

Overview of Pediatric IBD

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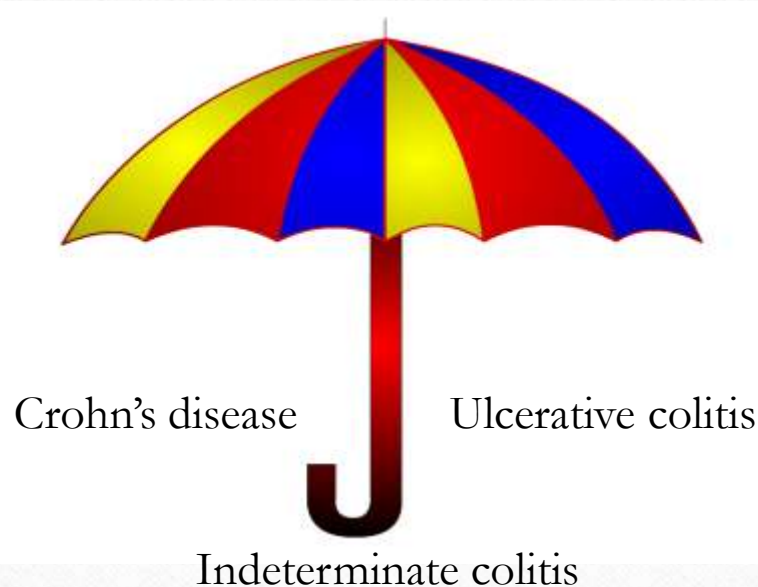
Seattle Children's IBD Center

Roadmap

- What is inflammatory bowel disease (IBD)
- Differences between Crohn's disease and ulcerative colitis
- Prevalence of IBD
- Possible causes of IBD
- The science of autoimmune diseases
- New findings in IBD

What is IBD?

- Inflammatory Bowel Disease (IBD) is a general term describing 3 disease entities: Crohn's disease, ulcerative colitis (UC) and indeterminate colitis.



