

BLEEDING, SHOCK, POISONING..

FN Brno, October 2010

Overview

- Bleeding
- Shock
- Allergic reactions
- Poisoning
- Snake and insect bites
- Diabetic emergencies

BLEEDING



BLEEDING

- Arterial
- Venous
- Capillary

- Mixed

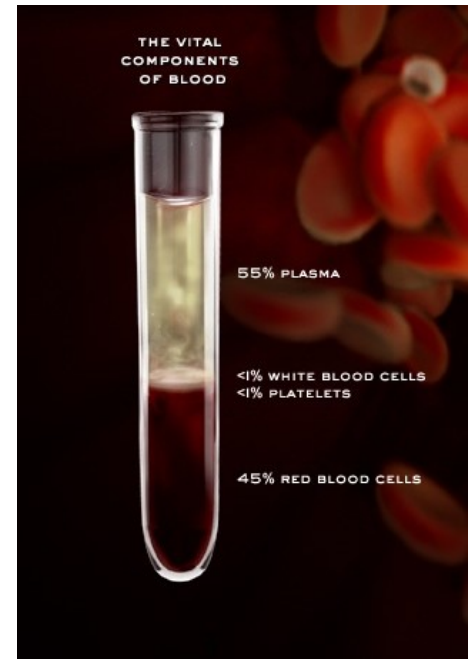


BLEEDING

- External
- Internal
- Trauma
- Spontaneous

BLEEDING

- Adults are 60% fluid by weight
- Only 13% of this fluid is located in bloodstream
- Acute loss of 40% of the blood volume can be fatal
- Blood:
 - 60% plasma fraction
 - 40% erythrocyte volume



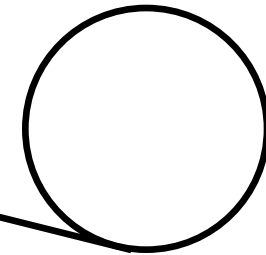
Severe bleeding - first aid

- Often arterial
- Apply direct pressure over wound
- Raise and support injured arm
- Prevent and minimize effects of shock

