Emergency care toolkit

Pocket guide

World Health Organization

who.int/emergency care I emergencycare@who.int

CONTENTS

INTERAGENCY INTEGRATED TRIAGE TOOL: Age ≥ 12

1 CHECK FOR RED CRITERIA

- Unresponsive

AIRWAY & BREATHING

- Stridor
- Respiratory distress* or central cyanosis

CIRCULATION

- Capillary refill >3 sec
- Weak and fast pulse
- Heavy bleeding
- HR <50 or >150

DISABILITY

- Active convulsions
- Any two of:
  - Altered mental status
  - Hypothermia or fever
  - Stiff neck
  - Headache
- Hypoglycaemia

OTHER

- High-risk trauma*
- Poisoning/ingestion or dangerous chemical exposure*
- Threatened limb*
- Snake bite
- Acute chest or abdominal pain (>50 years old)
- ECG with acute ischaemia (if done)
- Violent or aggressive

PREGNANT WITH ANY OF:

- Heavy bleeding
- Severe abdominal pain
- Seizures or altered mental status
- Severe headache
- Visual changes
- SBP ≥160 or DBP ≥110
- Active labour
- Trauma

YES

MOVE TO HIGH ACUITY RESUSCITATION AREA IMMEDIATELY

NO

2 CHECK FOR YELLOW CRITERIA

AIRWAY & BREATHING

- Any swelling/mass of mouth, throat or neck
- Wheezing (no red criteria)

CIRCULATION

- Vomits everything or ongoing diarrhoea
- Unable to feed or drink
- Severe pallor (no red criteria)
- Ongoing bleeding (no red criteria)
- Recent fainting

DISABILITY

- Altered mental status or agitation (no red criteria)
- Acute general weakness
- Acute focal neurologic complaint
- Acute visual disturbance
- Severe pain (no red criteria)

OTHER

- New rash worsening over hours or peeling (no red criteria)
- Visible acute limb deformity
- Open fracture
- Suspected dislocation
- Other trauma/burns (no red criteria)
- Known diagnosis requiring urgent surgical intervention
- Sexual assault
- Acute testicular/scrotal pain or priapism
- Unable to pass urine
- Exposure requiring time-sensitive prophylaxis (eg. animal bite, needlestick)
- Pregnancy, referred for complications

YES

MOVE TO CLINICAL TREATMENT AREA

NO

Patients with high-risk vital signs or clinical concern need up-triage or immediate review by supervising clinician

YES

3 CHECK FOR HIGH-RISK VITAL SIGNS

HR <60 or >130
RR <10 or >30
Temp <36° or >39°
SpO2 <92%
AVPU other than A

NO

MOVE TO LOW ACUITY OR WAITING AREA

*See Reference Card

Developed by World Health Organization, The International Committee of the Red Cross, Médecins Sans Frontières

INTERAGENCY INTEGRATED TRIAGE TOOL: Age < 12

1 CHECK FOR RED CRITERIA

- Unresponsive

AIRWAY & BREATHING

- Stridor
- Respiratory distress* or central cyanosis

CIRCULATION

- Capillary refill >3 sec
- Weak and fast pulse
- Heavy bleeding
- Cold extremities
- Any two of:
  - Lethargy
  - Sunken eyes
  - Very slow skin pinch
  - Drinks poorly

DISABILITY

- Active convulsions
- Altered mental status (confused, restless, continuously irritable or lethargic) with stiff neck, hypothermia or fever
- Hypoglycaemia (if known)

OTHER

- Any infant <8 days old
- Age <2 months and temp <36 or >39°C
- High-risk trauma*
- Threatened limb*
- Acute testicular/scrotal pain or priapism
- Snake bite
- Poisoning/ingestion or dangerous chemical exposure*
- Pregnant with adult red criteria

YES

MOVE TO HIGH ACUITY RESUSCITATION AREA IMMEDIATELY

NO

2 CHECK FOR YELLOW CRITERIA

AIRWAY & BREATHING

- Any swelling/mass of mouth, throat or neck
- Wheezing (no red criteria)

CIRCULATION

- Unable to feed or drink
- Vomits everything
- Ongoing diarrhoea
- Dehydration
- Severe pallor (no red criteria)

DISABILITY

- Restless, continuously irritable or lethargy
- Severe pain

OTHER

- Any infant 8 days to 6 months old
- Malnutrition with visible severe wasting OR oedema of both feet
- Trauma/burn (no red criteria)
- Sexual assault
- Known diagnosis requiring urgent surgical intervention
- New rash worsening over hours or peeling (no red criteria)
- Exposure requiring time-sensitive prophylaxis (e.g. animal bite)
- Pregnancy (no red criteria)
- Headache (no red criteria)

YES

MOVE TO CLINICAL TREATMENT AREA

NO

Patients with high-risk vital signs or clinical concern need up-triage or immediate review by supervising clinician

YES

3 CHECK FOR HIGH-RISK VITAL SIGNS

Temp <36° or >39°

SpO2 < 92%

AVPU other than A

RR	< 1 year	1-4 years	5-12 years
High	50	40	30
Low	25	20	10
HR	**< 1 year**	**1-4 years**	**5-12 years**
High	180	160	140
Low	< 90	< 80	< 70

NO

MOVE TO LOW ACUITY OR WAITING AREA

*See Reference Card

Developed by World Health Organization, International Committee of the Red Cross, Médecins Sans Frontières

INTERAGENCY INTEGRATED TRIAGE: *Reference card

High-Risk Trauma Criteria

General Trauma	Road Traffic
Fall from twice person's height	High speed motor vehicle crash
Penetrating trauma excluding distal to knee/ elbow with bleeding controlled	Pedestrian or cyclist hit by vehicle
Crush injury	Other person in same vehicle died at scene
Polytrauma (injuries in multiple body areas)	Motor vehicle crash without a seatbelt
Patient with bleeding disorder or on anticoagulation	Trapped or thrown from vehicle (including motorcycle)
Pregnant	

Major Burns

(the below criteria refer to partial or full thickness burns) Greater than 15% body surface area	Inhalation injury
Circumferential or involving face or neck	Any burn in age < 2 or age > 70

Threatened Limb

A patient presenting with a limb that is:

- Pulseless OR
- Painful and one of the following: pale, weak, numb, or with massive swelling after trauma.

Other High-Risk Criteria

Signs of Respiratory Distress

Adult	Child
Very fast or very slow breathing	Very fast breathing
Inability to talk or walk unaided	Inability to talk, eat or breastfeed
Confused, sleepy or agitated	Nasal flaring, grunting
Accessory muscle use (neck, intercostal, abdominal)	Accessory muscle use (e.g., head nodding, chest indrawing)

Ingestion/exposure

Use of clinical signs alone may not identify all those who need time-dependent intervention. Patients with high risk ingestion or exposure should initially be up-triaged to Red for early clinical assessment.

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Trauma Resuscitation Algorithm

1 Recognize

Recognize a seriously injured patient using the **Interagency Integrated Triage Tool (IITT)**.

Move patient to red or resuscitation area.

2 Resuscitate

Use the **ABCDE approach** to systematically evaluate the patient, identify and correct immediate life threats.

Remember special considerations in paediatric, elderly or pregnant patients.

ABCDE Approach

For major external haemorrhage, control bleeding first!

AIRWAY AND CERVICAL SPINE IMMOBILIZATION — A

Is the patient talking normally with no signs of obstruction?

LOOK FOR:	ACT:
• Not speaking, with limited or no air movement	• Use jaw thrust with c-spine protection. • Suction if needed, remove visible foreign objects. • Place OPA to keep the airway open.
• Signs of possible airway injury (neck haematoma or wound, crepitus, stridor)	• Give oxygen. Monitor closely -- swelling can rapidly block the airway. • Arrange for urgent advanced airway management.
• Signs of possible airway burns (soot around the mouth or nose, burned facial hair, facial burns)	• Give oxygen. Monitor closely -- swelling can rapidly block the airway. • Arrange for urgent advanced airway management.

CHECK: Is airway clear?

- ✓ **Does the patient have increased work of breathing, abnormal breathing pattern, abnormal breath sounds, cyanosis, chest wounds?** *Check oxygen saturation.
- ✗ **Re-evaluate** Airway; **Re-intervene**; **Reach out** to advanced provider

BREATHING — B

LOOK FOR:	ACT:
• Signs of tension pneumothorax (hypotension with absent breath sounds/hyperresonance on one side, distended neck veins)	• Perform needle decompression. • Give oxygen, IV fluids. • Arrange for urgent chest tube.
• Open (sucking) chest wound	• Give oxygen, place 3-sided dressing, monitor for tension pneumothorax. • Arrange for urgent chest tube.
• Breathing not adequate	• Give oxygen, assist ventilation with BVM.
• Large burns of chest or abdomen (or circumferential burn to limb)	• Give IV fluids per burn size, give oxygen, remove constricting clothing/jewellery. • May need escharotomy.
• Signs of flail chest (section of chest wall moving in opposite direction with breathing)	• Give oxygen and provide pain medication. • May need advanced airway management and assisted ventilation.
• Signs of haemothorax (decreased breath sounds on one side, dull sounds with percussion)	• Give oxygen, IV fluids. • Arrange for urgent chest tube.

