

John Pieper 452-3302

- o Health Administration
(608) 785-9872
- o Environmental Health
(608) 785-9771
- o Health Education
(608) 785-9872
- o Laboratory
(608) 785-9872



- o Nursing
(608) 785-9723
- o Vector Control
(608) 785-9872
- o WIC/Nutrition Services
(608) 785-9865
- o TDD
(608) 785-9787
- o FAX
(608) 785-0846

300 4th Street North • La Crosse, WI 54601-3228

Center for Scientific Review
National Institutes of Health
6701 Rockledge Drive
Room 1040 – MSC 7710
Bethesda, MD 20892-7710

June 16, 2004

Dear Sirs or Madams:

Enclosed is a grant application by the La Crosse County Health Department (LCHD) for the Center for Disease Control and Prevention's funding opportunity PA#04052. "Research into the Public Health Aspects of West Nile Virus in the United States".

LCHD believes that in order to be effective nation-wide, any West Nile Virus (WNV) mosquito vector control program must take into account rural populations and we propose to make a contribution to that end.

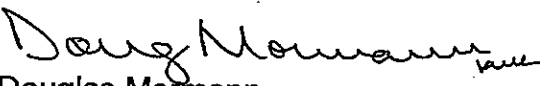
In 1979 Dr. James Parry co-founded the La Crosse County Mosquito Vector Control Program to establish an appropriate public health response to La Crosse Strain Encephalitis (LSE). Working as a team, Dr. Parry and David Geske, LCDH Mosquito Vector Control Manager, expanded their original program to include contract work in 17 counties in the upper Mississippi River Valley.

Building on its LSE experience, LCHD believes that it has the resources, the experience, and the talent to create a low-cost, standardized, effective rural WNV vector management program in the upper Mississippi River Valley. By first providing evidence of a WNV problem to elected county policy makers, then offering the counties an effective management tool, LCHD believes that it can begin to construct the foundation for a rural WNV program.

The ultimate goal of the program LCHD proposes is to provide rural counties with a self-funded WNV, surveillance program, natural habitat management program, model public health ordinance with health department citation powers, and a waste tire removal plan.

We hope you find our project worthy and look forward to your decision.

Sincerely yours,


Douglas Mormann
Director,
La Crosse County Health Department,



Principal Investigator/Program Director (Last, First, Middle): Parry, James, E.

DESCRIPTION: State the application's broad, long-term objectives and specific aims, making reference to the health relatedness of the project. Describe concisely the research design and methods for achieving these goals. Avoid summaries of past accomplishments and the use of the first person. This abstract is meant to serve as a succinct and accurate description of the proposed work when separated from the application. If the application is funded, this description, as is, will become public information. Therefore, do not include proprietary/confidential information. DO NOT EXCEED THE SPACE PROVIDED.

This grant will be used to provide a comprehensive turnkey mosquito vector control program to smaller city and county health departments in Wisconsin, Minnesota, and Iowa. In the Upper Mississippi Valley, La Crosse strain encephalitis (LSE) is an endemic arboviral health problem. Because of this, rural area county health departments (HD) are cognizant of the need for mosquito vector control programs but individually cannot afford the development costs for a comprehensive program. The appearance of West Nile Virus (WNV) accentuates the need for rural public health mosquito vector control programs. Along with urban programs, rural vector control programs must be initiated as part of a national response to WNV.

Though the use of field biology, public health vector management techniques, and public health records the La Crosse County Health Department (LCHD) will present evidence of a local WNV problem to locally elected decision makers along with a comprehensive low-cost management solution.

LCDH will use its gained experience help area counties implement a comprehensive public health ordinance with health department citation powers along with a program for vector control, media press releases, habitat identification, and management. Training visiting nurses and highway maintenance workers to serve as the eyes and ears of the vector surveillance program is one cost containment aspect of the program. LCDH staff will continue to do contract virus biology for host, vector range, and epidemic potential.

At the end of the three-year funding program, rural area county policy makers will have the evidence of the problem; and a program management for the problem. Through the educational program, county policy makers will be encouraged to put in place local or state funding for ongoing mosquito vector control programs.

PERFORMANCE SITE(S) (organization, city, state)

La Crosse County Health Department, La Crosse, Wisconsin

The following upper Mississippi River Valley Counties have expressed an interest in the project; work could be done in any or all listed counties and counties not presently listed: Allamakee Co., IA, Houston Co., MN, Winona Co., MN, Buffalo Co., WI, Crawford Co., WI, Dunn Co., WI, Grant Co., WI, Jackson Co., WI, La Crosse Co., WI, Monroe Co., WI, Pepin Co., WI, Pierce Co., WI, Richland Co., WI, St. Croix Co., WI, Trempeleau Co., WI, Vernon Co., WI. Part of the Ho Chunk Nation is located in Jackson County, WI; LCHD historically has done contract work for them, because of their legal status further legal advice will be sought before performing grant work on Ho Chunk lands.

KEY PERSONNEL. See instructions. Use continuation pages as needed to provide the required information in the format shown below. Start with Principal Investigator. List all other key personnel in alphabetical order, last name first.

Name	Organization	Role on Project
Parry, James, E. Ph.D.	La Crosse County Health Department, Vector Control Program Director, Retired	Principal Investigator, Conceptual program oversight, field biology management, Program Year 2, educational materials review, model ordinance review, field staff training

Geske, David A. B.S.

La Crosse County Health Department Project Year 1

Equipment purchases,
supply purchases
Field Staff Supervision,
Day-to-day project
management
Project Year 2 & 3
All Project Year One
responsibilities plus will be
Project educator for
counties.

Jackson, Craig, A., M.S.

La Crosse County Health Department

Field Biologist, All
trapping responsibilities,
choice of trapping sites,
field biology, viral biology
and taxonomy, site
mapping and data
analysis.

Graewin, Allen B. S.

La Crosse County Health
Department

Write educational phase 2
materials.

Mormann, Douglas N., M.S.

Project Administrator, in-kind
administrative work, payroll,
required administrative
forms, etc.