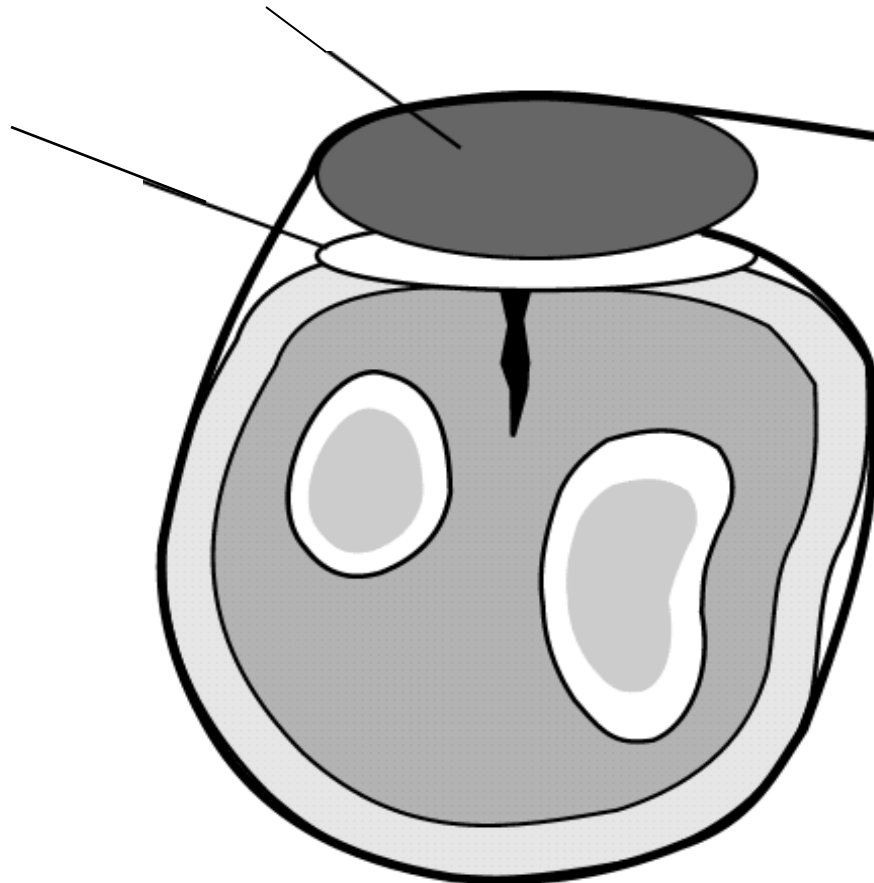


Arterial bleed - pressure dressing

Thick dressing of gauze

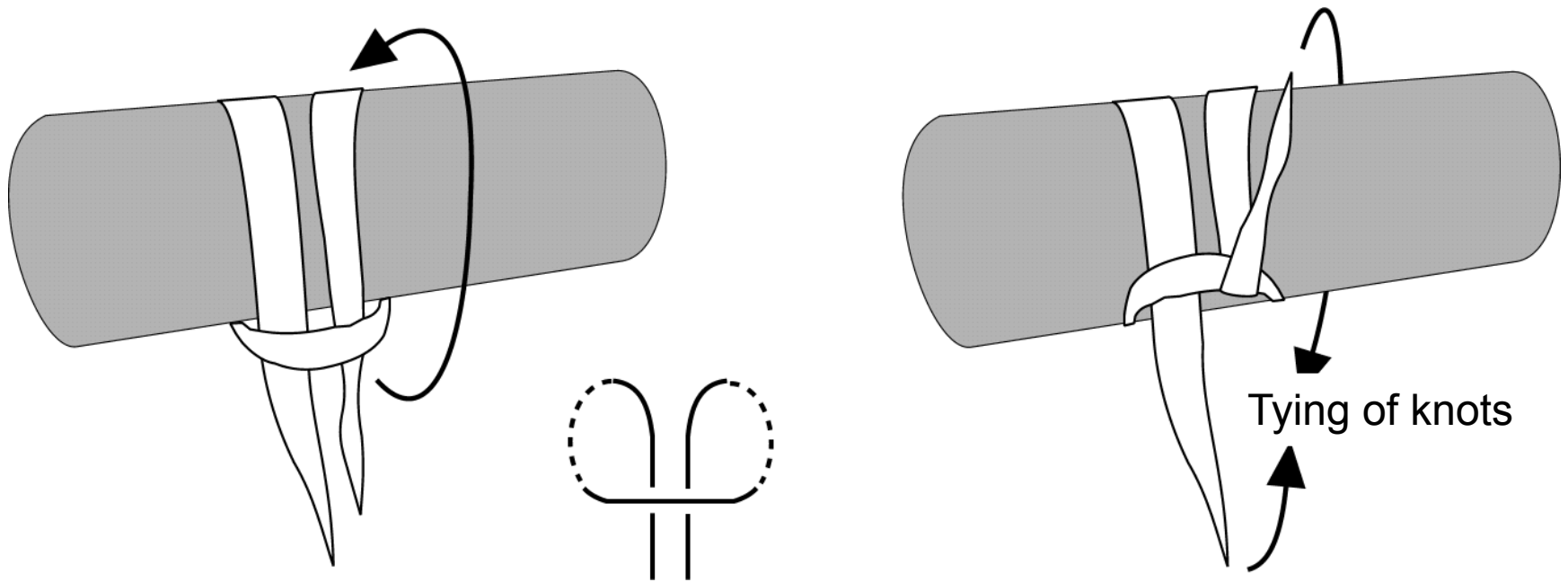


Bandage



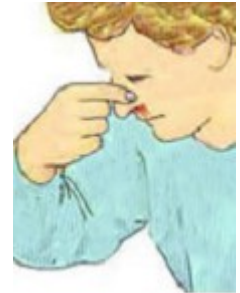
Sterile cover

Severe bleeding - amputation



Application of tourniquet

Nosebleed



- Rupture of blood vessels (sneezing, picking, blowing the nose)
- High blood pressure
- Tilt head forward – allow the blood to drain
- Breathe through mouth
- Pinch the soft part of the nose, keep pinching (10 min)
- After 10 min. release the pressure

