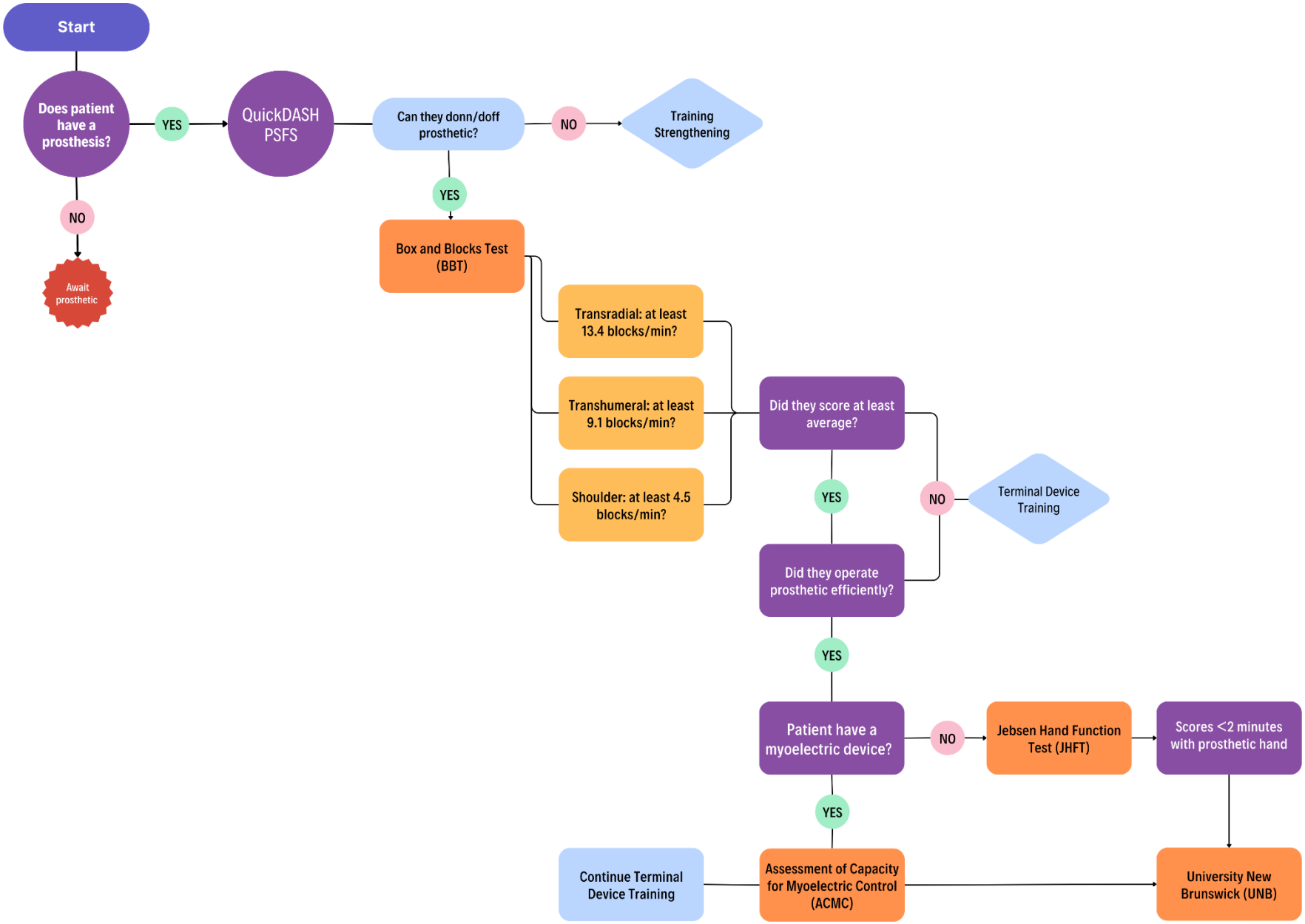


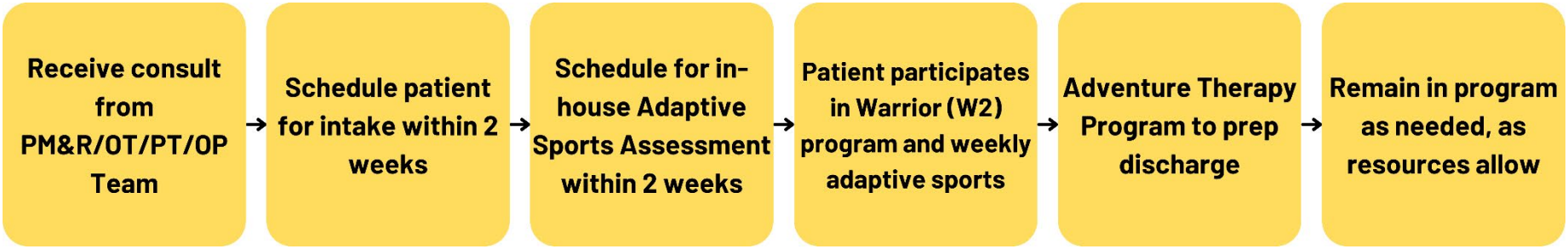
Figure 5. Proposed amputation related upper limb outcome measure decision algorithm (with prosthesis)



Adaptive Sports

Proposed adaptive sports decision algorithm. Clinicians specializing in adaptive sports determined a logical and stepwise approach to integrate decision making processes for continued active lifestyles and community reintegration of patients. Further advancements in identifying specific outcome measures are under development.

Figure 6: Proposed amputation related adaptive sports algorithm



Recreational Therapy

Proposed recreational therapy decision algorithm. Clinicians specializing in recreational therapy determined a logical and stepwise approach to integrate decision making processes for continued active lifestyles and community reintegration of patients. Further advancements in identifying specific outcome measures are under development.

