Strategic Investments in Research

Assessing and improving health by working outside of healthcare settings

Introduction

The US is the global leader in biomedical science and innovation. Yet, in the US, gross metrics of health including lifespan and infant/maternal mortality rate are among the poorest of any industrialized countries. This is despite the fact that the US spends almost twice as much on health per capita as these same countries. Population measures of health in the US show marked disparities based on income, race and region. These facts argue that we are failing to deliver on the potential for advances in research and innovation to yield improvements in health. One component to overcoming this failure may involve changing our approach to one in which we support promotion of health vs focusing on treatment of disease. For this to succeed, special attention is needed in understanding the determinants of health - especially those that can be influenced at scale - and in applying novel technology to both health assessment and intervention.

The NIH and others have claimed that 70-80% of health status is determined by our behavior and our physical and social environment. Yet approximately 95% of current health care expenditures go towards medical care. These numbers suggest a need to shift in our health care spending - to spend more doing the things that can have the greatest impact. Many of the biggest influences on health are not central to traditional health care models. Factors like physical activity, the environment, food and nutrition, social connectedness, education and economic stability and housing are critical to leading healthy lives. The "Vital Conditions" framework is one that seeks to capture these key factors that influence health. Consideration of these factors has traditionally not been a focus of health research, either as predictors of health, causes of disease and illness or as a source of interventions to promote health and well-being. Shifting our focus will require innovation, including the development and use of technologies that allow us to assess and intervene in new and more effective ways as well as shifts in policy and training.

Assessing and improving health is best thought of as a 24/7/365 activity, not as something that happens in the doctor's office at one's annual physical. New technologies increasingly enable more sophisticated means of assessing and influencing health and wellness during everyday activities - outside a healthcare setting. This includes technologies that can be used during everyday activities - while we work, relax, shop, eat, socialize and sleep. Devices to measure

behavior and activity, systems that track mental state and encourage behavior change, screening tools based on in-home testing all allow us to assess and intervene to improve health without going to a hospital, clinic or doctor's office. The recent pandemic promoted movement of certain aspects of healthcare out of healthcare settings. It accelerated changes in disease testing approaches and platforms, advanced vaccine technology and made public health data more visible in our daily lives. The pandemic also pushed the development and adoption of technologies and factors that have not broadly been applied to healthcare (Zoom; disease monitoring; importance of infrastructure like ventilation, etc). We see opportunities for Lehigh faculty to make important contributions to research that shapes this changing view of how we improve and assess health.

Application and process

We seek proposals for interdisciplinary research and translation efforts that will address these changes in our approach to assessing and improving health. We expect these proposals to describe new research centers that involve groups of approximately 8-20 current faculty, describe key external partners and propose new research efforts that: 1) leverage current strengths; 2) propose new investments in faculty hires and research infrastructure; and 3) describe opportunities to partner with other organizations including universities, not-for-profits and for-profit companies.

Timeline:

Letter of Intent	Requested by 5:00 PM August 31, 2023
White paper	Due by 5:00 PM October 30, 2023

The Letter of Intent should include a descriptive title, list of team members (as currently known), and a 1-2 paragraph description of the central idea being proposed. Letters of Intent do not constitute an obligation to move forward; they are simply for planning purposes. White papers may be submitted even absent a Letter of Intent. Teams may be contacted by OVPR staff for consultation as they prepare white papers.

The three page white paper should consist of the following components:

1. **Center summary (2 pages):** A description of the research focus of the proposed center.
   a. What is the specific objective of the center? What problems are being targeted?
   b. What are the current approaches/practices? And what are the limits/challenges of the current approach?

c. What is new in the proposed approach? Why do you think this approach will be successful?

d. What difference will it make if you succeed?

2. **Description of Team (1 page):**

a. Who would be part of the day one team? (Include internal and external members.)

b. What kinds of people would you seek to support the work?

c. What partnerships would be key to develop?

Submit your application through Lehigh's InfoReady portal.

Review and criteria

Proposals will be initially reviewed by an internal group including the Provost, VPR, VP for Strategic Planning and Initiatives and the President. Proposals will be selected for further review and development based on the potential for these centers to result in signature high impact research activity by Lehigh faculty and students. Specifically we will assess:

1. Is an important area being targeted as the focus of research activities?
2. What is innovative about the proposed work?
3. Why is Lehigh well poised to lead in this area?
4. By combining existing strengths with new faculty hires, improvements to research infrastructure and new and existing partnerships, can Lehigh become one of the best places for this kind of work within the next decade?
5. Is activity in this area sustainable through external support (grants and gifts) and internal prioritization of resources like faculty lines, space etc.

If a team's proposal is selected for further review we will initiate an iterative process to refine and improve the proposal. Questions will include:

1. What are the risks? Why might you fail? How will you mitigate the risks?
2. What milestones (3-5 years) would you propose for the center? What specific objectives will be achieved?
3. What hires, infrastructure and other resources are needed to make this successful?

Assessment of these proposals will at various stages involve consultation with technical experts from outside of Lehigh.