Disclosure Permission Statement. Applicable to SBIR/STTR Only. See instructions. Yes No

PHS 398 (Rev. 05/01)

Page

Number pages consecutively at the bottom throughout
the application. Do not use suffixes such as 2a, 2b.

Form Page 2

Principal Investigator/Program Director (Last, First, Middle): Parry, James E.

The name of the principal investigator/program director must be provided at the top of each printed page and each continuation page.

RESEARCH GRANT TABLE OF CONTENTS

	Page Numbers
Face Page	1
Description, Performance Sites, and Personnel	2
Table of Contents.....	4
Detailed Budget for Initial Budget Period (or Modular Budget).....	5
Budget for Entire Proposed Period of Support (not applicable with Modular Budget).....	N/A
Budgets Pertaining to Consortium/Contractual Arrangements (not applicable with Modular Budget).....	N/A
Biographical Sketch – Principal Investigator/Program Director (<i>Not to exceed four pages</i>).....	7
Other Biographical Sketches (Not to exceed four pages for each – <i>See instructions</i>).....	9-13
Resources.....	14
Research Plan	15-24
Introduction to Revised Application (<i>Not to exceed 3 pages</i>).....	N/A
Introduction to Supplemental Application (<i>Not to exceed one page</i>).....	15
A. Specific Aims.....	16
B. Background and Significance	17
C. Preliminary Studies/Progress Report/ Phase I Progress Report (SBIR/STTR Phase II ONLY).....	18
D. Research Design and Methods.....	19
E. Human Subjects.....	N/A
Protection of Human Subjects (Required if Item 4 on the Face Page is marked "Yes").....	N/A
Inclusion of Women (Required if Item 4 on the Face Page is marked "Yes").....	N/A
Inclusion of Minorities (Required if Item 4 on the Face Page is marked "Yes").....	N/A
Inclusion of Children (Required if Item 4 on the Face Page is marked "Yes").....	N/A
Data and Safety Monitoring Plan (Required if Item 4 on the Face Page is marked "Yes" and a Phase I, II, or III clinical trial is proposed).....	N/A
F. Vertebrate Animals.....	N/A
G. Literature Cited.....	N/A
H. Consortium/Contractual Arrangements.....	N/A
I. Letters of Support (e.g., Consultants).....	N/A
J. Product Development Plan (SBIR/STTR Phase II and Fast-Track ONLY).....	N/A
Checklist.....	26

Appendix (*Five collated sets. No page numbering necessary for Appendix.*)

Appendices NOT PERMITTED for Phase I SBIR/STTR unless specifically solicited.....

Check if Appendix is Included

Number of publications and manuscripts accepted for publication (*not to exceed 10*) _____
Other items (list): _____

BUDGET JUSTIFICATION PAGE MODULAR RESEARCH GRANT APPLICATION				
Initial Budget Period	Second Year of Support	Third Year of Support	Fourth Year of Support	Fifth Year of Support
150,000	150,000	150,000		
Total Direct Costs Requested for Entire Project Period			\$	450,000

Personnel

James Parry, Ph.D., Principal Investigator, (5% Mosquito Dormant Season (MDS), 25% Mosquito Active Season (MAS)) will be responsible for the overall administration and direction of the project. He will ensure timely production of educational materials, oversee progress on field survey work, and analyze results of field testing for Culex and Ochlarotatus for WNV. He will train field staff to his performance standards.

David Geske, B.S. (50% MDS, 50% MAS) will be involved in supervision and planning for the field crews. He will handle material purchases, field staff hiring, and production planning. He will also serve as primary educator and primary contact for county boards, district attorneys, and county health departments.

Allen Graewin, B.S. (5% MDS, 0% MAS) will oversee writing and publication of WNV Model Public Health Ordinance, data map production, and all other educational materials.

Craig Jackson, M.S., (10% MDS, 100% MAS) will function as chief field biologist. He will be responsible for and oversee all trapping activities gravid, carbon dioxide, ovitrapping, and light trapping. He will select field test sites and be responsible for on site and laboratory testing and taxonomic work. He will also be responsible for data analysis.

Douglas Mormann, M.S., (5% MDS, 5% MAS), Project Administrator, will maintain budgetary control, monitor expenses, monitor in-kind work, and perform general administrative duties.

To Be Appointed, Field Staff, (0%MDS, 100% MAS) Field staff will consist primarily of university biology and public health students. Field staff will be responsible for locating, mapping and managing natural habitat. Field staff will also be responsible for locating, treating, and mapping artificial habitat. Education of property owners will also be their responsibility.

Consortium
N/A

Principal Investigator/Program Director (Last, First, Middle): Parry, James I

Fee (SBIR/STTR Only)
N/A

Principal Investigator/Program Director
(Last, First, Middle): Parry, James E.

BIOGRAPHICAL SKETCH

Provide the following information for the key personnel in the order listed on Form Page 2.
Follow this format for each person. **DO NOT EXCEED FOUR PAGES.**

NAME		POSITION TITLE		
Parry, James E.		Professor, Emeritus, University of Wisconsin – La Crosse		
EDUCATION/TRAINING <i>(Begin with baccalaureate or other initial professional education, such</i>				
INSTITUTION AND LOCATION		DEGREE <i>(if applicable)</i>	YEAR(s)	FIELD OF STUDY
University of Utah, Salt Lake City, Utah		B.S.	1960	Zoology/Entomology
University of Utah, Salt Lake City, Utah		M.S.	1964	Zoology/Entomology (Parasitology)
University of Utah, Salt Lake City, Utah		Ph.D.	1968	Zoology/Entomology (Parasitology)

A. Positions and Honors

- 1961-1967 Teaching Assistant, University of Utah
1967 Instructor, Biology Department, University of Wisconsin – La Crosse
1968 Assistant Professor, University of Wisconsin – La Crosse
1970 Associate Professor, University of Wisconsin – La Crosse
1975 Professor, University of Wisconsin – La Crosse
1985-1997 Chairman, Department of Biology and Microbiology, University of Wisconsin – La Crosse