Bleeding from the ear

- Connected with trauma
- Half sitting position
- Head tilted to the injured side – allow blood to drain away
- Sterile dressing or a clean pad in place on the ear
- Send to hospital

Bleeding from the mouth

- Cuts the tongue, lips
- Dental extraction
- Blood may be inhaled into the lungs!
- Sitting position, head forward
- Allow blood to drain from the mouth
- Place a gauze pad over the wound, hold the pad and press on the wound for 10 min.

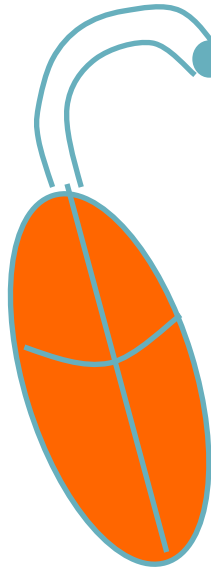


SHOCK

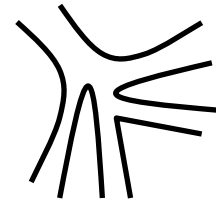


Tissue perfusion inadequate for the metabolic needs of the patient

Basic Physiology



**2. Pressure drives blood flow
(cardiac output)....**



**3. Through a tight network of vessels
providing a resistance**

1. Pump generates blood pressure



```
graph TD; SHOCK[SHOCK] --- H[Hypovolemic]; SHOCK --- C[Cardiogenic]; SHOCK --- S[Septic]; SHOCK --- A[Anaphylactic]; SHOCK --- N[Neurogenic];
```

SHOCK

Hypovolemic

Cardiogenic

Septic
Anaphylactic
Neurogenic

Hypovolemic shock

- Severe bleeding – hemorrhagic shock
- Loss of other body fluids
 - **Burns** – loss of plasma through the burned skin surface
 - **Dehydration** – loss of water and electrolytes due to diarrhea, vomiting
 - **Ileus** - Blockage in the intestine

Hemorrhagic shock

Internal bleeding

Bleeding from body openings

- **Anus:** hemorrhoids (fresh, bright red), disease or injury to the intestine (black – melena)
- **Urethra:** bleeding from the bladder, kidneys or urethra
- **Vagina:** pregnancy or recent childbirth, injury



