Emergency Medicine
Interest Group

Emergency Medicine Unit,
The University of Hong Kong

BOOK A

Presents

ELDERLY FIRST AID HANDBOOK

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LP Leung

CONTENT

FOREWORD

These two handbooks were written by a group of medical students of the University of Hong Kong (HKU) with the guidance from the academic staff of the Emergency Medicine Unit of the HKU. The students have formed an Emergency Medicine Interest Group with the vision of serving the community of Hong Kong through their knowledge in Emergency Medicine.

Ageing population is a worldwide phenomenon. It is expected that the proportion of people aged 65 or above would rise from 13% in 2011 to 30% in 2041 in Hong Kong. With increasing number of seniorcitizens in the community, how to best respond to their healthcare demands should be everyone's concern.

These two handbooks aim at guiding the readers across the vast topic of first aid for an ill or injured elderly. It is primarily written for the caretakers of the elderly in the community. But readers other than the caretakers of the elderly may also find the two handbooks useful if they come across an elderly who is acutely unwell. These two handbooks are neither authoritative nor comprehensive. It is hoped that readers would pursue further study on the topics in which they are interested and help themselves better respond to an ill or injured elderly under their care.

The Emergency Medicine interest Group and the Emergency Medicine Unit would like to thank the 'We Are With You' Fund for the support in the production of these handbooks.

KL Fan, LP Leung
June 2016

PROCESS OF AGEING

Physiology/Anatomy of Ageing
Ageing is a term to describe the changes in our body functions when we get older. The changes affect every body system and are affected by environmental and genetic causes. The following are changes that appear in our body during the process of ageing.

General
- Decrease in body mass
- Decrease in the proportion of body fat

Skin
- Wrinkling and sagging especially on face, neck and hands
- Getting thin and pale
- Wounds heal more slowly or may not heal at all
- Reduced sensitivity to cold
- Reduced sweating
- Reduced resistance to UV light damage

Muscle
- Reduced muscle mass (30-40%) and muscle power
- Becoming fatigue earlier and more easily during exertion
- Lower regenerative ability
- More fat in muscle tissue

Skeleton
- Both men and women lose bone mass during ageing
- Women have faster loss in bone mass, which accelerates after menopause
- Men have slower bone loss, as they start losing other tissues as well
- Higher prevalence of osteoporosis in both genders

Nervous system
- Slower central processing and longer reaction time
- Reduced sensitivity to vibration especially in feet
- Less sensitivity to temperature
- Modest loss of neurons
- Slight decrease in brain mass

Eyes
- Yellowing of lens
- Higher prevalence in cataract
- Lower light sensitivity
- Poorer dark adaptation
- Reduced tear production
- Minimal decrease of visual acuity at rest but significant decrease of visual acuity with a moving target

PROCESS OF AGEING

Respiratory system (breathing)
- Decrease in diaphragm strength
- Decrease in lung volume and air flow rate
- Increase in residual air in lungs

Digestive system
- More stomach acid production
- More common to have constipation
- Reduced absorption of nutrients
- Decrease in liver mass

Heart and blood vessels
- No change in heart rate and contraction force at rest
- Less increase in heart rate and contraction force during exercise
- Moderate increase in heart size
- Stiffer heart and blood vessel tissues
- Increased blood pressure

Kidney, urinary and genital systems
- Decrease in kidney filtration function, concentration ability and dilution of urine
- Decrease in kidney mass
- Incomplete bladder emptying leading to increase in residual urine
- Less intense orgasms (both men and women)
- Longer resting time between orgasm and next erection for men

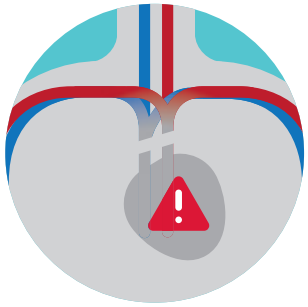
Immune system
- More prone to infection
- Reduced response to vaccination

Other systems
- Impaired shivering
- Decrease in sensitivity of smell
- Decrease in thirst drive
- Deterioration of balance
- Loss of hearing in high-frequency tones

BASIC LIFE SUPPORT

Basic Life Support (BLS)
Basic Life Support is the combination of emergency procedures needed to ensure a person's survival, including cardiopulmonary resuscitation (CPR), control of bleeding, treatment of shock and poisoning, stabilization of injuries and/or wounds, and basic first aid. In this chapter, we will cover CPR, recovery position, and automated external defibrillator (AED).

Why Basic Life Support?
It is important to learn BLS because emergencies happen! There are a lot of things you can do with little or no equipment to deal with medical emergencies, and you could potentially save a life with these simple skills.



Why learn Bystander CPR?
Because Bystander CPR is a simple and effective way to keep a person with sudden cardiac arrest alive. This is a series of actions to support the breathing and circulation of a person whose heart has stopped beating, and help maintain blood perfusion to the vital organs to a certain extent to buy time for more definitive treatment.

What is sudden cardiac arrest?
Sudden cardiac arrest (SCA) is when there is a sudden failure of the heart to contract effectively, so that the delivery of oxygen by blood to the body tissues, including the brain and the heart itself, is disrupted, or even stopped. This situation is very dangerous, and is one of the leading causes of death worldwide, especially in the elderly. The median age of SCA in Hong Kong is 80 years old. Two-thirds of the cases occur at home, and 40% occur witnessed. Yet, only about 30% of the elderly in Hong Kong get immediate CPR from a bystander. This is very low compared to other developed countries, and many more lives could potentially be saved if more people step out to carry out CPR on an elderly with SCA.

Average age
80

Witnessed
40%

CPRed
30%

How does Bystander CPR help?

The Chain of Survival

The Chain of Survival is a closely packed series of five steps to keep the chances favorable for a SCA elderly to stay alive. The steps are:

1) Early access to care (e.g. calling 999)
2) Early CPR
3) Early defibrillation (i.e. with an AED)
4) Early advanced care (by professionals)
5) Good post-resuscitation care

Each one of these steps must be done well and early, and with the Bystander BLS routine, you will already be covering the first 3 key steps in saving the elderly. Here is how to do it.

1

2

3

Compression-only Bystander CPR

CPR is one of the most important first aid techniques, it's a series of actions to support the circulation of a person whose heart has stopped beating. This helps maintain blood perfusion to the vital organs to a certain extent to buy time for more definitive treatment.

If you have not been trained in CPR, or do not wish to have mouth-to-mouth contact with a stranger, you can do compression-only CPR. It is as effective as the conventional bystander CPR.

The approach can be remembered with a mnemonic of :

Danger + Check + Call + Chest Compression

1 Danger

Check if the environment is safe for you and the elderly

2 Check

Check the elderly for

Responsiveness:
call the elderly; shake the elderly's shoulders

Breathing:
observe if there are chest movements; listen for any breathing sound

3 Call

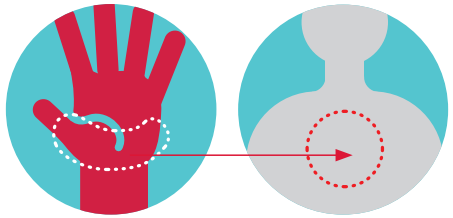
IF the elderly is not responsive **AND** not breathing properly, call for help by
- Dialing 999
- Asking a bystander to take the nearby AED for you

Proceed to CPR (C A B)

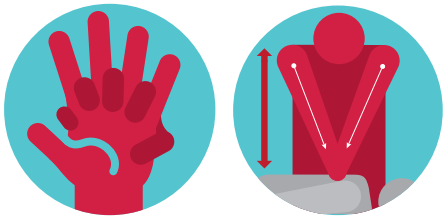
4 Chest Compression

Compression-only Bystander CPR

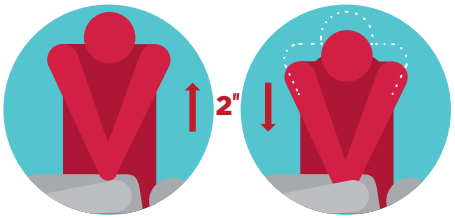
A. Position
Place the heel of a hand on the breastbone at the center of the elderly's chest.



B. Posture
Place the other hand on top of the first hand, and make your fingers interlocked. Move your shoulders so that they are directly above your hands, keep your arms vertical and straight throughout. Do not bend them even as you apply pressure.



C. Depth
Using your body weight, press the elderly's chest down hard for 5-6 cm (2 inches - 2.4 inches).



D. Frequency
Press repeatedly and fast with the same posture at a frequency of 100-120 per minute. As a rule of thumb, run the song Staying Alive **"Ha, ha, ha, ha, staying alive, staying alive..."** in your head. Each beat roughly corresponds to one press. Alternatively, follow the best of the song 急救進行中

E. Recoil
After each press, make sure you allow the chest of the elderly to recoil.

Repeat the procedure until
- the elderly regains consciousness with normal breathing and heart rate
- an ambulance has arrived
- the AED has arrived
- you are exhausted and cannot carry on.

Conventional Bystander CPR

This is a series of actions to support the breathing and circulation of a person whose heart has stopped beating. The approach can be remembered with a mnemonic of :

Danger + Check + Call + C A B

1 Danger

Check if the environment is safe for you and the elderly

2 Check

Check the elderly for
Responsiveness:
call the elderly; shake the elderly's shoulders

Breathing:
observe if there are chest movements; listen for any breathing sound

3 Call

IF the elderly is not responsive **AND** not breathing properly, call for help by
- Dialing 999
- Asking a bystander to take the nearby AED for you

Proceed to CPR (C A B)

4 C A B (CPR)

C - Circulation
A - Airway
B - Rescue Breaths

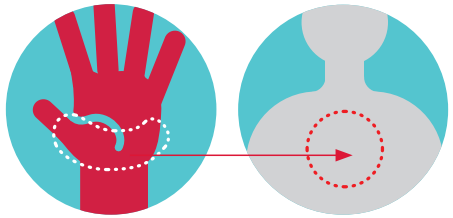
Conventional Bystander CPR

C for Circulation - Chest Compression

(Optional) If you have been trained and confident in doing pulse check, check if there is a neck (carotid) pulse by placing two fingers on the side of the prominence at the front of the neck.

Check one side at a time.

A. Position
Place the heel of a hand on the breastbone at the center of the elderly's chest.



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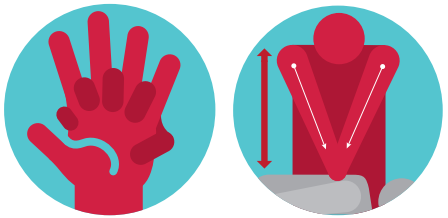
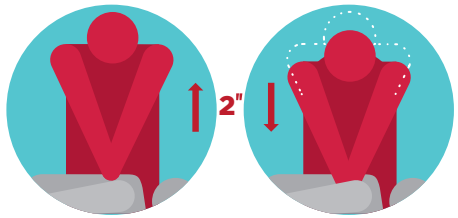


C. Depth
Using your body weight, press the elderly's chest down hard for 5-6 cm (2 inches - 2.4 inches).



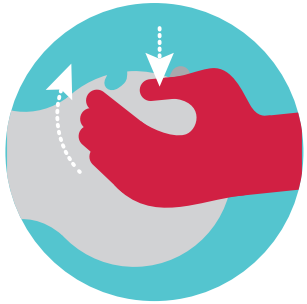
D. Frequency
Press repeatedly and fast with the same posture at a frequency of 100-120 per minute. As a rule of thumb, run the song Staying Alive **"Ha, ha, ha, ha, staying alive, staying alive…"** in your head. Each beat roughly corresponds to one press. Alternatively, follow the best of the song 急救進行中

E. Recoil
After each press, make sure you allow the chest of the elderly to recoil.

A for Airway

If neck injury is not suspected, head-tilt and chin-lift can be performed:
Tilt the head back, and lift the chin up.

If neck injury is suspected, jaw thrust can be performed instead.



B for Rescue Breaths

After 30 chest compressions, give 2 breaths.

Place your mouth on the elderly's mouth so that it is airtight, and blow steadily into his/her mouth.

Each breath must last about 1 second.

Observe to see if his/her chest rises. If so, the rescue breath is effective.

In conventional bystander CPR, the cycle between chest compressions and rescue breaths in a 30:2 ratio, in which 30 chest compressions are followed by 2 rescue breaths.

Repeat the procedure until
- the elderly regains consciousness with normal breathing and heart rate
- an ambulance has arrived
- the AED has arrived
- you are exhausted and cannot carry on.

Automated External Defibrillator (AED)

Commonly called AED, the device has a daunting full name Automated External Defibrillator. However, its principles and use are actually not difficult to grasp.

