

**THE UNIVERSITY OF NORTH CAROLINA
APPENDIX B: REQUEST FOR AUTHORIZATION TO PLAN
A NEW DOCTORAL OR FIRST PROFESSIONAL DEGREE PROGRAM**

Date: March 18, 2010

Constituent Institution: East Carolina University
 School/College: School of Medicine Department: Public Health

Program Identification:
 CIP Discipline Specialty Title: Epidemiology
 CIP Discipline Specialty Code: 26.1309.404.000 Level: D xx 1st Prof.
 Exact Title of the Proposed Degree: Doctor of Philosophy in Epidemiology
 Exact Degree Abbreviation (EdD, PhD): PhD

Does the proposed program constitute a substantive change as defined by SACS?	Yes	<u> </u>	No	<u>x</u>
a) Is it at a more advanced level than those previously authorized?	Yes	<u> </u>	No	<u>x</u>
b) Is the proposed program in a new discipline division?	Yes	<u> </u>	No	<u>x</u>

Approximate date for submitting the request to establish proposal (must be within two years of date of authorization to plan):	<u>May 2012</u>
Proposed date to establish (month and year): Date should allow at least three months for review of the request to establish, once submitted.	<u>August 2013</u>

- 1. Describe the proposed new degree program. The description should include**
 a) a brief description of the program and a statement of educational objectives

Residents of Eastern North Carolina (ENC) and North Carolina, in general, (NC) are not healthy. Prevalence of childhood obesity, diabetes, hypertension, end-stage kidney disease, and some cancers are disproportionately high in the region and will escalate as the population ages. Both incidence and mortality of these and several other chronic diseases are increasing dramatically. Communicable diseases, including development of AIDS, will continue to rise especially among the poor. These health impacts are currently evident in ENC. ECU has an opportunity to train researchers to collaborate with medical and community-based professionals to identify factors and translate interventions to reduce disease burden applicable throughout NC and beyond.

The ECU PhD program in epidemiology is designed to focus on the needs of NC by training students with an interest in understanding and reducing health disparities. Our program is particularly interested in attracting students seeking to participate in translating biomedical and clinical findings into programmatic activities to improve population health. Students will work with faculty members from the Brody School of Medicine (BSOM) (letter of support attached) and other ECU schools and colleges. Many community-based organizations that participate in the ECU Master of Public Health (MPH) Internship program are potential partners for community-based dissertation research. In addition, there are and will continue to be grant supported positions with the BSOM requiring the advanced skills and training of a PhD epidemiologist. An ECU degree will be attractive to other employers in the region and nationally who seek to investigate and solve public health problems associated with living in rural areas.

Potential applicants to this academic research degree will include ECU MPH graduates, MPH graduates from other universities, health care providers who would like to incorporate research into their clinical practice, and public health practitioners within NC who would like to expand their research skills. The proposed program will include methodological training relevant to study of chronic and acute health conditions common to rural populations experiencing health disparities. Finally, the applied epidemiology curriculum will offer another avenue for service by conducting research related to surveillance and evaluation of public health programs.

The PhD in Epidemiology will:

- Increase capacity of ECU to successfully compete for research awards,
- Translate clinical-oriented research into community-based interventions and programs that result in disease prevention,
- Improve the health of all North Carolinians,
- Graduate professionals recognized for quality,
- Train well-rounded professionals with a commitment to public health service through independent research,
- Conduct clinical research to provide knowledge for improvement of medical and health care services,
- Engage in community-based research
- Contribute to the advancement of the fields of public health and epidemiology through research that will reduce disease burden in communities with health disparities, and
- Participate in translating biomedical and clinical findings into community-based service activities that address the health needs of the underserved, using rural North Carolina as a model.

In addition to possessing the master's level skills in public health, an ECU PhD program graduate will:

- Identify appropriate theory and logic models of epidemiology and other disciplines that contribute to public health research,
- Develop critical thinking skills,
- Critically read and interpret scientific literature,
- Design and develop epidemiologic studies that fill a research gap,
- Design a surveillance approach to address a public health problem,
- Design procedures and data collection instruments that correspond to planned analytic approach,
- Analyze surveillance and other data to identify public health problems pertinent to a population,
- Write and publish succinct and accurate research reports of peer-reviewed publication quality,
- Ability to communicate epidemiologic and other scientific information to a broad range of audiences, orally and in writing,
- Ability to prepare a federal grant proposal using standard approaches required by funder,
- Teach epidemiologic concepts at the graduate level,
- Acquire and maintain cultural competency,
- Maintain ethical standards and confidentiality,
- Build teams and organizational structures to conduct research,
- Develop data management specifications and features,
- Prepare and Manage budgets, and
- Engage stakeholders.

The proposed PhD program will begin enrollment in fall 2013 and obtain steady state in academic year 2017-2018. Preliminary planning includes a stipulation that applicants must have successfully completed a MPH degree or equivalent degree from an accredited MPH program, which typically will consist of 42 to 45 semester credit hours (s.h.), or under exceptional circumstances, receive permission of the department chair. Applicants should have completed curriculum indicating an understanding of the biological basis for disease, and should articulate clear reasoning for wishing to pursue PhD research training.