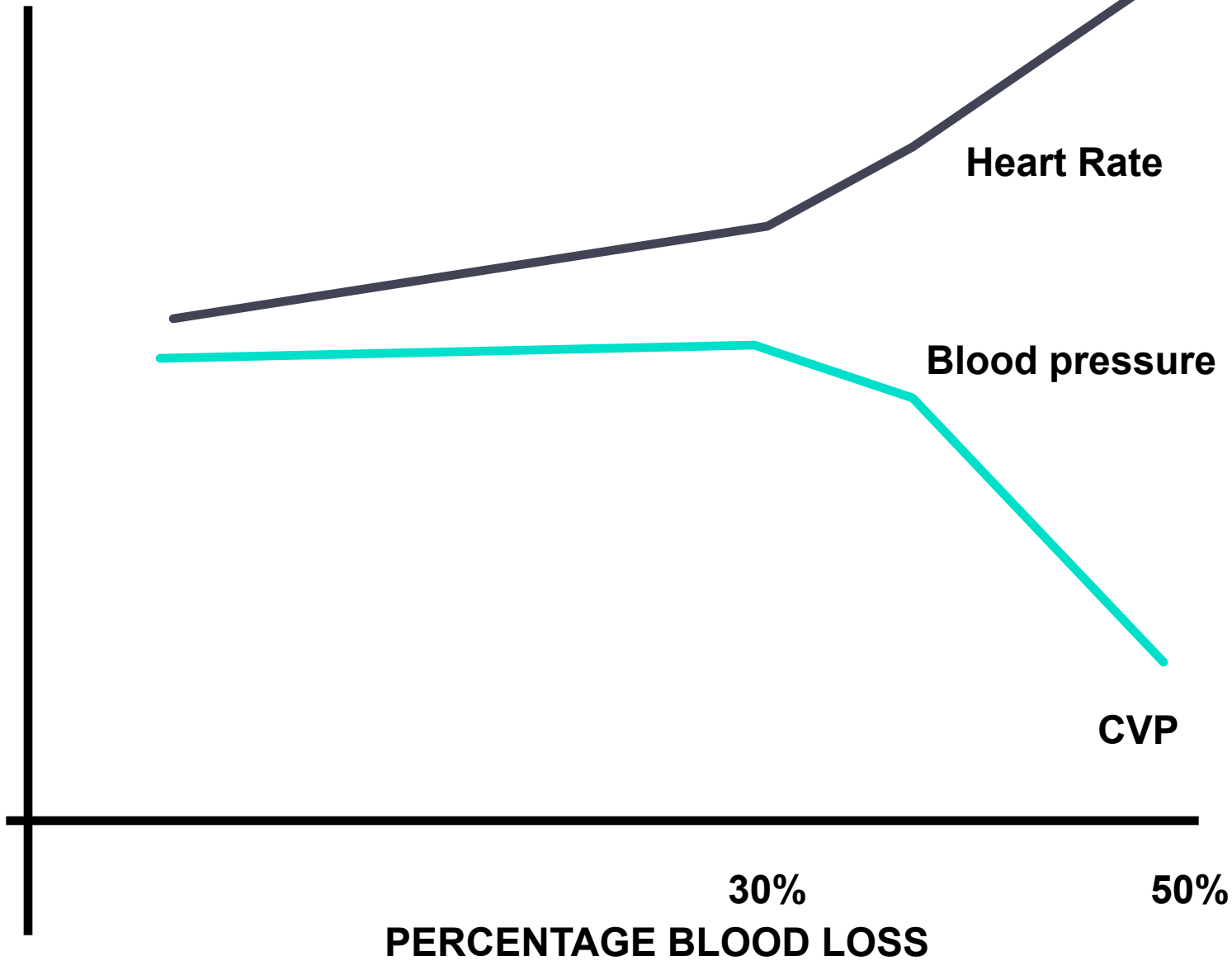
Traumatic shock

- Bleeding combined with exudation into tissue, toxic effect of fragments of damaged tissue



Hypovolemic shock

- **Mild**
 - Loss of 10-20 % of the circulatory volume (500-1000 ml)
- **Moderate**
 - Loss of 20-40 % of blood volume (1000 – 2000 ml)
- **Severe**
 - Loss of more than 40 % of the circulation volume (> 2000 ml)



Heart Rate

Blood pressure

CVP

30%

50%

PERCENTAGE BLOOD LOSS



```
graph TD; SHOCK[SHOCK] --- Hypovolemic[Hypovolemic]; SHOCK --- Cardiogenic[Cardiogenic]; SHOCK --- Septic[Septic]; SHOCK --- Anaphylactic[Anaphylactic]; SHOCK --- Neurogenic[Neurogenic];
```

SHOCK

Hypovolemic

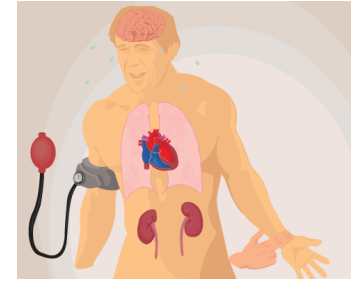
Cardiogenic

Septic
Anaphylactic
Neurogenic

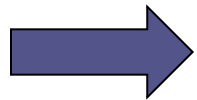
Cardiogenic shock

- Caused by primary failure of the heart
adequate blood volume but the heart is unable to
pump the blood
- Severe heart disease
- Heart attack (IM)

