

[HOSPITAL / HEALTH AUTHORITY NAME]

BURNS, WOUNDS, BITES, STINGS, AND ENVENOMATION PATHWAY

Protocol 35: Rapid Stabilization, Burn and Wound Care, Infection and Toxin Prevention, Antivenom / Antidote Escalation, Transfer, and Safe Disposition

DRAFT FOR EMERGENCY MEDICINE, TRAUMA / SURGERY, BURN / PLASTIC SURGERY, ANAESTHESIA, PAEDIATRICS, INFECTIOUS DISEASES, PUBLIC HEALTH, TOXICOLOGY / POISON SERVICES, NURSING, EMS, PHARMACY, OPHTHALMOLOGY, AND TRANSFER SERVICES

STATUS: This is a draft clinical-governance document. It must be adapted to local burn, surgical, plastic / hand, ophthalmology, infectious-disease, public-health, poison-centre, veterinary, laboratory, pharmacy, antivenom, rabies-biologic, tetanus, antimicrobial, and transfer capabilities. Species-specific envenomation treatment, antivenom selection, burn-fluid formulas, wound closure, antimicrobial regimens, rabies post-exposure prophylaxis, and referral thresholds require local approval before implementation.

IMMEDIATE SAFETY RULE: Stop the injuring process, protect staff from contamination, complete ABCDE, control catastrophic bleeding, remove constricting items, cool thermal burns without causing hypothermia, irrigate chemical exposures, give intramuscular adrenaline for anaphylaxis, and obtain urgent poison / burn / surgical advice for systemic toxicity, airway threat, major burn, deep or contaminated wound, or progressive envenomation. Do not cut, suck, tightly tourniquet, ice, cauterize, or electrically shock a suspected snakebite.

| Document control | Details |
|-------------------|---|
| Document owner | Emergency Department / Medical Services Directorate / Nursing Services / Clinical Governance |
| Clinical leads | Emergency Medicine; General / Trauma Surgery; Burn / Plastic / Hand Surgery; Anaesthesia / Critical Care; Paediatrics; Infectious Diseases / Microbiology; Public Health; Toxicology / Poison Service; Ophthalmology |
| Applies to | Adults, children, pregnant patients, older adults, and vulnerable patients with thermal, chemical or electrical burns; acute wounds; human or animal bites; arthropod or marine stings; and suspected venomous bites or envenomation |
| Interfaces | Protocol 29 Poisoning and Overdose; Protocol 30 Anaphylaxis; Protocol 31 Major Trauma; Protocol 34 Limb Injury; Protocol 43 Safeguarding; Protocol 49 Major Haemorrhage; Protocol 50 Procedural Sedation; local rabies, tetanus, antimicrobial, occupational-exposure and transfer policies |
| Version / status | Draft 1.0 for local multidisciplinary validation |
| Review cycle | After any serious incident, guideline change, species / antivenom change, outbreak, service change, or at least every 2 years |
| Required approval | Emergency Department; Surgery / Burn / Plastic Services; Anaesthesia; Paediatrics; Infectious Diseases / Microbiology; Public Health; Pharmacy; Nursing; EMS; Clinical Governance |

1. Purpose

To provide a standardized emergency-department pathway for rapid stabilization, assessment, decontamination, analgesia, burn and wound management, infection prevention, tetanus and rabies risk management, recognition of systemic toxicity and envenomation, specialist escalation, transfer, observation, and safe disposition while preventing avoidable airway loss, shock, tissue loss, infection, disability, and death.

2. Scope

This protocol applies from pre-alert or first contact until discharge, observation, admission, operative care, specialist transfer, rehabilitation referral, or death. It covers thermal, scald, contact, friction, chemical, electrical and radiation burns; lacerations, punctures, avulsions and contaminated wounds; human and animal bites; insect and arthropod stings; snakebite; and marine envenomation. It complements rather than replaces major-trauma, anaphylaxis, toxicology, safeguarding, antimicrobial, public-health, and specialty-specific pathways.

3. Core policy statements

- Stabilization takes priority over wound appearance. Complete ABCDE, treat airway compromise, shock, major haemorrhage, hypoglycaemia, seizure, arrhythmia and anaphylaxis without waiting for definitive identification of the agent or species.
- Protect staff and other patients. For chemical, pesticide, unknown-powder or contaminated exposures, use appropriate personal protective equipment, isolate the patient when required, remove contaminated clothing and prevent secondary contamination of the department.
- Stop thermal injury and cool with cool running water as soon as practical, aiming for approximately 20 minutes when safe. Do not use ice, iced water, butter, toothpaste, oils or unapproved topical remedies. Prevent whole-patient hypothermia.
- Burn size and depth evolve. Exclude simple erythema from TBSA, document depth by area, reassess after cleaning and resuscitation, and seek early burn-specialist advice for deep, large, critical-area, chemical, electrical, inhalation or paediatric burns.
- Analgesia, anxiolysis, warming, dignity and psychological support are core emergency treatments. Pain relief must not be withheld to preserve examination findings.
- Irrigate wounds adequately, remove visible foreign material when safe, preserve viable tissue, and explore only with sufficient anaesthesia, lighting, haemostasis and expertise. Do not blindly probe deep wounds.
- Do not prescribe systemic antibiotics routinely for uncomplicated clean wounds or uncomplicated burns. Use prophylaxis or treatment only when indicated by wound type, contamination, bite risk, host factors, infection or specialist advice.
- Assess tetanus risk for every burn, bite and wound. Vaccination and tetanus immune globulin depend on wound category and immunization history; antibiotics do not prevent tetanus.
- Every possible rabies exposure requires immediate wound cleansing and timely public-health risk assessment. Do not delay indicated post-exposure prophylaxis while awaiting animal observation or testing unless directed by public health.
- For snakebite, minimize movement, remove constricting items, immobilize the patient and limb, mark swelling progression and obtain serial clinical and laboratory assessment. Antivenom is species / syndrome and product specific and should be given only under an approved pathway with resuscitation capability.
- All bites and stings require assessment for anaphylaxis. Treat suspected anaphylaxis immediately under Protocol 30; antihistamines are not a substitute for intramuscular adrenaline.
- Every discharge requires a diagnosis or working diagnosis, wound / dressing plan, medication and prophylaxis plan, follow-up, functional advice, and explicit written return precautions. Pending results and public-health actions must have a named owner.