CHECK: Is breathing adequate?

- ✓ **Does the patient have external or internal bleeding, distended neck veins, muffled heart sounds or poor perfusion?** *Check BP, HR, capillary refill.
- ✗ **Re-evaluate** Airway and Breathing; **Re-intervene**; **Reach out** to advanced provider

CIRCULATION — C

LOOK FOR:	ACT:
• Signs of shock (capillary refill >3 sec, hypotension, tachycardia)	• Give oxygen, IV fluids, control external bleeding, splint femur/pelvis as indicated.
• Uncontrolled external bleeding	• Apply pressure, deep wound packing or tourniquet as indicated.
• Signs of tamponade (poor perfusion, distended neck veins, muffled heart sounds)	• Give IV fluids, oxygen. Urgently refer to surgeon.

CHECK:
Is perfusion adequate?

- ✓ **Does the patient have head trauma, convulsions, unequal or fixed pupils, movement in all extremities.** *Check AVPU. *Always check blood glucose.
- ✗ **Re-evaluate** Airway, Breathing and Circulation
  - **Re-intervene**
  - **Reach out** to advanced provider

DISABILITY — D

LOOK FOR:	ACT:
• Signs of brain injury (AMS with wound, deformity or bruising of head/face)	• Immobilize cervical spine, check glucose, give nothing by mouth. • Will need neurosurgical care
• Signs of open skull fracture (as above, with blood or fluid from the ears/nose)	• As above, and give IV antibiotics per local protocol.

CHECK:
Is mental status improved?

- ✓ **Does the patient have hidden injuries, rashes or other lesions?** *Expose and examine the entire body.
- ✗ **Re-evaluate** Airway, Breathing, Circulation and Disability
  - **Re-intervene**
  - **Reach out** to advanced provider

EXPOSURE — E

LOOK FOR:	ACT:
• Wet or constrictive clothing	• Remove wet clothing and dry skin thoroughly. • Remove jewellery, watches & constrictive clothing. • Prevent hypothermia and protect dignity.
• Snake bite	• Immobilise extremity. Arrange for early anti-venom if relevant and available.

3 Review

Review patient status and interventions using the **WHO Trauma Care Checklist.**

- Recheck vital signs.
- If patient condition changes, repeat **ABCDE**.
- If no further interventions needed, take a SAMPLE history and perform a SECONDARY exam.
- Document care in a WHO Standardised Clinical Form or locally available option.

4 Refer

If health facility unable to provide on going care, arrange for safe transfer to appropriate facility as soon as possible.

REMEMBER: PREPARATION is key. Use the elements of the WHO Emergency Care Toolkit to prepare your unit to better manage emergencies.


Basic Emergency Care


Interagency Integrated Triage tool

Resuscitation Area Designation


Trauma & Medical checklists


Standardised Clinical Form


WHO Clinical Registry

Contact **emergencycare@who.int** for more information

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Medical Resuscitation Algorithm

1 Recognize

Recognize an acutely ill patient using the **Interagency Integrated Triage Tool (IITT).**

Move patient to red or resuscitation area.

2 Resuscitate

Use the **ABCDE approach** to systematically evaluate the patient, identify and correct immediate life threats.

Remember:

- If suspected TRAUMA, maintain spine precautions & follow trauma algorithm.
- Special considerations in paediatric, elderly or pregnant patients.

ABCDE Approach

AIRWAY — A

Is the patient talking normally with no signs of obstruction?

LOOK FOR:	ACT:
• Unconscious with limited or no air movement	• Open the airway (Use jaw thrust or head tilt and chin lift). • Insert OPA or NPA. • Place in recovery position.
• Foreign body in airway	• Encourage coughing. Remove visible foreign body. • If unable to cough: chest/abdominal thrust/back blow as indicated. • If patient becomes unconscious, start CPR per local protocols.
• Gurgling	• Open airway as above, suction (avoid gagging).
• Stridor	• Keep patient calm and allow position of comfort. • For signs of anaphylaxis: give IM adrenaline. • For hypoxia: give oxygen.

CHECK: Is airway clear?

- ✓ → **Does the patient have increased work of breathing, abnormal breathing pattern, abnormal breath sounds, cyanosis, chest wounds?** *Check oxygen saturation.
- ✗ → **Re-evaluate** Airway; **Re-intervene**; **Reach out** to advanced provider

BREATHING — B

LOOK FOR:	ACT:
• Signs of abnormal breathing or hypoxia	• Give oxygen. Assist ventilation with BVM if breathing NOT adequate.
• Wheeze	• Give salbutamol. For signs of anaphylaxis: give IM adrenaline.
• Signs of tension pneumothorax	• Perform needle decompression, give oxygen and IV fluids. • Arrange for chest tube.
• Signs of opiate overdose (altered mental status and slow breathing with small pupils)	• Give naloxone.
• Signs of organophosphate poisoning (difficulty in breathing, sweating, vomiting, diarrhoea, salivation)	• Give atropine.

CHECK: Is breathing adequate?

- ✓ → **Does the patient have external or internal bleeding, distended neck veins, muffled heart sounds or poor perfusion?** *Check BP, HR, capillary refill. *Always adjust fluids for malnutrition.
- ✗ → **Re-evaluate** Airway and Breathing; **Re-intervene**; **Reach out** to advanced provider

CIRCULATION

C

LOOK FOR:	ACT:
• Signs of poor perfusion/shock. • Signs of internal or external bleeding. • Signs of pericardial tamponade (poor perfusion with distended neck veins and muffled heard sounds).	• Give oxygen and IV fluids. If no pulse, follow relevant CPR protocols. • Control external bleeding. Give IV fluids. • Give IV fluids, oxygen. Arrange for rapid pericardial drainage. • Arrange urgent referral and/or handover.

CHECK:
Is perfusion adequate?

- ✓ → **Does the patient have head trauma, convulsions, unequal or fixed pupils, movement in all extremities?** *Check AVPU. *Always check blood glucose.
- ✗ → **Re-evaluate** Airway, Breathing and Circulation; **Re-intervene**; **Reach out** to advanced provider

DISABILITY D

LOOK FOR:	ACT:
• Altered mental status (AMS)	• Place in recovery position. • Check glucose.
• Convulsion	• Check glucose. Give benzodiazepine.
• Convulsion in pregnancy (or after recent delivery)	• Give magnesium sulphate.
• Suspected hypoglycaemia	• Check glucose. Give glucose if <3.5mmol/L (<60 mg/dL) or unknown.
• Signs of life-threatening brain mass or bleed (AMS with unequal pupils)	• Monitor airway, raise head of bed. Avoid hypoxia, hypotension, hyperthermia. • Rapid transfer for neurosurgical services.

CHECK:
Is mental status improved?

- ✓ → **Does the patient have hidden injuries, rashes or other lesions?** *Expose and examine the entire body.
- ✗ → **Re-evaluate** Airway, Breathing, Circulation and Disability; **Re-intervene**; **Reach out** to advanced provider

EXPOSURE E

LOOK FOR:	ACT:
• Wet or constrictive clothing	• Remove wet clothing and dry skin thoroughly. • Remove jewellery, watches & constrictive clothing. • Prevent hypothermia and protect dignity.

3 Review

Review patient status and interventions using the **WHO Medical Emergency checklist**.

- Recheck vital signs.
- If patient condition changes, repeat **ABCDE**.
- If no further interventions needed, take a SAMPLE history and perform a SECONDARY exam.
- Document care in a WHO Standardised Clinical Form or locally available option.

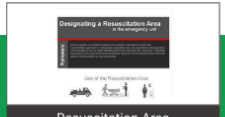
4 Refer

If health facility unable to provide on going care, arrange for safe transfer to appropriate facility as soon as possible.

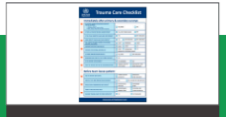
REMEMBER: PREPARATION is key. Use the elements of the WHO Emergency Care Toolkit to prepare your unit to better manage emergencies.


