Altered Mental Status
Basic Emergency Care Course
Objectives

- Recognize key history findings suggestive of different causes of altered mental status
- Recognize key physical findings suggestive of different causes of altered mental status
- List high-risk causes of altered mental status in adults and children
- Perform critical actions for high-risk causes of altered mental status
Essential Skills

- Glasgow Coma Scale
- AVPU assessment
- Recovery position
- Oxygen administration
- IV cannula insertion
- IV fluid resuscitation
- Snake-bite management
- Spinal immobilization
Overview

• Altered mental status is a term used for a range of presentations
  • Sudden or gradual changes in behaviour
  • Disorientation
  • Confusion
  • Coma

• May be due to conditions that affect the brain or the brain itself

• Can be chronic psychiatric problems or dementia but must rule out other life-threatening causes first

• Delirium always requires a full assessment
  • Ask family about baseline mental status when possible
Goals: Altered Mental Status

The goal of **initial assessment** is to identify rapidly reversible causes of altered mental status, and to recognize dangerous conditions requiring transfer.

The goal of **acute management** is to ensure that blood, oxygen and glucose reach the brain; and to protect the brain from additional injury.
The ABCDE Approach

**REMEMBER ............**

Always start with the ABCDE APPROACH AND treat life-threatening conditions

Then take a SAMPLE history

Then do a Secondary Examination
The ABCDE Approach

Airway:
- May not be able to protect their airway and may be at risk for choking on vomit

Breathing:
- Hypoxia can cause AMS
- Look for signs of difficulty in breathing or cyanosis
- Slow, deep breathing can reflect diabetic ketoacidosis or poisoning

Circulation:
- Lack of perfusion to the brain
- Look for and manage signs of shock
  - Low blood pressure
  - Elevated heart rate
  - Delayed capillary refill
The ABCDE Approach

Disability

- **Check** AVPU or GCS (trauma)
- **Check** glucose
  - Hypoglycaemia can cause AMS
  - Hyperglycaemia and diabetic ketoacidosis can cause AMS
- **Check** pupils
  - *Very small pupils*: possible opioid overdose or pesticide poisoning
  - *Very dilated pupils*: possible stimulant drug use
  - *Unequal pupils*: possible head injury (increased intracranial pressure)
- **Check** strength and sensation
  - Weakness or loss of sensation to one side: possible tumor, bleeding or blockage of blood vessel, brain infection
  - General muscle weakness: possible salt imbalance
- **Look** for abnormal repetitive movements or shaking on one or both sides (seizure)
Exposure

Look for causes of AMS.

- **Check** for infection, rashes, trauma, bites or stings
- **Check** arms for needle marks (may suggest drug use as a cause)

![Exposure symbol]

Remember.. Altered patients may not report the history accurately
The SAMPLE History
S: Signs and Symptoms

• **ASK:**
  - How does the current condition compare to baseline mental status?

• **THINK**
  - Ask family/friends about baseline when possible to establish normal behaviour
S: Signs and Symptoms

• **ASK:**
  • Is there difficulty breathing?

• **THINK**
  • Altered mental status with difficulty in breathing may indicate lack of oxygen to the brain
S: Signs and Symptoms

• **ASK:**
  - Is there a headache?
  - Is there vomiting/ diarrhoea?

• **THINK**
  - Headache with AMS can indicate infection, tumor or bleeding
  - Vomiting without diarrhoea can be a sign of increased pressure in the brain
  - Any source of dehydration can cause AMS from poor perfusion
  - Vomiting and diarrhoea can cause hypoglycaemia
S: Signs and Symptoms

• **ASK:**
  - Has there been any dizziness or fainting?

• **THINK**
  - This could be a sign of poor perfusion to the brain
S: Signs and Symptoms

• **ASK:**
  • When did the symptoms start?
  • How long do they last?
  • Have they changed over time?

• **THINK**
  • **Rapid** onset think infection, inflammation, bleeding or drugs/toxins
  • **Gradual** onset think less acute causes such as tumour or slow bleeding in the brain
  • **Intermittent** onset think seizures or psychiatric disease
S: Signs and Symptoms

• **ASK:**
  • Any recent fevers?