4. Definitions and severity framework

| Term | Operational definition |
|-------------------------------|--|
| Superficial burn | Epidermal injury: red, dry, blanching and painful without blistering. Do not count in TBSA calculations. |
| Partial-thickness burn | Dermal injury with blistering or moist surface. Superficial partial thickness is typically red, blanching and very painful; deep partial thickness is paler, drier, less blanching and may be less painful. |
| Full-thickness burn | Destruction through the dermis: dry, leathery, white, brown or charred appearance with reduced pinprick sensation. Count in TBSA. |
| TBSA | Percentage of total body surface area affected by partial- or full-thickness burn. Use Lund-Browder in children, rule of nines in adults, or the patient palm including fingers as approximately 1% for scattered small areas. |
| Major / complex burn | Burn requiring urgent specialist consultation or transfer because of size, depth, site, inhalation injury, chemical or electrical mechanism, age, comorbidity, associated trauma, uncontrolled pain, or local capability. |
| Complicated wound | Wound with major bleeding, deep structure injury, contamination, retained foreign body, high-pressure injection, crush / devitalized tissue, infection, bite, critical location, delayed presentation, impaired host defence, or safeguarding concern. |
| Envenomation | Clinical effects caused by venom injection, including local progression, coagulopathy, bleeding, neurotoxicity, myotoxicity, cardiovascular toxicity, renal injury or systemic allergic response. |
| Dry bite / sting | A bite or sting without clinically apparent venom effect at that time. It remains a diagnosis after adequate observation and serial assessment, not at first inspection. |
| Stable for discharge | No airway, circulatory, neurological, infectious, tissue or toxicity threat; pain controlled; wound care and prophylaxis complete; reliable follow-up; and patient can return promptly if deterioration occurs. |

| Priority category | Typical findings | Minimum response |
|---------------------------------|---|---|
| Immediate life threat | Airway burn / inhalation injury; respiratory failure; anaphylaxis; shock; uncontrolled haemorrhage; electrical arrest / arrhythmia; severe systemic envenomation; altered consciousness; major chemical contamination | Resuscitation bay; ABCDE; decontamination as needed; senior ED / anaesthesia / surgery / toxicology response; definitive airway, haemorrhage, antidote / antivenom and transfer planning now. |
| Immediate tissue / organ threat | Circumferential burn with compromised ventilation or perfusion; deep facial / eye / hand / genital burn; high-pressure injection; devitalized or infected wound; compartment syndrome; progressive snakebite swelling; ocular chemical injury | Immediate analgesia and specialist review; irrigation / pressure relief / imaging / surgery as indicated; do not delay for routine processes. |
| Potentially serious | Partial-thickness burn, contaminated or deep wound, mammalian bite, multiple stings, marine spine injury, uncertain envenomation, high-risk host or delayed presentation | Prompt structured assessment, wound care, prophylaxis, serial review and disposition based on trend and capability. |
| Low risk | Small superficial injury, clean uncomplicated wound or localized sting with normal physiology, controlled pain and reliable follow-up | Appropriate local care, prevention review, written advice and return precautions. |

5. Roles and accountability

| Role | Minimum responsibility |
|--|--|
| Senior ED clinician | Lead stabilization; classify severity; direct decontamination, burn / wound care, prophylaxis, antidote / antivenom discussion, consultation, observation, transfer and disposition. |
| Nurse | Triage; PPE and decontamination support; analgesia; cooling / irrigation; dressing; serial pain, perfusion, swelling, airway, neurological and systemic observations; patient education. |
| Surgery / burn / plastic / hand service | Advise airway / escharotomy, debridement, wound closure, grafting, complex-site injury, deep-structure damage, infection, tissue loss and operative disposition. |
| Anaesthesia / critical care | Airway, ventilation, invasive monitoring, burn-shock or envenomation support, procedural sedation and transfer stabilization. |
| Infectious diseases / microbiology / public health | Guide bite infection, unusual organisms, rabies risk, blood-borne exposure, notifiable disease, outbreak and prophylaxis decisions. |
| Toxicology / poison service | Guide chemical exposure, venom syndrome, antivenom / antidote selection, monitoring, laboratory strategy and enhanced care. |
| Ophthalmology | Urgent ocular chemical, thermal, penetrating, venom or retained-foreign-body assessment after immediate irrigation. |
| Pharmacy | Maintain approved burn, analgesia, antimicrobial, tetanus, rabies, antidote and antivenom monographs, storage, stock rotation and emergency availability. |
| EMS / transfer team | Stop exposure when safe, prevent secondary contamination, continue cooling / irrigation when appropriate, immobilize suspected envenomation, monitor and provide complete handover. |
| All clinicians | Use time-stamped documentation, closed-loop communication, safeguarding and forensic principles; identify ownership of pending tests, vaccination series and follow-up. |

6. Pre-alert, preparation, and triage

- Receive MIST / ATMIST plus agent or species, exposure route and time, fire / enclosed-space history, voltage or lightning, decontamination already performed, burn size, airway symptoms, bleeding, swelling progression, systemic symptoms, allergies, comorbidity, medications, immunization status and estimated arrival.
- For contaminated patients, identify a safe decontamination area, PPE, runoff control, security and environmental / occupational-health support before arrival. Do not bring contaminated clothing or chemicals into clean clinical areas.

- Prepare airway and resuscitation equipment, warmed fluids, burn sheets / dressings, irrigation supplies, pH paper, ocular irrigation, analgesia / sedation, wound instruments, tetanus and rabies products, approved antimicrobials, antidotes / antivenoms, anaphylaxis medication and transfer documentation.
- Activate burn / surgery, anaesthesia, ophthalmology, paediatrics, public health, poison service and receiving centre according to anticipated threat. Early consultation must run in parallel with care.
- Triage at highest acuity for facial / airway burns, enclosed-space smoke exposure, major TBSA, chemical eye exposure, high-voltage or lightning injury, major bleeding, deep critical-area wound, progressive swelling, systemic envenomation, anaphylaxis, hypotension, altered consciousness or severe uncontrolled pain.
- Screen all children, dependent adults and unusual injury patterns for neglect, non-accidental injury, self-harm, interpersonal violence, occupational exposure and unsafe living conditions.

7. First 10 minutes: parallel action

1. Ensure scene and staff safety. Remove the patient from the source, use PPE, isolate contamination and remove contaminated clothing / jewelry while preserving evidence where relevant.
2. Complete ABCDE. Give high-flow oxygen for significant smoke inhalation or carbon-monoxide concern; manage anaphylaxis under Protocol 30 and major bleeding under Protocol 31 / 49.
3. Stop the burning process. Cool thermal burns with cool running water when safe; brush off dry chemicals before irrigation; irrigate liquid chemicals and eyes immediately. Prevent hypothermia.
4. Expose enough to identify all injuries while maintaining warmth and dignity. Remove rings, watches and constricting items before swelling progresses.
5. Give early titrated analgesia and antiemetic therapy. Use local / regional anaesthesia or procedural sedation only under approved competency and monitoring.
6. Establish IV / IO access when major burn, shock, severe pain, systemic toxicity, electrical injury or significant envenomation is suspected. Obtain targeted blood tests without delaying treatment.
7. Estimate burn depth and TBSA; identify critical sites, circumferential burns and inhalation injury. Photograph under policy before dressings when useful and consent / safeguarding permit.
8. Control wound bleeding, assess distal neurovascular and tendon function, irrigate / cover appropriately, and identify bites, punctures, retained foreign bodies or high-pressure injection.
9. For suspected snakebite or progressive envenomation, immobilize, mark the swelling edge with time, obtain baseline observations and labs, and contact poison / antivenom expertise early.
10. Decide and document the immediate route: local treatment and discharge, observation, specialist admission, emergency theatre, antidote / antivenom treatment, or urgent transfer.

