The gut microbiome at the intersection of public health and social equity

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A GUT MICROBIOME-CENTERED FRAMEWORK

The gut microbiome (GMB) supports human health

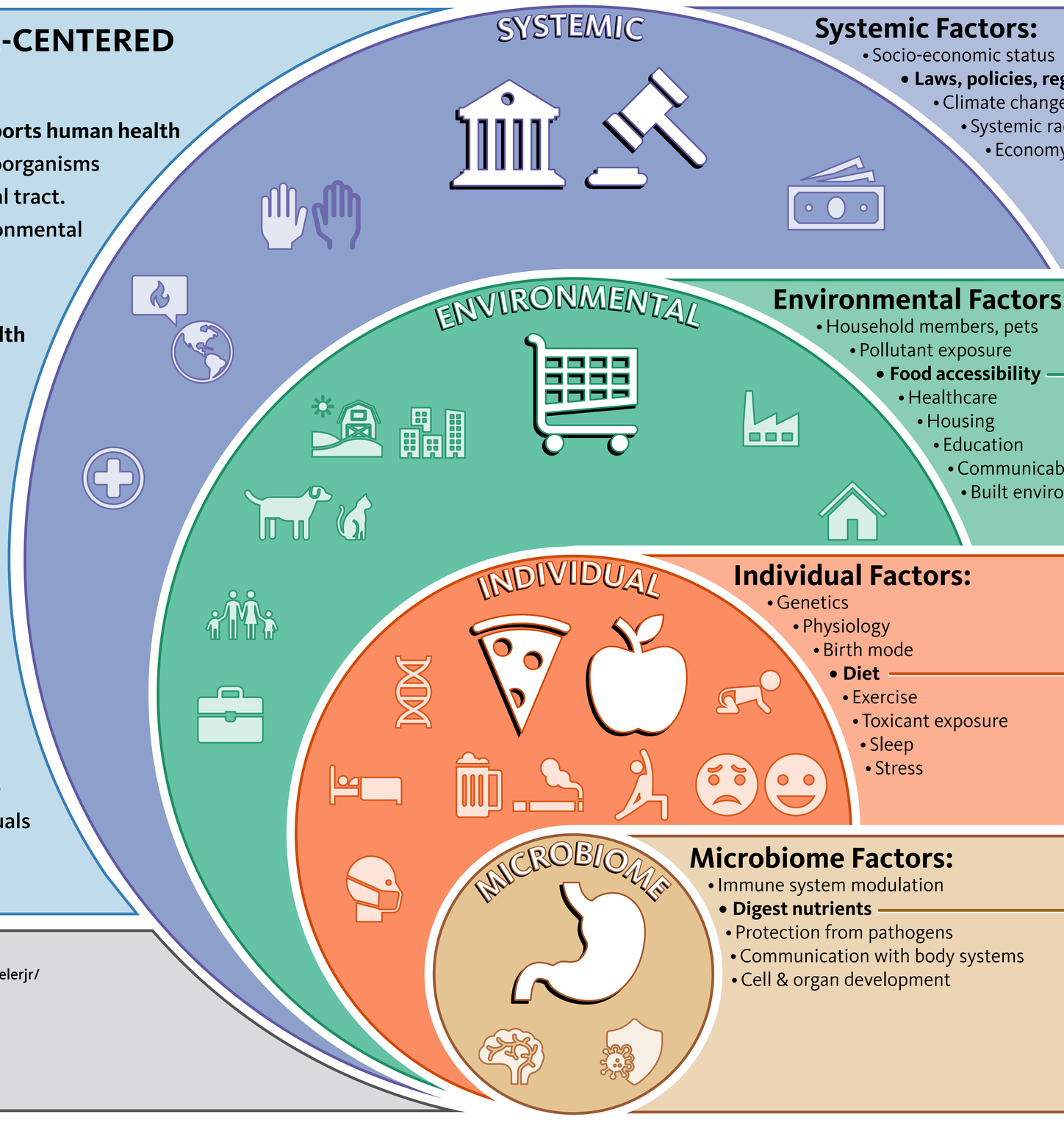
- GMB is the community of microorganisms found along our gastro-intestinal tract.
- The GMB mediates socio-environmental factors and individual health.

A GMB-centered framework can guide more equitable public health policies.

- Provides a holistic, ecological understanding of how public health & social equity issues are interconnected via GMB
- Addresses health disparities at systemic, environmental, and individual levels

Integrating GMB research into public health strategies can enhance interventions and outcomes.

- A GMB-centered view enables more personalized and effective health interventions for individuals and communities.



Systemic Factors:

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

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:

- Household members, pets
- Pollutant exposure
- **Food accessibility**
- Healthcare
- Housing
- Education
- Communicable diseases
- Built environment

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
- Birth mode
- **Diet**
- Exercise
- Toxicant exposure
- 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
- **Digest nutrients**
- Protection from pathogens
- 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.

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