

PathFinders: Advancing Personalized Health

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Introduction

Charge: *“Further development of University-wide strategy for personalized medicine”*

Mission: *“To develop a framework and strategy to guide personalized health across the state of Minnesota that is accessible, dynamic, and aligned with our strengths.”*



Methods

1) Establish Definition:

Precision medicine vs Personalized Health

- **Precision Medicine** - focused on genetics and genomics
- **Personalized Health** - patient centered approach that can include genetics/genomics but also includes health and well-being, prevention and treatment, individual behaviors, and environmental and social factors.



Methods

2) Performed External Reviews:

U Wash, Vanderbilt, Baylor, UCSF, Harvard, MD Anderson, U Penn, Mayo, Essentia Health

3) Performed Internal Interviews:

Pamela Jacobson, Genevieve Melton-Meaux, Gerry August

4) Conducted a Focused Literature Review



SWOT Analysis: Strengths



- Major health sciences educator in the state
- Comprehensive academic health sciences
 - Centers in genomics, drug development, bioethics, CTSI, health informatics, and Microbiota Therapeutics Program
- Faculty/staff with expertise and interest
 - Several ongoing personalized / precision health initiatives
- Strong relationships (Fairview, Minnesota Children's Essentia, Industry, etc)
- Community engagement/extension

SWOT Analysis: Weakness



- Lack of unified strategy for personalized health
 - No centralized support and administrative structure
 - No FTE support for faculty/staff
- No current standardized clinical implementation of pharmacogenomics
- Inadequate integrated bioinformatics support and outcomes analysis support combining 'omics, EHR data, and social determinants of health for new discoveries

SWOT Analysis: Opportunities



- Create personalized health brand in practice, education and research
 - Differentiation: education, breadth of research areas of excellence, statewide outreach/engagement
- Motivated faculty and staff
- Partnership outside of health sciences
 - Social work, sociology, law/ethics, urban planning, and community partners
- Financial
 - Revenue, research, monetize clinicogenomic data

SWOT Analysis - Threats



- Competition from other health systems with personalized health initiatives (Mayo)
- Lack of action institutionally
- Rapidly evolving technology and knowledge
 - Need to develop a dynamic, rapid learning system
- Sustainability and low funding from the State and shrinking federal government resources

Current University Personalized Health Initiatives

- UMN College of Pharmacy Institute of Personalized Medicine (IPM)
- Phase III Grand Challenges Initiative “Toward Pharmacogenomics- Enabled Healthcare at Statewide Scale: Implementing Precision Medicine.”
 - Formed the Minnesota Precision Medicine Collaborative (MPMC)
 - Goal: “Long-term goal is to build state capacity for pharmacogenomics research and clinical care, so every person in Minnesota will derive benefit from precision medicine innovations
- Proposals, Visions, and White Papers
 - Establishing a comprehensive Pharmacogenomics Enterprise at the University of Minnesota with State-wide and National Impact (September 25, 2019)
 - Establishing a Vision for Precision and Personalized Medicine at the UMN, by the MPMC (March 12, 2018)
 - Vision for Pharmacogenomics in the State of Minnesota, by the MPMC (January 16, 2018)



