The Human Gut Microbiome at the Intersection of Public Health and Social Equity

Michael J. Sieler Jr.[1,2]

Affiliations: 1) Department of Microbiology, Oregon State University; 2) Food and Nutrition Section, Oregon Public Health Association

Oregon State University

A GUT MICROBIOME-CENTERED FRAMEWORK

The gut microbiome (GMB) supports human health

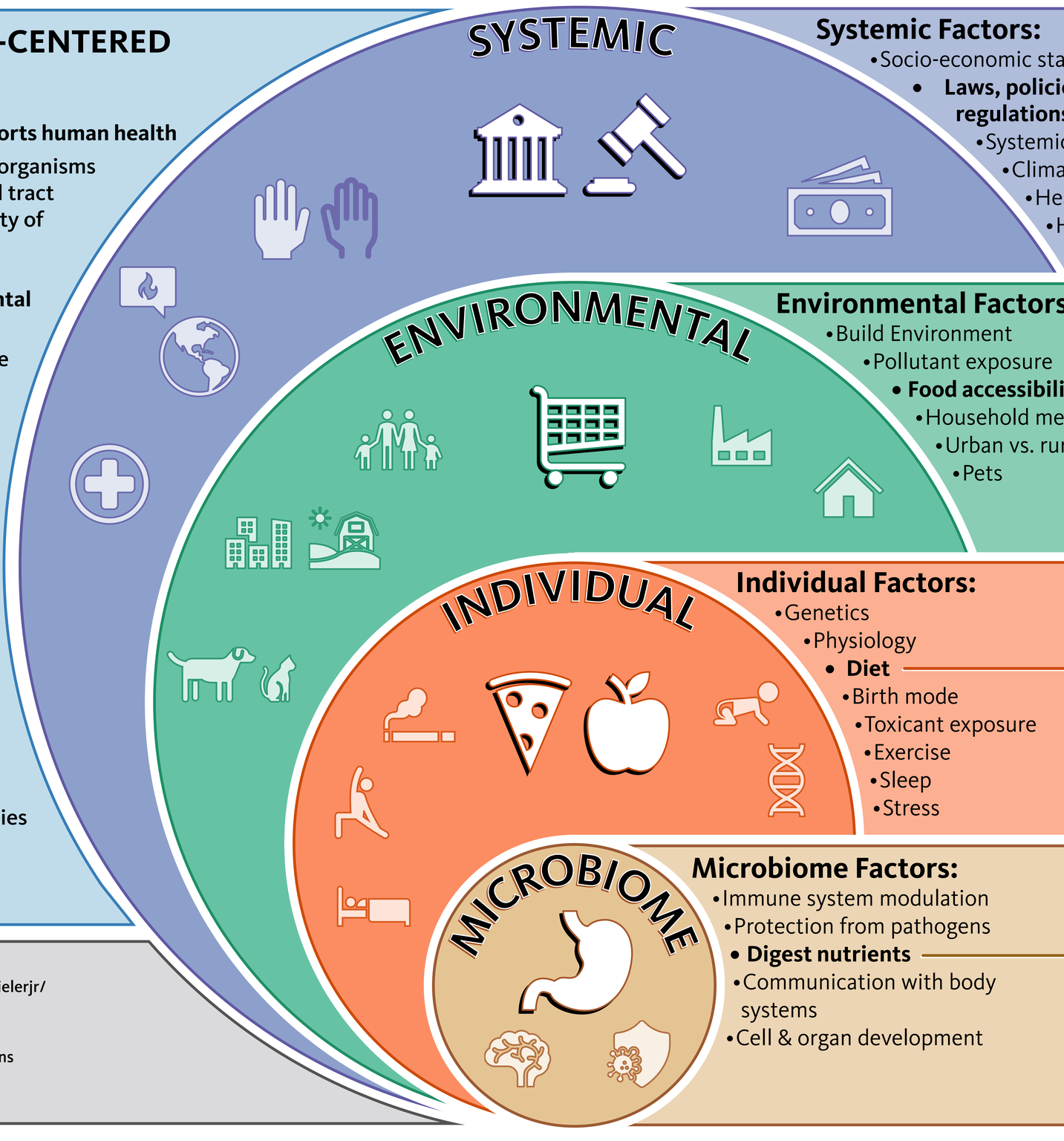
- GMB is the community of microorganisms found along the gastro-intestinal tract
- Microorganisms perform a variety of different roles to support health

GMB mediates socio-environmental factors and individual health

- Variety of factors across multiple scales affect human health
- These factors also impact the GMB composition
- GMB composition influences its ability to support human health

GMB-centered framework connects public health and social equity issues via GMB

- Asks how an issue impacts the gut microbiome
- Provides a holistic, ecological understanding of issues
- Guide more equitable and effective public health interventions, initiatives, & policies



Systemic Factors:

- Socio-economic status
- **Laws, policies, regulations**
- Systemic racism
- Climate change
- Healthcare
- Housing

Systemic-level factors exacerbate or minimize socio-economic inequalities.

Government policies and programs (e.g., SNAP, WIC) address health disparities not surmountable by individual action alone.

Environmental Factors:

- Build Environment
- Pollutant exposure
- **Food accessibility**
- Household members
- Urban vs. rural
- Pets

Environmental-level factors constrain accessibility of health interventions.

Food deserts prevent an individual's ability to access and/or afford to a healthy diet to support gut microbiome health.

Individual Factors:

- Genetics
- Physiology
- **Diet**
- Birth mode
- Toxicant exposure
- Exercise
- Sleep
- Stress

Individual-level factors represent intrinsic factors and personal, lifestyle choices.

Birth mode may impact initial gut microbiome composition, but lifestyle choices (e.g., diet) are major drivers of gut microbiome composition and functioning in adulthood.

Microbiome Factors:

- Immune system modulation
- Protection from pathogens
- **Digest nutrients**
- Communication with body systems
- Cell & organ development

Microbiome-level factors represent the role microorganims play to support human health.

The microbiome's composition and functioning is a reflection of cumulative factors, which impact its ability to support individual health.

Find Michael:
- LinkedIn.com/in/mjsielerjr/
- MichaelSieler.com

Scan QR Code:
- More info and citations
- View poster digitally
- Audio/video options