The curriculum is likely to include about 36 s.h. of coursework and approximately 12 s.h. of dissertation credits. Coursework will include: biostatistics for health professionals, epidemiologic methods, experimental design, applied multivariate analysis, public health informatics, practicum in research design and analysis, grant writing skills, program evaluation, electives, ethics and research, a PhD Seminar, and dissertation classes. Students will take coursework, pass oral and written examinations, advance to candidacy, and conduct and submit dissertation work for publication.

Collaboration with UNC-CH. Several specialized courses unavailable at ECU may be available at UNC Gillings School of Global Public Health (CH-SPH). For example, a student may be interested in an elective course in genetic epidemiology (which has a unique methodology and statistical analytic approach), which is not planned for the PhD curriculum at ECU, but is taught at CH-SPH. A limited number of credits will transfer from CH-SPH to ECU as recognized credits to achieve the PhD degree at ECU. The BSOM DPH will ensure that an updated Memorandum of Understanding (MOU) with the CH-SPH will allow ECU PhD students to enroll in CH-SPH courses.

b) the relationship of the proposed new program to the institutional mission and how the program fits into the institution's strategic plan and its response to UNC Tomorrow

The UNC Tomorrow Initiative requested each UNC System campus to reply to how each university will respond to the significant challenges facing their community and region, and articulate how to effectively and efficiently fulfill the mission of teaching, research, and service in the future.

In the ECU reply (May 1, 2008), the Executive Summary (page 2) of the ECU Response Phase 1 Report, states a commitment to serve the underserved in our region by expanding training of health care professionals in the region. This statement includes a proposed School of Public Health. On page 20, under Health Care and Medical Innovation, items 1, 2b, 6, and 7, each specifically involve research activities that require the expertise of epidemiologists.

Item 1. "The Health Disparities Research Institute and Pediatric Healthy Weight Research and Treatment Center serve to promote interdisciplinary research." Epidemiologists are currently involved in these two activities. Research to study health disparities are commonly conducted by epidemiologists. Health Disparities Research Institute is referred to as the Center for Health Disparities Research.

Item 2b. "ECU will significantly expand its biomedical and health care related external research funding." Epidemiologists are needed to design, manage, and implement studies to expand research funding in obesity, metabolic diseases, cancer, and infectious diseases.

Item 6. "Center for Excellence in Cardiovascular Research and Care" will coordinate clinical and research expertise in cardiology and metabolic diseases in the Cardiovascular Institute. Clinical staff at the Heart Institute have been working with Dr. Novick and Dr. Jeff Bethel on cardiovascular research proposals.

Item 7. "Development of a School of Public Health at ECU is important to meeting the future public health needs of NC." Community-based prevention is the best approach for improving health status. With the aging of the public health workforce and the predominance of chronic disease related to unsatisfactory health behaviors, additional individuals skilled in population-based prevention are needed. The nationally accredited MPH program has rapidly grown to more than 80 students in four years. Graduates of this practice-based program are addressing health problems at local health departments, hospitals, and community health centers. The local

public health practice emphasis of the ECU public health program differs from the UNC Gillings School of Global Public Health. The ECU program will be practice based and focuses on state and regional health issues. In addition to accomplishing the objectives outlined above, the PhD program in epidemiology would further support the establishment of a School of Public Health at ECU. To conduct research through the Center for Health Disparities Research (letter of support attached), which will partner with a School of Public Health, epidemiology capacity is required.

Under the UNC Campuses' Response to the needs of North Carolina, Section 4.5 addresses "Our Health". Under New Initiatives, 4.5.1, it is stated that ECU and UNC-CH should collaborate on cancer research. Under Section 4.5.2, p. 5, "Educate more health care professionals", the UNC System report states, "Development of a School of Public Health at East Carolina University is important to meeting the future public health needs of North Carolina." These two statements in the UNC-GA Response provide a strong justification for a PhD program. UNC-GA Response supports Chancellor Ballard's preface of the East Carolina University UNC Tomorrow Response, Phase I Report, May 1, 2008: "Our new School of Dentistry and our expanding Brody School of Medicine both will address critical shortages of health care professionals in rural counties of North Carolina as will our proposed School of Public Health. No university does a better job of keeping health care professionals in North Carolina than ECU, a legacy we will proudly continue." In this application we are proposing a PhD program in epidemiology at ECU to work toward that goal.

The scientific foundation of public health research is epidemiology. Epidemiology also includes the application of this study to control of health problems. For example, epidemiologic methods allow the study of the causes of disease and the effectiveness of medical treatment. Establishing a doctoral degree program in epidemiology lays the groundwork to develop a research infrastructure to allow more collaboration with BSOM to conduct clinical and translation research. Translational research in the public health domain included using clinical findings that can be translated to population health and prevention. Community-based prevention is the best approach to improving health status. With the aging of the public health workforce and the predominance of chronic disease related to unhealthy lifestyle choices and built environments (lack of sidewalks and urban open spaces) that support unhealthy choices, skilled individuals with advanced degrees in population-based prevention are urgently needed in our region.

