

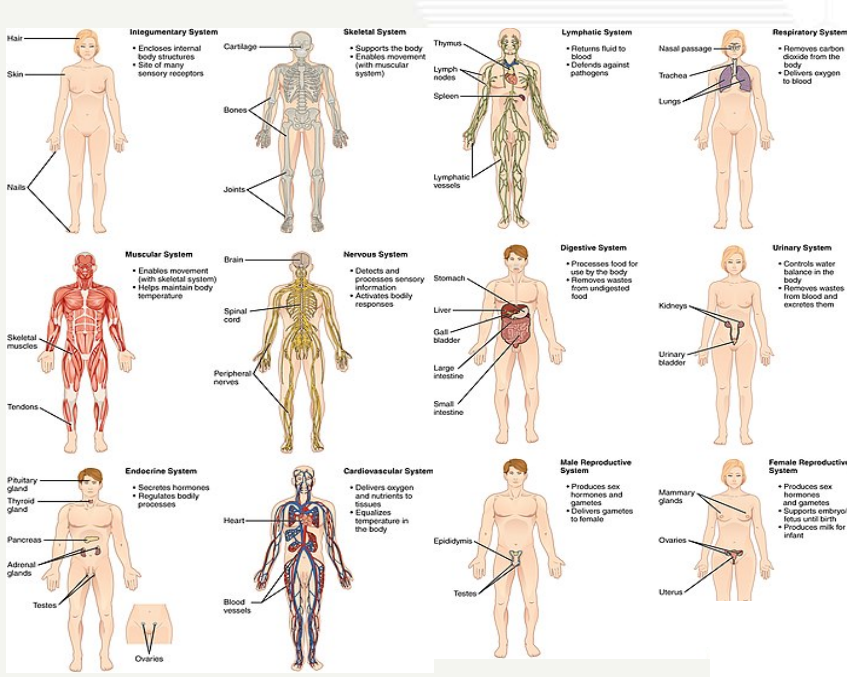
# SYSTEMS THINKING IN HEALTHCARE AND HEALTH PROFESSIONS EDUCATION

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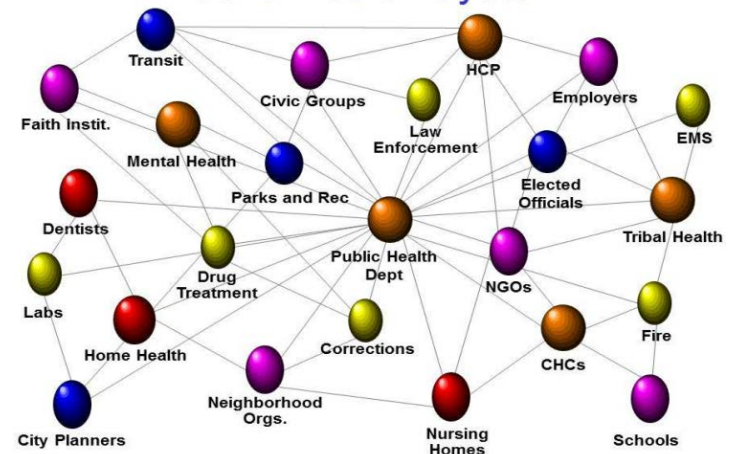
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## Systems ...