Basic Emergency Care


Interagency Integrated Triage tool



Resuscitation Area Designation


Trauma & Medical checklists


Standardised Clinical Form


WHO Clinical Registry

Contact **emergencycare@who.int** for more information

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Trauma Care Checklist

Immediately after primary & secondary surveys:

Is further airway intervention needed? May be needed if: • GCS 8 or below • Hypoxaemia or hypercarbia • Face, neck, chest or any severe trauma	☐ YES, DONE ☐ NO
Is there a *tension* pneumo-haemothorax?	☐ YES, CHEST DRAIN PLACED ☐ NO
Is the pulse oximeter placed and functioning?	☐ YES ☐ NOT AVAILABLE
Large-bore IV placed and fluids started?	☐ YES ☐ NOT INDICATED ☐ NOT AVAILABLE
Full survey for (and control of) external bleeding, including:	☐ SCALP ☐ PERINEUM ☐ BACK
Assessed for pelvic fracture by:	☐ EXAM ☐ X-RAY ☐ CT
Assessed for internal bleeding by:	☐ EXAM ☐ ULTRASOUND ☐ CT ☐ DIAGNOSTIC PERITONEAL LAVAGE
Is spinal immobilization needed?	☐ YES, DONE ☐ NOT INDICATED
Neurovascular status of all 4 limbs checked?	☐ YES
Is the patient hypothermic?	☐ YES, WARMING ☐ NO
Does the patient need (if no contraindication):	☐ URINARY CATHETER ☐ NASOGASTRIC TUBE ☐ CHEST DRAIN ☐ NONE INDICATED

Before team leaves patient:

Has the patient been given:	☐ TETANUS VACCINE ☐ ANALGESICS ☐ ANTIBIOTICS ☐ NONE INDICATED
Have all tests and imaging been reviewed?	☐ YES ☐ NO, FOLLOW-UP PLAN IN PLACE
Which serial examinations are needed?	☐ NEUROLOGICAL ☐ ABDOMINAL ☐ VASCULAR ☐ NONE
Plan of care discussed with:	☐ PATIENT/FAMILY ☐ RECEIVING UNIT ☐ PRIMARY TEAM ☐ OTHER SPECIALISTS
Relevant trauma chart or form completed?	☐ YES ☐ NOT AVAILABLE

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Medical Emergency Checklist

Version Feb 2019

Immediately after primary & secondary surveys:

IS FURTHER AIRWAY INTERVENTION NEEDED? May be needed if: • Abnormal level of consciousness (AVPU scale) • Stridor • Respiratory Distress • Hypoxaemia or hypercarbia	☐ YES, DONE ☐ NO
IS THERE A SEVERE ALLERGIC REACTION? (ADRENALINE NEEDED)	☐ YES ☐ NO
IS THERE A *TENSION* PNEUMOTHORAX? (NEEDLE/DRAIN NEEDED)	☐ YES ☐ NO
DOES THE PATIENT NEED OXYGEN?	☐ YES ☐ NO
IS THE PULSE OXIMETER PLACED AND FUNCTIONING?	☐ YES ☐ NO
DOES THE PATIENT NEED BRONCHODILATORS? (e.g. salbutamol)	☐ YES ☐ NO
DOES THE PATIENT NEED IV FLUIDS?	☐ YES ☐ NO
ASSESSED FOR ONGOING BLEEDING (including gastrointestinal, vaginal, and other internal):	☐ BY EXAM ☐ NGT ☐ ULTRASOUND ☐ CT ☐ DIAGNOSTIC PERITONEAL LAVAGE
IS TREATMENT FOR HYPOGLYCAEMIA NEEDED?	☐ YES ☐ NO
IS TREATMENT FOR OPIOID OVERDOSE NEEDED?	☐ YES ☐ NO
IS THE PATIENT HYPOTHERMIC/HYPERTHERMIC?	☐ YES ☐ NO

When initial resuscitation is complete:

HAVE VITAL SIGNS BEEN RECHECKED?	☐ YES
HAS THE PATIENT BEEN GIVEN:	☐ ASPIRIN ☐ ANALGESIC ☐ TRANSFUSION ☐ ANTIBIOTICS ☐ NONE INDICATED
DOES THE PATIENT NEED AN ECG?	☐ YES ☐ NO
PREGNANCY TEST DONE?	☐ YES ☐ NOT INDICATED
HAVE ALL TESTS AND IMAGING BEEN REVIEWED?	☐ YES ☐ NO, PLAN IN PLACE
WHICH SERIAL EXAMS ARE NEEDED?	☐ NEUROLOGICAL ☐ ABDOMINAL ☐ VASCULAR ☐ RESPIRATORY ☐ NONE
PLAN OF CARE DISCUSSED WITH:	☐ PATIENT/FAMILY ☐ RECEIVING UNIT ☐ PRIMARY TEAM ☐ OTHER SPECIALISTS
RELEVANT EMERGENCY UNIT CHART COMPLETED?	☐ YES

*if intervention is needed but unavailable, respond YES and note missing item, date & time on stockout log sheet.

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SBAR Handover Tool

Use this tool to help facilitate efficient and safe communications about patients, including facility transfers and handover of care between providers.

S — Situation

- **Identify yourself & location** ☐
- **Identify patient** (name, age, sex) ☐
- **State diagnosis** (suspected or definitive) ☐
- **State reason for transfer or handover** ☐
  (e.g. unavailable diagnostics or therapeutics)

B — Background

- **Admission date** ☐
- **Relevant past medical & surgical history** ☐
- **Recent changes in status** (ABCDE findings/interventions) ☐
- **Relevant labs & imaging** ☐
- **Recent vital signs** ☐
- **Management or interventions provided** ☐
  (e.g. O2, infusions, antibiotics, procedures)
- **Relevant psychosocial factors** ☐

A — Assessment

- **State the diagnoses or conditions** (if diagnostic uncertainty) ☐
- **State severity of illness** (stable or critical) ☐
- **State patient trajectory** (worsening or improving) ☐
- **Report response to interventions provided** ☐

R — Recommendation

- **State your recommendations & concerns** ☐
  (e.g. transfer for specialist consult or frequent monitoring)
- **State timeline for recommendations** ☐
  (e.g. transfer or intervention needed in next 1 hour)
- **State contingency plans** ☐
  (e.g. If patient transfer is delayed, then I will...)

Confirmation: Ask receiver to repeat back key information and clarify any questions

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Acute Transfer Checklist

For use by sending health facility team

Referral indicates a request from one health worker to another to assume responsibility for the management of one or more of a patient's specific health needs. **Acute referral** is the immediate direction of an individual to the appropriate facility or advanced provider in a health system or network of service providers to address urgent health needs and often requires emergency transfer. **Transfer** involves the movement of patients between different healthcare locations or stages of care.

This acute transfer checklist is intended for use by the sending facility team to ensure that correct actions are completed before the patient leaves the facility. This checklist is designed to be used with the *WHO Acute Referral Form*.

STEP 1: DECISION TO TRANSFER		
1.	Would the patient benefit from acute care that is not available in this facility?	❑Yes ❑No
2.	Is the benefit of transfer greater than the risk of transfer? Consider security, environmental factors, patient clinical deterioration, time to reach receiving facility etc. *All patients should receive appropriate resuscitation according to their clinical status BEFORE transfer.*[*]	❑Yes ❑No
3.	Has the patient's condition, course and presumptive/initial diagnosis been discussed with the receiving facility and accepted for transfer? Has that facility agreed to receive the patient?	❑Yes ❑No
4.	Is a provider available to accompany the patient during transport[†]?	❑Yes ❑No
5.	Can the required level of patient care required be maintained during transport between facilities?	❑Yes ❑No
6.	Has the patient or their family/caretaker been counselled about options and consented to transfer?	❑Yes ❑No

STEP 2: PATIENT PREPARATION PRIOR TO TRANSFER		
7.	Has the patient's family/caretaker been given the receiving facility contact information, including admission ward?	❑Yes ❑No
8.	Has the specific clinical quality and safety checklist been completed and reviewed (attach copy)? *For emergency resuscitation*: Use WHO Medical Emergency Checklist or Trauma Care Checklist *For surgery:* Use WHO Surgical Safety Checklist *For maternal/newborn care:* Use WHO maternal/newborn clinical checklist for transfer	❑Yes ❑No
9.	Has an appropriate means of transportation been arranged?	❑Yes ❑No
10.	Has the transport team been arranged to meet the patient's condition and needs?	❑Yes ❑No
11.	Have necessary documentation (transfer order/referral register) AND the Acute Referral Form been completed?	❑Yes ❑No
12.	Will all necessary accompanying documents be sent with the patient? Consider diagnostics, medications, clinical forms	❑Yes ❑No
13.	Was formal handover of the patient using Situation-Background-Assessment-Recommendation (SBAR)[‡] information and all accompanying documentation given to the transport team?	❑Yes ❑No

STEP 3: FOLLOW-UP AFTER TRANSFER			
14.	Has the receiving facility confirmed patient arrival?		❑Yes ❑No
15.	If confirmed, what was the time and patient's status on arrival?	Time	❑ Stable ❑ Unstable ❑ Dead

If "no" to any question, contact senior clinician or ambulance communication centre for support in decision making.

