OFFICIAL (CLOSED) NON-SENSITIVE

Lesson 10 Chronic Diseases III

S3470C Nutrition Care Process

Lesson 10

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Learning Outcomes

Below are the knowledge and skills learners will gain:

- Explain the nutrition-disease relation of gastrointestinal diseases.
- Describe the aetiology, clinical features and the nutrition-related management of gastrointestinal diseases.
- Apply nutrition care therapy for gastrointestinal diseases.

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Go through Lesson 8 E-learning Worksheet

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Content

- GERD
- Gastritis and PUD
- Irritable Bowel Syndrome
- Inflammatory Bowel Disease
- Diverticular Disease

Gastrointestinal Diseases

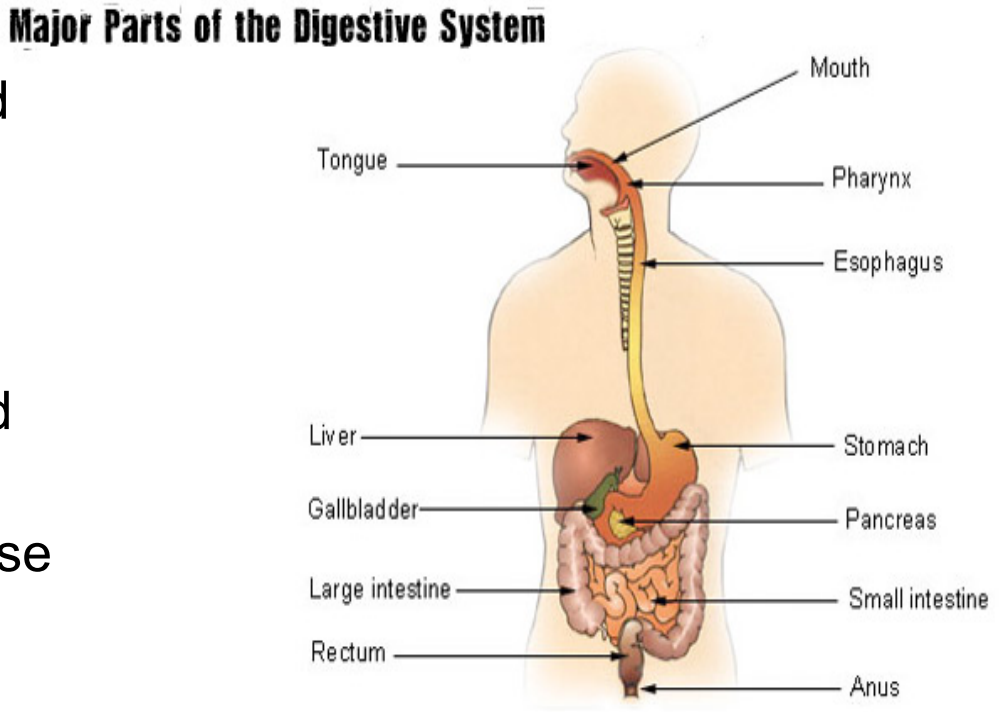
What is Gastrointestinal Diseases?

- Gastrointestinal tract (GIT) is where digestion and absorption of food occurs.
- Primary organs include the mouth, esophagus, stomach, small and large intestines.
- Liver, gallbladder and pancreas are accessory organs that are involved.
- Numerous disorders of the GI system cause countless individuals distress and consequently affect the nation's economy.
- Some conditions are physiological, while others can be psychological in origin.
- Making it hard to determine cause of GI problem.

Adopted from https://www.rn.com/clinical-insights/gastrointestinal-syster

Upper and Lower Gastrointestinal Tract

- Many types of conditions that involves the GI tract.
- Distinguished between upper gastrointestinal tract and lower gastrointestinal tract.



1. Upper gastrointestinal tract

→ Involves the mouth, pharynx, esophagus, stomach and duodenum.

→ Conditions in focus are gastroesophageal reflux disease and peptic ulcer.

2. Lower gastrointestinal tract

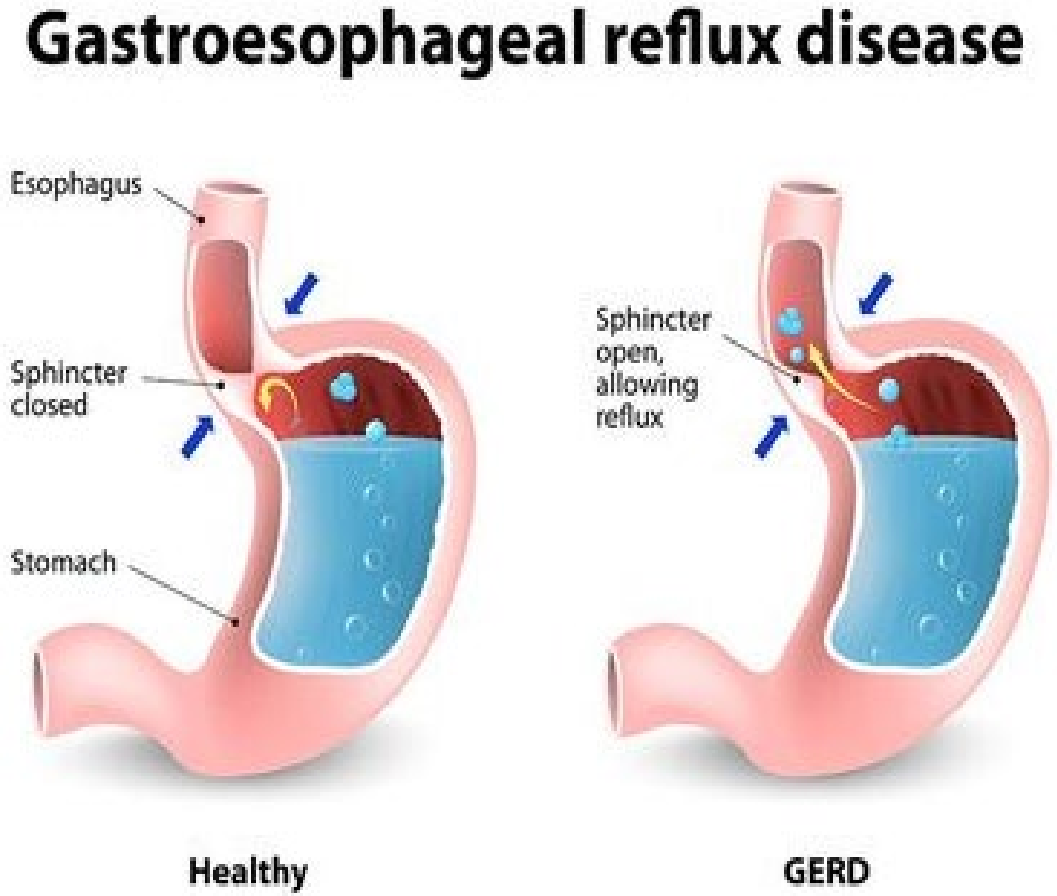
→ Involves the large & small intestine, colon, rectum and anus

→ Conditions in focus are inflammatory bowel disease, diverticular disease and irritable bowel syndrome.

Gastroesophageal Reflux Disease (GERD)

What is GERD?

- GER, or gastroesophageal reflux is a normal physiologic process
- Can happen in healthy infants, children and adults.
- GERD a more serious, chronic or long-lasting form of GER.
- Symptoms and complications arises from reflux (back flow) of gastric contents into the esophagus or beyond.
- Commonly known as heartburn, it is often coupled with regurgitation at least once a day.
- Correlation between GERD and obesity



Adopted from https://www.gutcare.com.sg/portfolio/gerd/

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Prevalence Of GERD

- No significant difference between male and female
- Male tend to suffer from complications of GERD than females.
- E.g. rate of esophagitis is 2:1 in males compared to females.
- Individual with BMI greater than 30kg/m^2 to 40kg/m^2 have a higher risk of GERD.

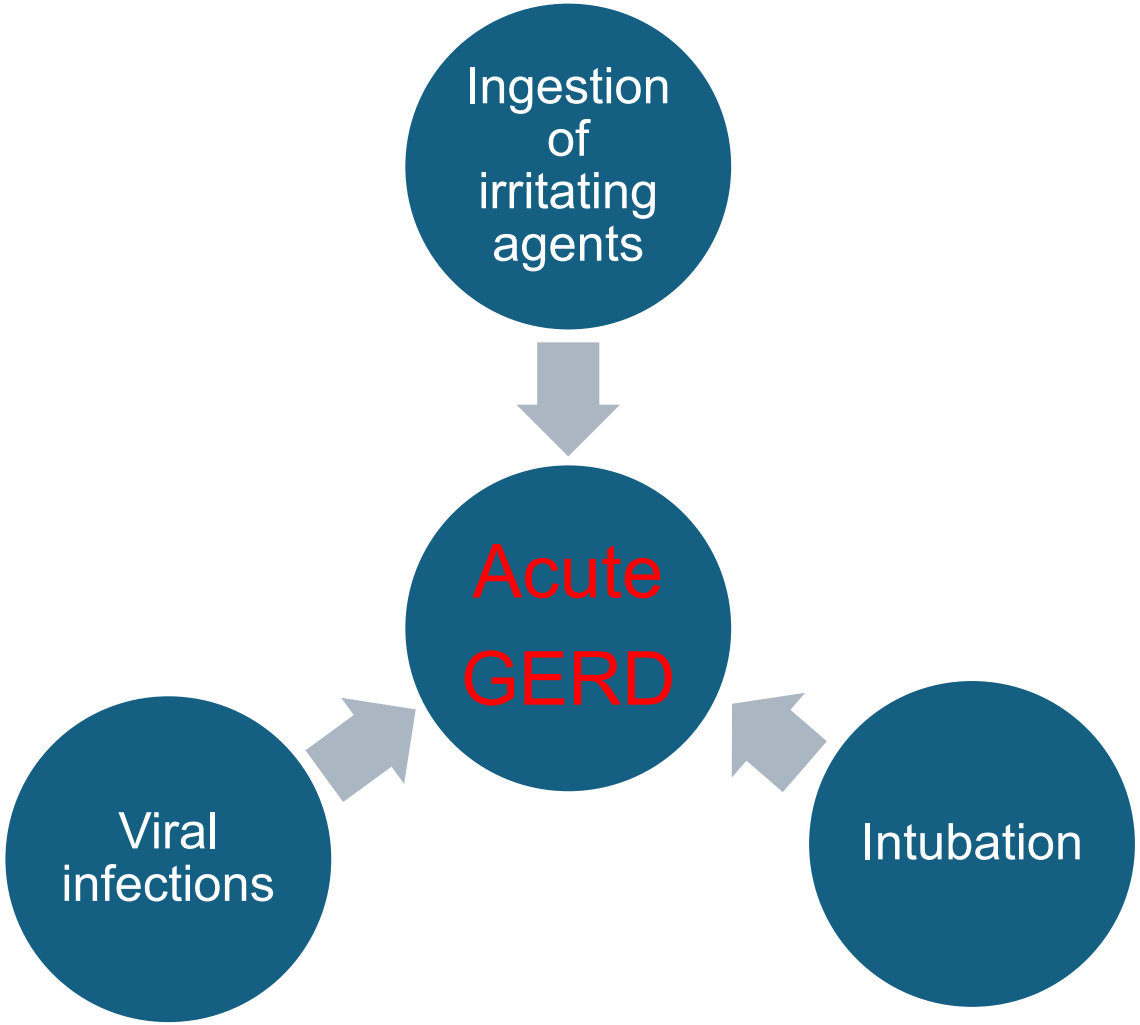
Area	Prevalence
North America	18 to 28%
Europe	9 to 26%
East Asia	3 to 8%
Middle East	9 to 33%
Australia	12%
South America	23%

Signs and Symptoms of GERD

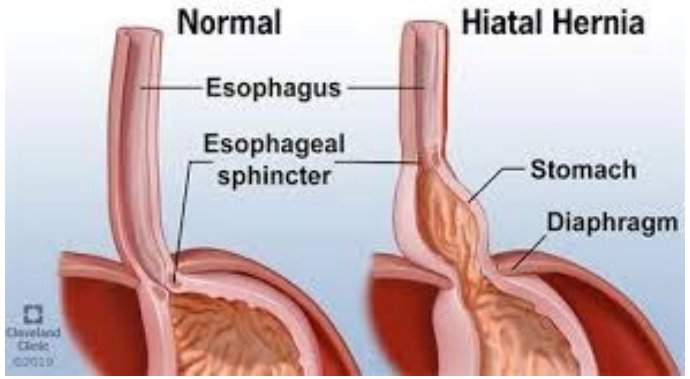
- Common symptom is heartburn, with regurgitation
- Symptoms can be seen throughout the day, but nocturnal symptoms are more debilitating compared to daytime symptoms.
- Nocturnal GERD are often associated with severe esophagitis → leading to sleep disturbance.
- Chest pain can also be another symptom of GERD, diagnosis of cause of chest pain is important to render immediate treatment if it is cardiac related.