• **THINK**
  • Brain infections
  • Serious infections in children and elderly can cause AMS
  • Exposures
    • Prolonged outdoor (heat) exposure
    • Poisons
    • Medications
    • Drugs
  • High fevers can cause AMS
S: Signs and Symptoms

- **ASK:**
  - Any weakness, clumsiness or difficulty walking?
- **THINK**
  - Consider stroke or tumour

- **ASK:**
  - Any neck pain or stiffness?
- **THINK**
  - Consider bleeding, inflammation or infection in cerebral spinal fluid
S: Signs and Symptoms

• **ASK:**
  • Any recent history of trauma or falls?

• **THINK**
  • Bleeding in or around the brain can cause AMS even days after injury
  • Chronic alcohol drinkers and the elderly
    • More prone to brain bleeding
    • May not remember falls
  • Always consider unwitnessed trauma in a patient found altered with no known cause
S: Signs and Symptoms

• **ASK:**
  - Any recent depression or changes in behaviour?

• **THINK**
  - Drug and alcohol use or psychiatric problems
  - Consider possibility of suicide attempt by poisoning
S: Signs and Symptoms

• **ASK:**
  • Does anyone else from the same family or location have symptoms?

• **THINK**
  • Gaseous poisoning
    • Carbon monoxide is usually seen in cold climates with indoor heating
A: Allergies

• **ASK**
  • Allergies to medications or other substances?
  • Recent exposures to known allergens?

• **THINK**
  • Severe allergic reactions can present with AMS due to
    • Low blood oxygen levels
    • Poor blood circulation due to shock
M: Medications

• **ASK**
  • Currently taking any medications?
    • Collect medication list
    • Any new medications or changed doses?

• **THINK**
  • Medication interactions
  • Medication side effects
    • Pain medications (opioids such as morphine, pethidine, heroin)
    • Sleeping medications
    • Seizure medications
P: Past Medical History

• ASK
  • History of diabetes?

• THINK
  • Low blood sugar
  • Diabetic Ketoacidosis (DKA)
    • Increased urine output
    • Increased thirst
    • Fast or deep breathing
P: Past Medical History

• **ASK**
  • History of heart disease?
  • History of stroke?
  • History of high blood pressure?

• **THINK**
  • Heart attacks can decrease blood flow and oxygen to the brain
  • Heart disease increases risk of stroke
  • AMS with a stroke history may indicate a new stroke or brain bleeding
  • Old stroke symptoms may return with severe illness
  • High blood pressure increases the risk for brain bleeding
P: Past Medical History

• ASK
  • History of seizure?
    • Do they take regular medications?
    • Any medication changes or missed doses?
    • If they had a witnessed convulsion ask about fall or head trauma

• THINK
  • Recovering from convulsion (postictal period)
    • Usually takes half hour to several hours at the most
    • A longer time with AMS, consider other causes
P: Past Medical History

• ASK
  • History of HIV infection?
  • History of tuberculosis?
  • History of liver or kidney failure?

• THINK
  • With history of HIV or tuberculosis consider infection around brain
  • With liver or kidney failure consider problems clearing toxins and waste
P: Past Medical History

• **ASK**
  • History of long standing alcohol use?
  • History of drug abuse?

• **THINK**
  • Alcohol intoxication and alcohol withdrawal can present with AMS
  • Alcoholics have a high risk for head injury and low blood sugar levels
  • Sedatives and opiates can cause AMS
P: Past Medical History

• **ASK**
  - History of pregnancy?

• **THINK**
  - High blood pressure during pregnancy can lead to eclampsia (seizures/convulsions)
L: Last Oral Intake

• ASK
  • When did the patient last eat or drink?

• THINK
  • Low blood sugar levels and dehydration can cause AMS
E: Events Surrounding Illness

• **ASK**
  - Was there any recent trauma?
  - Any recent travel?

