iREAL Committee #10

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Charge to Committee: How can we get maximum benefit from FIU's growing health related initiatives that include building on existing FIU expertise and demonstrating value to our university, South Florida, and global constituencies?

Drivers of Change

1. The demand for integrative and translational science from federal funding agencies.
2. Economic constraints that limit growth to strategic areas with a high ROI.
3. The changing population demographics that position Miami as a "laboratory" representing the future demographics for the U.S.
4. The shift in health care reimbursement to focus on patient outcomes.
5. Technological advances in healthcare, including telemedicine and electronic health care records and health information exchanges.
6. Climate change affecting our environment and health.
7. Big data or the availability for analysis of large volumes of complex health related data.

VISION STATEMENT

FIU will lead in shaping the future of health education, research, and service delivery through an innovative model that leverages the strengths of the University and Academic Health Center in a flexible and efficient manner. We call this model the "Innovative Health Initiative."

Innovative Health Initiative (IHI)

The IHI will be designed to address key health concerns in our community and world in a way that challenges traditional boundaries. The primary external goal will be to create a ***HEALTHY SOUTH FLORIDA*** as an integral component of a healthier world by improving health and the health pipeline, developing flexible and innovative educational programs to meet new demands for population health, health and preventive care, cost-reduction, and health-related research.

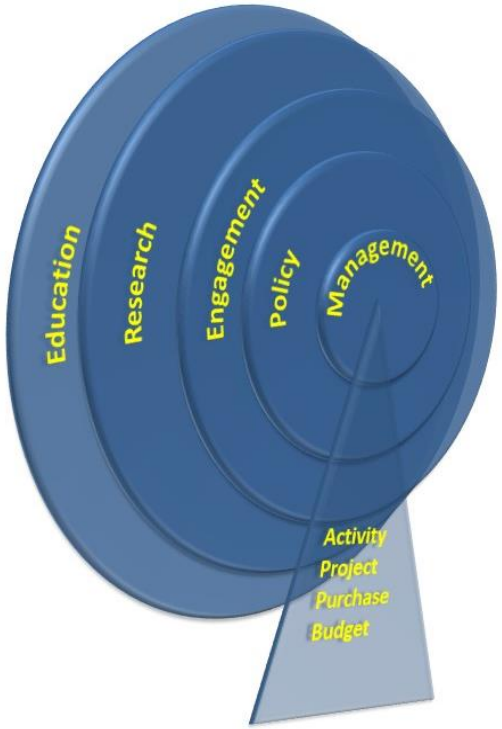
Health is envisioned as an equation in which Health = Y:

Y = genomics + behavior + access + technology + environment + education + economics+ policy

Using this definition of health, FIU is well positioned to be a global leader in shaping the future

in five knowledge domains using this groundbreaking approach.

1. Health Disparities – Including assessing and mitigating the health, mental health and social consequences associated with health disparities, specifically as related to HIV/AIDS, other communicable and also non-communicable diseases, immigration and political refugee status, poverty and cultural issues, and gender and sexuality.
2. Childhood Health – Including a focus on behavioral science and mental health issues such as ADHD, anxiety, autism, literacy and science education, obesity and physical fitness.
3. Aging – Including a focus on the health care, cultural and social consequences of and needs created by neurodegenerative disorders, cancer biology, diabetes, and obesity.
4. Climate Change and Disaster Preparedness – Including assessing, predicting and modifying the climate change forces affecting the key determinants of human health (i.e., air, food, and water) (2), and predicting, responding to and mitigating short-term social, behavioral, and cultural consequences of natural disasters.
5. Computationally Intensive Data Science – Including significant enhancement and focusing of existing intellectual, fiscal and physical health informatics resources to enable data mining of the large volumes of complex health-related data that are rapidly accumulating and evolving due to technological advances, such as those related to imaging and genomics.



All knowledge domains need a layered approach to **management** that includes **education**, **research**, **clinical practice**, and **community and business engagement**. Our emphasis is the cross-pollination of ideas and deep collaborations across units. All knowledge domains will:

- include a focus on our diverse local population.
- Build bridges among existing programs.
- Develop and sustain new interdisciplinary educational programs.
- Require multi-disciplinary research expertise in medicine, psychology (e.g., behavioral evidence), public health (e.g., biostatistics), and computer science (e.g., data mining and nformatics) and business.
- Leverage existing outreach and engagement programs and partnerships in the community (either projects/institutes/centers that can be expanded or serve as models) (e.g., CCF, partnerships with Miami Dade schools).
- Innovate to address emerging challenges associated with healthcare reform (e.g., Affordable Care Act, HITECH Act, Medicaid Expansion, Health Insurance Exchanges).
- Promote effective social and public policies relevant to health and health care at the

local and state level.
- Assess and incorporate, as appropriate, evolving technologies and care delivery models.
- Require a revised and efficient management system for inventory/infrastructure/ centralization to reduce disjointedness and enable a flexible and agile response to emerging concerns.
- Require a new framework for interdisciplinary educational programs, faculty appointments, and a centralized management system.
- Be generalizable to the future population demographics and environmental conditions of the nation and world.