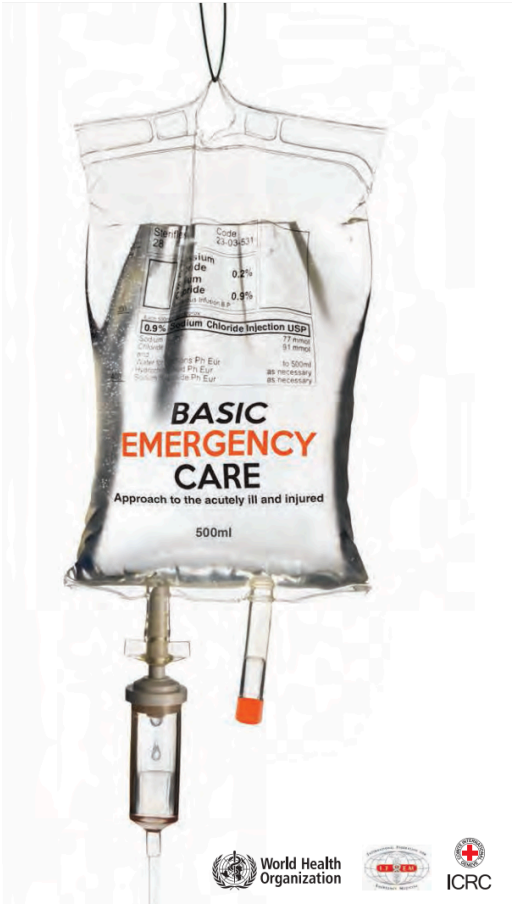
[*] Patients who are being transferred for critical illness are inherently at risk for clinical deterioration. At a minimum, all ABCDE conditions should be addressed and emergency interventions performed. Pain should be well controlled. See WHO-ICRC Basic Emergency Care for further guidance: https://www.who.int/publications/i/item/9789241513081

[†] Interfacility transfer requires a driver AND a provider. If a provider is not available, seriously consider the risk/benefit of transport to the patient.

[‡] SBAR Job aid: https://www.who.int/publications/i/item/9789241513081

BASIC EMERGENCY CARE

QUICK CARDS



ABCDE APPROACH

REMEMBER... Always check for signs of trauma [see also TRAUMA card]

	ASSESSMENT FINDINGS	IMMEDIATE MANAGEMENT
Airway 	Unconscious with limited or no air movement	If **NO TRAUMA**: head-tilt and chin-lift, use OPA or NPA to keep airway open, place in recovery position or position of comfort. If possible **TRAUMA**: use jaw thrust with c-spine protection and place OPA to keep the airway open (no NPA if facial trauma).
	Foreign body in airway	Remove visible foreign body. Encourage coughing. • If **unable** to cough: chest/abdominal thrusts/back blows as indicated • If patient becomes unconscious: CPR
	Gurgling	Open airway as above, suction (avoid gagging).
	Stridor	Keep patient calm and allow position of comfort. • For signs of anaphylaxis: give IM adrenaline • For hypoxia: give oxygen
Breathing 	Signs of abnormal breathing or hypoxia	Give oxygen. Assist ventilation with BVM if breathing NOT adequate.
	Wheeze	Give salbutamol. For signs of anaphylaxis: give IM adrenaline.
	Signs of tension pneumothorax (absent sounds / hyperresonance on one side WITH hypotension, distended neck veins)	Perform needle decompression, give oxygen and IV fluids. Will need chest tube
	Signs of opiate overdose (AMS and slow breathing with small pupils)	Give naloxone.
Circulation 	Signs of poor perfusion/shock	If **no pulse**, follow relevant CPR protocols. Give oxygen and IV fluids.
	Signs of internal or external bleeding	Control external bleeding. Give IV fluids.
	Signs of pericardial tamponade (poor perfusion with distended neck veins and muffled heart sounds)	Give IV fluids, oxygen. Will need rapid pericardial drainage
Disability 	Altered mental status (AMS)	If NO TRAUMA, place in recovery position.
	Seizure	Give benzodiazepine.
	Seizure in pregnancy (or after recent delivery)	Give magnesium sulphate.
	Hypoglycaemia	Give glucose if <3.5 mmol/L or unknown.
	Signs of opiate overdose (AMS with slow breathing with small pupils)	Give naloxone.
	Signs of life-threatening brain mass or bleed (AMS with unequal pupils)	Raise head of bed, monitor airway. Will need rapid transfer for neurosurgical services
Exposure 	Remove wet clothing and dry skin thoroughly.	
	Remove jewelry, watches and constrictive clothing	
	Prevent hypothermia and protect modesty.	
	Snake bite	Immobilize extremity. Send picture of snake with patient. Call for anti-venom if relevant.

If cause unknown, remember trauma: Examine the entire body and always consider hidden injuries [see also TRAUMA card]

REMEMBER: PATIENTS WITH ABNORMAL ABCDE FINDINGS MAY NEED RAPID HANDOVER/TRANSFER. PLAN EARLY.

NORMAL ADULT VITAL SIGNS

Pulse rate: 60–100 beats per minute
Respiratory rate: 10–20 breaths per minute
Systolic blood pressure >90 mmHg
Oxygen Saturation > 92%

Estimating systolic blood pressure
(not reliable in children and the elderly):
Carotid (neck) pulse → SBP ≥ 60 mmHg
Femoral (groin) pulse → SBP ≥ 70 mmHg
Radial (wrist) pulse → SBP ≥80 mmHg

SAMPLE History

Signs & Symptoms
Allergies
Medications
PMH
Last oral intake
Events

SPECIAL CONSIDERATIONS IN THE ASSESSMENT OF CHILDREN

- Children have bigger heads and tongues, and shorter, softer necks than adults. Position airway as appropriate for age.
- Always consider foreign bodies.

- Look for signs of increased work of breathing (e.g. chest indrawing, retractions, nasal flaring).
- Listen for abnormal breath sounds (e.g. grunting, stridor, or silent chest).

AGE	RESPIRATORY RATE (breaths per minute)
<2 months	40–60
2–12 months	25–50
1–5 years	20–40

- Signs of poor perfusion in children include: slow capillary refill, decreased urine output, lethargy, sunken fontanelle, poor skin pinch
- Look for signs of anaemia and malnourishment (adjust fluids).
- Remember that children may not always report trauma and may have serious internal injury with few external signs.

AGE (in years)	NORMAL HEART RATE (beats per minute)
<1	100–160
1–3	90–150
4–5	80–140

- Always check AVPU
- Hypoglycaemia is common in ill children.
- Check for tone and response to stimulus.
- Look for lethargy or irritability.

INFANTS AND CHILDREN HAVE DIFFICULTY MAINTAINING TEMPERATURE

- Remove wet clothing and dry skin thoroughly. Place infants skin-to-skin when possible.
- For hypothermia, cover the head (but be sure mouth and nose are clear).
- For hyperthermia, unbundle tightly wrapped babies.

DANGER SIGNS IN CHILDREN

- Signs of airway obstruction (unable to swallow saliva/ drooling or stridor)
- Increased breathing effort (fast breathing, nasal flaring , grunting, chest indrawing or retractions)
- Cyanosis (blue colour of the skin, especially at the lips and fingertips)
- Altered mental status (including lethargy or unusual sleepiness, confusion, disorientation)
- Moves only when stimulated or no movement at all (AVPU other than "A")
- Not feeding well, cannot drink or breastfeed or vomiting everything
- Seizures/convulsions
- Low body temperature (hypothermia)

ESTIMATED WEIGHT in KILOGRAMS for CHILDREN 1–10 YEARS OLD:
[age in years + 4] x 2

APPROACH TO THE PATIENT WITH TRAUMA

Key findings from the Trauma Primary Survey [see also ABCDE card]

