[HOSPITAL / HEALTH AUTHORITY NAME]

SUSPECTED SEPSIS AND SEVERE INFECTION PATHWAY

Protocol 16: Early Recognition, Infection-Likelihood Assessment, Time-Critical Antimicrobials, Perfusion-Guided Resuscitation, Source Control, Reassessment, and Safe Disposition

DRAFT FOR EMERGENCY MEDICINE, INTERNAL MEDICINE, ANAESTHESIA, CRITICAL CARE, SURGERY, OBSTETRICS, PAEDIATRICS, PHARMACY, MICROBIOLOGY, RADIOLOGY, NURSING, INFECTION PREVENTION AND CONTROL, AND PATIENT-TRANSPORT SERVICES

IMMEDIATE SAFETY RULE: Sepsis and septic shock are medical emergencies. Begin assessment, stabilization, cultures, antimicrobial decision-making, and source-control planning in parallel. Do not wait for fever, hypotension, a laboratory score, imaging, or a definitive diagnosis before treating a patient with probable sepsis or septic shock.

STATUS: This is a draft clinical-governance document. Exact antimicrobial agents, doses, infusion methods, renal adjustments, fluid volumes, vasopressor concentrations, paediatric dosing, isolation procedures, and referral arrangements must be approved locally and aligned with the hospital formulary, antibiogram, laboratory capacity, infection-prevention policies, and available critical-care and source-control services.

Document control	Details
Document owner	Emergency Department / Medical Services Directorate
Clinical leads	Emergency Medicine; Internal Medicine; Critical Care; Infectious Diseases / Microbiology; Paediatrics; Obstetrics
Supporting departments	Nursing; Pharmacy; Laboratory; Radiology; Surgery; Infection Prevention and Control; Patient Transport
Applies to	All clinical and support staff involved in care of patients with suspected serious infection, sepsis, or septic shock
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1. Purpose

To provide a standardized, time-sensitive, and auditable pathway for recognizing and treating adults, adolescents, children, and pregnant or recently pregnant patients with suspected severe infection, sepsis, or septic shock from first clinical contact in the Emergency Department until responsibility is safely transferred, the patient is admitted, transferred, or—only when appropriate—discharged.

2. Scope

This protocol applies to community-acquired and healthcare-associated infection, including patients presenting primarily with infection and patients in whom sepsis emerges during assessment for another complaint. It supplements the core Emergency Department protocols on triage, resuscitation, assessment, investigations, medication safety, monitoring, consultation, admission, transfer, discharge, and handover. It does not replace source-specific antimicrobial guidelines, outbreak protocols, paediatric dosing references, maternal-sepsis pathways, or specialist clinical judgement.

3. Core policy statements

- Every patient with suspected infection and organ dysfunction, hypoperfusion, rapidly worsening physiology, or septic shock shall receive immediate senior clinical attention and be managed in a monitored or resuscitation-capable area.
- Sepsis is a clinical diagnosis. No single score, biomarker, normal temperature, normal blood pressure, or normal lactate can safely exclude it.
- Use a validated local screening and deterioration system such as NEWS2, MEWS, SIRS, age-specific PEWS, or an approved maternal early-warning system. Do not use qSOFA as the sole in-hospital screening tool.
- For probable or definite sepsis, and for any septic shock, administer appropriate empiric antimicrobials immediately—ideally within 1 hour of recognition. For possible sepsis without shock, perform a rapid, time-limited assessment and give antimicrobials within 3 hours if concern for infection persists.
- Collect blood cultures and relevant source cultures as soon as possible and ideally before antimicrobials, but never allow specimen collection to cause a clinically important treatment delay.
- Empiric therapy shall be selected from the locally approved sepsis antimicrobial matrix using suspected source, severity, allergy, recent antimicrobial exposure, colonization, healthcare contact, immune status, renal/hepatic function, pregnancy, and local resistance patterns.
- Resuscitation shall be individualized and repeatedly reassessed. Fluids are a treatment with possible benefit and harm; vasopressors shall not be delayed in unstable shock when hypotension persists or fluid tolerance is limited.
- Source control is part of emergency treatment. Drainage, surgery, device removal, debridement, delivery or uterine evacuation, or other definitive intervention shall be activated early and ideally completed within 6 hours when required.
- Clinicians shall continuously reassess infection likelihood and alternative diagnoses. Unnecessary antimicrobials shall be stopped or narrowed when infection is not confirmed or microbiology permits de-escalation.
- Clinical improvement, deterioration, antimicrobial time, culture time, fluid balance, perfusion response, source-control status, and ownership of pending results shall be explicitly documented and handed over.

4. Definitions

Term	Operational definition
Suspected infection	A clinical syndrome in which infection is a reasonable cause and microbiological confirmation may be absent.
Severe infection	Infection that is rapidly progressive, anatomically dangerous, associated with systemic illness, requires urgent parenteral therapy or source control, or threatens organ function even before formal sepsis criteria are met.
Sepsis	Life-threatening acute organ dysfunction caused by a dysregulated host response to infection.
Septic shock	A subset of sepsis with profound circulatory and metabolic abnormality. In adults, the Sepsis-3 operational definition is vasopressor requirement to maintain MAP at least 65 mm Hg and lactate greater than 2 mmol/L despite adequate volume resuscitation; treatment must begin before all criteria are established.
Sepsis-induced hypoperfusion	Clinical evidence of inadequate tissue perfusion attributable to infection, including altered mentation, prolonged capillary refill, mottling, oliguria, rising lactate, or hypotension.
Probable / definite sepsis	A high clinical likelihood of infection with acute organ dysfunction, or confirmed infection with organ dysfunction.