Sudden cardiac arrest, in which the heart stops beating suddenly, can cause death within minutes if untreated. The 2 major causes of sudden cardiac arrest, both triggering irregular heartbeats, are ventricular fibrillation and ventricular tachycardia. The commoner cause is ventricular fibrillation, in which the lower chambers (*ventricles*) of the heart quiver quickly and irregularly. The other cause is ventricular tachycardia, in which the ventricles have regular, fast beats that lasts for a short period of time.

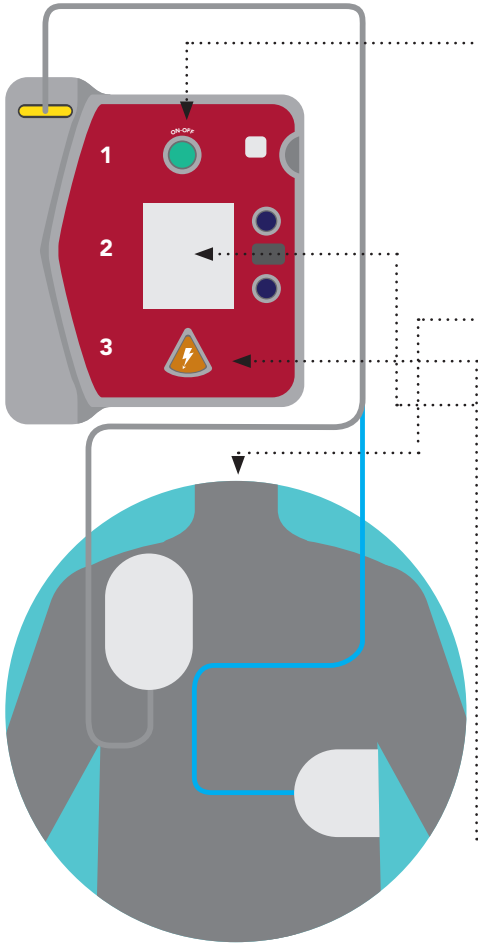
The AED can be used in this condition to assess the heart rhythm and restore it to normal by administering electric shocks to the heart. CPR also helps the chance of survival.

AED sets usually come with spoken or visual instructions for the untrained user and are easy to use. An important point, though, would be to make sure that no one is touching the elderly when the shock is being administered.

AEDs can be found in many public places, such as shopping malls, airports, hotels and schools. You can find them directly under these signs

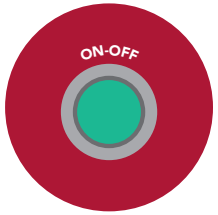
It's important for the local EMS system and Community members to know where AEDs are located in the community. In the event of a sudden cardiac arrest emergency, you can find AED quickly.

There are many different brands of AEDs, but the same basic steps apply to all of them.

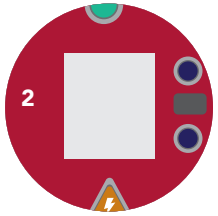


STEPS in using AED

1. Turn on the AED



2. Attach defibrillation pads to the chest (Right side upper chest , Left side lower chest, wipe the chest dry if it's wet)
3. Push the analyze button and the AED analyze heart rhythm



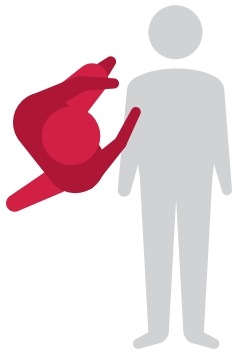
If AED advises you to shock the person:

4. Make sure no one, including you, is touching the person
   Tell everyone to **"STAND CLEAR!"**
5. Push the "shock" button

Recovery Position

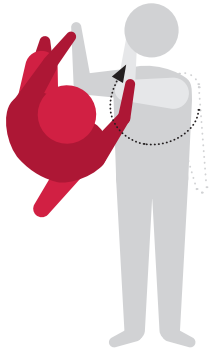
If the elderly is unconscious without any suspected neck injuries and breathes spontaneously, he/she should be placed in the recovery position. The recovery position keeps the airway patent, and prevents the elderly from aspiration.

1. Kneel by the right side of the elderly.

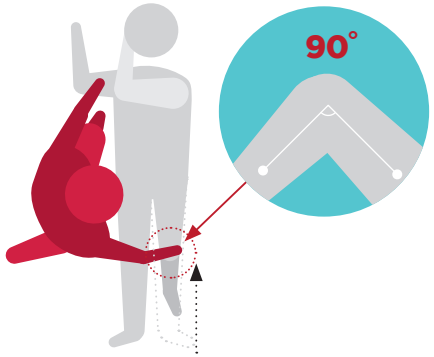


2. Place the right arm of the elderly at right angle with his/her palm facing up.

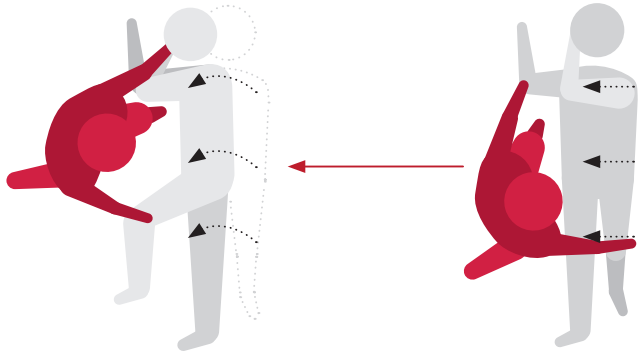
3. Hold the left hand of the elderly and place the back of the hand against his/her right cheek.



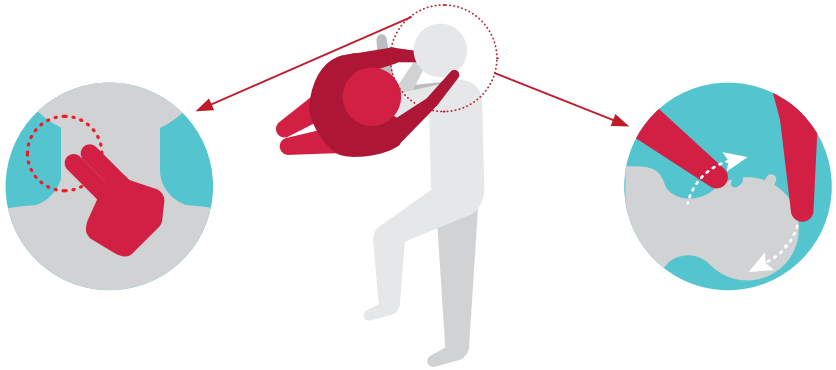
4. Grasp his/her left leg and bend to a right angle.



5. Keep his/her left hand on the right cheek. Pull the bent leg towards you to make the elderly roll to your side. His/her left arm should prevent the elderly from rolling too far.

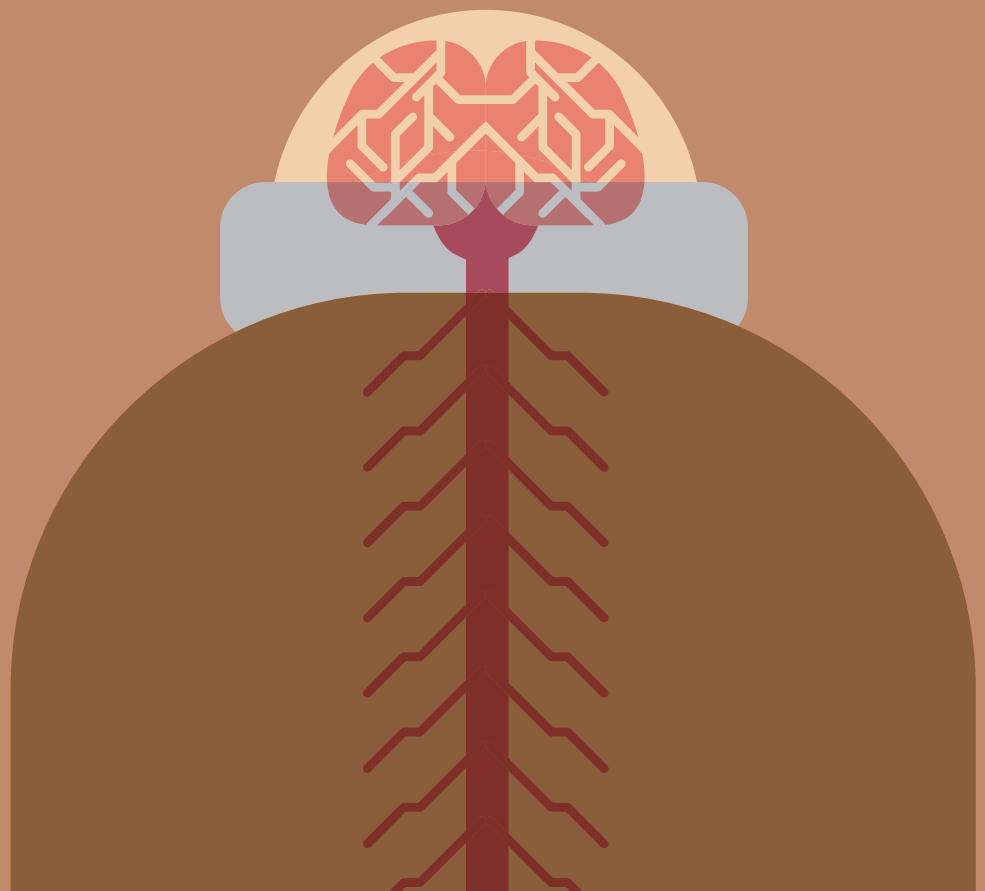


6. Gently tilt the head back, and lift the chin (head-tilt and chin-lift), and perform the airway check of ABC again if you have not done so.



Stay with the person and monitor the elderly's ABC continuously until an ambulance arrives.If the injuries are not too severe, turn the person to the other side after 30 minutes.

CENTRAL NERVOUS SYSTEM



Stroke

Background

Stroke is a medical emergency. It occurs when the blood supply to the brain is disrupted, causing oxygen depletion and loss of function of the affected area. Strokes could be caused by either a clot in a blood vessel stopping blood passing to the brain or a burst blood vessel bleeds into the brain.

Stroke is more common in old age. It is associated with circulatory system disorders, such as high blood pressure.

Early recognition and hospital care (within 3 hours) may improve the chance of recovery.

In Hong Kong, nearly 3,000 people die of stroke each year. At present, it is the 4th fatal disease in Hong Kong. In general, people who suffer from a stroke are usually over the age of 50.

Symptoms and signs

A characteristic of acute stroke is that the symptoms and signs often come suddenly.

- Facial weakness
- Limb weakness
- Speech problems like slurring or inability to comprehend or express
- Difficulty to swallow, maybe associated with drooling and easy choking
- Headache, especially new or sudden
- Nausea not accountable by other apparent causes
- Reduced level of responsiveness
- Numbness and tingling in face, arms or legs
- Dizziness especially persistent, severe or unrelated to posture change
- Loss of balance or inability to walk steadily
- Blurred vision especially only one eye is affected
- Loss of bladder or bowel control

As a first aider

- Recognize the symptoms and signs of stroke and arrange emergency help
- Reassure and comfort the elderly to keep him or her calm

Do's

The FAST test could be used to recognize stroke.

1. A Chinese mnemonic to remember the test is "微笑殭屍會說話"

a / Face (Facial weakness)
- Ask the casualty to smile
- If he has a stroke, he may only be able to smile on one side and his face may look uneven

b / Arm (Arm weakness)
- Ask the casualty to close his eyes and raise both arms
- If he has a stroke, he may only be able to move one arm or has weakness on one arm

c / Speech (Speech problems)
- Find out if the casualty can speak clearly and understand your words
- If he has a stroke, he may not be able to speak clearly or respond appropriately

d / Time
- If any of the signs are present, call 999 for emergency help
- If possible, record the time the symptoms first appear

2. Reassure the elderly and keep him or her comfortable

3. Monitor the level of responsiveness, breathing and pulse until help arrives

4. If the patient becomes unconscious, check for pulse and breathing and start CPR if necessary

Don'ts

Give the elderly anything to eat or drink

Remarks

Transient Ischemic Attack (TIA) is commonly known as a mini stroke by the lay public. The symptoms and signs are similar to those of stroke. However, the symptom and signs are often transient and the elderly may recover within 24 hours. TIA is associated with a high risk of stroke in the subsequent days and weeks. Those elderly with features suggestive of TIA should obtain immediate medical consultation despite the recovery from the initial symptoms and signs.