8. General assessment and immediate supportive care

8.1 Focused history

| Domain | Minimum questions |
|---------------------------|---|
| Event | Exact time, mechanism, location, enclosed space, duration, clothing / PPE, first aid, contamination, delay, water / soil / animal exposure, and possibility of multiple injuries. |
| Agent / animal | Heat source, chemical name / label / safety data sheet, voltage and current path, animal species and behaviour, ownership / vaccination / availability for observation, snake or marine organism description without risking capture. |
| Symptoms | Airway change, dyspnoea, chest pain, syncope, weakness, diplopia, dysphagia, bleeding, dark urine, vomiting, severe pain, numbness, fever and progression of swelling. |
| Host factors | Age / weight, pregnancy, diabetes, vascular disease, liver / kidney disease, asplenia, immunosuppression, bleeding disorder, allergy, medications, prior rabies vaccine and tetanus history. |
| Function / context | Dominant hand, occupation, mobility, caregiver capacity, access to transport / dressings / follow-up, safeguarding, self-harm and forensic needs. |

8.2 Examination and investigations

- Record complete observations, pain score, weight when needed for fluids / antivenom, mental status and serial trend. Examine the whole patient, not only the visible lesion.
- Assess airway voice, soot, facial or oral burns, stridor, drooling, carbonaceous sputum, enclosed-space exposure, respiratory effort and chest movement. Airway oedema may progress after initial presentation.

- Document wound site, dimensions, depth, contamination, devitalized tissue, foreign body, bleeding, tendon / joint / nerve / vascular involvement and distal function before and after intervention.
- Obtain targeted tests: blood count, electrolytes, renal / liver function, glucose, CK, coagulation / fibrinogen, blood gas / lactate, carboxyhaemoglobin / methaemoglobin, urinalysis, ECG, pregnancy test, cultures only when clinically indicated, and imaging for deep injury or retained foreign material.
- Normal initial tests do not exclude evolving inhalation injury, electrical injury, occult deep wound, infection or envenomation. Observation and serial examination are diagnostic tools.

9. Thermal burns and inhalation injury

9.1 Cooling, cleaning, depth and TBSA

- Cool the burn as early as practical with cool running water, aiming for approximately 20 minutes in total when safe. Continue within the first hours if incomplete, but do not delay resuscitation or transfer and stop if hypothermia develops.
- Remove hot, wet or chemically contaminated clothing and jewelry unless adherent. Do not forcibly remove material fused to skin. Cover the uninjured body and use warmed blankets / fluids.
- After analgesia, gently clean visible loose contamination. Manage blisters according to local burn policy; large, tense, contaminated or function-limiting blisters often require specialist-guided de-roofing, while small intact blisters may be protected.
- Use Lund-Browder for children. Record partial- and full-thickness TBSA separately and exclude superficial erythema. Reassess depth because burns may evolve over 24 to 72 hours.
- Cover with a clean non-adherent dressing or clean plastic film applied in strips, not circumferentially. Avoid cling film on the face and avoid circumferential constriction. Keep the patient warm.

9.2 Airway, inhalation injury and toxic smoke

- Give 100% oxygen when significant smoke or carbon-monoxide exposure is suspected. Pulse oximetry cannot reliably exclude carbon monoxide; obtain co-oximetry when available.
- Consider early controlled intubation for progressive hoarseness, stridor, respiratory distress, extensive facial / oral oedema, inability to protect the airway, deep neck burns or anticipated transfer with evolving oedema. Do not intubate solely for singed nasal hairs without the full clinical context.
- Assess for bronchospasm, soot, carbonaceous secretions and enclosed-space exposure. Chest radiography may be initially normal. Bronchoscopy and specialist airway assessment are definitive service decisions.
- Consider cyanide toxicity in severe enclosed-space fire with cardiovascular collapse, severe lactic acidosis or altered consciousness; follow Protocol 29 and poison-service advice.
- A circumferential full-thickness chest burn with restrictive ventilation requires immediate burn / surgical consultation for possible escharotomy by a trained clinician.

9.3 Burn shock and fluid stewardship

| Element | Operational standard |
|---------------------------------------|--|
| Who needs formal resuscitation | Adults with approximately 20% TBSA or greater generally require protocolized burn resuscitation; use lower thresholds for children, older adults or comorbidity according to local burn service. |
| Initial adult estimate | For adults with burns at least 20% TBSA, an approved starting estimate may use $2 \text{ mL} \times \text{kg} \times \% \text{TBSA}$ of balanced crystalloid over the first 24 hours from time of burn, with half of the calculated amount during the first 8 hours. This is a starting guide, not a fixed prescription. |
| Titration | Adjust hourly to physiology and urine output, not to formula alone. Typical initial urine target is about 0.5 mL/kg/hour in adults and 1 mL/kg/hour in children; follow burn-specialist targets for electrical injury, pigmenturia and special populations. |
| Children | Use a locally approved paediatric burn formula plus maintenance fluid containing glucose when indicated; weigh the child and involve paediatric / burn specialists early. |
| Avoid fluid creep | Use the lowest effective volume, reassess perfusion and lungs, and watch for abdominal, orbital and limb compartment syndromes. Escalate unexpectedly high fluid requirements. |
| Shock not explained by burn | Search for haemorrhage, sepsis, cardiogenic, toxicological or obstructive causes, especially when TBSA is too small to explain hypotension. |

9.4 Burn referral and transfer triggers

| Trigger | Action |
|---------------------|---|
| Depth / size | Full-thickness burn; partial-thickness burn at least 10% TBSA; any potentially deep burn; or burn beyond local dressing / follow-up capability -> immediate burn consultation and transfer consideration. |
| Critical site | Deep partial- or full-thickness burn of face, hands, feet, genitalia, perineum or major joint -> burn / plastic consultation. |
| Mechanism | All significant chemical injuries; high-voltage injury at least 1,000 V; lightning; suspected inhalation injury -> specialist consultation and usually transfer. |
| Patient / context | Paediatric burn, pregnancy, frailty, major comorbidity, associated trauma, poorly controlled pain, safeguarding concern or rehabilitation need -> lower threshold for burn-centre advice. |
| Resource limitation | Need for airway, escharotomy, formal resuscitation, surgery, grafting, critical care, specialist dressing or rehabilitation not available locally -> initiate transfer early. |

10. Chemical, electrical, and special burn mechanisms

| Mechanism | Emergency actions and cautions |
|------------------------|---|
| Chemical skin exposure | Protect staff. Remove clothing and jewelry. Brush off dry powder before copious irrigation unless the specific chemical requires another method. Obtain product identity / safety data and poison advice. Continue irrigation until pain improves and local protocol / pH endpoint is met. Do not neutralize routinely. |
| Chemical eye exposure | Begin immediate continuous irrigation before visual acuity, registration or specialist review. Remove contact lenses, check ocular pH serially, evert lids and remove particulate matter. Continue until pH is physiologic and stable; obtain urgent ophthalmology review. |
| Hydrofluoric acid | Treat as a toxicological emergency because small burns can cause severe pain, hypocalcaemia, arrhythmia and death. Irrigate, monitor ECG and electrolytes, and use approved calcium treatment with poison / burn specialist guidance. |
| Cement / alkali | Remove dry material and contaminated clothing, irrigate copiously and recognize delayed deep injury. Pain may be initially limited. |
| Electrical injury | Disconnect power before contact. Assess entry / exit sites, current path, voltage, loss of consciousness, fall / trauma, ECG, cardiac symptoms, neurological injury, compartment syndrome and rhabdomyolysis. High-voltage and lightning injuries require specialist consultation. |
| Low-voltage injury | A normal examination and ECG may permit discharge in selected asymptomatic patients without concerning history or tissue injury, under local policy. Persistent symptoms, abnormal ECG, syncope, pregnancy, significant burn or uncertain exposure requires observation / specialist advice. |
| Lightning | Treat arrest aggressively; reverse triage may apply because respiratory arrest can persist after cardiac activity returns. Assess tympanic, ocular, neurological, cardiac and blunt-trauma complications. |
| Tar / bitumen | Cool thoroughly, do not peel adherent material or use toxic solvents. Seek burn advice for safe softening / removal. |
| Radiation / sunburn | Assess exposure source, systemic illness, ocular symptoms, dehydration and public-health / radiation-safety implications. Significant ionizing exposure follows the radiation-emergency pathway. |