• **THINK**
  - Trauma can cause poor perfusion and AMS
  - Specific infections can lead to altered mental status
    - Malaria is a key consideration
E: Events Surrounding Illness

• **ASK**
  - Recent exposures: sick person, recent bites, chemical exposures, exposure to hot or cold...?
  - Drugs or alcohol?

• **THINK**
  - Sick contacts may suggest infection
  - Chemical exposure (pesticides) may suggest poisoning
  - Bites may suggest envenomation
  - Exposure to extreme temperatures suggests hyper/hypothermia
  - Drug ingestions can cause agitation or lethargy
  - Alcohol intoxication and withdrawal can cause AMS
Workbook Question 1

Using the workbook section above, list 7 questions about SIGNS AND SYMPTOMS you would ask when taking a SAMPLE history

1.
2.
3.
4.
5.
6.
7.
The Secondary Examination
Always check for safety

- Agitated and violent behaviour is common
- Determine cause, prioritize the safety of the patient and providers
- Keep calm, work as a team
- Ensure the space is safe from weapons and you have an escape route
- Avoid making the patient feel threatened
- Do not sit too close and speak in a calm, sympathetic voice
- Explain what is happening
- Approach as a group or call for help if necessary
- **Check** vital signs, temperature and glucose; treat abnormalities
- Call for help early
Secondary Exam Findings

- **Check** level of consciousness with AVPU scale
- **Check** Glasgow Coma Scale in trauma
- **Check** blood glucose
- **Check** pupils for small, dilated or unequal
- **Check** orientation
  - Name?
  - Where are you?
  - What time is it?
  - What day of the week is it?
Secondary Exam Findings

• **Check** for trauma
  - Head injuries
  - **Check** for bruising around the eyes, behind the ears or leaking of clear fluid from the nose or mouth

• **Check** temperature
  - Infectious causes, poisoning, alcohol withdrawal and changes in body hormones can cause fever
  - Hypothermia may mean sepsis, cold exposure or low body hormone levels (thyroid)

• **Check** for stiff neck
  - Infection
  - Bleeding in the brain
  - Trauma (immobilize spine, do not move neck)
Secondary Exam Findings

• **Check** for strength and sensation
• **Ask** the patient to follow commands  
  • Test for strength in face, arms and legs
• **Look** for generalized or one-sided weakness  
  • Suggests a mass, bleeding or blockage in vessel  
  • Consider hypoglycaemia  
  • Generalized weakness suggests salt imbalance
Secondary Exam Findings

• **Check** for signs of dehydration
  • Dry mouth
  • Abnormal skin pinch
  • Consider diabetic ketoacidosis

• **Feel** the abdomen
  • Enlarged liver (liver disease)

• **Check** the skin
  • Cool, pale, moist skin: Suggests hypoglycaemia
  • Jaundice (yellow) skin: Suggests liver disease
  • Check for rashes, bites, stings

• **Monitor for changes in mental status**- patients can worsen quickly!
Workbook Question 2

Using the workbook section above, list 5 SECONDARY exam findings you would check for in a patient with altered mental status:

1. 
2. 
3. 
4. 
5.
Possible Causes of Altered Mental Status
#### Rapidly Reversible Causes of AMS

<table>
<thead>
<tr>
<th>Hypoglycaemia signs/symptoms</th>
<th>Severe dehydration signs/symptoms</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Sweating</td>
<td>• Signs of poor perfusion</td>
</tr>
<tr>
<td>• Seizures/convulsions</td>
<td>• Tachycardia</td>
</tr>
<tr>
<td>• Blood glucose &lt;3.5mmol/L</td>
<td>• Low blood pressure</td>
</tr>
<tr>
<td>• History of diabetes, malaria or severe infection</td>
<td>• Abnormal skin pinch</td>
</tr>
<tr>
<td>• Children with any illness</td>
<td>• Decreased ability to drink fluids</td>
</tr>
<tr>
<td>• Responds quickly to glucose</td>
<td>• Dry mucous membranes</td>
</tr>
</tbody>
</table>
Rapidly Reversible Causes of AMS