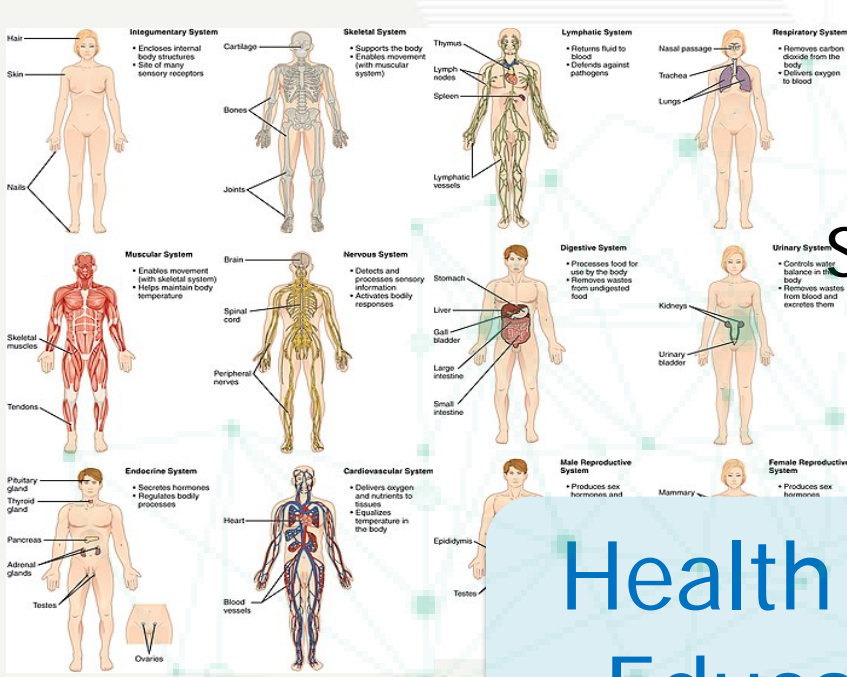


... of systems

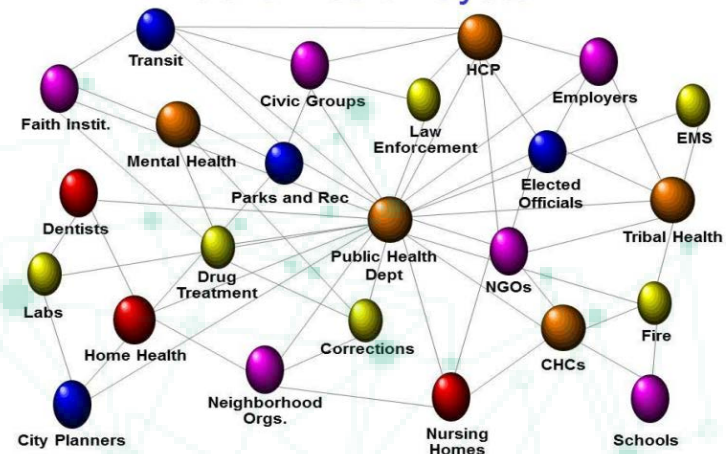


Home  
Community  
School  
Workplace  
NursingHome  
Hospice  
AssistedLiving



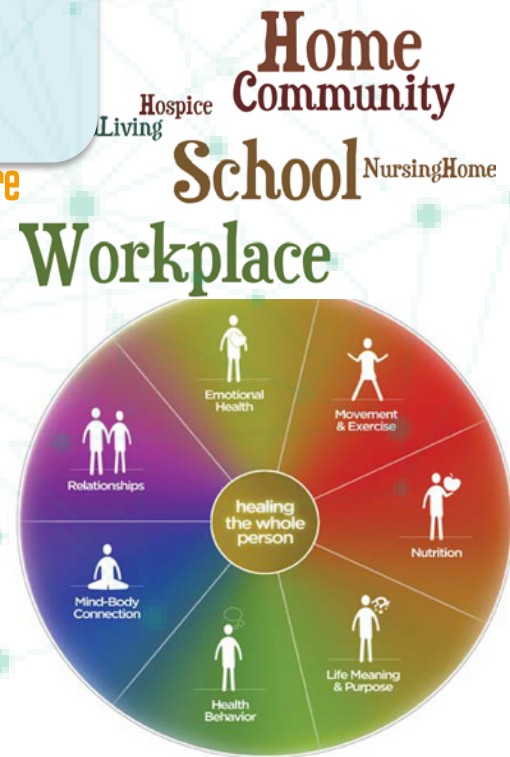


Systems



# Health Professions Education (HPE)

... of systems



# Medical care is insufficient for ensuring better health outcomes

## Systems thinking

Treating the sick → Promoting health and wellbeing

## In health professions education (HPE) and healthcare delivery



# Complex systems



- Multiple stakeholders
- Multiple, often conflicting objectives/incentives
- Variability
- Information limitations, inaccuracy, or asymmetry
- Uncertainty
- Disruptions
- Optimizing individual components  $\neq$  Optimizing system  $\rightarrow$  Need to align incentives



