



## Recommandations Formalisées d'Experts

# « Prise en charge des patients présentant un traumatisme sévère de membre(s) »

GUIDELINES FOR THE ACUTE CARE OF SEVERE LIMB TRAUMA PATIENTS

# 2020

**RFE commune SFAR - SFMU**  
en association avec : SOFCOT, SCVE et le SSA

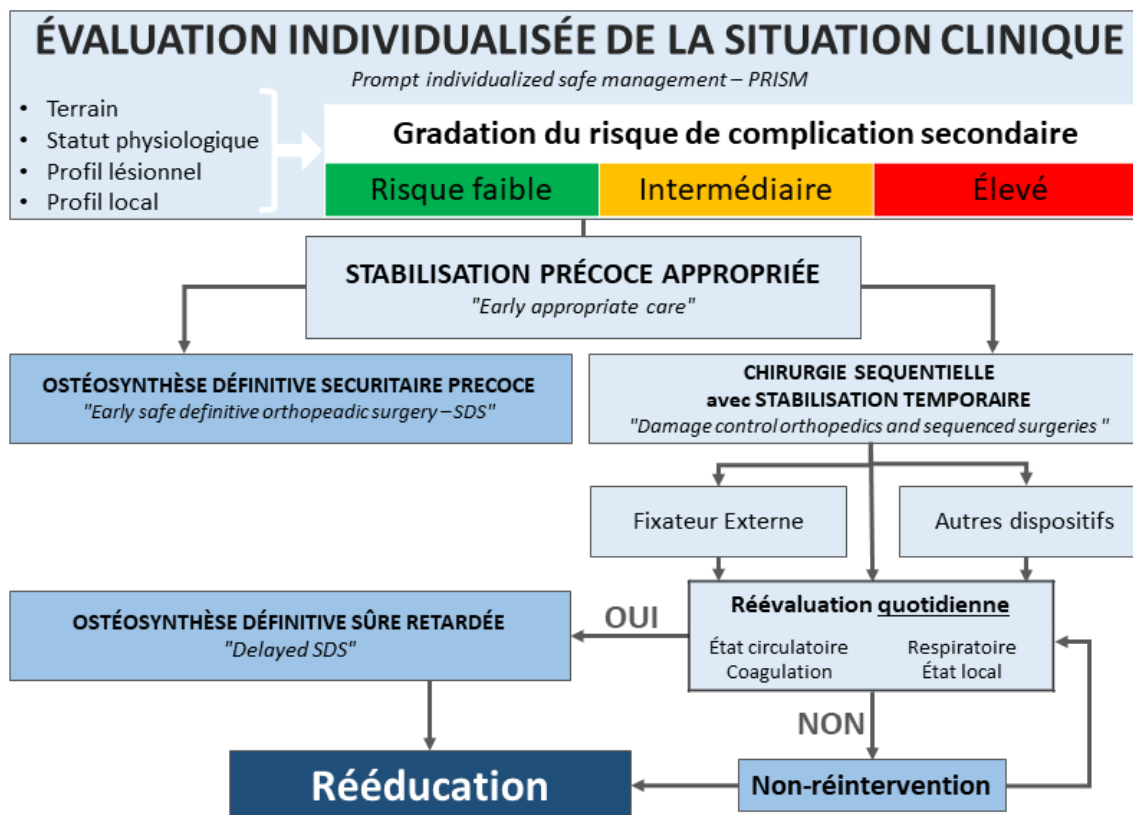
Société Française d'Anesthésie et de Réanimation (SFAR)  
Société Française de Médecine d'Urgence (SFMU)  
Société Française de Chirurgie Orthopédique et Traumatologique (SOFCOT)  
Société de Chirurgie Vasculaire et Endovasculaire de Langue Française (SCVE)  
Service de Santé des Armées (SSA)

