



Epi notes

Summer 2010

North Carolina Department of Health and Human Services | Division of Public Health | www.epi.state.nc.us/epi

A Historical Look at Preparedness

September is National Preparedness Month and marks, for many of us, a reminder of just how much and how little our practice has changed. How many times have you sat in a presentation and heard, “The nation changed on September 11, 2001”? The Public Health world had its major shift one week later when anthrax letters were mailed to New York, Washington, DC and Florida. But did life really change after 2001, and if so, how?

Centuries of Practice

In the great European plagues of the 1300’s, local incident managers were established through boards of health that identified disease, issued travel passes, quarantined ships off the coast, and coordinated mass fatality management including the regulations regarding gathering, burning and burying remains.

A classic case study is John Snow’s analysis of the Vauxhall pump as a source of disease. In 1853-4, more than 2,000 people died in a small, isolated (by today’s standards) neighborhood in London. There was no laboratory capacity to identify the causative organism, vibrio cholera. Cases were identified by the syndrome of febrile diarrheal illness and death. Data was gathered, mapped and analyzed by hand without calculators, computers or GIS. Snow postulated the pump as the source, identified a preventive measure (remove the pump handle and change Thames water source location) and educated the public and officials on water sanitation.

The first U.S. polio epidemic was identified in 1894 in Vermont, after which epidemics persisted in various parts of the country, including a large but poorly documented epidemic in 1916. In 1932, polio survivor Franklin Roosevelt was elected President, the first and only president to use a wheelchair. Although he largely hid the extent of his disability, he served as a major spokesperson for the March of Dimes campaign. During a 1944 epidemic in Hickory, North Carolina, a surge capacity and isolation hospital was built in 54 hours and staffed with volunteers from all over the state,

many receiving just-in-time training. Mass vaccination campaigns in local public health departments and schools virtually eradicated the disease in seven years.

The emphasis shifted a bit in the 1950’s and 60’s as traditional response organizations across the country began making efforts to institutionalize practices with regard to incident management, emergency compacts and emergency response. It was during this time that emergency medicine, trauma care and burn care arose as specialties, translating practices from military experiences in Vietnam into civilian acute health care. The end result of these shifts was a more standardized, rigorous organizational approach to emergencies as caregivers attempted to reduce chaos in the initial response.

In 1997, the Nunn-Lugar-Domenici Domestic Preparedness Program funded training and equipment to 120 cities for terrorist incident response and the possible use of weapons of mass destruction. In North Carolina, the cities of Charlotte, Greensboro and Raleigh were chosen to receive training, medical and pharmaceutical equipment, and Department of Defense response equipment. The program was scheduled to conclude in 2001. The training was intended to build on an established knowledge base and practice paradigm, not to teach an entirely new way to perform duties or establish a new role. The “delta,” or difference in what was needed, would be the extra knowledge

cont. on page 2

C O N T E N T S

North Carolina Suspicious Substance Response Guidelines (SSRG).....	Page 4
First Annual NC DPH Communicable Disease Conference.....	Page 5
FAQs for New Division of Public Health Facility	Page 7

and practice necessary to respond to the incident. This “delta” was the foundation for the preparedness role and function we know today.

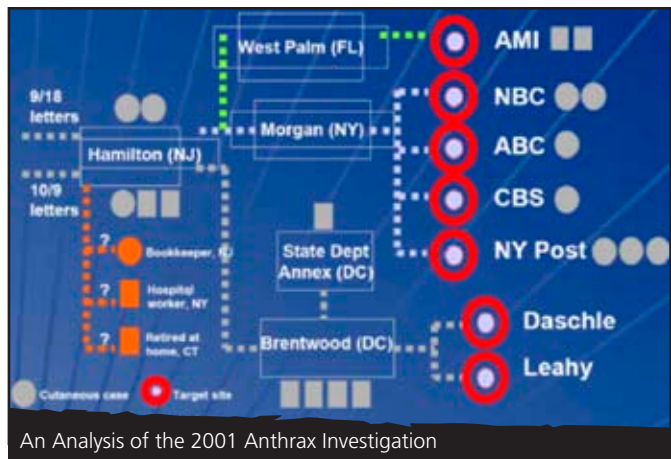
Then came 2001.