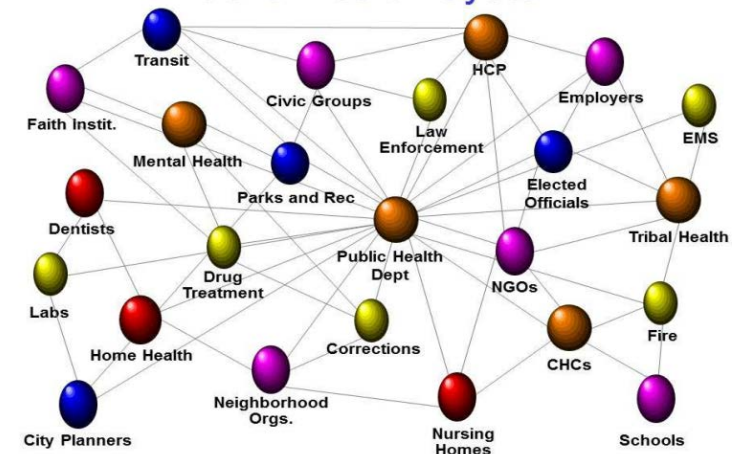
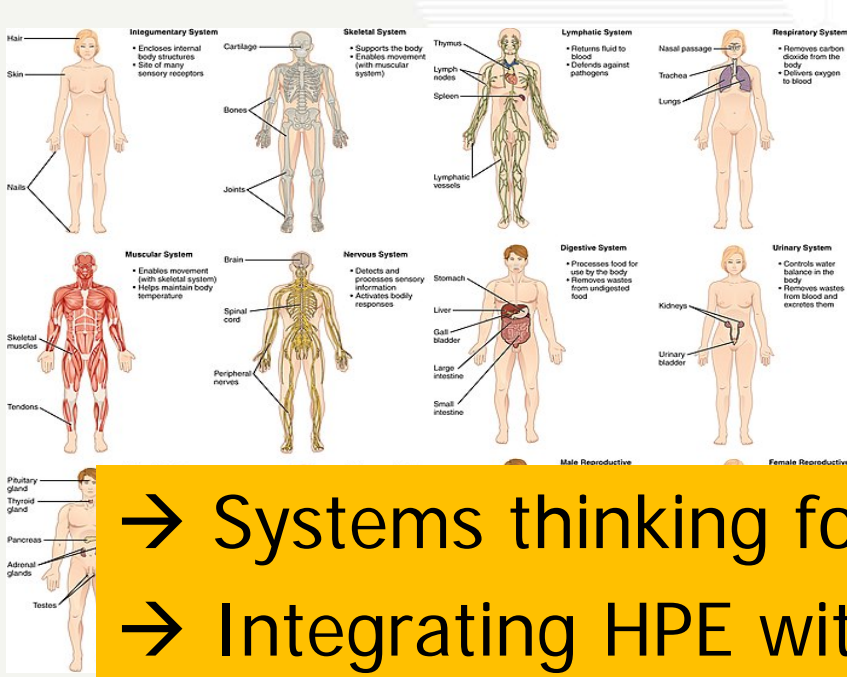
Responsive, adaptive, agile, flexible,  
evidence-based, ...  
to best meet the needs of today and the future

# Systems Engineering Approach

- Current state analysis
  - Identify the **symptoms** for “problem” areas
  - **Measure/quantify** the magnitude of the problems/symptoms
  - Identify potential **root causes** of the problems (bottlenecks)
- Roadmap towards an improved state
  - **Design interventions** for improvements in the system, or **redesign** the system
  - **Evaluate** the **potential impact** of proposed changes

**METHODS:** Statistics, machine learning, simulation, optimization, queuing models, ..

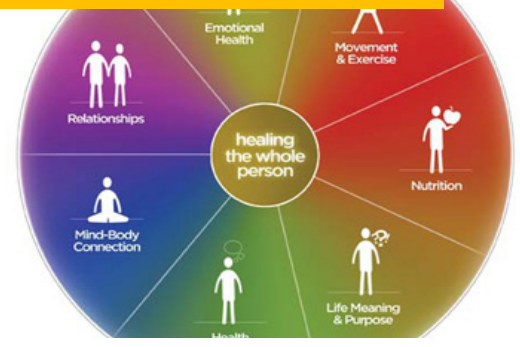
- Assess the impact of proposed changes after implementation



→ Systems thinking for HPE

→ Integrating HPE with health systems practice

"... the need for the United States to build a health-care workforce that has the necessary "know-how," ... systems engineering concepts should be embedded in education and training for a wide variety of people involved in health care, from clinicians to administrators to public-health officials."





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