

**PROPOSAL FOR
A PUBLIC HEALTH GRADUATE STUDENT INTERNSHIP**

PROJECT TITLE: Modelling Child Morbidity and Mortality

PUBLIC HEALTH SIGNIFICANCE:

As part of research to support development of a statewide child morbidity and mortality review program, records of child deaths and hospital discharges are being analyzed to help direct the type of issues to be addressed by future child morbidity and mortality review teams. By the Spring of 2007, the analyses are expected to be at the stage of more sophisticated statistical modeling that will help answer public health questions about individual and community-level risk factors that are associated with preventable hospitalizations and deaths of children.

PROJECT BACKGROUND AND GOALS:

New York State is developing a Child Morbidity and Mortality Review (CMMR) program, which aims to improve our understanding of how and why children in New York die and experience significant morbidities. This knowledge is essential to develop programs to help prevent future child deaths while also improving overall child health and safety.

The CMMR program is in the research and development phase, where past records are currently being analyzed to help identify risk factors and general patterns associated with actual deaths and significant morbidities that could have resulted in a child death. By the Spring of 2007, we expect to be underway with the application of generalized linear mixed models to measure associations of select morbidities and mortalities with community-level sociodemographic variables that have been summarized from the U.S. census at a sub-county geographic levels such as minor civil divisions and ZIP codes.

STUDENT ROLE IN PROJECT:

The student will assist the project director with statistical modeling of the risk of both mortality and morbidity with respect to community level characteristics. The student will also help with formatting results for presentations and publications.

PROJECT LOCATION: 472 Corning Tower

PROJECT DURATION: Spring semester 2007

EXPECTED OUTCOMES AND SPECIFIC STUDENT DELIVERABLES:

A student would be expected to do the following tasks, after signing a "data use agreement" to work with data that contains potentially identifiable fields:

1. Apply SAS software to analyze data from death records and the Statewide Planning and Research Cooperative System (SPARCS) for hospital discharges from throughout New York State for ages 28 days through 18 years.
2. Develop models for relating the risk of select deaths and hospitalizations to community-level and possibly individual-level factors. This will most likely involve logistic regression and/or Poisson regression with both fixed and random effects (mixed models). The responses are population-based rates and the observational units are geographic entities such as minor civil divisions for death rates and postal ZIP codes for hospitalization rates.
3. Help with production of tables and graphics, including geographic maps, to share results.

4. Learn about fundamental data systems, namely vital records, SPARCS and the US census, understanding the value and limitations of these data for public health research and support for decision making.

COLLEGE COURSES AND OTHER PREREQUISITES:

Required:

- EPI 514 (COMPUTER APPLICATIONS IN EPIDEMIOLOGY) or equivalent experience
- EPI 501 (PRINCIPLES AND METHODS OF EPIDEMIOLOGY) or equivalent experience
- Experience with generalized linear models such as logistic and Poisson regression
- Organizational skills and attention to detail.

Courses that would be especially helpful:

- EPI 697 (ADVANCED TOPICS IN SAS) or equivalent experience
- EPI 694 (GIS AND PUBLIC HEALTH)
- STA 552 and 553 (PRINCIPLES OF STATISTICAL INFERENCE I AND II) or equivalent experience

AVAILABLE FUNDING: Other funds are not available for this activity.