11. Acute wound assessment, irrigation, closure, and infection

11.1 Immediate wound care

- Control bleeding with direct pressure, packing or tourniquet when life-threatening. Do not blindly clamp vessels. Assess for major trauma and anticoagulation.
- Provide adequate local anaesthesia or regional block. Use a bloodless field only when safe and time limited; document tourniquet time.
- Irrigate contaminated wounds with potable tap water or sterile saline under sufficient volume and pressure to remove visible contamination without driving material deeper. Avoid routine hydrogen peroxide, bleach or cytotoxic antiseptic inside wounds.
- Remove loose devitalized tissue and visible foreign material only within competence. Preserve tissue in face, hand and questionable-viability wounds for specialist review.
- Examine movement, tendon function, sensation, perfusion and joint stability before anaesthesia when possible and repeat after treatment. Image for glass, metal, bone injury, tooth, marine spine or other retained material when indicated.
- Cover and elevate appropriately. Document wound dimensions, depth, contamination, neurovascular findings, procedure, anaesthetic, irrigation, closure material, prophylaxis and follow-up.

11.2 Closure strategy and high-risk wounds

| Wound pattern | Management principle |
|---|--|
| Clean uncomplicated laceration | Primary closure after adequate exploration and irrigation when within accepted time and tissue is viable. Timing is contextual; do not use an arbitrary clock alone. |
| Heavily contaminated / devitalized / infected | Debridement, culture only if infected, antibiotics when indicated, and delayed closure or secondary healing under surgical guidance. |
| Puncture wound | Do not close routinely. Assess depth, retained foreign body, footwear / water exposure, bone / joint involvement, tetanus and host risk. |
| Face / scalp | Control bleeding and assess nerve, duct, cartilage, eye and skull injury. Early specialist closure may be appropriate because of function and cosmesis. |
| Hand / tendon / joint | Low threshold for hand / orthopaedic review. Fight bite over metacarpophalangeal joint is a penetrating joint / tendon injury until excluded. |
| High-pressure injection | A small puncture may conceal extensive tissue necrosis. Immediate hand / surgical consultation, elevation, antibiotics and urgent operative management; do not delay for reassuring appearance. |
| Degloving / avulsion | Preserve tissue, cover moist and sterile, control bleeding, avoid repeated manipulation, photograph under policy and obtain urgent plastic / surgical advice. |
| Necrotizing infection concern | Pain out of proportion, rapid progression, skin anaesthesia, bullae, crepitus, shock or toxicity -> sepsis resuscitation, immediate surgical exploration and broad approved antibiotics. Imaging must not delay surgery. |

11.3 Antimicrobial stewardship

- Do not use prophylactic antibiotics for simple clean lacerations or uncomplicated minor burns. Good irrigation, debridement, closure and follow-up are primary infection prevention.
- Use approved prophylaxis for selected mammalian bites, open fractures, grossly contaminated wounds, water / soil exposure with deep injury, involvement of bone / joint / tendon, high-pressure injection, or high-risk immunocompromised hosts.
- Treat clinical infection based on severity and likely organisms. Obtain deep tissue or discharge samples when they will change management; superficial swabs of clean wounds are low value.
- Escalate rapidly for spreading infection, systemic illness, severe pain, lymphangitis, septic joint, osteomyelitis, necrosis, gas, immunosuppression, asplenia or decompensated liver disease.

12. Tetanus prevention

| Wound / immunization status | Tetanus vaccine | Tetanus immune globulin (TIG) |
|---|---|--|
| Any wound; unknown, unvaccinated or incomplete primary series | Give age-appropriate tetanus-containing vaccine and arrange completion of series. | For dirty / major wounds give TIG according to national product and dose policy; not indicated for clean minor wounds. |

| Wound / immunization status | Tetanus vaccine | Tetanus immune globulin (TIG) |
|--|---|---|
| Clean minor wound; completed primary series | Booster if last tetanus vaccine was at least 10 years ago. | Not indicated. |
| Dirty / major wound; completed primary series | Booster if last tetanus vaccine was at least 5 years ago. | Usually not indicated; give for severe immunodeficiency / HIV according to national policy. |
| Completed series and last dose less than 5 years | No booster regardless of wound type. | Not indicated unless exceptional national policy. |
| All categories | Clean the wound, remove foreign / necrotic material and treat infection when present. Antibiotics are not used solely to prevent tetanus. | Record product, dose, route, site, batch and follow-up vaccination plan. |

13. Human and animal bites

13.1 Common bite principles

- Irrigate promptly and assess depth, crush injury, tooth / foreign body, tendon, nerve, vessel, bone and joint involvement. Elevate affected limb and provide analgesia.
- Assess tetanus, rabies and blood-borne virus risk. Human bites may require hepatitis B and HIV exposure assessment under occupational / sexual-exposure policy.
- Obtain specialist advice for bites to hand, face, eye, genitalia, cartilage, prosthetic joint, bone / joint / tendon, major tissue loss, vascular compromise, exotic animal, infected wound or high-risk host.
- Avoid routine primary closure of infected, puncture, hand or high-risk bite wounds. Selected facial wounds may be closed after meticulous irrigation and prophylaxis with specialist input.
- Culture discharge from infected bites. Review within 24 to 48 hours when infection risk is significant or treatment has started.