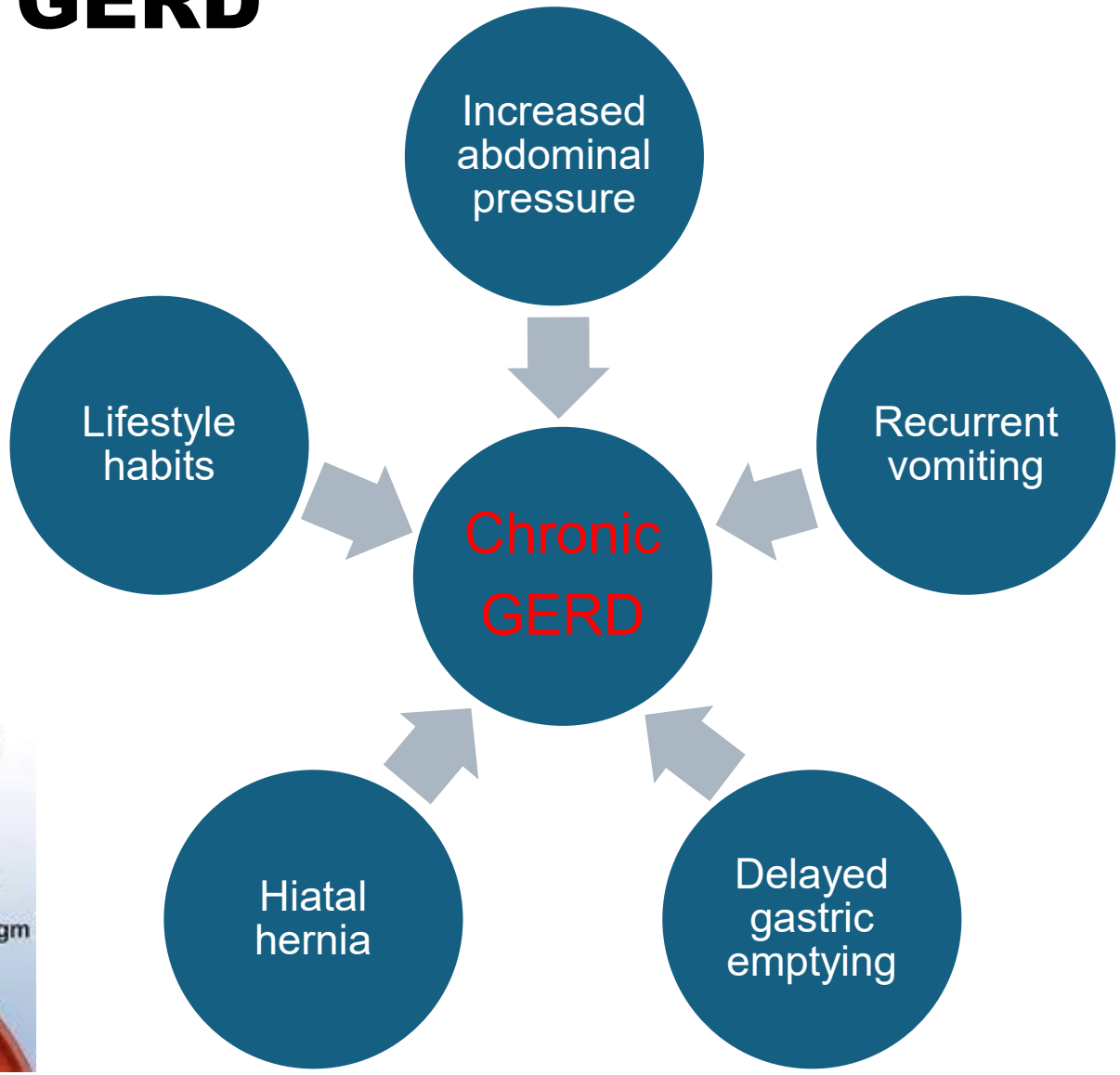
Adopted from https://painresource.com/gastrointestinal/acid-reflux-ger-gerd-in-adu

Aetiology of GERD



Aetiology of GERD

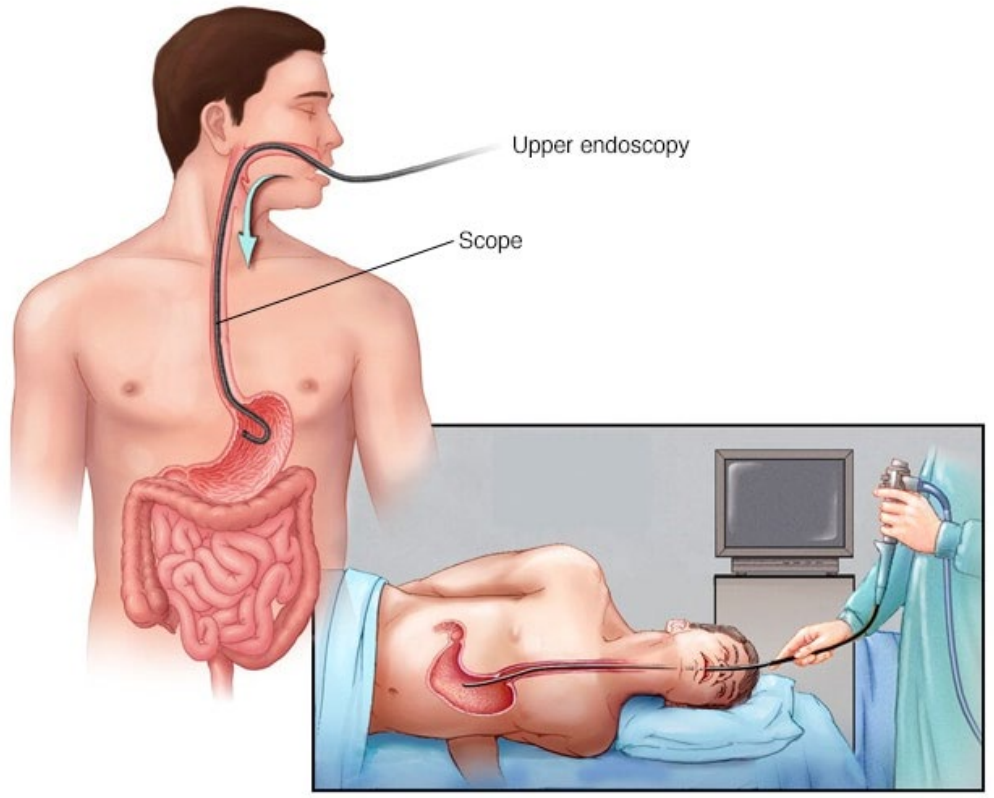




Diagnosis of GERD

- Non-invasive diagnosis:
  - ➢ Through collecting clinical history of signs and symptoms and physical examinations

- Clinical diagnosis
  - ➢ Invasive procedure that involves insertion of a thin, flexible tube equipped with a light and tiny camera (endoscope) down the throat
  - ➢ To examine the inside and physical appearance of esophagus and stomach.



Adopted from https://www.mayoclinic.org/diseases-conditions/gerd/diagnosis-treatment/drc-20361959

Clinical Management of GERD

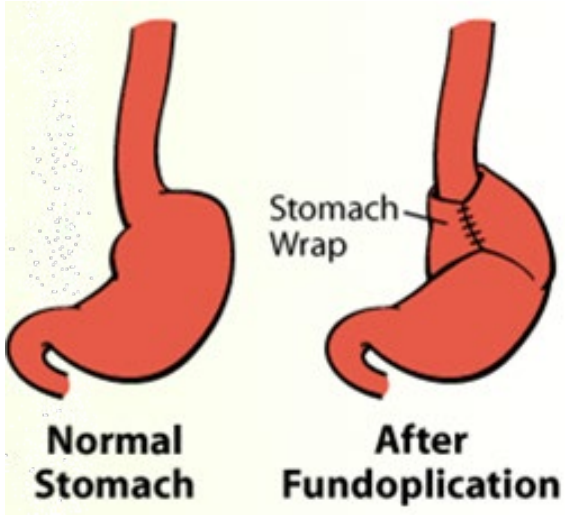
- Behavioral Modification

To avoid:

- × Eating within 3-4 hours of resting/sleeping
- × Lying down right after meals
- × Tight-fitting clothing
- × Cigarette smoking

- Medical/surgical management

- ➢ Proton pump inhibitors, e.g. omeprazole, aspirin
- ➢ Histamine-2 receptor antagonist, e.g. famotidine, cimetidine
- ➢ Antacids, e.g. Gaviscon
- ➢ Prokinetic agents, e.g. domperidone
- ➢ Fundoplication



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Lifestyle Management of GERD

Usually the first step in symptom management of GERD.

- Main factors that trigger reflux symptoms are caffeine, alcohol, tobacco, and stress.
- Eating small amount rather than large meals.
- Weight reduction may reduce acid contact time in the esophagus leading to decreased reflux symptoms.
- Elevate the head of the bed by 6-8inches at night.
- Avoid frequent bending over
- Use loose-fitting garments in the waist area

Nutrition Management For GERD

Education and negotiation of nutritional goals with clients

Nutrition Management and Dietary Assessment	Education, Negotiation and Goal Formulation
<u>Goal 1</u>: Decrease exposure of esophagus to gastric contents. **Questions:** ➢ How many meals do you eat a day? ➢ How much (of each food group) do you eat in a meal? E.g. how many bowls of rice ➢ How often do you eat deep fried or oily food? ➢ Do you drink alcohol? If yes, how much in a day?	**Educate**: i. Avoid large meals, especially one that is high in dietary fat ii. Not more than 2 drinks/day for men, and not more than 1/day for women. **Goal Negotiation:** - Cut down on added fat to diet, e.g. butter on bread, deep-frying, etc. - Alter cooking method, e.g. watery soup based instead of thick gravy. - Cut down on drinks/Dilute or cut drinks by half each time/Cut out alcoholic drinks entirely

Nutrition Management For GERD

Education and negotiation of nutritional goals with clients

Nutrition Management and Dietary Assessment	Education, Negotiation and Goal Formulation
Goal 2: Decrease acidity of gastric secretions **Questions:** ➢ Do you take caffeinated beverages? (If yes to caffeinated beverages) ➢ How many caffeinated beverages do you drink a day? (E.g. coffee, black tea (Earl grey, English Breakfast), cola drinks) ➢ Do you drink beer? (If yes to beer) ➢ How many beer a day? (using cans of 500ml as a guide)	**Educate**: i. Avoid coffee → Coffee can increase acid secretions in the stomach ii. Avoid fermented alcoholic beverage → Largely beer → Induces acid production in stomach, worsened by carbonation which causes belching/reflux. **Goal Negotiation:** - To cut caffeinated beverages out of diet OR to avoid having such beverages on empty stomach - To cut down or remove beer from diet

Nutrition Management For GERD

Education and negotiation of nutritional goals with clients

Nutrition Management and Dietary Assessment	Education, Negotiation and Goal Formulation
Goal 3: Prevent pain and irritation. **Questions:** ➢ What kind of food gives you reflux after ingestion?	**Educate**: i. Avoid food that exacerbates pain and symptoms. → Keep a food diary to record potential irritants. → Adopt food elimination to remove irritants from diet. → Record signs and symptoms after consumption of new food. **Goal Negotiation:** - Avoid irritant agents - Find substitute for irritants as replacements in the diet.