B. Publications and Other Related Material

1. Parry, James E., 1964. A Study of the Species Composition and Distribution of the Parasites of Some Common Amphibians of Iron and Washington Counties, Utah. Unpublished Masters Thesis.
2. Parry, James E. and Albert W. Grundmann. 1965. A Study of the Species Composition and Distribution of the Parasites of Some Common Amphibians of Iron and Washington Counties, Utah. Utah Academy of Science, Arts, and Letters.
3. Parry, James E., Transmission Studies of Nematodes with Direct Life Histories in Selected Utah Mammals. Unpublished Ph.D. Thesis.
4. Parry, James E., Philip D. Sparks. 1968. Principles of Ecology; Audio Tutorial Guide to the Biological Sciences. Burgess Publishing Co. Cat. #45.
5. Parry, James E., et al. 1973. Laboratory Manual of Vertebrate Zoology. Burgess Publishing Co. 122 pp.
6. Parry, James E., et al. 1977. Laboratory Manual of Vertebrate Zoology. Burgess Publishing Co. 130 pp. 2nd Edition.
7. D.W. Severson and J. E. Parry. 1981. Preliminary Studies of Pollen Collection by Honey Bees (*Apis mellifera* L.) in a Wisconsin Apple Orchard. American Bee Journal. April p.255-257.
8. Parry, James E. 1983. The Control of *Aedes Triseriatus* in La Crosse, Wisconsin. California Serogroup Viruses. pp.355-363. Alan R. Liss, Inc., 150 Fifth Avenue, New York, NY 10011.

C. Presentations

1. Parry, James E. 1982. The Control of *Aedes triseriatus* in La Crosse, Wisconsin. Presented and published as part of the Proceedings, International Symposium on California Serogroup Viruses. November 13, 1982. Cleveland, OH. Invited Paper.
2. Parry, James E., David Geske and Cameron Gundersen. 1987. Control of *Aedes triseriatus* and the Problem of Encephalitis in La Crosse, Wisconsin. Presented at the American Mosquito Control Association meeting. March 29-April 2. Seattle, WA.
3. Parry, James E. and David Geske. 1995 Surveillance of Encephalitis Vectors in Wisconsin in 1994. Paper given at the American Mosquito Control Association meetings. March 22, 1995. Portland, OR.
4. Parry, James E. and David Geske. 1995. A Recent Case of La Crosse Encephalitis in La Crosse, Wisconsin. Paper presented at the American Mosquito Control Association Meetings March 22, 1995. Portland, OR.

D. Thesis Projects with Graduate Students (Mosquito or Tick Related)

1. Battles, Jane Kwun-Lai Kan. 1981. The Relative Abundance and Seasonal Distribution of Mosquitoes in La Crosse County, 1979-1980. Unpublished Masters Thesis.
2. Haberman, Thomas Mark. 1981. A field Evaluation of 1 Octen-3 ol As an Ovipositional Lure of *Aedes triseriatus*, Unpublished Masters Thesis.
3. Lawrensen, Mark. 1990. An Evaluative Study of Resmethrin and Permethrin for the Reduction of the Deer Tick *Ixodes dammini*. Unpublished Masters Thesis.

There have been 10 University Research Grants awarded during the years 1968 to 1984. All except two were mosquito related.

E. Professional Consulting

One of the founders of the La Crosse Mosquito control Program (Established, 1979) and continue to consult and work with that program.

F. Recent Grant

Grant No. UI0/CCU510109-01 from the CDC to the State of Wisconsin was awarded to the La Crosse County Health Department, "The La Crosse County Mosquito Control Program".
Title: "Assessment of the Effects of the Flood Waters of 1993 on the Mosquito Vectors of La Crosse Encephalitis and Western Equine Encephalitis. James E. Parry and David Geske, Principal Investigators. \$125,000 funded. Effective Dates: February 1, 1994 to November 30, 1995.

G. Emeritus Status

Granted Professor Emeritus Status from the University of Wisconsin – La Crosse and retired from the University June 30, 1998.

Principal Investigator/Program Director
(Last, First, Middle): Parry, James, E.

BIOGRAPHICAL SKETCH

Provide the following information for the key personnel in the order listed on Form Page 2.
Follow this format for each person. **DO NOT EXCEED FOUR PAGES.**

NAME Geske, David A.		POSITION TITLE Manager, La Crosse County Health Dept. Mosquito, Tick and Other Vector Born Diseases	
EDUCATION/TRAINING (<i>Begin with baccalaureate or other initial professional education, such as</i>)			
INSTITUTION AND LOCATION	DEGREE (if applicable)	YEAR(s)	FIELD OF STUDY
University of Wisconsin, Madison, WI CDC Mosquito Control Training	B.S.	1976 1977	Biology Vector Control

A. Positions and Employment:

1979 to present La Crosse County Health Department

B. Professional Associations

1992 – Present, Minnesota Tick and Lyme Disease Control Committee
2001 – Present, West Nile Advisory Committee, State of Wisconsin

C. Awards

1994 - Grant No. UIC/CCU510109-01 from the CDC to the State of Wisconsin was awarded to the La Crosse County Health Department, "The La Crosse County Mosquito Control Program". Title: "Assessment of the Effects of the Flood Waters of 1993 on the Mosquito Vectors of La Crosse Encephalitis and Western Equine Encephalitis". James E. Parry, and David Geske, principal investigators. \$125,000 funded. Effective Dates: February 1, 1994 to November 1995.
2000 - Wisconsin Public Health Association High Achievement Award

D. Presentations

Parry, James E., David Geske and Cameron Gundersen M.D. 1987 Control of *Aedes triseriatus* and the Problem of Encephalitis in La Crosse, Wisconsin. Presented at the American Mosquito Control Association meeting. March 29-April 2. Seattle, Washington.

Parry, James E., and David Geske. 1995 Surveillance of Encephalitis Vectors in Wisconsin in 1994. Paper given at the American Mosquito Control Association meetings in Portland, Oregon. March 22, 1995.

Principal Investigator/Program Director (Last, First, Middle): Parry, James E.

