

Supplementary Table S1 Prior Treatment Recommendation and 2021 to 2025 Treatment Recommendations

Review topic, FA number	Prior Treatment Recommendations (Year, type of review)	2021-2025 Treatment Recommendations (Year and type of review)	Important knowledge gaps
General principles			
Pulse oximetry FA 7010	New topic	<p>First aid providers who use pulse oximeters for the assessment of acute illness or injuries should be proficient in their use and understand their limitations, including equipment factors, environmental considerations, and patient-specific factors that may produce inaccurate and unreliable readings (good practice statement).</p> <p>The use of a pulse oximeter for first aid assessment should not supersede or replace physical assessment (good practice statement). (2023, ScopRev)</p>	<p>There were no studies identified that evaluated the use of pulse oximetry in the first aid setting.</p> <p>No studies were identified that describe the ability of a first aid provider to recognize the limitations of pulse oximeters, or the ability to interpret oximetry readings.</p> <p>Resource requirements and training requirements for the first aid use of pulse oximetry are uncertain.</p>
Use of Supplementary oxygen in the First Aid Setting FA 7030, FA 519, FA 1549, FA 1649	New topic	<p>When a first aid provider trained in oxygen use administers oxygen to a person with acute difficulty breathing who confirms that they have chronic obstructive pulmonary disease, it is suggested that pulse oximetry be used, and that oxygen be titrated to maintain an oxygen saturation between 88% and 92% (good practice statement).</p> <p>Although high-flow oxygen should in general be avoided in patients with chronic obstructive pulmonary disease with difficulty breathing in the out-of-hospital setting, high-flow oxygen should not be withheld in the presence of life-threatening hypoxia (oxygen saturation <88%) (good practice statement). (2024, ScopRev)</p>	<p>It is unknown if administration of oxygen in the out of hospital setting improve survival in patients presenting with shortness of breath or hypoxemia other than the specialist indications such as carbon monoxide poisoning or divers who have used compressed gas.</p> <p>It is unknown if administration of different concentrations of oxygen outside of a hospital in specialized group of patients (e.g., COPD with acute exacerbation or acute asthma) have different outcomes.</p> <p>It is unknown if first aid providers can distinguish COPD. It is unknown if first aid providers can use pulse oximetry accurately to target oxygen administration to 88-92%.</p>

Review topic, FA number	Prior Treatment Recommendations (Year, type of review)	2021-2025 Treatment Recommendations (Year and type of review)	Important knowledge gaps
<p>The Recovery Position for Maintenance of Adequate Ventilation and the Prevention of Cardiac Arrest FA 7040, FA 517</p>	<p>We suggest that first aid providers position individuals who are unresponsive and breathing normally into a lateral, side-lying recovery position (lateral recumbent) as opposed to leaving them supine (weak recommendation, very low-quality evidence). (ScopRev 2020)</p>	<p>When providing first aid to a person with a decreased level of responsiveness of nontraumatic etiology and who does not require immediate resuscitative interventions, we suggest the use of the recovery position (weak recommendation, very low certainty evidence).</p> <p>When the recovery position is used, monitoring should continue for signs of airway occlusion, inadequate or agonal breathing, and unresponsiveness (good practice statement).</p> <p>If body position, including the recovery position, is a factor impairing the first aid provider's ability to determine the presence or absence of signs of life, the person should be immediately positioned supine and reassessed (good practice statement). Persons found in positions associated with aspiration and positional asphyxia such as facedown, prone, or in neck and torso flexion positions should be repositioned supine for reassessment (good practice statement). (SysRev, 2022)</p>	<p>There is no direct prospective evidence for the recovery position over other positions for outcomes of critical importance.</p> <p>There is an urgent need for prehospital studies of the recovery position, especially as it relates to the detection of cardiac arrest and the management of opioid overdose.</p> <p>Further research is needed to determine the ideal methods to monitor for and promote adequate breathing of individuals placed in the recovery position.</p>
First aid medical emergencies			
<p>Recognition of anaphylaxis FA 7110</p>	<p>First aid providers should not be expected to recognize the signs and symptoms of anaphylaxis without repeated episodes of training and encounters a person with of anaphylaxis (good practice statement) (CoSTR, 2010)</p>	<p>Unchanged (ScopRev 2023, EvUp 2025)</p>	<p>It is unclear if the presence or absence of specific symptom help first aid providers recognize anaphylaxis.</p> <p>Educational interventions improve knowledge around anaphylaxis recognition and management; however, research is needed to evaluate how these results translate to the first aid setting.</p>