Figure 7: Proposed amputation related recreational therapy algorithm

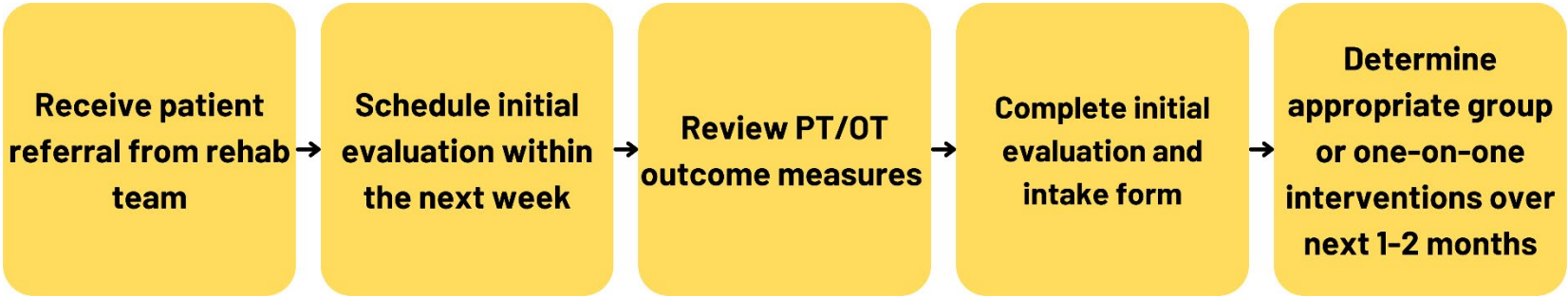
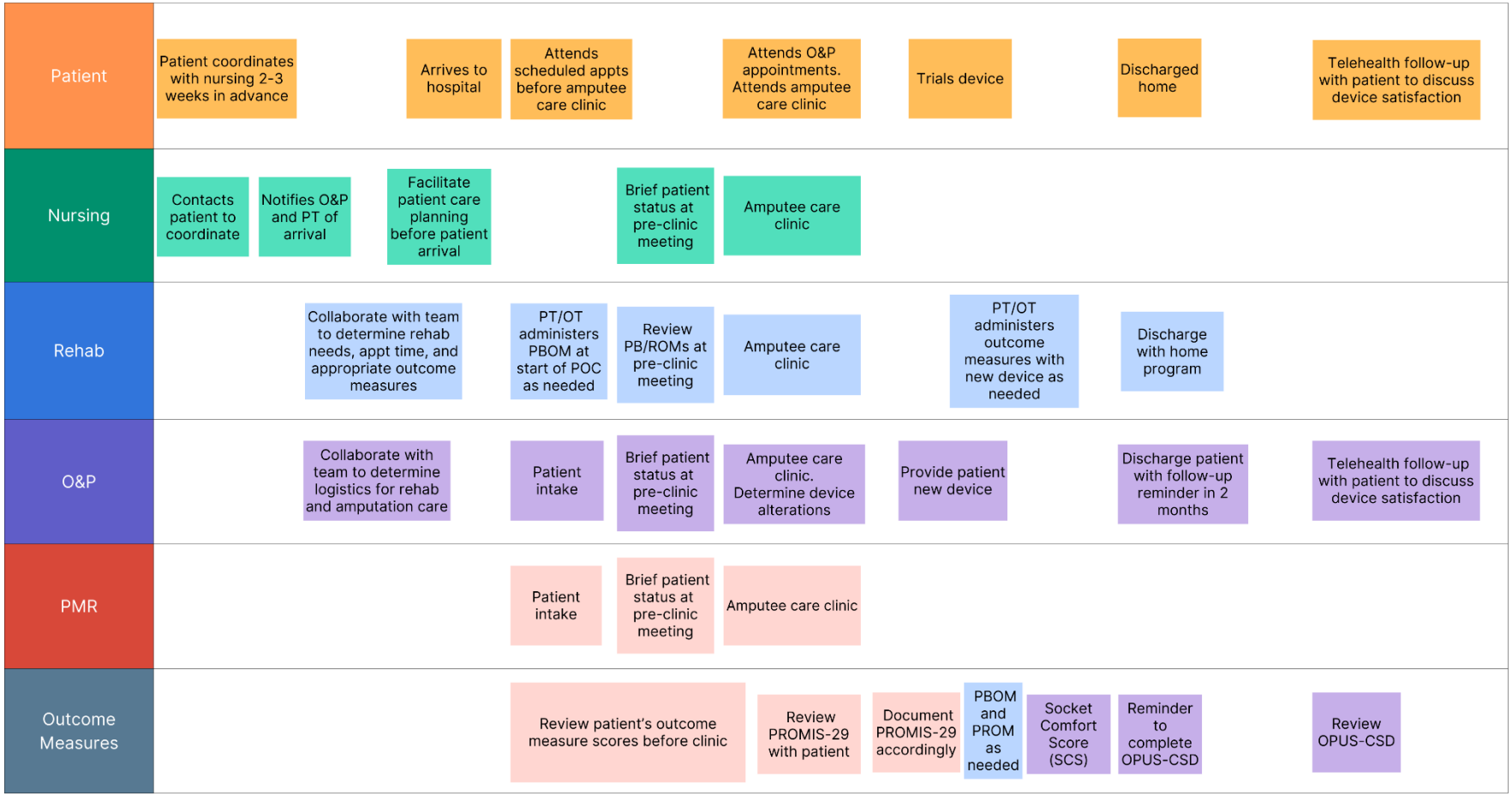


Figure 8. Proposed interdisciplinary workflow algorithm for amputation care.