Term	Operational definition
Possible sepsis	Infection is one of several plausible causes and immediate shock is absent; a rapid diagnostic assessment is required.
Source control	A procedure or intervention that removes, drains, debrides, repairs, or otherwise controls an anatomical focus or infected device.
Antimicrobial timeout	A documented review of diagnosis, cultures, source, spectrum, dose, route, duration, and opportunities to stop or narrow therapy.
Time zero	The documented time at which sepsis or septic shock was first recognized and the pathway was activated.

5. Roles and accountability

Role	Minimum responsibilities
Triage / receiving nurse	Recognize high-risk infection and deterioration; assign acuity; initiate precautions; activate sepsis response; obtain complete observations and glucose when indicated; expedite medical review.
ED nurse	Establish monitoring and access; obtain cultures and specimens; administer prescribed therapy; document times; reassess response; escalate deterioration; maintain fluid, urine, and antimicrobial records.
ED clinician	Lead diagnosis, differential diagnosis, antimicrobial decision, resuscitation, source evaluation, consultation, documentation, and disposition; assign ownership for pending results.
Senior ED / medical clinician	Review high-risk, unclear, deteriorating, refractory, immunocompromised, paediatric, maternal, and source-control cases; resolve delays and treatment disputes.
Pharmacist / antimicrobial stewardship service	Support empiric selection, allergy assessment, dosing, compatibility, renal/hepatic adjustment, therapeutic monitoring, de-escalation, and supply.
Laboratory / microbiology	Prioritize cultures and lactate; communicate critical results; advise on specimen quality, resistance, and targeted therapy; maintain local antibiogram.
Surgical / procedural / obstetric service	Assess source-control need, accept referral, define timing, and undertake or arrange definitive intervention.
Critical care / anaesthesia	Support advanced airway, haemodynamic management, invasive monitoring, organ support, and transfer.
Infection Prevention and Control	Advise on isolation, exposure management, notifiable disease, outbreak response, and safe placement.
Bed management / transport / administration	Facilitate appropriate monitored placement, urgent transfer, and removal of operational barriers without delaying clinical care.

6. Pathway activation and triage

Activate the pathway when infection is suspected and any organ dysfunction, hypoperfusion, severe physiological abnormality, rapid deterioration, high-risk host factor, or dangerous anatomical infection is present. A patient may have sepsis without fever or hypotension.

- Red / immediate: septic shock, airway or respiratory failure, severe hypoxaemia, altered consciousness, seizure, profound weakness, mottling, prolonged capillary refill, anuria or severe oliguria, major metabolic disturbance,

rapidly spreading soft-tissue infection, meningococcal-type rash, suspected meningitis with instability, or any clinician concern for imminent deterioration.

- Yellow / urgent: suspected infection with abnormal observations, new confusion, reduced urine output, significant pain, dehydration, immunocompromise, pregnancy or recent pregnancy, extremes of age, recent surgery, indwelling device, recent hospitalization, or failure of outpatient therapy.
- Green / lower acuity shall only be assigned when observations are reassuring, no organ dysfunction or high-risk host factor is present, and a clear process exists for retriage. Normal observations at one time point do not end surveillance.
- Apply transmission-based precautions promptly for suspected communicable disease, but do not allow isolation logistics to delay resuscitation or antimicrobials.
- Record pathway activation time ("time zero"), initial risk category, and the person notified.

7. The first 5 minutes

Action	Required response
Recognize and call	State "suspected sepsis" or "septic shock"; call senior clinician and resuscitation support when indicated.
Place and protect	Move to monitored/resuscitation area; apply standard and transmission-based precautions appropriate to the suspected source.
ABCDE	Assess and treat airway, breathing, circulation, disability, and exposure simultaneously.
Monitor	Continuous SpO2 and cardiac monitoring when unstable; repeat BP frequently; measure temperature, mental status, capillary refill, pain, and urine output.
Access and tests	Obtain IV/IO access; bedside glucose; lactate; blood cultures; essential blood tests and source specimens without delaying treatment.
Antimicrobial decision	Classify as septic shock, probable/definite sepsis, possible sepsis, or low likelihood; start the appropriate antimicrobial clock.
Resuscitate	Give oxygen for hypoxaemia; individualized crystalloid for hypoperfusion; start vasopressor early if unstable or hypotension persists.
Find the source	Look for immediately reversible and source-control emergencies; contact the relevant service early.

8. Recognition, screening, and organ dysfunction

DO NOT MISS: Older adults, neonates, pregnant or recently pregnant patients, immunocompromised patients, and people taking beta-blockers, steroids, antipyretics, or immunomodulators may have severe sepsis without fever, marked tachycardia, or a dramatic inflammatory response.

Use the approved local screening tool as an aid, not as a diagnostic gate. A positive screen requires clinical assessment; a negative screen does not override concern.

Domain	Concerning findings
Neurologic	New confusion, reduced interaction, agitation, drowsiness, seizure, focal deficit, reduced GCS/AVPU, severe headache or neck stiffness.
Respiratory	Tachypnoea, increased work, hypoxaemia, hypercapnia, new oxygen requirement, infiltrates, apnoea, or respiratory fatigue.

Domain	Concerning findings
Circulatory / perfusion	Hypotension or falling pressure, tachycardia or relative bradycardia, weak pulse, cool or mottled skin, prolonged capillary refill, warm vasodilated shock, elevated or rising lactate.
Renal	Oliguria, anuria, rising creatinine, new electrolyte or acid-base disturbance.
Haematologic / hepatic	Thrombocytopenia, coagulopathy, bleeding, jaundice, rising bilirubin or transaminases.
Metabolic	Hypoglycaemia or hyperglycaemia, metabolic acidosis, rising lactate, unexplained ketosis.
Local / anatomical danger	Necrotizing soft-tissue infection, obstructed infected urinary tract, cholangitis, perforation, empyema, abscess, infected prosthesis/device, uterine infection, CNS infection, endocarditis, septic arthritis.