13.2 Antibiotic decision framework

| Bite | Prophylaxis guidance |
|--|--|
| Human | Offer prophylaxis when skin is broken and blood drawn. Consider when skin is broken without bleeding if hand, foot, face, genitals, cartilage, poor circulation or serious host risk. |
| Cat | Offer prophylaxis when skin is broken and blood drawn; consider for apparently non-bleeding bites that may be deep. |
| Dog / traditional pet | Offer when blood drawn and wound is deep, puncture / crush, visibly contaminated, or penetrates bone, joint, tendon or vessel. Consider for critical sites or high-risk hosts. |
| Wild / exotic / farm animal | Seek microbiology, infectious-disease and public-health advice because organisms and zoonotic risks differ. |
| Infected bite | Treat when increasing pain, inflammation, fever, discharge, odour or systemic illness is present. Use the locally approved first-line regimen; typical uncomplicated prophylaxis is shorter than treatment, with duration extended for deep structure involvement. |
| Penicillin allergy / pregnancy / child | Use an approved age-, pregnancy- and allergy-specific alternative; do not improvise incomplete anaerobic coverage. |

14. Rabies exposure assessment and post-exposure prophylaxis

Rabies is almost invariably fatal after symptoms begin but is preventable with prompt wound care and appropriate post-exposure prophylaxis. Contact the designated public-health authority for every credible exposure and document the advice.

| Exposure category / situation | Minimum action |
|-------------------------------|--|
| No exposure | Touching or feeding an animal, lick on intact skin, or contact with blood / urine / faeces without mucosal or broken-skin exposure -> wash; no PEP unless public health identifies a special risk. |

| Exposure category / situation | Minimum action |
|-----------------------------------|---|
| Category II-type exposure | Nibbling uncovered skin or minor scratches / abrasions without bleeding -> immediate washing and rabies vaccine according to national schedule if the animal / epidemiology warrants PEP. |
| Category III-type exposure | Single or multiple transdermal bites / scratches, saliva on broken skin or mucosa, bat exposure, or direct contact with nervous tissue -> immediate washing, rabies vaccine and rabies immunoglobulin / monoclonal product when indicated for previously unvaccinated patients. |
| Previously vaccinated | Immediate wound care and booster vaccine schedule according to national policy; do not give rabies immunoglobulin. |
| Immunocompromised | Use the national enhanced regimen, specialist / public-health advice and post-vaccination serology where indicated. |
| Animal available | Coordinate safe veterinary observation / testing through public health. Do not have the patient or staff attempt capture. Do not delay PEP when the risk assessment indicates treatment. |
| Wound / biologic technique | Wash with soap and copious water for about 15 minutes and apply virucidal agent if available. Infiltrate immunoglobulin into and around wounds as anatomically feasible; give remaining volume and vaccine at sites specified by the national protocol. Never mix vaccine and immunoglobulin in the same syringe or site. |

15. Insect, arthropod, and multiple stings

| Presentation | Emergency management |
|---------------------------------------|--|
| Anaphylaxis | Immediate intramuscular adrenaline, airway / breathing / circulation support and observation under Protocol 30. Do not delay adrenaline for antihistamines or corticosteroids. |
| Bee / wasp / ant sting | Remove a visible honeybee stinger promptly by any rapid method, wash, apply cold pack, elevate and provide analgesia. Multiple stings may cause delayed systemic toxicity even without allergy; check renal function, CK, haemolysis and ECG according to burden and symptoms. |
| Scorpion / spider / centipede | Clean and provide analgesia. Observe for autonomic, neurological, haemolytic, necrotic or systemic effects; contact poison service because clinically important species and antivenoms are region specific. |
| Tick | Remove with fine-tipped forceps close to the skin using steady traction; clean the site. Assess local epidemiology, retained parts, paralysis, fever or rash and follow the local vector-borne-disease pathway. |
| Severe local reaction | Mark borders, elevate, give analgesia and symptomatic treatment. Distinguish sterile venom inflammation from cellulitis; antibiotics are not routine without infection. |
| Child / older or frail patient | Use lower thresholds for observation after numerous stings, head / neck stings, comorbidity, delayed presentation or unreliable monitoring at home. |

16. Suspected snakebite and systemic envenomation

16.1 First aid and arrival actions

- Move away from the snake; do not attempt capture. Photograph only from a safe distance if already available. Identify geography and description, but treat the clinical syndrome rather than relying on uncertain identification.
- Reassure, keep the patient still, remove rings / tight items and immobilize the whole limb in a neutral position. Carry rather than allow walking when feasible. Pressure immobilization is species and region specific and must follow local public-health / toxicology policy.
- Do not cut, incise, suck, massage, wash aggressively, apply ice, electric shock, chemicals, tight arterial tourniquets or traditional remedies. Do not perform prophylactic fasciotomy.
- Mark the leading edge of swelling with date / time and measure limb circumference at fixed points. Record serial neurological, bleeding, perfusion, pain and systemic findings.

- Obtain IV access away from the bitten limb, cardiac and oxygen monitoring, baseline blood count, coagulation / fibrinogen, electrolytes, renal function, CK, blood gas / lactate and urinalysis; repeat according to venom syndrome and local protocol.
- Contact the poison / antivenom service early. Confirm that the antivenom covers the likely species / syndrome, is in date, and is physically available before clinical deterioration.

16.2 Antivenom and complication management

| Finding / issue | Management principle |
|---|---|
| Indications for antivenom | Systemic neurotoxicity, coagulopathy / spontaneous bleeding, cardiovascular instability, acute kidney injury, myotoxicity / rhabdomyolysis, or significant progressive local envenomation according to the validated product and regional protocol. |
| No current envenomation | Observe for the locally defined period with serial examination and repeat labs. Fang marks alone do not mandate antivenom; an initially normal patient may deteriorate. |
| Administration | Use the approved dose, dilution and infusion method. Dose is based on venom burden, not patient size; children generally receive the same antivenom dose as adults with careful fluid management. Do not use routine skin testing. |
| Reaction readiness | Give in a monitored resuscitation area with intramuscular adrenaline and airway / shock equipment immediately available. Stop or slow infusion and treat anaphylaxis promptly; resume or change therapy only with toxicology advice when antivenom remains essential. |
| Coagulopathy | Avoid unnecessary venepuncture, intramuscular injections, arterial puncture and surgery until corrected. Blood products are adjuncts for major bleeding after effective antivenom and specialist advice, not substitutes for antivenom. |
| Neurotoxicity | Frequent respiratory and bulbar assessment; early airway / ventilation when weakness progresses. Anticholinesterase trial is species specific and only under toxicology advice. |
| Local swelling / compartment concern | Elevation and serial assessment. True compartment syndrome is uncommon and diagnosis is difficult in envenomation; obtain expert surgical / toxicology input and correct coagulopathy before fasciotomy. Antivenom is primary treatment for venom-mediated swelling. |
| Renal / muscle injury | Monitor urine, potassium, CK, creatinine, haemolysis and fluid balance; treat hyperkalaemia, rhabdomyolysis and AKI under Protocol 28, including dialysis when indicated. |
| Discharge after dry bite | Only after the locally approved observation period, normal serial examinations and laboratories, reliable return access and written delayed-toxicity precautions. |

17. Marine bites, spines, and jellyfish envenomation

| Exposure | Emergency management |
|--|---|
| Jellyfish - unknown / potentially dangerous | Remove from water, assess ABCDE and anaphylaxis, call for urgent help if systemic symptoms. Avoid rubbing. Species-specific first aid varies: use seawater rather than fresh water for tentacle removal when undischarged nematocysts are possible; vinegar is appropriate only for selected species under local marine guidance. Provide monitored observation for severe pain or systemic symptoms. |
| Bluebottle / Portuguese-man-of-war-type localized sting | Remove tentacles without rubbing, rinse with seawater, and use locally approved heat or cold analgesia. Do not use vinegar when the local species guidance advises against it. |
| Stingray / venomous fish spine | Control bleeding, assess for penetrating chest / abdomen or vascular injury, immerse affected distal limb in non-scalding hot water about 42-45 C with temperature checks for pain relief, irrigate, image for retained spine and seek surgical advice for deep injury. |
| Sea urchin / coral / shell spine | Remove superficial visible material when safe; avoid destructive digging. Image or refer for deep, periarticular, ocular or symptomatic retained fragments. Irrigate and assess tetanus and infection risk. |

| Exposure | Emergency management |
|---|--|
| Marine bite / contaminated wound | Irrigate, debride, assess retained teeth / spine, tendon / joint / bone involvement and host risk. Consider Vibrio and other marine organisms in severe infection, liver disease or immunocompromise; obtain urgent microbiology advice. |
| Cone shell / octopus / severe neurotoxic exposure | Immediate respiratory monitoring and ventilation support; no delay for species certainty. Contact poison / marine toxicology service and transfer to critical care. |
| All severe marine events | Treat anaphylaxis under Protocol 30, preserve photographs / specimen only if already safely available, notify local marine / public-health services where required, and provide explicit delayed-infection and systemic-symptom precautions. |