Review topic, FA number	Prior Treatment Recommendations (Year, type of review)	2021-2025 Treatment Recommendations (Year and type of review)	Important knowledge gaps
			How the self-reported elements history and symptoms improve recognition for first aid providers is unknown.
Second Dose of Epinephrine for Anaphylaxis FA 7111, FA 500	We suggest a second dose of epinephrine be administered by autoinjector to adults and children with severe anaphylaxis whose symptoms are not relieved by an initial dose (weak recommendation, very low certainty evidence). (ScopRev, 2015)	Unchanged (EvUp 2025)	What should the time interval be between doses of epinephrine? Should an initial injection be administered in the early stages of anaphylaxis, before the onset of severe symptoms?
Removal of foreign body airway obstruction FA 7113, BLS 368	<p>We suggest that back slaps are used initially in patients with a FBAO and an ineffective cough (weak recommendation, very low certainty evidence).</p> <p>We suggest that abdominal thrusts are used in adults and children with a FBAO and an ineffective cough where back slaps are ineffective (weak recommendation, very low certainty evidence).</p> <p>We suggest that rescuers consider the manual extraction of visible items in the mouth (weak recommendation, very low certainty of evidence).</p> <p>We suggest against the use of blind finger sweeps in patients with a FBAO (weak recommendation, very low certainty evidence).</p> <p>We suggest that appropriately skilled individuals consider the use of Magill</p>	Unchanged (EvUp 2025)	<p>There is a need for high-quality observational studies that accurately describe the incidence of FBAO, patient demographics (age, setting, comorbidities, food type, conscious level), full range of interventions delivered, who delivered interventions (health professional/ lay responder), success rates of interventions, harm of interventions, and outcomes. It is unlikely that such a study can be conducted using only health service data.</p> <p>There is a need for further evidence on the benefits and harms of suction-based airway clearance devices. The task force would encourage the prospective registration of all device uses. Reports should detail key demographics (e.g. age, setting, comorbidities, food type, conscious level), full range of interventions provided, who provided intervention (lay versus healthcare professional) and outcomes This</p>

Review topic, FA number	Prior Treatment Recommendations (Year, type of review)	2021-2025 Treatment Recommendations (Year and type of review)	Important knowledge gaps
	<p>forceps to remove FBAO in OHCA patients with a FBAO (weak recommendation, very low certainty evidence).</p> <p>We suggest that chest thrusts are used in unconscious patients with a FBAO (weak recommendation, very low certainty evidence).</p> <p>We suggest that bystanders undertake interventions to support FBAO removal as soon as possible after recognition (weak recommendation, very low certainty evidence). (SysRev, 2020)</p>		evidence may initially come in the form of published case series.
Potential harms from bronchodilator administration FA 7122	When an individual with asthma is experiencing difficulty breathing, we suggest that trained first aid providers assist the individual with administration of a bronchodilator (weak recommendation, very low certainty evidence). (SysRev, 2015)	Unchanged (ScopRev, 2023)	In the first aid context, it is still unknown whether or not administration of a bronchodilator to a person without a diagnosis of reactive respiratory disease who is having symptoms that are potentially respiratory in nature could cause harm, particularly in those with heart disease.
Early aspirin for chest pain FA 7140, FA 586	For adults with non-traumatic chest pain, we suggest the early administration of aspirin as a first aid intervention compared with late, in-hospital, administration of aspirin (weak recommendation, very low certainty evidence). (SysRev, 2019)	Unchanged (EvUp 2025)	<p>Additional studies are needed to determine if aspirin is safe when given to patients with nontraumatic chest pain of all causes (ie, not limited to suspected MI). Certain concerns might be in patients with aortic aneurysm or dissection.</p> <p>Further research is needed to identify the critical interval after the onset of chest pain and aspirin administration that is beneficial for adult patients with acute MI.</p>

Review topic, FA number	Prior Treatment Recommendations (Year, type of review)	2021-2025 Treatment Recommendations (Year and type of review)	Important knowledge gaps
			Further research is needed to determine the minimal effective dose and formulation for the oral administration of aspirin for nontraumatic chest pain in adults.
Methods of glucose administration for hypoglycemia FA 7161, FA 1585	<p>We recommend the use of oral glucose (swallowed) for individuals with suspected hypoglycemia who are conscious and able to swallow (strong recommendation, very low certainty evidence).</p> <p>We suggest against buccal glucose administration compared with oral glucose administration for individuals with suspected hypoglycemia who are conscious and able to swallow (weak recommendation, very low certainty evidence).</p> <p>If oral glucose (for example, tablet) is not immediately available, we suggest a combined oral plus buccal glucose (for example, glucose gel) administration for individuals with suspected hypoglycemia who are conscious and able to swallow (weak recommendation, very low certainty evidence).</p> <p>We suggest the use of sublingual glucose administration for suspected hypoglycemia for children who may be uncooperative with the oral (swallowed) glucose administration route (weak recommendation, very low certainty evidence). (SysRev, 2019)</p>	Unchanged, (EvUp 2025)	Research is needed to evaluate the benefits and risks of different glucose administration routes in adults and children with a diminished level of consciousness who are not able to swallow, particularly when advanced care is unavailable such as in rural or wilderness settings.