Parry James E. and David Geske. 1995. A Recent Case of La Crosse Encephalitis in La Crosse, Wisconsin. Paper presented at the American Mosquito Control Association Meetings in Portland, Oregon. March 22, 1995.

E. Research Support

David Geske provided research support to Dr. Parry and his graduate students through his position in LCHD Vector Control.

Parry, James E. 1982. The Control of *Aedes triseriatus* in La Crosse, Wisconsin. Presented and published as part of the Proceedings, International Symposium on California Serogroup Viruses. November 13, 1982. Cleveland, OH. Invited Paper.

Battles, Jane Kwun-Lai Kan. 1981. The Relative Abundance and Seasonal Distribution of Mosquitoes in La Crosse County. 1979-1980. Unpublished Masters Thesis.

Haberman, Thomas Mark. 1981. A Field Evaluation of 1 Octen-3 ol As an Ovipositional Lure of *Aedes Triseriatus*, Unpublished Masters Thesis.

Lawrensen, Mark. 1990. An Evaluative Study of Resmethrin and Permethrin for the Reduction of the Deer Tick, *Ixodes dammini*. Unpublished Masters Thesis.

Principal Investigator/Program Director
(Last, First, Middle): Parry, James E.

BIOGRAPHICAL SKETCH

Provide the following information for the key personnel in the order listed on Form Page 2.
Follow this format for each person. **DO NOT EXCEED FOUR PAGES.**

NAME Graewin, Allen		POSITION TITLE Director, Education La Crosse County Health Department		
EDUCATION/TRAINING <i>(Begin with baccalaureate or other initial professional education, such</i>				
INSTITUTION AND LOCATION		DEGREE <i>(if applicable)</i>	YEAR(s)	FIELD OF STUDY
University of Wisconsin – La Crosse La Crosse, Wisconsin		B.S.	1974	Public Health
CDC – Principles of Epidemiology		Certificate	1979	Epidemiology

Positions

1977 to Present Director, Education. La Crosse county Health Department

Citations and Awards

1991 - Certified Health Education Specialist

1996 – Wisconsin Public Health Association, Special Achievement in Public Health Award

2000 - American Heart Association, Outstanding Achievement Award

Principal Investigator/Program Director
(Last, First, Middle): Parry, James E.

BIOGRAPHICAL SKETCH

Provide the following information for the key personnel in the order listed on Form Page 2.
Follow this format for each person. **DO NOT EXCEED FOUR PAGES.**

NAME		POSITION TITLE		
Jackson, Craig Alan		Associate Scientist		
EDUCATION/TRAINING <i>(Begin with baccalaureate or other initial professional education, such</i>				
INSTITUTION AND LOCATION		DEGREE <i>(if applicable)</i>	YEAR(s)	FIELD OF STUDY
University of Wisconsin-La Crosse		B.S.	1995	Biology
University of Wisconsin-La Crosse		M.S.	1998	Clinical Microbiology
Rutgers University, Piscataway, NJ		n/a	2001-2002	Molecular Genetics

A. Positions and Honors.

Positions and Employment

1994-1995	Laboratory Technician, Davy Laboratories, La Crosse, WI
1995-	Vector Control Monitor, La Crosse County Health Department, La Crosse, WI
1995-1996	Clinical Practicum, Gundersen Lutheran Medical Center, La Crosse, WI
1996-1997	Clinical Practicum, Wisconsin State Laboratory of Hygiene, Madison, WI
1997-	Vector Control Monitor, La Crosse County Health Department, La Crosse, WI
1997-1998	Graduate Research Assistant, Gundersen Lutheran Medical Center, La Crosse, WI
1998-2001	Assistant Scientist II, Department of Chemotherapy and Molecular Genetics, Schering-Plough Research Institute, Kenilworth, NJ
2001-2003	Associate Scientist, Department of Chemotherapy and Molecular Genetics, Schering-Plough Research Institute, Kenilworth, NJ
2003-2004	Associate Scientist, Department of Virology, Schering-Plough Research Institute, Kenilworth, NJ
2004-present	Associate Scientist, Department of Immunology, Schering-Plough Research Institute, Kenilworth, NJ

Professional Memberships and Honors

1995-present	Member, Golden Key National Honor Society
1995-present	Member, American Society for Microbiology

B. Selected peer-reviewed publications (in chronological order).

1. Brieland, J., Jackson, C., Hurst, S., Loebenberg, D., Muchamuel, T., Debets, R., Kastelein, R., Churakova, T., Abrams, J., Hare, R., and O'Garra, A. Immunomodulatory Role of Endogenous Interleukin-18 in Gamma Interferon-Mediated Resolution of Replicative *Legionella pneumophila* Lung Infection. *Infect. Immun.* Vol. 68, No. 12 (Dec. 2000), pp. 6567-6573.
2. Brieland, J., Jackson, C., Menzel, F., Loebenberg, D., Cacciapuoti, A., Halpern, J., Hurst, S.,

- Muchamuel, T., Debets, R., Kastelein, R., Churakova, T., Abrams, J., Hare, R., and O'Garra, A. Cytokine Networking in Lungs of Immunocompetent Mice in Response to Inhaled *Aspergillus fumigatus*. *Infect. Immun.* Vol. 69, No. 3 (March 2001), pp. 1554-1560.
3. Brieland, J., Essig, D., Jackson, C., Frank, D., Loebenberg, D., Menzel, F., Arnold, B., DiDomenico, B., and Hare, R. Comparison of Pathogenesis and Host Immune Responses to *Candida glabrata* and *Candida albicans* in Systemically Infected Immunocompetent Mice. *Infect. Immun.* Vol. 69, No. 8 (August 2001), pp. 5046-5055.
 4. Jackson, C., Lovrich, S., Agger, W. and Callister, S. Reassessment of a Midwestern Lyme Disease Focus for *Borrelia burgdorferi* and the Human Granulocytic Ehrlichiosis Agent. *J. Clin. Microbiol.* Vol. 40, No. 6 (June 2002), pp. 2070-2073.
 5. Hurst, S., Muchamuel, T., Gorman, D., Gilbert, J., Clifford, T., Kwan, S., Menon, S., Seymour, B., Jackson, C., Kung, T., Brieland, J., Zurawski, S., Chapman, R., Zurawski, G., and Coffman, R. New IL-17 Family Members Promote Th1 or Th2 Responses in the Lung: In Vivo Function of the Novel Cytokine IL-25. *J. Immunol.* Vol. 169 (July 2002), pp. 443-453.