Seizure

Background

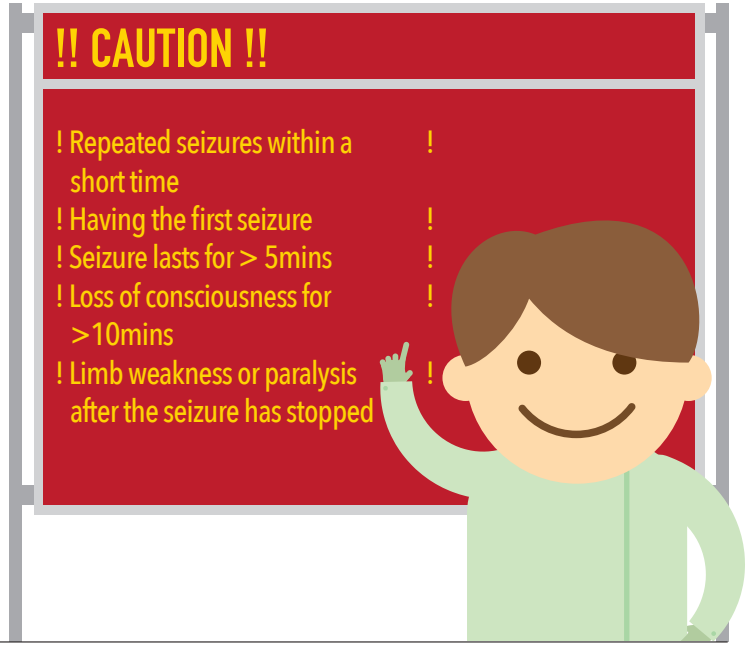
Seizure consists of involuntary muscle contractions due to disturbance in electrical activity of the brain. It presents with sudden loss of consciousness and jerking of the extremities in most cases. In rare cases, consciousness is preserved.

In elderly, the most common causes of seizure include epilepsy, Alzheimer's disease, stroke and medication. Seizure can also be caused by head injury, brain-damaging disease (neurodegenerative diseases, tumor, and infection), and lack of nutrients in brain (hypoglycemia, acute alcohol intoxication or drug withdrawal)

Symptoms and signs

- Sudden loss of consciousness
- Arching of back
- Breathing difficulty (grey-bluish lips, red and puffy face/neck)
- Convulsive movements (clenched jaw with noisy breathing, tongue-biting, drooling or foaming of saliva, facial twitching)
- Urine or bowel incontinence
- Tiredness and sleepiness after seizure

The elderly may have brief warning symptoms (aura) just before seizure, for example, strange dizzy feeling, and special smell/taste. He/she may regain consciousness in a few minutes, and may be unaware of the actions.



As a first aider

- Look for red flags and manage as medical emergency
- Protect the seizing elderly from injury
- Maintain a patent airway and smooth breathing during and after the seizure when the elderly is not fully conscious

Do's

1. Seek emergency medical help as soon as possible
2. Protect the elderly - clear away any potentially dangerous objects to prevent injury of the elderly, pad the area with clothing or pillows if the elderly is close to wall or hard objects, ask bystanders to keep clear
3. Protect the head and loosen tight clothing around neck
4. Lie the elderly down in recovery position (if not suspecting a spinal injury)
5. Monitor closely the responsiveness level and breathing; open airway
6. Note the time of onset and duration of seizure
7. Check for any injuries and apply necessary first aid

Don'ts

1. Move the elderly unnecessarily
2. ut anything in his mouth or attempt to restrain him or her during a seizure
3. Give food and drinks

Head Injury

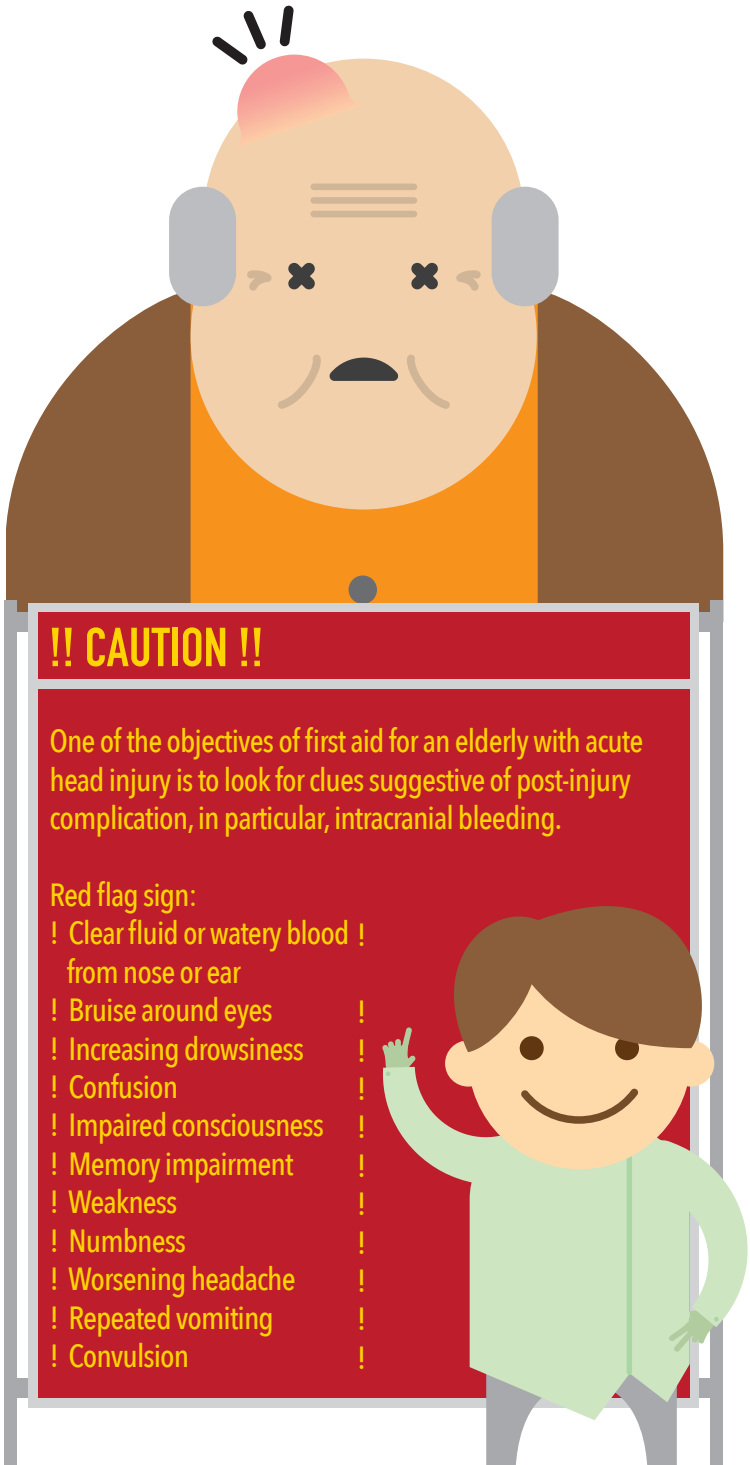
Background

Falls account for the majority of head injury cases in elderly. Serious head injuries are often a result of traffic accident. In the elderly, an apparently trivial head trauma may lead to complications not commonly seen in the young. Intracranial bleeding is the most worrisome complication. What's more important to note is the onset of the intracranial bleeding may be delayed and may go unrecognized for months until the elderly suddenly deteriorates or becomes symptomatic.

Symptoms and signs

It is usually not difficult to recognize the symptoms and signs of an acute head injury. There may be a wound or swelling on the scalp and the elderly may complain of pain. For those elderly who cannot express themselves properly, very often the injury is only incidentally noted.

The elderly with acute complication as a result of the head injury almost always appear unwell and may appear different from their usual status. On the other hand, those with delayed complication are difficult to recognize. Sometimes, they may be able to recall that there was a head injury or the injury was so trivial that they forget it. One of the most well-known delayed complication in the elderly is called 'subdural hematoma'. It means that there is blood collection beneath the dura covering the brain surface. The symptoms and signs are often subtle. For example, the elderly may appear more and more forgetful, with unexplained personality change or non-specific dizziness and headache. A high index of suspicion is needed.



As a first aider

- Look for the red flag signs
- Protect the elderly from further injury

Do's

For those with red flags or you are not sure about the clinical status of the injured elderly:

1. Seek emergency medical help immediately
2. Provide BLS if needed
3. Provide basic wound care if there is a wound
4. Regularly monitor the vital signs including responsiveness, breathing and pulse until medical help is available

For those without red flags and you are confident that the injured elderly is stable and well:

1. Observe for at least 24 hours from time of injury for any abnormal symptoms. Seek medical consultation as soon as possibleif there is persistent dizziness, worsening headache, repeated vomiting, twitching or anything that worries you.

Common Head Injury Symptoms / Post-Concussion Syndrome (PCS)

Physical Symptoms:	Cognitive Symptoms:	Behavioural Symptoms:
- Headache, Dizziness - Sensitive to noise & visual disturbance - Fatigue	- Memory problems - Poor concentration - Judgement problems	- Depression - Anxiety & Stress - Irritability

2. Ensure there is a responsible adult who can observe the elderly

Whenever there is doubt, seek medical consultation as soon as possible.

Don'ts

Give food and drink to the injured elderly with red flags.

Depression and Suicide

Background

Depression is one of the commonest psychiatric disorders in old age. Yet, it is frequently unrecognized. In Hong Kong, the prevalence of depressive disorders in elderly is 9.7%, compared to 8.4% in adults aged 18-65 years old.

Depression is a known risk factor of suicide, and suicide risk increases with age. The suicide rate in the general population of Hong Kong is around 10 to 13 per 100 000, whereas the rate in the age group of 65 and above is around 30 per 100 000, and in the age group of 75 or above is 50 per 100 000. The ratio of the male to the female suicide rate in the elderly is 1.3 to 1. Compared to other countries, the elderly suicide rate in Hong Kong is relatively high.

Symptoms and signs

According to the Diagnostic and Statistical Manual of Mental Disorders (DSM-V) of the American Psychiatric Association, the definition of depression is:

Anyone who has 5 or more of the following symptoms, including at least one of the first two symptoms, nearly every day for at least 2 weeks

- An usually sad mood
- Loss of enjoyment and interest in activities that used to be enjoyable
- Lack of energy and tiredness
- Feeling worthless or feeling guilty when they are not really at fault
- Thinking about death a lot or wishing to be dead
- Difficulty concentrating or making decisions
- Moving more slowly or sometimes becoming agitated and unable to settle
- Having sleeping difficulties or sometimes sleeping too much
- Loss of interest in food or sometimes eating too much

Risk factors

- Family history
- Being female
- Disability and illness (especially if serious)
- Old age home residents
- Bereavement
- Social isolation
- Chronic pain
- Sensory impairment (e.g. hearing or sight)

!! CAUTION !!

The most important red flag in a depressed elderly is suicidal tendency. It is commonly found in those institutionalized, or those with chronic illness or disability. The elderly suffering from depression may think that the future is so hopeless that suicide is the only way out. Following an attempted suicide, further attempts – and successful suicide – are common.

Suicidal tendency may be overt or covert.
Overt manifestations include:

! Intentional drug overdoses (opiates, antidepressants, paracetamol, benzodiazepines; more common in women) !

! Self-injury (hanging, shooting, jumping, drowning; more common in men) !

Covert features are especially common in older people, and include:

! Social withdrawal !

! Severe self-neglect !

! Refusal of food, fluid, or medication !

As a first aider

- Approach the depressed elderly and assess whether there is any immediate suicidal risk. Immediate suicidal risk is suggested by strong and frequent suicidal ideation or presence of a suicide plan. However, the absence of which is not equivalent to a lower risk. If the person has an immediate risk of committing suicide or the situation is beyond control, seek medical help immediately, or simply call 999.
- Provide emotional support to the person and encourage him or her to get appropriate professional help if there is no immediate risk.
- Whatever the situation is, always ensure that support and attention is readily available to the elderly.

Do's

1. Listen non-judgmentally.
2. Express empathy to the elderly.
3. Take every suicidal idea or expression seriously
4. Seek professional help whenever possible

Don'ts

1. Leave the elderly with suicidal risk alone. If you cannot stay with them, you must arrange someone else to do so, for example, a family member or friend who has agreed to help.
2. Ignore any idea of suicide, no matter how casual the elderly expresses it.

CARDIOVAS-CULAR SYSTEM

Hypertensive Emergency

Background

Hypertension is one of the most common chronic illnesses in elderly in Hong Kong. A study by the School of Public Health of the University of Hong Kong in 2012 revealed that about 1 in 3 adults in Hong Kong has hypertension, and almost 50% of elderly are suffering from the disease.