	ASSESSMENT FINDINGS	IMMEDIATE MANAGEMENT
Airway 	Not speaking, with limited or no air movement	Use jaw thrust with c-spine protection. Suction if needed, remove visible foreign objects. Place OPA to keep the airway open.
	Signs of possible airway injury (neck haematoma or wound, crepitus, stridor)	Give oxygen. Monitor closely-- swelling can rapidly block the airway. → Will need advanced airway management
	Signs of possible airway burns (soot around the mouth or nose, burned facial hair, facial burns)	Give oxygen. Monitor closely-- swelling can rapidly close the airway. → Will need advanced airway management
Breathing 	Signs of tension pneumothorax (hypotension with absent breath sounds/hyperresonance on one side, distended neck veins)	Perform needle decompression. Give oxygen, IV fluids. → Will need chest tube
	Open (sucking) chest wound	Give oxygen, place 3-sided dressing, monitor for tension pneumothorax. → Will need chest tube
	Breathing not adequate	Give oxygen, assist ventilation with BVM.
	Large burns of chest or abdomen (or circumferential burn to limb)	Give IV fluids per burn size, give oxygen, remove constricting clothing/jewelry. → May need escharotomy
	Signs of flail chest (section of chest wall moving in opposite direction with breathing)	Give oxygen. → May need advanced airway management and assisted ventilation
	Signs of haemothorax (decreased breath sounds on one side, dull sounds with percussion)	Give oxygen, IV fluids. → Will need chest tube
Circulation 	Signs of shock (capillary refill >3 sec, hypotension, tachycardia)	Give oxygen, IV fluids, control external bleeding, splint femur/pelvis as indicated.
	Uncontrolled external bleeding	Apply pressure, deep wound packing or tourniquet as indicated.
	Signs of tamponade (poor perfusion, distended neck veins, muffled heart sounds)	Give IV fluids, oxygen.
Disability 	Signs of brain injury (AMS with wound, deformity or bruising of head/face)	Immobilize cervical spine, check glucose, give nothing by mouth. → Will need neurosurgical care
	Signs of open skull fracture (as above, with blood or fluid from the ears/nose)	As above, and give IV antibiotics per local protocol.

REMEMBER: INJURED PATIENTS WITH ABNORMAL ABCDE FINDINGS MAY NEED RAPID HANDOVER/TRANSFER TO A SURGICAL SERVICE. PLAN EARLY.

MANAGEMENT OF SPECIFIC CONDITIONS	
Facial fracture	Immobilize cervical spine if indicated, give IV antibiotics for open fractures, avoid nasal airway/ nasogastric tubes.
Penetrating eye injury	Avoid pressure on the eye, stabilize but do not remove foreign objects, give antibiotics and tetanus, elevate head of bed.
Open abdominal wound	Give IV fluids, nothing by mouth. Cover visible bowel with sterile gauze soaked in sterile saline, give antibiotics.
Pelvic fracture	Give IV fluids, stabilize with sheet or pelvic binder.
Fracture with poor limb perfusion	Reduce fracture, splint.
Open fracture	Irrigate well, dress wound, splint, give antibiotics, rapid handover for operative management.
Penetrating object	Leave object in place and stabilize it to prevent further injury.
Crush injury	Give IV fluids, monitor urine output, monitor for compartment syndrome.
Burn injury	Assess size and calculate fluid needs, give IV fluids and oxygen, monitor for airway oedema.
Blast injury	Give oxygen, treat burns as below, give IV fluids, monitor closely for delayed effects of internal injury.

REMEMBER: INJURED PATIENTS WITH WOUNDS, INCLUDING BURNS AND OPEN FRACTURES, NEED TETANUS VACCINATION.

HIGH-RISK MECHANISMS AND INJURIES

High-Risk Mechanisms	High-Risk Injuries
• Pedestrian or cyclist hit by a vehicle • Motorcycle crash or any vehicle crash with unrestrained occupants • Falls from heights greater than 3 metres (or twice a child's height) • Gunshot or stabbing • Explosion or fire in an enclosed space.	• Penetrating injuries to head, neck or torso • Blast or crush injuries • Flail chest • Two or more large bone fractures, or pelvic fracture • Spinal injury • Limb paralysis • Amputation above wrist or ankle

SPECIAL CONSIDERATIONS IN CHILDREN

- Children can look well but then deteriorate quickly.
- Children have more flexible bones than adults and can have serious internal injuries with few external signs.
- Use caution when calculating fluid and medication dosages. Use exact weight whenever possible.
- Watch carefully for hypothermia and hypoglycaemia.

DISPOSITION

Conditions that require handover or transfer to a specialist unit include:

- ABCDE finding that has required intervention
- Evidence of internal bleeding
- Any pneumothorax or sucking chest wound
- Shock, even if treated successfully
- Altered mental status
- Trauma during pregnancy
- ABCDE abnormalities or any chest /abdomen injury in a child
- Significant burn injuries

Considerations for transfer:

- Any patient who has required oxygen should have oxygen during transport and after handover.
- For signs of shock, ensure IV fluid started and continued during transfer.
- Control any external bleeding and monitor site closely during transport.

APPROACH TO THE PATIENT WITH DIFFICULTY IN BREATHING

Key ABCDE Findings (Always perform a complete ABCDE approach first!)

IF YOU FIND...	REMEMBER...
Choking, coughing	Foreign body
Stridor	Partial airway obstruction due to foreign body or inflammation (from infection, chemical exposure or burn)
Facial swelling	Severe allergic reaction, medication effect
Drooling	Indicates a blockage to swallowing
Soot around the mouth or nose, burned facial hair, facial burns	Smoke inhalation and airway burns – rapid swelling can block the airway
Signs of chest wall trauma	Rib fracture, flail chest, pneumothorax, contusion, tamponade
Decreased breath sounds on one side	Pneumothorax (consider tension pneumothorax if with hypotension and hyperresonance to percussion), haemothorax, large pleural effusion/pneumonia
Decreased breath sounds and crackles on both sides	Pulmonary oedema, heart failure
Wheezing	Asthma, allergic reaction, COPD
Fast or deep breathing	DKA
Low blood pressure, tachycardia, muffled heart sounds	Pericardial tamponade
Altered mental status with small pupils and slow breathing	Opioid overdose

Key Findings from the SAMPLE History and Secondary Exam

IF YOU FIND...	REMEMBER...
DIB worse with exertion or activity	Heart failure, heart attack
DIB that began with choking or during eating	Foreign body, allergic reaction
History of fever, cough	Pneumonia, infection
Pesticide exposure	Poisoning
Recent fall or other trauma	Rib fracture, flail chest, pneumothorax, contusion, tamponade
Known allergies, allergen exposure, bite or sting	Allergic reaction
Recent medication or dose change	Allergic reaction or side effect
History of opioid or sedative drug use	Overdose
History of wheezing	Asthma or COPD
History of diabetes	DKA
History of tuberculosis or malignancy	Pericardial tamponade, pleural effusion
History of heart failure	Pulmonary oedema
History of sickle cell disease	Acute chest syndrome

CRITICAL ACTIONS FOR HIGH-RISK CONDITIONS				
CHOKING ***unable to cough, not making sounds***	**STRIDOR** ***high pitched sounds on breathing IN***	**WHEEZING** ***high pitched sounds on breathing OUT***	**SEVERE INFECTION**	**TRAUMA**
Remove any visible foreign body Perform age-appropriate chest/abdominal thrusts or back blows CPR if becomes unconscious	Keep patient calm and allow position of comfort IM adrenaline for suspected allergic reaction Oxygen if concern for hypoxia Early handover/transfer for advanced airway management	Give salbutamol IM adrenaline for suspected allergic reaction Oxygen if concern for hypoxia	Oxygen Antibiotics Oral/IV fluids as appropriate	Oxygen Needle decompression and IV fluids for tension pneumothorax Three-sided dressing for sucking chest wound Rapid transfer to surgical service

SPECIAL CONSIDERATIONS IN CHILDREN

THE FOLLOWING ARE DANGER SIGNS IN CHILDREN WITH BREATHING COMPLAINTS:

- Fast breathing
- Increased breathing effort (chest indrawing/retractions)
- Cyanosis
- Altered mental status (including lethargy)
- Poor feeding or drinking, or vomits everything
- Seizures/convulsions, current or recent
- Drooling or stridor when calm
- Hypothermia

Wheezing in children is often caused by an object inhaled into the airway, viral infection or asthma.

Stridor in children is often caused by an object stuck in the airway or airway swelling from infection.

Fast or deep breathing can indicate diabetic crisis (DKA), which may be the first sign of diabetes in a child.

FAST BREATHING MAY BE THE ONLY SIGN OF A SERIOUS BREATHING PROBLEM IN A CHILD.

DISPOSITION

Salbutamol and IM adrenaline effects last for about 3 hours, and life-threatening symptoms may recur. Monitor closely, always have repeat dose available during transport and caution new providers at handover.

Naloxone lasts approximately 1 hour, and most opioids last longer. Monitor closely, always have repeat dose available during transport and caution new providers.

Following immersion in water (drowning), a person may develop delayed breathing problems after several hours. Monitor closely and caution new providers.