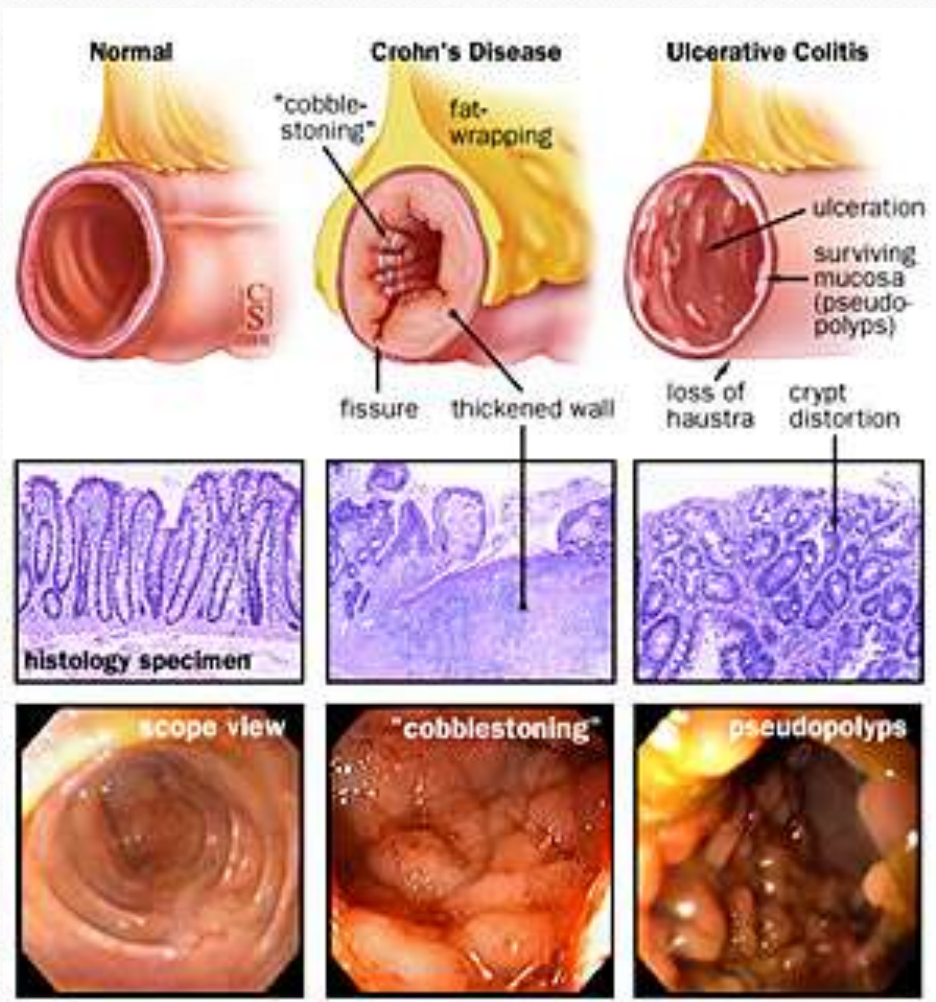
Crohn's or UC

Crohn's disease

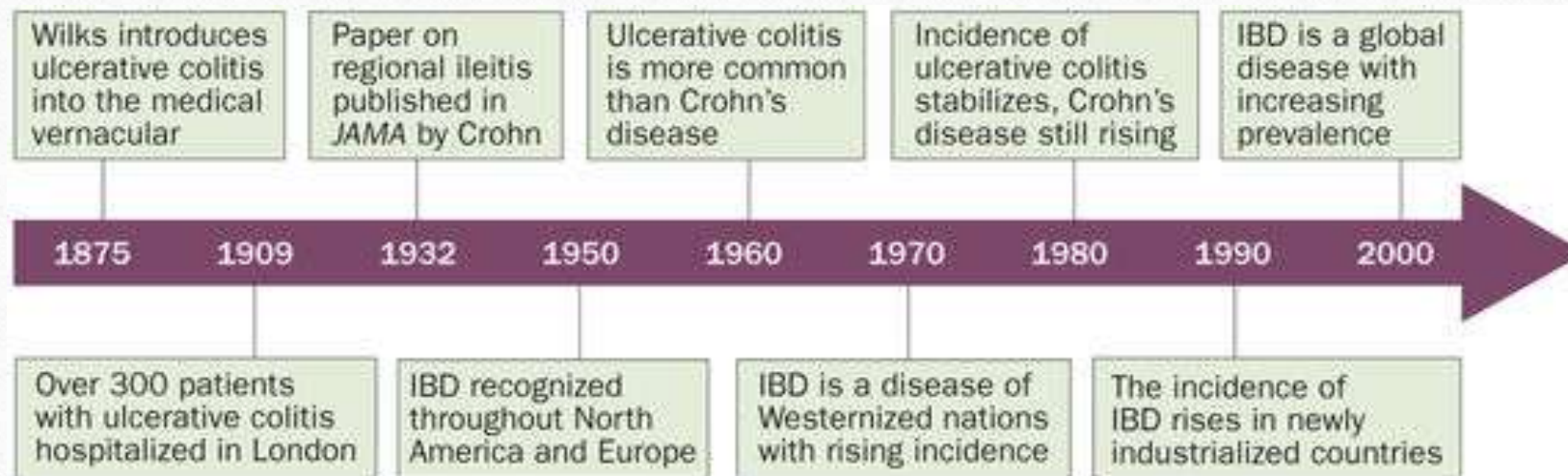
- Can occur in any part of the intestine- gum to bum.
- May skip areas of involvement.