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Chapter 4. Minimal detectable change (MDC) and minimal clinically important difference (MCID)

Clinicians need to be conversant on the outcome measures' minimal detectable change (MDC) and minimal clinically important difference (MCID) psychometrics. Utilization of the MDC or MCID is essential in effective clinical decision-making.

MDC is the smallest change in an outcome measure that can be distinguished from measurement error or random variability with a specified level of confidence. It helps clinicians differentiate between true changes in a patient's condition and changes that might occur due to measurement error.

MCID represents the smallest change in an outcome measure that is considered meaningful and relevant from a clinical perspective. It is the threshold below which changes in a patient's condition or treatment response are not considered significant or worthwhile.

Use of these measures of clinical success and patient improvement also standardizes tool implementation, an important consideration in performance improvement projects or programmatic evaluation. Each outcome measure tool developed in CAMP includes the MDC and/or the MCID, if available. Clinicians should know these values. Training highlights this information. Data were obtained from original research documents and internet searches.

Psychometrics MCID MDC.xlsx

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Chapter 5. Additional Clinician Specific Information

a. **Note Templates** – Documentation of outcome measures is essential for reflecting the clinical work required to assess and track patient outcomes on MHS Genesis. Utilization of pre-set templates on MHS Genesis assists in standardizing and facilitating documentation by auto populating outcome measure specific phrases and templates.

b. **AMA Coding for Performance-Based Measures -** Coding is essential for complete capture of all clinical work. Patient reported outcomes do not generate a unique code nor do they provide additional Relative Value Units. Performance based outcomes may count towards physical performance testing. This may require negotiation with your local coders.

   97750 CPT Code Description: Physical performance test or measurement (e.g., musculoskeletal, functional capacity), with written report, each 15 minutes. Physical testing or measurement describes tests and measurements performed by a physician or other qualified health care professional. (https://www.cms.gov/medicare-coverage-database).

c. **Tele-rehabilitation (TR) recommendations -** The DOD has approved multiple platforms for tele-rehabilitation. Clinicians can order and assess patient reported outcomes in this evolving patient care environment. Guidance is facility specific.

   ARC clinicians also recommend the following for outcome measures in tele-rehabilitation:

   i. **Lower limb:** For patient reported outcomes, clinicians recommend the OPUS-CSD. For performance-based assessment, clinicians recommend 5xSTS and single limb stance.

   ii. **Upper limb:** For patient reported outcomes, clinicians recommend the OPUS-CSD. There are no performance-based outcomes viable for TR performance-based outcome assessment of the upper limb in amputation care.

d. The ARC Document Center is the reference site for training, references and resources related to amputation outcome measures. Approved outcome measures for the EACE community are available to print at the ARC Document Center in cases where clinicians are unable to access outcome measures on CAMP.

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Chapter 6. Training

The purpose of this training is to regulate the proper conduct of patient reported and performance-based outcome measures to the DOD standard as established in this manual for consistent understanding, implementation, and interpretation and integration of the results into clinical planning and decision-making. The training materials will be available through enduring on demand educational modules.

Clinician Training:

1. **Outcome measure training**
    a. **Patient reported outcome measures**: Training for clinicians is centered on understanding what the tools measure, what they do not measure, the red flags, and how to score, track and trend to include minimal clinical important differences (MCIDs)/minimal detectable change (MDC).
    b. **Performance based outcome measures**: Standardization training that includes videos and educational sessions. This will be face-to-face with real patient model or executed virtually through both synchronous and asynchronous educational sessions.
    c. **Competency checklist:** Profession specific competency assessments including a review and demonstration of all outcome measures.

- **Performance Based Outcome Measures Rubrics**: Available on the ARC Document Center: http://carepoint.health.mil/sites/TBIDocs/SitePages/ARC_Docs.aspx.

2. **Platform Specific: Clinical Assessment Management Portal (CAMP)**
    a. Ordering outcome measures
    b. Using note templates
    c. Assessing patient results

Support Staff Training: Coordinated with each clinic chief to allow the front desk or other support staff to be trained in CAMP to support the clinicians. On-site CAMP support staff may be available during office hours or as needed for additional training.