The New Millennium

The first anthrax victim was Robert Stevens, who died October 6, 2001, in Boca Raton, Florida after a four-day illness. Stevens was briefly thought to have contracted anthrax through natural sources while hunting in North Carolina. State and local resources were quickly consumed by investigating a possible environmental link. Not long after Stevens’ death, however, suspicion arose that his was indeed an intentional exposure from a letter mailed to his workplace, a Florida-based newspaper. Additional letters mailed on the same date containing anthrax were discovered in NBC, ABC and CBS news offices in New York. On October 9, two additional letters were mailed from New Jersey to Senators Tom Daschle and Patrick Leahy. At least 22 people were identified with the disease – 11 with the inhalational form. There were five deaths; two in U.S. Postal Service workers who were unintentional targets. In response, major efforts were made to provide prophylactic antibiotics to U.S. Postal Service workers, Hart Senate Office Building workers and other individuals who had been directly exposed. The Strategic National Stockpile was mobilized to provide managed inventory specific for anthrax treatment and prophylaxis through “pull” or request-based delivery. Mass dispensing points were established at the former DC General Hospital location and Washington DC, Virginia, Maryland, New Jersey and New York health departments staffed by local and federal public health workers. On the national level, these events stimulated hundreds of thousands of suspicious substance calls and investigations into “white powders.” (Ironically, the original anthrax powders in New York City were described as brown in color).

In 2002, as the nation prepared for war in Iraq, intelligence reports suggested that missing stockpiles of smallpox might be used in attacks in the U.S. In an unprecedented mandatory vaccination campaign, every state was mobilized to implement a mass vaccination plan and begin vaccinating public health workers for force protection against an attack.

In 2003, the SARS-CoV outbreak illustrated that naturally occurring emerging diseases could still require large scale responses and test preparedness systems.



SARS-CoV response required rapid identification of a novel agent, characterization of the epidemiology so that prevention measures could be implemented, and isolation and quarantine methods imposed on a large scale in the environment of modern civil liberties. The rapid spread from Guandong Province in China to 37 countries around the world reflected the expansive mobility of modern society, the need for globalization of public health and challenged systems to sustain response with local, state, national and international scope.

The focus shifted to pandemic influenza in 2004. Outbreaks of avian influenza were monitored because of its high case fatality rate and to alert if the disease showed signs of human-to-human transmission. Plans were enhanced to provide for mass fatality, epidemiologic investigation and surveillance, laboratory surge capacity, isolation and quarantine and mass medical care. Vaccination development was funded to ensure rapid production of an effective vaccine once disease was identified.

The 2009-2010 H1N1 influenza pandemic validated the preparations that were built in all of the above-mentioned incidents and every day public health practice. Novel virus was identified by the laboratory response system and rapidly communicated throughout the public health notification system. Epidemiologic investigation characterized the outbreak and allowed leaders to effectively generate prevention messages and make decisions regarding social distancing and response implementation. Countermeasures and personal protective equipment were obtained and distributed from national to local levels effectively and rapidly. Vaccine was developed and targeted vaccination was begun within seven months of identification of the virus utilizing current staff and surge capacity workforce from

cont. on page 3

a wide variety of sources. There were certainly missteps; however, these were more in the fine-tuning of response rather than identifying new problems.

The Future of Preparedness

This brings us, specifically in preparedness, but in public health on the whole, to today. In August 2010, the state's Public Health Preparedness and Response Strategic Planning Workgroup began the work of moving on to the future of preparedness in North Carolina. For the system, the mission is to:

Promote and protect the public's health before, during and after all-hazard events through an integrated public health preparedness system that is robust, resilient and scalable.

The key concepts of promotion and protection focus on before, during and after incidents occur. Participants agreed to the description of a system that is robust with depth in numbers and knowledge, resilient to adapt to and recover from an incident and scalable so that the response is appropriate for the demand. They also agreed that the overall challenge to accomplishing this mission is the integration of preparedness in the Public Health System to increase impact in a dynamic environment. The overarching integration of preparedness as an essential function embedded in all public health activities and enhances services rather than competing with them is an ultimate outcome reflected in the events illustrated in this article. Economic and political changes will occur; the expectation is to continue to move preparedness ahead in light of these changes.