C. Research Support

All of my research within the last 3 years has been performed as an employee of a private-industry pharmaceutical company within the departments of Chemotherapy & Molecular Genetics, Virology, and Immunology. A few general project summaries are included below; I was considered a co-investigator for all:

1. Performed multi-color FACS analysis for the quantitative detection of murine cytokines.
2. Contributed to bacterial and fungal mechanism of action/resistance studies with novel chemotherapeutic agents.
3. Developed quantitative RT-PCR procedures for characterization of immune response in murine infection models (*Legionella*, *Streptococcus*, *Salmonella*, *Aspergillus*, *Candida*).
4. Evaluated the *in vivo* effects of novel immune modulators.
5. Developed quantitative PCR assay for specific detection of *A. fumigatus* in mouse tissues.
6. Performed high-throughput quantitative RT-PCR and ELISA to evaluate the immune modulatory effect of CpG DNA on lymphocyte gene expression and cell function.
7. Developed cell-based assays for the measurement of lymphocyte function (killing/degranulation) after exposure to novel immune modulators and antiviral compounds.
8. Performed quantitative RT-PCR to measure viral RNA titer in HCV replicon-bearing cell lines and experimentally infected animal tissues.

Principal Investigator/Program Director
(Last, First, Middle): Parry, James, E.

BIOGRAPHICAL SKETCH

Provide the following information for the key personnel in the order listed on Form Page 2.
Follow this format for each person. **DO NOT EXCEED FOUR PAGES.**

NAME Mormann, Douglas N.		POSITION TITLE Director/ County Health Officer	
EDUCATION/TRAINING <i>(Begin with baccalaureate or other initial professional education, such</i>			
INSTITUTION AND LOCATION	DEGREE <i>(if applicable)</i>	YEAR(s)	FIELD OF STUDY
St. Mary's College, Winona, MN	B.A.	1971	Biology
University of Minnesota School of Public Health, Minneapolis, MN	M.S.	1972	Environmental Health

A. Positions and Employment

8/72 – 6/73 United States Government, ACTION/VISTA – People's Opportunity, Inc
Albion, N.Y.
6/74 – 11/75 State of Wisconsin, Division of Health, Madison, WI
11/75 – 12/81 North Central Area Planning Association, Inc., Wausau, WI
1/4/82 -2/25/84 Portage County Human Services Department, Stevens Point, WI
2/2/84 – Present La Crosse County Health Department, La Crosse WI

B. Selected Publications

Crossroads Health Care for Rural Wisconsin, State Medical Society of Wisconsin/State of Wisconsin, 1976, reprinted 1979, 64 pages.

"Primary Care Shortage and Health System's Role in the Solution", ed. Robert Wolinsky and Edward Miller, The Small City and Regional Community Proceedings, 1978, pp. 238-242.

"EMS Planning and Development at the Regional Level", ed. Steven Marlowe, MD, and Martha McGowan, Workshops in Primary Care; Selections from the Third National Conference on Rural Primary Care, National Rural Primary Care Association, pp. 37- 42, 1980.

"Healthier People in Wisconsin: A Public Health Agenda for the Year 2000", Wisconsin Department of Health and Social Services, February, 1990, Co-Chairpersons James Davis, Douglas Mormann, Paul Nannis, and Margaret Schmelzer, 212 pages.

"Community-Based Food Safety Survey", Journal of Extension, Spring, 1991, pp. 37-38, Gary D. Gilmore, Mary Meehan-Strub, and Douglas Mormann.

RESOURCES

FACILITIES: Specify the facilities to be used for the conduct of the proposed research. Indicate the performance sites and describe capacities, pertinent capabilities, relative proximity, and extent of availability to the project. Under "Other," identify support services such as machine shop, electronics shop, and specify the extent to which they will be available to the project. Use continuation pages if necessary.

Laboratory:

La Crosse County Health Department Laboratory. This lab is in close proximity to LCHD's Vector Control office. In-kind use of lab space, refrigeration, microscopes, etc. has been offered.

Clinical:

N/A

Animal:

N/A

Computer:

Access to LCHD computer systems, T-1 line, intranet, printers has been offered in-kind

Office:

Office space in the vector control supply building, phones, printing services, payroll, accounting, and billing services have been offered in-kind.

Other:

Chemical handling safety equipment at LCHD Vector Control supply building, hip boots and waders, entomological dippers, offered in-kind.

MAJOR EQUIPMENT: List the most important equipment items already available for this project, noting the location and pertinent capabilities of each. Argo 8 wheel drive all terrain/amphibious vehicle, four wheel drive truck, and Grizzly ultra low volume, truck mounted sprayer, located in La Crosse County Vector Control supply building. 12 light traps, supply of ovitraps offered in-kind as needed.

Introduction

LCHD believes that in order to be effective nation-wide, any WNV mosquito vector control program must take into account rural populations. LCHD believes that it has the resources, the experience and the talent to create a low-cost, standardized, effective, rural WNV vector management program in the upper Mississippi River Valley.

Building on the successes of the mosquito vector control programs in Salt Lake County, Utah, Minneapolis, Minnesota, Notre Dame, and CDC's own program, Dr. Parry and Dave Geske expanded the La Crosse County Vector Control Program to 17 nearby counties.

LCDH intends to first, provide evidence of a WNV problem to area county policy makers, then to provide them with an effective management tool in the form of a Model Public Health Ordinance with public health department citation powers.

The emphasis of the educational phase of the program will be two pronged. One prong will be policy maker education, the other, one-on one personal protection aimed at property owners and residents.

The ultimate goal of the program is to provide rural counties with a self-funded WNV, surveillance program, natural habitat management program, model public health ordinance, and a waste tire removal plan.