Nutrition Management For GERD

Education and negotiation of nutritional goals with clients

Nutrition Management and Dietary Assessment	Education, Negotiation and Goal Formulation
<u>Goal 4</u>: Manage weight. **Questions:** ➢ What is the current body weight? ➢ What is the weight history? ➢ What is the target weight loss?	**Educate**: i. 0.5kg – 1kg weight loss per week as healthy weight loss goal ii. Check for weight loss. **Goal Negotiation:** - Aim for gradual weight loss if client is overweight or obese. - Aim for weight maintenance if client is of healthy weight range.

Recap on Nutrition Assessment For GERD

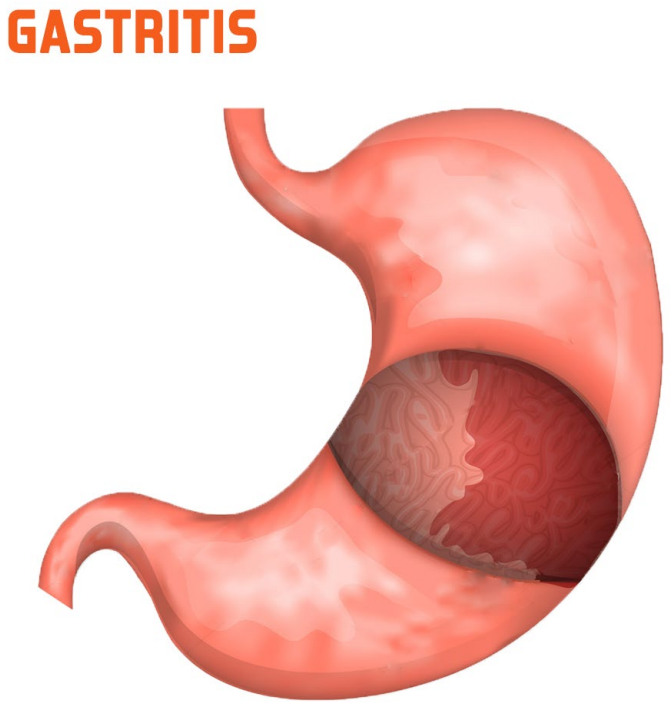
- A-B-C-D framework

	Data to collect
A – Anthropometric measurements	- Height - Weight - Weight history - Body Mass Index (BMI) - Body fat composition
B – Biochemical Data	Laboratory indicators - Lipid profile - Blood pressure
C – Clinical History	- Past and present medical history - Family history
D – Dietary Assessment	- Overall balance of diet - Alcohol and caffeinated beverages - Total calorie intake

Gastritis and Peptic Ulcer Disease (PUD)

What is Gastritis?

- *Gastritis* - a nonspecific term describing inflammation of the stomach.
- Used to describe symptoms relating to the stomach.
- Acute gastritis is rapid onset of inflammation and symptoms.
- Chronic gastritis may occur over a period of months to decades.
- Recurring symptoms include nausea, malaise, anorexia, hemorrhage, and epigastric pain.



Adopted from https://www.health.harvard.edu/digestive-health/peptic-ulcer-overvie

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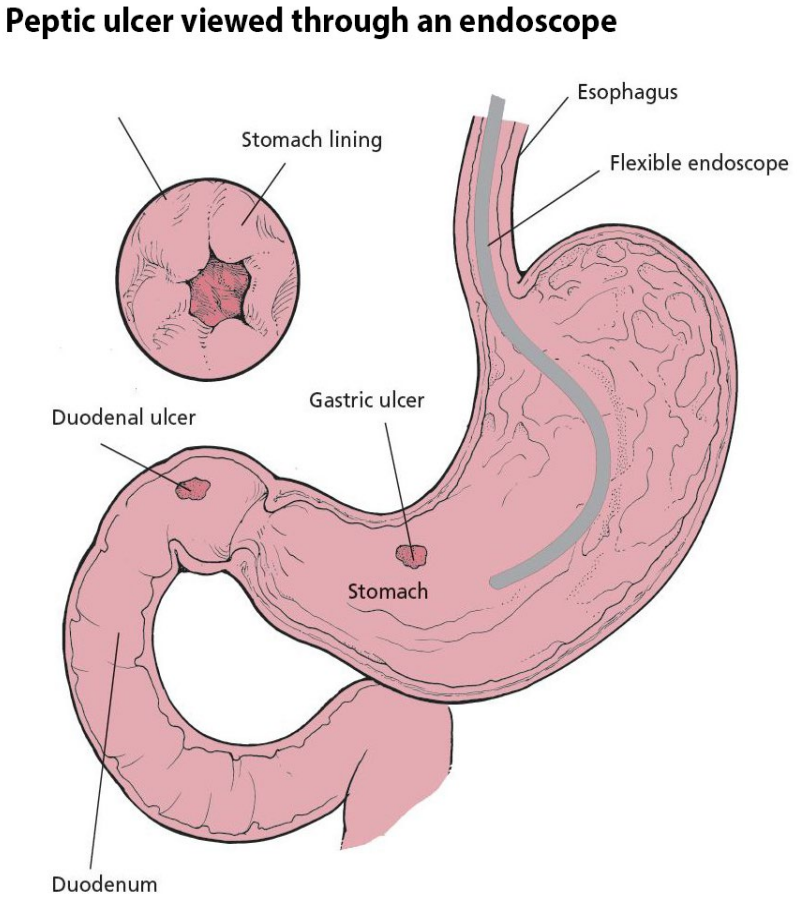
What is Peptic Ulcer Disease (PUD)?

- Ulcers in the lining of the stomach or upper part of small intestine.
- Peptic ulcer are painful sores or ulcers in the lining of the stomach or the first part of the small intestine (the duodenum).
- Common cause of peptic ulcers are Helicobacter Pylori (H. Pylori) bacteria
- Can cause gastritis.



Adopted from https://www.health.harvard.edu/digestive-health/peptic-ulcer-overvie

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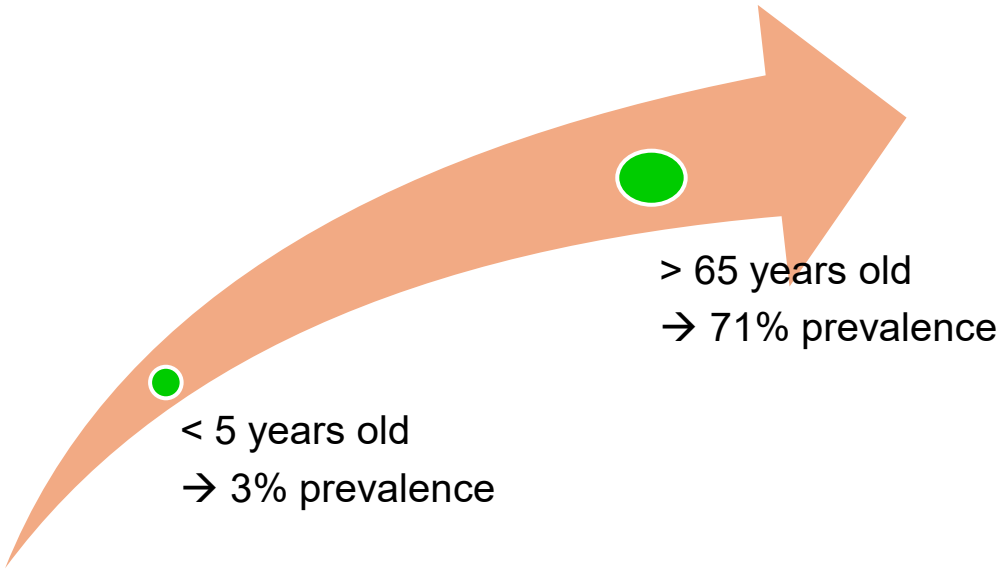
Prevalence Of Gastric & PUD

- Higher prevalence of gastritis in women and elderly compared to men and younger people.
- Prevalence of PUD increases progressively with age
- 3% in children below 5 years of age to 71% in adults above 65 years old
- Global prevalence of PUD is 50%, and Singapore's prevalence is 31%.



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Signs and Symptoms of Gastritis

Gastritis

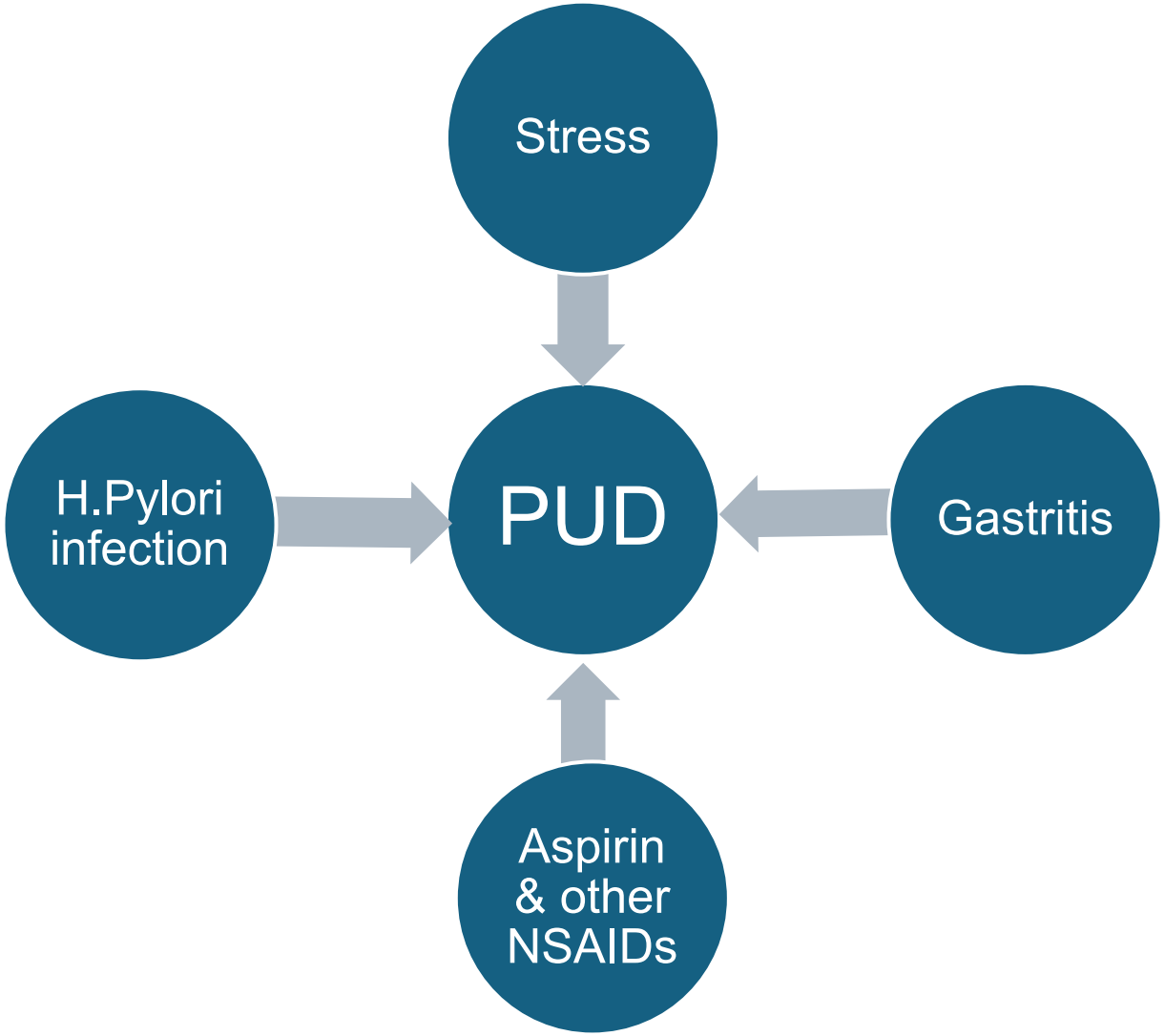
- Nausea or recurrent upset stomach.
- Abdominal bloating.
- Abdominal **pain**.
- Vomiting.
- Indigestion.
- Burning or gnawing feeling in the stomach between meals or at night.
- Hiccups.
- Loss of appetite