Review topic, FA number	Prior Treatment Recommendations (Year, type of review)	2021-2025 Treatment Recommendations (Year and type of review)	Important knowledge gaps
<p>Dietary sugar treatment for hypoglycemia FA 7162, FA 795</p>	<p>We recommend that first aid providers administer glucose tablets for treatment of symptomatic hypoglycemia in conscious adults and children (strong recommendation, low-quality evidence).</p> <p>We suggest that if glucose tablets are not available, various forms of dietary sugars such as Skittles, Mentos®, sugar cubes, jellybeans, or orange juice can be used to treat symptomatic hypoglycemia in conscious adults and children (weak recommendation, very low-quality evidence).</p> <p>There is insufficient evidence to make a recommendation on the use of whole milk, cornstarch hydrolysate, and glucose solution, or glucose gels as compared with glucose tablets for the treatment of symptomatic hypoglycemia. (SysRev 2015)</p>	<p>Unchanged, (EvUp 2025)</p>	<p>here may be other forms of dietary sugars (eg, high-fructose corn syrup drinks, honey, jams, yoghurt, etc) that may be used by patients; however, we were unable to identify any studies that evaluated these sugars.</p> <p>Additional work will be needed to determine the impact of dietary sugars on hospital length of stay and complications such as aspiration.</p> <p>We did not evaluate dietary sugars in non-awake patients with symptomatic hypoglycaemia or those with impaired awareness.</p>
<p>Recognition of Stroke FA 801, FA 7170,</p>	<p>We recommend that first aid providers use stroke assessment scales/tools for adults with suspected acute stroke (strong recommendation, low certainty evidence).</p> <p>For first aid, we suggest the use of the acronym Face, Arms, Speech, Time (FAST), Melbourne Ambulance Stroke Scale (MASS), Cincinnati Prehospital Stroke Scale (CPSS) or Los Angeles Prehospital Stroke Screen (LAPSS) scales/tools for stroke assessment</p>	<p>Unchanged, (EvUp 2025)</p>	<p>Studies are needed to assess the ability of laypersons to correctly apply the recommended scales.</p>

Review topic, FA number	Prior Treatment Recommendations (Year, type of review)	2021-2025 Treatment Recommendations (Year and type of review)	Important knowledge gaps
	<p>(weak recommendation, low certainty evidence).</p> <p>For first aid, we suggest the use of stroke assessment scales/tools that include blood glucose measurement when available, such as MASS or LAPSS, to increase specificity of stroke recognition (weak recommendation, low certainty evidence).</p> <p>For first aid, we suggest the use of FAST or CPSS stroke assessment scales/tools when blood glucose measurement is unavailable (weak recommendation, low certainty evidence). (SysRev, 2020)</p>		
Recognition of sepsis FA 7180,	New topic	Those providing first aid should consider an infection in any person who presents with an acute illness, and if the illness is associated with any abnormal signs or symptoms, they should urgently seek further medical evaluation (good practice statement). (ScopRev, 2024)	<p>Retrospective diagnostic studies are needed to evaluate the accuracy of criteria used in specific sepsis awareness campaigns for lay responders.</p> <p>The effectiveness of sepsis awareness campaigns in helping lay responders to consider or identify sepsis should be studied to determine if any one campaign is more helpful than another.</p>
Interventions administered by lay providers for the treatment of post-partum hemorrhage FA 7337	New topic	No recommendation. The scoping review did not yield a good practice statement but initiated a SysRev on manual uterine massage (FA 7336) (ScopRev, 2025)	<p>Only one RCT was performed and only evaluated the efficacy of misoprostol.</p> <p>Only short-term survival and outcomes were evaluated, long-term follow-up was not done for most studies</p> <p>Lay providers and their competencies varied between studies from skilled and unskilled traditional birth attendants to</p>

Review topic, FA number	Prior Treatment Recommendations (Year, type of review)	2021-2025 Treatment Recommendations (Year and type of review)	Important knowledge gaps
<p>Manual uterine massage for postpartum hemorrhage FA 7336</p>	<p>New topic</p>	<p>We suggest external uterine massage, including self-massage, in the immediate postpartum period in comparison with no intervention to prevent postpartum hemorrhage, which can lead to maternal death (weak recommendation, very low-certainty evidence). (SysRev, 2025)</p>	<p>community providers, to mothers themselves and family</p> <p>There were a few excluded studies which reported on manual uterine external massage done by trained health professionals, extrapolating that it could be an effective intervention for lay provider use. As such, more studies with robust methodology examining lay provider use of manual uterine external massage, particularly in out of hospital settings, are needed.</p> <p>Pressure/firmness of the uterine massage may affect the effectiveness of the intervention, the included study could not measure or regulate the strength/firmness of the uterine massage by study participants, and did not describe if or how this was controlled or taught.</p> <p>As primary PPH can occur up to 24 hours after the birth of a baby, it is possible that symptoms of PPH occurred after the intervention, as patients in the included study were only monitored for 120 minutes, and did not receive follow-up.</p>
<p>Use of naloxone during resuscitation for suspected opioid-associated emergencies FA 7442, BLS 811</p>	<p>We suggest CPR be started without delay in any unconscious person not breathing normally, and that naloxone be used by lay rescuers in suspected opioid related respiratory or circulatory arrest. (good practice statement) (SysRev, 2020)</p>	<p>Unchanged (EvUp 2025)</p>	<p>There is currently no evidence evaluating the role of naloxone use among bystanders attempting CPR in suspected opioid related respiratory or circulatory arrest.</p> <p>Further research is needed to determine the optimal components of resuscitation and the role of naloxone during bystander CPR.</p>