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Chapter 7. Reports

Military Treatment Facility Reports

Outcome measure reporting and results tracking is available on CAMP for clinicians to generate a report, generate a graphical view, and export a table of selected outcome measures. This generated report contains the selected outcome measures, general information, and results. This data is being reported to DHA in a trial fashion for the Military Orthopedics Tracking Injuries and Outcomes Network (MOTION) outcome measure database. On-site CAMP staff are generating patient reports on selected outcome measures to capture patients' overall well-being to guide amputation care. Reporting the MDC and MCID from the outcomes database is likely to become standard within DHA. Further advancements in outcome measure reporting and results tracking include is under development.

a. **Provider -** each provider has access to reports in the form of graphs, charts, or numerical summaries for individual, patients across time or groups of patients taking specific surveys or assessments. Through the standardized note function, outcomes are integrated into the clinical visit seamlessly.
b. **Clinic -** clinic and department chiefs can see summary data by clinician, groups of clinicians or by outcome measure in graphs, charts or numerical summary.
c. **Facility –** aggregated, summarized and customized reporting.

Military Health System Reports (In development)

a. **De-identified Programmatic evaluation** – Assessment of program success/failures.
b. **Utilization statistics** – Utilization data at the organization level.
c. **Effectiveness assessment** – Evaluation of organizational achievement of intended goals.

Future Considerations: Behavioral Health (BH)

Integrating BH professionals into the ARCs for military beneficiaries offers numerous advantages. These include the ability to provide rapid triage and timely mental health interventions, reducing stigmas around mental health, facilitating referrals within the healthcare team, enhancing appointment adherence, delivering tailored support for PTSD and trauma, and offering comprehensive mental health education. Incorporating patient outcome measures into the role of BH professionals within the amputation rehabilitation space enhances the quality of care and also ensures that the rehabilitation remains at the forefront of evidence-based mental health support. By utilizing data-driven decision-making, personalized care plans, and a commitment to continuous improvement, the DOD can continue to provide comprehensive and effective mental health services that align with the evolving needs of patients in their rehabilitation journey.

Advantages to the inclusion of BH professionals within the rehabilitation space:
1. Quick Triage and Timely Intervention (Phelan et. al., 2023): One of the primary benefits is the ability to provide quick triage and timely intervention for amputees facing mental health challenges. By identifying issues early and providing immediate support, the rehabilitation process can be optimized, potentially leading to quicker and more successful recoveries.

2. Reduced Stigma Surrounding Mental Health (Phelan et. al., 2023; Smolderan et. al., 2023): The presence of BH professionals can foster an environment of acceptance and understanding, where seeking mental health support is viewed as a natural part of recovery. This can contribute to greater openness and willingness among patients to address their mental health needs.

3. Warm Referrals and Holistic Care (Teo et. al., 2023): BH professionals can establish close working relationships with the rehabilitation team, including physicians, physical therapists, orthotists, and prosthetists. This collaboration enables warm referrals, where healthcare providers can seamlessly connect patients with BH services when needed. Such referrals ensure that mental health is considered an integral part of the holistic care plan.

