



NCD Related Emergency & Epilepsy For CHO/SN





LEARNING OBJECTIVES

- Recognizing general signs in relation to emergencies arising out of NCDs.
- Management protocol-Specific measures for Stroke, Diabetic emergencies, Pulmonary Oedema, Acute Breathlessness / Dyspnoea, Myocardial Infarction and Acute Chest Pain
- Follow-up Care
- Prevention and Awareness Generation at Community Level



RECOGNISING LIFE THREATENING SITUATIONS-NCD

- Sudden weakness in arms or legs (usually affects one side of the body)
- Sudden drooping or weakness in one side of face
- Sudden loss of balance, headache, dizziness or loss of consciousness
- Sudden blurring of vision
- Sudden difficulty in speech/inability to speak
- Sudden pain in the chest
- Diabetic emergencies (Low blood sugar level and High blood sugar level)



ACUTE CHEST PAIN (Signs and Symptoms)

1. Angina pectoris or myocardial infarction:

- Acute chest pain in the center of the chest radiating to neck, jaw and arms, associated with sweating, nausea or vomiting.
- May last for few minutes (15-20 minutes or more).
- Aggravated by work (more frequently seen in elders with or without hypertension, diabetes mellitus, smoking).





2. Pleurisy, respiratory infection or pulmonary infarction:

- Sharp catching pain, located laterally and increasing with deep inspiration or coughing.

3. Pneumothorax:

- Sudden pleuritic pain with progressively increasing difficulty in breathing.
- Pleuritic chest pain is characterized by sharp, intense, burning or stabbing pain that increases during deep inspiration, coughing, sneezing, laughing, etc.



- **Other causes of chest pain are:**

- Rib-fracture (enquire history of trauma, fall)
- aortic dissection,
- myocarditis,
- pericarditis.

- **Acute chest syndrome in sickle cell disease:** presents as cough, fever and severe acute chest pain.

- It is usually a result of infective process or hypoxia.





GERD (Gastro Oesophageal Reflux Disease):

- Chest pain associated with burning sensation in chest, more backwards and radiating up to throat.
- Associated with burping, upper abdominal pain, regurgitation of food or sour liquid in throat and occasional vomiting, etc.
- **This may be confusing at times with acute MI, and needs careful evaluation.**