Signs and Symptoms of PUD

PUD

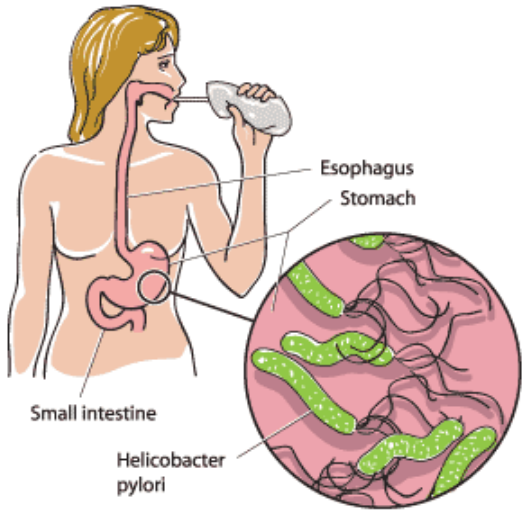
- Gastritis is a common sign of PUD.
- Burning stomach pain
- Feeling of fullness, bloating or belching
- Fatty food intolerance
- Heartburn
- Nausea
  - *Vomiting or vomiting blood — which may appear red or black*
  - *Dark blood in stools, or stools that are black or tarry*
  - *Trouble breathing*
  - *Feeling faint*

Aetiology of Gastritis and PUD



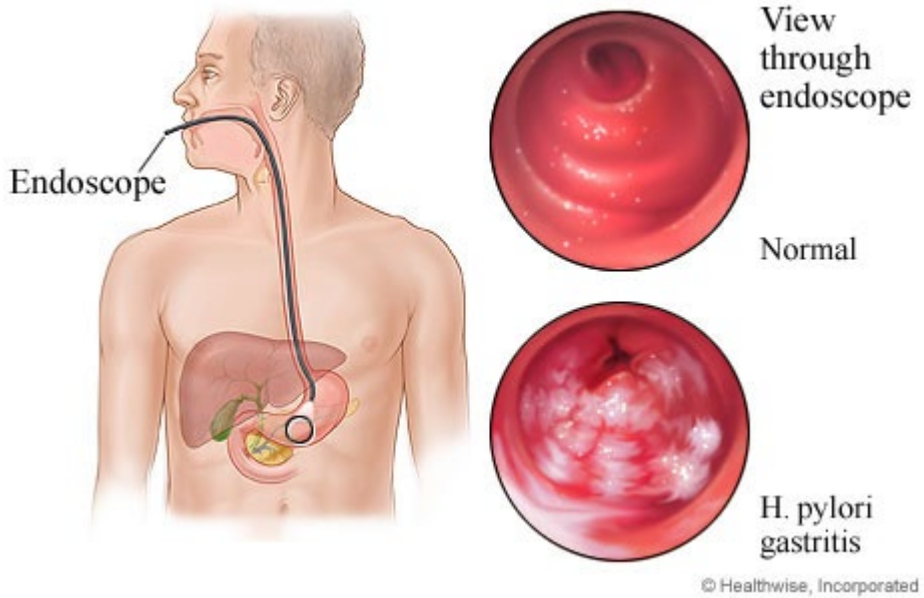
Diagnosis of Gastritis and PUD

- **Clinical diagnosis of gastritis**
  - Breath, blood, stool, immunological, and biopsy tests to detect H. pylori,
  - Other tests like endoscopy or radiologic studies demonstrate mucosal changes.



Adopted from https://www.ghanaiantimes.com.gh/wp-content/uploads/2019/07/Pylo2.gif

- **Non-invasive gastritis diagnosis:**
  - Diagnosed by the clinical symptoms and history of drugs use



Adopted from https://www.healthlinkbc.ca/health-topics/zm2580

Clinical Management of Gastritis and PUD

- Cut down or quit smoking

Behavioral Modification

- IF H.Pylori +ve, use antibiotics
- Reduce or withdraw use of NSAIDs
- Suppress acid secretion with proton pump inhibitors or H2 receptor antagonist.
- Use sucralfate, antacids

Medical/surgical management

Nutrition Management For Gastritis and PUD

Education and negotiation of nutritional goals with clients

Nutrition Management and Dietary Assessment	Education, Negotiation and Goal Formulation
<u>Goal 1</u>: Decrease consumption of alcohol, spices, coffee and caffeine. **Questions:** ➢ Do you drink alcohol? If yes, what kind of alcoholic drinks and how many a day? ➢ Do you take caffeinated beverages? (If yes to caffeinated beverages) ➢ How many caffeinated beverages do you drink a day? (E.g. coffee, black tea (Earl grey, English Breakfast), cola drinks) ➢ What kind of spices causes pain after ingestion? E.g. chilli, curry, pepper?	**Educate**: i. Not more than 2 drinks/day for men, and not more than 1/day for women. ii. Cut down on usage of spices in cooking and diet. iii. Cut down on coffee or caffeine intake, or switch to decaffeinated beverages. **Goal Negotiation**: - Cut down or remove alcoholic drinks from diet - Not more than 1 cup of caffeinated drinks per day. - Avoid consuming caffeinated beverages on empty stomach. - Find substitute for spices that triggers pain.

Nutrition Management For Gastritis and PUD

Education and negotiation of nutritional goals with clients

Nutrition Management and Dietary Assessment	Education, Negotiation and Goal Formulation
Goal 2: Increase consumption of ω-3 and ω-6 fatty acids Question: ➢ How often do you eat ω-3 and ω-6 fatty acids containing food? ➢ What kind and how big a portion each time?	**Educate:** 1. Types of ω-3 and ω-6 fatty acid containing food 2. Frequency to consume such food **Goal Negotiation** - Types of food client can tolerate - Frequency of ω-3 and ω-6 containing food into diet - Cost consideration should be discussed

Recap on Nutrition Assessment

- A-B-C-D framework

	Data to collect
A – Anthropometric measurements	- Height - Weight - Weight history - Body Mass Index (BMI) - Body fat composition
B – Biochemical Data	Laboratory indicators - Lipid profile - Liver function test (serum albumin) - Inflammatory markers - Blood pressure
C – Clinical History	- Past and present medical history - Family history
D – Dietary Assessment	- Dietary habits, esp intake of ω-3 and ω-6 fatty acids - Alcohol and caffeinated beverages - Total calorie intake

Irritable Bowel Syndrome (IBS)

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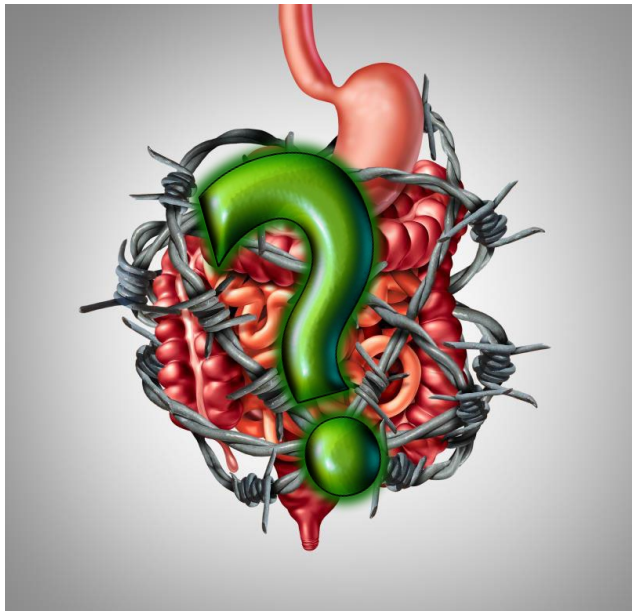
What is Irritable Bowel Syndrome (IBS)?

- Condition characterized by unexplainable abdominal discomfort or pain that is associated with changes in bowel habits.
- Appears to be affected by psychosocial distress.
- Often vague and transient.
- Diagnosis is often exclusion.
- One of the most commonly diagnosed condition by gastroenterologist.
- Often cause decreased quality of life, decreased productivity, missed worked or school.



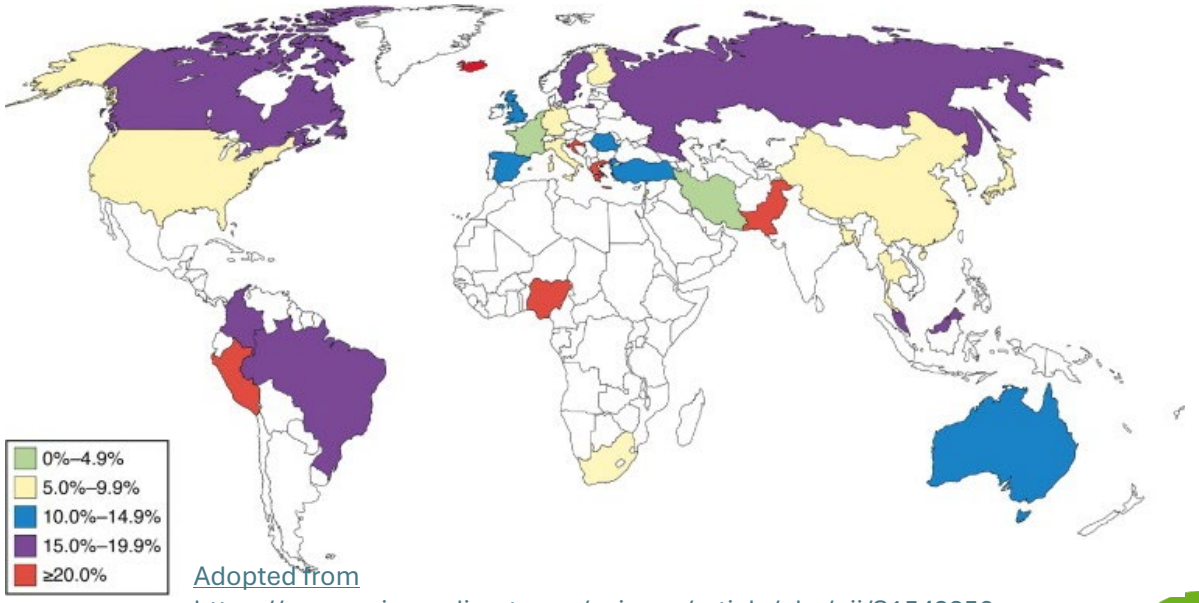
Adopted from https://specialty.mims.com/topic/managing-irritable-bowel-syndrome-in-primary-care

Prevalence Of IBS

- Higher prevalence in women than men
- Prevalence of IBS in Singapore is 20.9%
- Onset age usually early adulthood

→ Stress-induced when joining workforce?

- Prevalence of global IBS is estimated to be 11.2%



Adopted from https://www.sciencedirect.com/science/article/abs/pii/S1542356512003084