Never leave patients with difficulty in breathing unmonitored during handover/transfer.

Make transfer arrangements as early as possible for any patient who may require intubation or assisted ventilation.

APPROACH TO THE PATIENT WITH SHOCK

Key ABCDE Findings (Always perform a complete ABCDE approach first!)

IF YOU FIND...	REMEMBER...
Difficulty breathing, stridor/wheezing, skin rash, swelling of mouth	Severe allergic reaction
Hypotension with absent breath sounds and hyperresonance on one side, distended neck veins	Tension pneumothorax
Distended neck veins, muffled heart sounds, tachycardia, hypotension	Pericardial tamponade
Sweet smelling breath, deep or rapid breathing	DKA
History of trauma or no known cause	Hidden sources of significant blood loss (stomach, intestines, intra-abdominal, chest, long-bone trauma) or spinal injury

Key Findings from the SAMPLE History and Secondary Exam

IF YOU FIND...	REMEMBER...
Vomiting and diarrhoea	Ask about contacts and report cases per protocol.
Black or bloody vomit or stool	Stomach or intestinal bleeding
Rapid or deep breathing, dehydration, high glucose, sweet-smelling breath, history of frequent urination or known diabetes	Diabetic ketoacidosis
Burns	Severe fluid loss (calculate fluid needs based on burn size)
Fever or HIV	Infection
Recent fall or other trauma	Internal AND external bleeding
Pale conjunctiva or malnutrition	Severe anemia (adjust fluids)
Chest pain	Heart attack (give aspirin if indicated)
Vaginal bleeding	Pregnancy and non-pregnancy related bleeding
Numbness, weakness or shock that does not improve with fluids	Spinal shock (immobilize spine if indicated)

CRITICAL ACTIONS FOR HIGH-RISK CONDITIONS

For all shock:

- **Give oxygen**
- **Give IV fluids**
  - ADULTS: 1 liter RL or NS bolus
  - CHILDREN with NO severe anaemia, NO malnutrition, NO fluid overload: 10–20 ml/kg bolus
  - CHILDREN with malnutrition or severe anaemia: give 10–15 ml/kg dextrose-containing fluid **over 1 hour** and assess for fluid overload every 5 minutes.
  - For suspected heart attack with shock, give smaller boluses, and monitor closely for fluid overload.
- **Monitor vital signs, mental status, breathing and urine output**

AND for specific conditions:

SEVERE ALLERGIC REACTION	TENSION PNEUMOTHORAX	TAMPONADE	FEVER	WATERY DIARRHOEA	POSTPARTUM BLEEDING	DKA	TRAUMA
IM adrenaline Monitor for recurrence, may need repeat doses	Rapid needle decompression Transfer for chest tube	Rapid transfer to advanced provider for drainage	Antibiotics (and anti-malarials if indicated) Assess for source of infection	Full contact precautions Monitor output and continue fluids Assess for cholera and notify public health authorities	Oxytocin and uterine massage Direct pressure for perineal and vaginal tears Rapid transfer to advanced obstetric care	Close monitoring for fluid overload in children Handover/ transfer for insulin	Control external haemorrhage with direct pressure, wound packing, tourniquet if indicated Calculate fluid needs based on burn size Rapid transfer for surgery/transfusion as needed

SPECIAL CONSIDERATIONS IN CHILDREN

ASSESSING SHOCK IN CHILDREN

The 2016 WHO guidelines for the care of critically ill children use the presence of three clinical features to define shock:

- Cold extremities
- Weak and fast pulse
- Capillary refill greater than 3 seconds

Additional important considerations include:

- Young children may not be able to drink enough fluid on their own.
- Children have larger surface area to volume ratio and can lose fluids more quickly than adults.
- For a child in shock WITH severe malnutrition or fluid overload, add dextrose and reduce fluids to 10–15 ml/kg over 1 hour.

In children *without* severe malnutrition, severe anaemia or fluid overload, give fluid resuscitation over 30 minutes.

WEIGHT (kg)	FLUID VOLUME (15ml/kg)
4	60
6	90
10	150
14	210
20	300
30	450

Other important signs of poor perfusion include:

- Sunken eyes; sunken fontanelles in infants
- Abnormal skin pinch test
- Pallor (dehydration with anaemia is more difficult to treat)
- Decreased and dark urine (number of nappies for infants)
- Low blood pressure
- Fast breathing
- Altered mental status
- Very dry mouth and lips
- Lethargy (excessive drowsiness, slow to respond, not interactive)

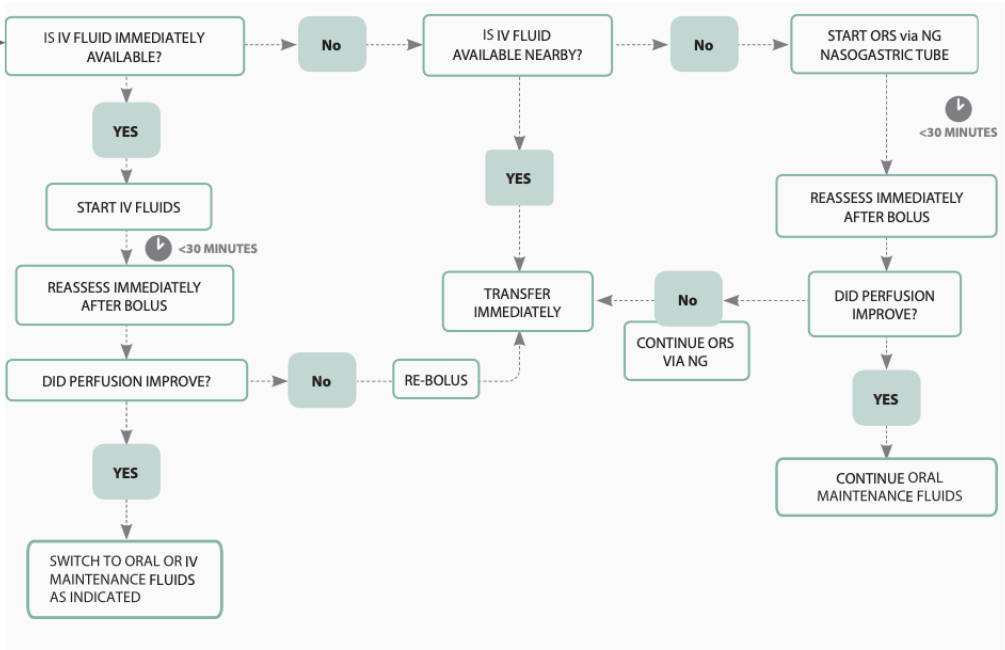
DISPOSITION

Patients with shock should be at a unit capable of providing IV fluid resuscitation, blood transfusion, and/or surgery, depending on the type of shock.

Maintain fluids during transport. Repeat ABCDE approach and monitor perfusion and breathing closely at all times.

GIVING FLUID IN SHOCK

NO malnutrition, overload or severe anaemia



APPROACH TO THE PATIENT WITH ALTERED MENTAL STATUS (AMS)

Key ABCDE Findings (Always perform a complete ABCDE approach first!)

IF YOU FIND...	REMEMBER...
Tachypnoea	Hypoxia, DKA, toxic ingestion
Poor perfusion/shock	Infection, internal bleeding
Tachycardia with normal perfusion	Alcohol withdrawal
Coma	Hypoxia, high or low blood glucose, DKA and toxic ingestion
Hypoglycaemia	Infection, medication side effect (eg, diabetes medications, quinine)
Very small pupils with slow breathing	Opioid overdose
Seizure/convulsion	Abnormal glucose, infection, toxic ingestion (eg, TB meds) or withdrawal (eg, alcohol). Consider eclampsia if current pregnancy or recent delivery.
Weakness on one side or unequal pupil size	Brain mass or bleed
Signs of trauma or unknown cause of AMS	Consider brain injury (with possible spine injury)

Key Findings from SAMPLE History and Secondary Exam

IF YOU FIND...	REMEMBER...
History of wheezing	Severe COPD crisis can cause AMS
History of diabetes	High or low blood sugar, DKA
History of epilepsy	Post-seizure confusion and sleepiness should improve over minutes to hours. Prolonged AMS or multiple convulsions without waking up in between require further workup.
History of agricultural work or known pesticide exposure	Organophosphate poisoning
History of regular alcohol use	Alcohol withdrawal
History of substance use or depression	Acute intoxication, accidental or intentional overdose
History of HIV	Infection, medication side effect
Rash on the lower abdomen or legs or bulging fontanelle in infants	Brain infection (meningitis)
Fever/Hyperthermia	Infectious, toxic, and environmental causes

CRITICAL ACTIONS FOR HIGH-RISK CONDITIONS (Always check blood glucose in AMS, or give glucose if unable to check.)				
HYPOGLYCAEMIA	**OPIOID OVERDOSE**	**LIFE-THREATENING INFECTIONS**	**SEVERE DEHYDRATION**	**TOXIC EXPOSURE OR WITHDRAWAL**
Give glucose Evaluate for infection Monitor for return of hypoglycaemia	Naloxone Monitor need for repeat doses (many opioids last longer than naloxone)	IV fluids Antibiotics For AMS with fever or rash, consider brain infection (meningitis) – isolate patient and wear mask. Cool if indicated for very high fever (avoid shivering).	IV fluids Assess for infection Consider DKA	Gather history and consult advanced provider for locally-appropriate antidotes. Treat alcohol withdrawal with benzodiazepine. Decontaminate for chemical exposures (eg, pesticides).