The next steps for three sub-workgroups are to develop the implementation steps for the strategic goals.

Sub-Workgroup	12 month output
Scope of Preparedness	Develop working definition of PH Preparedness, and identify current useful benchmarks.
Organizational Effectiveness and Collaboration	Develop a plan for a regional system that meets state and local needs, common operating standards and an organizational/ accountability chart
Resource Alignment	Develop an inventory and a workforce development plan

North Carolina's strategic planning comes at an opportune moment. The system has been built upon centuries of public health response. Each response allows the system to improve and better define how and when to react to future events. Funding in the past 10 years has been extraordinary and has allowed the rapid development of specific capabilities and capacities. Funding will change in the current economy. Another incident will occur in our careers, whether man-made or natural.

Disaster has been defined as an event which reveals the weaknesses in man-made systems. We have an opportunity to continue to minimize those weaknesses and be more prepared tomorrow than we are today.

Submitted by:

Julie Casani, MD, MPH

Director, PH Preparedness

2010 First Annual NC DPH Communicable Disease Conference “Quality Improvement through Best Practice”

The Communicable Disease Branch hosted the first annual CD Conference at the Friday Center in Chapel Hill on July 23, 2010. Over 175 local health department staff attended the one day event that proved to be a celebration of the work done by the state’s public health workforce. Topics included NC’s Syphilis Outbreak Response, Healthcare Associated Infections, Foodborne Disease Investigations, Local Health Department Outbreak Response, and ended with presentations about bats, ticks, and a rabid donkey. Some participants took the opportunity to get technical assistance with entering case data into NC EDSS for specific diseases while others learned about NC DETECT.

Speakers included Dr. Peter Leone, UNC School of Medicine and Dr. Arlene Sena, Durham County Health Department, plus 25 subject matter experts from the Communicable Disease Branch. Conference organizers challenged participants to incorporate quality improvement in local programs by using the “Plan, Do, Study, Act” process.

“The objective in quality improvement is not so much about making something 100 percent better, but rather by making 100 things one percent better.” Attendees received a paper ruler to remind them to measure their progress on things that matter.

During the conference, the CD Branch presented the Local Health Department Communicable Disease Program Recognition Awards.

Next year’s conference is tentatively set for July 14, 2011.

QUALITY IMPROVEMENT AWARD

This local health department communicable disease program creates a culture of quality improvement within the facility through continuous, creative, and successful use of quality improvement methods and tools (including the Plan, Do, Study, Act process) to improve/enhance services.

Nominees:

Forsyth County Health Department (winner)
Robeson County Health Department
Mecklenburg County Health Department

*Submitted by: Kathy Dail, Supervisor
Technical Assistance and Training Program
Medical Consultation Unit
919-715-7396*

WORKFORCE EDUCATION/ TRAINING AWARD

This local health department communicable disease program creates an environment that assures a prepared workforce by supporting lifelong professional learning, collaboration and sharing of ideas, and creative thinking.

Nominees:

Rutherford-Polk-McDowell Health District
Pitt County Health Department (winner)
Rockingham County Health Department

PUBLIC HEALTH MARKETING AWARD

This local health department communicable disease program demonstrates effective use of marketing techniques to inform the community of resources for disease control and prevention, health department services, and communicable disease threats.

Nominees:

Wake County Health Department
Mecklenburg County Health Department (winner)
Buncombe County Health Department
Macon County Health Department
Forsyth County Health Department
Orange County Health Department
Appalachian Health District
Durham County Health Department
Guilford County Health Department
Henderson County Health Department
Carteret County Health Department
Clay County Health Department
Rutherford-Polk-McDowell Health District

cont. on page 6

OUTBREAK RESPONSE AWARD

This local health department communicable disease program demonstrates a rapid, scalable, and coordinated response to communicable disease threat(s) in the community.