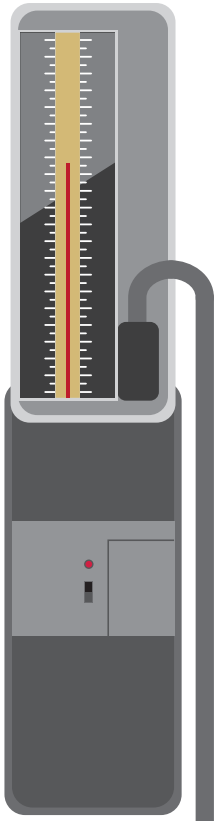
When the heart beats, blood is pumped into arteries. Blood pressure is the pressure against which blood pushes the arterial walls. Blood pressure readings are given in two numbers, written as 120/80 mmHg. The first number is called the "systolic pressure" or "upper pressure", which is the pressure exerted on the arterial walls when the heart contracts. The second number called the "diastolic pressure" or "lower pressure" is the pressure exerted on the arterial walls when the heart relaxes.

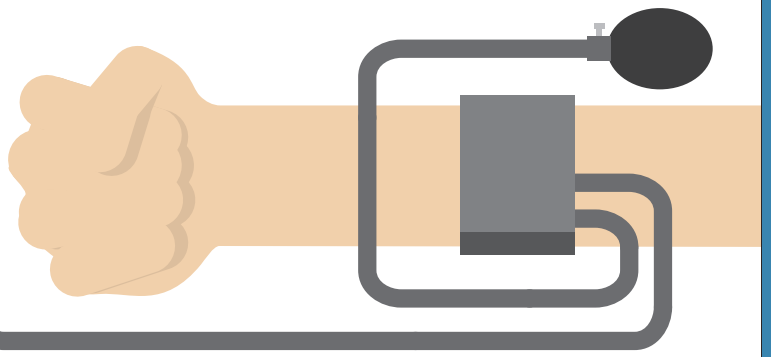
Hypertension is a reading of blood pressure greater than 140 (higher pressure) over 90 (lower pressure) mmHg with repeated measurements when the person is resting. Systolic hypertension is a common condition in elderly.

When blood pressure spikes to a dangerous level that can potentially cause organ damage and other complications in the body, it is a hypertensive emergency. The blood pressure has to be lowered to avoid imminent organ damage. High blood pressure can have adverse effects on the brain, heart, kidneys and eyes.

Hypertensive emergencies generally occur at blood pressure levels exceeding 180 systolic OR 120 diastolic, but can occur at even lower levels in people whose blood pressure has not been previously high.

In elderly, forgetting to take blood pressure medication and interactions between medications are the common scenarios to trigger hypertensive emergencies. Some, however, do not have any underlying causes.





Symptoms and signs

In most cases of hypertension, there are no symptoms present. However, in cases of hypertensive emergencies, the following signs and symptoms may occur:
- Severe chest pain
- Shortness of breath, that may be increasing
- Intense headache
- Nausea and vomiting
- Blurred vision
- Increasing confusion
- Numbness/weakness
- Difficulty speaking
- Seizures
- Tinnitus
- Fainting episodes
- Unresponsiveness

As a first aider

- Recognize the signs and symptoms of hypertensive emergency
- Seek emergency medical help

Do's

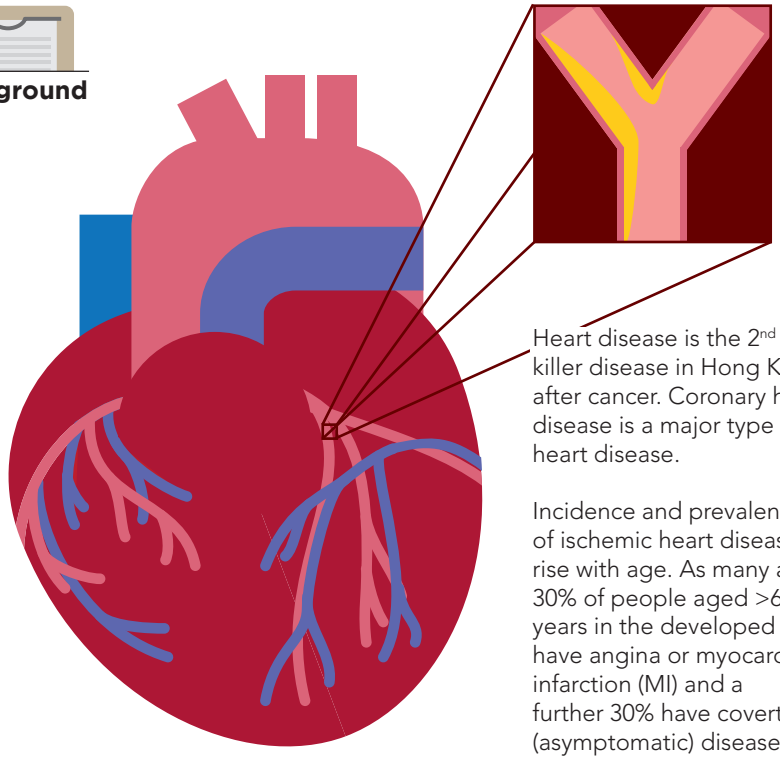
1. **If the elderly has BP > 180/120 mm Hg and with the above symptoms and signs:**
   - Seek emergency medical help
2. **If the elderly is unconscious:**
   - Check for airway, breathing and pulse and perform CPR if necessary
3. **If the elderly is conscious:**
   - Help the elderly into a comfortable position, usually sitting
   - Calm and reassure the elderly
4. **If the elderly is vomiting or having seizures:**
   - Put the elderly in recovery position to prevent aspiration and seek emergency medical help
5. **If the elderly complains of difficulty in breathing:**
   - Prop him/her up using pillows behind upper back and seek emergency medical help

Don'ts

Wait for the blood pressure to drop down on its own when symptoms occur

Angina

Background



Heart disease is the 2nd killer disease in Hong Kong after cancer. Coronary heart disease is a major type of heart disease.

Incidence and prevalence of ischemic heart disease rise with age. As many as 30% of people aged >65 years in the developed world have angina or myocardial infarction (MI) and a further 30% have covert (asymptomatic) disease.

Angina is a sensation of chest pain typically squeezing or pressure like due to ischemic heart disease. When the coronary vessels become narrowed, the blood supply of heart muscle may be impaired. This is aggravated on exertion when oxygen demand increases.

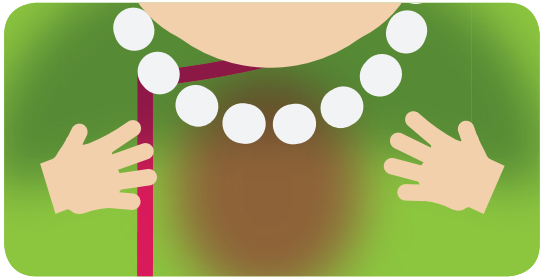
Heart attack occurs with severe occlusion of coronary vessel leading to heart muscle death. However, it is not unusual for the elderly to have silent ischemia.

Risk factors for cardiovascular diseases include hypertension, hyperlipidemia, diabetes mellitus, smoking and family history of angina or cardiac muscle infarction. The untreated ischemic chest pain can cause cardiac muscle infarction, complicated by sudden cardiac death, shock, acute decompensated heart failure or congestive heart failure.

Symptoms and signs

Ischemic chest pain

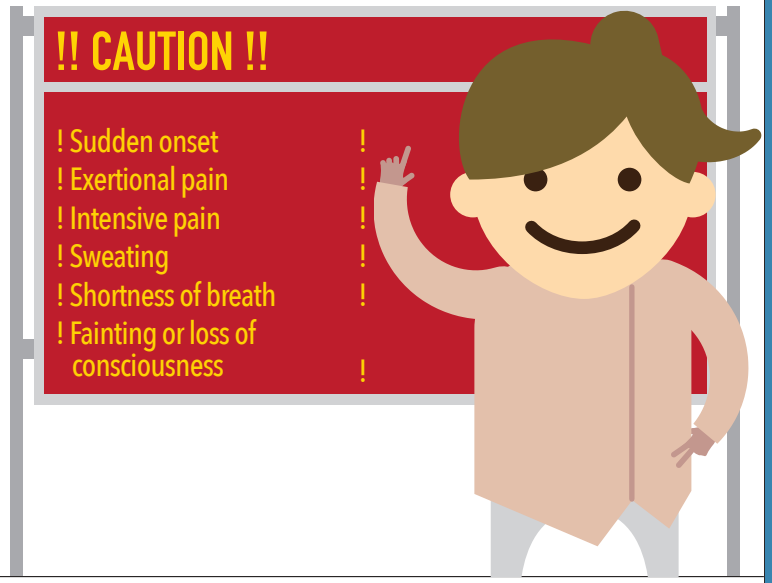
Angina Symptoms	
Site	Central Midline Chest Pain
Onset	Acute
Characteristics	Crushing or stabbing discomfort, chest tight, squeezing/pressure feelings
Radiation	Left Arm, Jaw, Neck



Associated Symptoms	Shortness of breath, sweating, tachycardia, anxiety, nausea and vomiting
Duration	Gradually increasing but usually fading away in 10 minutes
Exacerbating Factors	Exercise, stress and coldness
Relieving Factors	Resting and nitrate (antianginal medication)
Severity	Variable, from little pain to severe pain

Atypical chest pain

- Sharp or knife-stabbing like pain brought on by respiratory movements or cough
- Primary or sole location of discomfort in the middle or lower abdominal region
- Pain that may be localized at the tip of one finger, particularly over the left ventricular apex
- Pain reproduced with movement or palpation of the chest wall or arms
- Constant pain that persists for many hours
- Very brief episodes of pain that last a few seconds or less



As a first aider

- Assist the elderly to rest
- Seek emergency medical help
- Monitor the condition closely

Do's

1. **If the elderly is conscious**
   a / Assist the elderly in half-sitting position with support for the back and head.
   b / Assist the elderly to take sublingual nitrates (Nitroglycerin)
   c / Loosen any tight clothing
2. **If the elderly is unconscious**
   a / Put the elderly in recovery position
   b / Call 999
   c / Loosen any tight clothing
   d / Perform CPR if needed
3. **When in doubt, always call 999** in case of sudden severe chest pain

Don'ts

1. Leave the elderly alone
2. Wait to see if the symptoms subside
3. Give any medication (except cardiovascular medications) by mouth

Syncope

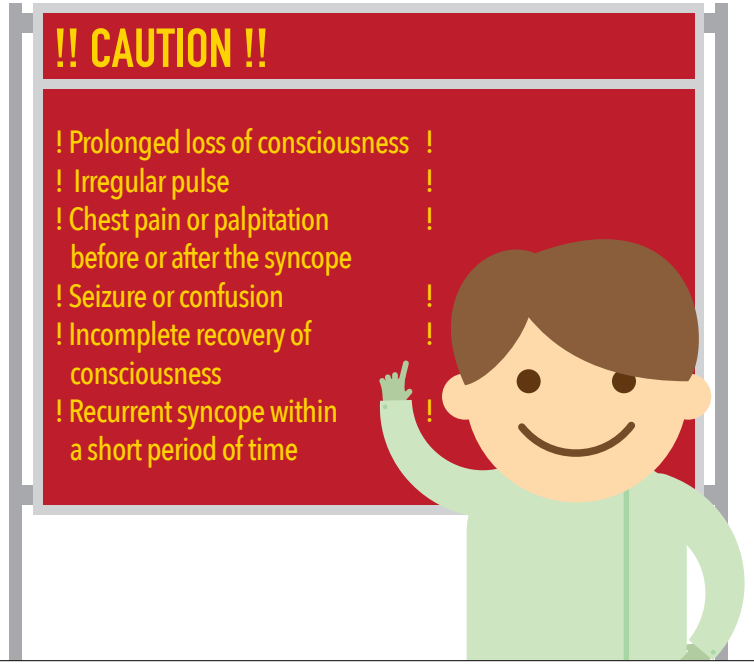
Background

Syncope is a sudden, transient loss of consciousness due to reduced and inadequate cerebral perfusion. The incidence of syncope increases with age. Some studies showed that as many as a quarter of institutionalized elderly had this problem and the recurrence rate could be as high as 30%. The elderly is unresponsive with a loss of postural tone (ie slumps or falls). In the majority of cases, they would regain consciousness spontaneously. Secondary injury like hip fracture may occur as the elderly loses consciousness and fall. Syncope is not a disease by itself. It is a manifestation of an underlying disorder that causes reduced cerebral perfusion. Some of the important causes are:

1. Transient hypotension caused by the upright posture, straining, or coughing which is exacerbated by low circulating volume (dehydration or bleeding somewhere), hypotensive drugs or concurrent illnesses. Orthostatic hypotension (lower blood pressure on standing than lying down) is the most common cause of syncope.
2. Vasovagal response to pain, fright, emotion leading to slowing of heart beat and then hypotension.
3. Heart diseases such as myocardial infarction, arrhythmia, and aortic stenosis (narrow aortic valve opening)

Symptoms and signs

- Loss of consciousness
- Pale, sweaty, absent or very weak carotid pulse
- Reduced muscle tone
- Possible tongue biting
- Possible incontinence
- Brief (few seconds) seizure activity
- Brief (minutes) period of confusion may occur
- Recovery is usually brisk and spontaneous



As a first aider

- Look for red flags and manage as medical emergency
- Stay with the elderly and prevent further injury until the elderly has regained full consciousness

Do's

1. Allow the syncopal elderly to lie supine until he or she is fully conscious
2. Consider raising the elderly's legs above heart level if postural hypotension is suspected
3. Maintain airway patency and smooth breathing when the elderly is unconscious
4. Loosen belts, collars or other constrictive clothing
5. Check for any injuries
6. For almost all elderly with syncope, medical consultation should be obtained as soon as possible

Don'ts

1. Sit the syncopal elderly up
2. Give the elderly food and drinks

Shock

Background

Shock means that cells cannot get enough oxygen and nutrients due to various causes. Shock is life-threatening and requires immediate medical treatment.

