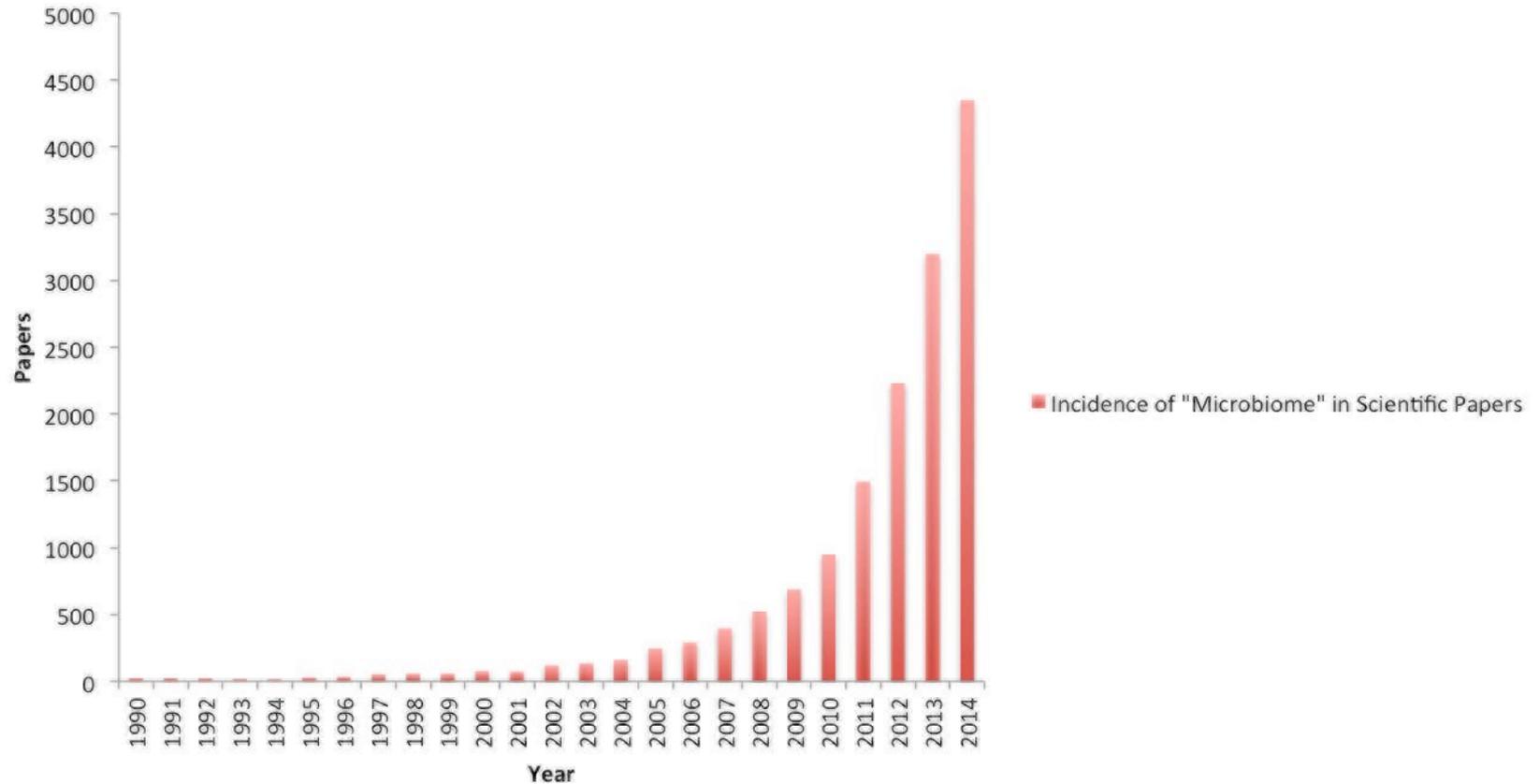


PART 1

# HOW AND WHY WE GET SIBO: UNDERSTANDING THE ROOT CAUSE

GUTBLISS GUIDE TO SIBO

## Incidence of "Microbiome" in Scientific Papers



# Concept of Terrain

- Gastrointestinal “soil”
- Pathobionts
- Multifactorial etiology
- Imbalance

# Categories

- Anatomical
- Pharmaceutical
- Dietary
- Lifestyle

# Perfect Storm

- 69 year old male stockbroker
- Sedentary lifestyle
- Heavy drinker
- Nexium for 17 years
- Multiple courses of antibiotics for prostatitis
- Meat and potatoes diet
- Gets Norovirus on a cruise (treated with abx!)
- Ends up with SIBO

# Varied Manifestations

- Symptoms vary depending on colonization
- Absolute number of organisms:
  - Less than  $10^3$  organisms in proximal SB, mostly gram +
- Type of microbial flora present:
  1. Predominance of bacteria that metabolize bile salts can lead to fat malabsorption or bile salt diarrhea
  2. Bacteria that metabolize carbohydrates to SCFAs and gas can cause bloating *without* diarrhea because the metabolic products are absorbed
  3. Gram-negative bacteria like *Klebsiella* species can produce toxins that damage the mucosa, interfering with absorptive function and causing secretion and diarrhea

# Prevalence of SIBO

- Healthy people 2.5% to 22%
- IBS 30%-85%
- Refractory celiac disease 50%
- Liver cirrhosis 50%
- Lactose intolerant elderly 90%
- Asymptomatic morbidly obese 17%
- PPI users 53%

# Your Questions (1-3)

1. Estrogen is mentioned as having an association with SIBO. Is there SIBO risk if one uses a topical estrogen in HRT?
2. Genes are mentioned as related to SIBO, NOD2, 15(Card15), etc. What is the relevance of these?
3. How do you recommend we address the overuse of PPIs with MDs who are constantly prescribing them?

# Your Questions (4-5)

4. Can we speak about acid suppressors in more detail during the webinar?
5. Do topical NSAIDs such as Voltarin (diclofenac sodium) have any impact on the gut microbiome? If so, what is the mechanism through which an NSAID applied to the skin causes an effect on microbes in the gut?

# Your Questions (6-8)

6. Reading "Typical SIBO Symptoms" one may think that ABSOLUTELY EVERYONE out there has SIBO. I would like to get more direction how to look at these symptoms and distinguish that they are potentially SIBO-caused versus potentially not-SIBO-caused, especially since laboratory tests aren't perfect.
7. How can SIBO cause "difficulty losing weight" and/or "weight loss"?... Would this be dictated by which bacteria strains are imbalanced?
8. What is the physiological pathway for gut microbes to neutralize toxins?

# Your Questions (9-10)

9. These two statements in the PDF about the microbiome seem incongruent:
- “The microbiome we have today isn’t the one we were born with, nor is it the one we’ll have next year or even next week. It’s highly dynamic, constantly changing and adjusting in response to our internal and external environment”
  - “The microbiome reflects everything about you: more unique identifier than your own DNA”
10. Bacteria in the colon consume dietary fiber and produce SCFAs, which are used as energy for bacteria:
- Is it fair to think of SCFAs as “fuel” for the bacteria?
  - What things do the bacteria use the SCFAs for?
  - It sounds like all the SCFAs are in the colon. If so:
    - Where does energy come from for bacteria in the small intestine?
    - Do bacteria in the colon travel up into the small intestine?
    - Do small intestine bacteria travel down to the colon, fuel up on SCFAs and travel back?
  - Journal of Lipid Research, Sept 2013: Role of SCFAs in interplay between diet, gut microbiota, and host energy metabolism”