In keeping with BSOM's mission of service, the epidemiology PhD degree program complements laboratory-based research programs in physiology, pharmacology, toxicology, immunology, and human genetics, allowing multi-disciplinary and collaborative research to address health problems in the eastern NC, such as, cancer, hypertension, obesity, diabetes, cardiovascular, and respiratory diseases.

c) the relationship of the proposed new program to other existing programs at the institution

Increased epidemiologic research capacity is vital to the growth of ECU and the goals set forth in UNC Tomorrow. Epidemiology, as a research methodology, is used as a scientific approach to study substantive areas of interest. The methods and tools of epidemiology can be applied in discipline-specific areas currently being taught at the university, assuming the discipline involves human health.

The PhD in epidemiology program will complement existing and future clinical research and community-based research at ECU. The proposed program will continue to build departmental and programmatic relationships to foster synergy with BSOM and Pitt County Memorial Hospital (PCMH). The letters of support from Dr. Phyllis Horns and Dean Paul Cunningham demonstrate the support of the ECU Health Sciences Division (HSD) and BSOM.

PhD epidemiology students would expand the research capacity in the clinical centers by selecting dissertation topics with a diagnostic, treatment, or survival focus. Translation research utilizing findings from laboratory based research through the Metabolomic Institute, Heart Institute, or Leo Jenkins Cancer Center may provide a rich array of epidemiology dissertation topics. Clinical faculty members interested in research may be attracted to developing collaborations that allow new discoveries using existing data through the electronic health record or other population level data available through PCMH. For example, a dissertation may be conducted using the bariatric surgery database or tumor specimen through PCHM. Huge amounts of data will be available in the electronic medical record system presently being implemented by PCMH and ECU Physicians. Students, faculty and graduates of this program are needed to translate that data into information to improve practice.

ECU's Center for Health Services Research and Development, led by Dr. Chris Mansfield, provides an extensive base of data on the health problems, needs and resources of the region (letter attached). Its continually updated Eastern North Carolina Health Care Atlas and publications describing trends and disparities in mortality in the region and the underlying data will be available to students and faculty members.

Faculty members in other departments currently collaborate with DPH faculty on obesity, cancer, and agricultural health research focusing on community-based participatory research, environmental exposure, or behavioral health interventions. In addition, the faculty members affiliated with the new Center for Health Disparities Research may partner with students in the new PhD program to develop approaches and interventions to reduce disease burden in underserved residents of ENC. Consistent with UNC Tomorrow, the Center for Global Hearing in the CAHS will be another source of research opportunities on hearing loss and deafness, as the citizens of NC develop hearing disabilities due to age and co-morbid disease. ECU is a member of the Triangle Census Data Research Center, a warehouse of economic, demographic, and health-related data, that can serve to as a resource for population-level data. A plethora of ideas and research opportunities exist with the BSOM and other ECU colleges, but a paucity of personnel, students, and researchers hamper fulfilling the potential.

It has been suggested that the PhD in epidemiology program may be within the Interdisciplinary Program in Biological Sciences (IDPBS) within the BSOM. However, the PhD epidemiology program is not compatible with the IDPBS. The study, skills and competencies associated with epidemiology to be inculcated in a doctoral program in this discipline are not at all consonant with the content of the IDPBS. Epidemiology is the study of how disease or health related states is distributed in populations and the factors associated with these patterns. This field of study examines characteristics that influence the occurrence of disease including genetic, behavioral, environmental and socio-economic factors. Health determinants are key areas of epidemiologic investigation. A determinant of health is any factor which can influence or change in a health condition. Health events in populations are studied so that these health problems can be controlled or prevented. Epidemiology can be used to study the extent of disease and also to evaluate new and existing preventive and therapeutic measures. Epidemiology is not a basic science but an applied approach which can include observational or experimental designs for the purposes outlined. A masters of science degree in a biological science would be a strong pre-cursor degree for a PhD in epidemiology focusing on bioinformatics or molecular studies.

The PhD in epidemiology would be an important opportunity for MPH graduates as well as graduates from other master's and professional degree programs at ECU. Nursing professionals and physicians desiring to manage clinical trials or become independent investigators may desire a PhD degree obtainable locally. In master's level graduate students in anthropology, sociology, or geography may be attracted to a public health research degree.

d) special features or conditions that make the institution a desirable, unique, or appropriate place to initiate such a degree program.