9. Immediate stabilization: ABCDE

9.1 Airway and breathing

- Position, suction, and protect the airway. Call anaesthesia / critical care early for threatened airway, declining consciousness, severe work of breathing, refractory hypoxaemia, or expected deterioration.
- Give oxygen for hypoxaemia or respiratory distress and titrate to the approved target. Obtain blood gas when respiratory failure, severe shock, or major acid-base disturbance is suspected.
- Treat source-specific respiratory emergencies concurrently, including pneumonia, empyema, bronchospasm, pulmonary oedema, or upper-airway infection.
- When intubation is required, anticipate peri-intubation cardiovascular collapse; optimize haemodynamics, prepare vasopressor support, and use a trained team.

9.2 Circulation

- Obtain two peripheral IV lines when feasible; use IO access if critical therapy is delayed. Do not delay antimicrobials solely to obtain central access.
- Assess perfusion using mental status, capillary refill, skin temperature and mottling, pulse, blood pressure/MAP, urine output, lactate trend, and response to a defined intervention.
- For sepsis-induced hypoperfusion or septic shock, begin individualized crystalloid resuscitation. A cumulative initial volume around 30 mL/kg within 3 hours may be appropriate in many adults, but give in measured aliquots with frequent reassessment and adjust for heart failure, kidney disease, cirrhosis, pregnancy, frailty, obesity, or fluid intolerance.
- Use balanced crystalloids in most patients. Avoid starches and gelatin. Do not continue fluid merely to normalize lactate when perfusion does not improve or congestion is developing.
- In unstable septic shock, initiate norepinephrine concurrently with fluid on a case-by-case basis. Peripheral initiation through a well-sited, closely monitored proximal vein is preferable to harmful delay while central access is arranged.
- Use an initial adult MAP target around 65 mm Hg, individualized to age, chronic hypertension, perfusion, and adverse effects. In adults aged 65 or older, an initial range of 60–65 mm Hg may be reasonable when perfusion is adequate.

9.3 Disability and exposure

- Check glucose immediately and treat severe abnormality.
- Assess GCS/AVPU, pupils, pain, seizure activity, neck stiffness, focal signs, and delirium.

- Expose sufficiently to identify rash, cellulitis, wounds, pressure injury, line infection, perineal disease, surgical sites, joint infection, bites, and occult bleeding while preserving dignity and preventing hypothermia.
- Record urine output; insert a urinary catheter only when accurate output is necessary and the benefit outweighs infection risk.

10. Focused diagnostic assessment

10.1 History and examination

- Determine symptom onset, trajectory, likely source, recent antimicrobials, healthcare contact, surgery, procedures, devices, wounds, travel, animal or water exposure, sick contacts, vaccination, and outbreak context.
- Review allergy type and severity, current medicines, immune suppression, malignancy, HIV status where known and relevant, diabetes, renal/hepatic/cardiac disease, pregnancy or recent pregnancy, and prior resistant organisms.
- Examine source systems and actively search for noninfectious mimics such as haemorrhage, pulmonary embolism, myocardial infarction, pancreatitis, adrenal crisis, thyroid storm, serotonin syndrome, malignant hyperthermia, drug toxicity, heat illness, and inflammatory disease.
- Consider infection without obvious source. A normal chest examination, urinalysis, or early imaging does not exclude serious infection.

10.2 Initial investigations

- Blood cultures—normally at least two appropriately collected sets from separate sites—before antimicrobials when this does not delay treatment.
- Lactate, full blood count, electrolytes, renal and liver function, glucose, coagulation, blood gas, and other tests guided by severity and source.
- Urine microscopy/culture, respiratory specimens, CSF, wound/pus, stool, joint fluid, device cultures, or other source specimens when indicated.
- ECG and troponin when cardiac involvement, ischaemia, arrhythmia, or shock is possible.
- Imaging selected according to stability and source. Bedside ultrasound may rapidly identify obstruction, hydronephrosis, gallbladder disease, free fluid, cardiac dysfunction, or a drainable collection, but does not replace definitive imaging when required.
- Pregnancy testing where clinically relevant and not already established. Do not delay essential imaging or source control in a critically ill patient.

11. Infection-likelihood classification and antimicrobial clock

Clinical category	Operational approach	Antimicrobial target
Septic shock	Possible, probable, or definite infection with shock or severe hypoperfusion. Treat while diagnosis is refined.	Immediately; ideally within 1 hour of recognition.
Probable / definite sepsis without shock	High likelihood of infection plus acute organ dysfunction.	Immediately; ideally within 1 hour of recognition.
Possible sepsis without shock	Infection remains plausible but alternative diagnoses are also credible and immediate shock is absent.	Rapid, time-limited investigation; administer within 3 hours if concern persists.
Low likelihood of infection, no shock	Noninfectious cause more likely and patient is stable.	May defer antimicrobials with close monitoring, documented rationale, and mandatory reassessment.

The clinician shall document the category, time zero, antimicrobial decision, reasons for any delay or deferral, and the planned reassessment time. The clock is a safety tool, not a reason to give indiscriminate therapy without clinical assessment.

12. Cultures, specimens, and diagnostic stewardship

- Collect cultures using aseptic technique, correct volume, correct containers, bedside labelling, and documented collection time. Poor-quality cultures cause false diagnosis and unnecessary antimicrobial exposure.
- Obtain specimens from the most likely source before treatment when feasible. Do not routinely culture sites without clinical relevance.
- When a vascular-device infection is suspected, obtain paired peripheral and device cultures according to local laboratory policy; do not remove a necessary line before alternative access is secured unless immediate removal is required for source control.
- Communicate suspected high-consequence pathogens and required laboratory precautions before sending specimens.
- Procalcitonin shall not be required to decide whether to start antimicrobials. Where available, it may support discontinuation decisions together with clinical assessment when duration remains uncertain after source control.
- All preliminary, critical, amended, and final results must have a named owner and closed-loop communication under Protocol 5.