Shock - recognised clinically



- Pale, cold, clammy, sweating
- Breathing heavily
- Fast jerky /sharp pulse, BP may be low
- Nauseated, confused, yawning
- Concentrated or no urine



Loss of consciousness (coma)

Management of shock

- Silence – no excitement: do not leave the victim
- Position: lay the victim down on a blanket
- Raise and support legs to improve the blood supply to the vital organs (autotransfusion position)
- Loosen tight clothing at the neck, chest – to reduce constriction

Management of shock

- Warmth – use a blanket, not hot/watter bottle or other direct source of heat
- Do not let the victim eat, drink, smoke
- Fluids i.v. (moisten lips with a little water)
- Pain relief
- Transport
- Monitor vital functions

Treatment of hemorrhagic shock

- Control of bleeding
- Fluid and blood replacement
- Vasopressors





```
graph TD; SHOCK[SHOCK] --- Hypovolemic[Hypovolemic]; SHOCK --- Cardiogenic[Cardiogenic]; SHOCK --- Septic[Septic]; SHOCK --- Anaphylactic[Anaphylactic]; SHOCK --- Neurogenic[Neurogenic];
```

SHOCK

Hypovolemic

Cardiogenic

Septic
Anaphylactic
Neurogenic

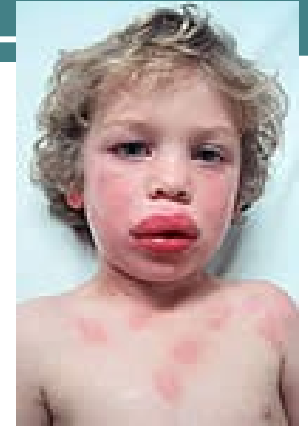
- **Septic** – caused by bacterial toxins leading to vasodilatation
- **Neurogenic** - spinal cord injury

Anaphylactic shock

- Severe allergic reaction
- Contact with trigger factor
- Develop within seconds or minutes
- Triggers: skin or airborne contact with particular material
the injection of drug
the sting of insect
food (shrimps, peanuts)



Anaphylactic shock



- Chemicals are released to blood
- Dilatation of blood vessels
- Constriction of air passages (bronchoconstriction)
- Swelling of tongue, throat

Treatment: adrenalin (auto-injector)



```
graph TD; SHOCK[SHOCK] --- H[Hypovolemic]; SHOCK --- C[Cardiogenic]; SHOCK --- S[Septic]; SHOCK --- A[Anaphylactic]; SHOCK --- N[Neurogenic];
```

SHOCK

Hypovolemic

Cardiogenic

Septic
Anaphylactic
Neurogenic

POISONING

Poisoning

- **Unintentional:** result from exposure to or ingestion of toxic substances, including drugs and alcohol, chemicals, contaminated food
- **Intentional:** in cases attempted suicide



Poisoning

- The effect depends on the **type** and **amount** of substance absorbed
- A poison (toxin) may cause **temporary** or **permanent** damage
- Poisons can be swallowed, absorbed through the skin, inhaled, splashed into the eyes or injected

Poisoning

- A poison, after entering to the body, may enter the bloodstream and be carried to all organs and tissues
- **Signs and symptoms:** vary with the poison (develop quickly or over a number of days)
 - : vomiting
 - : local signs
 - : systemic signs

Swallowed poisons

Drugs and alcohol, cleaning and gardening products, plant poisons, bacterial and viral (food) poisons

Effects: nausea, vomiting, abdominal pain, seizure, irregular, fast or slow heartbeat, impaired consciousness



Inhaled

Industrial poisons, fumes from fires,
chlorine

Effects: headache, confusion, difficulty
breathing, cyanosis

Absorbed through the skin

Cleaning and gardening products, plant
poisons

Effects: pain, swelling, rash, redness,
itching

Splashed in the eyes

Effects: pain and watering of the eye, blurred vision, inability to open the injured eye