The outcome is more unfavourable in elderly because of poor body reserve in general.

Examples of shock and their causes

Types	Common causes
Hypovolemic Shock	Massive bleeding or dehydration
Cardiogenic Shock	Heart attack
Anaphylactic Shock	Food allergy, insert bite
Septic Shock	Severe infection

Any type of shock can be fatal.

Symptoms and signs

- Dizziness, drowsiness, confusion
- Chest discontent or tightness
- Shortness of breath
- Reduced urination
- Cold & clammy skin

**When shock is suspected, call 999 immediately. There is no effective way to handle shock at home. **

As a first aider

- Recognize the condition and manage as medical emergency

Do's

1. Seek emergency medical help Call 999 immediately
2. Have the patient lie flat. Raising the elderly's legs above heart level if possible to restore blood flow to the brain
3. Control any external bleeding
4. Keep the elderly warm
5. Monitor conscious level, breathing and pulse regularly until the emergency service arrives

Don'ts

1. Give the elderly any food or drinks
2. Leave the elderly alone

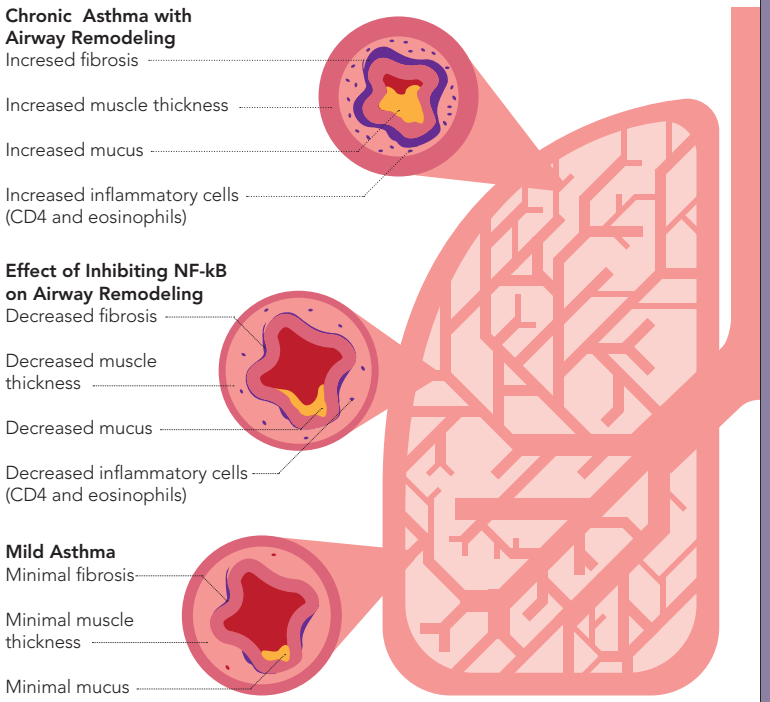
Acute Asthmatic Attack

Background

Asthma is a small airway disease that causes airway obstruction due to bronchoconstriction (constriction of the airway) and increased sputum production. It is most commonly triggered by allergens exposure.

Asthma among older adults are common and can be serious. Although many people have their first episode of asthma at young age, asthma can happen in any ages including elderly. Unlike their younger counterparts, the elderly are more likely to develop severe health problems (for example, respiratory failure) even during mild asthma attack. The condition rarely resolves itself and remains as a disabling disorder to the advanced age.

Diagnosis of asthma in elderly may be missed due to the masking effect from other illnesses, such as heart disease and emphysema. The less active lifestyle of elderly compared to a young person also lowers the chance of provoking acute asthmatic symptoms (e.g. wheezing and breathing problems).



The precipitants of acute asthmatic attack include:

Allergens
- Dust mites
- Pollen
- Animal Dander
- Perfume
- Medication such as aspirin

Exacerbation Factors
- Cold Weather
- Air Pollutants
- Smoking
- Emotional Stress
- Infection

Complications

Acute
- Pneumothorax
- Acute Respiratory Failure

Chronic
- Increase chances of infection of the lung

Symptoms and signs

- Productive cough with sputum, especially recurrent
- Wheezing or noisy breathing
- Shortness of breath
- Insucking chest wall
- Use of accessory muscles

As a first aider

- Provide symptomatic relief to alleviate bronchoconstriction
- Monitor closely to detect any deterioration

Do's

1. Administer bronchodilator if the elderly has one
2. Keep the elderly calm and comfortable
3. Position the patient upright and loosen all tight clothing
4. Seek emergency medical help if there is no bronchodilator or the elderly does not respond to the bronchodilator

Don'ts

1. Leave the elderly unattended
2. Delay medical consultation if the elderly does not improve promptly

Remarks

Emergency medication
Short Acting Bronchodilator (Salbutamol—blue bottle)

Dosage - Emergency Relief
Give 4-6 puff of bronchodilator, take 4-6 breaths between each puff

If the patient is still having asthma attack, repeat the above step after 4-6 minutes.

How to use a bronchodilator
1. Remove cap and shake the canister thoroughly
2. Hold the canister upright
3. Breathe out fully
4. Place mouthpiece between lips
5. Press the inhaler and inhale slowly and deeply simultaneously
6. Hold the breath for 10 seconds or more
7. Wait at least 1 minute before taking second dose

How to use a bronchodilator (with spacer)
1. Remove cap and shake the canister thoroughly
2. Insert the bronchodilator inhaler into the spacer
3. Breathe out fully
4. Place mouthpiece of the spacer between lips, ensure air tight
5. Press the inhaler and breathe normally for 5 breaths

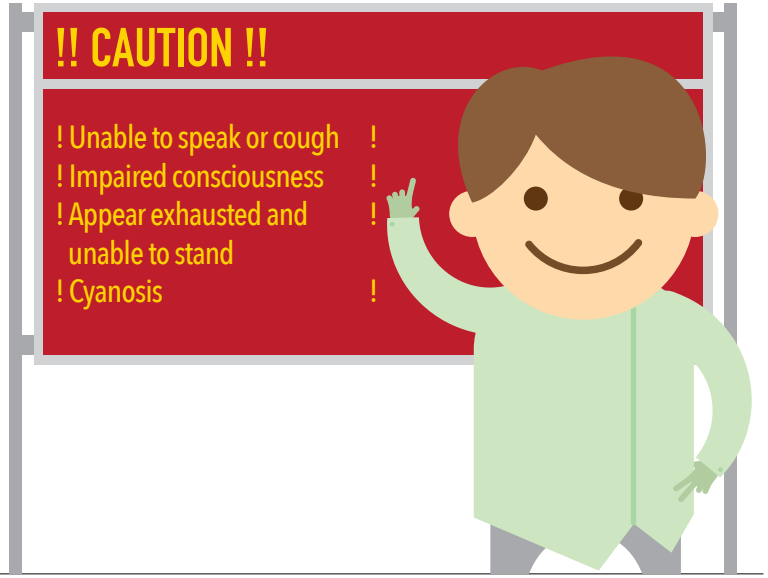
Choking

Background

Choking occurs when the elderly's airway is partially or completely blocked by a foreign body. The foreign body causing choking is commonly a food bolus, though it can be anything like a broken denture. The elderly is prone to choking for various reasons. Their chewing mechanism may be impaired because of dental problem. Swallowing is also affected because of pre-existing stroke. A demented elderly is also at risk because of loss of coordination of mastication and swallowing.

Symptoms and signs

During a meal,
- Sudden coughing
- Sudden shortness of breath
- Difficulty speaking
- Making high-pitched noise while breathing
- Clutching the throat with one or both hands



As a first aider

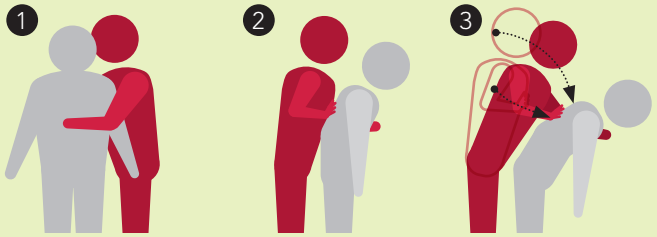
Apply standard maneuver to remove the foreign body

Do's

1. Call for help
2. **If the elderly is conscious and able to cough:**
   - Encourage the elderly to cough
   - Stay with the elderly and monitor
3. **If the patient is conscious but unable to cough or speak, or begins to exhaust:**

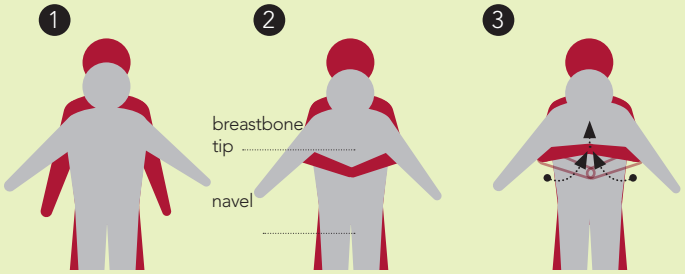
   a / Back blows

   1 Position yourself behind the elderly, place one arm diagonally across the chest
   2 Bend the elderly forward by 90 degrees
   3 Strike the back between shoulder blades with heel of the hand
   4 Repeat the above steps 5 times



b / Abdominal thrusts

1. Position yourself behind the elderly
2. Locate the elderly's navel
3. Make a fist and place it below breastbone tip and above navel
4. Grab the fist and give a quick upward thrust into the abdomen
5. Repeat the above steps 5 times



c / Perform the above 2 maneuver consecutively

4. **If the patient is unconscious:**

   a / Lower the patient to the ground
   b / Try to look for object obstructing the airway, if it can be seen, try to remove it with fingers
   c / If it cannot be seen, tilt the patient head and give 2 rescue breaths while checking chest rise
   d / Perform chest compression to a depth at least 2 inches at 100 compress /min of 5-6 cm at 100-120 beat / min compression to rescue breath ratio is 30 to 2
   e / Look for foreign object before delving of rescue breath. If it can be seen, remove it. If not, continue CPR.
   f / Repeat the above 3 steps until help arrives

Don'ts

1. Give the elderly any food or drink
2. Give the elderly vinegar to drink
3. Do finger sweep blindly

ABDOMEN

Abdominal Pain

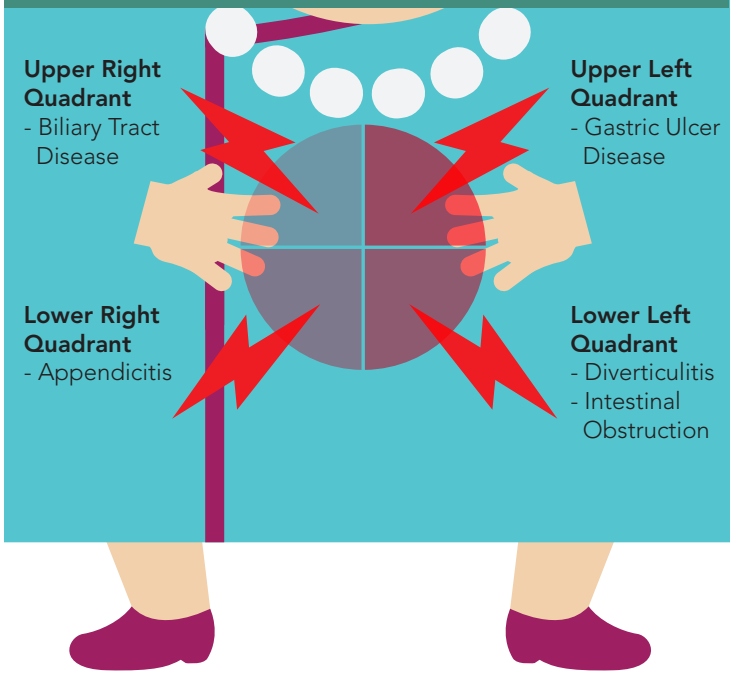
Background

Abdominal pain in an elderly can be caused by a variety of conditions. Most of the time, it is caused by simple food poisoning, gastroenteritis or cramps.