- Ulcers may penetrate the entire wall of the intestine.

Ulcerative colitis

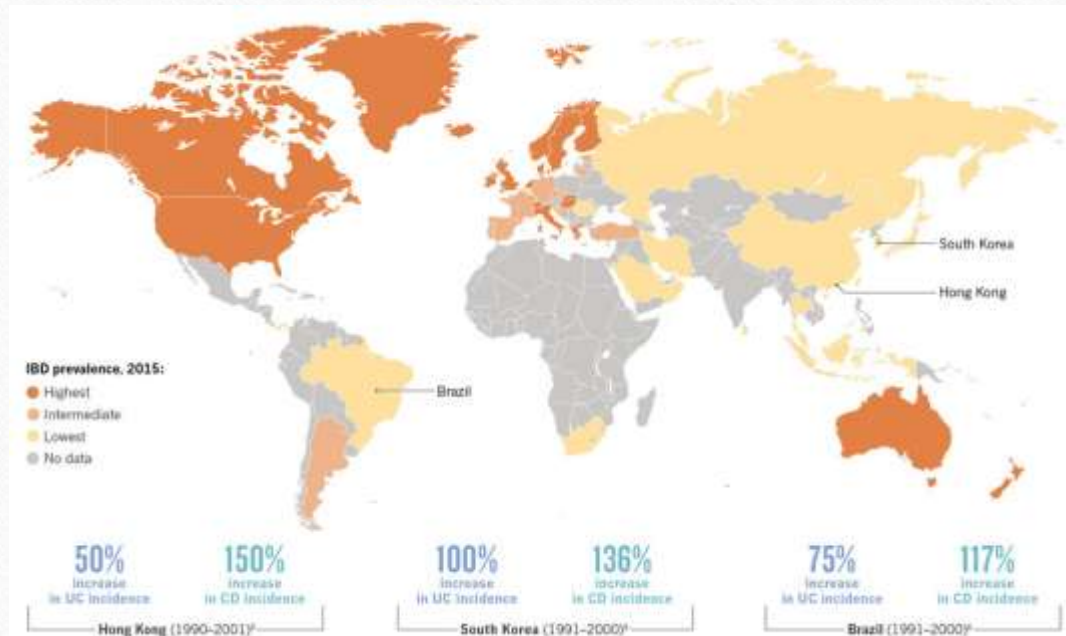
- Limited to the large intestine- colon and rectum.
- Continuous involvement.
- Ulcers penetrate only the top layer of the intestine.