Review topic, FA number	Prior Treatment Recommendations (Year, type of review)	2021-2025 Treatment Recommendations (Year and type of review)	Important knowledge gaps
Prevention of syncope with counter pressure maneuvers FA 7550, FA 798	<p>We recommend the use of any type of physical counter-pressure maneuver by individuals with acute symptoms of presyncope due to vasovagal or orthostatic causes in the first aid setting (strong recommendation, low and very low certainty evidence).</p> <p>We suggest that lower body physical counter-pressure maneuvers are preferable to upper body and abdominal physical counter-pressure maneuvers (weak recommendation, very low certainty evidence). (SysRev 2019)</p>	Unchanged (EvUp 2025)	<p>It is required that compares the effectiveness and adverse events of PCM in different age groups (particularly older or frail adults).</p> <p>Research is required to determine if first aid providers can recognize or be trained to recognize orthostatic or vasovagal presyncope/syncope.</p> <p>Research is required on the clinical outcomes of first aid providers coaching individuals with presyncope on how to use PCM.</p>
Unintentional injury from laypersons providing chest compressions to patients who are not in cardiac arrest FA 7670	<p>We recommend that laypersons initiate CPR for presumed cardiac arrest without concerns of harm to patients not in cardiac arrest (strong recommendation, very low certainty evidence). (SysRev, 2020)</p>	<p>We recommend that laypersons initiate CPR for presumed cardiac arrest without concerns of causing unintentional injury (strong recommendation, low certainty evidence).</p> <p>We recommend that other rescuers (e.g., trained bystanders, health care professionals and those with a duty to respond) initiate CPR for presumed cardiac arrest without concerns of causing unintentional injury to persons not in cardiac arrest (good practice statement). (SysRev 2025)</p>	<p>More studies are needed with robust methodology to identify unintentional injuries and provide follow-up after hospital discharge.</p> <p>Further many patients did not follow the EMS to the hospital or was discharged from the ED, it is possible that symptoms occur later than in the first hours from the event.</p> <p>Only one study included people under 18 years, children might have a different pattern of both causes and injuries.</p>
First aid for trauma emergencies			
Spinal motion restriction (FA 7311, FA 772, including the topic Spinal injury manual stabilization FA 7312, FA 1547)	<p>We suggest against the use of cervical collars by first aid providers (weak recommendation, very low-certainty evidence). (ScopRev 2020)</p> <p>There is insufficient evidence for or against manual cervical spine</p>	Unchanged (ScopRev 2025)	<p>There were no randomized controlled trials identified that evaluated spinal motion restriction compared with no spinal motion restriction adults and children considered to be at high-risk for cervical spine injury.</p>

Review topic, FA number	Prior Treatment Recommendations (Year, type of review)	2021-2025 Treatment Recommendations (Year and type of review)	Important knowledge gaps
	restriction of motion (current terminology is <i>manual stabilization</i>). (ScopRev, 2020)		<p>No comparative studies in children with potential spine injuries were identified that evaluate outcomes with cervical spinal motion restriction.</p> <p>Research is needed to evaluate training requirements for the proper application of a cervical collar.</p>
Cryotherapy for epistaxis FA 7151	New topic	No recommendation (ScopRev, 2021)	<p>The lack of clinical trials examining the effectiveness of cryotherapy (alone or in conjunction with nose pinching) in patients with acute epistaxis.</p> <p>The lack of clinical trials investigating the effectiveness of cryotherapy (alone or in conjunction with nose pinching) in the first aid setting.</p> <p>The lack of clinical trials examining the effectiveness of cryotherapy (alone or in conjunction with nose pinching) by first aid providers.</p>
Manual Pressure and Pressure Devices FA 7331, FA 530	<p>In the absence of comparative evidence, we are unable to recommend for or against the use of a junctional tourniquet by first aid providers in comparison with direct manual pressure alone for severe, life-threatening external bleeding.</p> <p>In the absence of comparative evidence, we are unable to recommend for or against the use of wound clamps by first aid providers in comparison with other hemostatic techniques for severe, life-threatening external bleeding.</p>	Unchanged (EvUp 2025)	<p>There are no experimental or observational studies comparing use of junctional tourniquets or wound clamps with use of direct manual pressure in adults or children with severe, life-threatening bleeding in the prehospital setting.</p> <p>It is unclear if first aid providers are able to recognize wounds that would be amenable to junctional tourniquets and if they are able to apply them properly.</p> <p>Experimental or observational studies are needed comparing pressure dressings, bandages, devices, or pressure points</p>