# *FICHES PRATIQUES*

## Proposition de gradation du risque de complications secondaires post opératoires

Patient à risque faible	Patient à risque intermédiaire	Patient à risque élevé
<p><b>Statut circulatoire stable</b></p> <ul style="list-style-type: none"> <li>-Absence de noradrénaline ou débit &lt; 2 mg.h<sup>-1</sup></li> <li>-Pas de transfusion</li> <li>-Lactate &lt; 2,5 mmol.L<sup>-1</sup></li> </ul> <p><b>Coagulation efficace</b></p> <ul style="list-style-type: none"> <li>-TQr &lt; 1,2</li> <li>-Fibrinogène ≥ 1,5 g.L<sup>-1</sup></li> <li>-Numération plaquettaire ≥ 100 G.L<sup>-1</sup></li> </ul> <p><b>Hypothermie minime &gt; 35°C</b></p> <p><b>Statut respiratoire stable PaO<sub>2</sub>/FiO<sub>2</sub> &gt; 300</b></p> <p><b>Lésions associées simples ou bénignes</b></p> <ul style="list-style-type: none"> <li>-Lésion unique</li> <li>-Score de Glasgow ∈ [13–15]</li> <li>-Lésion non hémorragique</li> <li>-ISS &lt; 25</li> </ul>	<p><b>Choc circulatoire modéré</b></p> <ul style="list-style-type: none"> <li>-Débit de noradrénaline ∈ 2–4 mg.h<sup>-1</sup></li> <li>-Transfusion 1–4 CGR</li> <li>-Lactate 2,5–4 mmol.L<sup>-1</sup></li> </ul> <p><b>Coagulopathie modérée</b></p> <ul style="list-style-type: none"> <li>-TQr 1,2 – 1,5</li> <li>-Fibrinogène 1 – 1,5 g.L<sup>-1</sup></li> <li>- Numération plaquettaire 50 – 100 G.L<sup>-1</sup></li> </ul> <p><b>Hypothermie modérée 35 - 32°C</b></p> <p><b>SDRA ou hypoxémie PaO<sub>2</sub>/FiO<sub>2</sub> &lt; 300</b></p> <p><b>Rhabdomyolyse massive (myoglobine ≥ 10 000 UI.L<sup>-1</sup>)</b></p> <p><b>Lésion anatomique à risque</b></p> <ul style="list-style-type: none"> <li>-ISS &gt; 25 ou une région avec AIS = 4</li> <li>-TC modéré, score de Glasgow ≤ 12</li> <li>-Trauma thoracique sévère avec TTS score [25] ∈ 8–11, ou contusion ≥ 2 lobes</li> <li>-Lésion aortique OIS 2</li> <li>-Lésion abdominale OIS ≥3 avec hémopéritoine modéré</li> <li>-Hématome rétropéritonéal modéré (MTC score [20] ≥ 6)</li> <li>-Ischémie de membre réversible</li> </ul> <p><b>Chirurgie lourde à risque</b></p> <ul style="list-style-type: none"> <li>-Laparotomie simple</li> <li>-Ostéosynthèse rachis en décubitus ventral</li> <li>-Ostéosynthèses orthopédiques multiples</li> <li>-Angio-embolisation préventive</li> <li>-Stenting endo-vasculaire</li> </ul>	<p><b>Choc circulatoire profond</b></p> <ul style="list-style-type: none"> <li>-Débit de noradrénaline &gt; 4 mg.h<sup>-1</sup></li> <li>-Transfusion ≥ 5 CGR</li> <li>-Lactate &gt; 4 mmol.L<sup>-1</sup></li> </ul> <p><b>Coagulopathie persistante</b></p> <ul style="list-style-type: none"> <li>-TQr &gt; 1,5</li> <li>-Fibrinogène &lt; 1 g.L<sup>-1</sup></li> <li>- Numération plaquettaire &lt; 50 G.L<sup>-1</sup></li> </ul> <p><b>Hypothermie &lt; 32°C</b></p> <p><b>SDRA ou hypoxémie PaO<sub>2</sub>/FiO<sub>2</sub> &lt; 150</b></p> <p><b>Rhabdomyolyse massive (myoglobine ≥ 20 000 UI.L<sup>-1</sup>)</b></p> <p><b>Lésion anatomique sévère</b></p> <ul style="list-style-type: none"> <li>-ISS &gt; 40 ou AIS d'une région ≥ 5</li> <li>-TC grave (documenté à la TDM ou PIC ≥ 20 mmHg)</li> <li>-Trauma thoracique sévère avec TTS score [25] ≥ 12</li> <li>-Contusion pulmonaire ≥ 3 lobes</li> <li>-Lacération pulmonaire avec fuite massive</li> <li>-Lésion aortique OIS 3–4 non-opérée</li> <li>-Lésion abdominale OIS ≥ 4 et/ou nécessitant une intervention hémostatique</li> <li>-Hématome rétropéritonéal abondant (MTC score [20] ≥ 10)</li> <li>-Fractures bilatérales de fémur</li> <li>-Fractures complexes et/ou diaphysaires multiples</li> <li>-Ischémie aigüe constituée d'un autre membre</li> </ul> <p><b>Intervention majeure nécessaire :</b></p> <ul style="list-style-type: none"> <li>-Craniectomie décompressive</li> <li>-Thoracotomie d'hémostase ou chirurgie de résection pulmonaire</li> <li>-Laparotomie type "écourtée "</li> <li>-Packing pelvien</li> <li>-Fixateur externe de bassin à visée hémostatique</li> <li>-Angio-embolisation hémostatique</li> </ul>
<p><b>CHIRURGIE DÉFINITIVE SÛRE PRÉCOCE</b></p>	<p><b>RÉANIMATION APPROPRIÉE – RÉAXAGE</b></p> <p><b>RÉÉVALUATIONS RÉPÉTÉES DANS LES 24H</b></p>	<p><b>CHIRURGIE DÉFINITIVE SÛRE RETARDÉE</b></p> <p><b>+ STABILISATION TEMPORAIRE (si diaphyse de membre inférieur)</b></p>