Injected through the skin

Venom from stings and bites, drugs

Effects: pain, redness and swelling at injection site, nausea, vomiting, difficulty breathing, seizures, anaphylactic shock

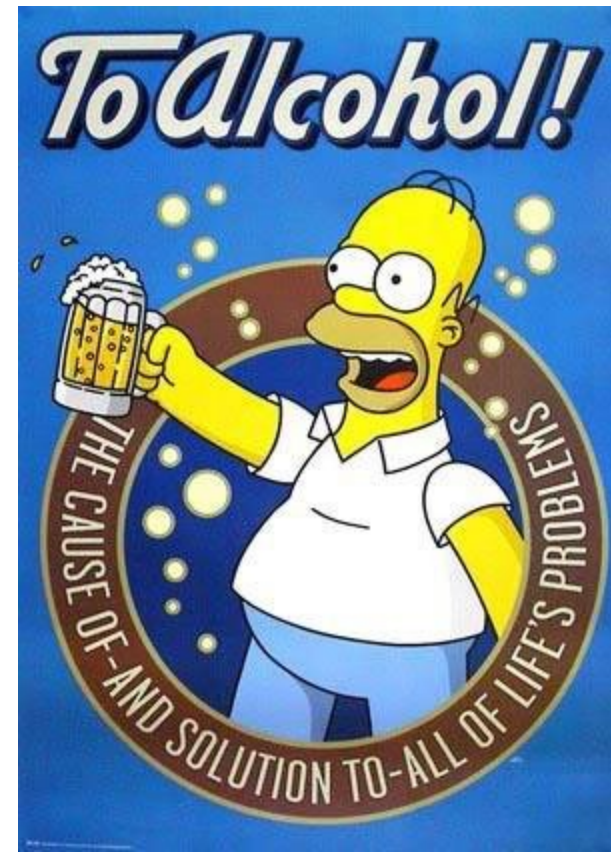
Poisoning first aid

- Identify the poison
- Monitor victim
- Seek medical help
- Resuscitate if necessary
- Help victim into fresh air
- Remove contaminated clothing, wash area for at least 10 minutes (absorption through the skin)
- Irrigate the eye



Alcohol poisoning

- **Depresses the activity of the central nervous system**
- Impairs all physical and mental functions
- Risks from alcohol poisoning:
 - inhaling and choking on vomit
 - losing heat, hypothermia
 - underlying condition often misdiagnosed



Alcohol poisoning

- **First aid:**
 - cover the person with a coat **to protect from the cold**
 - **asses** the person for any injuries
 - monitor and **record vital signs** (level of response, pulse, breathing)
 - if unconscious – recovery position

Drug poisoning

- Prescribed
- Over the counter
- Drug abuse



Drug poisoning – NS depressants

- Unconsciousness, shallow breathing, weak or abnormally slow or fast pulse



Drug poisoning- Stimulants and hallucinogens

- Stimulants and hallucinogens (amphetamines - Ecstasy , LSD, cocaine):
- Excitable, hyperactive behavior, wildness, sweating, tremor of the hands, hallucinations



Food and fungi poisoning



Food and fungi poisoning

- Common
- Symptoms may **develop rapidly** (within 2-6 hours): nausea, vomiting, abdominal pains, headache, fever
mushrooms: vomiting, severe watery diarrhea, hallucinations, poisoning may be fatal
- Danger: **dehydration**
liver failure

Poisoning - hospital management

- Support ABC
- Induce vomiting
- Orogastric lavage
- Activated charcoal
- I.v. fluid replacement
- Special antidotes



BITES AND STINGS

Insect sting



Insect sting

Sting from a bee, wasp or hornet

Recognition: pain at the site of sting,
swelling, redness

Sting in the mouth or throat – swelling can
obstruct the airway

Serious reaction - **anaphylactic shock**

First aid :

raise the affected part

apply an ice pack or cold
compress

Bites



Bites

- Bites from certain species of **scorpions and spiders, snakes** (vipers, exotic snakes), **sea creatures**
- Bites in the mouth or throat are dangerous because swelling can **obstruct the airway**
- Be alert to an **allergic reaction**
- Can cause serious illness and may be **fatal** (spiders, snakes)