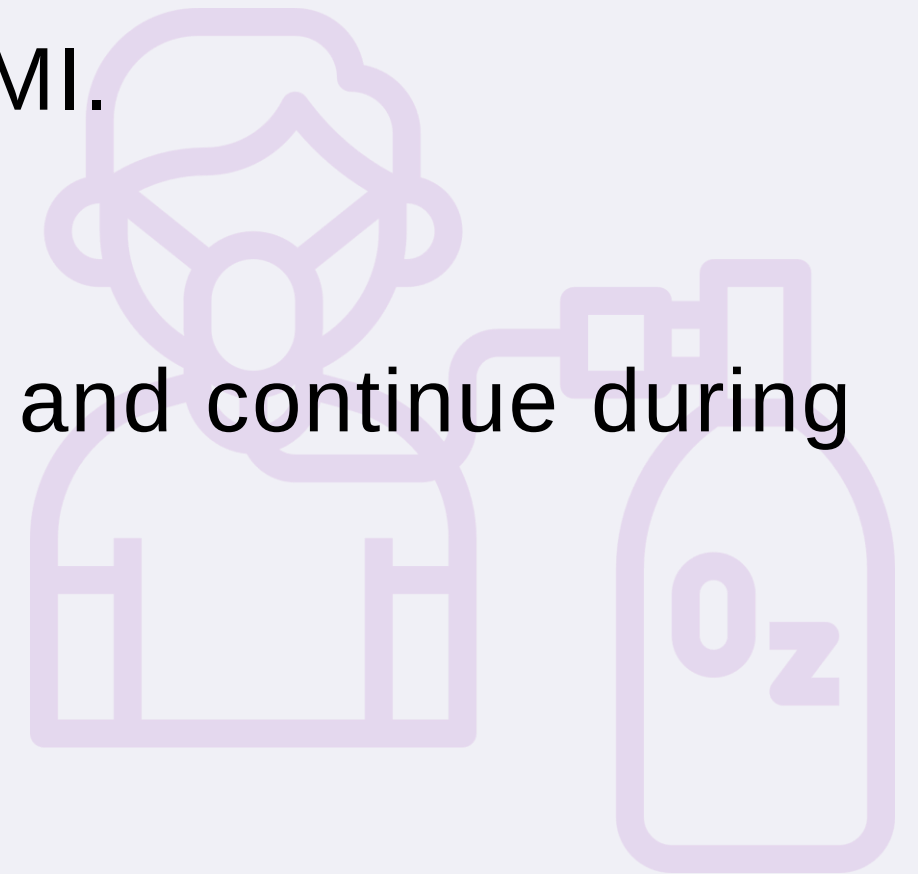


MYOCARDIAL INFARCTION

- Tachycardia or bradycardia (pulse $> 100/\text{min}$ or $< 60/\text{min}$)
- Severe blood pressure dysregulation (systolic BP i.e.; $\geq 220 \text{ mmHg}$ or Low blood pressures/ shock, SBP $< 90\text{mmHg}$).
- Respiratory insufficiency ($\text{SpO}_2 < 90\%$) may be present.
- Some patients may only present with pain and physical examination may be normal.
- Excessive sweating and cold limbs may be seen.
- Patient is lying in bed in pain, restless, and holding his chest and having difficulty in breathing and/ or talking.

FIRST-AID TREATMENT FOR CARDIAC CHEST PAIN AT SHC-HWC

- Haemodynamically unstable patient or in shock- follow protocols for management of shock.
- Haemodynamically stable patient- proceed further to ask for specific history of symptoms and look for possibility of acute MI.
- Start oxygen by mask/ nasal prongs-2 to 3 lit/minute and continue during transfer.





- Give tablet glyceryl trinitrate 0.5 mg sublingual. It helps to decrease workload of heart and decreases pain; repeat one tablet in 10 minutes again or during transfer if pain is still severe one. **Ask patient not to chew the tablet.**
- Tablet Aspirin 300 mg + Tablet Atorvastatin 80 mg – orally
- Insert IV cannula, monitor vitals frequently, Pulse, BP every 15 min. and SpO2 continuously and look any signs of shock.
- Refer the patient immediately to a higher centre for higher standard of care.



GOAL OF REFERRAL AND MANAGEMENT IN ACUTE MI



- The goal is to identify candidates for thrombolytic therapy (which dissolves blood clot blocking the blood flow within the artery) and administer it within **golden hour**, i.e. with first 60 minutes from onset of symptoms.
- Thrombolytic therapy if given to appropriate patients within “golden hour” would prove to be lifesaving.
- If there is less suspicion, do not discharge patient immediately, observe for at least 3-4 hours.
- Repeat history and examination and assess for other causes of chest pain.
- Before you discharge this seemingly stable patient or if you have doubts regarding the case, contact your medical officer at PHC or CHC and inform them about your patient and your findings and make necessary plans as indicated.



ACUTE BREATHLESSNESS / DYSPNOEA



- Dyspnoea is a perception of inability to breathe comfortably.
- It is one of the common emergency presentations that often lead to acute respiratory failure and death, if not evaluated and treated in time.

Causes of Dyspnoea-

- In Children: Foreign body in throat, asthma attacks, pneumonia, etc.
- In Adult age group: COPD and asthma exacerbation, heart failure, poisoning, etc.