# Orientation de la stratégie de stabilisation précoce ou retardée appropriée en fonction des critères cliniques et lésionnels



## Mesures de prévention du risque infection d'un patient victime d'un traumatisme sévère de membre

LE PLUS TÔT POSSIBLE

1. Antibio prophylaxie systématique active sur les cocci Gram Positifs et les anaérobies :
  - Amoxicilline + ac clavulanique ou céphalosporines (RFE SFAR 2018)
  - si allergie : clindamycine ± gentamicine
2. Lavage abondant de la plaie
3. Emballage dans un pansement stérile humide
4. Immobilisation de la fracture
5. Vérification du statut antitétanique par test immunochromatographique et SAT/VAT selon HAS 2013
6. Prise en charge chirurgicale
  - Irrigation
  - Débridement ± parage
  - Stabilisation de la fracture
  - Recherche de lésions associées vasculo-nerveuses
  - Couverture cutanée

## Classification *Abbreviated Injury Scale* (AIS) des Traumatismes Sévères de Membres (TSM)

Remarques liminaires :

Les lésions détaillées ci-dessous sont toutes celles dont le score AIS est supérieur ou égal à 3 spécifique aux TSM.

- a. Compte tenu d'une description en langue anglaise et pour éviter toute traduction erronée ou imparfaite, les descriptions lésionnelles ont été laissées en Anglais.
- b. Les lésions pelviennes et du bassin osseux, objet d'une autre RFE, ont été exclues du champ.
- c. Les pertes sanguines (*blood loss*) font partie intégrante de l'évaluation de la sévérité
- d. NFS (*not further specified*) : non caractérisé de façon plus précise

### 1. UPPER EXTREMITY

#### 1.1. WHOLE AREA

710606.3 : Skin/subcutaneous/muscle NFS > laceration NFS > blood loss >20% by volume

710806.3 : Skin/subcutaneous/muscle NFS > avulsion NFS > blood loss >20% by volume

711000.3 : Amputation [traumatic], partial or complete between shoulder and hand, but NFS as to specific anatomical site

711001.4 : Amputation [traumatic], partial or complete between shoulder and hand, but NFS as to specific anatomical site > at shoulder

711010.5 : Amputation [traumatic], partial or complete between shoulder and hand, but NFS as to specific anatomical site > at shoulder > bilateral

711002.4 : Amputation [traumatic], partial or complete between shoulder and hand, but NFS as to specific anatomical site > at or above elbow, below shoulder

711012.5 : Amputation [traumatic], partial or complete between shoulder and hand, but NFS as to specific anatomical site > at or above elbow, below shoulder > bilateral

711003.3 : Amputation [traumatic], partial or complete between shoulder and hand, but NFS as to specific anatomical site > below elbow, at or above wrist

712003.3 : Compartment syndrome from trauma to soft tissue only, not involving fracture or massive destruction of bone or other anatomical structures, NFS > arm NFS > with muscle loss

713001.4 : Crush injury to limb between shoulder and wrist, but NFS as to specific anatomical site > at shoulder

713002.4 : Crush Injury to limb between shoulder and wrist, but NFS as to specific anatomical site > at or above elbow, below shoulder