2020 University of Minnesota Biennial Pharmacogenomics Conference

IMPLEMENTATION OF PHARMACOGENOMICS INTO CLINICAL CARE

June 11-12, 2020

TCF BANK STADIUM // UNIVERSITY OF MINNESOTA

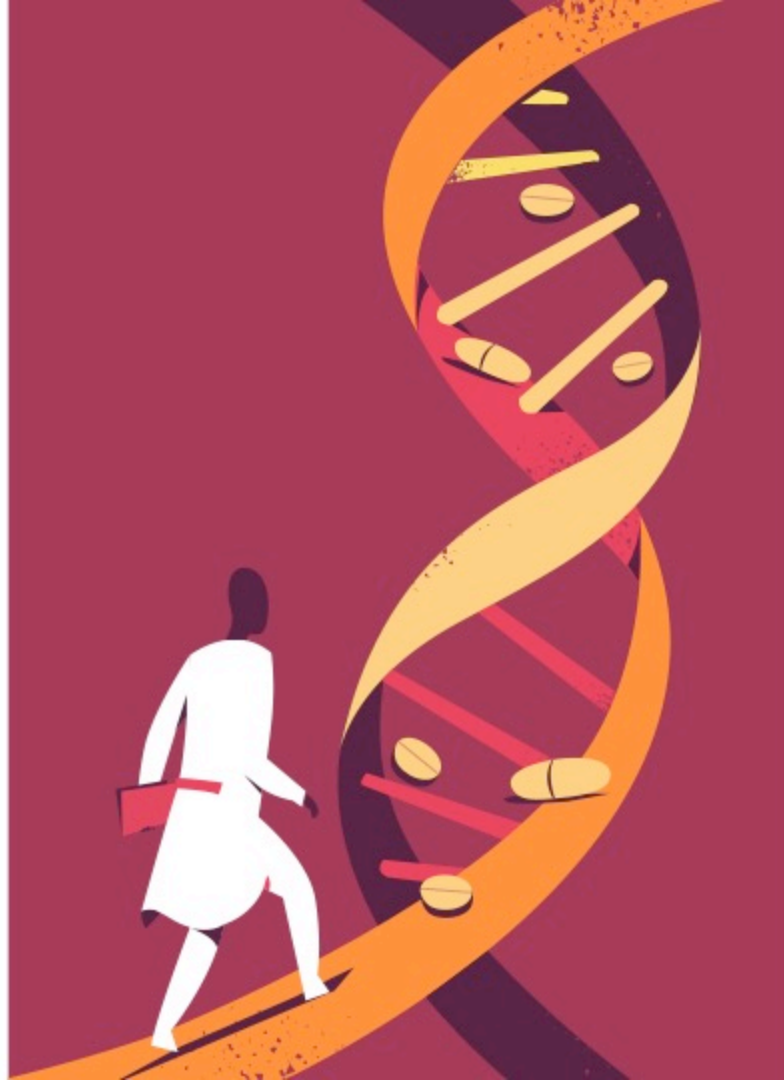
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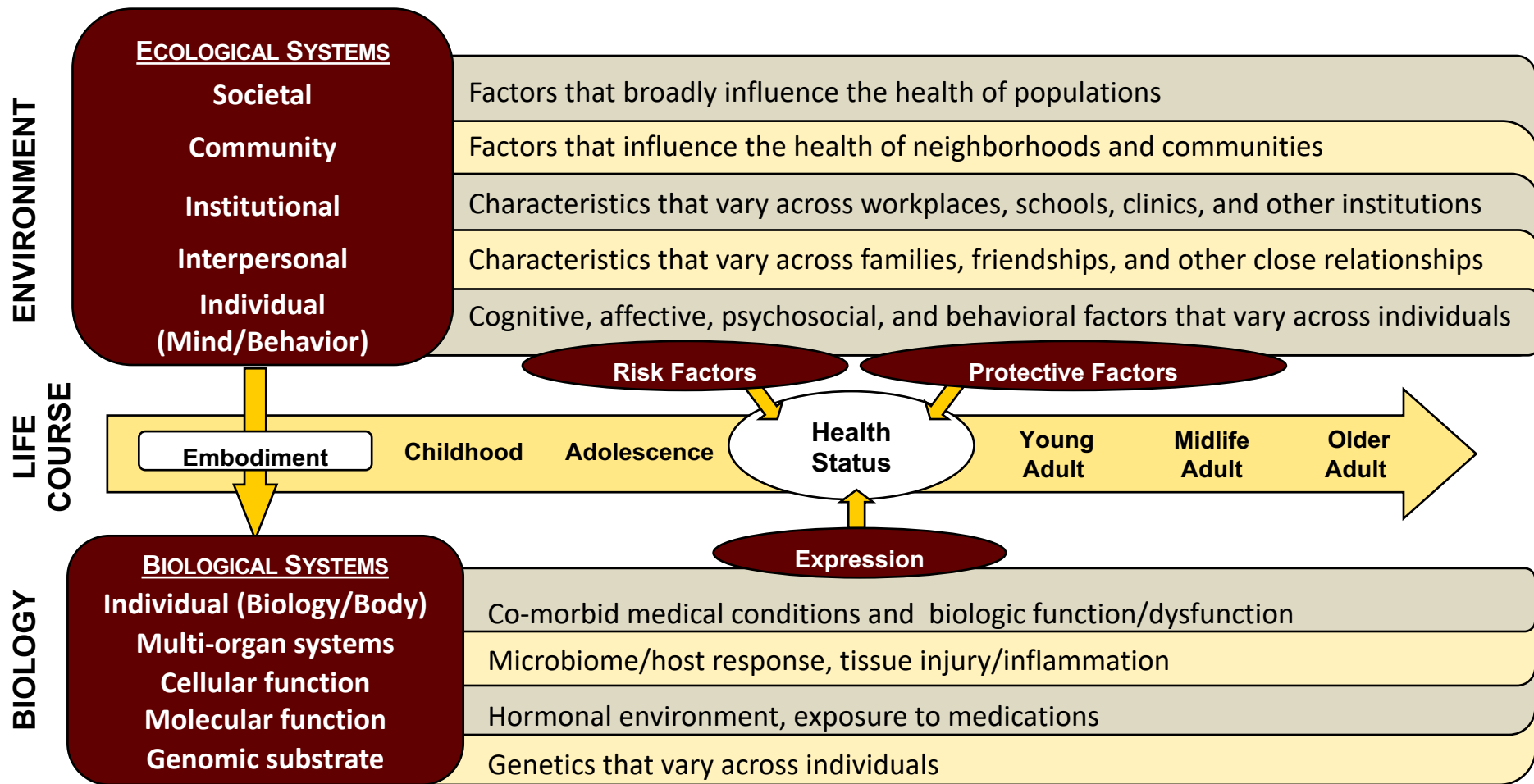
A Conceptual Framework to Guide Personalized Health Initiatives and Areas of Research Inquiry