Review topic, FA number	Prior Treatment Recommendations (Year, type of review)	2021-2025 Treatment Recommendations (Year and type of review)	Important knowledge gaps
	<p>We recommend that first aid providers use direct manual compression compared with the use of external compression devices or pressure dressings/bandages for severe life-threatening external bleeding (strong recommendation, very low certainty evidence).</p> <p>We recommend against the use of pressure points compared with the use of direct pressure by first aid providers for severe, life-threatening external bleeding (strong recommendation, very low certainty evidence). (SysRev 2020)</p>		<p>with direct manual pressure in patients with severe, life-threatening external bleeding in the prehospital or first aid setting.</p> <p>Research is needed to identify optimal techniques to provide direct manual pressure while minimizing rescuer fatigue.</p> <p>Experimental or observational studies are needed for control of life-threatening bleeding with use of pressure dressings, bandages or devices in children.</p> <p>It is unclear if first aid providers can appropriately locate pressure points.</p>
<p>Type of Tourniquets alone or in combinations with other methods of achieving hemostasis FA 7333, FA 768</p>	<p>We suggest that first aid providers use a tourniquet in comparison with direct manual pressure alone for severe, life-threatening external bleeding that is amenable to the application of a tourniquet (weak recommendation, very low certainty evidence).</p> <p>We suggest that first aid providers use a tourniquet rather than a hemostatic dressing for severe, life-threatening external bleeding that is amenable to the use of a tourniquet (weak recommendation, very low certainty evidence).</p> <p>If a tourniquet is not immediately available, we suggest direct manual pressure to control life-threatening external bleeding from an extremity</p>	<p>Unchanged (EvUp 2025)</p>	<p>Sufficiently powered experimental or observational studies are needed that compare the use of manufactured tourniquets with hemostatic dressings or improvised tourniquets and studies that compare windlass tourniquets with other tourniquet designs for severe, life-threatening prehospital bleeding.</p> <p>Studies are needed to determine if first aid providers can recognize injuries that are amenable to tourniquet placement.</p> <p>Studies are needed to determine the educational requirements necessary to teach first aid providers to appropriately deploy tourniquets on a mass scale (eg, just-in-time training).</p>

Review topic, FA number	Prior Treatment Recommendations (Year, type of review)	2021-2025 Treatment Recommendations (Year and type of review)	Important knowledge gaps
	<p>until a tourniquet can be applied (good practice statement).</p> <p>We suggest direct manual pressure with or without use of a hemostatic dressing if the site of bleeding is not amenable to use of a tourniquet (good practice statement).</p> <p>We suggest that first aid providers use a manufactured tourniquet compared with an improvised tourniquet for severe, life-threatening external bleeding (weak recommendation, very low-certainty evidence).</p> <p>For the treatment of severe, life-threatening external bleeding by first aid providers, we are unable to recommend any one particular design of tourniquet compared with another. (SysRev 2020)</p>		
Types of Pediatric tourniquets FA 7333, FA 768	<p>We suggest that first aid providers use a tourniquet in comparison with direct manual pressure alone for severe, life-threatening external extremity bleeding in a child that is amenable to the application of a tourniquet (weak recommendation, very low-certainty evidence).</p> <p>If a tourniquet is not immediately available, we suggest direct manual pressure to control life-threatening external bleeding from an extremity until a tourniquet can be applied (Good Practice Statement).</p>	SysRev, 2021	<p>There is an urgent need for additional human studies in the prehospital setting to determine which tourniquet designs are able to be used successfully in the pediatric population.</p> <p>Human studies are needed to determine the lower age and size limits to which these tourniquets can be successfully applied in both upper and lower extremities.</p> <p>Human studies are needed to determine the ease of application of tourniquets on children.</p>

Review topic, FA number	Prior Treatment Recommendations (Year, type of review)	2021-2025 Treatment Recommendations (Year and type of review)	Important knowledge gaps
	<p>We suggest direct manual pressure with or without use of a hemostatic dressing if the site of bleeding is not amenable to use of a tourniquet (good practice statement).</p> <p><i>Note:</i> These recommendations follow from the 2020 SysRev on the topic of Control of Severe, Life-Threatening External Extremity Bleeding: Tourniquets Compared With Direct Manual Pressure.</p> <p>We suggest the use of a manufactured windlass tourniquet for the management of life-threatening extremity bleeding in children (weak recommendation, very low-certainty evidence).</p> <p>We are unable to recommend for or against the use of other tourniquet types in children because of lack of evidence.</p> <p>For infants and children with extremities that are too small to allow the snug application of a tourniquet before activating the circumferential tightening mechanism, we recommend the use of direct manual pressure with or without the application of a hemostatic trauma dressing (good practice statement). (SysRev, 2020)</p>		<p>Studies are needed to further define complications of tourniquet use in children.</p>
Hemostatic dressing FA 7334, FA 769	We suggest that first aid providers use a hemostatic dressing with direct pressure as opposed to direct pressure	Unchanged (EvUp 2025)	Additional research is needed to determine if first aid providers are able to use hemostatic dressings properly and

