

A TRI-STATE REGIONAL
**HEALTH SYSTEMS
RESEARCH INSTITUTE**
A FEASIBILITY STUDY

PREPARED FOR THE

La Crosse
Medical Health Science
Consortium, Inc.

BY

Rainey &
Associates

AND


NorthStar
Economics, Inc.

JULY 22, 2003

TABLE OF CONTENTS

EXECUTIVE SUMMARY	3
FEASIBILITY STUDY METHODOLOGY	11
SCOPE OF THE PROJECT	12
HEALTH SCIENCE CENTER	12
PROJECT HISTORY	12
HEALTH SYSTEMS RESEARCH INSTITUTE (HSRI) CONCEPT	14
TECHNOLOGY BUSINESS INCUBATION CONCEPT	15
ECONOMIC BENCHMARKS, CLUSTERS AND COMPETITIVE ANALYSIS	16
ECONOMIC BENCHMARKS	16
CLUSTER ANALYSIS	18
COMPETITIVE ANALYSIS	20
HEALTH CARE EDUCATION PROGRAMS AND OPPORTUNITIES	23
HEALTH CARE EDUCATION NEEDS	23
OPPORTUNITIES TO EXPAND THE REGIONAL EDUCATION PARTNERSHIP	24
OPPORTUNITIES TO LEVERAGE EDUCATIONAL RESOURCES	25
TESTING COMMUNITY REACTION AND SUPPORT FOR AN HSRI	26
SEEKING COMMUNITY CONCENSUS	26
HSRI SURVEY RESPONSE	27
CONCLUSIONS	33
FEASIBILITY OF DEVELOPING A TECHNOLOGY INCUBATOR PROGRAM	34
UNIVERSITY OF WISCONSIN – LA CROSSE	39
FUNDING A HEALTH RESEARCH INSTITUTE	42
FUNDING STRATEGY – OPERATIONS	42
BEST FUNDING OPPORTUNITIES	43
FUNDING STRATEGY – OPERATIONS	47
COMPETITIVE ANALYSIS	48
THE OPPORTUNITY CURVE	52
CONCLUSIONS AND RECOMMENDED ACTIONS	55
SUGGESTED PROJECT TIMELINE	57
ACKNOWLEDGMENTS	58

LIST OF ATTACHMENTS

Attachment A	Preliminary Health Systems Research Institute Project Survey
Attachment B	Map of Health Science Center Service Area
Attachment C	Cluster Maps of Target Region
Attachment D	Mississippi River Region Planning Commission SWOT Analysis
Attachment E	Map of Per Capita Income in the Target Region

EXECUTIVE SUMMARY

INTRODUCTION

The La Crosse-based Health Science Center serves an area of Western Wisconsin, Eastern Minnesota and Northern Iowa known for its active lifestyles, superior quality of life, manufacturing tradition, Midwest values, and strong work ethic. Located at the crossroads of three states and halfway between the major urban centers of Madison and the Twin Cities, this largely rural region is challenged with expanding its health care infrastructure and diversifying its economy to meet the needs of the 21st century.

With sponsorship from the U.S. Department of Commerce, Economic Development Administration; the City of La Crosse; Winona State University; CenturyTel; the School District of La Crosse; Northern Engraving and the La Crosse Medical Health Science Consortium, Inc. this study assesses the feasibility of developing a Health Systems Research Institute associated with the Health Science Center in La Crosse. The mission of the proposed institute is to provide expanded opportunities for education; to foster cutting edge research and development; and to promote commercialization of technology-based innovations in biomedical, environmental and life sciences through business incubation. In short, the study proposes a development strategy based on leveraging the existing assets available in the region, with a goal of creating clean industries and living wage jobs.

The following strategies and recommendations build on the region's core competencies, or comparative advantages, by suggesting ways to leverage local strengths in education and healthcare. The vision is to build on the region's existing strengths as a center for manufacturing, healthcare, and health related research. This initiative is designed to serve as a blue-print for improved infrastructure for research, entrepreneurship and the creation of new knowledge-based products and services that will also improve the health and well-being of the citizens of Wisconsin, Minnesota and Iowa.

OBJECTIVE

The objective of this feasibility study is to determine if the La Crosse Medical Health Science Consortium, Inc. can support the development of a self-sustaining Health Systems Research Institute to provide health and biomedical education, research and entrepreneurship¹.

