Diarrhea

Definition

- It is the passage of loose ,liquid or watery stools,more than 3 times per day.

Acute diarrhea /AGE

- It is an attack of loose motion with sudden onset which usually lasts 3 – 7 days but may last up to 10 to 14 days.
- Caused by infection of large intestine ,associated with infection of gastric mucosa.

Chronic diarrhea

- Termed when the loose motion is occuring for 3 weeks or more.
- Caused by underlying organic disease with or without malabsorption.

Epidemiology

- Under 5 children
- Top three causes of death

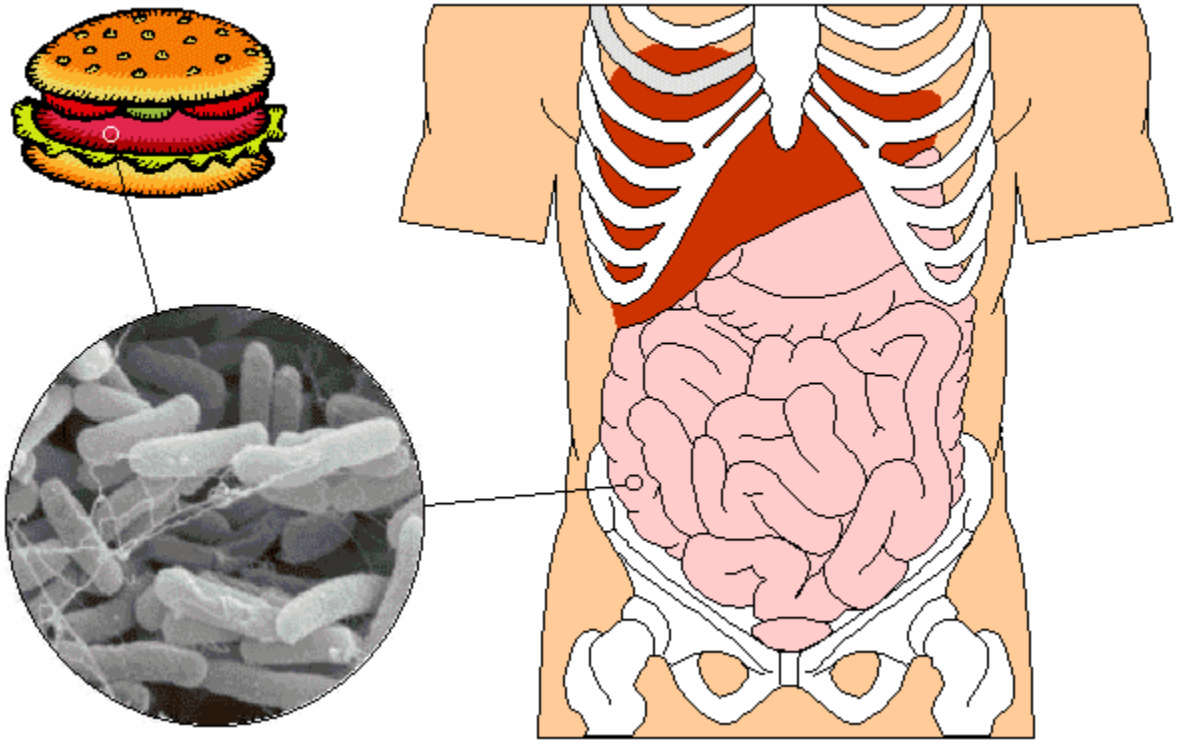
Agent factors

- Viruses –rotavirus ,adenovirus,enterovirus ,measles virus
- Bacteria- E.coli,shigella,salmonella,V.cholerae
- Parasites- E.histolitica,G.lamblia,cryptosporidium,malaria
- Fungi-C.albicans

- Dietary or nutritional factors-overfeeding,underfeeding,food allergy,food poisoning
- Drugs-antibiotics
- GI anomalies
- Inflammatory bowel disease
- Immunodeficiency conditions
- Emotional stress

Reservoir of infection

- Man
- Animals



Host factors

- Children between 6 months to 2 years
- Lack of active immunity introduction of new food
- Contaminated hands
- Unhygienic preparation of food or artifiacial food
- Malnourished children

Predisposing factors

- Prematurity
- Immunodeficiency conditions
- Lack of personal hygiene
- Inadequate food hygiene
- Incorrect infant feeding practices
- Illiteracy
- Poor socio economic status