13. Empiric antimicrobial therapy and stewardship

ANTIMICROBIAL SAFETY RULE: Give the right therapy fast—not simply “an antibiotic fast.” The initial regimen must match the likely source, severity, host, resistance risk, allergy, renal/hepatic function, pregnancy status, and local ecology.

- Use the approved local empiric sepsis matrix and most recent antibiogram. If the required matrix is unavailable, seek senior, pharmacy, or microbiology advice without delaying life-saving therapy.
- Use an adequate loading dose in severe sepsis or shock according to the formulary, even when renal impairment is present; subsequent doses and intervals require adjustment. Follow local guidance for obesity, burns, augmented renal clearance, dialysis, and extracorporeal support.
- Provide MDR coverage only when individual and local risk justify it. Risk factors include prior colonization or infection with the organism, recent broad-spectrum exposure, prolonged hospitalization, invasive devices, or high-prevalence unit exposure.
- Do not add routine anaerobic coverage without a source-associated indication. Indications may include intra-abdominal, deep pelvic/obstetric, necrotizing soft-tissue, head-and-neck, or intracranial abscess/empyema infection.
- Do not use routine empiric antifungal therapy. Consider it case by case for substantial fungal risk, including selected immunosuppressed patients, prolonged broad-spectrum exposure or hospitalization, or high-risk intra-abdominal infection.
- Use extended or continuous beta-lactam infusion only under an approved local protocol that provides a correct loading dose, compatibility, stability, line, and pump requirements.
- Perform an antimicrobial timeout as soon as microbiology and clinical evolution permit, usually within 24–48 hours: confirm diagnosis and source, stop if infection is unlikely, narrow to the identified pathogen, optimize dose and route, and set duration.
- Use the shortest effective course after adequate source control. Document a stop or review date on every antimicrobial order.

14. Haemodynamic resuscitation and septic shock

Domain	Required practice
Fluid	Use crystalloid first line, generally balanced. Give measured boluses or a reversible preload challenge with immediate reassessment. Stop when shock resolves, fluid is not improving perfusion, or overload develops.
Vasopressor	Norepinephrine is first line in adult septic shock. Add vasopressin when norepinephrine requirements escalate; add epinephrine if MAP remains inadequate despite norepinephrine and vasopressin, according to local critical-care guidance.
Cardiac dysfunction	Use bedside echo/POCUS and specialist review. Consider inotropic support when cardiac dysfunction and hypoperfusion persist despite adequate pressure and volume assessment.
Monitoring	Continuous ECG and SpO2; frequent BP/MAP; serial mental state, capillary refill, skin perfusion, urine output, lactate when elevated, and fluid balance. Consider invasive BP for escalating or multiple vasopressors or unreliable cuff measurements.
Targets	Initial adult MAP around 65 mm Hg, individualized. Use perfusion endpoints and clinical trajectory rather than a single target.
Corticosteroid	Consider IV corticosteroid in adult septic shock with ongoing vasopressor requirement under the approved critical-care protocol. Do not use routinely for sepsis without shock.

REASSESSMENT RULE: After every fluid bolus, vasopressor change, airway intervention, or major treatment, document whether perfusion improved, remained unchanged, or worsened. Escalation without reassessment risks both under-resuscitation and fluid or catecholamine harm.

15. Source identification and source control

A senior clinician shall ask at pathway activation and each reassessment: “Is there a source that requires a procedure, operation, drainage, removal, or delivery?”

Potential source-control emergency	Immediate action
Obstructed infected urinary system	Urgent urology / interventional referral for decompression; do not rely on antimicrobials alone.
Perforation, ischaemic bowel, peritonitis, intra-abdominal abscess, cholangitis	Urgent surgery / gastroenterology / interventional radiology; initiate appropriate imaging only if it does not cause unsafe delay.
Necrotizing soft-tissue infection	Immediate surgical review and debridement pathway; do not delay for imaging when clinical suspicion is high.
Empyema, infected pleural collection	Urgent respiratory / surgical drainage assessment.
Septic arthritis or infected prosthetic joint	Urgent orthopaedic aspiration/washout pathway.
Infected vascular device or prosthesis	Obtain cultures and arrange removal or definitive specialist management when indicated.
CNS abscess / empyema	Urgent neurosurgical and antimicrobial specialist input.
Uterine / retained-products source	Immediate obstetric/gynaecology review; prompt delivery or evacuation when required for source control, regardless of gestational age.
Dental / deep neck / airway source	Early ENT / dental / anaesthesia involvement because airway deterioration may be rapid.

When source control is required, activate it early and aim for definitive intervention ideally within 6 hours of diagnosis, sooner when anatomy and physiology demand. Record referral, acceptance, planned intervention, delay, contingency, and responsible team.

16. Source- and syndrome-specific safety considerations

16.1 Pulmonary infection

- Assess severity, oxygenation, aspiration risk, pleural collection, viral epidemiology, and need for respiratory isolation.
- Do not assume all infiltrates are bacterial; consider pulmonary oedema, embolism, haemorrhage, and inflammatory disease.
- Escalate for empyema drainage, severe hypoxaemia, ARDS, or ventilatory failure.

16.2 Urinary and abdominal infection

- Look for obstruction, stones, retention, recent instrumentation, pregnancy, and renal impairment.
- In abdominal sepsis, examine repeatedly; early imaging and surgery are more important than repeated broadening of antimicrobials when source control is missing.