Research Plan

A. Specific Aims:

It is the intention of the La Crosse County Health Department (LCHD) to develop a model turnkey program for rural and mid urban, upper Mississippi valley municipal and county health departments for surveillance and control of West Nile Virus (WNV).

At the present time WNV funding dollars are focused on larger metropolitan areas. The State of Wisconsin's SFY 2004 WNV expenditures through the Epidemiology and Laboratory Capacity (ELC) cooperative agreement offered funding to only 10 Wisconsin cities. Rural areas are left to fend for themselves.

LCHD believes that the implementation of a simple, low-cost, turnkey program for rural counties is critical to any nationwide control program. Given the rapid spread of WNV across the country, a patchwork of coverage of urban areas of the country is ineffective as a nationwide comprehensive public health response.

It is the expectation of LCHD that at the end of the three year funding period, local rural health departments participating in the project will have in place the essential knowledge and enforcement policies to provide locally- or state-funded surveillance and habitat reduction programs.

Under the direction of David Geske, LCHD Vector Control Manager, LCHD has provided regional vector control services to 17 counties in the upper Mississippi River valley since 1981. From field experience gathered over the years, it feels there are two specific problems that can be addressed:

- Lack of knowledge on the part of decision makers, county boards, and district attorneys. County boards pass the ordinances and the budgets. District attorneys often aren't able to give anything but the lowest priority to public health enforcement. It is the intent of LCHD to do the biological field work to provide evidence of a WNV problem in the form of site maps to local decision makers and once they are made aware of the evidence, to provide them with a solution in the form of a model public health ordinance.
- Lack of knowledge on the part of county employees who could be trained to be part of the solution. Education of county personnel to serve as the eyes and ears for a local habitat surveillance program. These personnel are circulating in the community as part of their daily routine, i.e., local police, visiting nurses, and highway maintenance personnel.

LCDH believes that area counties are willing to address this problem but lack the skills and resources to do it. If evidence of the problem, along with a solution, is presented to rural decision makers, LCHD believes progress can be made in control of WNV in the upper Mississippi River Valley.

B. Background and Significance

The upper Mississippi River Valley contains the areas of northeastern Iowa, southeastern Minnesota, and western Wisconsin. It is composed of high population density regional centers surrounded by low density rural areas. The total population of the area is approximately 551,000. It is also the home of *Ochlerotatus triseriatus* and La Crosse strain encephalitis (LSE).

The upper Mississippi River Valley is also the Mississippi Migratory Flyway; it is used by 326 species of birds. Given the avian relationship between *Culex* species and WNV, it is important that WNV monitoring take place in this region.

The presence of LSE and the accompanying cases of the disease brought into existence the vector control program for La Crosse County. Since 1979 LCHD has been involved in programs for natural aquatic habitat management, artificial habitat reduction, and education for LSE. Over the years LCHD has become recognized as a regional center for mosquito vector related problems. Modeling its activities on successful CDC, Salt Lake County, Utah and State of Illinois programs, it presently provides contract vector control services and educational programs to 17 area counties.

Because of the regional nature of its work, LCHD works in both urban and rural settings. Through its rural work, it has become obvious that there is a need for better public health decision making based on scientific data. The LCHD service area has a mixture of ordinances or none at all pertaining to mosquito vector control. In counties where enforcement is by statute, public health enforcement can be given only a very low priority by the district attorneys. For this reason it becomes important for counties to create ordinances that allow public health officials to enforce public health standards.

A long-term goal of this grant is to turn over natural habitat surveillance and management and artificial habitat control to locally- or state-funded programs. Vector biology field research could still be available from larger health departments operating regionally on a contract basis as the need arose.

Other broad objectives are to locate WNV populations using gravid traps and VecTests to document the presence of WNV in *Culex pipiens* and related *Culex* species.

It is hoped that LCHD's present cooperative work with Dr. Barry Beaty of Colorado State University on trans-ovarian transmission of La Crosse Strain Encephalitis in *Ochlerotatus triseriatus* can be expanded to look for existence of WNV in that same species.

Principal Investigator/ Program Director (Last, First, Middle): Parry, James E.

C.Preliminary Studies/Progress Report

In 1979 Dr. Parry was one of the co-founders of the LCHD Mosquito Vector Control Program to deal with the endemic LSE problem. Dave Geske soon joined the program as manager. Dr. Parry and Dave Geske worked together in the LCHD Mosquito Vector Control Program until Dr. Parry's retirement in 1998.

Throughout his years in the program Dr. Parry trained the summer field staff, mostly undergraduate biology and public health students. These summer field staff workers were trained to understand vector-host relationships, mosquito breeding habits, LSE disease pathology and the relationship of these elements in maintaining public health.

These summer field staff were trained to, and expected to perform to, high standards of excellence in their daily work. Dave Geske continues these practices in the program today.

From a single county in 1979 the LCHD program has expanded to where it has now done contract work in 17 counties in southwestern Wisconsin, southeastern Minnesota, and northeastern Iowa. In the years since the implementation of this plan, infection rates have dropped from an average of approximately 25 cases LSE per season in its service area to an average of 5 cases per season.

Publications and presentations on this work are contained in Dr. Parry's and Dave Geske's biographical sketches. In addition to these publications Dr. Parry and Dave Geske were co- principal investigators on CDC Grant Number UI0/CCU510109-01. Titled: Assessment of the Effects of the Flood Waters of 1993 on the Mosquito Vectors of La Crosse Encephalitis and Western Equine Encephalitis. \$125,000 funded.

LCHD believes that education of property owners, health department personnel, and policy makers is critical to the success of any mosquito vector control program. Because of this philosophy LCHD views its contract work as an opportunity to perform an educational outreach service. It is also because of this philosophy that LCHD performs its contract work on an "at cost" basis. It is not run as an enterprise opportunity.

In 2001 LCHD began to modify its program to take into account WNV. LCHD believes that the lessons learned in the LSE Vector Control program have many carry over elements to WNV. It also believes that because of national media coverage, a WNV education and management program would be easier to implement than its LSE program.