Review topic, FA number	Prior Treatment Recommendations (Year, type of review)	2021-2025 Treatment Recommendations (Year and type of review)	Important knowledge gaps
	<p>alone for severe, life-threatening external bleeding (weak recommendation, very low certainty of evidence).</p> <p>For the treatment of severe, life-threatening external bleeding by first aid providers, due to very limited data and very low confidence in effect estimates, we are unable to recommend the use of any one specific type of hemostatic dressing compared with another. (SysRev 2020)</p>		<p>whether any one type of hemostatic dressing or agent is superior.</p> <p>Research is needed to assess risks and benefits of hemostatic dressings in children.</p>
<p>Duration of cooling with water for thermal burns FA 7371, FA 770</p>	<p>We recommend that first aid providers actively cool thermal burns (strong recommendation, low-quality evidence). (COSTR, 2015)</p>	<p>We recommend the immediate active cooling of thermal burns using running water as a first aid intervention for adults and children (strong recommendation, very low certainty evidence).</p> <p>Because no difference in outcomes could be demonstrated with the different cooling durations studied, a specific duration of cooling cannot be recommended. Young children with thermal burns being actively cooled with running water should be monitored for signs and/or symptoms of excessive body cooling (good practice statement). (SysRev, 2021)</p>	<p>Since cooling is thought to relieve pain it is possible that first aid providers may cool a burn until the pain has been relieved rather than for a specific duration of time. We did not have enough data to support this theory or a recommendation to cool a burn until there is relief of pain.</p> <p>In Task Force discussions, there was the consensus opinion that the optimal duration of cooling may not be a rigid time but rather influenced by the burn location, the size and depth of the burn as well as the temperature of the water used for cooling. For example, more severe / extensive / painful burns might require longer durations of cooling to observe a beneficial effect.</p>
<p>Dental avulsion FA 7361, FA 794</p>	<p>We suggest the use of Hanks' Balanced Salt Solution, propolis (from 0.04 mg to 2.5 mg per mL 0.4% ethanol), oral rehydration salt solutions including Ricetral™ (oral rehydration salt solutions containing sodium</p>	<p>Unchanged (EvUp 2025)</p>	<p>There is a lack of studies with traumatic avulsed teeth (instead of extracted teeth), measuring tooth viability (not cell viability), and success of replantation.</p>

Review topic, FA number	Prior Treatment Recommendations (Year, type of review)	2021-2025 Treatment Recommendations (Year and type of review)	Important knowledge gaps
	<p>chloride, glucose, potassium chloride, citrate [or extruded rice]), or cling film compared with any form of cow's milk for temporary storage of an avulsed tooth that cannot be immediately replanted (weak recommendation, very low–certainty evidence).</p> <p>If none of the above choices are available, we suggest the use of cow's milk, any percent fat or form, compared with tap water, buttermilk, castor oil, turmeric extract, or saline (sodium chloride) for temporary storage of an avulsed tooth (weak recommendation, very low–certainty evidence).</p> <p>There is insufficient evidence to recommend for or against temporary storage of an avulsed tooth in saliva compared with alternative solutions. There is insufficient evidence to recommend for or against temporary storage of an avulsed tooth in probiotic media, epigallocatechin-3-gallate, Dentosafe™ box, or egg white compared with cow's milk. (SysRev, 2020)</p>		<p>There are no studies that evaluate replanting the tooth in the dental socket compared with storage in a temporary storage medium for outcomes of viability.</p> <p>It is unclear if training in dental replantation for first aid providers feasible and effective.</p>
<p>Compression wrap for closed extremity joint injuries FA 7381, FA 511,</p>	<p>We suggest either application of a compression bandage or no application of a compression bandage for adults with an acute closed ankle joint injury (weak recommendation, very low certainty evidence).</p> <p>Due to a lack of identified evidence, we are unable to recommend for or against use of a compression bandage</p>	<p>Unchanged (EvUp 2025)</p>	<p>Additional research is needed to determine whether compression wraps may be beneficial for other acute closed joint injuries, such as to the wrist, and to confirm findings of the included studies in the prehospital setting.</p> <p>Future research should include additional outcomes, such as stakeholder satisfaction, and the first aid provider's</p>

Review topic, FA number	Prior Treatment Recommendations (Year, type of review)	2021-2025 Treatment Recommendations (Year and type of review)	Important knowledge gaps
	for closed joint injuries on other joints besides the ankle. (SysRev 2019)		<p>ability to properly apply a compression wrap without training or with use of simple video instructions available online.</p> <p>It is unclear how much pressure may be effective for important outcomes and if compression bandages may augment the effect of other adjunct therapies administered in the first aid setting.</p>
Preservation of traumatic, completely amputated or avulsed body parts FA 7391	New topic	<p>Success in replantation is time-dependent; completely amputated and avulsed external body parts such as fingers, hands, arms and legs should be retrieved and transported as soon as possible, preferably to the same healthcare facility as the injured person (good practice statement).</p> <p>Replantation outcomes may be improved by cooling without freezing the amputated or avulsed part as soon as possible and throughout transportation to a healthcare facility. If feasible, this can be accomplished by wrapping the part in a moist clean cloth or gauze and sealing it in a watertight bag or container prior to cooling (good practice statement) (ScopRev, 2015)</p>	<p>There were no randomized controlled studies identified that directly evaluated this question, including a comparison of different technique for the provision of cold storage, such as ice-water immersion vs dry cold storage.</p> <p>There are few studies or reports of amputation/replantation occurring in regions where ice is not available. There are no studies of alternatives to ice for pre-arrival cooling of amputated/avulsed tissue, such as with coolers and freezer packs, instant cold packs, cool water, battery powered coolers.</p> <p>There is a need for more and larger cohort studies; hospitals clearly have the data on this, they should publish them or make them accessible to researchers. Systematic collection and reporting of data on the methods of pre-hospital preservation by first aid providers and prehospital professionals specifically should be performed by both clinicians and researchers.</p>
First aid for environmental emergencies			