The goal of such programs would be to improve access to health care; develop and commercialize new products and bring greater relevance to the partner institutions; better

¹ Definition: The term "biomedical" includes the broad areas of health and medical care, research and teaching, along with the diverse range of biotechnology and medical technology. While based primarily on the life sciences, important interdependencies exist in the broad biomedical arena with the physical sciences and related technologies. Biotechnology, as a component of the broader concept of "biomedical," has been defined by the Federal Office of Technology Assessment as being comprised of "those techniques that use live organisms (or parts of organisms) to modify products, to improve plants or animals, or develop micro organisms for specific uses." The term "Medical Technology" will be used through out this study. This term encompasses many other diverse areas of science and technology, including computer science (informatics), software, fiber optics, materials science, specialized electronics, to create new products and processes to enhance the quality of health care. The ultimate goal of biotechnology and medical technology is to produce new or improved medical devices and processes, human therapeutics and diagnostics, innovative health care, improved crops and livestock, and advanced drugs and food processing techniques.

leverage the State's significant research and development resources and existing infrastructure; generate wealth, and ultimately create a higher tax-base throughout the region. These programs would enhance the region's competitive edge and further diversify its industrial base in an increasingly competitive global economy.

Diversifying the region's economy is critical given its strong reliance on traditional manufacturing and the growing service sector. Communities across the U.S. are focused on strategies to meet growing foreign competition in manufacturing by leveraging intellectual property and innovative technologies to create new, living wage jobs.

CONCLUSIONS

This study found that the development of the proposed Health Systems Research Institute (HSRI) is viable. However, many significant prerequisites must be addressed before such a program can be successful.

In assessing the opportunities and risks associated with the development of a Health Systems Research Institute, this study found that the region has a proven track record of working collectively to achieve major goals; the requisite knowledge base; and the community support necessary to successfully implement a Health Systems Research Institute.

Summary 1: Health Care Education Programs and Opportunities

One of the early missions of the Health Science Consortium was to provide support for health care programs operating in the Health Science Center service area. This support was manifested in the Health Science Center Building that contains laboratories, classrooms, and telecommunication resources. Students and faculty from Western Wisconsin Technical College (WWTC), and the University of Wisconsin- La Crosse (UW-La Crosse) and Gundersen Lutheran are currently using these resources and facilities. Through the Telehealth program, continuing education offerings have been extended to a much wider service area.

To date, however, most of the educational programming and activity has been confined to the founding members of the Health Science Center. In this feasibility study, the consultants were asked to address a number of questions related to the opportunity to expand and strengthen the health care education mission of the Health Science Center.

Health Care Education Needs

There are over 40 health care and health science programs offered in the HSC service area. The programs are offered by UW-La Crosse, Western Wisconsin Technical College, Viterbo University, Luther College, Gundersen Lutheran (including cooperative programs with the UW-Madison Medical School and the UW-Madison School of Nursing), Franciscan Skemp Mayo, UW-Eau Claire, Winona State University, and Southeastern Technical College. Surveying these institutions and several health care providers in the service area reveals a number of important health care education needs. The following summarize those needs:

- There is a need for expanded educational program capacity to meet health care workforce shortages in nursing, radiation therapy, medical lab technician, pharmacy, and occupational and physical therapy. Nursing shows up as the most consistent area of need in our conversations.
- There is a need for clear transition or articulation paths from associate to baccalaureate degrees and a need to deliver such programs in rural areas. This need includes degree completion programs especially in the field of nursing.
- There is a need for graduate level degree programs to help provide more terminally qualified health care faculty and staff.
- There is a need for professional continuing education programs for health care professionals and a need to deliver those programs in the more rural areas of the HSC service area.
- There is a need to provide more clinical sites for student practica and field experiences.
- There is a need for specialized simulation labs, especially for the undergraduate nursing programs in the HSC service area.




This basic set of educational needs is an impressive agenda but one which has great importance to the region.

Opportunities to Expand the Regional Education Partnership

Part of the original thinking behind the Health Sciences Consortium was that the size and scope of the educational problems facing individual health care providers or educational institutions exceeded the individual organizations' ability to solve those problems. The consortium approach enabled cooperative and collaborative effort to solve large health care education problems.

This sort of thinking applies now more than ever. The existing consortium partners have made some progress in solving these problems but the size and scope of the problems has grown. One approach to working on these problems is to expand the educational partnership and collaborations within the region to bring more resources to bear in solving problems.

In that regard the consultants found three organizations that share the best interests and concern about quality health care.