Adapted from Thomas Glass and Matthew McAtee (Social Science & Medicine, 2006)

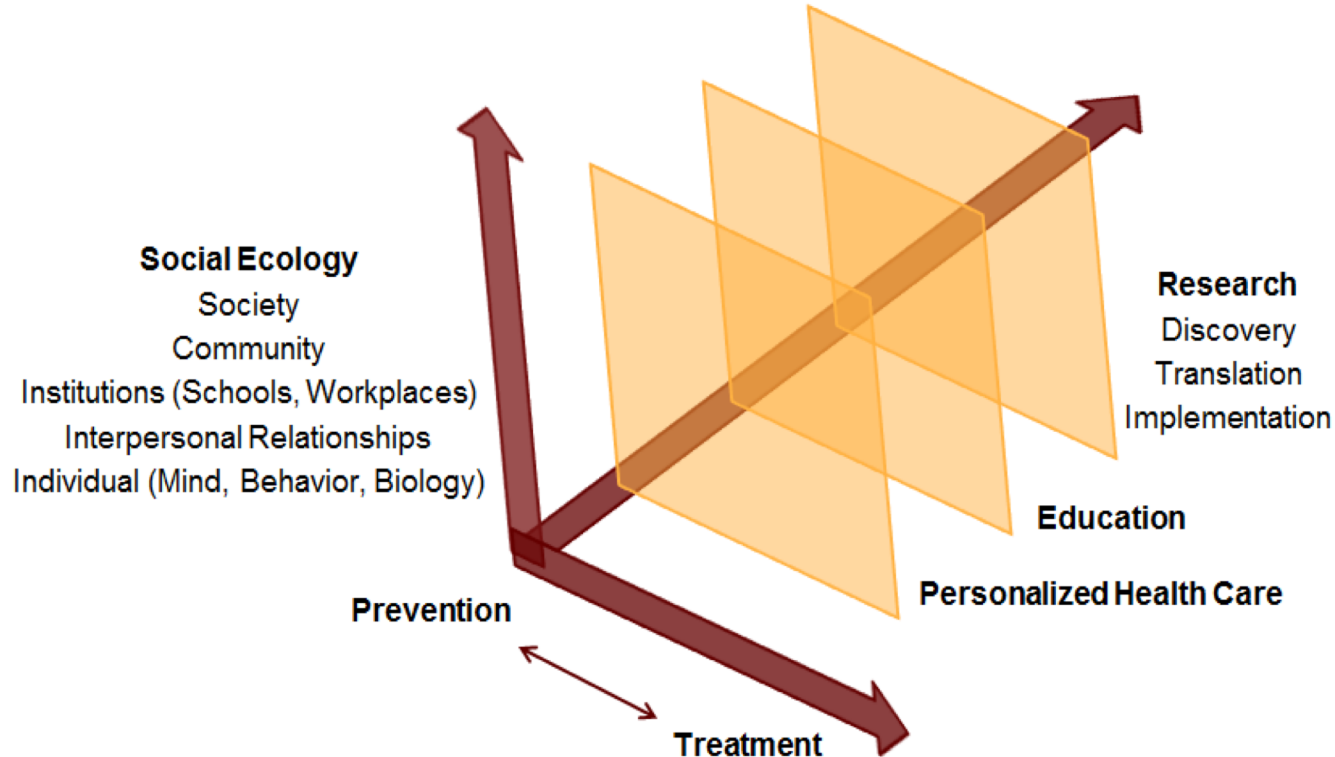
<https://blog.aimultiple.com/personalized-care/> - image source