Environmental factors

- Summer and rainy season –bacterial
- Winter –viral

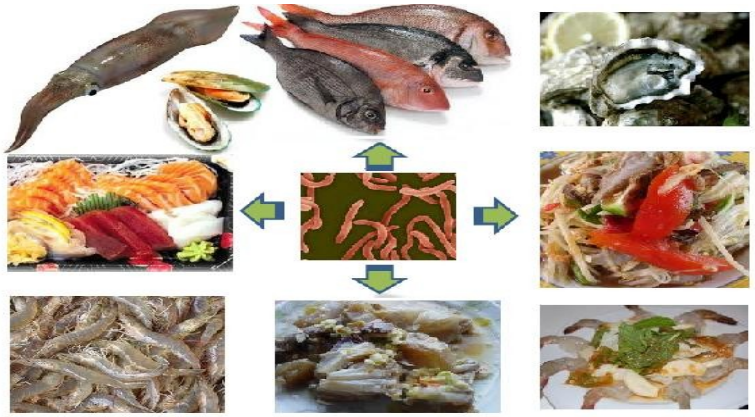
Mode of transmission

- Feco oral route
- Water borne
- Food borne fingers
- Formites
- Flies
- Dirt

Types of diarrhea

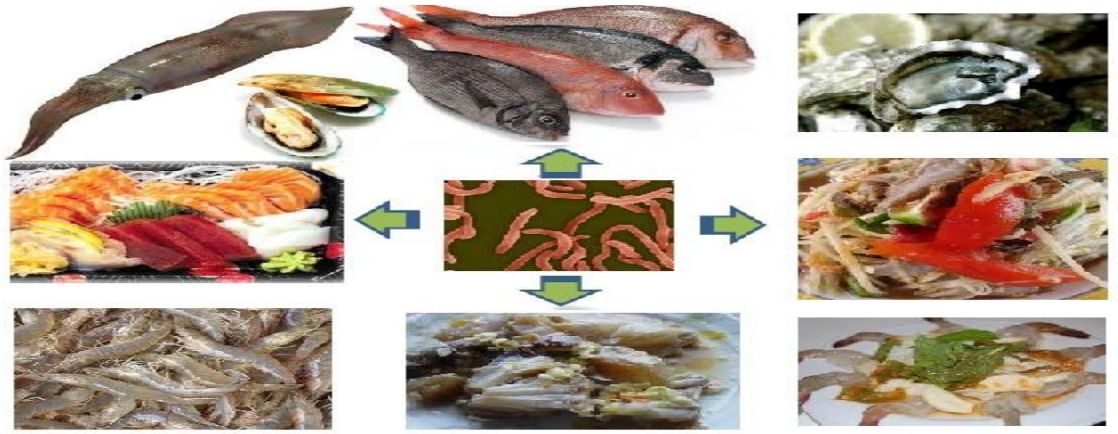
- Secreatory –caused by external or internal secretagogue (cholera toxins,lactase deficiency).

Watery volumnious and persistent no oral feeding is allowed there is decreased absorption and increased secreation



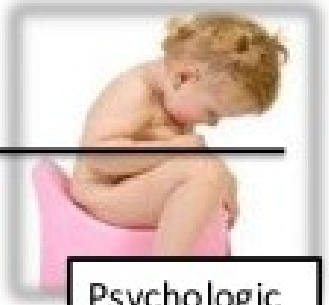
- Osmotic –due to ingestion of poorly absorbed solute (alcohol,sorbitol?)or maldigestion or a small bowel defect.

Tends to be watery and acidic with reducing substances



Motility –associated with increased or delayed motility of the bowel .there is decreased transit tim,e or stasis of bacteria leading to overgrowth.

Pathophysiology



Infection factors

Entry and growth in the intestine

Hyperecretion of water and electrolytes

Malabsorption Factors carbohydrates, proteins, fats

Osmotic Pressure Rises

The movement of water and and electrolytes into the gut cavity

Food Factors

The toxin can not be abscebed

Hyper-peristaltic decrease the chance intestines to absorb food

Psychologic al Factors

Anxiety

Diarrhea

Clinical Features

- **Stools**
  - Loose
  - Blood stained
  - Offensive smell
  - Steatorrhea (floating, oily, difficult to flush)
- Sudden onset of bowel frequency
- Crampy abdominal pain
- Urgency
- Fever
- Loss of appetite
- Loss of weight

SIGNS	CLASSIFY AS	IDENTIFY TREATMENT (Urgent pre-referral treatments are in bold print)
Two of the following signs: • Movement only when stimulated or no movement even when stimulated • Sunken eyes • Skin pinch goes back very slowly.	**SEVERE DEHYDRATION**	► **Give first dose of intramuscular Ampicillin and Gentamycin** ► **If infant has another severe classification:** - **Refer URGENTLY to hospital with mother giving frequent sips of ORS on the way** - **Advise mother to continue breastfeeding more frequently** - **Advise mother how to keep the young infant warm on the way to hospital** OR ► If infant does not have low weight or any other severe classification; give fluid for severe dehydration (Plan C) and refer to hospital after rehydration
Two of the following signs: • Restless, irritable • Sunken eyes • Skin pinch goes back slowly	**SOME DEHYDRATION**	► **If infant has another severe classification:** - **Refer URGENTLY to hospital with mother giving frequent sips of ORS on the way** - **Advise mother to continue breastfeeding more frequently** - **Advise mother how to keep the young infant warm on the way to hospital** ► If infant does not have low weight or any other severe classification - Give fluid for some dehydration (Plan B) - Advise mother when to return immediately - Follow-up in 2 days
• Not enough signs to classify as some or severe dehydration	**NO DEHYDRATION**	► Advise the mother when to return immediately ► Follow-up in 5 days if not improving ► Give fluids to treat diarrhoea at home (Plan A)
• Diarrhoea lasting 14 days or more.	**SEVERE PERSISTENT DIARRHOEA**	► **Give first dose of intramuscular Ampicillin and Gentamycin** ► **Treat to prevent low blood sugar** ► **Advise how to keep infant warm on the way to the hospital** ► **Refer to hospital**
• Blood in the stool.	**DYSENTERY**	► **Give first dose of intramuscular Ampicillin and Gentamycin** ► **Treat to prevent low blood sugar** ► **Advise how to keep infant warm on the way to the hospital** ► **Refer to hospital**