Heat Stroke signs/symptoms

- Prolonged heat and sun exposure
- High body temperature
- Very warm skin
- May or may not be sweating

Hypoxia signs/symptoms

- Shortness of breath
- Low blood oxygen levels
- Cyanosis
Infectious Causes of AMS

Cerebral malaria signs and symptoms
• Fever
• Rapid malaria test or smear positive
• In or from an area with malaria

Inflammation/infection around the brain (meningitis, encephalitis, brain abscess, bleeding)
• Fever
• Neck stiffness
• Rash
• Eye pain/ sensitivity to light
• Headache
• Known infectious epidemic or exposure
• History of HIV or TB infection
Infectious Causes of AMS

Severe infection signs and symptoms
- Fever
- Tachycardia
- Tachypnoea
- May have hypotension
- Sign of infection
  - Skin infection
  - Cough
  - Crackles in lungs
  - Urinary symptoms

Rabies signs and symptoms
- Agitation
- Fear of drinking (hydrophobia)
- Drooling
- Weakness
- History of animal bite
Metabolic Causes of AMS

Diabetic ketoacidosis signs and symptoms
- History of diabetes
- Rapid or deep and slow breathing
- Frequent urination
- Sweet smelling breath
- High glucose in blood or urine
- Dehydration
Toxic Causes of AMS

Alcohol or drug intoxication or withdrawal signs and symptoms

• Known alcohol or drug use
• Injection marks; drugs found on patient
• Alcohol
  • Acutely intoxicated (drunk)
  • Withdrawal (convulsions, confusion, tachycardia)
  • Chronic use (balance problems, confusion, tachycardia)
• Opioids
  • Acutely intoxicated (lethargy, very small pupils and slow breathing)
  • Withdrawal (agitation, sweating, diarrhoea, vomiting)
• Other drugs may cause large pupils, agitation, sweating and fever
Toxic Causes of AMS

Pesticide poisoning
• History of exposure
• Very small pupils
• Diarrhoea
• Vomiting
• Diaphoresis

Snake bite
• Snake bite history
• Bite marks in setting with venomous snakes
• Oedema
• Blistering of the skin
• Bruising
• Hypotension
• Paralysis
• Seizure
• Bleeding from wounds
Toxic Causes of AMS

**Medication reaction or dosing issue**
- New medications or recent change in dose

**Gaseous poisoning**
- History consistent with possible exposure
- Multiple people with symptoms
- Headache
Other Causes of AMS

Seizures signs and symptoms
- Known history
- Bitten tongue
- Urinated on self
- Gradual improvement over minutes/hours
- If pregnant, consider eclampsia

Increased pressure on the brain (tumour, trauma, stroke or brain swelling)
- Headache
- Seizures/convulsions
- Nausea and vomiting
- Unequal pupils
- Weakness on one side
- Speech problems
Other Causes of AMS

Liver disease signs and symptoms
• History of alcohol abuse or liver disease
• Enlarged abdomen with thin arms
• Yellow coloring of skin and eyes (jaundice)
• Hypoglycaemia

Kidney disease
• High blood pressure
• Oedema or swelling in legs
• Decreased or no urine if severe
Other Causes of AMS

Head trauma signs and symptoms

• Visual changes
• Loss of memory
• Vomiting
• Headache
• History of recent trauma
• Scalp laceration and/or skull deformity
• Bruising to head

• Blood or clear fluid from nose or ears
• Unequal pupils
• Weakness to one side of the body
• Seizure/convulsions
Considerations in Children

• Ingestions of chemicals or toxins are common in younger children

• **Check** for a history of medications or substances found around the child
# Workbook Question 3

Using the workbook section above, list the possible causes of altered mental status from the history and physical findings below:

<table>
<thead>
<tr>
<th>History and physical findings:</th>
<th>Likely cause:</th>
</tr>
</thead>
</table>
| A 15 year old girl presents with AMS and;  
  Fever  
  Neck stiffness  
  Eye pain with looking at light/ light sensitivity  
  Headache | |
| A 45 year old man presents with AMS and;  
  Deep and rapid breathing  
  Frequent urination  
  Sweet smelling breath  
  High glucose in blood or urine  
  Dehydration | |
Management of Altered Mental Status

