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## Understanding Maternal-Fetal Zika Virus Transmission and its Complications in Nicaragua

Project Number  
5R01HD094009-02

Contact PI/Project Leader  
STRINGER, ELIZABETH  
MCPHILLIPS

Awardee Organization  
UNIV OF NORTH CAROLINA  
CHAPEL HILL

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### Description

#### Abstract Text

ABSTRACT It has taken less than a year for the Zika virus (ZIKV) **pandemic** to sweep across Latin America and the Caribbean. Over 1,000 cases have been documented in Nicaragua in the past year and active cases continue to be identified. The virus is expected to blanket the country over the next 2-4 years. It is now clear that ZIKV can be transmitted in utero from mother to fetus and that the consequences of congenital infection can be severe. Although not alone among infectious pathogens in its ability to cross the placenta and cause pathology in the developing fetus, ZIKV does present unique diagnostic challenges owing to its cross reactive serology with other flaviviruses. In this application, we propose a series of activities that will contribute substantially to our current understanding of maternal-fetal ZIKV infection. Through a city wide, surveillance of remnant antenatal and delivery blood specimens in León, Nicaragua, we will study ZIKV epidemiology in this mostly ZIKV naïve population, investigating rates of – and risk factors for – vertical transmission at the population level. Our approach makes use of “remnant” specimens collected at delivery and during pregnancy to categorize infants according to their ZIKV exposure and infection status. We will also test new diagnostic protocols under development at the UNC School of Medicine, investigate the fetal/newborn immune response to ZIKV exposure, and follow a cohort of infants for neurodevelopmental outcomes.

#### Public Health Relevance Statement

NARRATIVE Zika virus is the only flavivirus that is known to cause birth defects, and a travel advisory remains in place in Zika endemic areas. Data is lacking on how to monitor Zika virus infections in pregnancy on a population basis. This study aims to better understand the epidemiology of Zika virus in pregnancy through a city-wide maternal and cord blood surveillance linked to antenatal blood draws and a prospective cohort of Zika exposed infants in Leon, Nicaragua.

#### NIH Spending Category

|   |  |   |
|---|--|---|
| Clinical Research                                   | Conditions Affecting the Embryonic and Fetal Periods | Emerging Infectious Diseases                                  |
| Infectious Diseases                                 | Pediatric  | Perinatal Period - Conditions Originating in Perinatal Period |
| Preterm, Low Birth Weight and Health of the Newborn | Prevention   | Rare Diseases   |
| Women's Health                                      |  | Vector-Borne Diseases   |


#### Project Terms

|                             |                       |                               |                  |                          |                        |                  |
|-----------------------------|-----------------------|-------------------------------|------------------|--------------------------|------------------------|------------------|
| Activities of Daily Living  | Adult                 | Age-Months                    | Algorithms       | Americas                 | Antigens               | Area             |
| B-Lymphocytes               | Biological Assay      | Biology                       | Birth            | Blood                    | Blood specimen         | Caribbean region |
| Caring                      | Cell Compartmentation | Child                         | Cities           | Collaborations           | Congenital Abnormality | Country          |
| Data                        | Development           | Developmental Delay Disorders | Diagnostic       | Discipline of obstetrics | Disease                |                  |
| Enrollment                  | Epidemic              | Epidemiologic Methods         | Epidemiology     | Event                    | Exposure to            |                  |
| Fetal Development           | Fetus                 | Flavivirus                    | Frequencies      | Grant                    | Growth                 | Hearing          |
| Immune                      | Immune response       | Immune system                 | Immunoglobulin M | Incidence                | Infant                 | Infection        |
| Institutional Review Boards | Interview             | Latin America                 | Learning         | Link                     | Longitudinal Studies   |                  |

[Read More](#)

### Details

#### Contact PI/ Project Leader

Name  
[STRINGER, ELIZABETH MCPHILLIPS](#) 

Title  
ASSOCIATE PROFESSOR

Contact  
[elizabethmstringer@gmail.com](mailto:elizabethmstringer@gmail.com)


#### Other PIs

Not Applicable

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|   |                                     |  |                  |   |                   |
|---|-------------------------------------|--|------------------|---|-------------------|
| Project Number<br>5R01HD094009-02   |                                     | Contact PI/Project Leader<br>STRINGER, ELIZABETH<br>MCPHILLIPS   |                  | Awardee Organization<br>UNIV OF NORTH CAROLINA<br>CHAPEL HILL |                   |
| City<br>CHAPEL HILL   |                                     | SCHOOLS OF MEDICINE  |                  | U4  |                   |
| Country<br>UNITED STATES (US)   |                                     |  |                  |   |                   |
| Other Information   |                                     |  |                  |   |                   |
| FOA<br><a href="#">PA-16-032</a>  |                                     | Administering Institutes or Centers<br>EUNICE KENNEDY SHRIVER<br>NATIONAL INSTITUTE OF CHILD<br>HEALTH & HUMAN DEVELOPMENT |                  | Project Start<br>Date   | 01-September-2018 |
| Study Section<br><a href="#">Infectious Diseases, Reproductive<br/>Health, Asthma and Pulmonary<br/>Conditions Study Section</a> <a href="#">[IRAP]</a> |                                     | DUNS Number<br>608195277   | CFDA Code<br>865 | Project End Date  | 31-July-2023      |
| Fiscal Year<br>2019   | Award Notice Date<br>14-August-2019 |  |                  | Budget Start<br>Date  | 01-August-2019    |
|   |                                     |  |                  | Budget End Date   | 31-July-2020      |

### Project Funding Information for 2019

| Total Funding<br>\$559,711 | Direct Costs<br>\$428,551   | Indirect Costs<br>\$131,160 |
|----------------------------|---|-----------------------------|
| Year                       | Funding IC  | FY Total Cost by IC         |
| 2019                       | EUNICE KENNEDY SHRIVER NATIONAL INSTITUTE OF CHILD HEALTH & HUMAN DEVELOPMENT | \$559,711                   |

### NIH Categorical Spending

[Click here for more information on NIH Categorical Spending](#)

| Funding IC  | FY Total Cost by IC | NIH Spending Category   |
|---|---------------------|---|
| EUNICE KENNEDY SHRIVER NATIONAL INSTITUTE OF CHILD HEALTH & HUMAN DEVELOPMENT | \$559,711           | Clinical Research Conditions Affecting the Embryo and Fetal Periods Emergent Infectious Disease Infectious Disease Pediatrics Perinatal Period - Conditions Original in Perinatal Period; Prenatal; Preterm; Low Birth Weight; Health of the Newborn; Prevent Rare Disease Vector-Borne Disease Women Health; |

### Sub Projects

No Sub Projects information available for 5R01HD094009-02

Thank you for your feedback!



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### Patents

No Patents information available for 5R01HD094009-02

### Outcomes

The Project Outcomes shown here are displayed verbatim as submitted by the Principal Investigator (PI) for this award. Any opinions, findings, and conclusions or recommendations expressed are those of the PI and do not necessarily reflect the views of the National Institutes of Health. NIH has not endorsed the content below.

No Outcomes available for 5R01HD094009-02

### Clinical Studies

No Clinical Studies information available for 5R01HD094009-02

### News and More

#### Related News Releases

No news release information available for 5R01HD094009-02

### History

No Historical information available for 5R01HD094009-02

### Similar Projects

No Similar Projects information available for 5R01HD094009-02

Thank you for your feedback!