College for Integrated Health

Planning Committee Update

and

Open Forum for Community Feedback

April 11 & 13, 2017
Committee Process

Office of Institutional Research:
Market Analysis on Opportunities in Health and Biomedical Sciences

Envisioning / Structured Brainstorming Exercises
Input from Thought Leaders:
Board of Trustees
Boston Consulting Group

Visit to Thomas Jefferson University

Thematic Areas Identified and Evaluation Rubric Developed

Evaluation Process
Community Feedback
Final Report

Committee Formed
2 Open Forums

Nov     Dec     Jan     Feb     Mar     Apr     May
# Evaluation Rubric

<table>
<thead>
<tr>
<th>Evaluation Criterion</th>
<th>Scoring</th>
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<tr>
<td><strong>Innovation</strong></td>
<td>1: little or none</td>
</tr>
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<td><strong>Visibility / Reputation / Differentiation</strong></td>
<td>1: does not enhance / differentiate significantly</td>
</tr>
<tr>
<td><strong>Funding Potential / ROI</strong></td>
<td>1: little potential for government or foundation support or tech transfer revenues</td>
</tr>
<tr>
<td><strong>Potential and Demand for Degree Programs</strong></td>
<td>1: none</td>
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<tr>
<td><strong>Leveraging Current Strengths</strong></td>
<td>1: little or no current activity at Lehigh</td>
</tr>
<tr>
<td><strong>Need for New Strategic Partnerships</strong></td>
<td>1: cannot execute without partners</td>
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Proposed Themes

- Biomedicine & Biotechnology
- Environmental Health
- Resilient Communities
- Mind-Body Connections
- Science of Healthcare Delivery
- Healthy at Home
**Biomedicine & Biotechnology**

**Build on Existing Strengths**
- Biological Sciences
- MEMS / Materials Science
- Electronics / Photonics
- Data Science / Biocomputation
- Biochemistry
- Bioengineering
- Neuroscience
- Microfluidics

**Enable New Opportunities**
- Biomarkers (genetic, molecular, physiological)
- Diagnostic and therapeutic devices
- Pharmacology and drug discovery
- Nanotechnology and materials for delivery systems
- Bioinformatics and data analytics
- Modeling and simulation

**Grow External Funding Base**
- High priority research areas for basic and translational support from NIH, DoD, NSF, industry
- Return on investment via tech transfer, spin outs, and licensing as new source of revenue

**Future Vision**
- *Theranostics*: systems approach that integrates of biomarkers, diagnostics, therapeutics, and monitoring to advance prediction, early detection, intervention, and functional improvement
- The *theranostic approach* will be at the forefront of personalized medicine
- Lehigh can achieve national recognition as a leader in this emerging field
Environmental Health

Significance:
Globally, nearly 25 percent of all deaths and the total disease burden can be attributed to environmental factors.

Definition:
Environmental health consists of preventing or controlling disease, injury, and disability related to the interactions between people and their environment.
• Exposure to hazardous substances in the air, water, soil, and food
• Natural and technological disasters, climate change
• Physical hazards or the build environment
• Food & nutrition

Area Strengths:
• Many signs this is an “up & coming” area of health focus (e.g. new journals being created, conferences, lots of student interest, potential to recruit “young & bright” faculty)
• LU is geographically poised to facilitate unique research (e.g. contains or is near built and natural environment threats, expand on global focus to communities abroad)
• Truly an interdisciplinary area of study
Resilient Communities

Why do some individual people and communities recover from chronic / acute adversity?

Definition (from US Dept. of Health & Human Services):
• Sustained ability of communities to withstand and recover from adversity in experiences & environment.
• Resilient communities include healthy individuals and families with access to health care, both physical and psychological, and with the knowledge and resources to care for themselves and others in both routine and emergency situations.

Significance:
• Enhanced resilience is considered critical to mitigating vulnerabilities, reducing negative health consequences, and rapidly restoring community functioning
• 1 of 4 most critical components of public health and mental preparedness (HSPD 21)

Strengths:
• LU could build on existing partnerships with the South Side (SSI, CHRG, Hispanic Center, Community Schools, etc.) to promote and study community resilience.
• Draws on multiple fields, including very popular programs in public health, and could be examined at the molecular (e.g., genetic), individual, community, national, or international level.
• High potential for external funding from federal agencies & private foundations
• Appeal for both undergraduate & graduate degree programs as focus area in public health
Mind-Body Connections

**Definition:**
- The focus is on the connections between mind and body in promoting health. Our mental health, thinking, and well-being affects our physical health. In turn, the health of our bodies influences mental health and cognitive functioning.

**Significance:**
- The goal is to promote research on the intersection of mental and physical health at all levels, including from the micro-level (e.g., to understand the physiological markers of mental health and impact of stress) to policy and system levels (e.g., to understand how policy makers and clinicians can facilitate the integration of mental and physical healthcare).
- The work could be truly interdisciplinary and could connect well to other areas in the new college (e.g., biomedicine, healthy at home).

**Strengths:**
- Good tie ins existing work at Lehigh including work in psychology, biology (especially on neuroendocrinology), counseling (education), neuroscience.
- Potential for innovative programs in public health, neuroendocrinology, neuroscience, mental health
- Good funding potential from the National Institute of Mental Health, National Center for Complementary and Integrated Health, Robert Wood Johnson Foundation
Science of Healthcare Delivery (SHD)

Definition:
• The SHD focuses on scientific methodologies that improve the quality, efficiency, effectiveness, and outcomes of healthcare delivery
• It combines theories and principles from analytics, data sciences, quality management, industrial engineering, systems design, supply chain management, healthcare finance, economics, management sciences and health care delivery research to develop novel theories, models, and care delivery methods to achieve “Triple Aim”

Significance:
• The SHD addresses one of the most intractable problems: the unsustainable, out of control spiral of rising costs, combined with the quality and outcome of care being far below most developed countries

Strengths:
• Grassroots efforts synthesized in the Integrated Healthcare Delivery cluster (CSE, ISE, Econ and Management), leveraging additional strengths in BioEng, HMS, counseling and pediatric school psychology, IBE, Computer and Data Sciences
• Many strategic partnership opportunities with providers, analytics, NGOs, payers, pharma, devices makers, including SLUHN, LVHN, Easton Hospital, Geisinger, Thomas Jefferson, Bayada Home Health Care, community practitioners, and regional colleges with clinical and health sciences programs,
• Attractive degree options for UG students and 4+1 Masters, build on existing programs (MEng Healthcare Systems Engineering), PhD with focus on healthcare applications (ISE, CBE)
Healthy at Home

Definition:
• Maximize and maintain wellness of individuals and families across the lifespan outside of healthcare setting.
• At one end, promote preventive healthcare when healthy. At the other end, encourage disease management when ill. In the middle, introduce predictive healthcare.

Significance:
• Bio-sensing wearables, health analytics and mobile health allow real-time information to empower individuals to assume more responsibility for their health.
• Technology enabled care transforms care delivery to be participatory medicine
• Development of unobtrusive measurement methods to assess health at home

Strengths:
• Existing strength in computer science, medical devices, mobile health, preventive science, wellbeing across the lifespan (i.e. children, adolescent, aging, etc)
• Potential for innovative degree programs including health assessment, health data science/health analytics, behavioral health, health therapists, holistic physiology, sensing and diagnostic devices
• Potential for research funding: NIH, NIBIB, IES
College of Health
Townhall Feedback Survey

http://go.lehigh.edu/cohtownhall

Paper-based survey is also available
## Open Discussion

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