Global Vascular Guideline for the Management of Chronic Limb-Threatening Ischemia (CLTI) and the Global Limb Anatomic Staging System (GLASS)

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Need for Structured Decision Making in CLTI

- **PLAN:**
  - *Patient Risk*
  - *Limb threat severity: WIfI Staging*
  - *ANatomic pattern of disease: GLASS system*

**Rationale for a new anatomic staging system in CLTI**

- Schemes focused on individual lesions (e.g. TASC) or overall burden of disease (e.g. Bollinger) are not useful for defining evidence-based revascularization in CLTI
- Restoration of in-line flow to the foot is a primary technical goal of revascularization in CLTI, particularly in patients with tissue loss
- Need for an integrated limb-based system
- Factors that determine clinical success for endovascular and open bypass surgery are intrinsically different

**GLASS*: Assumptions and Approach**

- Focus on Infrainguinal Disease (SFA origin to foot)
- Clinician defines the primary Target Artery Path (TAP)
- Femoro-popliteal (FP) and Infra-popliteal (IP) segments separately graded (0-4), then combined into Three GLASS Stages for the limb (I-III) using a consensus matrix
- Infra-malleolar (pedal) disease graded; used as a modifier only
- Calcification graded as Severe or not; simplified system
- *Global Limb Anatomic Staging System*

**GLASS: Target Artery Path and Limb-Based Patency**

- Restoration of in-line flow to the ankle and foot is a primary goal
- Target artery path (TAP): the selected continuous route of in-line flow from groin to ankle
- TAP usually involves the least diseased IP artery; may be angiosome-based
- Limb-based patency (LBP): maintained patency of the TAP. Lost when:
  - Occlusion, critical stenosis, or re-intervention affecting any portion of the TAP (anatomical failure), and/or:
  - Fall in ABI (≥ 0.15) or TBI (≥ 0.10), or ≥ 50% stenosis in the TAP, in the presence of recurrent or unresolved clinical symptoms (e.g. rest pain, worsening/persistent tissue loss; signifying hemodynamic failure)
GLASS: Grades and Stages

- Determined by expert consensus supported by evidence reviews
- Combinations of FP and IP Grades were assigned to 3 GLASS Stages for the limb based on the following TAP complexity scale:

  **Stage I: Low Complexity Disease**
  - Expected technical failure < 10% AND >70% 12-month LBP

  **Stage II: Intermediate Complexity Disease**
  - Expected technical failure < 20% AND 12-month LBP 50-70%

  **Stage III: High Complexity Disease**
  - Expected technical failure >20%; OR <50% 12-month LBP

GLASS: Consensus Staging of TAP Complexity

<table>
<thead>
<tr>
<th>FP Grade</th>
<th>I</th>
<th>II</th>
<th>III</th>
<th>IV</th>
<th>V</th>
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<td>NA</td>
<td>I</td>
<td>I</td>
<td>II</td>
<td>III</td>
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Descriptive summary of GLASS Anatomic Stages

<table>
<thead>
<tr>
<th>Estimated PVI Outcomes</th>
<th>Anatomic Patterns</th>
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<tbody>
<tr>
<td><strong>STAGE</strong></td>
<td><strong>Technical Failure</strong></td>
</tr>
<tr>
<td>I</td>
<td>&lt;10%</td>
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<tr>
<td>II</td>
<td>&lt;20%</td>
</tr>
<tr>
<td>III</td>
<td>&gt;20%</td>
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</tbody>
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Pedal disease modifier not included in overall limb stage assignment at present due to insufficient data on relationship to treatment outcomes.
Preferred initial revascularization strategy for infringuinal disease, in average risk CLTI patients with adequate autogenous vein for bypass

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GVG Open Comment Period Opening Soon
http://vsweb.org/GlobalVascularGuidelines

THANK YOU in advance for review and feedback

Mobile App Coming for GLASS