Management:

- Assess the condition of the patient using the mMRC Breathlessness Scale as given below:

mMRC Breathlessness Scale

Grade	Description of Breathlessness
0	I only get breathless with strenuous exercise
1	I get short of breath when hurrying on level ground or walking up a slight hill
2	On level ground, I walk slower than people of the same age because of breathlessness, or have to stop for breath when walking at my own pace
3	I stop for breath after walking about 100 yards or after a few minutes on level ground
4	I am too breathless to leave the house or I am breathless when dressing

Chris Stenton. The MRC breathlessness scale. *Occup Med (Lond)*(2008)58(3): 226-227 doi:10.1093/occmed/kqm162, Table 1.
By permission of Oxford University Press on behalf of the Society of Occupational Medicine.
A mMRC score of 1 or more suggests significant symptoms.

mMRC=modified Medical Research Council

PULMONARY OEDEMA

- When heart is acutely not able to pump the blood forward into aorta, there is retention of extra blood in pulmonary veins and lungs, which causes breathlessness and decreased exchange of oxygen into blood (hypoxia).
- Rapidly progressing breathlessness if accompanied with chest pain, cough with frothy sputum, with history of hypertension /diabetes in the past will indicate possible acute pulmonary oedema.



ACUTE BRONCHIAL ASTHMA

- Patient can have an acutely progressive breathlessness with history of bronchial asthma in the past.
- The acute attack can be precipitated by exposure to allergen or respiratory infection.
- Patient is tachypnoeic with or without central cyanosis, tachycardia and rhonchi audible over the chest bilaterally.



PNEUMOTHORAX

- When air leaks into the space between the lung & chest wall, leading to lung collapse
- Primary spontaneous Pneumothorax- occurs without obvious underlying lung disease.
- Secondary spontaneous Pneumothorax- results from underlying parenchymal lung disease including COPD & emphysema, interstitial lung disease, necrotizing lung infections, tuberculosis & cystic fibrosis.
- Others include- traumatic, iatrogenic & tension pneumothorax.



STROKE

- A stroke, sometimes called a “brain attack”, occurs when blood flow to an area in the brain is cut off.
- The cells in that part of brain get severely injured and die from lack of oxygen and glucose supply which is needed for them to survive.
- If a stroke is not treated early, permanent brain damage or death can result.



Ischemic stroke	Haemorrhagic stroke	Transient Ischaemic Attacks (TIA)
<p>It is similar to a heart attack, except it occurs in the blood vessels of the brain. About 80% of all strokes are ischemic.</p> <p>Blood clots can form in the blood vessels in the brain or elsewhere in the body and then travel to the brain. These clots block blood flow to any part of the brain and present as stroke with features of loss of function of that particular part of the brain.</p>	<p>Blood vessel in the brain breaks or ruptures resulting in blood seeping into the nearby brain tissue, causing damage to brain cells</p>	<p>Similar to other cases of stroke, but symptoms and signs get resolved almost completely within 24 hours.</p>





CLINICAL FEATURES:

- Sudden feeling of weakness or numbness of the face, arm or leg on one side of the body.
- Loss of vision or dimming (like a curtain falling) in one or both eyes.
- Loss of speech, difficulty in talking or understanding what others are saying, deviation of mouth to one side.
- Sudden, severe headache with no known cause.
- Fainting or unstable walking usually combined with other symptoms like light headedness, dizziness and confusion.
- Some patients may have altered sensorium or unconsciousness.

Important part of history that you should ask is time of the day from when all the features of stroke started to appear.



Examination:

- Diagnosis as per the symptom.
- Vitals
- Some patients who develop haemorrhagic stroke may have large amount of intracranial blood loss which is not visible from outside and they may later develop hypotension and shock.
- Confirm the weakness or numbness of the part of the body which is affected.



Investigations:

- Diagnosis is mostly clinical
- For treatment, it is necessary to diagnose whether it is an Ischaemic or haemorrhagic stroke, because treatment is different for both of them.
- This is possible only with CT scan that is usually available at district hospital level. The patient and family should therefore be counselled to immediately get CT scan and necessary treatment done within 04 hours of appearance of first sign of stroke.
- **Hence, you should refer the patient to the facility which has the availability of a CT scan.**



Management:

- Keep patient lying down on his/her side.
- Keep head high, turned on side to prevent aspiration of vomit.
- Keep the patient quiet and cover the patient lightly with blanket.
- Observe for signs and symptoms of hypotension and shock.
- If patient is in shock, give IV fluids as normal saline (NS), ringer lactate (RL) and do not use D5%, D10%, DNS, etc
- Do not give any anti-hypertensive medicines even if patient has high pressure.
- Inform your PHC-MO about high pressure and arrange for referral of patient to DH; this is because sudden hypotension from antihypertensive medicines will decrease blood supply to brain and further increase the damage.
- Check and treat hypoglycemia, if present.
- Counsel the patient and the family about diagnosis of stroke, requirement of urgent CT scan and need of hospital admission at DH level, etc.
- Keep check on SpO₂ for hypoxia and blood pressure for hypotension during transport.