ECU is the primary UNC institution serving eastern NC, which is composed of a 41-county area. ECU includes the only medical school east of Chapel Hill; PCMH, the affiliated teaching hospital, is the only tertiary care facility in 29 northeastern counties. In general, the entire region is poor and rural. ENC has a median household income of approximately \$39,000.00 for a family of four with approximately 15% of residents living below the poverty level. Several counties have poverty rates exceeding 20%. The health indicators for the region lag behind the rest of North Carolina (RNC). The age-adjusted, all-cause mortality rates for ENC are decreasing but are significantly and continuously higher (12%) than RNC. ENC's premature mortality rate has decreased by 20%, which translates into 8.8 years of life gained each year. However, this trend is diverging from both RNC and NC, which are both gaining 9.6 years of life each year. ENC's trend in heart disease mortality is decreasing by a smaller rate of change than RNC and NC as a whole, resulting in an increased geographic disparity. In 1979, the heart disease mortality rate was 5% less than RNC; by 2004, it was 10% greater than RNC. While ENC's age-adjusted mortality rate is decreasing at a rate slightly greater than the RNC rate, the relative decrease is 46%, compared to 50% for RNC. The age-adjusted mortality rate for ENC is 18% greater than RNC in 2004. In ENC, cancer incidence and the prevalence of diabetes and chronic kidney disease were higher than RNC. Almost any health indicator selected demonstrates that the health status of ENC residents lags behind other residents of NC. Therefore, students interested in studying the regional issues of ENC make this program unique; these issues translate to other rural areas of the US and beyond. For more information on poor health status of ENC, see the website: <http://www.ecu.edu/cs-dhs/chsrd/atlas/07-Atlas.cfm> .

As a public teaching and research institution, ECU should train students in public health that are familiar with the particularities of the region and may seek to live and work in the region. Besides expanding the capacity to understand how to prevent disease in underserved populations, several environmental factors can be studied from an epidemiologic viewpoint, including health effects of pesticides, landfills, hog farms, and the availability of local food and physical activity venues. Federal funding opportunities target rural and underserved populations. Because many of our faculty, staff, and students are from ENC, our department has been successful at creating local partnerships with community churches, area-specific non-profit agencies, community clinics, and other service agencies creating research partnerships that have been highly successful (see research section).

The proposed epidemiology PhD program would build upon existing strong relationships with Pitt County Department of Health to conduct epidemiologic analyses helpful to eastern NC populations. In addition, the ECU DPH is housed within BSOM with its plethora of patient data accessible via the electronic medical record system, in use since 1998. These data may be explored to develop research questions and conduct epidemiologic studies. The agricultural community may benefit from prevention research to reduce the high incidence of stroke, skin cancers, and asthma. For researchers interested in disaster preparedness, eastern NC offers an ideal location to study translation of best practices to real-world disasters. ECU is well positioned to address the needs of rural NC.

2. List all other public and private institutions of higher education in North Carolina currently operating programs similar to the proposed new degree program.

In the region outside North Carolina, PhD in Epidemiology degrees are offered by: University of South Carolina School of Public Health, Rollins School of Public Health (Emory University), and Virginia Commonwealth University. East Tennessee State University, College of Public Health offers a DrPh in Epidemiology. The PhD in Epidemiology is not offered at University of Georgia, College of Public Health; Eastern Virginia Medical School; University of Virginia, or Georgia Southern College.

UNC-CH offers a PhD in epidemiology. This is the only PhD epidemiology program at any private or public institution in NC. The UNC Program description includes: “The PhD in epidemiology at UNC is the academic doctoral degree. It is a research degree, centered around a major research project within a broad public health orientation and seeking to integrate related disciplines.”

The CH-SPH Department of Epidemiology was formed about forty years ago. Approximately forty-eight epidemiology faculty members represent a mixture of tenure-track, research track, and joint appointment with the UNC School of Medicine. In the CH-SPH Department of Epidemiology, a majority of faculty and operating expenses are funded by federal research dollars. It was stated the epidemiology students did not have an interest in employment or research with health departments “until recently.”

Drs. Novick and Lea attended a meeting with the Dr. Andrew Olshan, Chair of the Department of Epidemiology, CH-SPH on November 7, 2008. Dr. Geraldo Heiss, Director of Graduate Studies for the Department of Epidemiology, and Nancy Colvin, Assistant to Chair of Graduate Studies, also attended. The CH-SPH epidemiology PhD differs from the proposed ECU PhD degree. The chair of epidemiology at CH-SPH agreed in concept that ECU PhD students could enroll in classes that are not offered at ECU. In addition, faculty present at the meeting offered to review curriculum developed in epidemiologic methods, so that there may be a baseline of training for ECU students that may enroll in courses at CH-SPH. We also discussed research collaboration through the existing funding mechanisms at UNC-CH. We concluded from the meeting that the ECU PhD program will not compete for students and that greater epidemiologic capacity in eastern NC would be mutually beneficial. If the PhD epidemiology program moves forward, the Memorandum of Understanding will be updated, if needed. Dr. Olshan’s letter of support is attached.