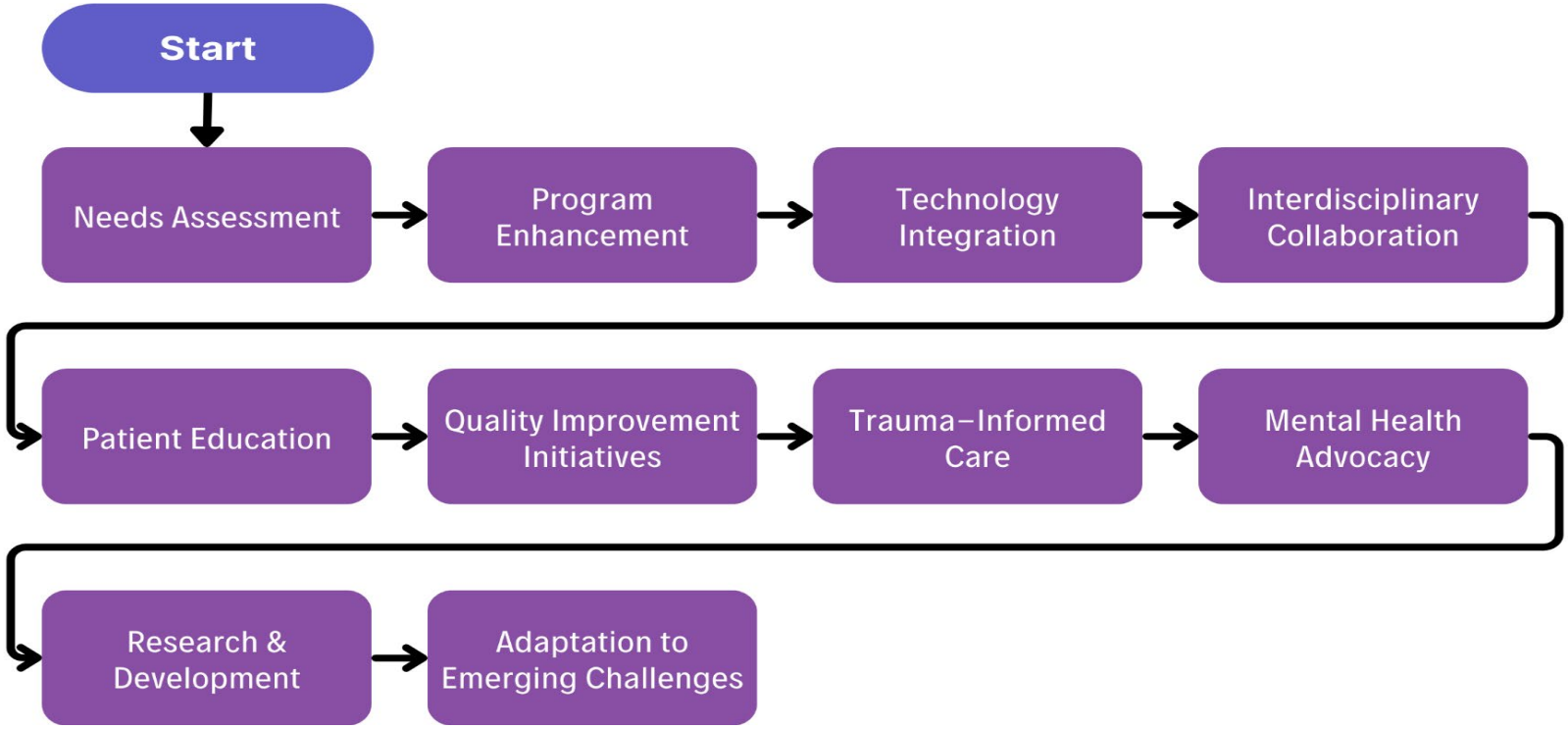
4. Enhanced Appointment Adherence (Teo et. al., 2023): Patients who have experienced amputation face unique psychological challenges throughout their recovery journey. Patients are more likely to keep appointments with professionals they have come to trust and who understand their specific needs and concerns.

5. Tailored Support for PTSD and Trauma (Daly et. al., 2023): Veterans with amputation may also be challenged with comorbid psychological conditions related to their amputation experience. BH professionals with expertise in trauma-informed care can provide tailored support, helping veterans address these issues in a safe and understanding environment.

6. Comprehensive Mental Health Education (Crunkhorn et. al., 2023): Integrating BH professionals allows for comprehensive mental health education programs tailored to the unique needs of amputees. These programs can equip patients with coping strategies, stress management techniques, and resilience-building skills that are essential for their ongoing well-being.