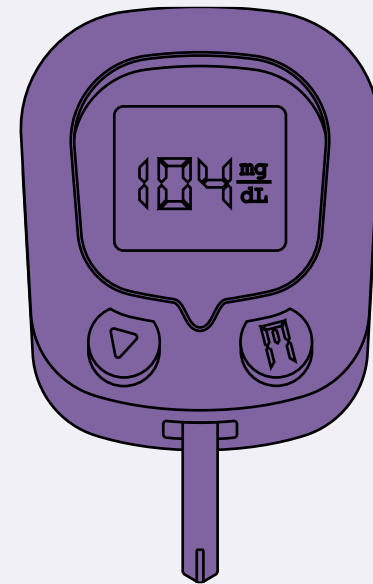
DIABETIC EMERGENCIES

- Diabetic emergencies include High and low sugar in the body called as hyperglycemia and hypoglycemia respectively.
- Patients with diabetes have high blood sugar levels because of the body's inability to utilize the glucose.
- Diabetic patients follow a low sugar diet and take medicines which help the glucose to get utilized and thus keeps the blood sugar levels in check.



Diabetic emergencies arise in two situations:

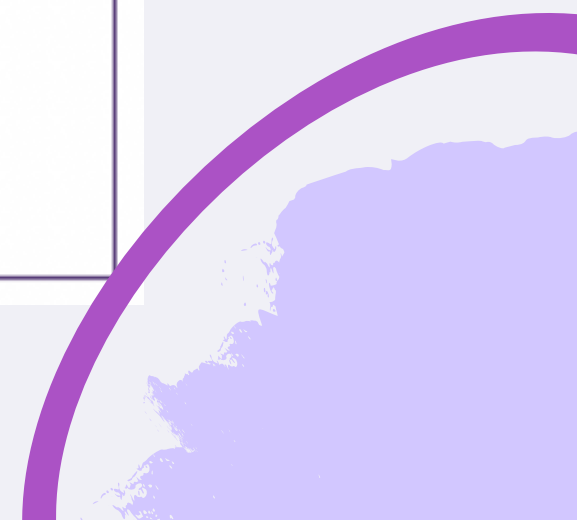
- When the disease is uncontrolled (the patient does not follow low sugar diet or does not take medicines) it leads to **very high blood sugar** level.
- When the patient on diabetes medicine does not eat for a long time, it leads to **very low blood sugar** level.





The symptoms of high and low blood sugar levels are:

Low Blood Sugar Level	High Blood Sugar Level
1. Tiredness	1. Dry mouth
2. Sweating	2. Increased thirst
3. Mental confusion	3. Weakness
4. Dizziness or unconsciousness	4. Headache
5. Headache	5. Severe dehydration
	6. Nausea and abdominal discomfort
	7. Severely high blood sugar levels can cause coma






HEART ATTACK / CARDIAC ARREST

Signs:

- Sudden pain in the chest which may spread to left arm.
- Difficulty in breathing and loss of consciousness.
- Sometimes a heart attack may present only as sweating, nausea, tiredness, tingling and numbness in the extremities.
- **A case of heart attack must immediately be taken to the nearest health facility. They may require Cardio-Pulmonary Resuscitation (CPR). (Remember to follow CAB and not ABC)**

CPR AT A GLANCE



	ADULT	CHILD	INFANT
C- COMPRESSIONS	<ul style="list-style-type: none"> • Press down on the sternum 4-5 cm. • 100 per minute, • Continues for 2 minutes 	<ul style="list-style-type: none"> • Centre of the chest (lower half of the sternum). • 2 inches down • 120 per minute 	<ul style="list-style-type: none"> • Centre of the inter-mammary line. • 1/3 to 1/2 of the depth of the chest (about one and a half inches). • 15 gentle chest compressions at the rate of at least 120 per minute.
<i>(Compress location)</i>			





SEIZURES (FITS)

Fits (convulsions/seizures) can occur due to many underlying medical causes, in both adults and children. In case a person is suffering from fits, assure the following:

- Identify whether the fits are affecting the entire body (Generalized) or some parts (Focal)
- Keep surrounding safe
- Place a clean cloth between the teeth of the patient so that he/she does not bite the tongue.
- Place patient in recovery position after the fits stop.