Nominees:

Durham County Health Department (winner)

- Forsyth County Health Department
- Brunswick County Health Department
- Moore County Health Department
- Davidson County Health Department
- Rockingham County Health Department
- Transylvania County Health Department

COMMUNITY PARTNERSHIPS AWARD

This local health department communicable disease program promotes effective community partnerships with community healthcare providers with measurable results that improve community health.

Nominees:

- Cleveland County Health Department
- Davidson County Health Department (winner)**

LEADERSHIP AWARD— LOCAL HEALTH DIRECTOR

A local health director who has made significant contributions to improvement of public health concerns in his/her community through insight, motivation, leadership, and the creative use of limited resources.

Nominees:

- Layton Long, Davidson County
- Jesse Greene, Toe River Health District
- James Roosen,
Wayne County Health Department (winner)**
- Sue Lynn Ledford, Wake County Health Department

SPIRIT AWARD— COMMUNICABLE DISEASE NURSE

A local public health communicable disease nurse who demonstrates a spirit of enthusiasm, determination, good humor, and unwavering professionalism when faced with adversity and numerous challenges throughout the year.

Nominees:

- Cindy Bandy, Onslow County Health Department
- Tracy Jones, Robeson County Health Department
- Amy Patrick, Haywood County Health Department
- Jane Hoffman, Mecklenburg County Health Department
- Karen Copley, Davidson County Health Department
- Donna Faiella, Carteret County Health Department
- Debbie Murphy, Lenoir County Health Department
- LuAnn Angell, Davie County Health Department
- Joyce Hawkins, Gaston County Health Department
- Judy Dilling, Caldwell County Health Department
- Susan Sheats, Robeson County Health Department
- Betty Rogers, Guilford County Health Department
- Theresa Hughes, Surry County Health Department
- Verona Coe-Danley, Surry County Health Department
- Sherry Yocum, Cleveland County Health Department
- Kelly Bowers, Forsyth County Health Department
- Patty Kempton,
Moore County Health Department (winner)**



Patty Kempton, Moore County Health Department

FAQs for New Division of Public Health Facility

We are excited because the construction phase of the new facility housing the State Laboratory of Public Health and the Office of the Chief Medical Examiner has begun. Here are some answers to frequently asked questions and a little of the history behind this public health success story.

What is the new facility?

The North Carolina Department of Health & Human Services has contracted to build a new 220,000 square foot facility in west Raleigh to house the North Carolina State Public Health Laboratory (NCSLPH) and the Office of Chief Medical Examiner (OCME).

Who is building it?

BE&K, a subsidiary of KBR of Houston, Texas, is the general contractor. O'Brien/Atkins Associates PA of Durham is the project's architect, with laboratory planning and consultation provided by HDR/CUH2A. The contract award is \$52 million.

What is the timeframe?

The building project has been in the planning stages since 2004 when a feasibility study was conducted, and following approval by the N.C. General Assembly, bonds for the project were sold in 2006. The building contract began Feb. 8, 2010 and construction began in April 2010. Construction is anticipated to be completed in February 2012.

Where is the facility located?

The new building will be located near the northeast corner of the intersection of Edwards Mill Road and Wade Avenue across from the RBC Center arena. It is near the North Carolina National Guard's new Joint Forces headquarters and emergency operations center that is under construction. The address will be on District Drive.

Why is the facility needed?

The Bath Building, home of the state lab, was commissioned in October 1973 and has 120,000 square feet. That same year, the OCME moved into two floors of a laboratory building on the campus of the UNC Medical School and Hospital complex. After 37 years, the current facilities no longer accommodate the sophisticated equipment, sample processing and staff needed to process the volume of laboratory testing and autopsies required by the state.

How is the project being funded?