713003.3 : Crush Injury to limb between shoulder and wrist, but NFS as to specific anatomical site > below elbow, at or above wrist  
714001.3 : Degloving injury NFS as to specific anatomical sites > entire extremity  
716006.3 : Penetrating injury NFS as to specific anatomical site > with blood loss >20% by volume  
716013.3 : Penetrating injury at shoulder, NFS as to severity > with blood loss >20% by volume  
716017.3 : > Penetrating injury at or above elbow, below shoulder, NFS as to severity > with blood loss >20% by volume

## 1.2. VESSELS

720208.3 : Axillary artery NFS > laceration; perforation; puncture NFS > major; rupture; transection; segmental loss; blood loss >20% by volume  
720406.3 : Axillary vein NFS > laceration; perforation; puncture NFS > major; rupture; transection; segmental loss; blood loss >20% by volume  
720608.3 : Brachial artery NFS > laceration; puncture; perforation NFS > major; rupture; transection; segmental loss; blood loss >20% by volume  
720806.3 : Brachial vein NFS > laceration; perforation; puncture NFS > major; rupture; transection; segmental loss; blood loss >20% by volume  
721008.3 : Other named arteries NFS [e.g., radial, ulnar] > laceration; perforation; puncture NFS > major; rupture; transection; segmental loss; blood loss >20% by volume  
721206.3 : Other named veins NFS [e.g., cephalic, basilic] > laceration; perforation; puncture NFS > major; rupture; transection; segmental loss; blood loss >20% by volume

## 1.3. SKELETAL

751162.3 : Humerus fracture NFS > Proximal humerus NFS > extra-articular; bifocal [either one of the tuberosities and the metaphysis]; ≥2 fracture lines > open  
751172.3 : Humerus fracture NFS > Proximal humerus NFS > articular; head or anatomical neck > open  
751262.3 : Humerus fracture NFS > Humerus shaft fracture > wedge; “butterfly” segment > open  
751272.3 : Humerus fracture NFS > Humerus shaft fracture > complex; comminuted; segmental > open  
751362.3 : Humerus fracture NFS > Distal humerus fracture > partial articular; capitular > open  
751372.3 : Humerus fracture NFS > Distal humerus fracture > complete articular; T-shaped; Y-shaped; T-condylar > open  
752162.3 : Radius fracture NFS > Proximal radius fracture > partial articular; radial head > open  
752172.3 : Radius fracture NFS > Proximal radius fracture > complete articular > open  
752262.3 : Radius fracture NFS > Radius shaft fracture > wedge; “butterfly” fragment > open  
752272.3 : Radius fracture NFS > Radius shaft fracture > complex; comminuted; segmental > open  
752362.3 : Radius fracture NFS > Distal Radius fracture > partial articular; Colles > open  
752372.3 : Radius fracture NFS > Distal Radius fracture > complete articular; T-shaped; Y-shaped; T-condylar; Barton > open

752164.3 : Ulna fracture NFS > Proximal Ulna fracture [olecranon] > partial articular > open  
752174.3 : Ulna fracture NFS > Proximal Ulna fracture [olecranon] > complete articular > open  
752264.3 : Ulna fracture NFS > Ulna Shaft fracture > wedge; "butterfly" fragment > open  
752274.3 : Ulna fracture NFS > Ulna Shaft fracture > complex; comminuted; segmental > open  
752364.3 : Ulna fracture NFS > Distal Ulna fracture > partial articular > open  
752374.3 : Ulna fracture NFS > Distal Ulna fracture > complete articular > open