**REMEMBER** treat ABCDE problems and life-threatening conditions first
Management

If suspected hypoxia:
• Give OXYGEN
• Look for underlying cause

If suspected hypoglycaemia:
• Give GLUCOSE

If suspected hyperglycaemia:
• Give IV FLUIDS
• Plan for rapid TRANSFER as these patients can become extremely ill

If suspected fever and AMS:
• Give ANTIBIOTICS
• TEST for malaria in endemic areas
• Consider poisoning and envenomation
• Treat fever with PARACETAMOL
• For severe temperature elevation, spay with cool mist, give IV FLUIDS, avoid shivering
Management

If suspected hypothermia
- Move to warm environment
- Remove wet clothing
- Warm with blankets
- Give warm IV FLUIDS

If suspected bleeding or increased pressure on the brain:
- ELEVATE the head of the bed 30 degrees if no trauma
- If trauma is suspected ensure SPINAL IMMOBILIZATION
Management

If suspected opioid overdose:
- Give NALOXONE by IV or IM
  - Naloxone only lasts one hour while most opioids last longer
  - Consider the need for re-dosing

If active seizure/convulsions:
- Treat with BENZODIAZEPINE, monitor closely for slow breathing
- CHECK glucose or give GLUCOSE if unable to check
- Place patient in the recovery position (if no trauma)
- If patient continues to seize or does not wake up-> TRANSFER and MONITOR airway
Management

If pregnant with active seizure/convulsion:
- This could be eclampsia
- Arrange for rapid TRANSFER/HANDOVER to specialist unit
- Give MAGNESIUM SULPHATE
- MONITOR closely for magnesium toxicity
  - Hypotension, abnormal heart rhythm, coma, respiratory depression, muscle weakness, confusion, nausea, vomiting, flushing
    - If these occur do not give additional magnesium

If suspected alcohol withdrawal with seizure/convulsion:
- Always check glucose and give as needed
- Give a BENZODIAZEPINE
Management

If suspected poisoning or envenomation:
  • Try to identify the poison
  • Arrange for HANDOVER/TRANSFER to centre that can manage poisoning and advanced airway
  • If pesticide poisoning suspected
    • Decontaminate and monitor airway for secretions
  • Snake bites should be treated per WOUND MANAGEMENT and referred for possible ANTIVENOM

If suspected rabies:
  • There is no specific treatment for rabies
  • Symptomatic rabies is almost always fatal
Management

If the patient is agitated or violent:

- Protect the patient from harming self, you or others
- Ensure you have an escape/exit route
- Remove potential weapons/unsafe objects
- Call for help
- Speak in a calm, soft, non-threatening tone; explain what is happening
- Do not confront or judge
- Consider causes
  - **Check** glucose and vital signs; treat abnormalities
  - Arrange for a safe HANDOVER/TRANSFER to an advanced provider

If suspected trauma:

- Assess GCS
- IMMobilize the spine
- CHECK for signs of increased pressure on the brain
Special Considerations

Management of active convulsions:

- Check ABCDE
- Maintain the airway (nothing in the mouth)
- Give OXYGEN if concern for hypoxia or prolonged convulsion
- Place patient on their side
- Protect the patient from harm or further injury
- **Check** glucose or give GLUCOSE if unable to check
- Give a BENZODIAZEPINE
- If pregnant and seizing, give MAGNESIUM SULPHATE
- If no response, give another dose of BENZODIAZEPINE up to 3 doses
- If the patient does not wake between seizure/convulsions, consider this a life-threatening condition
  - Arrange for rapid HANDOVER/TRANSFER to an advanced provider
- If the seizures /convulsions stop, place patient in RECOVERY POSITION and monitor closely
**Workbook Question 4**

Using the workbook section above, list what you would do to manage these patients:

<table>
<thead>
<tr>
<th>Condition</th>
<th>Management</th>
</tr>
</thead>
<tbody>
<tr>
<td>A 3 year old child presents with altered mental status and a blood glucose of 2 mmol/L</td>
<td>1.</td>
</tr>
<tr>
<td>A 25 year old woman is bought in with jerking movements and you suspect an active seizure/convulsion</td>
<td>1.</td>
</tr>
<tr>
<td></td>
<td>2.</td>
</tr>
<tr>
<td></td>
<td>3.</td>
</tr>
<tr>
<td>A 50 year old man is bought in following a fall from a roof. He has a headache and altered mental status.</td>
<td>1.</td>
</tr>
<tr>
<td></td>
<td>2.</td>
</tr>
</tbody>
</table>
Special Paediatric Considerations

Remember that children with AMS may have mild signs such as sleeping more or being less interactive.

Manage ABCDE first, then look for cause of AMS.

Remember that very ill or injured children may have normal vital signs until they rapidly deteriorate.
Special Paediatric Considerations

Hypoglycaemia:
• Occurs frequently in severely ill children
• Common cause of AMS in children
• Check glucose or give GLUCOSE if unable to check

Hypoxia:
• Can occur as a result of many conditions
• Respiratory infections and shock
• Birth hypoxia is a consideration in newborns
Special Paediatric Considerations

**Hyperthermia with AMS**
- Infection
- Environment or heat exposure
- Exercise
- Seizure/convulsion
- Hormonal imbalance
- Poisoning

**Hypothermia with AMS**
- Can also suggest infection, especially in infants
- Drug intoxication
- Exposure to cold
- Hormonal imbalance
- Young infants are more likely to be affected
  - Use blankets, hats, skin-to-skin contact with family member
Special Paediatric Considerations

Seizures/convulsions

• Can be due to fever alone
• Can also suggest infection, hypoglycaemia or hyponatremia
• Do not delay giving ANTIBIOTICS to children with suspected serious bacterial infection
• Always consider trauma

Infection in the brain

• **Check** for bulging or *swollen fontanelle* in children under 1 year
• **Check** for possible rash to legs and lower abdomen
• Do not delay giving ANTIBIOTICS to children with suspected serious bacterial infection
Special Paediatric Considerations

Poor perfusion

- Children can become dehydrated very quickly
- **Check** for signs of dehydration
  - Abnormal skin pinch
  - Dry mucous membranes
  - Irritability
  - Sunken or depressed fontanelle (in child under 1 year)
  - Slow capillary refill (greater than 3 seconds)
  - Cold extremities
  - Tachycardia
  - Hypotension
- Give IV FLUIDS and REASSESS frequently!
Special Paediatric Considerations

Malaria

• May be more severe in children than adults
• May present with
  • Severe anaemia
  • Seizures/convulsions
  • Coma
  • Hypoglycaemia
Special Paediatric Considerations

Ingestion of chemicals or drugs:
• Common in children
• Try to identify the poison: talk to parents (get package or photograph)
• CONSULT advanced provider immediately

Consider unintentional ingestion in children under six (especially ages 1-3)
• **Ask** about signs and symptoms depending on substance ingested
• Take a thorough history from the family
• **Examine** the bottles of the ingested substance or medicine
• Determine what time it took place
• Ensure that no other children were involved
• **Check** for signs of burns in or around the mouth
• **Check** for *stridor* suggesting chemicals that damage airway or cause swelling
• MONITOR closely
• Consider HANDOVER/TRANSFER to a referral unit
Workbook Question 5

How would you assess for brain infection in a child?

Why does hypoglycemia occur frequently in severely ill children?