PAEDIATRIC CONSIDERATIONS	
ALWAYS consider unwitnessed toxic ingestion	Ask about any medications in the household, and any chemicals (eg cleaning products, antifreeze) in or near the house.
Check and regularly re-check blood glucose	Low blood glucose is common in ill young children. High blood glucose can present with AMS and dehydration.
AVOID hypothermia	Keep skin-to-skin with mother, cover child's head. Uncover only the parts you need to see, one at a time, during exam.
Danger signs with ingestions • Stridor • Oral chemical burns	Monitor closely and arrange handover/transfer for advanced airway management.
Monitor fluid status closely	Paediatric patients are more susceptible to both fluid losses and fluid overload.

DISPOSITION CONSIDERATIONS
Patients with AMS who may not be able to protect the airway should never be left alone. Monitor closely and give direct handover to new provider.
Naloxone lasts approximately 1 hour. Most opioids last longer-- always alert new providers that patients may need repeat doses.
Hypoglycaemia often recurs. Alert new providers to monitor blood glucose frequently in any patient who has been treated for hypoglycaemia.

MEDICATIONS

MEDICATION	DOSAGE	INDICATION
Adrenaline (Epinephrine)	**Solution: 1mg in 1ml ampoule (1:1000)** **Adults:** 50 kg or above: 0.5 mg **IM** (0.5 ml of 1:1000) 40 kg: 0.4 mg (0.4 ml **IM** of 1:1000) 30 kg: 0.3 mg (0.3 ml **IM** of 1:1000) Repeat every 5 minutes as needed **Children:** **Anaphylaxis**: 0.15 mg **IM** (0.15ml of 1:1000). Repeat every 5–15 minutes as needed **Severe Asthma**: 0.01 mg/kg **IM** up to 0.3mg. Repeat every 15 minutes as needed	Anaphylaxis/severe allergic reaction and severe wheezing
Acetylsalicylic acid (Aspirin)	**Oral Tablet: 100 mg, 300 mg** 300 mg (preferably chewed or in water) immediately as single dose.	Suspected heart attack
Diazepam	**Oral Tablet: 2 mg, 5 mg** **Solution: 5 mg /1 ml ampoule** **Adults:** First dose: 10 mg slow IV push or 20 mg rectally Second dose after 10 minutes: 5 mg slow IV push or 10 mg rectally Maximum IV Dose: 30 mg **Children:** First dose: 0.2 mg/kg slow IV push or 0.5 mg/kg rectally. Can repeat half of first dose after 10 minutes if seizures/convulsions continue. Max IV Dose: 20 mg **MONITOR BREATHING CLOSELY in all patients given diazepam.**	Seizures/ convulsions
Glucose (Dextrose)	**Solution: 50% dextrose (D50), 25% dextrose (D25), or 10% Dextrose (D10)** **Adults and children greater than 40kg:** 25–50 ml **IV** of D50, or 125–250 ml **IV** of D10 **Children up to 40kg:** 5 ml/kg **IV** of D10 (PREFERRED) 2 ml/kg **IV** of D25 1 ml/kg **IV** of D50 **If no IV access:** 2–5 ml of 50% Dextrose **OR** sugar solution in buccal space	Hypoglycaemia (low blood sugar)
Magnesium Sulphate	**Solution: 1 g in 2 ml ampoule (50% or 500 mg/ml), 5 g in 10 ml ampoule (50% or 500 mg/ml)** Give 4 g **IV** (dilute to a 20% solution and give 20ml) **slowly** over 20 minutes **AND** give 10 g **IM:** 5 g (10 ml of 50% solution) with 1 ml of 2% lidocaine **in each** buttock. **If unable to give IV, give 10 g IM injection only (as above, 5 g in each buttock).** **If seizures/convulsions recur:** after 15 minutes give additional 2 g (10 ml of 20%) **IV** over 20 minutes. **If transport delayed continue:** Give 5 g of 50% solution **IM** with 1 ml of 2% lidocaine every 4h in alternate buttocks.	Eclampsia or Pregnant with seizure/convulsion
Naloxone	**Solution: 400 mcg/ml (hydrochloride) in 1 ml ampoule** **IV:** 100 mcg single dose **OR** **IM:** 400 mcg single dose May repeat every 5 minutes as needed. May require 0.4 mg/hr infusion for several hours for long-acting opioids.	Opioid overdose

MEDICATION	DOSAGE	INDICATION
Oxytocin	**Solution: 10 IU in 1ml ampule** **Initial Dose:** Give 10 IU IM **AND** start IV fluids with 20 IU/L at 60 drops/minute. **Once placenta is delivered, continue** IV fluids with 20 IU/L at 30 drops/minute if still bleeding. **If placenta has to be manually removed or uterus does not contract:** Repeat 10 IU IM. **Continue** IV fluids with 20 IU/L at 20 drops/minute for one hour after bleeding stops. **Max Dose:** 3 L of IV fluids containing oxytocin.	Treatment of postpartum haemorrhage
Paracetamol (acetaminophen)	**Oral Tablet: 250 mg, 500 mg.** **Rectal Suppositories: 250 mg, 500 mg** **Adults:** 500 mg–1 g oral/rectal every 6hrs Max 4 g daily or max 2 g daily if liver impairment, cirrhosis **Children:** 10–15 mg/kg oral/rectal up to six times per day	Mild to moderate pain, fever, headache
Salbutamol (Albuterol)	**Inhaler: 100 mcg per puff** • **Adult:** Prime with 5 puffs and give 2 puffs via spacer every 2 minutes until improved. • **Child:** Prime with 5 puffs and give 2 puffs into spacer. Keep spacer in mouth for 3–5 breaths. Repeat until 6 puffs given for < 5 years, or 12 puffs for > 5 years. **Nebulizer: (ADULT)** 5 mg in 5 ml sterile saline. **(CHILD)** 2.5 mg in 3 ml sterile saline. *For severe wheezing, above doses can be given several times in an hour.*	Severe wheezing
Tetanus Vaccine	**IM Injection: 0.5 ml** (Give for children not up to date; adults with none in 5 years; or status unknown)	Wounds (including burns and open fractures)

TRANSFER AND HANDOVER

Arrange transfer

- Check that patient needs match the available services at the destination facility (eg, operating theatre open, blood available)
- Communicate directly with an accepting provider at the receiving facility prior to departure
- Ensure that destination facility can be reached in time given patient condition
- Ensure that patient and family are aware of reasons, plan, and destination for transport
- Record family contact name and number in sending facility chart and in paperwork sent with patient
- Secure patient valuables for transport (whenever possible, leave with family)
- A brief written record (including name, date of birth, clinical presentation and all interventions) should ALWAYS accompany the patient.

Prepare for needs during transport

- PPE for staff
- Airway equipment and suction (check if working before departure)
- Adequate oxygen (with replacement tank if needed) and bag valve mask (BVM)
- IV access: Check that IV is secured prior to transport; consider second IV or backup supply
- Medications: Bring additional doses of medications and fluids, and consider other medications that may be needed
- Prepare for new or recurrent symptoms.
- Seizure/convulsion patients: place pads/pillows around patient to limit injury from a seizure during transport.
- Watch for vomiting and ensure that airway remains clear, particularly for those with cervical spine immobilization.
- Check that there is adequate fuel for transport.
- Ensure that telephone or radio is present in vehicle and working

Patient positioning

- Position patient for best airway opening and breathing.
- Use recovery position if no trauma.
- If >20 weeks pregnant and NO spine injury: Place pillows along the length of her right back to tilt patient onto her left side. This avoids compression of the large blood vessels by the pregnant uterus.
- Check that cervical spine has been immobilized if indicated.
- Possible spine injury: use backboard and log-roll manoeuvre to move patients. Check for pressure spots every 2 hours; pad areas with soft material as needed. If >20-weeks pregnant: Tip backboard slightly to the left using a wedge or other materials.
- Splint or immobilize fractures to protect soft tissues and decrease pain and bleeding.