Review topic, FA number	Prior Treatment Recommendations (Year, type of review)	2021-2025 Treatment Recommendations (Year and type of review)	Important knowledge gaps
Exertion-related dehydration and rehydration FA 7241, FA 584	We suggest that first aid providers use 3% to 8% CE drinks for treating exertion-related dehydration. If 3% to 8% CE drinks are not available or not tolerated, alternative beverages for rehydration include water, 12% CE solution, coconut water, 2% milk, tea, tea-CE, or caffeinated tea beverages (weak recommendation, very-low-quality evidence). (SysREv, 2015)	<p>We recommend the use of any readily available rehydration drink or water for treating exertion-related dehydration in the first aid setting (good practice statement).</p> <p>We suggest rehydration for exertion-related dehydration with a 4% to 9% carbohydrate-electrolyte drink. Alternative rehydration options include 0% to 3.9% carbohydrate-electrolyte drinks, water, coconut water, or skim or low-fat cow's milk (weak recommendation, very low-certainty evidence).</p> <p>There is insufficient evidence to recommend for or against rehydration with beer (0%–5% alcohol) (SysRev, 2021)</p>	<p>It is unknown if a first aid provider can determine the amount of liquid as well as the time required required for rehydration.</p> <p>It is unknown if a first aid provider can determine the chemical composition of available rehydration products.</p>
Methods of Tick Removal FA 7231	New topic	<p>We recommend against the use of chemicals, heat, or ice in comparison with mechanical methods for the removal of a tick (strong recommendation, very low-certainty evidence).</p> <p>We suggest either pulling with tweezers or using commercial devices according to the manufacturer's instructions to remove a tick rather than removal by hand (weak recommendation, very low-certainty evidence). (SysRev, 2021)</p>	<p>Studies are needed among lay providers to determine the most efficacious methods of tick removal in humans.</p> <p>Studies with clinical outcomes of transmission of disease are needed to help determine the best methods of tick removal.</p>
Treatment of jellyfish stings FA 7211	New topic	<p>Following a jellyfish sting, we recommend rinsing the area of the sting with sea water. (strong recommendation, very low certainty of evidence).</p> <p>For non-life-threatening jellyfish envenomation we suggest the use of</p>	<p>The studies in this and the Cochrane review used a range of 40°C to 45°C, one study used hot packs that were reported to be 43°C and one study used a "hot shower" that did not report the temperature. More studies are needed to</p>

Review topic, FA number	Prior Treatment Recommendations (Year, type of review)	2021-2025 Treatment Recommendations (Year and type of review)	Important knowledge gaps
		<p>heated water (40-45° C, 104-113° F) (immersion, irrigation or shower) or hot pack application compared with application of a cold pack, topical lidocaine, benzocaine, acetic acid, Adolph's® meat tenderizer, Sting-Aid, sodium bicarbonate, to relieve pain from a jellyfish sting (weak recommendation, very low certainty evidence).</p> <p>We recommend against the use of topical 10% ammonia, isopropanol or ethanol for the treatment of jellyfish stings (weak recommendation, low certainty of evidence). (SysRev, 2025)</p>	<p>determine the optimal temperature of the hot water used for treatment.</p> <p>There are many species of jellyfish throughout the world. Inconsistencies in study results may be secondary to the species of jellyfish used. More research is needed to determine the optimal treatments for all jellyfish species.</p> <p>This review did not find data on survival or need for hospitalization. There may be other treatments that affect these outcomes that were not included in this review.</p>
Current active PICOST not addressed in the CoSTR 2025			
Heatstroke cooling FA 7242, FA 1548	<p>For adults with exertional hyperthermia or exertional heatstroke: We recommend immediate active cooling using whole-body (from the neck down) water-immersion techniques (1°C–26°C/33.8°F–78.8°F) until a core body temperature of less than 39°C/102.2°F is reached (weak recommendation, very low-certainty evidence).</p> <p>We recommend that where water immersion is not available, any other active cooling technique be initiated (weak recommendation, very low-certainty evidence).</p> <p>We recommend immediate cooling using any active or passive technique available that provides the most rapid</p>		<p>There is an urgent need for studies investigating the optimal duration of cooling by cold-water immersion techniques when core body temperature measurement is unavailable.</p> <p>Specific pediatric intervention studies for heat-related illness are lacking.</p> <p>There are no comparative studies of combined active-plus-passive cooling techniques (eg, the use of ice packs with evaporative and passive cooling) on rate of cooling and clinical outcomes.</p>