Since program inception, there have been approximately 445 PhD in epidemiology graduates. Dr. Olshan provided a geographic breakdown by US states for these 445 graduates; 30% (n=135) have remained in NC after graduation. We did not obtain data on the number of graduates admitted and enrolled to the PhD program from outside NC. Based on data from 2002-2006, place of employment after graduation was available on 109 graduates. Thirty-percent (33%) of 109 PhD graduates for which we were provided data reported working within NC after graduation. Conversely, 65% of epidemiology PhD program graduates reported working outside of NC after completing training, with 5 graduates working abroad. Forty-eight percent (48%) of graduates reported working in academia (n=52), but only 1 PhD epidemiology graduate reported working at an UNC institution besides UNC-CH; that graduate is employed at UNC-Greensboro. Five graduates reported employment at Duke University and 1 graduate reported employment at Wake Forest University. Thirty-percent (33%) of graduates work in government, mostly at the federal level for the Centers for Disease Control and Prevention (CDC) or the National Institutes of Health (NIH). One graduate reported working in NC for a county health department (Wake County) and no graduates reported employment at the NC Division of Public Health. In short, most CH-SPH PhD epidemiology graduates work outside of NC after completing the degree. More recent data were not available; limitations of these data include bias resulting from non-response of alumni.

There will be primary differences between the UNC-CH and ECU degree programs. The BSOM PhD in epidemiology will be offered in DPH within BSOM, offering an opportunity for close collaboration with

medical faculty. Medical faculty currently lecture in MPH classes and DPH faculty lecture in medical school classes. The clinical setting will allow PhD students, candidates, and graduates to develop as a part of a team of multi-disciplinary researcher within the BSOM. It was acknowledged at the meeting with CH-SPH that additional PhD trained professionals that speak the language of epidemiology and are trained to conduct research will facilitate greater collaboration between ECU BSOM and CH-SPH, School of Medicine, and Lineberger Comprehensive Cancer Center. Secondly, the ECU epidemiology PhD program will attract students who wish to become part of the public health workforce. The proposed program will include applied epidemiology curriculum preparing graduates for public health practice in the public service sector.

Between 1995 and 2006, there was a 37% increase in accredited Schools of Public Health, with a 45% increase in PhD degrees awarded. Yet the number of PhD Epidemiology degrees remained unchanged between 1995 and 2006 (29%)¹. As academic programs expand in Schools of Public Health, more PhD level epidemiologist will be needed to teach in academic settings. An ECU PhD graduate may seek a faculty position at a School of Public Health.

1. Declercq E, Caldwell K, Hobbs SH, Guyer B. The changing pattern of doctoral education in public health from 1985 to 2006 and the challenge of doctoral training for practice and leadership. *Am J Public Health*. 2008 Sep;98(9):1565-9.

3. Estimate the number of students that would be enrolled in the program during the first year of operation:

Full-time	3	Part-time	0
<hr style="width: 20%; margin: 0 auto;"/>			
Estimate the number of students that would be enrolled in the program when it is fully operational:			
Full-time	12	Part-time	0
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We anticipate enrolling the first 3 PhD students in fall semester of 2013. Cumulatively, 6, 10, 11, and 12 students during the second, third, fourth, and fifth years, will be enrolled, respectively. At steady state, four new students will be enrolled each fall. Since 2003, 100 students have graduated with an MPH degree. Two graduates are pursuing PhD degrees in epidemiology, one of whom is attending CH-SPH. Another graduate is enrolled in a DrPh in Health Administration at CH-SPH. Many MPH graduates with strong quantitative skills will be attracted to a PhD degree obtained locally, where faculty are accessible and collaborative. Of 88 students surveyed, eight students (9%) indicated interest in pursuing a PhD in epidemiology.

4. Estimate the current and projected demand for graduates of the proposed new degree program.

Provide documentation about the sources of data used to estimate demand.

The proposed new PhD degree in epidemiology will help fill the high demand for public health epidemiologists in the U.S. and in NC. These data presented represent public sector service. The CSTE addressed the demand for epidemiologists in the 2006 National Assessment of Epidemiologic Capacity: Findings and Recommendations.¹ In the 2009 report, more than 30% of state health departments reported minimal to no capacity to conduct and evaluate research for five of nine epidemiology program areas, including environmental health, injury, occupational health, oral health, and substance abuse. Infectious disease and emergency response capacity declined from 76% in 2006 to 73% in 2009². Declines in capacity were explained by loss in federal

preparedness dollars to the states. CSTE estimated the gap of trained epidemiologists in state health departments alone at 1,200 nationwide. The gap will dramatically increase when the needs of local health departments are included. CSTE also estimated that doctoral-level epidemiologists comprised 14% of epidemiology workforce at state health departments nationwide and that the number of doctoral-level epidemiologists needed is 47% higher than current workforce. CSTE further examined the staff with a job title as doctoral-level epidemiologist and discovered that 57% received their doctorate in epidemiology. Doctoral-level epidemiologists are needed to support a highly competent workforce. As public health data systems become more integrated and complex, advanced training in methodologies and techniques to analyze relational databases is becoming an essential skill (ie public health informatics).