Seizures/convulsions in a young child can be a sign of what?
Disposition of the Patient

- Disposition depends on the cause
- Causes that are not rapidly corrected or may return need management in a hospital
- Monitor closely for airway problems
- Consider HANDOVER/TRANSFER for advanced airway
- In hypoglycaemia, consider the cause and potential for it to develop again
- In opioid overdose, consider the need for repeat doses of Naloxone
Questions
Quick Cards
## APPROACH TO THE PATIENT WITH ALTERED MENTAL STATUS (AMS)

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

<table>
<thead>
<tr>
<th>IF YOU FIND...</th>
<th>REMEMBER...</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tachypnoea</td>
<td>Hypoxia, DKA, toxic ingestion</td>
</tr>
<tr>
<td>Poor perfusion/shock</td>
<td>Infection, internal bleeding</td>
</tr>
<tr>
<td>Tachycardia with normal perfusion</td>
<td>Alcohol withdrawal</td>
</tr>
<tr>
<td>Coma</td>
<td>Hypoxia, high or low blood glucose, DKA and toxic ingestion</td>
</tr>
<tr>
<td>Hypoglycaemia</td>
<td>Infection, medication side effect (eg, diabetes medications, quinine)</td>
</tr>
<tr>
<td>Very small pupils with slow breathing</td>
<td>Opioid overdose</td>
</tr>
<tr>
<td>Seizure/convulsion</td>
<td>Abnormal glucose, infection, toxic ingestion (eg, TB meds) or withdrawal (eg, alcohol). Consider eclampsia if current pregnancy or recent delivery.</td>
</tr>
<tr>
<td>Weakness on one side or unequal pupil size</td>
<td>Brain mass or bleed</td>
</tr>
<tr>
<td>Signs of trauma or unknown cause of AMS</td>
<td>Consider brain injury (with possible spine injury)</td>
</tr>
<tr>
<td>IF YOU FIND...</td>
<td>REMEMBER...</td>
</tr>
<tr>
<td>----------------------------------------------------</td>
<td>----------------------------------------------------------------------------</td>
</tr>
<tr>
<td>History of wheezing</td>
<td>Severe COPD crisis can cause AMS</td>
</tr>
<tr>
<td>History of diabetes</td>
<td>High or low blood sugar, DKA</td>
</tr>
<tr>
<td>History of epilepsy</td>
<td>Post-seizure confusion and sleepiness should improve over minutes to hours. Prolonged AMS or multiple convulsions without waking up in between require further workup.</td>
</tr>
<tr>
<td>History of agricultural work or known pesticide exposure</td>
<td>Organophosphate poisoning</td>
</tr>
<tr>
<td>History of regular alcohol use</td>
<td>Alcohol withdrawal</td>
</tr>
<tr>
<td>History of substance use or depression</td>
<td>Acute intoxication, accidental or intentional overdose</td>
</tr>
<tr>
<td>History of HIV</td>
<td>Infection, medication side effect</td>
</tr>
<tr>
<td>Rash on the lower abdomen or legs or bulging fontanelle in infants</td>
<td>Brain infection (meningitis)</td>
</tr>
<tr>
<td>Fever/Hyperthermia</td>
<td>Infectious, toxic, and environmental causes</td>
</tr>
</tbody>
</table>
## CRITICAL ACTIONS FOR HIGH-RISK CONDITIONS

Always check blood glucose in AMS, or give glucose if unable to check.

<table>
<thead>
<tr>
<th>HYPOGLYCAEMIA</th>
<th>OPIOID OVERDOSE</th>
<th>LIFE-THREATENING INFECTIONS</th>
<th>SEVERE DEHYDRATION</th>
<th>TOXIC EXPOSURE OR WITHDRAWAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Give glucose</td>
<td>Naloxone</td>
<td>IV fluids</td>
<td>IV fluids</td>
<td>Gather history and consult advanced provider for locally-appropriate antidotes.</td>
</tr>
<tr>
<td>Evaluate for infection</td>
<td>Monitor need for repeat doses (many opioids last longer than naloxone)</td>
<td>Antibiotics</td>
<td>Assess for infection</td>
<td>Treat alcohol withdrawal with benzo diazepine.</td>
</tr>
<tr>
<td>Monitor for return of hypoglycaemia</td>
<td></td>
<td>For AMS with fever or rash, consider brain infection (meningitis) – isolate patient and wear mask.</td>
<td>Consider DKA</td>
<td>Decontaminate for chemical exposures (eg, pesticides).</td>
</tr>
<tr>
<td>Cool if indicated for very high fever (avoid shivering).</td>
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### 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 carefully 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.