

# Maine Institute for Human Genetics and Health Harnessing the Biomedical Engine to Move Maine Forward

## Case Statement Executive Summary

The Maine Institute for Human Genetics and Health conducts translational research to improve healthcare for conditions that disproportionately affect people in Maine's rural communities affected by geographic isolation and below average national income.

Innovations in biotechnology, one of the seven targeted sectors, drive Maine's new economic engine. Discoveries in medicine that improve efficiency in healthcare utilization and reduce long term health consequences lower the cost burden on employers and taxpayers. Biomedical research has established track records in innovating care; attracting and retaining quality physicians to the region, and supporting development of a highly skilled, versatile workforce.

Eastern Maine offers unique advantages for translational biomedical research. The Institute's founding collaboration with The Jackson Laboratory and the University of Maine has attracted talented scientists. A newly renovated research facility in Bangor fuels the emergence of initiatives to share proteomics and other state-of-the-art technologies to benefit the research and business communities in Maine. Decades of environment research at the University of Maine, stable multi-generational rural communities, and national leadership in geospatial information sciences provide unusual opportunities to study gene-environment interactions in human disease.

The Maine Institute for Human Genetics and Health intends to become a "BBC" magnet research organization to support new initiatives in three areas critical to improving rural healthcare:

- Diseases such as osteoporosis that weaken and fracture **BONES**.
- Trauma to the **BRAIN**, such as anxiety, stress, and post-traumatic stress syndrome (PTSD) experienced by America's veterans.
- **CANCERS**, including breast and lung, which diminish the lives of many of our citizens.

The Institute is a non-profit 501(c)3 subsidiary of EMHS. Chartered in 2005, it began operations in January 2007 with an initial staff of 4, now expanded to 19 employees in 18 months of operation. Early funding from the US Telemedicine and Advanced Technology Research Command (TATRC), Department of Defense, supports the cancer research program and its BioGeoBank. A key partnership with Eastern Maine Medical Center's CancerCare of Maine (CCOM) will develop a Rural Comprehensive Cancer Care Center, one of the first in the US to specifically support research addressing health disparities of rural communities. The new state-wide Neurogenetics Consortium with 140 members has already held 2 workshops, awarded 8 seed grants and is preparing collaborative federal grant applications. Collaborations have been established with Togus VA, Dahl-Chase Pathology Associates, Trillium Diagnostics, Affiliated Laboratories, Inc and the James W. Sewall Company. Philanthropy, grants, and ultimately income generated through technology transfer, will ensure the financial sustainability of the Institute. The caliber of the Institute's research will promote relationships with major medical schools to attract physicians, and contribute to the state's economic engine through new businesses and new jobs.

## SHORT-TERM OBJECTIVES

### Create and build a competitive translational research program in:

#### Brain

- Host virtual state-wide Neurogenetics Consortium & facilitate communication
- Locate U Maine leadership at the Institute's new research facility
- Promote development of robust competitive multidisciplinary program

#### Bone

- Create strategic plan
- Create research niche in osteoporosis

#### Cancer

- Complete construction of core resources for cancer research: the Maine Cancer Tissue Repository and Maine Cancer Geographic Information System.
- Use Information Technology to integrate core resources into unique database and analytical tools to query associations between cancer data; clinical outcomes; family history; and exposure to multiple environmental pollutants over space and time.
- Complete 3-project pilot research program and leverage to obtain additional federal funding.
- Foster community participation by enrolling cancer patients using telemedicine and information systems technology in rural hospitals and clinics.

#### Business Initiatives

- Recruit external members to Board of Directors to structure governance.
- Co-locate to new CancerCare of Maine building in Brewer within 2-3 years; use Bangor facility to attract new business
- Leveraging core resources to attract local diagnostic businesses and clinical research contract organizations (CROs)
- Strengthen partnerships with local companies and Togus VA to share resources and generate revenue.

#### Education Initiatives

- Enhance high school science education and interest in the arts.

- Establish undergraduate internships in biomedical research and research business administration.

## LONG-TERM OBJECTIVES

- Establish a Rural Comprehensive Cancer Center that partners cancer research programs at the Institute, The Jackson Laboratory and University of Maine with a state-wide NCI-accredited Community Clinical Oncology Program that includes EMMC CancerCare of Maine, and the other key oncology programs in Maine.
- National leadership in telemedicine & related information technologies to implement advances in healthcare and individualized medicine in the rural communities in Maine
- Exciting multidisciplinary education programs that attract students and young professionals into careers in healthcare and biomedical sciences
- Innovative Best Business Practices and collaborative partnerships that spin out new businesses and enhance existing local businesses to benefit the economy of Maine and the Atlantica Corridor.
- Entrepreneurial culture to achieve financial sustainability through diversity in funding from grants, contracts, philanthropic endowments and gifts, and revenue generation using technology transfer.
- Anticipate \$10 million business with minimum of 35 staff in 5 years.

#### Revenue Generation

- SBIR grant applications to develop new products and services
- License patent applications:
  - New diagnostics and treatments
  - Information systems
- Contracts to attract clinical research organizations (CRO) to Maine.
- Fee-for-services
  - State-of-the-art research lab space
  - Access genome technologies
  - Validate new diagnostics & service.