CSTE also assessed the competence of the workforce of epidemiologists and reported that current epidemiologists on staff were least competent in development of program logic models and theories of action, use of knowledge of environmental and behavioral sciences in epidemiology practice, organization and provision of appropriate data for community planning processes, evaluation of surveillance systems, and use of leadership and systems thinking in epidemiology planning and policy development. The proposed program will help fill the gap of doctoral-level epidemiologists by producing graduates who are trained in the applied epidemiology competencies put forth by the CDC and CSTE.³

In NC, there are limited data on the number and need of epidemiologists. In 2004, the UNC Institute for Public Health (NCIPH), the public health service arm of CH-SPH, conducted a web-based survey of county-level public health workers. Three-percent (197 of 7,087) of county public health employees identified themselves as clinicians or epidemiologists.⁴ In public health, physicians whose roles may be as coordinators of surveillance programs are often called medical epidemiologists. Those physicians likely have an MD/MPH degree combination. Often the MPH degree for an existing MD is 1 year of curriculum. The number of PhD level epidemiologists, trained to conduct surveillance or analysis, are presumably a lower percentage of the total workforce than the 3% reported. NCIPH also reported that approximately 27% of the 394 employees whose highest degree is a master's degree expressed a desire to pursue a doctoral degree.

The Association of Schools of Public Health (ASPH) reported that 46 of 443 (10.3%) students graduated from CH-SPH with a degree in Epidemiology during the 2007-2008 academic year.⁵ According to CH-SPH, approximately 20-25 PhD students graduate per year with an epidemiology degree. As stated earlier, most PhD epidemiologists from CH-SPH work in academia or government service outside NC. Nationally, ASPH recently reported that 201 students graduated with a doctoral degree in epidemiology (PhD, ScD, DrPH, and other doctoral) in 2008.

Finally, many BSOM clinical staff (physicians) lack training in research methods, but many clinicians have an interest in conducting epidemiologic research. PhD-level Epidemiologists will fill a gap by providing skills related to designing clinical epidemiology studies and managing the implementation of complex medical research. As personnel trained to design and conduct clinically-based research become available to collaborate with clinical staff at BSOM, there will be greater opportunity to submit NIH and other federal grants, collaborate with other institutions in multi-center research, and publish research. A program of this type will be a major step forward in increasing funded research at ECU by increasing capacity to write grants, manage and implement data collection, analyze data, and draft manuscripts, some of the core functions of PhD students. The PhD program will increase the scientific stature of ECU. East Carolina University will be better able to collaborate with other research medical centers in NC and nationally.

In order to recruit students into the PhD program, the DPH will market the program at the American Public Health Association (APHA) annual meeting, usually attended by about 10,000 persons from around the world.

Programs and schools of public health typically ascertain a booth at APHA to market their programs and ECU MPH program has done this in the past. MPH and PhD candidates attend APHA as a way to investigate jobs and advanced training opportunities.

1. Council of State and Territorial Epidemiologists. 2006 National Assessment of Epidemiologic Capacity: Findings and Recommendations. Available at <http://www.cste.org/pdffiles/2007/2006CSTECAFINALFullDocument.pdf>. Accessed October 1, 2008.
2. Assessment of eCapacity in State Health Departments --- United States, 2009. MMWR 58(49);1373-1377. <http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5849a1.htm> Accessed January 22, 2010.
3. CDC/CSTE Applied Epidemiology Competencies for Governmental Public Health Agencies. <http://www.cste.org/dnn/Home/CSTEFatures/Competencies/tabid/174/Default.aspx> Accessed October 1, 2008.
4. The North Carolina Center for Public Health Preparedness. A Report on the Public Health Workforce in North Carolina, October 2004. Available at http://nccphp.sph.unc.edu/wfds_assess_rpts/index.htm. Accessed November 16, 2008.
5. The Association of Schools of Public Health (ASPH). 2008 Annual Data Report. Available at <http://www.asph.org/UserFiles/2008%20Data%20Report.pdf> Accessed January 22, 2010.

- 5. If there are plans to offer the program away from campus during the first year of operation: NO**
- a) briefly describe these plans, including potential sites and possible method(s) of delivering instruction.
 - b) indicate any similar programs being offered off-campus in North Carolina by other institutions (public or private).
 - c) estimate the number of students that would be enrolled in the program during the first year of operation:

Full-time _____ Part-time _____

- 6. Describe the procedures that will be used to plan the proposed program. List the names, titles, e-mail addresses, and telephone numbers of the person(s) responsible for planning the proposed program.**

In 2008, the Doctoral Degree Planning Committee (DPPC) was formed, consisting of epidemiology faculty that would develop or teach epidemiology program curriculum. The procedures for establishing a doctoral degree program are being followed as set forth in the “Doctoral Degree Program Campus Approval Process”.

The DPH DPPC consists of four tenured or tenure-track faculty members:

- Dr. Suzanne Lea, PhD MPH, (Associate Professor, Epidemiology, 252-744-4036, leac@ecu.edu), Chair
- Dr. Jeffrey Bethel, Assistant Professor, 252-744-4041, bethelj@ecu.edu ,
- Dr. Stephanie Jilcott, Assistant Professor, jilcotts@ecu.edu, 252-744-4034, and
- Dr. Christopher Mansfield, Professor, mansfieldc@ecu.edu, 252-744-2952.