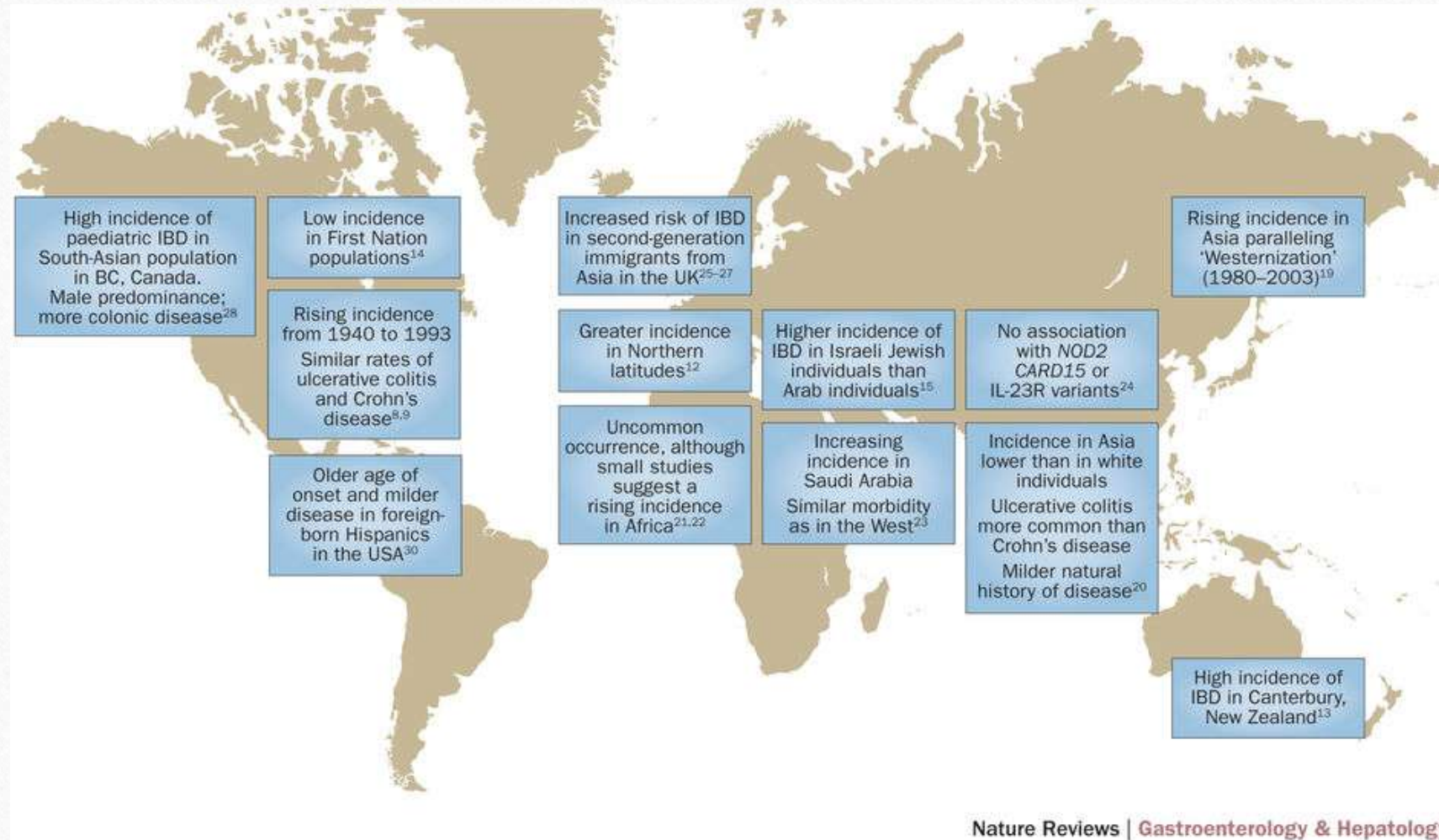
IBD Prevalence



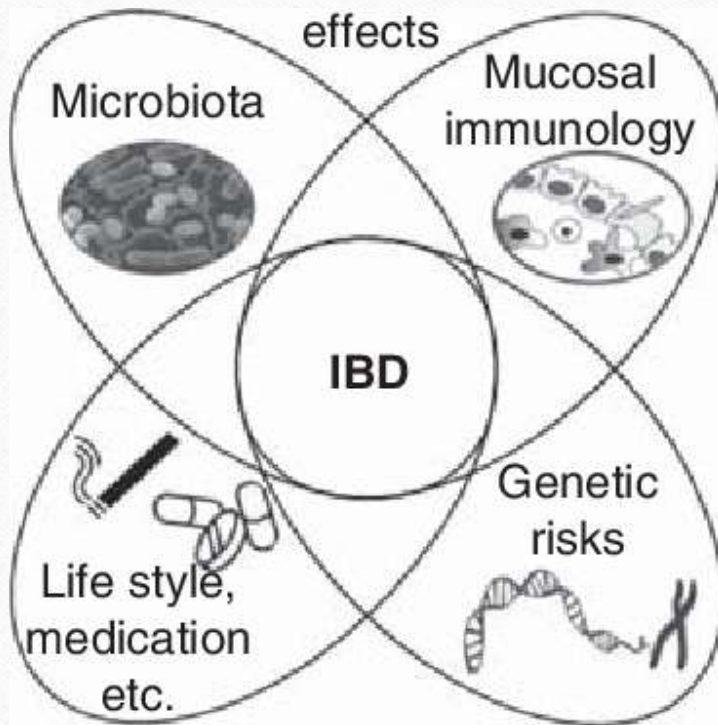
IBD Prevalence



- Over 5 million people have IBD (1.6 in US)
- Seen more in industrialized countries
- More common in northern latitudes
- Equal male and female
- 25% diagnosed as children