Bites - First aid

- Raise the affected part
- Apply an ice pack or cold compress
- Wash the wound, compression bandage above the wound
- Immobilize
- Note the snakes appearance

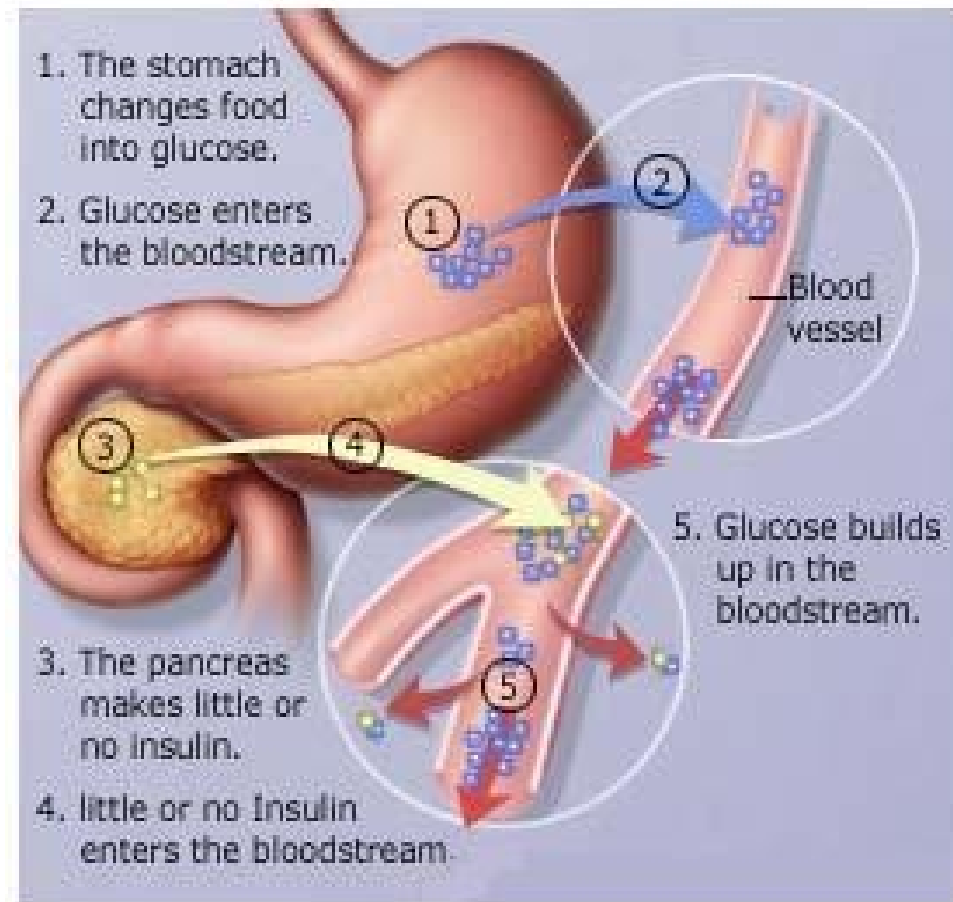




DIABETIC EMERGENCIES

Diabetic emergencies

- Hypoglycemia – low blood sugar
- Hyperglycemia – high blood sugar



Hypoglycemia

- Develops quickly – over few hours
 - Weakness, hunger/nausea
 - Sweating, cold, clummy
 - Strange behaviour
-
- FA : sugary drink, sweet food

Hyperglycemia

- Develops slowly – over days
 - Weakness
 - Warm, dry skin
 - Drowsiness
-
- FA :transport ho hospital

If in doubt- give sugary drink – little harm in hyperglycemia

Questions ?