On-going care during transport

- Re-assess the ABCDE approach at least every 15 minutes, including repeat vital signs and glucose checks if patient has been hypoglycaemic
- Control bleeding prior to transport and monitor site for new bleeding
- Perform regular re-assessment of any splinted extremity
- Continue necessary treatments (e.g. oxygen, IV fluids, oxytocin, glucose)
- Keep the patient from getting too hot or too cold during transport.

Paediatric Considerations

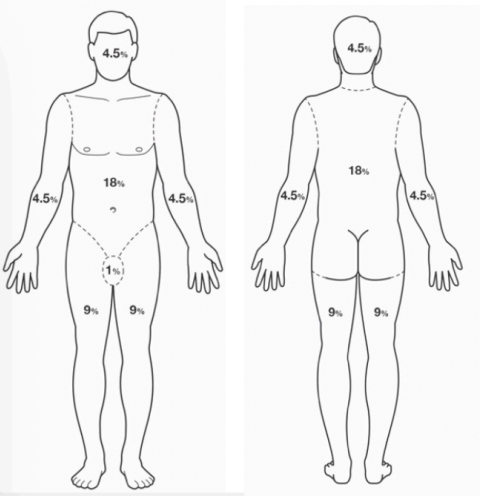
- Prepare appropriate size equipment and weight-adjusted dosages of critical medications.
- Bring a family member or friend, and tell the receiving facility who is accompanying the child.
- Remember that critically ill or injured children can look well initially and then worsen quickly. Monitor closely.
- Hypothermia and hypoglycaemia are common in children. Monitor closely.

SBAR handover

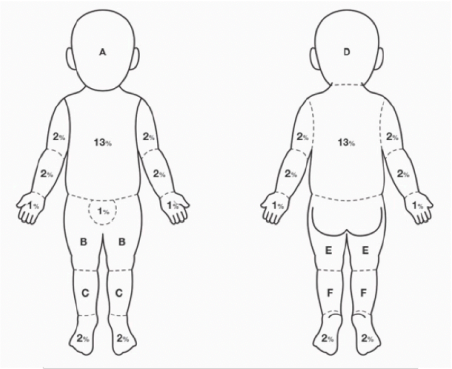
- Situation: Basic patient information (e.g. age, sex); chief complaint (the patient's initial description of the problem, such as difficulty in breathing for 3 days, or arm pain after a fall)
- Background: 2–4 most important and relevant aspects of patient's case and/or condition; important ABCDE findings/ interventions.
- Assessment: What you think is wrong with the patient; reason for the handover/transfer.
- Recommendations: next steps in treatment plan; potential worsening of the patient's condition (e.g. need for close airway observation if inhalation burn is suspected); cautions regarding prior therapies or interventions (e.g. time of last adrenaline dose to anticipate return symptoms, need to monitor mental status if sedating medications have been given, need to monitor 3-way dressing for clotting, etc.).

Burns Fluid Resuscitation Reference

Adult- total body surface area



Child- total body surface area



Area	By age in years			
	0	1	5	10
Head(A/D)	10%	9%	7%	6%
Thigh (B/E)	3%	3%	4%	5%
Leg (C/F)	2%	3%	3%	3%

Parkland formula calculation

= 2 - 4mL IV fluid x weight in kilograms x % total burn surface area*

***partial thickness and full thickness only**
(superficial burn area is NOT to be used in the calculation)

- The Parkland formula is used to calculate fluid resuscitation in a significant burn. Start fluid resuscitation in the following cases:
  - Full or partial thickness burns greater than or equal to 15% total burn surface area in adults.
  - Full or partial thickness burns greater than or equal to 10% total burn surface area in children.
- The fluid calculated must be given to the person within 24 hours of the burn occurring. The **first half of the fluid must be given within 8 hours** and **the second half is to be given in the subsequent 16 hours**.
- For children, use Ringer's Lactate with 5% dextrose, normal saline with 5% dextrose or half normal saline with 5% dextrose.
- Always look for signs of adequate resuscitation by monitoring vital signs and urine output. Beware of fluid overload!

Example:

An adult arrives at the health centre and has been burnt in a house fire. He has burns to his chest, abdomen, and his hands. You have used the total body surface area adult diagram, shaded in the areas where he has partial thickness or full thickness burns and added them up. His total burn surface area is 15%. He weighs 75kg. The burn happened at 0800 hrs.

Parkland formula calculation for the patient:

- 4 (mL) x 75 (kilograms) x 15 (% total burn surface area)
- 4 x 75 x 15 = 4500 mL of fluid to be given in the 24 hrs since the time of the burn
  - 2250 mL must be given in the first 8 hrs since the burn (by 1600) regardless of the time the patient arrives.
  - The remaining 2250 mL should be given from 1600hrs until 0800hrs the following day.

Further WHO Resources for Emergency Care

1. WHO/ICRC Basic Emergency Care
www.who.int/publications-detail-redirect/9789241513081

2. WHO/ICRC Basic Emergency Care on OpenWHO
https://openwho.org/channel/Basic+emergency+care/537171

3. WHO Emergency Care Toolkit
www.who.int/teams/integrated-health-services/clinical-services-and-systems/emergency-and-critical-care/emergency-care-toolkit

4. WHO Tools for Referral and Counter-referral
www.who.int/teams/integrated-health-services/clinical-services-and-systems/emergency-and-critical-care/emergency-care-toolkit

5. Pocketbook of hospital care for children: Second edition
www.who.int/publications/i/item/978-92-4-154837-3

6. Infection Prevention and Control
www.who.int/teams/integrated-health-services/infection-prevention-control

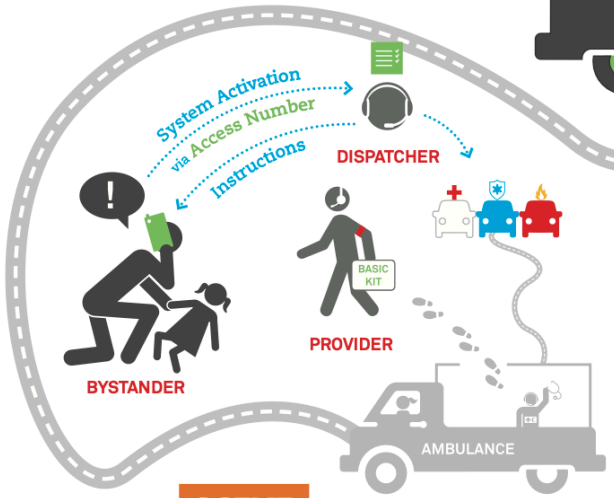
7. Patient Safety
www.who.int/teams/integrated-health-services/patient-safety

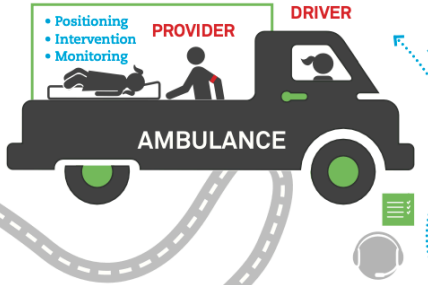
World Health Organization

EMERGENCY CARE SYSTEM FRAMEWORK

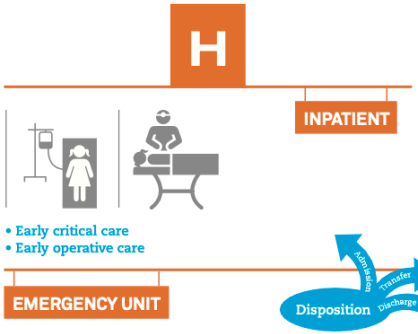
All around the world, acutely ill and injured people seek care every day. Frontline providers manage children and adults with injuries and infections, heart attacks and strokes, asthma and acute complications of pregnancy. An integrated approach to early recognition and management saves lives. This visual summary illustrates the essential functions of a responsive emergency care system, and the key human resources, equipment, and information technologies needed to execute them. The reverse side adresses elements of governance and oversight.

HUMAN RESOURCES · FUNCTIONS · VEHICLES, EQUIPMENT, SUPPLIES, INFORMATION TECHNOLOGIES





Field to Facility Communication



Reception of Patients

SCENE

- BYSTANDER RESPONSE
- DISPATCH
- PROVIDER RESPONSE

TRANSPORT

- PATIENT TRANSPORT
- TRANSPORT CARE

FACILITY

- RECEPTION
- EMERGENCY UNIT CARE
- DISPOSITION
- EARLY INPATIENT CARE

www.who.int/emergencycare · emergencycare@who.int