16.3 Skin, soft tissue, and musculoskeletal infection

- Mark the margin of spreading erythema when useful and document pain, crepitus, bullae, skin anaesthesia, disproportionate pain, systemic toxicity, and rapid progression.
- Necrotizing infection is a surgical diagnosis; urgent exploration must not be delayed by a reassuring early image or laboratory score.
- Assess septic arthritis, osteomyelitis, diabetic foot infection, pressure injury, bites, and injection-related infection.

16.4 CNS infection

- Begin appropriate antimicrobials promptly when bacterial meningitis or encephalitis is probable. Do not delay for lumbar puncture or imaging when unsafe or likely to create harmful delay.
- Use the local meningitis pathway for adjunctive therapy, isolation, public-health notification, and prophylaxis of contacts.

16.5 Endovascular and device-associated infection

- Consider endocarditis with murmur, embolic signs, prosthetic valve, intracardiac device, injection drug use, persistent bacteraemia, or no clear source.
- Review every invasive device and remove unnecessary devices.

16.6 Tropical, travel-associated, and outbreak infection

- Ask about travel, mosquito exposure, freshwater or flood exposure, animal contact, occupation, and local outbreaks.
- Consider dengue, leptospirosis, malaria after travel, severe viral infection, and other locally relevant diseases. Some require fluid strategies or antimicrobials different from routine bacterial sepsis.
- Notify infection prevention, public health, and laboratory early for suspected high-consequence or notifiable infection.

17. Organ support and adjunctive care

- Screen regularly for ARDS; use lung-protective ventilation under the approved ventilation protocol and early critical-care consultation.
- Initiate insulin therapy in critically ill adults when glucose is persistently at or above 10 mmol/L (180 mg/dL), using a protocol that minimizes hypoglycaemia.

- Do not use IV vitamin C, IV immunoglobulin, routine blood-purification techniques, or vitamin D as routine sepsis therapy.
- Do not use antipyretics or surface cooling solely to improve sepsis outcomes; use for comfort or another indication.
- Use restrictive red-cell transfusion practice in stabilized patients unless bleeding, myocardial ischaemia, severe hypoxaemia, or another indication warrants a different threshold.
- Provide pharmacological venous-thromboembolism prophylaxis when admitted and not contraindicated, with pregnancy-specific guidance where applicable.
- Use sodium bicarbonate selectively: it is not routine for lactic acidosis, but may be considered in severe metabolic acidemia with significant acute kidney injury under senior/critical-care guidance.
- Address analgesia, delirium prevention, pressure care, nutrition, glycaemic safety, family communication, and goals of care as part of comprehensive treatment.

18. Paediatric sepsis and septic shock

PAEDIATRIC SAFETY RULE: Hypotension is a late sign in children. Escalate for altered interaction, abnormal perfusion, tachypnoea, rising oxygen need, oliguria, abnormal temperature, weak or bounding pulses, prolonged or flash capillary refill, mottling, or caregiver concern.

- Use age-specific triage thresholds, PEWS, weight-based prescribing, and paediatric resuscitation equipment. Obtain measured weight or an approved length-based estimate without delaying treatment.
- Use the Phoenix Sepsis Score or other approved paediatric organ-dysfunction framework for diagnosis and audit where feasible, but do not wait for a calculated score before treating a clinically deteriorating child.
- Administer appropriate antimicrobials promptly according to the paediatric sepsis guideline and local formulary. Obtain cultures first only when this does not delay therapy.
- In systems with paediatric intensive-care capability, a child with septic shock may receive up to 40–60 mL/kg in 10–20 mL/kg boluses during the first hour, with reassessment after every bolus and immediate cessation for shock resolution or fluid overload.
- In systems without intensive-care availability, avoid bolus fluid in sepsis without hypotension; in hypotensive septic shock, up to 40 mL/kg in 10–20 mL/kg aliquots may be used with strict reassessment and early transfer activation.
- Use balanced/buffered crystalloid when appropriate. Start vasoactive medication through peripheral or IO access rather than delaying for central access. Current evidence does not establish a single preferred first-line choice between epinephrine and norepinephrine in all children; follow the approved paediatric protocol and shock phenotype.
- Involve paediatrics early and activate transfer at the first indication that local monitoring, ventilation, vasoactive support, or source-control capacity may be exceeded.

19. Pregnancy and the postpartum period

- Think sepsis in any unwell pregnant, post-abortion, intrapartum, or recently pregnant patient with unexplained organ dysfunction, regardless of fever.
- Use pregnancy-adjusted observations and the approved maternal early-warning tool. Maternal resuscitation takes priority and fetal assessment shall not delay life-saving maternal treatment.
- Obtain cultures and lactate, administer appropriate broad-spectrum antimicrobials ideally within 1 hour for septic shock or high-likelihood sepsis, and involve obstetrics immediately.
- Use balanced crystalloid in measured aliquots with dynamic reassessment. Pregnancy and pre-eclampsia increase the risk of pulmonary oedema; avoid unmonitored large-volume loading.
- Norepinephrine is the preferred first-line vasopressor for maternal septic shock under specialist monitoring.
- If a uterine source is suspected or confirmed, prompt delivery or evacuation of uterine contents may be required for source control regardless of gestational age.

• Coordinate anaesthesia, critical care, neonatology, microbiology, surgery, and transfer services early.