Clinicians specializing in behavioral health determined a logical and stepwise approach to integrate decision making processes to maintain and improve mental health services for amputation care. Further advancements in identifying specific outcome measures for behavioral health are under development.

Figure 9: Proposed algorithm for implementation of behavioral health.



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Appendices:

i. **Outcome Measures Comparison Document**

Outcome Measures Comparison_9-1-202

ii. **Timing and Frequency Table: Upper Limb**

Upper Limb Timing & Freq.xlsx

iii. **Timing and Frequency Table: Lower Limb**

Lower Limb Timing & Freq.xlsx

Link Directory:

- ◆

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Glossary of terms:

Algorithm step-by-step decision-making protocol.

Amputation synonyms limb loss, limb difference.

Advanced Rehabilitation Center (ARC) Military Treatment Facility (MTF) based rehabilitation site that addresses the complex needs of individuals with severe limb dysfunction, including amputation, and addresses care for military beneficiaries.

Bridging Advanced Developments for Exceptional Rehabilitation (BADER) Consortium enhances research efforts to guide clinical care for wounded soldiers recovering from limb injuries.

Common Access Card (CAC) a "smart" card about the size of a credit card, is the standard identification for active duty uniformed Service personnel, Selected Reserve, DoD civilian employees, and eligible contractor personnel.

Clinical Assessment Management Portal (CAMP) The CAMP provides an enterprise solution to improve point-of-care decision making and enhance patient-centered care through the collection and management of clinical assessments and patient questionnaires.

Competency ability to effectively perform a task.

Confidence interval probability that a true score will lie within a range of lower and upper limit values.

Core required for all patients.

Cronbach alpha measure of internal consistency.

CPG Clinical practice guidelines.

DHA Defense Health Agency.

DOD United States Department of Defense.

EACE Extremity Trauma and Amputation Center of Excellence

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Electronic Medical Record (EMR) digital version of patient records.

Geriatrics specialty of medicine focused on quality care with aging.

Internal consistency measure of reliability.

Intraclass correlation coefficient measurement of the reliability of clusters of values. A high number indicates similarity of values. A low number indicates dissimilarities of values.

Item separation index measure of reliability used in Rasch analysis, indicates how well a sample of people can separate those items used in the test.

LLA Lower limb amputation.

MHS Genesis electronic health record for the Military Health System (MHS), provides secure technology to manage health information.

Military Medical Treatment Facility (MTF) a facility established for the purpose of furnishing medical and/or dental care to eligible individuals.

Minimal clinically important difference (MCID) smallest difference in a score that is considered significant by the patient or clinician.

Minimal detectable change (MDC) smallest detectable change of a score that is not attributed to a measurement error.

MOTION Military Orthopedics Tracking Injuries and Outcomes Network, an outcome measure database.

Orthotic artificial support or brace.

Outcome measure tool that assesses the effects of medical treatment.

Performance Based Outcomes (PBO) a report that requires the patient to perform a set of movements or tasks.

Performance Based Outcome Measures (PBOM) the tools/instruments used to collect data.

Person separation index measure of reliability used in Rasch analysis, indicates how efficiently a set of items can separate the persons measured.

Patient Reported Outcomes (PRO) a report of the status of a patient's health condition or health behavior that comes directly from the patient, without interpretation of the patient's response by a clinician or anyone else.

Patient Reported Outcomes Measures (PROM) the tools/instruments used to collect data.

Prosthetic artificial device that replaces a body part.

Psychometrics scientific evaluation and interpretation of measurement tools.

Reliability repeatability of a test.

Sensitivity true positives.

Specificity true negatives.

Standard error measurement amount of the measurement attributed to an error in the measure.

Supplemental secondary, additional measures.

Traumatic Brain Injury (TBI) brain dysfunction caused by an outside force.

Tele-rehabilitation telemedicine.

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