However, "acute abdominal pain", defined as an abdominal pain of less than 6 hours of onset, must be treated with caution. Elderly with acute abdominal pain often presents late to a hospital. Also, they usually present at a more severe stage and require hospitalization (50-60%) or surgical treatments (20-33%).

The following table shows the most common diseases causing acute abdominal pain in a person above 55 years of age:

By Location



Symptoms and signs

- Acute pain in abdomen

Abdominal pain can be accompanied by other symptoms in different diseases:

Diseases	Symptoms
Biliary tract infection (e.g. cholecystitis, cholangitis)	- Severe pain in the upper right quadrant (URQ) a few hours after meal, pain may radiate to the right scapula - Nausea - Vomiting - Tea colour urine - Fever - Shaking
Appendicitis	- Colicky pain around the belly button that shifts to the lower right quadrant usually after 6 hours - Nausea and vomiting - Constipation - Fever
Intestinal obstruction	- Colicky abdominal pain - Abdominal distension - Constipation - Vomiting
Peptic ulcer disease	- Pain in upper central/left abdomen - Pain comes and goes, lasts for days to weeks - Pain aggravated by spicy food & relieved by milk - Pain starts about 2 hours after meal
Diverticulitis	- Acute onset abdominal pain that shifts from below to umbilicus to the left lower quadrant - Vomiting - Fever

As a first aider

Recognize red flag signs and manage as medical emergency

Do's

1. Reassure the elderly and help him or her in a comfortable position
2. Sit him or her up if there is severe vomiting
3. Heat pad may help ease the pain
4. Seek emergency medical help in case of red flag symptoms or you are in doubt of the elderly's condition

Don'ts

Offer food or drinks if medical emergency is suspected (the elderly may require an emergency surgery)

Remarks

Generally speaking, abdominal pain is a non-specific symptom. It can be caused by benign and serious conditions. Atypical presentation is not uncommon in the elderly. Abdominal pain is no exception. For example, an elderly harboring a serious pathology may only experience mild abdominal pain initially and then suddenly deteriorates. We should never underestimate the seriousness of the symptom of abdominal pain in the elderly.

Vomiting

Background

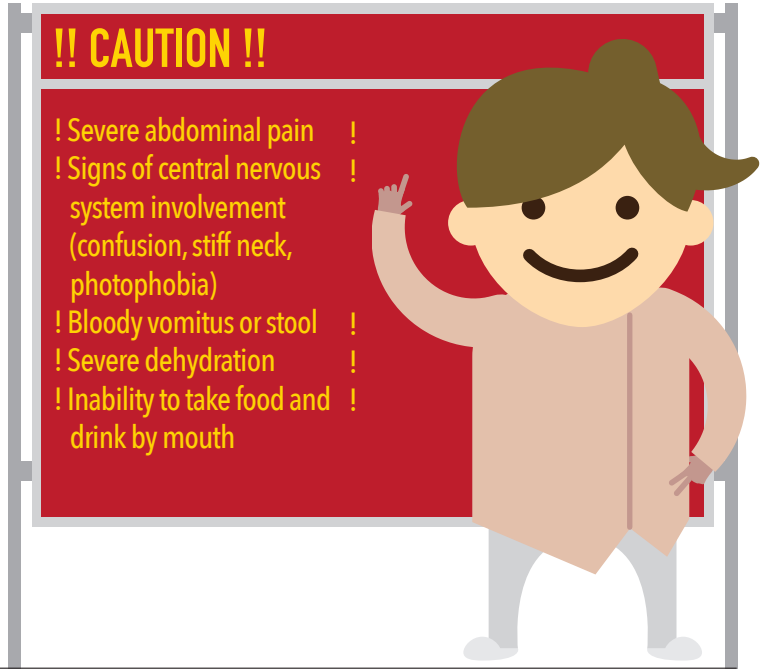
Vomiting is commonly caused by gastroenteritis, food poisoning and motion sickness. However, some conditions such as outbreak of norovirus in institutions, gastroesophageal reflux disease, appendicitis, intestinal obstruction, metabolic disturbance, head injury, cancer and many others can also cause vomiting. Drugs such as opioids and chemotherapy can induce vomiting. When caring for a vomiting elderly, it is important to prevent dehydration and look out for underlying causes.

Symptoms and signs

Vomiting can be accompanied by various symptoms of different diseases:

Diseases	Symptoms
Viral gastroenteritis, food poisoning	- Watery diarrhea (usually non-bloody – bloody diarrhea may indicate a more severe infection) - Abdominal cramps and pain - Nausea - Fever
Motion sickness	- Uneasiness - Cold sweat - Dizziness
Intestinal obstruction	- Abdominal pain - Nausea - Constipation - Inability to have a bowel movement or pass gas - Abdominal distension
Appendicitis	- Colicky pain around the belly button that shifts to the lower right quadrant usually after 6 hours - Nausea and vomiting - Constipation - Fever

Diseases	Symptoms
Biliary tract infection	- Severe pain in the URQ a few hours after meal, pain may radiate to the right scapula - Nausea - Tea colour urine - Fever - Shaking
Diverticulitis	- Acute onset abdominal pain that shifts from below to umbilicus to the left lower quadrant - Fever
Peptic ulcer	- Vomiting of blood (may be red or black), dark blood in stools or tarry stool if complicated by bleeding - Nausea - Unexplained weight loss - Change in appetite
Gastroesophageal reflux disease	- Acid regurgitation - Heartburn sensation - Chest pain - Difficulty in swallowing - Dry cough - Hoarseness or sore throat
Diabetic acidosis	- Excessive thirst - Frequent urination - Nausea - Abdominal pain - Fruity breath - Shortness of breath - Confusion
Head injury	- Loss of consciousness - Confusion or disorientation - Headache - Nausea - Drowsiness - Dizziness or loss of balance - Sensory changes (e.g. blurring of vision, ringing in ears, changed smell or taste, increased sensitivity to light or sound) - Memory or mood changes



As a first aider

- Recognize red flag signs and manage as medical emergency
- Relieve the patient's symptoms by antiemetic medication and maintain hydration if no serious causes are suspected

Do's

1. In case red flag signs occur, seek emergency medical help
2. In simple vomiting,
   a / Advise the elderly to rest
   b / Give clear fluid (water, unsweetened fruit juice) frequently in small amount
   c / Give easy-to-digest food (congee, banana, potato)

Don'ts

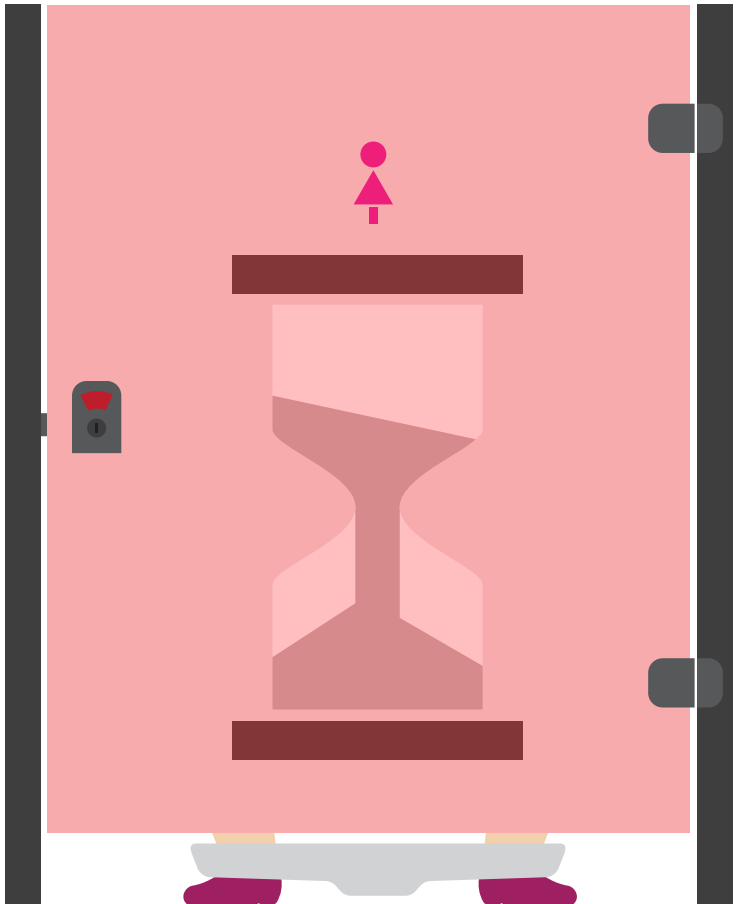
Give solid food

Constipation

Background

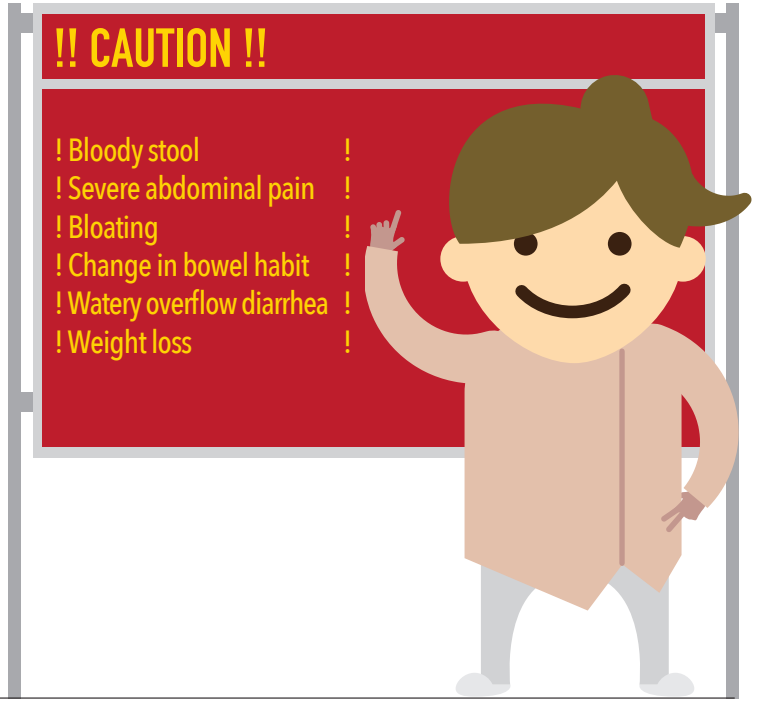
Constipation refers to difficulty in passing stools. It can be caused by inadequate fiber or fluid intake, inadequate physical activities, intestinal diseases or diseases such as overactive parathyroid, scleroderma (a connective tissue disease), Parkinsonism, stroke and diabetes. Medications such as antacid and overuse of laxatives can also cause constipation.

Constipation can be complicated by fecal impaction, in which the rectum becomes filled with large, dried and hardened masses of stool that cannot be passed. It may be further complicated by precipitating urine retention.



Symptoms and signs

- Sense of incomplete evacuation
- Hard and small stool
- Swollen abdomen
- Abdominal pain



As a first aider

- Recognize red flag signs as well as fecal impaction and manage as medical emergency
- Relieve the patient's symptom by laxative for simple case

Do's

1. Increase fluid intake (extra 2 to 4 glasses of water per day)
2. Drink warm liquid in the morning
3. Increase fiber intake (fruit, vegetables and cereal)
4. Use mild stool softener or laxatives for NO LONGER than 2 weeks

Don'ts

Attempt to dislodge an impacted stool with your fingers at home

Dehydration

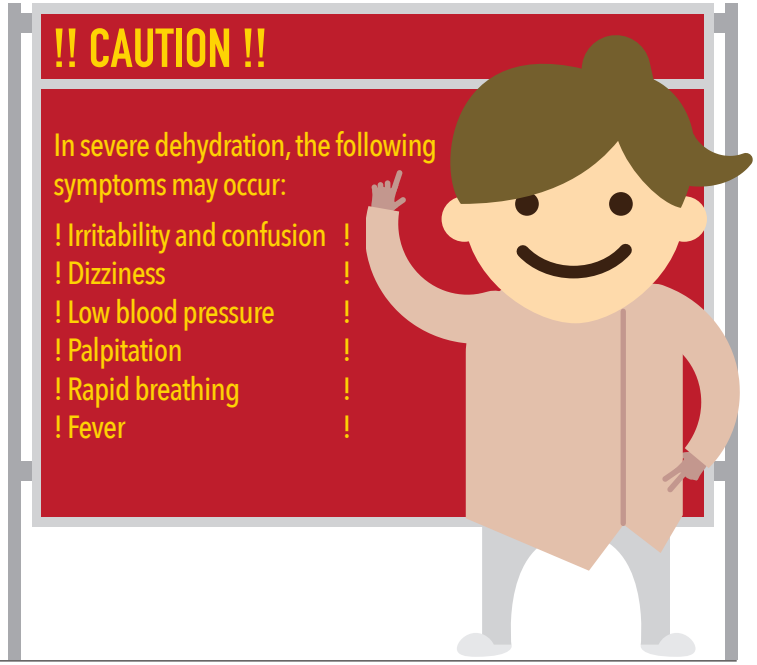
Background

If the excess water loss from vomiting and diarrhea is not promptly replenished, an elderly may develop dehydration. Dehydration can begin to develop when a person loses as little as 1% of his body weight through fluid loss. Without prompt treatment, the elderly may develop shock.