20. Other high-risk populations

Population	Safety considerations
Neutropenia / immunocompromise	Treat fever, hypothermia, hypotension, or unexplained deterioration as high risk; use the approved neutropenic-sepsis regimen; do not rely on inflammatory response; consider fungal and opportunistic infection selectively.
Older adults / frailty	Atypical presentation, delirium, falls, reduced reserve, dehydration, and medication effects are common. Balance rapid treatment with goals of care and avoid undertreatment based on age alone.
Heart failure / renal failure / cirrhosis	Use smaller fluid aliquots, dynamic assessment, early vasopressor consideration, and close congestion/electrolyte monitoring. Initial antimicrobial loading still requires urgency and pharmacological expertise.
Diabetes / obesity	Consider occult skin, foot, urinary, and deep infection; use accurate or adjusted weight according to the local protocol for fluid and antimicrobial dosing.
Recent surgery / device / healthcare exposure	Broaden source search and resistance assessment; involve the procedural team; evaluate surgical complications, line infection, prosthesis infection, and hospital-acquired pathogens.
People with communication or access barriers	Use interpreter and disability supports; do not misattribute altered behaviour or reduced communication to baseline without caregiver input and examination.

21. Monitoring, reassessment, and diagnostic timeout

Time / trigger	Required reassessment
After every major intervention	ABCDE; mental state; respiratory effort; SpO2; HR; BP/MAP; capillary refill and skin; urine output; pain; adverse effects; fluid tolerance.
Within the first hour	Confirm antimicrobial administration time and appropriateness; cultures/specimens; lactate; response to fluid/vasopressor; source-control referral; senior review; disposition plan.
When lactate is elevated or shock persists	Repeat lactate and perfusion assessment. Interpret trend in context; do not give repeated fluid solely to normalize lactate.
At clinical deterioration	Repeat ABCDE, call senior/critical care, reconsider source and mimics, verify therapy delivery, escalate organ support and source control.
Within 3 hours for possible sepsis	Make and document a definitive antimicrobial decision based on rapid investigation and trajectory.
At 24–48 hours or sooner when results arrive	Antimicrobial timeout: diagnosis, source, cultures, spectrum, dose, route, duration, source control, and alternative diagnoses.
Before transfer of responsibility	Document current physiology, treatment, response, pending results, antimicrobial due times, source-control status, escalation ceiling, and named owners.

22. Escalation, disposition, and transfer

22.1 Immediate senior / critical-care escalation

- Septic shock, escalating vasopressors, recurrent hypotension, rising lactate or worsening perfusion, respiratory failure, reduced consciousness, severe acidosis, oliguria/anuria, DIC/bleeding, or multi-organ dysfunction.
- Need for invasive airway, arterial monitoring, central access, renal replacement, urgent operation/procedure, or specialist treatment unavailable locally.
- Paediatric, maternal, immunocompromised, or frail patient whose care exceeds local capability.
- Delay in antibiotics, source control, bed allocation, transport, blood products, laboratory support, or receiving-facility acceptance that places the patient at risk.

22.2 Disposition standards

- Septic shock and unstable organ dysfunction require critical-care admission or immediate higher-level transfer unless a documented treatment limitation applies.
- Stable sepsis generally requires monitored inpatient care, explicit antimicrobial and source-control plans, and named responsibility for all pending results.
- Observation may be used only when diagnosis or trajectory remains uncertain and a documented monitoring, reassessment, antimicrobial, and escalation plan exists.
- Discharge is exceptional and only appropriate when sepsis has been excluded, serious infection is not present, observations and function are safe, necessary results are reviewed, treatment is feasible, follow-up is reliable, and explicit return precautions are understood.

22.3 Transfer

- Stabilize as far as possible without delaying time-critical definitive care. Obtain receiving-clinician acceptance and select transport, escort, monitoring, oxygen, medications, and equipment according to Protocol 11.
- Continue all due antimicrobials, fluids, vasopressors, and monitoring while awaiting transport. Delay does not transfer responsibility.
- Use structured handover that states time zero, antimicrobials and due times, cultures, source, organ dysfunction, fluid and vasopressor response, source-control need, and pending results.

23. Documentation requirements

- Time zero and pathway activation; triage category; sepsis classification and rationale.
- Observations, organ dysfunction, perfusion findings, screening score, and clinical concern.
- Suspected source and important alternative diagnoses.
- Culture/specimen type and collection times; antimicrobial order and administration times; reasons for delay, deferral, or deviation.
- Agent, dose, route, allergy assessment, renal/hepatic adjustment, and planned review/stop date.
- Fluid type and cumulative volume; response after each bolus; vasopressor/inotrope type and titration; oxygen/ventilation.
- Lactate and other critical trends; urine output; source-control referral, acceptance, timing, and delay.
- Senior, critical-care, paediatric, obstetric, surgical, microbiology, pharmacy, and transfer consultations.
- Reassessment findings, diagnostic timeout, disposition rationale, pending-result ownership, and handover acceptance.

24. Quality indicators and audit

Indicator	Suggested measure
Recognition	Percentage of eligible patients with documented time zero and sepsis risk category.
Antimicrobial timeliness	Percentage of septic shock and probable/definite sepsis cases receiving appropriate antimicrobials within 1 hour; possible sepsis cases with decision within 3 hours.
Blood cultures	Percentage with cultures collected before antimicrobials when this caused no delay; contamination rate and adequate-volume rate.
Lactate / perfusion	Percentage with initial lactate when indicated and documented repeat perfusion assessment; repeat lactate when elevated or shock persists.
Fluid safety	Percentage with documented response after each bolus and evidence of fluid-overload surveillance.
Source control	Percentage of source-control cases referred promptly; time from diagnosis to procedure; reasons for delay.
Stewardship	Percentage with antimicrobial review, de-escalation/stop decision, and documented duration.
Outcomes	ED mortality, 24-hour deterioration, ICU transfer, length of stay, transfer delay, readmission, and sepsis-related adverse events.
Equity / special populations	Timeliness and outcomes stratified by age, pregnancy, disability, language, and other locally relevant groups.