No.	History	Possible Diagnosis	Confirmation of Diagnosis at HWC	Treatment at HWC
1.	Repeated episodes of seizures, not associated with fever or other illnesses/ symptoms, not controlled with treatment, and no specific cause is known or found.	Epilepsy	<p>1. Ask details of event happened during last episode of seizure, and confirm if it is seizure or not.</p> <p>2. Observe carefully if patient has similar on-going activity in front of you and make sure if it is seizure and not tremors, muscle spasm or any other abnormal movement</p> <p>3. Check previous clinical records of patient if available.</p> <p>4. Discuss with PHC MO.</p>	<p>1. Rule out other common causes of seizures like infections, congenital defects</p> <p>2. Check and treat hypoglycaemia</p> <p>3. Follow instructions of senior doctor and refer if needed.</p> <p>4. Instruct family to give medicines regularly & correctly to the patient.</p>

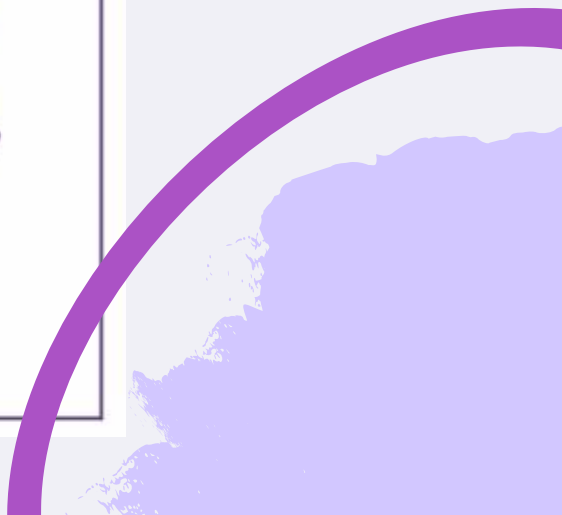




2.	Head injury, fall from height with loss of consciousness and seizures like activity	Injury to brain and intracranial haemorrhage	1. Confirm history of injury and history of symptoms during seizure episode 2. Examine for site and extent of injury	1. Manage ABCDE first and stabilise the patient with severe injuries and bleeding 2. Discuss with PHC MO and prepare plan of management.
3	Fever since few hours to days, with or without headache, vomiting and skin rash, with one or more episodes of seizures	Infections: Cerebral Malaria Meningitis (Virus/Bacteria/Others)	RDT kits for malaria, presence of splenomegaly, hepatomegaly, dark & cola coloured urine, shock. Rule out hypoglycaemia Signs of raised intracranial features	management of ABCD and urgent referral to PHC Manage ABCD first, discuss with PHC MO, then give first dose of IV antibiotic and refer Rule out malaria and hypoglycaemia Manage ABCD, discuss with PHC MO, Rule out malaria and hypoglycaemia, refer urgently to DH