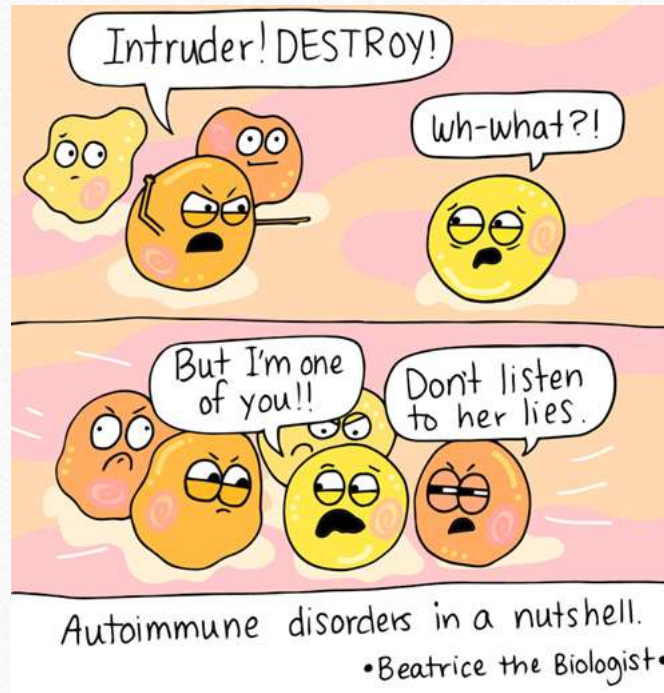


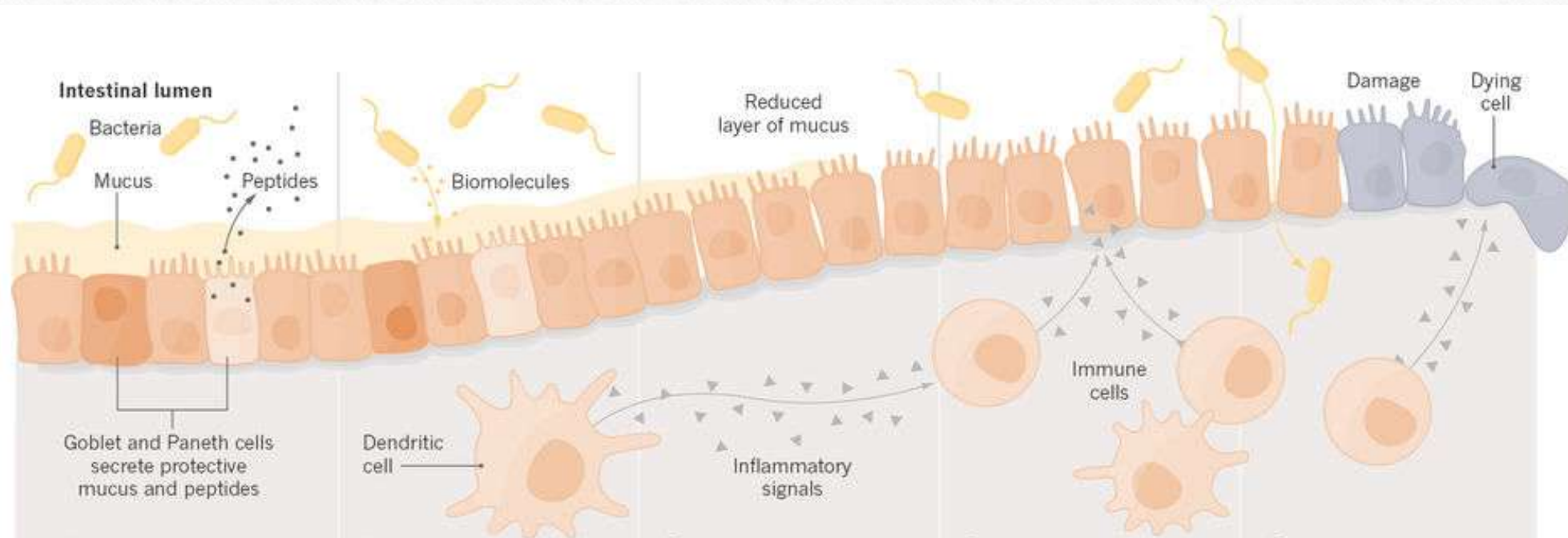
Possible Causes of IBD



- IBD may be triggered by a dysbiosis of bacteria in the gut.
- Over 200 genes contribute to IBD risk
- 5-20% of patients have a blood relative with IBD
- Antibiotic exposure has been linked to developing IBD
- Immune system disturbance

Science of Autoimmune Diseases





1 Healthy gut epithelial cells form a tightly sealed barrier against materials in the intestinal lumen. Goblet cells form mucus and Paneth cells secrete antimicrobial peptides that fight pathogens and regulate commensal gut bacteria.

2 Biomolecules secreted by gut bacteria trigger an inflammatory response in epithelial cells and in threat detecting immune cells known as dendritic cells.

3 This bacteria-triggered inflammatory process disrupts the tight seal of the epithelial barrier. At the same time, dendritic cells induce inflammation in the tissue layer beneath epithelial cells.

4 Inflammatory signals recruit more dendritic cells and immune cells such as T and B cells. These cells fuel further inflammation and damage the epithelial layer.

5 Gut microbes in the intestinal lumen pass through the now-leaky epithelial wall, further fuelling the antibacterial immune response. This immune attack and inflammatory damage ultimately lead to epithelial cell death.

IBD Symptoms

- Abdominal pain
- Diarrhea
- Weight loss
- Rectal bleeding
- Growth impairment
- Perirectal disease
- Anxiety/depression
- Extraintestinal manifestations
 - Joint pain
 - Rash
 - Iritis (sensitivity to light)
 - Bone loss

IBD Treatment Goals

1. No symptoms
2. Normal growth and advancement through puberty
3. Normal labs
4. Normal bone health
5. Healing of the intestinal mucosa as seen by biopsy

What's New in IBD?

- Stelara approved for Crohn's disease
- Biosimilars are hitting the market
- New, different medications in the pipeline (SMAD7, JAK-inhibitors, S1P)
- Increasing knowledge about diet in IBD
- Ongoing research about gut microbiome in IBD