Guiding Personalized Health Initiatives and Areas of Research Inquiry



Opportunities for Personalized Health Initiatives at UMN



“New” Patient Experience

Integrated cores

- Comprehensive Omics
- Health Informatics: Data analytics and outcomes
- Patient outcomes and social determinant core

Patient reported outcomes/experiences

ECOLOGICAL SYSTEMS

Societal
Community
Institutional
Interpersonal
Individual
(Mind/Behavior)

BIOLOGICAL SYSTEMS

Individual
(Biology/Body)
Multi-organ systems
Cellular function
Molecular function
Genomic substrate

Patient Encounter

Consent

Blood

Tissue

Microbiome

Team Assessment

**Interprofessional
Personalized
Healthcare Service:**
tailored approach to
prevention and treatment



Short-Term (Year 1) Recommendations

- Charge an **multidisciplinary steering committee (with community advisors)** to further create a vision, leadership structure, and detailed strategy
 - Task the committee in focused areas:
 - Education — training new leaders
 - Practice — create an Interprofessional Personalized Healthcare Service
 - Research — new discoveries and innovation in personalized health
 - Refine the core infrastructure needed to be successful
 - Comprehensive Omics and Microbiome
 - Health informatics: advanced data analytics and outcomes
 - Patient reported outcomes and social determinants of health
- Investment in and alignment of core infrastructure and personalized health initiatives across focal areas



Intermediate Term (Years 2-3) Recommendations

- Create the **University of Minnesota Center for Personalized Health**
 - Integrate personalized health within all components of our mission (research, education, clinical work, service)
 - Address all levels of social ecology and biology
- Build and align **core infrastructure** needed to support initiatives
- Create, hire and launch the **Interprofessional Personalized Healthcare Clinical Service and Educational Programs**
- Launch a **portfolio (RFAs) of transdisciplinary, community engaged research initiatives** based upon the recommendations of the steering committee leveraging strengths

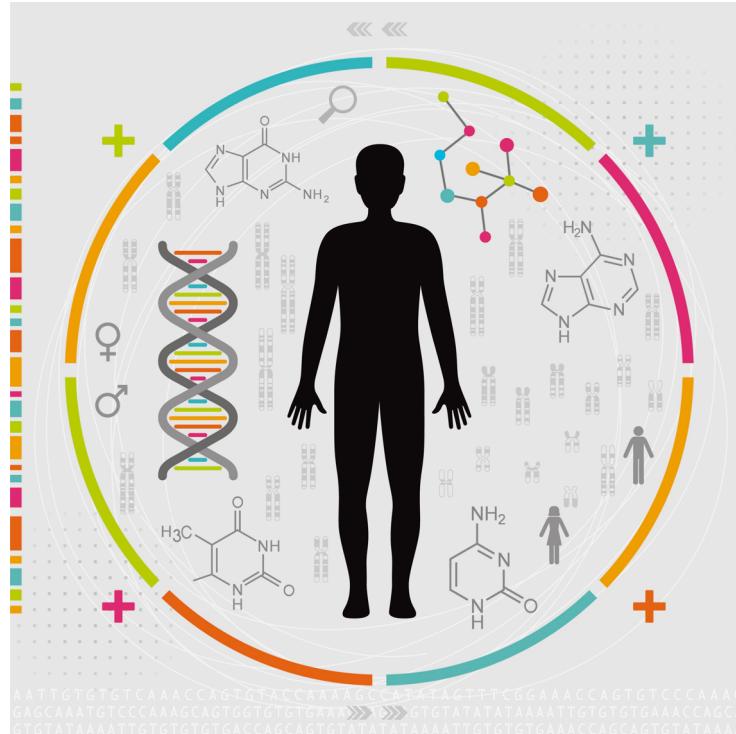


Long-Term (Years 3+) Vision and Recs

- Engagement and impact across the state, regionally and nationally
 - Extend scope of Grand Challenges to implement Personalized Health across the state
- Sustainable funding mechanisms
 - Work with the legislature and constituents to prioritize personalized health
 - Apply for center grants
- Continually ensure **faculty support** and **incentive structures** are adequate to support personalized health initiatives



Questions





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