18. Special populations and presentations

| Population / situation | Additional requirements |
|--|---|
| Children | Use Lund-Browder chart, weight-based medication and age-appropriate pain / fluid targets. Lower threshold for burn-centre consultation, observation, caregiver education and safeguarding review. |
| Older adult / frailty | Burns may be deeper with smaller mechanism; wounds heal poorly. Assess dehydration, delirium, mobility, pressure risk, social support and medication toxicity. Lower threshold for admission. |
| Pregnancy | Maternal resuscitation first. Do not withhold indicated rabies PEP, tetanus prophylaxis, antivenom or imaging when maternal benefit outweighs risk; involve obstetrics for significant injury / systemic illness. |
| Diabetes / vascular disease / neuropathy | Pain and depth may be underestimated. Lower threshold for imaging, infection treatment, admission and specialist wound follow-up, particularly foot injury. |
| Immunocompromised / asplenia / liver disease | Higher risk of invasive infection after bites and marine exposure. Use early microbiology / infectious-disease advice and lower threshold for IV therapy / admission. |
| Renal / cardiac disease | Modify burn fluids and nephrotoxic medications; monitor closely during envenomation, rhabdomyolysis and repeated analgesia. |
| Self-harm / assault / neglect | Treat injuries while preserving evidence, documenting exact history and offering safeguarding / mental-health intervention. Do not allow concern about intent to delay urgent care. |
| Occupational / mass exposure | Activate decontamination, occupational-health, public-health and incident-command pathways; identify all exposed persons and protect the ED from secondary contamination. |
| Delayed presentation | Reassess for infection, necrosis, evolving burn depth, retained foreign body, missed tendon / joint injury, tetanus, rabies and delayed venom effects. Do not assume the treatment window has passed. |

19. Reassessment and deterioration triggers

| Domain | Minimum standard / trigger |
|--------------------|--|
| Airway / breathing | Continuous monitoring for significant facial / inhalation burn or neurotoxic envenomation. New voice change, stridor, drooling, hypoxia, fatigue, weak cough or rising CO ₂ -> immediate airway / critical-care response. |
| Circulation | Repeat perfusion, urine output and lactate in major burns / envenomation. Hypotension disproportionate to TBSA -> search for haemorrhage, toxicity, sepsis or cardiogenic cause. |
| Burn / wound | Reassess pain, depth, swelling, colour, sensation, bleeding, infection, distal perfusion and dressing pressure. Rapid progression, pain out of proportion, bullae, crepitus or skin anaesthesia -> surgical emergency. |

| Domain | Minimum standard / trigger |
|--------------------|--|
| Envenomation | Serial swelling marks, neurological examination, bleeding / clotting, renal and muscle tests. Any progression -> poison / antivenom reassessment and higher-acuity monitoring. |
| After intervention | Repeat after analgesia, irrigation, debridement, closure, dressing, antivenom, adrenaline, fluid changes, transfer between areas and before discharge. |
| Documentation | Record exact time, examiner, objective findings, interpretation, action and response. "Stable" or "wound clean" alone is insufficient for high-risk cases. |

20. Disposition, transfer, and discharge

| Destination | Minimum criteria |
|---------------------------------|---|
| Immediate theatre / procedure | Uncontrolled bleeding; airway or chest eschar threat; ocular chemical injury requiring intervention; high-pressure injection; deep structure injury; necrotizing infection; retained penetrating object; devitalized bite / wound; compartment syndrome. |
| Critical care / high dependency | Ventilation, shock, formal major-burn resuscitation, severe inhalation injury, unstable electrical injury, severe antivenom reaction, systemic neurotoxic / haemotoxic / cardiotoxic envenomation, or evolving organ failure. |
| Specialist transfer | Meets burn referral criteria, requires antivenom / surgery / ophthalmology / hand / plastic / critical-care capability unavailable locally, or needs complex paediatric / rehabilitation care. Begin referral early and send images, charts and product details. |
| Admission / observation | Uncertain burn depth, significant pain, unreliable examination, evolving swelling, abnormal ECG / labs, multiple stings, suspected dry snakebite during observation, high-risk infection, IV antibiotics, social vulnerability or poor follow-up. |
| Discharge | Threats excluded; wound cleaned and dressed; function / perfusion documented; pain controlled; tetanus / rabies / antimicrobial plan complete; follow-up booked; supplies and written instructions provided; patient can return promptly. |
| Return immediately for | Breathing or swallowing difficulty, fainting, weakness, bleeding, dark urine, fever, increasing redness / swelling, severe or escalating pain, numb / pale / cold part, pus / odour, blistering, vomiting, confusion, reduced urine, or any new systemic symptom. |

21. Documentation, governance, and audit

| Indicator | Suggested measure |
|--------------------------|--|
| Burn first aid | Time from injury / arrival to cooling; total cooling time; hypothermia; complete TBSA / depth / site documentation. |
| Airway / inhalation | Time to 100% oxygen, co-oximetry, airway decision and specialist transfer; unplanned intubation or deterioration. |
| Major burn resuscitation | Accuracy of TBSA / weight, fluid start and hourly titration, urine output, fluid creep, compartment complications and transfer time. |
| Wound care | Neurovascular / tendon assessment, analgesia, irrigation, foreign-body evaluation, closure plan, tetanus and written follow-up. |
| Bite / rabies | Animal and exposure category documented; public-health contact; wound washing; PEP products, batch and schedule; completion follow-up. |
| Antibiotic stewardship | Appropriate prophylaxis / treatment indication, allergy-safe selection, duration and 24-48-hour review. |

| Indicator | Suggested measure |
|--------------|--|
| Envenomation | Swelling chart, serial labs, poison consultation, antivenom indication / product / dose / reaction, time to transfer and organ outcomes. |
| Safety | Secondary contamination incidents, medication / antivenom errors, delayed surgery, missed infection, unplanned returns, safeguarding and staff exposure. |
| Learning | All deaths, airway loss, delayed antivenom, missed deep injury, necrotizing infection, functional loss or serious transfer delay undergo multidisciplinary review. |