25. Training, equipment, and implementation

- All ED clinical staff shall receive competency-based education in sepsis recognition, infection-likelihood classification, cultures, antimicrobial timing, fluid/vasopressor safety, source-control activation, paediatric and maternal sepsis, and closed-loop handover.
- Conduct regular multidisciplinary simulation involving ED, nursing, laboratory, pharmacy, surgery, critical care, paediatrics, obstetrics, and transport.
- Maintain a current local empiric antimicrobial matrix, antibiogram, allergy pathway, culture guide, source-control contact list, isolation guide, paediatric dosing reference, maternal-sepsis pathway, and transfer directory.
- Ensure reliable availability of blood-culture sets, lactate testing, balanced crystalloid, infusion pumps, vasopressors, antimicrobials, PPE, age-appropriate equipment, and transport stocks.
- Review every serious sepsis delay or unexpected deterioration through non-punitive systems analysis, with feedback to frontline staff and action tracking.

26. References and evidence base

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ANNEX A. One-page suspected sepsis and severe infection workflow

RECOGNIZE → CLASSIFY INFECTION LIKELIHOOD → CULTURE / LACTATE → ANTIMICROBIALS → PERFUSION-GUIDED RESUSCITATION → SOURCE CONTROL → REASSESS → DE-ESCALATE / DISPOSE

Step	Action
1. Recognize	Suspected infection + organ dysfunction, hypoperfusion, rapid deterioration, or dangerous source. Record time zero.
2. Triage	Red for shock / severe organ dysfunction; monitored area; senior review; infection precautions.
3. ABCDE	Oxygen for hypoxaemia; monitor; IV/IO; glucose; treat immediate threats.
4. Classify	Septic shock; probable/definite sepsis; possible sepsis; low likelihood.
5. Investigate	Blood cultures, lactate, essential labs, source specimens, imaging selected by stability.
6. Treat infection	Antimicrobials within 1 hour for shock or probable/definite sepsis; within 3 hours if possible sepsis persists.
7. Restore perfusion	Measured balanced crystalloid; reassess every bolus; early norepinephrine for persistent/unstable shock.
8. Control source	Identify procedural source; urgent referral; ideally source control within 6 hours when needed.
9. Reassess	Physiology, perfusion, lactate, urine, fluid tolerance, antimicrobial appropriateness, source-control progress.
10. Disposition	Critical care / admission / transfer; explicit handover and pending-result ownership.

ANNEX B. Sepsis danger-sign card

Immediate danger sign	Action
Airway compromise, severe respiratory distress, hypoxaemia	Resuscitation area; airway/critical-care support.
Altered consciousness, seizure, new confusion	Check glucose; ABCDE; consider CNS infection and organ dysfunction.
Hypotension, weak pulse, mottling, prolonged capillary refill, oliguria	Treat as shock; lactate; individualized fluid; early vasopressor.
Rapidly spreading pain/swelling, crepitus, bullae, skin anaesthesia	Immediate surgical review for necrotizing infection.
Purpuric / non-blanching rash with systemic illness	Immediate antimicrobials; meningococcal pathway; isolation/public health.
Pregnant/recently pregnant and systemically unwell	Maternal sepsis activation; obstetric and critical-care review.
Child with abnormal perfusion, interaction, breathing, or caregiver concern	Paediatric sepsis pathway; early paediatric/transfer activation.
Immunocompromised or neutropenic with fever, hypothermia, or deterioration	Immediate high-risk antimicrobial pathway.

ANNEX C. First-hour sepsis checklist

☐ Record time zero and category: shock / probable-definite / possible sepsis.
☐ Place in appropriate area; PPE and isolation.
☐ ABCDE, continuous or frequent monitoring, glucose.
☐ IV/IO access; blood cultures and lactate; source specimens.
☐ Appropriate antimicrobials ordered and administered; exact times recorded.
☐ Fluid/perfusion plan and response after each bolus.
☐ Vasopressor initiated if indicated; critical-care support called.
☐ Source-control emergency considered and referral activated.
☐ Senior review and disposition/transfer plan.
☐ Patient/family informed; allergies and medicines reconciled.

ANNEX D. Minimum sepsis assessment dataset

Field	Required entry
Time zero / activation	
Presenting infection syndrome and source	
Risk category / screening score	
Organ dysfunction and perfusion findings	
Key comorbidities / immune status / pregnancy	
Allergy and recent antimicrobials	
Cultures / specimens and times	
Lactate and key laboratory findings	
Antimicrobial agent, dose, route, order and administration times	
Fluid / vasopressor / oxygen and response	
Source-control need and referral	
Senior review / consultations	
Reassessment and disposition	

ANNEX E. Culture and specimen checklist

☐ Confirm patient identity, site, specimen type, and indication.
☐ Hand hygiene and aseptic collection; disinfect blood-culture bottle tops.
☐ Obtain adequate volume and correct number of sets according to laboratory policy.
☐ Label at bedside with date/time/site and collector.
☐ Collect source-specific specimens before antimicrobials when this will not delay treatment.
☐ Send promptly using required transport conditions and precautions.
☐ Record antimicrobial exposure before collection.
☐ Name the clinician responsible for reviewing preliminary and final results.