3	<p>Additional history of common symptoms of pulmonary TB in patient or family, history of treatment for TB taken by any family member</p> <p>Age of children between 06 months to 05 years, with or without past history of episodes of seizures associated with fever and not associated with any other symptoms or disease.</p>	<p>TB Meningitis</p> <p>Febrile convulsion)</p>	<p>Evaluate for clinical features of tuberculosis at other site mainly lungs, lymph nodes, skin, etc.</p> <p>1. Confirm from history of events whether it was seizures or something else like muscle spasms, tremors, etc. 2. Rule out malaria, hypoglycaemia by blood tests, and 3. Examine in detail to rule out presence of any infections or other causes of seizures</p>	<p>1. Give inj. <u>Paracetamol</u> 10mg/kg or Syrup. <u>paracetamol</u> 0.6ml/kg or 15mg/kg 2. Give cold sponging to child, 3. Observe for recurrence of episodes of seizures 4. Discuss with PHC MO 5. Counsel parents well, referral is mostly not needed if diagnosis is sure..</p>
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4.	History of delayed cry at time of birth, or history of similar episodes of seizures, history of delayed development in childhood,	Congenital defects	Confirm episode of seizure based on history of events during the episode Thorough examination from head to toe to rule out presence of birth defects, like cleft palate, abnormal heart sounds,	Assess ABCD, Rule out presence of any infection, hypoglycaemia and discuss with senior doctor or PH MO, refer if indicated.
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5.	Person with or without any of the above symptoms and history, and additional history of recent lethargy, sweating & palpitations or poor feeding and poor cry in children	Hypoglycaemia	Check blood sugar levels with glucometer Mild hypoglycaemia- RBS <70mg/dl Severe hypoglycaemia- RBS <40mg/dl	Give Inj. Dextrose 25% 2ml/kg IV bolus, check RBS again in 15 minutes and repeat the dose if necessary
6.	History similar to any local or severe infections	Electrolyte disturbance	Examine for signs of dehydration	Correct dehydration with IV fluids and refer, check and treat hypoglycaemia



At the SHC-HWC level, you can undertake the following for symptomatic treatment of seizures:

- Secure IV cannula, check for blood sugar levels, and give inj. Dextrose 25% intravenously if RBS is $< 70\text{mg/dl}$ or empirically when you cannot measure sugar levels.
- Also check for malaria (in malaria endemic zones) with RDK kits and/or peripheral smear, and if positive manage accordingly with IV antimalarial agents.
- Give supportive oxygen with face mask and shift the patient to the nearest higher medical centre for definitive antiepileptic treatment and evaluation.
- If the child with seizure has fever, try to lower down his/her fever.
- Give cold sponging and syp. Paracetamol 15mg/kg as a single dose and then refer to nearby higher facility for further assessment.
- Counselling of parents/ attendants of the patient for likely cause of seizure, it's complications and necessary treatment before referral to higher centre should be done.



STATUS EPILEPTICUS

- The seizure lasts longer than 5 minutes or when seizures occur close together and the person doesn't recover between seizures.
- This is a life threatening and severely debilitating condition and needs prompt referral to higher centers and urgent medical care.





STATUS EPILEPTICUS

Patient in Status Epilepticus
↓
Check Airway, Breathing, Circulation
Keep patient in lateral position, protect from injuries
↓
Check Blood Sugar Levels and Give inj. Dextrose 25% Check RDK/Blood smear for malaria
Give supplemental oxygen
↓
Give rectal Diazepam (10mg for adults, 0.3-0.5 mg/kg in children)
Continuous monitoring and early referral, counselling of attendants Inform referral centre about the patient beforehand