	<p>Winona State University: Winona State University (WSU) is located in Winona, Minnesota. WSU and its nursing program are an integral part of the HSC service area and WSU is already working with several HSC partners on a variety of issues. WSU’s location in the State of Minnesota and in a key part of the HSC geographic service area and its interest in health care programs and healthcare research raise numerous possibilities for extending collaboration and partnership.</p>
	<p>The Rural Wisconsin Health Cooperative: The Rural Wisconsin Health Cooperative (RWHC) represents a large number of rural hospitals that operate within the HSC service area. RWHC was an early supporter of the HSC building project and shares a common interest in workforce development and the delivery of baccalaureate education for health care workers.</p>
	<p>Luther College: Luther College offers a generic nursing program and participates in a BSN degree completion program. Luther knows little about the HSC but is within the HSC service area. The nursing program is open to dialogue about potential partnerships with the HSC.</p>

Opportunities to Leverage and Share Educational Resources

All of the health care education programs contacted in the study expressed concern about the availability of clinical placements and simulation labs for the training of health care workers. The limited number of clinical placements is one limit on increasing the capacity of health care education programs. The high cost of simulation labs is also limiting program development.

Summary 2: Building Research Capacity

The region’s academic institutions are primarily focused on undergraduate education, and there are relatively low levels of existing sponsored research. Most current academic research funding is focused on environmental studies, with an emphasis on the state’s rivers and lakes and archeological studies along the Mississippi Valley. This type of research does not easily lend itself to technology or product commercialization.

There is a growing interest in applied health care research in the region. Faculty are seeking research outlets in several fields including nursing. There is a small amount of sponsored research and research grant activity at UW-La Crosse, Winona State University, Gundersen

Lutheran, and Franciscan Skemp Mayo. There is research infrastructure and health-related research activity currently taking place in the Health Science Center and in partner and potential partner institutions. There is a strong health-related education infrastructure in place in the region. This offers a good foundation to build on.

The Health Science Center partners are nationally recognized in health fields such as: physical therapy (ranked among the top 10 in the nation), occupational therapy, athletic training, community health, sports science and biomechanics. Faculty from the UW-L, Department of Exercise and Sport Science have established a national reputation and have, for example, conducted sports medicine research at the Salt Lake City Winter Olympics in 2002, and served on NASA's review board for the design of exercise equipment on the International Space Station.

The University of Wisconsin System has a very strong tradition of research. Statewide, Wisconsin's world-class researchers are developing innovative products from genetically improved "fast plants" from seeds that mature rapidly, to new compounds of vitamin D that grow bone, making it possible to treat osteoporosis in millions of women.

It was observed that the Health Science Center partners are not well networked into the broader statewide system with regard to technology transfer and commercialization. It is suggested that a broad, community-focused Health Research "Center of Excellence" be established. The health care industry is multidisciplinary in nature, covering a broad range of disciplines from clinical to basic science, biology and psychology to computer science to public health promotion and health policy.

A Health Science Center of Excellence would build around existing regional strengths such as novel treatments for asthma, allergies and autism and expand on research in rural health areas such as Lyme disease, and nutritional research tied to local agriculture.

In an era of burgeoning health care costs; record nursing shortages; an aging U.S. population, and health challenges such as epidemic levels of obesity and diabetes; there is a profound need for good health care, and health related education, research and a growing demand for knowledge intensive (research-based) products and services.

The Health Science Center has begun to identify cutting-edge health-related research occurring in the region. The next important step is to begin to build capacity in these research areas by networking and better leveraging existing state, regional and local resources. Building a research culture that spans the 23 counties of the region should be a top priority. Such a culture could be built around a "Health Sciences Research Academy", a virtual organization that could network interested researchers and hold face-to-face meetings on a periodic basis. Networking existing researchers will increase the likelihood of joint research projects that are beyond the reach of individual researchers.

Summary 3: Economic Development and Technology Incubator

It was determined that a technology incubator service program would be compatible with the region and surrounding community's overall needs and vision, however this study found insufficient activity and demand to justify the development of a dedicated facility at this time.

The study found that some of the necessary components for successful technology commercialization already exist within the University of Wisconsin – La Crosse. However, there is concern that the level of sponsored research and the type of research being conducted do not present immediate opportunities for the proposed technology incubator program. Potential stakeholders surveyed were enthusiastic about the technology incubator concept but could not identify prospective clients. It was suggested that there was not an adequate level of research underway at the local academic institutions to serve as a feeder or “pipeline” for new company start-ups at this time.

It is however, recommended that the community support the ongoing development of a regional Technology Business Alliance. If properly implemented, this organization can begin to serve as a technology “incubator without walls” and serve as a strategic partner to the HSC in providing vital entrepreneurial mentoring, training, and support to area high-technology businesses.

Summary

The study found that the proposed Health Systems Research Institute initiative is feasible but will require a further coalescing of federal, state and community resources and the further development of a shared vision by consortium leaders, the private sector and other prospective stakeholders. There is significant depth, breath and diversity to the healthcare infrastructure in the region. This study provides an assessment of the presence and relative strengths of the required resources, as well as recommendations for the preliminary actions and strategies required for implementation. The next step is the development of a comprehensive business plan that will contain a detailed “blue print” for establishing the proposed institute.