22. Minimum equipment and readiness

- PPE and decontamination capability, chemical-resistant gloves / gowns, eye protection, disposal bags, runoff plan, brushes for dry chemicals, irrigation hoses / bags and ocular irrigation devices.
- Airway and resuscitation equipment, co-oximetry access, oxygen, warming, cardiac monitoring, defibrillator, blood gas and core-temperature monitoring.
- Burn sheets, clean plastic film, non-adherent and absorbent dressings, sterile gauze, topical products approved by burn service, Lund-Browder charts and calibrated scales.
- Wound-care tray, lighting, local anaesthetic, irrigation, forceps, tissue adhesive / sutures / staples, splints, Doppler, magnification, foreign-body imaging access and procedural-sedation rescue equipment.
- Tetanus-containing vaccines and TIG; rabies vaccine and immunoglobulin / monoclonal product or reliable 24/7 access; approved bite / wound antimicrobials.
- Species-appropriate antivenoms / antidotes with cold-chain, expiry and stock checks; administration monographs; poison-centre contacts; anaphylaxis kit at bedside during infusion.
- Hot-water immersion capability with temperature monitoring, seawater / marine first-aid supplies where locally relevant, safe specimen containers and public-health / veterinary contact list.
- Regular simulation for major burn, contaminated patient, chemical eye injury, high-pressure injection, rabies PEP, anaphylaxis during antivenom and neurotoxic snakebite.

23. References and evidence base

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2. Cartotto R, et al. American Burn Association Clinical Practice Guidelines on Burn Shock Resuscitation. Journal of Burn Care & Research. 2024;45(3):565-589.
3. World Health Organization. Standards and recommendations for burns care in mass casualty incidents. 2024.
4. World Health Organization / International Committee of the Red Cross. Basic Emergency Care: approach to the acutely ill and injured. Current open-access edition.
5. Centers for Disease Control and Prevention. Clinical Guidance for Wound Management to Prevent Tetanus. Updated June 2025.
6. World Health Organization. Protocol for a well-performed rabies post-exposure prophylaxis delivery. 2024.
7. Centers for Disease Control and Prevention. Rabies Post-exposure Prophylaxis Guidance. Updated July 2025.
8. National Institute for Health and Care Excellence. Human and animal bites: antimicrobial prescribing (NG184). 2020; current online version.
9. World Health Organization. Snakebite envenoming: treatment and antivenom resources. Current online version, including 2026 updates on novel-treatment target product profiles.
10. World Health Organization. Guidelines for the management of snakebites. Current WHO regional guidance.
11. Australian and New Zealand Committee on Resuscitation. Guideline 9.4.5: First Aid Management of Marine Envenomation. Current online version.
12. American Heart Association. Guidelines for cardiopulmonary resuscitation and emergency cardiovascular care: special circumstances, including toxicological and environmental emergencies. 2025.
13. Local / national immunization, rabies epidemiology, veterinary observation, antimicrobial, antivenom, occupational exposure, burn referral, safeguarding and transfer policies.

Annex 1. One-page emergency workflow

| STEP | ACTION |
|-------|--|
| SAFE | Stop source; PPE; isolate contamination; remove contaminated clothing / jewelry; protect staff and department. |
| ABCDE | Airway / inhalation, breathing, shock / bleeding, consciousness / glucose, full exposure while preventing hypothermia. |

| STEP | ACTION |
|--------------|---|
| TREAT NOW | Major bleeding control; 100% oxygen for significant smoke / CO; IM adrenaline for anaphylaxis; airway / ventilation; cooling / chemical irrigation. |
| ASSESS | Burn depth / TBSA / critical site; wound depth / contamination / function; bite / rabies / tetanus; systemic toxicity / envenomation. |
| PAIN / COVER | Early analgesia; clean / irrigate appropriately; non-adherent dressing; splint / elevate as indicated. |
| PREVENT | Tetanus; rabies PEP; selected bite / contaminated-wound antibiotics; safeguarding and staff-exposure actions. |
| ESCALATE | Burn / surgery / hand / ophthalmology / toxicology / public health / critical care; antivenom only under approved pathway. |
| REASSESS | Airway, physiology, pain, burn / wound, swelling marks, perfusion, neurological signs, labs and response after every intervention. |
| DISPOSE | Theatre / ICU / transfer / admission / observation / discharge with written care, follow-up, prophylaxis schedule and red flags. |

Annex 2. Burn assessment and resuscitation record

| Field | Record |
|----------------------|---|
| Injury | Date / time: ____ Mechanism: ____ Enclosed space: Y / N First aid / cooling: ____ |
| Airway / inhalation | Voice / stridor / soot / facial or oral burn / CO concern: ____ Oxygen / airway plan: ____ |
| Depth / TBSA | Superficial: ____ Superficial partial: ____ Deep partial: ____ Full thickness: ____ TBSA counted: ____% |
| Critical sites | Face / hands / feet / genitalia / perineum / joint / circumferential / eye: ____ |
| Weight / fluids | Weight: ____ kg Formal resuscitation threshold met: Y / N Start time / rate: ____ |
| Hourly targets | Urine target: ____ Actual: ____ Perfusion / lactate / temperature: ____ Rate adjustment: ____ |
| Analgesia / dressing | Drugs / times: ____ Cleaning / blister plan: ____ Dressing: ____ |
| Referral | Burn / anaesthesia / surgery contacted: ____ Receiving centre / acceptance: ____ Transfer time: ____ |

Annex 3. Wound procedure checklist

| Check | Record |
|--------------------------|--|
| Before | Consent / capacity: ____ Analgesia / local anaesthetic: ____ Baseline pulse / motor / sensation / tendon: ____ |
| Wound | Site / length / depth: ____ Contamination / devitalization: ____ Bite / puncture / crush: ____ |
| Imaging | Foreign body / bone / joint / gas imaging: ____ Result / pending owner: ____ |
| Irrigation / debridement | Fluid / approximate volume: ____ Foreign material removed: ____ Tissue preserved / excised: ____ |
| Closure | Primary / delayed / secondary / specialist: ____ Material / number: ____ |
| Prophylaxis | Tetanus: ____ Rabies: ____ Antibiotic indication / regimen: ____ |

| Check | Record |
|-----------|---|
| After | Pulse / motor / sensation / tendon: ____ Dressing / splint: ____ Pain: ____ |
| Follow-up | Review / suture removal / specialist: ____ Written red flags: Y / N |

Annex 4. Bite, rabies, and tetanus checklist

| Domain | Record |
|-----------------------|--|
| Animal / human source | Species: ____ Domestic / wild: ____ Behaviour / health: ____ Ownership / vaccine: ____ |
| Exposure | Bite / scratch / saliva / mucosa / bat: ____ Site / depth / bleeding: ____ Date / place: ____ |
| Wound care | Washed with soap / water about 15 min: Y / N Irrigated / debrided: ____ |
| Rabies risk | Public health contacted: ____ Exposure category / decision: ____ Animal observation / testing: ____ |
| Rabies products | Prior vaccine: Y / N Vaccine product / dose / site / batch: ____ RIG infiltration / remainder: ____ |
| Next doses | Dates / location / owner: ____ Immunocompromised / serology plan: ____ |
| Tetanus | Primary series: ____ Last dose: ____ Vaccine: ____ TIG: ____ |
| Antibiotic | Prophylaxis / treatment indication: ____ Drug / dose / duration: ____ |
| Follow-up | Wound review: ____ Public-health follow-up: ____ Return precautions: Y / N |

Annex 5. Snakebite / envenomation observation chart

| Time | Vitals / mental state | Swelling edge / circumference | Pain / local findings | Neuro / respiratory | Bleeding / urine | Labs | Action / examiner |
|------|-----------------------|-------------------------------|-----------------------|---------------------|------------------|------|-------------------|
| ____ | ____ | ____ | ____ | ____ | ____ | ____ | ____ |
| ____ | ____ | ____ | ____ | ____ | ____ | ____ | ____ |
| ____ | ____ | ____ | ____ | ____ | ____ | ____ | ____ |
| ____ | ____ | ____ | ____ | ____ | ____ | ____ | ____ |
| ____ | ____ | ____ | ____ | ____ | ____ | ____ | ____ |

Any progressive swelling, weakness, ptosis, dysphagia, respiratory decline, spontaneous bleeding, incoagulable blood, dark urine, rising CK / creatinine, hypotension or arrhythmia requires immediate poison / antivenom reassessment and higher-acuity care.