POINTS TO REMEMBER

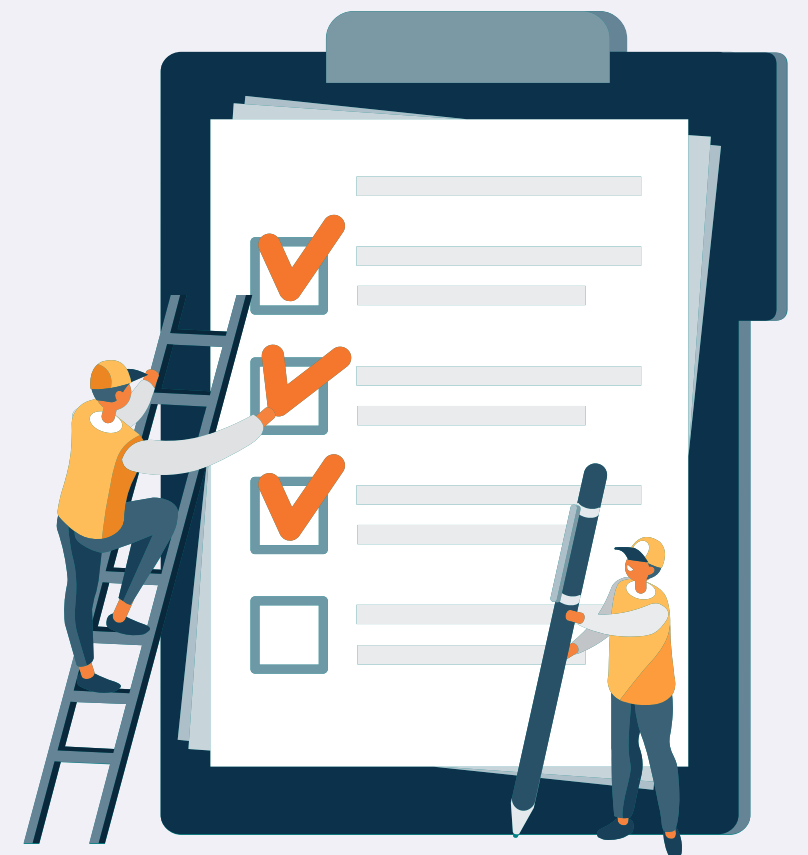
Patient should be admitted to hospital as an emergency in case of the following:

- It is a first seizure
- More than three seizures occur in an hour
- If a seizure lasts for more than five minutes
- If there is no prompt response to treatment
- If there is response to treatment but seizures were prolonged or recurrent before treatment was given.



EVALUATION

- What is 'C' in C A B?
- What should be given to patients of diabetic emergency with low blood sugar level?





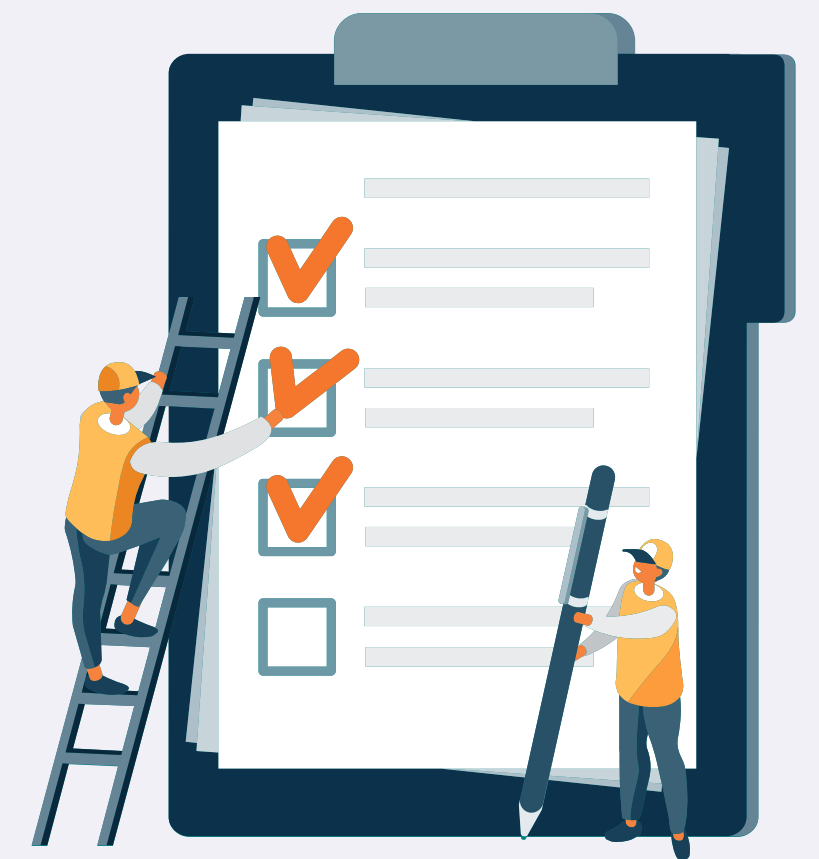
ANSWERS

1. What is 'C' in C A B?

Chest Compressions

2. What should be given to patients of diabetic emergency with low blood sugar level?

Sugar by mouth





Thank You