Dr. Lea apprises Dr. Novick, Chair, of discussions and requests his input in decision-making. The DPPC meets on an as needed basis during the RAP preparation. A timeline for the approval process and curriculum development follows:

- Spring 2010: Obtain ECU campus approval of RAP, external support letters, hire 1 faculty member.
- Fall 2010: Develop curriculum proposals for GCC review, obtain UNC-GA approval of RAP
- Spring 2011: Submit final curriculum proposals to GCC, hire 1 faculty member
- Fall 2011: prepare RAE
- Spring 2012: Submit RAE by May 1
- Fall 2012: RAE review and approval
- Fall 2013: begin enrollment

7. Describe the method of financing the proposed new program (e.g., potential sources of funding). Indicate the extent to which additional state funding may be required.

To establish the program, funds will be required in hiring faculty members and student support. Each is addressed below.

Marketing – As mentioned earlier, the PhD program will be marketed at large national public health meetings, such as the American Public Health Association annual meeting, typically attended by about 10,000 people per year. ECU has a presence at the meeting each year, the costs of which are absorbed by the department.

Faculty hiring – The DPH in the BSOM was established on July 1, 2008. DPH was recognized as being key to the mission of BSOM, and the HSD at ECU. Chair Lloyd Novick has discussed resources (funding) for establishing the doctoral program with Vice Chancellor Dr. Phyllis Horns (HSD) and Dean Paul Cunningham (BSOM). The accrediting body, ASPH, requires at least five full-time faculty members, trained and experienced in epidemiology to support the PhD program.

Currently, there are 2 PhD epidemiology faculty (Drs. Lea and Bethel), with two additional faculty members teaching in the epidemiology focus area (Drs. Simmeonson and Jilcott). Both are qualified to teach in the doctoral program. University commitment from HSD allows one new PhD Epidemiologist recruited for summer 2010 and second PhD Epidemiologist will be recruited in 2011, which will result in 4 PhD level epidemiologists. ASPH requires a “central core of faculty” to sustain the curricular requirements for the program, which we believe would be met when the two additional faculty members are hired.

An additional MS-level biostatistical staff will be recruited (0.5 FTE) from one new position allocated with 1.5 FTE generated from the 172 credit hour teaching load (state matrix ratio = 109.86). Dr. Paul Vos, Chair of Biostatistics, has expressed support for hiring a MS-level Biostatistician (letter attached). 1 Masters level biostatistician (\$55,500 + 9,900= \$65,490) will be hired in 2014. MS-level biostatistician staff will service consulting requests, which would free PhD Biostatistician time for committee service and mentoring. State funds would cover 3 new faculty costs each year.

Student Support – There are three four components to support each individual in-state PhD student: Graduate Assistantship, fees, health insurance (grouped into salary), and tuition remission.

- Graduate Assistantship. The ECU Graduate School provides a limited number of Graduate Assistantships (GA), delegated per year to each ECU unit across that east and west campuses that provide PhD training. GA support from the Graduate Division is not expected to increase. For 2009-2010, in the BSOM, a PhD student received approximately \$25,000 (2009-2010) per GA.

- Fees. (University, Educational, Health). Fees (\$1,836.00 for 2009-2010) are not covered by the Graduate Division, and if not included in grant GA dollars, are paid by the student. The BSOM increased the GA to cover fees, where the GA is provided via extramural grant funding. State funds cannot be used to pay fees.
- Health Insurance. If the student is supported on state funds, the Graduate Division will provide annual health insurance coverage to the student (not dependents) (\$728.00).
- Tuition Remission. The Graduate Division allocates a certain number of tuition remissions per year to each unit. In 2009-2010, the Graduate Division provided 73 in-state and 175 out-of-out tuition remissions throughout the entire campus. In 2009-2010, the MPH program received two in-state remissions. In 2010-2011, the DPH will be provided 3 out-of-state tuition remissions. The cost of tuition in 2009-2010 was: in-state, \$2,994.00 and out-of-state \$13,311.00.

In the current economic climate, support for PhD students in epidemiology from the Graduate School is not anticipated by spring 2018 (the 5th year of program, i.e. steady state).

The cost of 1 PhD student for 2013-2014 academic year would be approximately \$28,723 based on the estimated itemization below in 2009-2010 dollars.

- Tuition remission (in-state) = \$2,995
- Fees = \$0
- Health insurance (12 month) = \$728
- Graduate Assistantship = \$25,000

If three out-of-state tuition remissions from the Graduate Division remains standard, then highly qualified PhD applicants would be eligible for these. After one year, the student is eligible for NC residency.

In spring 2018 (5-year steady state, 12 students), costs would be approximately \$1,206,366.

Table 1 shows a summary of the expenses by funding source (DPH or HSD). DPH will provide funding (salary, fees, insurance (\$25,728), tuition (\$2995)) for 19 students (\$25,728 + \$2995 = 28,723 per student) over 5 years totaling \$545,737. These funds will be from extramural grant sources or salary saving generated from DPH grant support. The number of students DPH will support each year is: 2, 3, 4, 5, and 5.