Signs and Symptoms of IBS

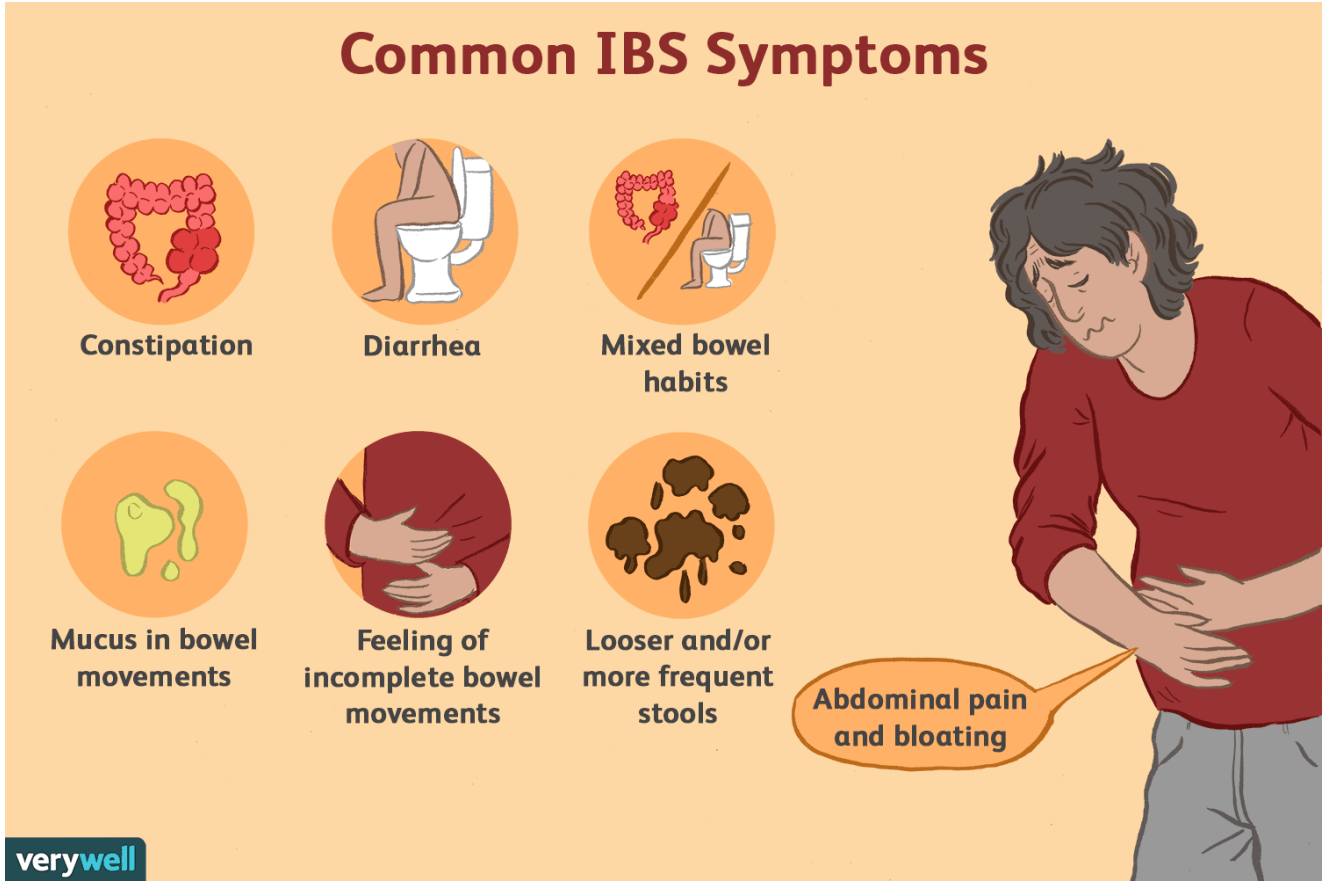
- Abdominal cramps
- Abdominal bloating/gassiness/distension
- Irregular bowel function – switching between diarrhea, constipation, alternating between both.

→ Increased stool frequency

→ Loose stools with pain onset

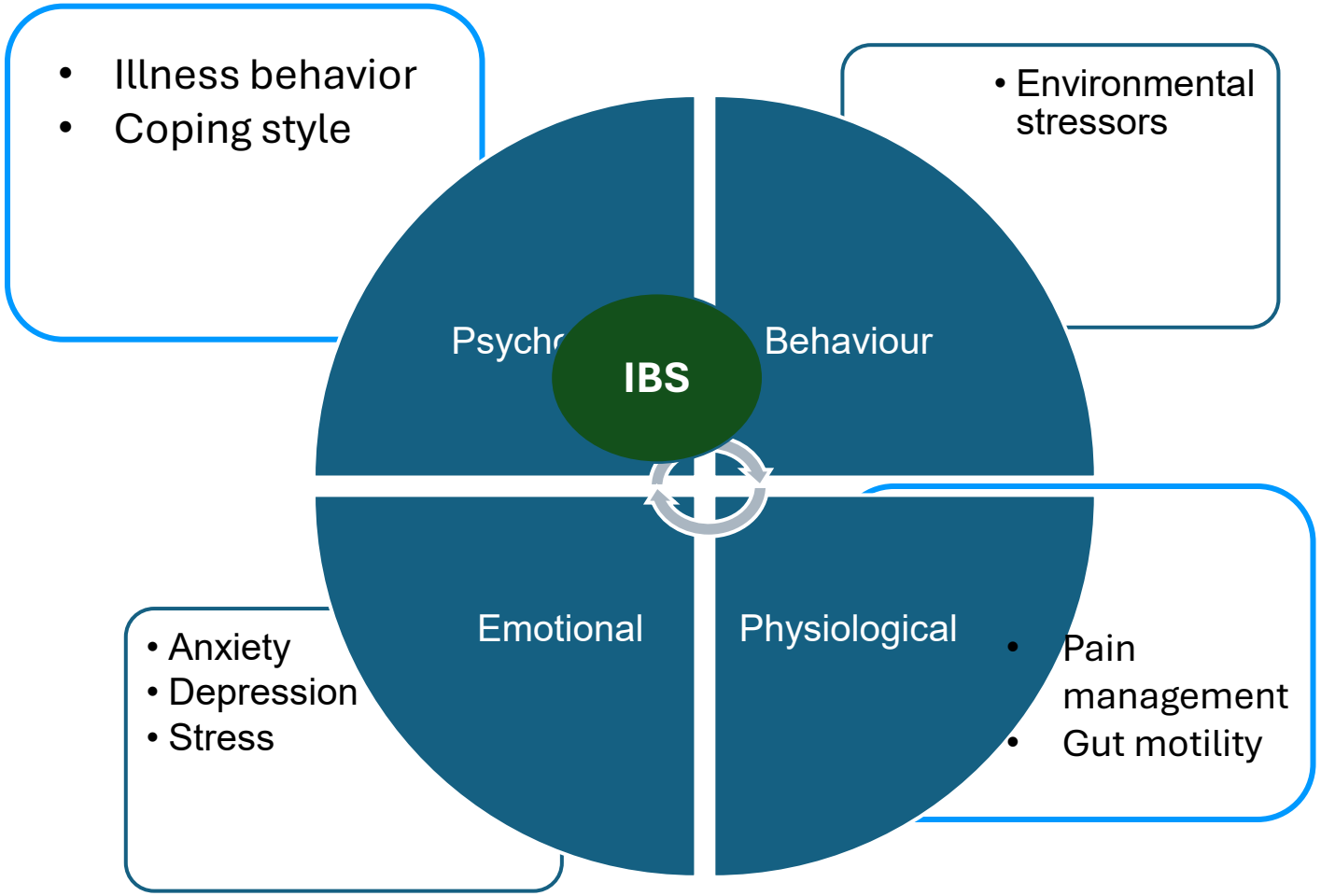
→ Mucus in stools

→ Feeling of incomplete elimination after bowel movement.



Adopted from https://www.verywellhealth.com/ibs-pain-locations-1945305

Aetiology of IBS



Diagnosis of IBS

- **Clinical history:**
  - Family history of gastrointestinal diseases,
    - e.g. colon cancer, inflammatory bowel disease.
  - Medication
  - Infections
  - Stressful events related to onset of symptoms
  - Brief diet history
  - Other health problems

- **Symptoms review:**
  - Reviewing of symptoms
    - Change in bowel movements, appearance and frequency
  - Onset and frequency of symptoms
    - At least once a week in the last 3 months and
    - First started at least 6 months ago
  - Checking for other symptoms
    - Anemia (Blood test required)
    - Bleeding from rectum
    - Bloody stools or black stools
    - Weight loss

Clinical Management of IBS

- Establishing an effective clinician-client relationship.
- Shown to reduce repetitive office visits
- Assure that it is not life-threatening, but lifelong management
- Symptom management → No single therapy

Establish Rapport

- Medication to treat symptoms
- Stress reduction/management (may include medication)
- Diet modification

Medical management

Nutrition Management For IBS

Education and negotiation of nutritional goals with clients

Nutrition Management and Dietary Assessment	Education, Negotiation and Goal Formulation
<u>Goal 1</u>: Regular meal pattern - Clients with IBS should be advised to establish a regular meal pattern. - IBS clients should be recommended to avoid large meals as well as to take time to eat, to sit down to eat, and to chew food thoroughly **Questions:** ➢ How many meals do you consume per day? ➢ How many hours in between each meal? ➢ What time is the last meal of the day? ➢ How would you describe your level of "fullness" after each meal? ➢ How long do you take to finish each meal?	**Educate**: i. Regular meal times ii. Avoid skipping meals, leaving long gaps between eating or eating late at night. iii. Small frequent meals. **Goal Negotiation**: - Timing and portion size of meals - Types of food for late meals, if required

Nutrition Management For IBS

Education and negotiation of nutritional goals with clients

Nutrition Management and Dietary Assessment	Education, Negotiation and Goal Formulation
Goal 2: Alcohol and caffeine intake - Regulate alcohol intake if it is one of trigger - Caffeinated beverages, particularly coffee **Question**: ➢ Do you drink alcohol? If yes, how much a day? ➢ Do you take caffeinated beverages? (If yes to caffeinated beverages) ➢ How many caffeinated beverages do you drink a day? (E.g. coffee, black tea (Earl grey, English Breakfast), cola drinks)	**Educate:** i. Not more than 2 drinks/day for men, and not more than 1/day for women. ii. Cut down on coffee or caffeine intake, or switch to decaffeinated beverages. **Goal Negotiation** - Cut down or remove alcoholic drinks from diet - Not more than 1 cup of caffeinated drinks per day. - Avoid consuming caffeinated beverages on empty stomach.

Nutrition Management For IBS

Education and negotiation of nutritional goals with clients

Nutrition Management and Dietary Assessment	Education, Negotiation and Goal Formulation
Goal 3: Spicy food intake - Spicy food ingestion of more than 10 times a week is known to increase the likelihood of suffering from IBS **Question**: ➢ How often do you consume spicy food, especially chilli?	**Educate:** i. Identify dishes that is spicy and is known to trigger IBS. ii. Cut down on usage of spices in cooking and diet **Goal Negotiation** - Replace chili with other spices/herbs in cooking. - Cut down on frequency of spicy food intake.

Nutrition Management For IBS

Education and negotiation of nutritional goals with clients

Nutrition Management and Dietary Assessment	Education, Negotiation and Goal Formulation
Goal 4: Regulate fat intake - Avoidance of fatty foods is one of the most frequent dietary approaches considered by IBS clients for symptoms improvement. **Question**: ➢ How often do you eat deep fried or oily food? ➢ What kind of cooking oil do you use? ➢ How often do you consume nuts, e.g. walnuts, almond, peanuts (healthier choices)? ➢ How often do you consume cold water fishes in a week?	**Educate:** i. Total fat intake for an adult should range between 25% - 30% of total energy. ii. Aim for polyunsaturated and monounsaturated fat sources. **Goal Negotiation** - Switching cooking oil if not currently using PUFA cooking oil - Frequency of polyunsaturated and monounsaturated containing food into diet - Cost consideration should be discussed

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Nutrition Management For IBS

Education and negotiation of nutritional goals with clients

Nutrition Management and Dietary Assessment	Education, Negotiation and Goal Formulation
Goal 5: Dietary fibre intake - Introduction of dietary fibre (both soluble and insoluble) should be gradual and tailored for individual. - Increase in dietary fibre intake should be accompanied with fluid intake. **Question**: ➢ How many servings of fruits and vegetables do you consume a day? ➢ Do you add fibre to diet as supplements, e.g. psyllium husk, wheat bran, etc? (If yes to above question) ➢ How much of this fibre do you consume per day?	**Educate:** i. Types of fibre – soluble and insoluble ii. Symptoms to take note of when consuming new fibre containing food/supplements. **Goal Negotiation:** - If added fibre is required, to switch from wheat bran to psyllium husk (lower fermentability hence more tolerable by IBS individual). - Gradual increase of fibre containing food to diet - Manage fluid intake to ensure adequate fluid consumption to match with increase in fibre intake.

Nutrition Management For IBS

Education and negotiation of nutritional goals with clients

Nutrition Management and Dietary Assessment	Education, Negotiation and Goal Formulation
Goal 6: Milk and dairy products intake - Milk and dairy products contain lactose, a disaccharide that is not well digested by a large proportion of adults worldwide. - Undigested lactose causes gas production and leads to bloating, abdominal discomfort and loose stools. **Question**: ➢ Do you consume dairy products, e.g. cow's milk? (If yes to previous question) ➢ How many glasses do you consume a day? ➢ Are you able to tolerate yogurt and cheese in diet?	**Educate:** i. Types of milk (aim for low fat/skimmed dairy products) ii. Dairy products that is lower in lactose compared to milk **Goal Negotiation:** - Substituting milk with other dairy products, e.g, probiotic yogurt, hard cheeses with lower lactose contents. - Lactose-free milk as substitute for normal milk - Using low fat or skimmed milk options

Recap on Nutrition Assessment

- A-B-C-D framework

	Data to collect
A – Anthropometric measurements	- Height - Weight - Weight history - Body Mass Index (BMI) - Body fat composition
B – Biochemical Data	Laboratory indicators - Liver function test (Serum albumin) - Haematology - Kidney profile - Inflammatory markers
C – Clinical History	- Past and present medical history - Family history
D – Dietary Assessment	- Adequacy of fibre, fluid, and balance of diet - Types of fats - Total calorie intake

Inflammatory Bowel Disease (IBD)

What is Inflammatory Bowel Disease (IBD)?