## 2. LOWER EXTREMITY

### 2.1. WHOLE AREA

810606.3 : Skin/subcutaneous/muscle NFS > laceration NFS > blood loss >20% by volume  
810806.3 : Skin/subcutaneous/muscle NFS > avulsion NFS > blood loss >20% by volume  
811000.3 : Amputation [traumatic], partial or complete between hip and foot, but NFS as to specific anatomical site  
811001.4 : Amputation [traumatic], partial or complete between hip and foot, but NFS as to specific anatomical site > at hip or at buttock  
811002.4 : Amputation [traumatic], partial or complete between hip and foot, but NFS as to specific anatomical site > at or above knee, below hip  
811003.3 : Amputation [traumatic], partial or complete between hip and foot, but NFS as to specific anatomical site > below knee, at or above ankle  
811010.5 : Amputation [traumatic], partial or complete between hip and foot, but NFS as to specific anatomical site > at hip or at buttock > bilateral  
811012.5 : Amputation [traumatic], partial or complete between hip and foot, but NFS as to specific anatomical site > at or above knee, below hip > bilateral  
812003.3 : Compartment syndrome resulting from trauma to soft tissue only, not involving fracture or massive destruction of bone and other anatomical structures, NFS as to specific anatomical site > thigh > with muscle loss  
812006.3 : Compartment syndrome resulting from trauma to soft tissue only, not involving fracture or massive destruction of bone and other anatomical structures, NFS as to specific anatomical site > leg > with muscle loss  
812009.3 : Compartment syndrome resulting from trauma to soft tissue only, not involving fracture or massive destruction of bone and other anatomical structures, NFS as to specific anatomical site > foot > with muscle loss  
813000.3 : Crush Injury to limb between hip and foot, but NFS as to specific anatomical site  
813001.4 : Crush Injury to limb between hip and foot, but NFS as to specific anatomical site > at hip or at buttock  
813002.4 : Crush Injury to limb between hip and foot, but NFS as to specific anatomical site > at or above knee, below hip  
813003.3 : Crush Injury to limb between hip and foot, but NFS as to specific anatomical site > below knee, at or above ankle

814002.3 : Degloving injury NFS > entire extremity

816006.3 : Penetrating injury NFS as to specific anatomical site or severity > with blood loss >20% by volume

816013.3 : Penetrating injury at hip or buttock, NFS as to severity > with blood loss >20% by volume

816017.3 : Penetrating injury at or above knee, below hip NFS as to severity > blood loss >20% by volume

## 2.2. VESSELS

820299.3 : Femoral artery and its named branches NFS

820202.3 : Femoral artery and its named branches NFS > intimal tear, no disruption

820204.3 : Femoral artery and its named branches NFS > laceration; perforation; puncture NFS

820206.3 : Femoral artery and its named branches NFS > laceration; perforation; puncture NFS > minor; superficial; incomplete circumferential involvement; blood loss  $\leq$ 20% by volume

820208.4 : Femoral artery and its named branches NFS > laceration; perforation; puncture NFS > major; rupture; transection; segmental loss; blood loss >20% by volume

820406.3 : Femoral vein NFS > laceration; perforation; puncture NFS > major; rupture; transection; segmental loss; blood loss >20% by volume

820608.3 : Popliteal artery NFS > laceration; perforation; puncture NFS > major; rupture; transection; segmental loss; blood loss >20% by volume

820806.3 : Popliteal vein NFS > laceration; perforation; puncture NFS > major; rupture; transection; segmental loss; blood loss >20% by volume

821008.3 : Other named arteries NFS [e.g., tibial, peroneal] > laceration; perforation; puncture NFS > major; rupture; transection; segmental loss; blood loss >20% by volume

821206.3 : Other named veins NFS [e.g., saphenous] > laceration; perforation; puncture NFS > major; rupture; transection; segmental loss; blood loss >20% by volume

## 2.3. NERVES

830406.3 : Sciatic nerve NFS > laceration NFS > incomplete

830408.3 : Sciatic nerve NFS > laceration NFS > complete

## 2.4. SKELETAL

853000.3 : Femur fracture, NFS

853111.3 : Femur fracture, NFS > Proximal Femur fracture NFS

854001.3 : Tibia fracture NFS > open



854456.3 : Fibula [malleoli] fracture NFS > below ankle joint (infrasyndesmotic); isolated lateral malleolus; Weber A > lateral and medial malleoli (bimalleolar) > open

854464.3 : Fibula [malleoli] fracture NFS > through joint (transsyndesmotic); Weber B > lateral and medial malleoli (bimalleolar) > open

854466.3 : Fibula [malleoli] fracture NFS > through joint (transsyndesmotic); Weber B > trimalleolar > open

### **Score *Abbreviated Injury Scale* (AIS)**

<i>Abbreviated Injury Scale</i> (AIS)	
Lésion	Score
Aucune	0
Mineure	1
Modérée	2
Sérieuse	3
Sévère	4
Critique	5
Fatale	6

*L'Injury Severity Score* (ISS) est obtenu en réalisant la somme des scores AIS, élevés au carré, des trois zones anatomiques les plus sévèrement touchées (parmi les 6 régions suivantes : tête et cou, face, thorax, abdomen et contenu pelvien, membres et bassin, téguments.)