Review topic, FA number	Prior Treatment Recommendations (Year, type of review)	2021-2025 Treatment Recommendations (Year and type of review)	Important knowledge gaps
	<p>rate of cooling (weak recommendation, very low-certainty evidence)</p> <p>For adults with nonexertional heatstroke, we cannot make a recommendation for or against any specific cooling technique compared with an alternative cooling technique. For children with exertional or nonexertional heatstroke, we cannot make a recommendation for or against any specific cooling technique compared with an alternative cooling technique.</p> <p>(SysRev 2020, EvUp 2022)</p>		
<p>Optimal position for shock FA 7131, FA 520</p>	<p>We suggest first aid providers place persons with shock in the supine position as opposed to the upright position (weak recommendation, low-certainty evidence).</p> <p>(COSTR 2015, EvUp 2020)</p>		<p>This recommendations place an increased value on the potential, but uncertain, clinical benefit of improved vital signs and cardiac function, by positioning a victim with shock in the supine position (with or without passive leg raise), over the risk of moving the victim.</p>
<p>Supplementary oxygen for stroke FA 7031</p>	<p>For adults with suspected acute stroke, we suggest against the routine use of supplementary oxygen in the first aid setting compared with no use of supplementary oxygen (weak recommendation, low- to moderate-certainty evidence)</p> <p>SysRev 2020</p>		<p>There are no RCTs comparing the routine administration of supplementary oxygen with room air in acute stroke patients in first aid settings.</p> <p>The effect of short-term use of supplementary oxygen only in the first aid settings remains unknown.</p> <p>There are no studies about optimal concentration of administered supplementary oxygen or comparing the delivery methods of oxygen for adults with suspected acute stroke</p>

Review topic, FA number	Prior Treatment Recommendations (Year, type of review)	2021-2025 Treatment Recommendations (Year and type of review)	Important knowledge gaps
Bronchodilators for acute asthma exacerbation FA 7121, FA 534	When an individual with asthma is experiencing difficulty breathing, we suggest that trained first aid providers assist the individual with administration of a bronchodilator (weak recommendation, very-low-certainty evidence). (SysRev 2015, EvUp 2022)		It is unknown if a first aid provider can recognize asthma as well type and volume of training to be able to handle inhalation devices.
Oral dilution with milk or water for poisoning with caustic substance ingestion FA 7421, FA 537	No recommendation. (CoSTR2010, EvUp 2022)		There is a lack of prehospital and first aid studies, current evidence comes from hospital-based studies.
Dressings for superficial thermal burns FA 7251, FA 1545	No recommendation. (ScopRev 2020)		<p>It is unknown whether a first aid provider can properly determine the depth of thermal burn in a first aid setting in order to be able to render appropriate care in the first aid setting.</p> <p>It is unknown what first aid intervention is most appropriate in the first aid setting for managing a thermal burn with an unknown depth.</p> <p>There is an urgent need for identification of superficial thermal interventions compared with other interventions, not just dressings, and whether first aid providers have the ability to use these.</p> <p>There is a need for more thorough explanations of the application of alternative thermal injury interventions (ie, application of honey or aloe vera, with or without dressing and bandage) and whether first aid providers have the ability to use these.</p>

Review topic, FA number	Prior Treatment Recommendations (Year, type of review)	2021-2025 Treatment Recommendations (Year and type of review)	Important knowledge gaps
Open chest wound dressings FA7321, FA 525	We suggest against the application of an occlusive dressing or device by first aid providers to individuals with an open chest wound (weak recommendation, very-low-certainty evidence). (SysRev 2010, EvUp 2022)		It is unknown if a layperson can identify an open chest wound. It is unknown if a first aid provider can apply an adequate dressing.
Single-stage scoring systems for concussion FA 7341 FA 799	No recommendation; we acknowledge the role that a simple, validated, single-stage concussion scoring system could play in first aid providers' recognition and referral of victims suspected of head injury. However, review of the available literature shows no evidence about the application of such scoring systems by first aid providers (2015, EvUp 2022)		There is an urgent need for the development of a single-stage concussion scoring system for use by non-healthcare professionals in the first aid environment. There is a need for research to assess the efficacy of the current 2-stage concussion scoring systems in the clinical environment and determine whether they can be applied to non-sports environments as a single-stage scoring system and whether they can be used by non-healthcare providers.
Foreign body in eye FA 7351, FA 1544	We suggest that first aid providers use continuous, large volumes of clean water for irrigation of chemical eye injuries (weak recommendation, very-low-certainty evidence). We did not identify any studies evaluating the use of irrigation for other substances entering the eye comparing irrigation solutions with water. (SysRev 2010, EvUp 2015)		No studies exists on first aid providers, therefore the ability to identify and perform interventions are unknown.
Pressure Immobilization following snake bite FA 7221	No recommendation EvUP 2021		It is unknown if first aid providers are able to apply the correct pressure when applying pressure bandage.