	Mild	Moderate	Severe
Ask about			
Diarrhea	<4 liquid stools per day	4-10 liquid stools	More than 10 liquid stools per day
Vomiting	None or smalll amount	Some	Very frequent
Thirst	Normal	Greater than normal	Unable to drink
Urine	Normal	A small amount and dark	No urine for 6 hours
Look at			
Condition	Well,alert	Restless,irritableor sleepy,unwell	Lethargic or unconscious ,floppy
Eyes	Normal	Sunken	Very sunken and dry
Tears	Present	Absent	Absent
Mouth and tongue	Moist	Dry	Very dry
Breathing	Normal	Faster than normal	Very fast and deep
Feel			
Skin pinch	Goes back quickly	Goes back slowly	Goes back very slowly
Pulse	Normal	Faster than normal	Very fast ,weak or

Diagnosis

- History collection
- Physical examination
- Stool examination
- Blood examination –electrolytes
  -hematocrit value
  -ESR

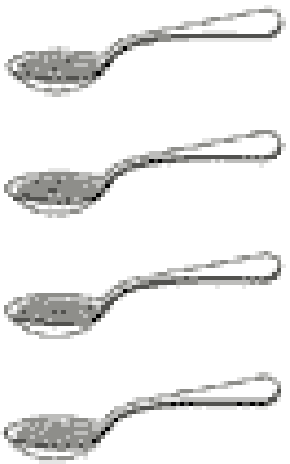
Management

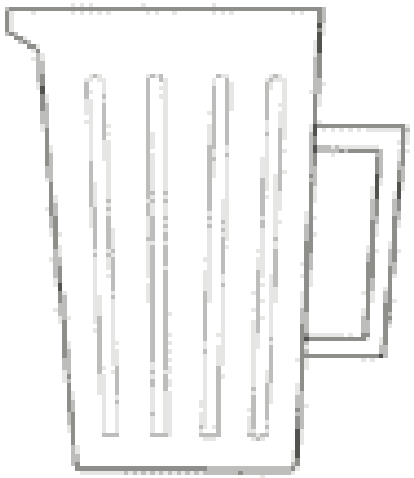
- Rehydration therapy

Oral Rehydration Solution

1(5g) teaspoon of salt

4(20g) teaspoons of sugar





1 litre of boiled water

New Formula WHO-ORS

Content	Quantity
NaCl	2.6 g
KCl	1.5 g
Trisodium Citrate	2.9 g
Glucose	13.5 g
Water	1 L

Ion	Concentration
Na+	75 mM
K+	20 mM
Cl-	65 mM
Citrate	10 mM
Glucose	75 mM

Total osmolarity – 245 mOsm/L

First 4 hours –amount of ORS

Age less <4 months ,weight <5kg	200ml-400ml
4-11 months weight 5-7.9kg	400-600 ml
12-23 months weight 8 -10.9 kg	600 -800ml
2-4 years weight 11-15.9 kg	800 -1200ml
5-14 years weight 16-29.9 kg	1200-2200ml
>15 years weight 30 kg	2200-4000 ml

MAINTENANCE FLUID

Maintenance fluid volume is calculated according to body weight:

Body Weight	Fluid per Day
0-10 kg	100 mL/kg
11-20 kg	1,000 mL + 50 mL/kg for each kg > 10 kg
> 20 kg	1,500 mL + 20 mL/kg for each kg > 10 kg

- The maximum total fluid per day is normally 2,400 mL.
- Fluid of choice either :
- D5 ¼ NS + 20 mEq/L Kcl or D5 ½ NS + 20 mEq/L Kcl
- *The maximum fluid rate is normally 100 mL/hr.*
- 0-10 kg: 4 mL/kg/hr
- 10-20 kg: 40 mL/hr + 2 mL/kg/hr
- >20 kg: 60 mL/hr + 1 mL/kg/hr

- RL-30 ml /kgin one hour and then 70ml/kg in 5 hours in infants
- Older children –first -30ml/kg then 70ml/kg in 2.5 hours

Chemotherapy

- Ampicillin
- Nalidoxic acid
- Norfloxacin
- Ciprofloxacin
- Metronidazole

Dietary management

- Energy rich food –rice potato pulsse curd fish fruits vegetable s should be given
- Fat ,oil sugar high fiber should be avoided
- Hygienic method while preparing
- Boil and wash properly

Complications

- Hypovolumic shock
- Renal failure
- Paralytic ileus
- CCF
- Thromboembolism
- Convulsions
- Overhydration
- Hypoglycemia
- growth retardation
- Malnutrition
- Toxic megacolon

Preventive measures

Thank you