Diarrhoea
DIARRHOEA
What is Diarrhoea?

Diarrhoea is a condition that involves the frequent passing of loose or watery stools.

It comes from the Greek word diarrhoea. Dia means "flow" and rrhoea means "through".
These factors can lead to the passage of unformed stools.
People of all ages can get diarrhea, but it is more common in children below five years of age.

Children with poor nutritional status and overall health, those exposed to poor environmental conditions, are more susceptible to severe diarrhoea and dehydration than healthy children.
Three clinical syndromes of diarrhoea

**ACUTE WATERY DIARRHOEA**: Passage of loose or watery stools without visible blood. Vomiting & fever may occur. If it occurs more than 14 days called as PERSISTENT DIARRHOEA

**DYSENTRY**: Blood visible in the stool. It’s a symptom of Shigella, Entamoeba histolytica & Salmonella

**CHRONIC DIARRHOEA**: Recurrent or long lasting diarrhoea due to non infectious causes
Causes

Inflammatory disease

Damaged mucosal surface

Fungal, bacterial or viral

Over consumption of sugars

Medications
Pathophysiology

Osmotic diarrhoea

- Poorly absorbed osmotically active solutes in intestinal tract
- Occurs when too much water is drawn into bowels.
- Diarrhoea will result from one of the two situations:
Malabsorption: Inability to absorb certain carbohydrates is the most common deficit in this category of diarrhea, but it can result virtually any type of malabsorption.

Ingestion of a poorly absorbed substrate: The offending molecule is usually a carbohydrate or divalent ion. Common examples include mannitol or sorbitol, salt and some antacids.
Secretory diarrhoea

- Results from active chloride secretion into the bowel. Water follows the chloride ions, leading to a net loss of fluid

- Caused by cholera toxin

- It continues even when there is no oral food intake
Exudative diarrhea

- Is associated with damage to the **intestinal mucosa**, leading to the release of **mucus**, **blood**, **fluid** and **plasma proteins** from cells as result of inflammation or injury.

- This increases the fluid content of feces and is present in **ulcerative colitis**, Crohn’s disease.

- Infections such as **E.coli** or **food poisoning**.
Infectious diarrhoea

Causes

Viruses

Bacteria

Parasites
Norovirus cause of viral diarrhoea in adults

Rotavirus Cause in children under 5 years old

Astroviruses cause a number of infections
Motility related

Caused by rapid movement of food through the intestines (hypermotility)

There is not enough time for sufficient nutrients and water to be absorbed

Due to vagotomy or diabetic neuropathy
• Hyperthyroidism can produce hypermotility and leads to pseudo-diarrhoea & occasionally real diarrhoea

• It can be treated with antimotility agents (loperamide)
Inflammatory

Damage to the **mucosal lining** or **brush border**

Passive loss of protein rich fluids and decreased ability to absorb these lost fluids

Caused by

- Bacterial infections
- Viral infections
- Parasitic infections
- Auto immune problems
When should the doctor be called for diarrhea

- High fever
- Abdominal pain
- Bloody Diarrhoea
- Prolonged vomiting
- Acute diarrhea in pregnant women
- Diarrhea occurs during or immediately after completing a course of antibiotics
Treatment

Diarrhoea in Adults

- Identify and treat underlying problem
- Fluid and electrolyte replacement
- Broths and electrolyte solutions high in sodium and potassium
- Pectin (apples, bananas) is helpful
- Avoid caffeine
When diarrhoea stops

✓ Starchy foods like rice, potato and plain cereals can be given followed by protein foods

✓ Minimum residue diet

✓ Modest amounts of fat

✓ Sugar alcohols lactose, fructose, and large amount of sucrose may worsen osmotic diarrhoea
Chronic diarrhoea

• Nutrients should be replaced parenterally and enterally

• SCFAs: substrates for colonocytes
  – Facilitate absorption of fluid and salts
  – May help regulate GI motility

• Probiotics: sources of bacteria to re-establish beneficial gut flora
• **Prebiotics:**
  – Favor friendly lactobacillus and bifidus microbes
  – Slow gastric emptying
  – Hold water

• **Early refeeding:** needed to restore the compromised GI tract:
  – ↓Stool output and shortens the duration of illness.
  – Micronutrient replacement: accelerates regeneration of mucosal cells
  – Even during acute diarrhea, gut absorbs 60% of food eaten. “Resting the gut” is actually more damaging.
Diet in weaning diarrhoea

Strategies for lowering incidence of diarrhoea

• Encourage breast feeding
• Better food hygiene
• Improvement of nutritional status
• Food environmental sanitation
Fluid Management

✓ Early replacement of fluid losses

✓ Plenty of fluids should be given to prevent dehydration

✓ Initial management with any fluid available

✓ Coconut water, butter milk, rice kanji with salt, lemon-sugar-salt beverage

✓ Should be given in unlimited quantity so that dehydration does not develop
Oral rehydration solution

- Home made solution
- Composition of WHO oral rehydration salt solution

<table>
<thead>
<tr>
<th>Composition</th>
<th>Amount g/ litre</th>
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<tbody>
<tr>
<td>Glucose</td>
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</tr>
<tr>
<td>Sodium chloride</td>
<td>3.5</td>
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<tr>
<td>Sodium carbonate</td>
<td>2.5</td>
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<tr>
<td>Tri sodium citrate</td>
<td>2.9</td>
</tr>
<tr>
<td>Potassium chloride</td>
<td>1.5</td>
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Conclusion

• Diarrhea can be an uncomfortable and on occasion life-threatening symptom.
• It is important to remember that oral rehydration therapy is the mainstay for treatment of acute diarrhea.
• Caregivers and patients need to be made aware of the signs and symptoms of dehydration and when to seek medical treatment.
• Persons with diarrhea lasting longer than four weeks should be referred to their primary care practitioners to ascertain the cause of the symptom, even though there are over-the-counter drugs available to assist with control of diarrhea.
Good nutrition and hygiene can prevent most diarrhea