D. Research Design and Methods

It is the intent of the La Crosse county Health Department (LCHD) to develop a model turnkey program for rural and urban upper Mississippi River Valley municipal and county health departments for surveillance and control of West Nile Virus (WNV). The population of the service area is approximately 551,000 people.

LCHD began to modify its existing monitoring and educational programs to establish an appropriate health response to WNV in 2001. This grant would be used to standardize and carry these developments to up to 50 other area health departments.

LCHD plans to be proactive from day one. Its primary first-year goals will be habitat identification and reduction. Through the use of aggressive surveillance, LCHD will locate and manage natural aquatic habitat and treat and remove artificial habitat. The research will make use of light trapping, carbon dioxide trapping, ovitrapping and gravid trapping. VecTests, a CDC-recognized antigen assay test, will be used to identify active carrier *Culex* and *Ochlerotatus triseriatus* in individual areas.

The information gathered in this phase, along with Public Health Service WNV data, Department of Natural Resources avian case data, Department of Agriculture equine case data, and human case documentation, will be used to create site maps of survey areas. These site maps will be important in the educational phase of the study beginning in the second year of the program.

The heart of the second phase of the program is education. This is to be a two pronged effort: a person to person education program and a campaign aimed at decision makers.

LCHD feels it is important that there be localized information and an ongoing educational program for county policy makers. In counties dependant on statute for enforcement, local public health officials often find their work in artificial habitat control languishing in the district attorney's office because of low priority. To aid enforcement LCHD intends to use the data gathered in the first year of the grant to provide evidence of need to county boards and city councils and to write a model public health ordinance for the elected officials to pass. This ordinance would allow public health officials to enforce public health standards. The ordinance would also encourage the adoption of a waste tire flow program to remove artificial habitat from the communities.

We have anecdotal evidence of the efficacy of a waste tire flow program: in three communities in our service area LCHD field survey workers find it almost impossible to find waste tires. All three of these communities have in common, easy, no-fee, disposal of residential tires.

The LCHD feels the implementation of a turnkey vector control program for rural counties is critical to any nationwide WNV control program. Given the spread of WNV across the country, a patchwork quilt of coverage of urban area is ineffective as a nationwide comprehensive public health response.

The upper Mississippi River Valley is composed of high population density regional centers surrounded by lower density rural areas. Rural areas have very little in

the way of standardized operations. Indeed, some of the worst offenders are often the town or county highway departments.

Rural health departments are understaffed, often serving in two or more counties simultaneously. It is for this reason that LCHD feels that any turnkey program will have to be simple and low cost.

As part of its educational program LCHD will educate other non health department county personnel to serve as the eyes and ears of the surveillance program. These workers would be county employees who circulate through the community as part of their daily routine, i.e., police officers, visiting nurses, and highway maintenance personnel.

Public program presentation, news releases, visits to small town newspapers and one-on-one contact with property owners are all part of a comprehensive program that LCHD has developed over the years. Personal protection programs are also taken to rural areas. Counties will also be encouraged to better utilize multi-county health consortia. These strategies, coupled with its capacity to do contract biology along with its public health work are all things LCHD will be standardized and carried to the counties of the upper Mississippi River Valley.

In the first year of the program (September 2004 to August 2005) the goals are:

1. To locate, reduce, or control breeding habitat in the LCHD's historic service counties in the upper Mississippi River Valley.
 - (a) Manage aquatic habitat for *Culex pipiens*, related *Culex* species, i.e. ditch and other long term ponded areas.
 - (b) Treat and remove artificial habitat.
 - (c) Interrupt the vector host relationship.
2. Educate the public in personal protection and artificial habitat management.
3. Prepare evidence to present to county policy makers in the educational phase of the program.
4. Improve veterinarian coordination with public health.
5. Encourage horse owners to vaccinate horses for WNV.

To move toward these goals LCHD will accomplish these objectives:

1. Do natural and artificial habitat surveys in contacted counties who wish to be in the program. This will be done by the field biologist and staff in April, May, June, July, and August, 2005.
2. Locate and treat artificial habitat and encourage removal within 10 days of discovery.
3. Ovitrap *Ochlerotatus triseriatus* known LSE case areas for population identification and reduction.
4. Gravid trap 50 of the most suspect sites. August 2005.

5. Record data obtained in county surveys for use in educational phase of program.
6. Contact all veterinarians in enrolled counties to encourage cooperation with public health officials. February, March, April 2005.

Year 2 (September 2005 to August 2006) program goals are:

1. All goals for Program Year 1.
2. Contact every enrolled county board.
3. Present model ordinance and education program to county boards using WNV site map evidence obtained in Program Year 1. Present the same evidence to district attorney's offices if necessary.
4. Present educational program to non-health department employees in enrolled counties.
5. Encourage enrolled communities to pass residential curbside tire pickup.

To move toward these goals LCHD will accomplish these objectives:

1. All program objectives from Program Year 1.
2. Gravid trap the 50 most suspect sites, September and October 2005.
3. Present site map evidence, educational program, and model public health ordinance to 6 of the enrolled county's elected boards. If the model public health ordinance is not passed, present educational package to district attorneys. January, February, March, April, and May, 2006.
4. Present educational package to non-health department workers in 6 counties interested in program. November, and December, 2005, January, February, March, and April, 2006.
5. Convince 3 communities to adopt residential curbside tire pickup programs.

Year 3 (September 2006 to August 2007) Program goals are:

1. All program goals from Program Years 1 and 2.
2. Modify and improve program based on information gathered in Program Years 1 and 2.
3. Make program available for widespread adoption.
4. At the end of Program Year 3 enrolled counties are to have their own ordinances, their own locally funded local surveillance and management program, and their own tire sanitation program or local funding to contract this work out.

To move toward these goals LCHD will accomplish these objectives:

1. All program objectives from Program Years 1 and 2.
2. Present site map evidence, educational program, and model public health ordinance to 6 more county boards. January, February, March, April, and May 2007.
3. Present educational package to non-health department workers in 6 more counties. November, and December 2006; January, February, March, and April, 2007.
4. Evaluate and Report Results of program. August to November 2007.