SPECIFIC EXAMPLES

STRUCTURE
- The IHI will be led by a multidisciplinary team of FIU faculty members that are at the forefront of the five knowledge domains identified here.
- The IHI will facilitate the deep collaborations necessary to produce innovations in health-related research, education, and outreach by supporting interdisciplinary faculty appointments and structures and inclusive programming.
- The IHI will create and maintain an inventory of all health care research, educational programs, engagement, and clinical delivery programs.

EDUCATION
The integration of research and education through interdisciplinary training prepares a workforce that undertakes societal challenges in innovative ways.
- Our students will have access to learning experiences, programs, and degrees consistent with the evolving complexity of social, technological and health issues, for example:
    - An intraprofessional ethics course requirement for all health care professionals
    - Degrees: MBA/JD Healthcare; MBA/MD degrees; MD/MPH; Professional Science Master's in Medical Physics
    - Multi-disciplinary data science degrees
    - Multi-disciplinary Health Informatics degrees
- In recognition of the multicultural nature of the health environment, students will be expected to experience other cultures through language or diversity courses or immersion with other cultures nationally or internationally.
- Blended approaches to student learning will be emphasized and will provide individualized research experiences as well as interactive and virtual learning.
- Programs will be formatted to fit specific competency goals and will include intensive, accelerated education and training as well as more traditional arrangements.

RESEARCH

Federal funding sources such as NIH and NSF embrace interdisciplinary research as the way to accelerate scientific discovery. "Interdisciplinary research is a mode of research by teams or individuals that integrates information, data, techniques, tools, perspectives, concepts, and/or theories from two or more disciplines or bodies of specialized knowledge to advance fundamental understanding or to solve problems whose solutions are beyond the scope of a single discipline or area of research practice." (1)

In addition, healthcare in the US is transitioning from fee-for-service to one focused on patient outcomes. Consensus is emerging that the long-term healthcare financing challenge facing the United States can be addressed only by changing the way we pay for healthcare. This is a paradigm shift that will require the research community to engage in cross-disciplinary research to observe and facilitate this transition.

- Integrative approaches that combine research from the basic and behavioral sciences with the applied sciences will be the priority of the IHI. For example, a community focused nutrition program would draw from dietetics and nutrition, agroecology, psychology, exercise physiology, education, business, and hospitality to develop age-appropriate, evidence-based programs that would be affordable as well as appealing.
- FIU will lead in the discovery of important patterns in healthcare using multi-dimensional data including clinical, environmental, and billing data to improve outcomes and reduce costs.
- FIU will play an active role in the transformation of healthcare in the US through the promotion of Electronic Health Records and Health Information Exchanges and advanced approaches in data integration and analysis.

SERVICE and ENGAGEMENT

FIU will be a national leader in the promotion and maintenance of healthy communities. Miami is a natural laboratory that can be used to implement programs to serve as a model for the ethnically diverse urban areas of the future.

- We will provide our community with health and preventative care and health promotion activities that draw on evidence-based research and the most advanced technology to deliver quality health, medical and psychological services and support, e.g., telehealth, telepresence.
- FIU will embrace its employees and alumni as being a special part of its health care community.
- FIU will be a leader in promoting policies relevant to health care.

BUSINESS AND COMMERCIALIZATION

- FIU will enhance and expand its involvement with local hospitals and health care and social service agencies.
- FIU will lead in offering health-training opportunities to international professionals.
- The IHI will concentrate on healthcare innovation and entrepreneurship with a focused approach toward sustainable healthcare innovation in the areas of technology and data science.

REFERENCES

1. Committee on Facilitating Interdisciplinary Research, Committee on Science, Engineering, and Public Policy (2004). *Facilitating interdisciplinary research*. National Academies. Washington: National Academy Press, p. 2.
2. World Health Organization (Dec. 2013). Protecting health from climate change. http://www.who.int/globalchange/publications/reports/9789241598880/en/