Common causes of dehydration include excessive sweating (exercise, fever, hot weather), diarrhea, vomiting and excessive urine output due to medical conditions. Elderly with chronic diseases such as diabetes, heart failure, and kidney diseases is prone to dehydration. Hot humid weather, physical disability and negligence by caretaker are also risk factors.

Symptoms and signs

- Dry mouth & dry eyes
- Dry and/or cracked lips
- Thirst
- Headache (lightheadedness)
- Dark urine
- Reduced urine output
- Cramping



As a first aider

- Recognize red flag signs and manage as medical emergency
- Rehydrate and monitor hydration status

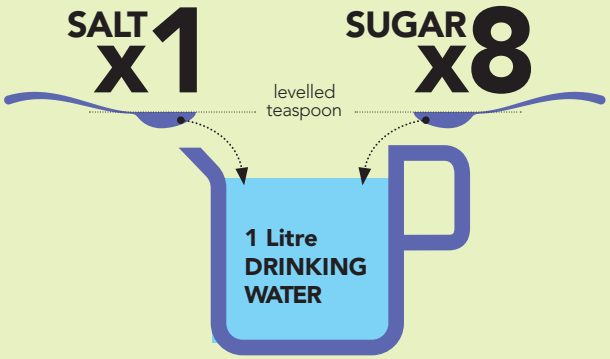
Do's

1. Give fluid to drink. Water is usually sufficient but oral rehydration solutions can help with salt replacement.

   Oral Rehydration Salt
   Oral rehydration therapy is the administration of fluid by mouth to prevent or correct the dehydration that is a consequence of diarrhoea. In addition to water replenishment, oral rehydration solution is designed to replace the lost ions and correct any underlying acid-base imbalance due to excess water loss. Oral rehydration salts are available commercially. Alternatively, they can be prepared at home with simple ingredients. When preparing oral rehydration solution, you MUST follow the instructions on the packet. Adding too much or too little water may worsen the patient's condition.

How to make Oral Rehydration Solution from Salt & Sugar

a / Wash your hands
b / Measure **1 litre of drinking water** into a clean container
c / Measure **1 levelled teaspoon of SALT** and **8 levelled teaspoons of SUGAR** into the water. (A levelled teaspoon is where the salt or sugar is **FLAT** in the spoon, **NOT piled up**)
d / Mix the salt and sugar into the water well until you cannot see the salt or sugar at the bottom of the container
e / Taste the solution. It should never taste very salty. **DO NOT boil up** this solution once it is made up
f / Give the drink to the elderly with diarrhoea



Treatment should continue until the diarrhea stops. Patients should be allowed to drink freely as they need. Rehydration is generally adequate when the person no longer feels thirsty and has a normal urine output

2. Perform stretching & massage to relieve muscle cramps
3. Monitor the input output balance and hydration status of the elderly
4. Seek medical attention immediately if the condition does not improve

Don'ts

Consume milk or milk products, alcohol and caffeine

PELVIS AND PERINEUM

Acute Retention of Urine

Background

Urinary retention is the inability to empty the bladder. Urinary retention can be acute, chronic or acute on chronic.

Acute urinary retention in men becomes more common with age and peaks at their 50s-60s. In men 40 to 83 years old, the overall incidence of urinary retention is 4.5 to 6.8 per 1,000 men. For men in their 70s and 80s, the overall incidence increases to 100 per 1,000 men and 300 per 1,000 men. The risk factors for male urinary retention are kidney stones, prostatitis, benign prostate hypertrophy, and prostate cancer.

In female, acute urinary retention is less common. It can happen if the bladder sags or moves out of the normal position (cystocele) or is pulled out of position by a sagging of the lower part of the colon (rectocele). The risk factors for female urinary retention are history of kidney stones, history of urinary tract infections, and those with recent gynecological surgery.

The causes of acute urinary retention can be classified into extramural, mural and intraluminal.

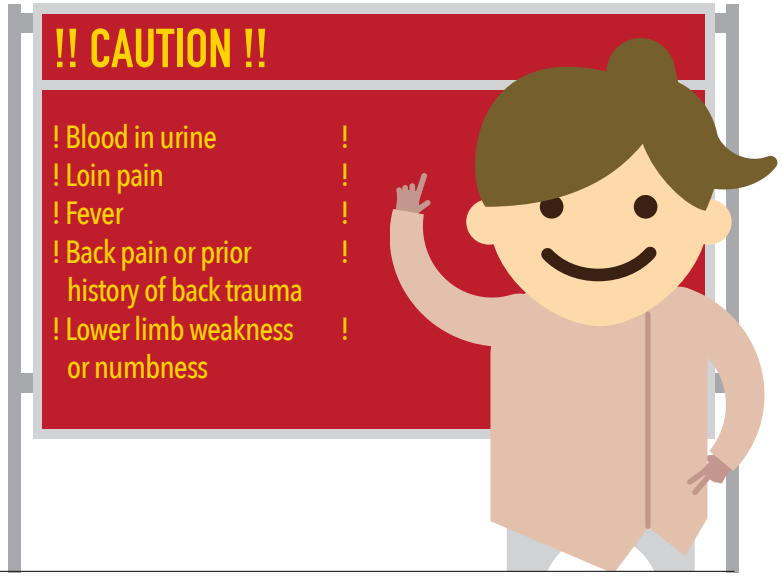
Extramural obstruction can be caused by an enlarged prostate in male, any pelvic masses pressing against the bladder or urethra and constipation.

Mural causes can point to weak bladder muscle or masses arising from the bladder wall. Intraluminal causes include stones in urethra, urethral stricture and tumor at bladder neck or urethra. Acute urinary retention can also be caused by urinary tract infections leading swelling or irritation, nervous problems interfering with signals between the brain and the bladder, spinal cord problems and medications such as those used in flu, cough or nausea and vomiting.

In most cases, the bladder has to be drained by passing a small catheter through the urethra in the emergency department. At the same time, any known precipitating factors have to be corrected, like the medications mentioned above have to be stopped. In other cases where a reversible factor is found, a catheter may not be required. For example, if the urinary retention is caused by fecal impaction, the elderly should be able to pass urine once he or she opens the bowel.

Symptoms and signs

- Inability to urinate
- Painful, urgent need to urinate
- Dribbling of urine
- Pain or discomfort in the lower abdomen
- Bloating of the lower abdomen



As a first aider

Recognize the condition and manage it as medical emergency

Do's

1. Help the elderly to take a posture most comfortable to him or her
2. Seek emergency medical help

Don'ts

1. Continue medication that might worsen the retention
2. Drink plenty of water
3. Try to urinate forcefully

Urinary Tract Infection

Background

An urinary tract infection (UTI) is an infection in any part of the urinary system — kidneys, ureters, bladder and urethra. Most infections involve the lower urinary tract — the bladder and the urethra. Women are at greater risk of developing a UTI than men. Infection limited to bladder can be painful and annoying. However, serious consequences can occur if a UTI spreads to kidneys and blood stream.

The annual incidence of UTIs in the elderly is around 10% and it may be as high as 30% for those living in nursing homes and other institutions.The mortality rate in bacteremic elderly patients with UTI is as high as 33%.

In severe urinary tract infection, other systemic manifestations may arise, including high fever, shaking and chills, nausea, vomiting, palpitation, dizziness and even collapse. It can also be complicated by kidney damage and renal failure.

Symptoms and signs

Different types of UTI may result in different signs and symptoms, depending on the part of urinary tract affected.

Part of urinary tract affected	Signs & Symptoms
Kidneys (acute pyelonephritis)	- Pain at upper back and flank
Bladder (cystitis)	- Pelvic pressure - Lower abdomen discomfort
Urethra (urethritis)	- Burning sensation with urination

Urinary tract infections don't always cause signs and symptoms, but when they do they may include:
- A strong, persistent urge to urinate
- A burning sensation when urinating
- Passing frequent, small amount of urine
- Urine that appears cloudy
- Urine that appears red, bright pink or cola-colored — a sign of blood in the urine
- Smelly urine
- Pelvic pain, in women

HIGH FEVER

As a first aider

- Recognize red flags and manage it as medical emergency
- Consult family doctor early if there is symptom of UTI

Do's

1. Seek emergency medical help call 999 in case of severe infection with systemic symptoms. For a severe UTI, you may need treatment with intravenous antibiotics in a hospital
2. Give paracetamol as indicated to lower body temperature and decrease pain
3. Take the entire course of antibiotics prescribed by doctor to ensure that the infection is completely gone
4. Drink plenty of water to dilute urine and keep bladder empty
5. Wipe from front to back after urinating and after a bowel movement in female. This helps to prevent bacteria in the anal region from spreading to the vagina and urethra

Don'ts

1. Use potentially irritating feminine products. Using deodorant sprays or other feminine products, such as douches and powders, in the genital area can irritate the urethra
2. Drink coffee, alcohol, and soft drinks containing citrus juices and caffeine until your infection has cleared

Background

Fever means a persistently elevated core body temperature above the normal daily variation.

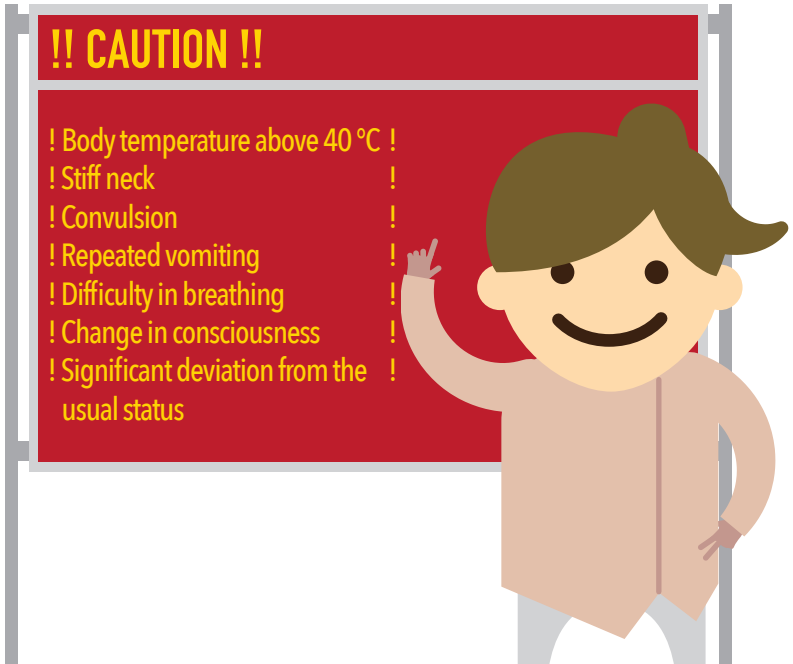
There are different set points for different methods of measurement.

Method of measurement	Set points for fever
Measured rectally	> 38°C (> 100.4°F)
Measured in the ear	> 38°C (> 100.4°F)
Measured orally	> 37.5°C (> 99.5°F)

Common causes for fever include:
- Infection e.g. influenza, gastroenteritis, urinary tract infection
- Inflammation e.g. autoimmune diseases, inflammatory joint diseases.

Symptoms and signs

- Shivering or feeling cold
- Sweating
- Muscle pain



As a first aider

- Recognize hyperpyrexia and red flag symptoms (see above)
- Lower the body temperature
- Seek medical advice if there are any concerns about the elderly's condition.