- Refers to a group of disorder where intestines become inflamed.
- Two major forms of IBD are Crohn's disease (CD) and ulcerative colitis (UC).

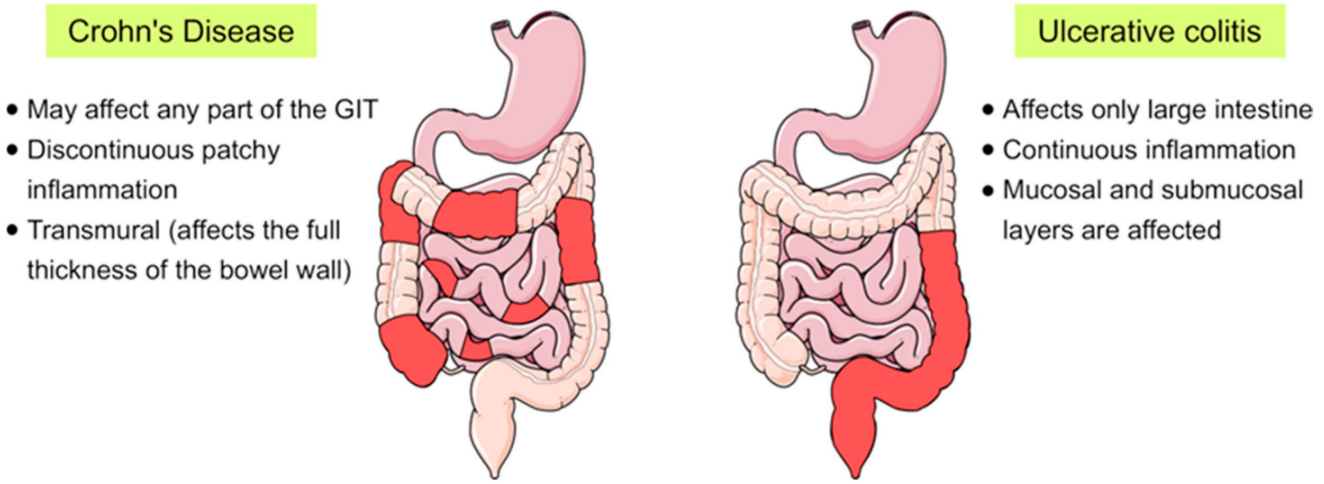
1) Crohn's Disease:

→ May involve any part of the gastrointestinal tract from the mouth to the anus.

2) Ulcerative Colitis:

→ Limited to the colon or large intestine.

- Most commonly, both affects the last part of the small intestine or colon, or both.



Adopted from - https://www.mdpi.com/1422-0067/20/21/5331

Prevalence Of IBD

- Lower prevalence in Asia than the West
- Prevalence of IBD in Asia has grown over past 2 decades
- Higher prevalence in male than female (UC)
- Ulcerative Colitis more common than Crohn's Disease in Singapore

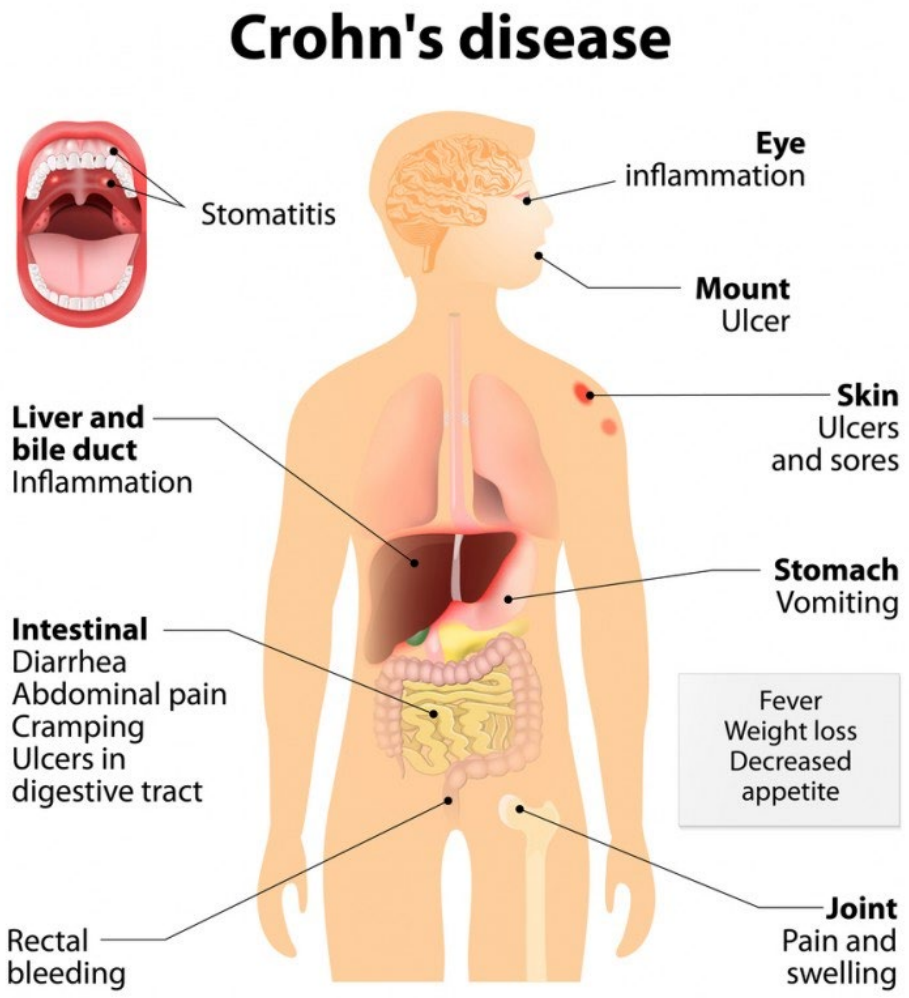
→ Ulcerative Colitis – 8.6 cases per 100k individual

→ Crohn's Disease – 7.2 cases per 100k individual

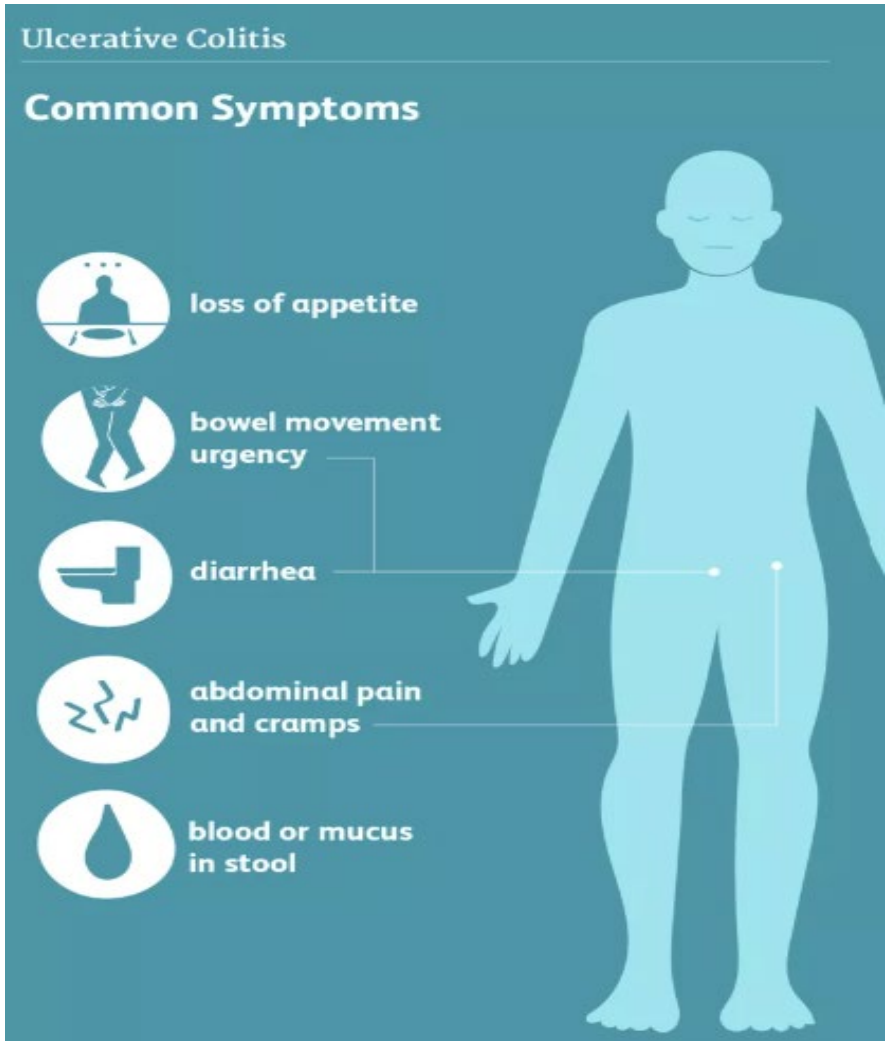
- Indians have highest prevalence of Ulcerative Colitis in Singapore.

Adopted from https://academiccme.com/courses/clinical-updates-for-the-optimal-management-of-patients-with-inflammatory-bowel-disease/

Signs and Symptoms of IBD

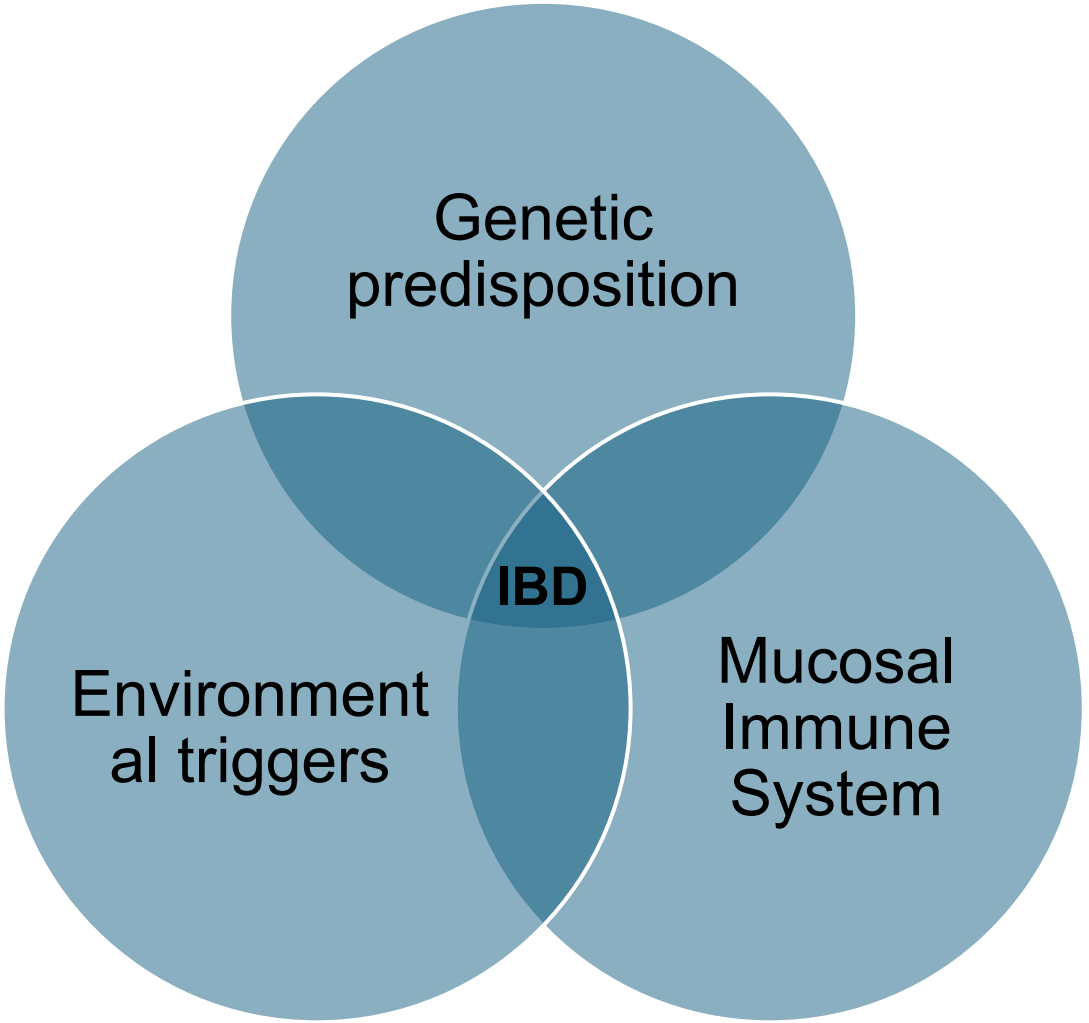


Adopted from https://www.thebestofhealth.co.uk/health-conditions/aches-pains/understanding-crohns-disease/