Annex 6. Antivenom safety checklist

| Check | Record |
|--------------------|---|
| Indication | Objective envenomation findings: ____ Poison / specialist advice: ____ |
| Product | Name: ____ Species / syndrome coverage confirmed: ____ Batch / expiry: ____ |
| Dose / preparation | Approved dose: ____ Dilution / route / planned duration: ____ Second dose criteria: ____ |

| Check | Record |
|----------------|--|
| Readiness | Resuscitation bay: Y / N IM adrenaline at bedside: Y / N Airway / oxygen / fluids ready: Y / N |
| Baseline | Vitals / neuro / swelling / labs: ____ |
| Administration | Start: ____ Rate changes: ____ Completion: ____ |
| Reaction | Symptoms / time: ____ Adrenaline / treatment: ____ Infusion decision with specialist: ____ |
| Response | Clinical / lab response: ____ Repeat dose: ____ Disposition / transfer: ____ |

Annex 7. Chemical exposure and decontamination checklist

| Domain | Record |
|--------------------|---|
| Agent | Name / concentration / form: ____ Safety data sheet / poison advice: ____ |
| Staff safety | PPE: ____ Isolation / decontamination area: ____ Secondary contamination risk: ____ |
| Removal | Clothing / jewelry bagged: ____ Dry powder brushed: ____ |
| Irrigation | Skin / eye start: ____ Duration / volume: ____ Initial / serial pH: ____ |
| Systemic risk | Inhalation / ingestion / HF acid / pesticide / cyanide / unknown: ____ |
| Monitoring / tests | ECG / blood gas / electrolytes / co-oximetry / other: ____ |
| Specialist | Poison / burn / ophthalmology / public health contacted: ____ |
| Disposition | Decontaminated / safe for clean area: ____ Admission / transfer / discharge: ____ |

Annex 8. Transfer and handover checklist

| Domain | Minimum handover |
|--------------------------|--|
| Identity / event | Patient identifiers; time; mechanism / agent / animal / species; location; first aid; contamination status. |
| Current status | ABCDE, pain, temperature, current and worst observations, oxygen / airway, fluid / urine output and trend. |
| Injury | Burn depth / TBSA / sites; wound dimensions / structures; swelling marks; neurovascular / neurological findings; photographs. |
| Interventions | Cooling / irrigation, decontamination, haemorrhage control, analgesia / sedation, dressing / splint, antibiotics, tetanus, rabies, adrenaline, antidote / antivenom. |
| Investigations | ECG, imaging, blood results / trends, co-oximetry, coagulation, CK, renal function, cultures; pending results and owner. |
| Specialist / destination | Referring and accepting clinicians, required capability, urgency, expected procedure and transfer risks. |
| During transfer | Monitoring, airway plan, warming, fluid / urine plan, antivenom reaction plan, serial swelling / neuro checks, equipment and escort competence. |

Annex 9. Discharge checklist

| Check | Record |
|------------------|--|
| Diagnosis / risk | Working diagnosis and excluded threats explained: ____ |

| Check | Record |
|------------------|--|
| Wound / dressing | Cleaning, dressing, bathing, elevation, mobility and supply plan: ____ |
| Medication | Analgesia: ____ Antibiotic and duration: ____ Allergy / adverse effects: ____ |
| Prevention | Tetanus completion: ____ Rabies next doses / public health: ____ |
| Follow-up | Burn / wound / hand / surgery / GP / public health review date and location: ____ |
| Return now for | Breathing difficulty, fainting, weakness, bleeding, dark urine, fever, spreading redness / swelling, worsening pain, numb / pale / cold part, pus / odour, reduced urine or any concern. |
| Understanding | Written leaflet: Y / N Teach-back satisfactory: Y / N Transport / caregiver / phone confirmed: ____ |

Annex 10. Audit tool

| Audit field | Record |
|------------------|---|
| Initial response | Arrival: ____ ABCDE: ____ PPE / decontamination: ____ Analgesia: ____ |
| Burn care | Cooling start / duration: ____ TBSA / depth: ____ oxygen / airway: ____ referral: ____ |
| Wound care | Function documented: ____ irrigation / exploration: ____ closure / dressing: ____ |
| Prevention | Tetanus decision: ____ Rabies / public-health decision: ____ antibiotic indication: ____ |
| Envenomation | Swelling / serial labs: ____ poison advice: ____ antivenom indication / time / reaction: ____ |
| Disposition | Theatre / ICU / transfer / admission / observation / discharge: ____ |
| Outcome | Return / infection / airway event / tissue loss / organ injury / death: ____ |
| Governance | Delay / variance: ____ Incident review: Y / N Learning action / owner / date: ____ |

Annex 11. Local configuration checklist before approval

- ☐ Named 24/7 contacts for burn / plastic / hand surgery, general surgery, anaesthesia / ICU, paediatrics, ophthalmology, microbiology / infectious diseases, public health, poison service, veterinary services and transfer centres.
- ☐ Approved burn first-aid, TBSA, fluid-resuscitation, urine-target, dressing, blister, escharotomy and transfer protocols for adults and children.
- ☐ Decontamination location, PPE levels, chemical runoff, dry-powder, pesticide, hydrofluoric-acid, ocular irrigation and staff-exposure procedures.
- ☐ Wound irrigation / closure competencies, local anaesthetic limits, hand / tendon / joint / high-pressure injection referral and procedural-sedation pathway.
- ☐ Tetanus vaccine and TIG stock, eligibility matrix, dose and documentation requirements.
- ☐ Rabies epidemiology, exposure categories, public-health decision line, vaccine / immunoglobulin products, cold chain, dosing schedule and completion tracking.
- ☐ Bite / water / soil / farm / marine antimicrobial regimens by age, pregnancy, allergy, host risk and renal function.
- ☐ Local venomous species matrix, validated antivenoms, indications, doses, storage, expiry, administration, reaction treatment and inter-island / regional resupply pathway.
- ☐ Marine sting guidance matched to local species, including vinegar / seawater / heat / cold recommendations and retained-spine imaging.
- ☐ Standard discharge leaflets, wound / burn follow-up clinic, rehabilitation, safeguarding, occupational reporting, audit dashboard, simulation schedule and protocol review date.