Table 1. Costs of PhD Epidemiology Program by funding source by year

		GA base	Fee	Health Ins.	Salary Subtotal	No. Students	Salary Total	Tuition	Salary+ Tuition
DPH n=19	1	25000	0	728	25728	2	51456	5990	57446
	2	25000	0	728	25728	3	77184	8985	86169
	3	25000	0	728	25728	4	102912	11980	114892
	4	25000	0	728	25728	5	128640	14975	143615
	5	25000	0	728	25728	5	128640	14975	143615
									545737
HSD n=23	1	25000	0	728	25728	1	25728	2995	28723
	2	25000	0	728	25728	3	77184	8985	86169
	3	25000	0	728	25728	6	154368	17970	172338
	4	25000	0	728	25728	6	154368	17970	172338
	5	25000	0	728	25728	7	180096	20965	201061

Dr. Horns, Vice Chancellor HSD, agreed to provided funding (salary and tuition) for 23 students over the first five years, estimated to be \$660,629 or, on average, \$132,126 per year. The number of students supported by HSD for each year is: 1, 3, 6, 6, and 7. This assumes no attrition of students.

The ECU Graduate Division currently provides DPH with eight MPH GAs (\$60,000 = 8 x \$7,500 per year, excluding summer) and two in-state tuition remissions. In addition, ten MPH GAs are currently provided due to faculty-generated extramural grants funds (\$75,000). No change in approximately 18 MPH GAs in the MPH program would result from a PhD program.

External Funding. Based on the RAP Collaborative Team review in February 2010, planning is underway to establish a Faculty Development Program that will formulate a strategy for further expanding extra-mural funding and faculty publications. In the absence of such a strategy, faculty members in the DPH have been awarded approximately **\$7,029,377** extramural grant funds since 2003-2009, an average of \$1,166,666 per year. Listed below is the amount, Investigator status (Principal Investigator (PI), Co-PI, or Co-Investigator (Co-I), and grantee:

- \$ 982,464, Co-principal Investigators: Lloyd F. Novick, M.D., Ruth Little, M.P.H.
Kate B. Reynolds Charitable Trust
- \$ 474,912, PI: Ruth Little, M.P.H., North Carolina Health and Wellness Trust Fund
- \$414,325, (K01 DP001126), PI: Justin B. Moore, Ph.D., CDC
- \$50,000, PI: Lloyd F. Novick, M.D., Co-I: Suzanne Lazorick, M.D., Association of American Medical Colleges (AAMC)
- \$25,000, PI: Suzanne Lazorick, M.D., Co-I: Lloyd Novick, M.D., AAMC
- \$2,542,807, PI: Ernest G. Marshburn, M.A., \$220,000 DPH sub-contract -Lloyd Novick, M.D., UNC-CH
- \$352,200, PI: T. Bruce Ferguson, M.D., \$200,000 – subcontract, Co-I: Lloyd Novick, M.D., Duke University
- \$ 485,855, PI: Lloyd F. Novick, M.D., M.P.H., Duke Endowment
- \$399,694, PI: Justin B. Moore, Ph.D., Robert Wood Johnson Foundation
- \$238,755, PI: Wayne Cascio, M.D., Co-I: Ruth Little, M.P.H., CDC
- \$25,000, PI: Ruth Little, M.P.H., Pitt Memorial Hospital Foundation, Inc.
- \$50,000, PI: Christopher Mansfield, Co-I: Elizabeth Layman, PhD, The North Carolina Community Health Center Association
- \$39,409, PI: Eric Bailey, Ph.D., Co-I: Justin Moore, Ph.D., Health Resources and Services Administration
- \$14,974, PI: Jeffrey Bethel, Ph.D., Co-PI: Sloane Burke, Ph.D., Association of Prevention Teaching and Research
- \$221,586, PI: Stephanie Jilcott, Ph.D., subcontract with UNC-CH (from the CDC)
- \$18,800, PI: Ruth Little, M.P.H., Jones County Health Department
- \$273,596, PI: Kristina Simeonsson, M.D., Co-PI: Lloyd F. Novick, M.D., Co-PI: Jeffrey Bethel, Ph.D.
Association of Prevention Teaching and Research

Since 2003-2009, faculty members have been awarded \$70,174 in intramural research funding:

- \$21,500, PI: Justin B. Moore, Ph.D., Brody Brothers Endowment
- \$44,874, PI: Stephanie B. Jilcott, Ph.D., ECU – Division of Research and Graduate Studies
- \$3800, PI: Justin B. Moore, Ph.D., ECU – BSOM, Department of Family Medicine

In the coming years, the DPH faculty members look forward to expanding our success in research dollars and publication efforts, but with our mission ever in mind to improve to improve health through prevention of disease and disability within rural and disadvantaged communities. Through education, research, service,

advocacy, and emphasis on collaborative partnerships, the health of the people of NC and other regions with health disparities will be improved.

In conclusion, we are eager to expand our contribution to improving the health of all North Carolinians. This Request for Authorization to Plan a PhD Degree Program in Epidemiology will aid in our future success toward this goal.

This intent to plan a new program has been reviewed and approved by the appropriate campus committees and authorities.

Chancellor: _____ **Date:** _____