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AND THE ACS COMMITTEE ON TRAUMA,
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Because of the combination of soft tissue, osseous, vascular, and nerve involvement, complex extremity trauma requires prompt and precise evaluation and management to attain optimal outcome. Patients sustaining these unique injuries are at high risk for ischemia, wound infection, delayed union or non-union, and chronic pain, not only because of the anatomy of their injury, but also the prevalence of associated multisystem trauma and systemic problems related to the mechanism of injury. Although the treatment goal remains extremity salvage, these injuries carry a high potential for morbidity and amputation.

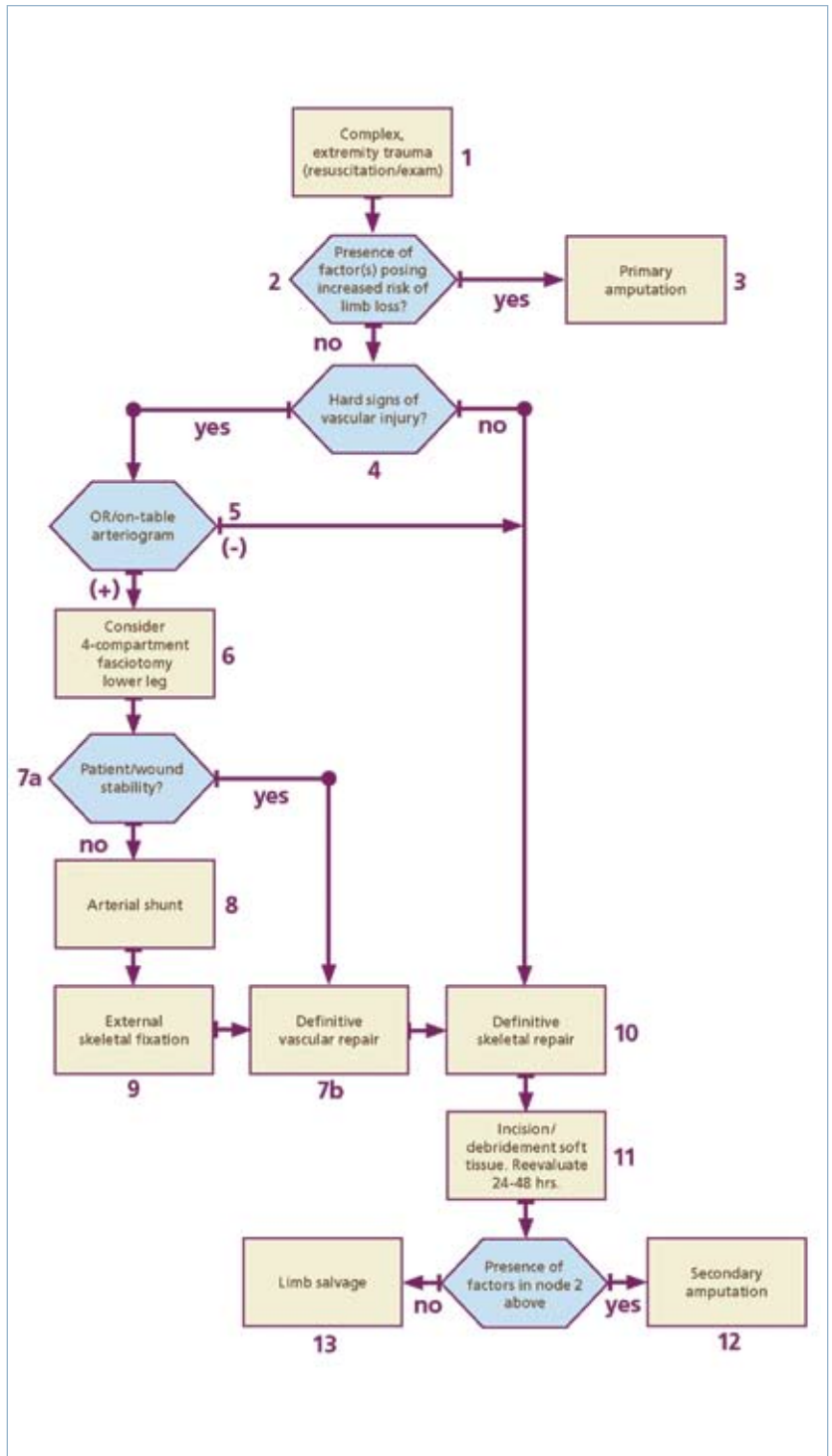
Prognostic factors for limb salvage following complex extremity trauma include the following:

- *Time:* There is a linear and direct correlation between delay in revascularization and limb loss
- *Mechanism:* Blunt or high-velocity penetrating trauma has a worse outcome than simple, low-velocity penetrating trauma
- *Anatomy:* Lower extremity vessels have worse prognosis of salvage than upper extremity vessels; the popliteal artery has the overall single worst prognosis for salvage
- *Associated injuries:* Severe associated injuries decrease the ability to pursue limb salvage
- *Age and physiologic health:* Older patients and those with significant comorbidity have a higher risk for amputation
- *Clinical presentation:* Patients presenting in shock and those with extensive soft tissue destruction are more likely to undergo primary amputation

- *Environmental circumstance:* Forward combat zone, austere environment, and multicasualty events may warrant primary amputation as a logistic necessity

Unfortunately, the data regarding the management of complex extremity trauma are conflicting and Class I studies are lacking. In an effort to provide guidance and a rational approach to the initial evaluation and treatment of complex extremity trauma, the ACS Committee on Trauma, the Ad Hoc Committee on Outcomes, has combined recommendations based on the best available evidence with expert consensus in preparing the protocol shown in the figure on this page. This protocol provides an algorithmic approach to complex, penetrating, and blunt extremity trauma and is supplemented by the Eastern Association for the Surgery of Trauma (EAST) practice management guidelines for penetrating trauma to the lower extremity (www.east.org).* The protocol takes into account the prognostic factors listed previously and provides information regarding the diagnosis and treatment of complex extremity trauma. Technical aspects of limb salvage and amputation are also discussed. Because of space constraints, the annotations for the algorithm have not been included; however, they can be found on the American College of Surgeons Web site (www.facs.org) and on the ACS Web portal under the trauma com-

*This site also provides more detailed discussion on arterial and venous injuries.



ACS Committee on Trauma Ad Hoc Committee on Outcomes

Purpose


To evaluate the care given to trauma patients in relationship to the eventual health status and well being of the patient and his/her family after a course of treatment is completed. This evaluation would encompass all areas of care including prevention, pre-hospital, resuscitation, interventions, intensive care, floor care, disposition, and rehabilitation. The evaluation would be specific to outcomes achieved in all of the above-mentioned areas.

Objectives

- Evaluate and publish existing outcome information on trauma care.
- Identify meaningful outcome end-points for trauma care delivery and establish trauma center benchmarks with respect to the following parameters:
 - Mortality
 - Morbidity
 - Return to pre-injury activity and quality of life
 - Patient and family satisfaction
- Identify methods to evaluate care plans for outcome assessment.
- Establish evidence-based guidelines for the treatment of specific injuries that can be prospectively measured and studied with respect to outcomes.
- Collaborate with the Performance Improvement and Patient Safety, Trauma Registry, and National Trauma Data Bank® subcommittees to study existing outcome information and establish guidelines that can be utilized by trauma centers in their care of injured patients.
- Collaborate with the Office of Evidence-Based Surgery of the American College of Surgeons in the development of outcomes-based guidelines for trauma care.

Roster

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munity at <http://www.facs.org/trauma/publications/mancompexttrauma.pdf> or http://efacs.org/pls/portal/docs/page/acs_content/acscommunitiespecialities/gensurg_spa/traumacmty/traumaresources/management%20of%20complex%20extremity%20trauma.pdf. 

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