

**Ahmadu-Bello University (ABU) and UC Berkeley's School of Public Health Study,  
Research Training Program and Study in Population and Health  
Zaria, Nigeria**

*Summary*

From May to August 2007, I was part of a research project that was a joint collaboration between Ahmadu-Bello University (ABU) and UC Berkeley's School of Public Health (Bixby program). The project was envisioned to be both a research study and a training project designed to develop local capacity for scientific research and implementing interventions around maternal mortality and morbidity. Both Nigerian and American university professors and students would be actively involved in training and mentoring research fellows for a 5 year period in northern Nigeria, a region that has had extremely high rates of maternal mortality.

Past estimates have suggested rates of maternal mortality exceeding 1000 per 100,000 live births, ten times the estimates of mortality in southern Nigeria. During this intensive initial data collection phase during the first year of the project, household surveys were conducted in three rural villages located in Zaria, Nigeria, to establish baseline rates of maternal health indicators, reproductive and contraception knowledge, and household demographics. The data from these surveys were to form the foundation of evidence-based interventions.

In contrast to other research projects coordinated internationally by American universities, this Bixby project was to be conducted by Nigerian counterparts in its entirety: from project design to data collection and analyses and to intervention design and implementation. UC Berkeley faculty and students were to provide assistance, input, and resources (including training), but the ultimate ownership of this project was to remain with the ABU faculty and

research fellows. Over the summer I taught trainings on data management and analyses using statistical software packages and specialized data collection software as well as worked as the project epidemiologist.

### *Skills learned/gained*

#### A. Population, reproductive health surveys

Household surveys were conducted in three rural villages. Eligible females living in the households were also surveyed to detail their birth histories, unmet reproductive health needs, contraception use, and knowledge of reproductive health issues. Approximately 1400 households and 1100 were surveyed over a three week period. For these surveys I accomplished the following tasks and gained the following skills:

1. Provided technical assistance on instrument design, survey field logistics, survey supervision, and interview structure; learned about the facilitation of initial baseline data collection process
2. Designed 4 relational databases for data entry
  - a. Worked in collaboration with 3 ABU faculty who previously have not designed a relational database or used EpiData software
  - b. Conducted two 3-hour data entry trainings for 20 data entry staff, research fellows, and ABU faculty on use of EpiData and data entry process
  - c. Installed EpiData and provided information technology support for 14 computers in 3 data entry locations
3. Provided technical assistance on the data collection and data entry process
  - a. Collated data from the 4 databases from the 3 data entry sites on a daily basis
4. Provided data management and epidemiologic analyses
  - a. Cleaned and merged relational databases and provided epidemiological analyses for programmatic decisions and actions

## B. Presentations to ABU students and faculty

I presented two public health talks to ABU's Department of Community Medicine and Department of Sociology students and faculty in addition to project research fellows and assistants. Presentations ranged from 2-3 hours and included the following topics:

1. EpiData and database design- features of EpiData for database creation, basics of data management and database design; attended by 25 participants
2. Public health surveillance in the United States- overview of public health surveillance in the US for infectious and chronic diseases, surveillance for emerging diseases; attended by 35 participants

## C. Lectures and training sessions for the project Research Fellows

I conducted training sessions for the project Research Fellows. These three hour classes were conducted 3 times a week over a 4-week period. Sessions included both didactic and active training sessions utilizing computers and relevant software packages. In addition to furthering my understanding on the topics, I learned from this project task about teaching and identifying and communicating project-specific material and skills. Topics during these training sessions included:

1. Design of relational databases, structure of templates, check files, and basic data management utilizing EpiData software
  - a. Features of data entry databases designed for the PRH household and female surveys; training on data entry utilizing EpiData
  - b. Creation of a primary key
2. Logistics of data entry and data management using SPSS software
  - a. Appending and merging multiple relational databases
  - b. Importing/exporting various database formats
  - c. Data cleaning procedures and priorities
  - d. Creating new variables and selecting observations using logic programmatic statements

- e. Working with missing data and date variables
- 3. Analyzing and presenting data using SPSS software
  - a. Descriptive statistics- frequencies, cross tabulations, mean, median, modes, standard deviations
  - b. Normal distributions, KS test of normality, z-scores t-tests, chi-square tests
  - c. Presentation of data; creation of tables and graphs using SPSS and MS Excel
- 4. Basic computer maintenance

#### D. Other training sessions held

- 1. Weekly office hours and individual tutoring sessions held three times a week over the summer for research fellows, research assistants, and ABU faculty on software for data management and analytical software
  - a. assisted 12 others in addition to the research fellows
- 2. Provided epidemiologic technical assistance and support to faculty and research fellows on individual research projects
- 3. Provided scientific writing reviews for individual research projects

#### *Reflection of progress*

Initially, my role in Nigeria was to train the research fellows on using statistical database packages, public health research, and field epidemiology. My responsibilities were to be part-time, and I would also pursue other research interests with the goal of identifying potential dissertation topics. My responsibilities drastically changed after meeting with the Nigerian research counterparts and identifying project needs.

The research fellows did not have the necessary technical skills, resources, or experience to utilize computerized data entry and analysis software. Furthermore, few had the experience of coordinating the data collection and management process for such a complicated research project. The research fellows also discovered that their time and commitment needed for this

project were severely underestimated, especially in light of their already demanding other responsibilities. Future generations of research fellows should be given a more realistic time frame and project tasks to ensure that they succeed. In addition, better field supervision would have enabled better data collection and ensure a smoother overall process as the quality of data collected suffered due to inexperience. Overall, my impression of the research fellows was that they were extremely hard working and dedicated to the project. I have no doubt that the skills that they gained from this experience will be useful to them in their future research and public health careers.

For myself personally, I now have the experience of coordinating the data management and related analyses for a large research project. I feel fortunate for this experience, and I feel that this maternal health project benefited from my assistance. In addition, during this experience, I had the opportunity to develop my project organization and facilitation skills during project meetings and trainings. The interaction with ABU faculty and students and project fellows was instrumental for this process to succeed, and I am grateful for this opportunity. Through this project, I also gained experience teaching. I discovered it to be very rewarding, and it is a skill I hope to expand upon in the future.