Do's

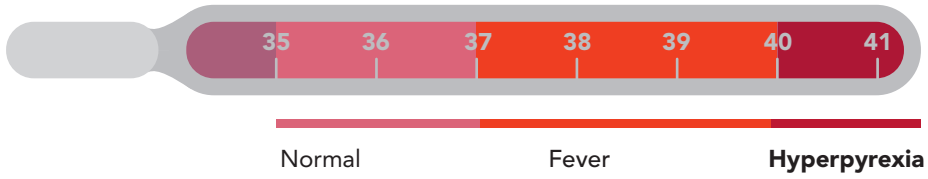
1. Give the elderly enough water to drink to maintain hydration
2. Dress lightly
3. Take a lukewarm bath to help lowering the body temperature
4. If the situation has not improved or has worsened, seek further medical help
5. Medications, e.g. ibuprofen and paracetamol, may be taken as instructed by doctor
6. If in doubt, seek emergency medical help

Don'ts

1. Wrap the elderly with too many clothes or thick blankets, as this will further increase the elderly's body temperature

Remarks

Hyperpyrexia
Hyperpyrexia is a fever with a body temperature above 40 °C. It may indicate a serious underlying condition, Furthermore, it may lead to confusion, seizure and organ failure. This is a medical emergency and further help should be sought.



EXTREME TEMPERATURE - TOO HOT

Heat Exhaustion

Background

Heat exhaustion occurs when a person exposed to a hot environment and sweating cannot dissipate the heat generated within the body. It may also occur if a person lives in a hot environment without adequate air circulation and does not drink an adequate amount of water.

The elderly are at a greater risk for heat exhaustion because of their underlying medical conditions (for example, poor circulation, skin changes, and chronic medication usage) which may limit the ability to sweat.

The risk factors for heat exhaustion in elderly include extreme hot weather, medications (such as antidepressants, antipsychotics, and tranquilizers which may impair the ability of the body to sweat), alcohol consumption, and overweight.

Symptoms and signs

- Excess sweating
- Headache
- Dizziness
- Confusion
- Nausea & vomiting
- Muscle weakness and cramps
- Rapid, weak pulse

!! CAUTION !!

! Signs of progression into heat stroke !

As a first aider

- Lower body temperature
- Replace body water and salts

Do's

1. Stop any physical activity immediately
2. Rest in a cool, shaded area
3. Provide casualty with cool electrolyte water and sports drinks
4. Monitor casualty's level of response, hydration status
5. Seek further medical help if casualty does not recover, unable to drink or whenever you are in doubt

Heat Stroke

Background

Heat stroke is a medical emergency. It is the most severe form of heat illness in which the body temperature of a person is greater than 40.6 °C (105.1 °F). Due to environmental heat exposure the body temperature can rise rapidly and may lose its ability to cool down by sweat. When the body temperature reaches 40°C, the hyperthermia effect with systemic involvement including central nervous system will result. Heat stroke can cause death or permanent disability if not treated promptly.

Elderly are more vulnerable to hyperthermia as their adaptation ability to sudden changes in temperature is reduced with ageing. In addition, they are more likely to suffer from chronic medical conditions and receiving medications that can change normal body responses to heat.

Hot and humid weather, dehydration and poorly ventilated room are the risk factors for heat stroke in elderly.

Symptoms and signs

- Hot, dry skin
- Lack of sweating
- Headache
- Dizziness, drowsiness, obtundation
- Confusion, seizure
- Nausea & vomiting
- Muscle weakness and cramps
- Rapid, weak pulse

As a first aider

- Recognize the condition and manage as medical emergency in all cases of heat stroke
- Cool down the temperature of the elderly
- Rehydrate the elderly

Do's

1. Seek emergency medical help, call 999 immediately
2. Rest in a cool, shaded area
3. Remove unnecessary clothing
4, Cool the elderly by fanning or wetting the skin with water
5. Rehydrate patient orally only if fully conscious and able to swallow
6. Monitor the elderly's level of response until help arrives

EXTREME TEMPERATURE - TOO COLD

Hypothermia

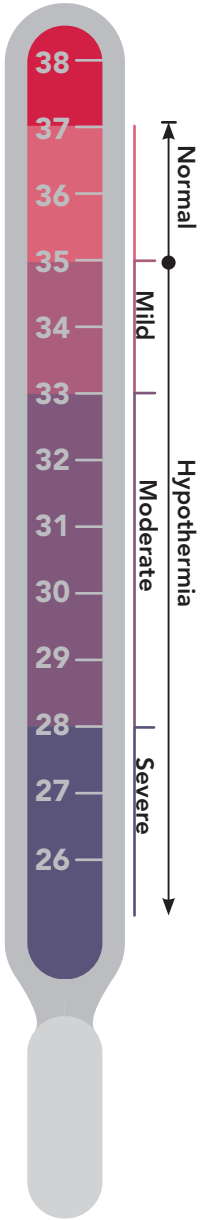
Background

Hypothermia is defined as having a core body temperature below 35 °C (95 °F). It is most commonly caused by prolonged exposure to low temperature and inadequate clothing in cold weather. It can also be caused by impaired thermoregulation mechanism of the body.

Elderly are vulnerable to hypothermia since they are more likely to suffer from chronic medical conditions and receiving medications that can change normal body responses to change of temperature. Hypothermia can develop in elderly after relatively short exposure to cold weather or even a small drop in temperature.

Every year there are 10-20 cases of severe hypothermia among the elderly in Hong Kong.

The risk factors for hypothermia in elderly include chronic illnesses (such as diabetes and hypothyroidism), reduced mobility (for example, due to stroke or Alzheimer's disease), starvation, malnutrition, alcohol or drug abuse (such as sleeping pills, opioids).

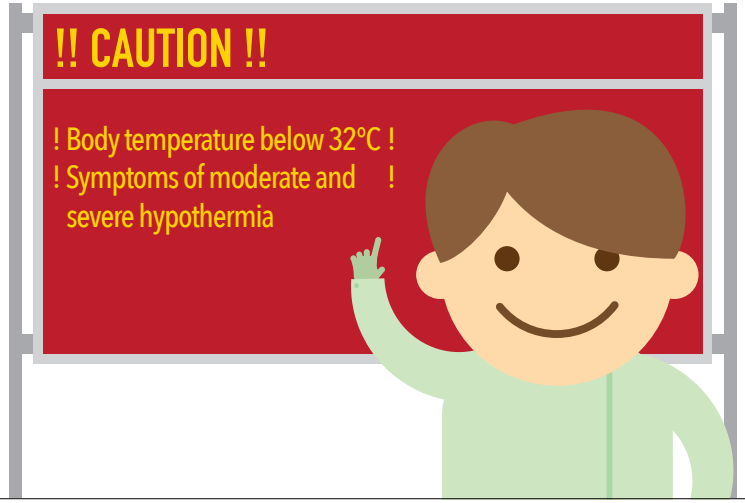


Symptoms and signs

Mild Hypothermia (33-35°C / 91.4-95°F)
- Shivering
- Hypertension
- Fast pulse
- Rapid breathing

Moderate Hypothermia (28-32°C / 82.4-89.6°F)
- Vigorous shivering
- Cold, pale skin
- Slurred speech

Severe Hypothermia (<28°C / <82.4°F)
- Shallow and slow breathing
- Weak and slow pulse
- Confusion
- Shivering may stop
- Unconsciousness



As a first aider

- Recognize red flag signs of moderate or severe hypothermia and manage as medical emergency
- Prevent further heat loss
- Re-warm the elderly slowly

Do's

1. Seek emergency medical help ,call 999 immediately in case of red flag signs occur
2. For unconscious elderly, check airway, breathing and circulation, perform CPR if no breathing and pulse
3. If the elderly is conscious, give warm drinks and high energy food
4. Rest the elderly in a warm & dry place
5. Remove any wet clothing
6. Wrap the elderly with blankets, make sure the head is covered as well
7. Measure body temperature using a low-reading thermometer
8. Rectal measurements are more accurate than oral measurements

Don'ts

1. Give the elderly alcohol
2. Place the elderly directly next to any heat source

EAR NOSE THROAT

Nose Bleeding

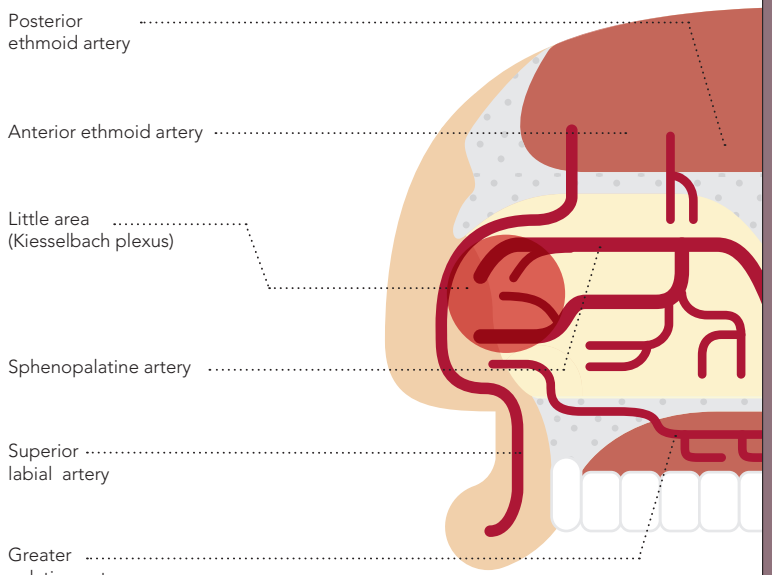
Background

Bleeding can arise from any part of the nasal cavity. The most common site of bleeding is from the anterior part of the nasal septum. The so-called Little's area.

It bleeds when tiny blood vessels on the mucosal surface of the nostrils rupture. Very often, it is a result of trauma like nose pricking or forceful sneezing. Sometimes it is a symptom of another disorder. For instance, nose bleeding may be a manifestation of high blood pressure. Of course, the most worrisome cause is malignancy. Among southern Chinese, nasopharyngeal cancer is a diagnosis every doctor would consider.

Elderly commonly experience nasal bleeding. Some statistics showed that they accounted for 29-50% of cases of nasal bleeding. In the elderly with nasal bleeding, a secondary cause must be sought especially if the bleeding is unprovoked.

Nose bleeding becomes an emergency when it is not controlled by simple pressure or it is prolonged and massive. An elderly may become very ill if a lot of blood is lost from nasal bleeding. Massive blood loss from the nose can lead to death.



Below are some of the causes of nose bleeding:

Local causes
- A blow to the nose
- Sneezing, picking or blowing the nose
- Rhinitis
- Tumor (rare)

Systemic causes
- Bleeding disorder, use of anti-clotting drugs (eg: aspirin, NSAIDs, warfarin, Plavix)

It is associated with older age, hypertension and dry weather.

Symptoms and signs

- Bleeding from nostril, on one side or both
- Blood stained sputum and saliva when blood from the nose drips down to the pharynx posteriorly
- Nausea and vomiting if a lot blood is swallowed
- Bloody tear because of the communication between the nose and eyes via the nasolacrimal duct
- Dizziness and other signs of blood loss, especially the amount of blood loss is great

!! CAUTION !!

! Nasal bleeding that is unprovoked, prolonged, recurrent, or massive !

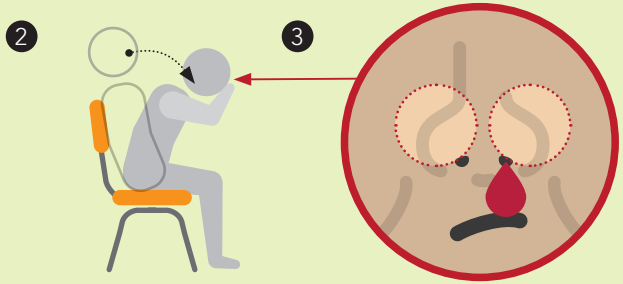
! Associated symptoms of abnormal nasal discharge, hearing impairment, headache and neck swelling !

As a first aider

- Stop or reduce blood loss
- Maintain a patent airway and avoid aspiration of blood

Do's

1. Reassure and keep the elderly calm
2. Sit the elderly up and tilt the head forward to allow the blood to drain from nostrils
3. Ask the elderly to breathe through mouth and pinch the soft parts (just below the nasal bridge) of nose for up to 10mins. Do it by the first aider if the elderly is unable to pinch his or her nose



4. Use a clean cloth or tissue to mop up any dribbling
5. If bleeding continues, re-apply pressure for another 10 minutes
6. Once bleeding stops, patient remains leaning forward and cleans around the nose with lukewarm water
7. Seek medical help if bleeding cannot be stopped by local pressure for around 20 minutes
8. Arrange medical consultation if there are associated symptoms mentioned above

Don'ts

Let the elderly tip the head back since blood may then run down the throat and induce vomiting or choking

These books are funded by the grant from the 'We Are with You' project. This grant allowed us to convene a series of basic life support workshops, exhibitions and talks to the public, and these two books reflect our vision to serve the community, especially the old and the underprivileged, with our knowledge and expertise in Emergency Medicine. We would like to acknowledge and thank all the students of the Emergency Medicine Interest Group for their devotion to serve others and making these two books a success.

KL Fan
LP Leung