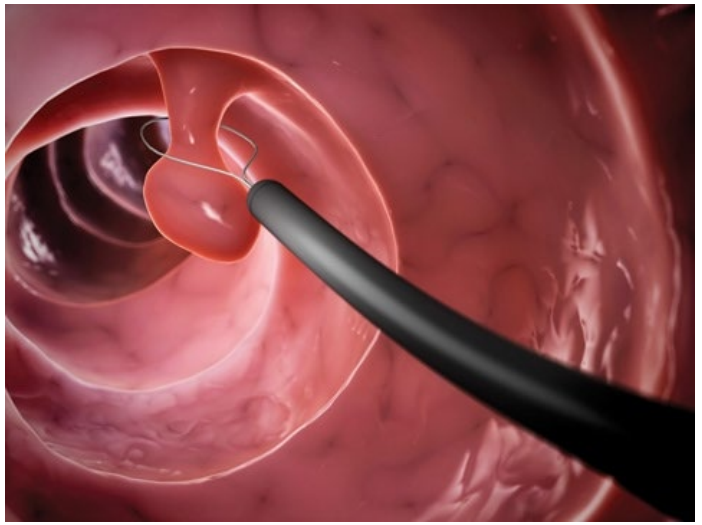
Adopted from https://www.verywellhealth.com/ulcerative-colitis-signs-symptoms-and-complications-4163778

Aetiology of IBD

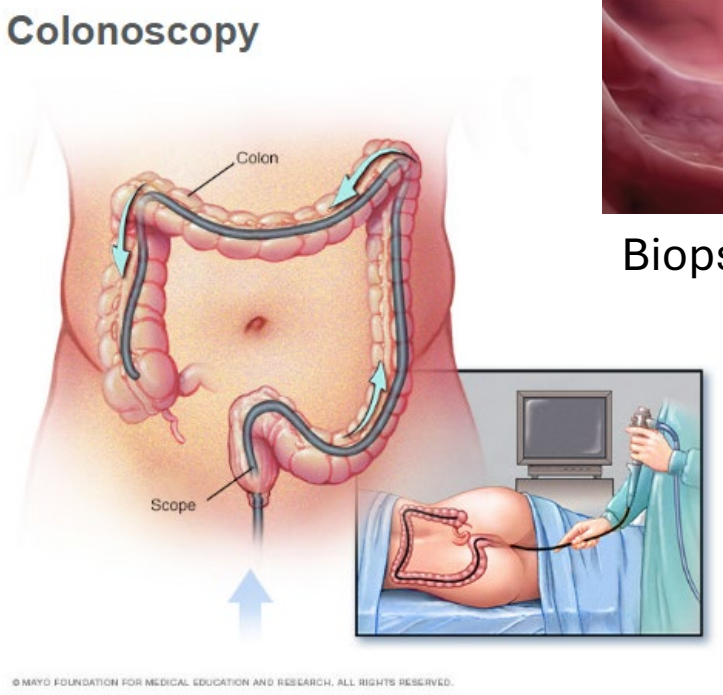


Diagnosis of IBD

- Colonoscopy & biopsy
- Stool sample and blood test
- Barium enema
- Plain film or X-ray
- Computer tomography (CT) and magnetic resonance imaging (MRI)



Biopsy taken during a colonoscopy



During a colonoscopy, the doctor inserts a colonoscope into your rectum to check for abnormalities in your entire colon.

Adopted from - https://columbiasurgery.org/conditions-and-treatments/colonoscopy

Clinical Management of IBD

Medical Management

- Induce and maintain remission and to improve nutrition status.
- Use of medications to manage symptoms.
- Supplements should be taken after consultation
- Total parenteral nutrition (TPN) or enteral nutrition (EN)

Surgical Management

- 50 – 70% of individual with CD require surgery to alleviate symptoms, not cure.
- ~20% of individual with UC have colectomy and removal of colon as a treatment.

Nutrition Management For IBD

Education and negotiation of nutritional goals with clients

Nutrition Management and Dietary Assessment	Education, Negotiation and Goal Formulation
Goal 1: Prevent and management of weight loss i) Through healthy balanced diet that is sufficient to avoid macronutrient and micronutrient deficiencies. **Questions: Detailed food record required** ➢ How many meals do you consume per day? ➢ How much of each food group do you consume per meal? ➢ Is there intake of oral nutritional supplements? (If yes to previous question) ➢ What is client consuming and how much a day? ➢ Does client avoid any food/food group in particular? → Overall goal is to meet energy and nutritional requirement.	**Educate**: i. Small, manageable meals that can meet nutritional requirements. ii. Clarify misconceptions towards food and fears. iii. Introduce oral nutritional supplements. iv. Importance of energy and macronutrient adequacy. **Goal Negotiation**: - Timing and portion size of meals - Food elimination - Trial and recording of “misunderstood” food - Ways to increase or maintain calorie content of diet

Nutrition Management For IBD

Education and negotiation of nutritional goals with clients

Nutrition Management and Dietary Assessment	Education, Negotiation and Goal Formulation
Goal 2: Prevent and management of weight loss ii) Through EN to meet nutritional requirement. **Management:** ➢ TPN for "bowel rest" not necessary ➢ Can be used in conjunction with EN ➢ Start with slow feeding rate, preferably elemental feeds.	**Educate:** i. Management and feeding of EN ii. Caring for EN tube iii. Management of poor tolerance towards EN. **Goal Negotiation** - Client or family consent required for insertion of feeding tube - Weight goal to be negotiated with client or family.

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Recap on Nutrition Assessment

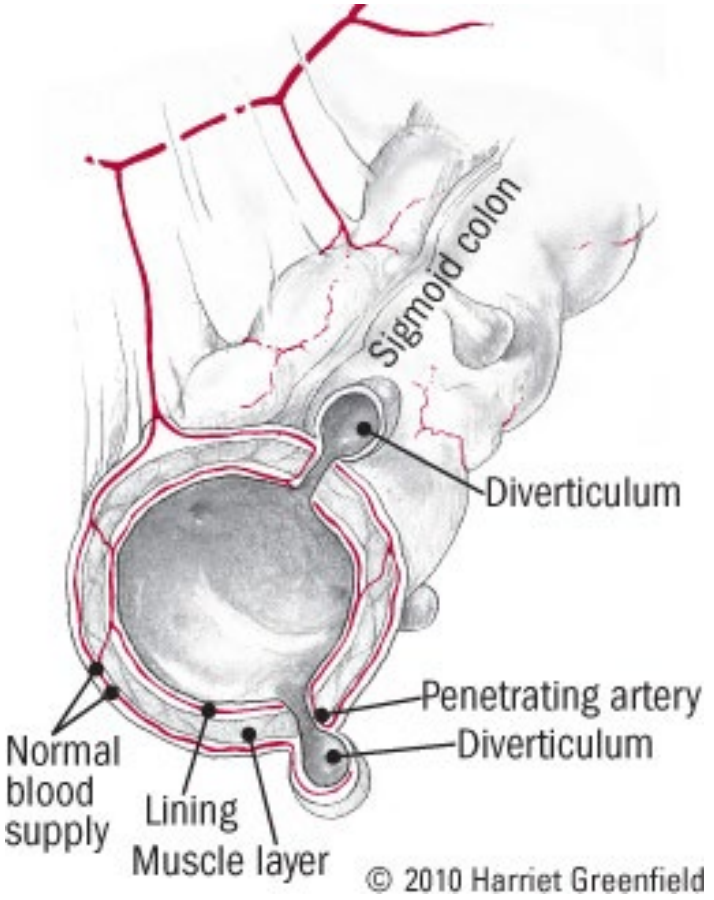
- A-B-C-D framework

	Data to collect	
A – Anthropometric measurements	- Height - Weight - Weight history - Body Mass Index (BMI) - Body fat composition	
B – Biochemical Data	Laboratory indicators - Liver function test - Haematology - Kidney profile - Inflammatory markers	- Urinalysis - Temperature - Blood pressure
C – Clinical History	- Past and present medical history - Family history	
D – Dietary Assessment	- Management of EN feeding to meet nutritional requirement - Total calorie provision if on EN - Balance of diet if on oral intake.	

Diverticular Disease

What is Diverticular Disease?

- One of the most common medical conditions among industrialized countries.
- Usually in the colon
- Diverticulosis is the formation of sac-like pouch or pockets (diverticulum) within the colon that form when colonic mucosa and submucosa herniate through weakened areas in the muscle.
- Diverticulitis is the complication of diverticulosis that indicates inflammation of one or more diverticulum.



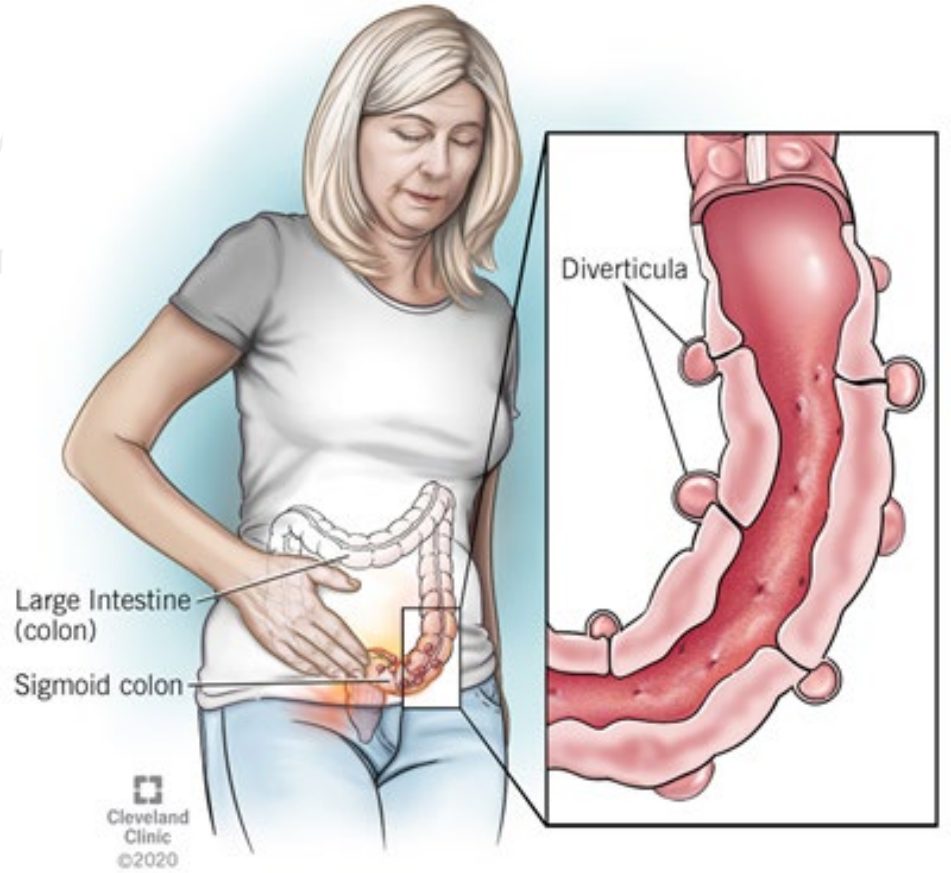
Adopted from - https://www.health.harvard.edu/diseases-and-conditions/diverticular-disease-of-the-colon

Prevalence Of Diverticular Disease

- More common in older people
- Increasing from less than 5% at age 40, to 30% by to 65% by age 85.
- Prevalence difficult to determine, mostly asympton
- Among all patients with diverticulosis:

➢ 80-85% remain asymptomatic

➢ 15-20% develop diverticulitis



Adopted from https://my.clevelandclinic.org/health/diseases/10352-diverticular-disease

Signs and Symptoms of Diverticular Disease

- Diverticular disease and diverticulosis usually asymptomatic
- Diverticulitis has the following symptoms:

→ Pain in the tummy (usually lower left side)

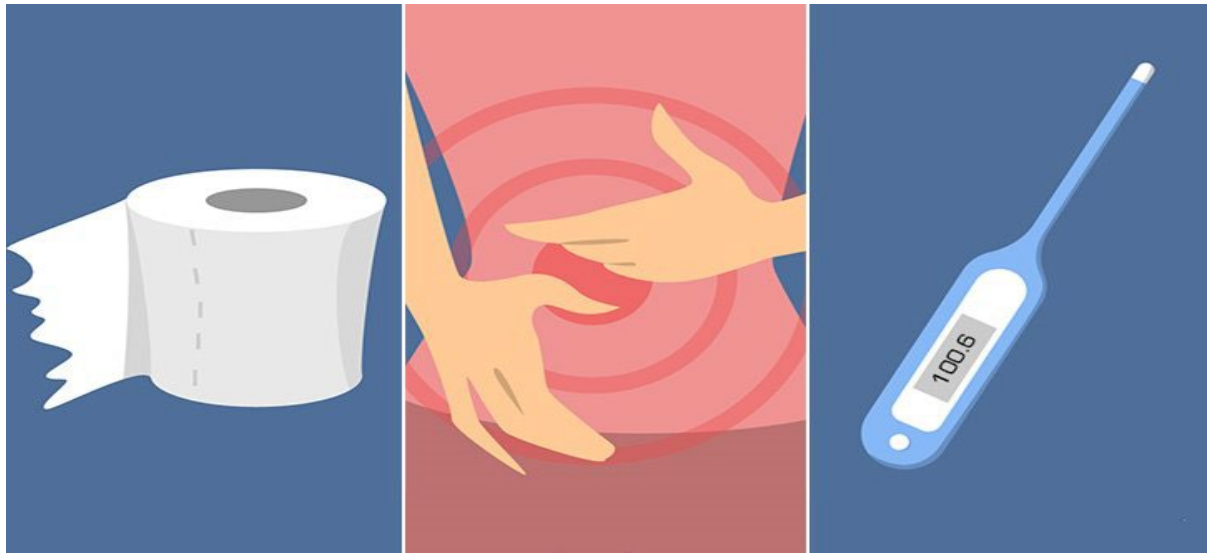
→ Fever

→ Nausea and vomiting

→ Constipation

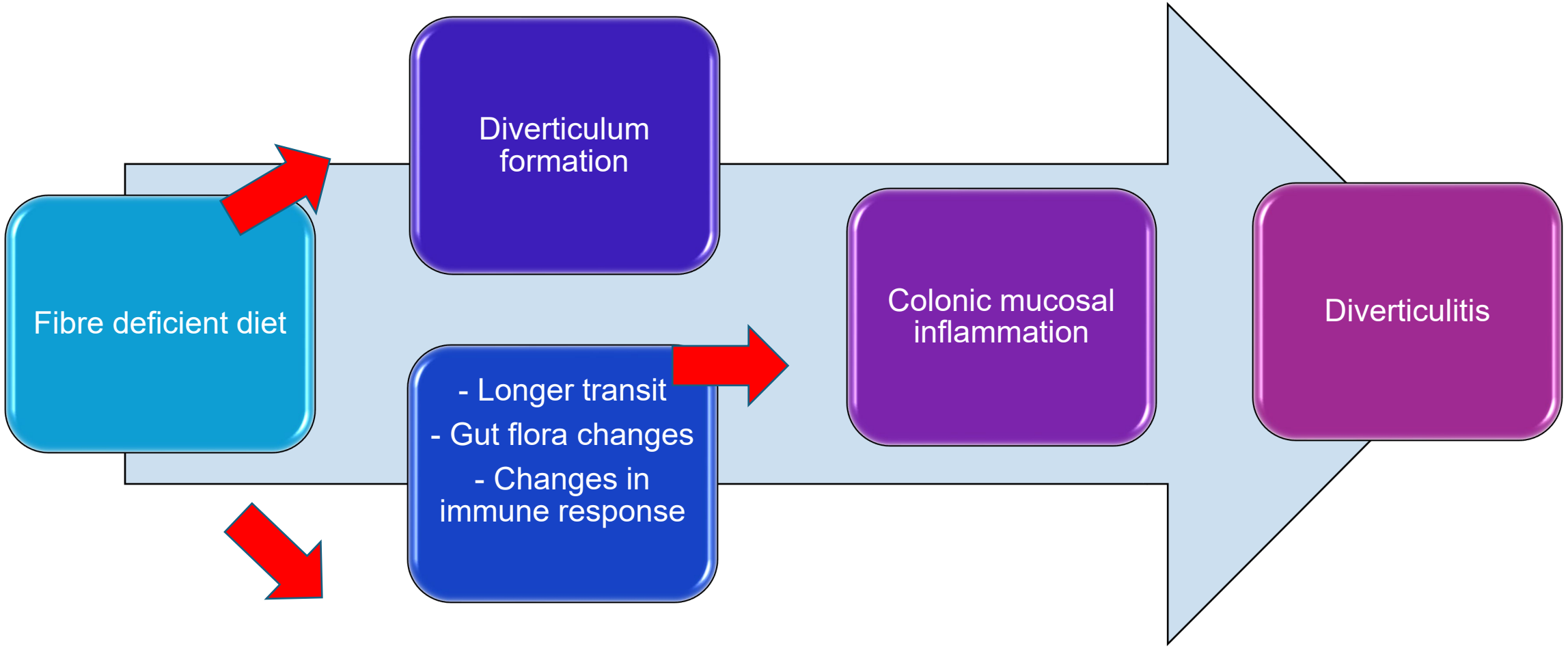
→ Diarrhoea

→ Urinary symptoms



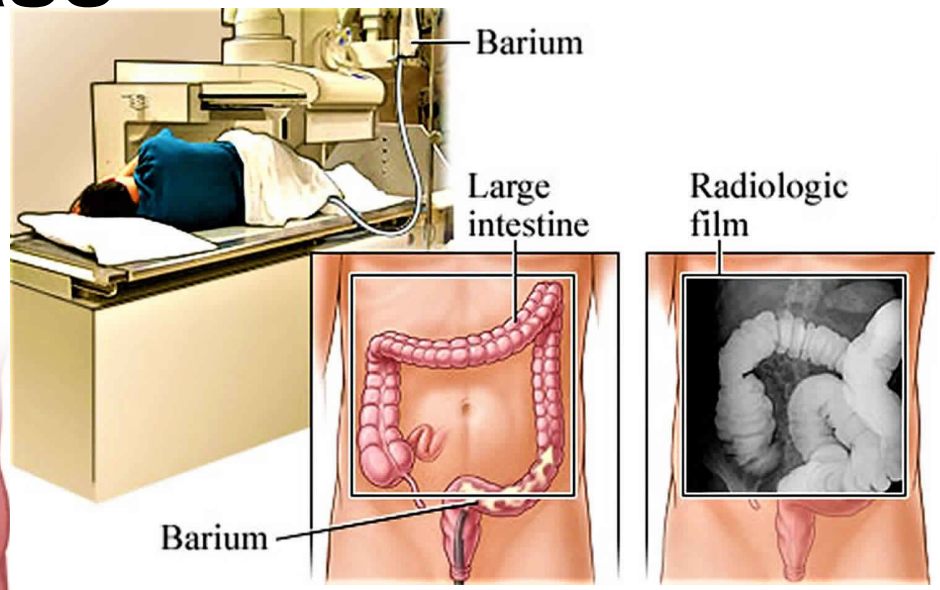
Adopted from - https://www.everydayhealth.com/diverticulitis/guide/symptoms/

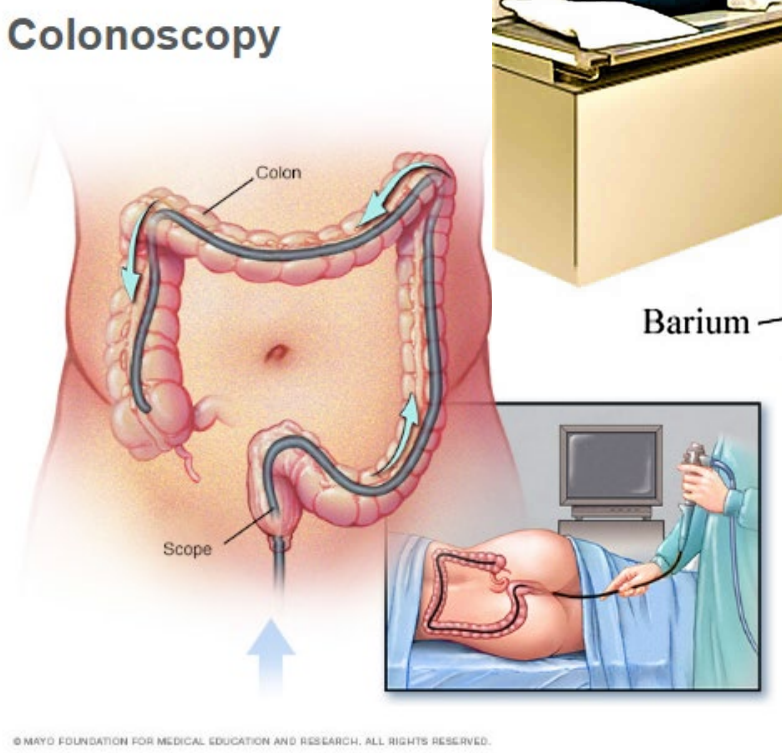
Aetiology of Diverticular Disease



Diagnosis of Diverticular Disease

- Barium enema - an x-ray study that uses contrast, barium to view the outline of the large bowel.
- Colonoscopy - a video examination of the entire large bowel with a long flexible tube which is inserted through the anus.





During a colonoscopy, the doctor inserts a colonoscope into your rectum to check for abnormalities in your entire colon.

Clinical Management of IBD

Medical Management

- Antibiotics and adjustments of oral intake as per tolerated.
- Intravenous antibiotics for severe and acute pain.

Surgical Management

- Reserved for severe and recurrent episodes of diverticulitis.
- Removes only diseased part of colon

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Nutrition Management For Diverticular Disease

Education and negotiation of nutritional goals with clients

Nutrition Management and Dietary Assessment	Education, Negotiation and Goal Formulation
<u>Goal 1</u>: Prevention of diverticular disease → Increasing fibre in the diet may help to bulk the stools and prevent the formation of new diverticuli, diverticulitis, or diverticular bleeding. **Questions:** ➢ How many servings of fruits and vegetables do you consume per day? ➢ Do you eat the skin of the fruits and vegetables (wherever possible)? ➢ Any additional fibre supplement added to diet? ➢ How many glasses of plain water do you drink per day?	**Educate**: i. Types of fibre – soluble and insoluble ii. Symptoms to take note of when consuming new fibre containing food/supplements. iii. Fluid and fibre intake should be synchronous **Goal Negotiation:** - Gradual increase of fibre containing food to diet - Manage fluid intake to ensure adequate fluid consumption to match with increase in fibre intake.

Nutrition Management For Diverticular Disease

Education and negotiation of nutritional goals with clients

Nutrition Management and Dietary Assessment	Education, Negotiation and Goal Formulation
Goal 2: Management of diverticulitis with severe symptoms. **Management:** ➢ TPN for "bowel rest" ➢ IF oral intake is allowed: → Low fibre diet to be followed - Clear soup/fluid - Refined carbohydrates - Vegetables cooked soft with no skins or seeds - Canned fruit or cooked fruits with no skin or seeds - Fruit juice with no pulp - Dairy products	**Educate:** i. Importance of low fibre diet ii. Types of food low in fibre iii. When to slowly incorporate fibre into diet again **Goal Negotiation** - Preference of fruits and vegetables - To keep a food record - Ensure adequate fluid intake

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Recap on Nutrition Assessment

- A-B-C-D framework

	Data to collect	
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C – Clinical History	- Past and present medical history - Family history	
D – Dietary Assessment	- Total calorie provision - Fibre intake	

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