Function	Principal Investigator/Program Director (Last, First, Middle): PARRY, James E.											
	2004 September	2004 October	2004 November	2004 December	2005 January	2005 February	2005 March	2005 April	2005 May	2005 June	2005 July	2005 August
Timeline												
Gather Reported case data, preliminary map work		*	*	*	*	*						
Collect Examples of ordinances		*	*	*								
Notify counties of availability of grant services		*	*	*								
Purchase Equipment					*							
Order supplies						*						
Contact Veterinarians						*	*	*				
Take Field staff applications							*	*				
County Survey Work							*	*	*	*	*	*
Sampling and management								*	*	*	*	*
Trapping and Vectesting									*	*	*	*

	Principal Investigator/Program Director (Last, First, Middle): Parry, James E.											
	2005 September	2005 October	2005 November	2005 December	2006 January	2006 February	2006 March	2006 April	2006 May	2006 June	2006 July	2006 August
File Interim Progress Report PHS2590		*										
County Survey Work	*											
Sampling and management	*	*						*	*	*	*	*
Trapping and Vectesting	*	*									*	*
Contact												*
Veterinarians						*	*	*	*			
Write Ordinance			*	*								
Work up Map				*								
Data			*	*								
Policymaker Education Program					*	*	*	*	*			
Non health department worker education program			*	*	*	*	*	*	*			
Order supplies						*						
Take Field staff applications							*	*				

	Principal Investigator/Program Director (Last, First, Middle): Parry, James E.												
	2006	2006	2006	2006	2007	2007	2007	2007	2007	2007	2007	2007	2007
	September	October	November	December	January	February	March	April	May	June	July	August	
Program Year 3													
File Interim Progress Report PHS2590		*											
County Survey Work	*												
Sampling and management	*	*											
Trapping and Vactesting	*	*											
Contact													
Veterinarians						*	*	*					
Work up Map													
Data			*	*									
Policymaker Education Program					*	*	*	*	*	*			
Non health department worker education program			*	*	*	*	*	*					
Order supplies						*							
Take Field staff applications											*		
Evaluation of Results													*
Policymaker Education to new counties				*	*	*	*						
Worker education program to new counties				*	*	*	*	*	*	*			

CHECKLIST

TYPE OF APPLICATION (Check all that apply.)

- NEW application.** (This application is being submitted to the PHS for the first time.)
 - SBIR Phase I SBIR Phase II: SBIR Phase I Grant No. _____ SBIR Fast Track
 - STTR Phase I STTR-Phase II: STTR Phase I Grant No. _____ STTR Fast Track
- REVISION** of application number: _____
(This application replaces a prior unfunded version of a new, competing continuation, or supplemental application.)
- COMPETING CONTINUATION** of grant number: _____
(This application is to extend a funded grant beyond its current project period.)
- SUPPLEMENT** to grant number: _____
(This application is for additional funds to supplement a currently funded grant.)
- CHANGE** of principal investigator/program director.
Name of former principal investigator/program director: _____
- FOREIGN** application or significant foreign component.

- INVENTIONS AND PATENTS**
(Competing continuation appl. and Phase II only)
- No Previously reported
 - Yes. If "Yes," Not previously reported

1. PROGRAM INCOME (See instructions.)

All applications must indicate whether program income is anticipated during the period(s) for which grant support is request. If program income is anticipated, use the format below to reflect the amount and source(s).

Budget Period	Anticipated Amount	Source(s)
N/A		

2. ASSURANCES/CERTIFICATIONS (See instructions.)

The following assurances/certifications are made and verified by the signature of the Official Signing for Applicant Organization on the Face Page of the application. Descriptions of individual assurances/certifications are provided in Section III. If unable to certify compliance, where applicable, provide an explanation and place it after this page.

- Debarment and Suspension; •Drug-Free Workplace (applicable to new [Type 1] or revised [Type 1] applications only); •Lobbying; •Non-Delinquency on Federal Debt; •Research Misconduct; •Civil Rights (Form HHS 441 or HHS 690); •Handicapped Individuals (Form HHS 641 or HHS 690); •Sex Discrimination (Form HHS 639-A or HHS 690); •Age Discrimination (Form HHS 680 or HHS 690); •Recombinant DNA and Human Gene Transfer Research; •Financial Conflict of Interest (except Phase I SBIR/STTR) •STTR ONLY: Certification of Research Institution Participation.

- Human Subjects; •Research Using Human Embryonic Stem Cells•
- Research on Transplantation of Human Fetal Tissue •Women and Minority Inclusion Policy •Inclusion of Children Policy• Vertebrate Animals•

3. FACILITIES AND ADMINISTRATIVE COSTS (F&A)/ INDIRECT COSTS. See specific instructions.

- DHHS Agreement dated: _____ No Facilities And Administrative Costs Requested.
- DHHS Agreement being negotiated with _____ Regional Office.
- No DHHS Agreement, but rate established with _____ Date _____

CALCULATION* (The entire grant application, including the Checklist, will be reproduced and provided to peer reviewers as confidential information.)

a. Initial budget period:	Amount of base \$ _____	x Rate applied _____	% = F&A costs _____	\$ _____
b. 02 year	Amount of base \$ _____	x Rate applied _____	% = F&A costs _____	\$ _____
c. 03 year	Amount of base \$ _____	x Rate applied _____	% = F&A costs _____	\$ _____
d. 04 year	Amount of base \$ _____	x Rate applied _____	% = F&A costs _____	\$ _____
e. 05 year	Amount of base \$ _____	x Rate applied _____	% = F&A costs _____	\$ _____

TOTAL F&A Costs \$

*Check appropriate box(es):

- Salary and wages base Modified total direct cost base Other base (Explain)
- Off-site, other special rate, or more than one rate involved (Explain)

Explanation (Attach separate sheet, if necessary.):

4. SMOKE-FREE WORKPLACE Yes No (The response to this question has no impact on the review or funding of this application.)