This study recommends that a regional cluster approach to healthcare be developed in the Health Science Center service area. A regional cluster will establish a much larger market and power base for all the participating communities. This coordinated effort could have an immediate impact on educational and job-training programs, promoting scientific literacy at the K-12 - secondary and college levels, and retaining highly trained local workforces in local jobs. An immediate benefit would also be to overcome the widespread perception that little is happening at the HSC and in the region. This study found many impressive initiatives underway, but found that they are not well promoted in the community.

This study encourages using the HSC as a focal point for a “cross-over” of disciplines from several fields (particularly in biochemistry, biomedical and healthcare), to encourage less compartmentalization, less duplication of efforts, greater mobility, formal and informal communication, and efficiency of resources. The proposed Health Science Institute offers an excellent opportunity for the region to better coordinate and leverage existing “intellectual capital”.

This regional cluster should position itself to become a designated Health Science Center of Excellence, and become established as a component of a statewide science and technology strategy in Wisconsin. The timing for such a strategy is very good:

- **Health Care is a National Priority**

The Bush Administration has emphasized both defense/homeland security and health-related research as two key investment priorities. Millions of dollars in research funding are flowing into both of these national priority areas. At the same time, disease prevention and health promotion funding is on the rise. Tobacco settlement funds, for example, have provided billions of dollars to every state in the nation to improve healthcare.

- **Demographics – Aging U.S. and World Populations**

According to reports by the Centers for Disease Control and Prevention the senior population in the U.S. is expected to double by 2030. This means that between 2000 and 2030 the number of Americans age 65 and older will increase from 35 million to 71 million. This is an increase in the senior population from the current 12.4 percent to almost 20 percent of the total U.S. population. Worldwide, the number of senior citizens is also expected to more than double by 2030 from 420 million to 973 million. This trend is attributed to the aging of the baby boom generation and significant improvement in life expectancy.

From a healthcare perspective this means increased demands on the nation’s healthcare (medical) and social systems. Dr. Suzanne Smith, Chief of the Center for Disease Control’s healthcare and aging branch stresses the need for health professionals to look beyond infectious disease to promoting health in older adults, preventing disabilities and extending maintaining a high quality of life.¹ With a large number of aging citizens, the Health Science Center could expand research in this important field. Other institutes around the country are focusing attention on “end of life” issues, pain management, and specialty nursing programs to better serve the elderly.

¹ *Senior Population to Double by 2030*, Associated Press Feb. 13, 2003

- **Rural Health is a Major Concern and the Focus of Several Federal Agencies**

The federal government has designated most of the counties in Southwestern Wisconsin as “health professions shortage areas”. The Health Science Center has positioned itself as an alliance that provides underserved rural communities with healthcare providers. The Wisconsin Rural Health Cooperative is interested in partnering with the Health Science Center to provide greater educational opportunities throughout their service area. From a programmatic, political and marketing perspective this is a compelling opportunity for both organizations.

- **Centers of Excellence are a Major Focus of the Wisconsin Technology Council**

The Wisconsin Technology Council (WTC) is developing criteria for establishing research centers of excellence as part of the implementation strategy for its project *Vision 2020: A Model Wisconsin Economy*. In *Vision 2020*, competitive economic advantage is derived from research activities that foster new products and services. Health care is one of the areas that the WTC believes could grow new businesses and jobs for Wisconsin residents.

- **The Doyle Administration is Seeking High Growth Opportunities as part of *Grow the Wisconsin Economy***

The Doyle Administration is focused on raising per capita income through high-end, research-based economic development. Governor Doyle’s recent tour of the HSC building and his staff’s knowledge of the HSRI project give this region a key advantage in enlisting gubernatorial support.

EXECUTIVE SUMMARY ONLY

To obtain the entire report and appendices, please contact:

NorthStar Economics, Inc.

University Research Park
510 Charmany Drive, Suite 173
Madison, Wisconsin 53719

Telephone: (608) 441-8060
Fax: (608) 441-8064
E-Mail: nstar@northstareconomics.com
Web Site: www.northstareconomics.com

David J. Ward, Ph.D., President
(608) 279-3393
dward@northstareconomics.com

Dennis K. Winters, Vice President / Director of Research
(608) 279-6216
dwinters@northstareconomics.com

Alan J. Hart, J.D., Vice President / Director of Operations
(608) 576-9085
ahart@northstareconomics.com



www.northstareconomics.com