ANNEX F. Antimicrobial decision and timing record

Field	Entry
Time zero	
Category	☐ Septic shock ☐ Probable/definite sepsis ☐ Possible sepsis ☐ Low likelihood
Likely source	
MDR / fungal / anaerobic risk	
Allergy assessment	
Empiric regimen and reason	
Order time	
Administration time	
If delayed / deferred, reason and escalation	
Review / stop date	
24–48 h timeout outcome	☐ Continue ☐ Narrow ☐ Stop ☐ Change source/duration

ANNEX G. Local empiric antimicrobial matrix – configuration template

Syndrome / source	Community / low MDR risk	Healthcare / MDR risk	Severe allergy alternative	Special notes / source control
Unknown source / septic shock				
Pneumonia				
Urinary / pyelonephritis				
Intra-abdominal / biliary				
Skin / soft tissue / necrotizing				
Meningitis / encephalitis				
Neutropenic sepsis				
Maternal / postpartum				
Line / device / endovascular				
Paediatric sepsis				

Complete using the current formulary, antibiogram, renal/hepatic and pregnancy guidance, paediatric dosing reference, and microbiology approval. The matrix must include doses, infusion method, adjustment, and review date in the locally ratified version.

ANNEX H. Fluid challenge and perfusion reassessment record

Time	Indication	Fluid / volume	Pre-intervention perfusion	Post-intervention response	Continue / stop / vasopressor

Time	Indication	Fluid / volume	Pre-intervention perfusion	Post-intervention response	Continue / stop / vasopressor

ANNEX I. Source-control record

Field	Entry
Suspected anatomical source	
Required intervention	
Service contacted and time	
Accepting clinician and time	
Target intervention time	
Imaging / preparation required	
Reason for delay and escalation	
Intervention completed and time	
Post-procedure culture and antimicrobial plan	

ANNEX J. Paediatric sepsis safety prompts

☐ Age-specific observations and PEWS; caregiver concern documented.

☐ Weight measured or approved estimate; all doses independently checked.

☐ Hypotension not required for diagnosis of shock.

☐ 10–20 mL/kg bolus only when indicated; reassess after every bolus; stop for overload.

☐ Vasoactive medication not delayed for central access.

☐ Paediatric consultant and transfer service contacted early.

☐ Glucose, calcium/electrolytes, urine output, and temperature monitored.

☐ Child-protection and safeguarding concerns considered.

ANNEX K. Maternal sepsis safety prompts

☐ Pregnancy / recent pregnancy / post-abortion status and gestation recorded.

☐ Maternal early-warning score; sepsis considered even without fever.

☐ Obstetric, anaesthesia, critical-care, neonatal, and surgical teams activated as indicated.

☐ Cultures, lactate, antimicrobials, and balanced crystalloid without delay.

☐ Dynamic fluid assessment and pulmonary-oedema surveillance.

☐ Uterine source and retained products considered; source control not delayed.

☐ Fetal assessment performed when appropriate but does not delay maternal resuscitation.

☐ VTE risk and prophylaxis plan documented after stabilization.

ANNEX L. Immunocompromised / neutropenic sepsis prompts

☐ Cancer treatment, transplant, steroids, biologics, HIV, splenectomy, and neutrophil count reviewed.

☐ Fever may be absent; treat unexplained deterioration as high risk.

☐ Local neutropenic-sepsis regimen and antimicrobial clock activated.

☐ Blood cultures from peripheral and line sites as indicated; no treatment delay.

☐ Fungal, viral, and opportunistic risks considered selectively.

☐ Haematology/oncology/infectious-disease/microbiology advice obtained early.

☐ Protective or transmission precautions applied according to policy.

ANNEX M. Structured sepsis reassessment record

Time	Mental state	RR / SpO2 / O2	HR / BP / MAP	Capillary refill / skin	Urine	Lactate	Fluid tolerance	Action / escalation

ANNEX N. Admission / transfer handover minimum dataset

☐ Time zero and sepsis category.

☐ Suspected/confirmed source and important differentials.

☐ Organ dysfunction and current physiology.

☐ Cultures and source specimens; preliminary results.

☐ Antimicrobials: agent, dose, time given, next dose due, allergies.

☐ Fluids, vasopressors, oxygen/ventilation, urine output, lactate trend.

☐ Source-control need, referral, acceptance, and planned time.

☐ Pending results and named owner.

☐ Treatment limitations / goals of care.

☐ Receiving clinician confirms acceptance and responsibility.

ANNEX O. Sepsis pathway audit tool

Audit item	Yes	No	N/A	Comments / action
Time zero and category documented				
Appropriate antimicrobial within target				
Cultures before therapy without delay				
Lactate / perfusion assessed				
Response after each fluid bolus documented				

Audit item	Yes	No	N/A	Comments / action
Vasopressor not inappropriately delayed				
Source-control need assessed and escalated				
Senior / critical-care review appropriate				
Antimicrobial timeout / de-escalation completed				
Handover and pending-result ownership explicit				
Special-population pathway applied				
Adverse delays reviewed				

ANNEX P. Local configuration table

Item requiring local approval	Local decision / value
Approved adult sepsis screening / trigger system	
Approved paediatric PEWS / Phoenix implementation	
Approved maternal early-warning / sepsis tool	
Sepsis response activation method and team	
Antimicrobial 1-hour and 3-hour measurement definitions	
Empiric antimicrobial matrix and antibiogram date	
Blood-culture sets, volume, and transport process	
Lactate test availability and critical thresholds	
Adult fluid and vasopressor protocol	
Paediatric fluid and vasoactive protocol	
Peripheral vasopressor policy	
Source-control contacts and expected response	
Critical-care / transfer activation criteria	
Isolation / public-health notification pathways	
Audit owner and reporting frequency	

ANNEX Q. Approval and sign-off

Role	Name	Signature	Date
Emergency Department Clinical Lead			
Director of Medical Services			
Director of Nursing			
Pharmacy Lead			
Microbiology / Laboratory Lead			
Infection Prevention and Control Lead			
Critical Care / Anaesthesia Lead			
Surgery Lead			
Paediatrics Lead			
Obstetrics and Gynaecology Lead			
Quality and Patient Safety Lead			