Following approval by General Assembly, the new facility was funded through sale of Certificates of Participation (bonds) in 2006. The State Health Director at the time, Dr. Leah Devlin, understood the laboratory's role in high profile testing during numerous public health crises, as well as the critical role that the OCME played in death investigations, and gained the attention of several key N.C. senators and representatives. Multiple laboratory tours pointed to the disadvantages and challenges of performing state of the art testing and other examinations in a 37-year old building. The concurrent need for a new OCME facility made a compelling case for a co-located building. In 2006, a small group of legislators, the DHHS Secretary and Deputy Secretary, the State Health Director, the Chief Medical Examiner Dr. John Butts and State Public Health Laboratory Director Dr. Lou Turner subsequently toured Virginia's state-of-the-art state laboratory and new Chief Medical Examiner facilities. The similarity of the needs of the populace in the two states together with the strong contrast between the two state's facilities built strong support for a new NCSLPH and OCME.

Submitted by:

Dr. Leslie A. Wolf, Director, NCSLPH

Pilot Laboratory Internship Program at the North Carolina State Laboratory of Public Health

The North Carolina State Laboratory of Public Health (NCSLPH) and North Carolina State University College of Agriculture and Life Sciences (NCSU CALS) partnered in a grant application process to develop a pilot internship program for rising junior and senior students majoring in microbiology, biochemistry, animal science and other relevant disciplines. The primary objective of this pilot program was to provide a structured eight-week laboratory experience in a public health laboratory with the goal of recruiting talented, bright and energetic students to consider a career in public health. In this way, students would gain practical experience in a public health laboratory while performing a defined research project. In December 2009, the NCSLPH was one of 10 recipients nationwide awarded a grant for the “Pathways to Public Health” program by the Association of Schools of Public Health (ASPH) and the Association of Public Health Laboratories (APHL). Because it was determined that a paid summer internship would be an ideal way to meet the goals of the grant, the steering committee was able to begin planning in February 2010 as to how students would be selected, how they would be paid, and what projects would be available to them at NCSLPH.

Four outstanding students were selected through an application process that included a written statement outlining their background, education and experiences to date, as well as their interest in public health. Students also submitted unofficial transcripts and a letter of reference. Seventeen students submitted complete application packets by the deadline and eleven were invited for in-person interviews at NCSU CALS with the steering committee. Many of these students were exceptional scholars in their chosen major and some had completed international learning experiences. Our top four candidates accepted the internship program at NCSLPH in April 2010. The internship program started with a brief orientation in early May 2010 and they began their internship on June 7, 2010. The program ended July 30, 2010.

Listed below are the four NCSU CALS students who participated and the laboratory areas for each project.

Katy Davis: Environmental Sciences Unit, Environmental Microbiology

- Project: Water Testing for Cryptosporidium using PCR



Laboratory Interns from North Carolina State University College of Agriculture and Life Sciences. Front row: Janet Smith. Back row (left to right): Erika Tutko, Maura Leonard, Katy Davis.

Maura Leonard: Virology/Serology Unit, Special Serology

- Project: Optimizing PCR for Rocky Mountain Spotted Fever and Mumps

Janet Smith: Microbiology Unit, Atypical Bacteriology Laboratory

- Project: Using the Biolog Instrument for identification of fastidious microbes

Erika Tutko: Bioterrorism and Emerging Pathogens Unit

- Project: Developing Quality Control monitors and geocoding BTEP sample submissions

The four students will be asked to complete a survey in August to assess how NCSLPH performed in meeting the objectives of the internship; these survey responses will be used to improve future internship programs. The grant project will conclude in September 2010 with a poster presentation at NCSU by each intern. It has been a pleasure to host four such outstanding students, and we hope to continue such internship programs in the future.

Submitted by:

Dr. Leslie A. Wolf, Director, NCSLPH

The North Carolina AIDS Drug Assistance Program (ADAP) Receives a Significant State Funding Increase

What is the North Carolina AIDS Drug Assistance Program?

The North Carolina AIDS Drug Assistance Program (ADAP), also known as the HIV Medications Program, uses a combination of State and federal funds to provide low-income residents of the State with assistance in obtaining essential, life-sustaining FDA approved medications to fight HIV/AIDS and the opportunistic infections which often accompany the disease.

Recent Challenges

Increased enrollment in the ADAP program and increased drug costs for treatment, combined with a difficult fiscal year for North Carolina, forced NC ADAP to implement a waiting list for enrollment on January 22, 2010. While the decision meant new patients could not be immediately enrolled, it did allow ADAP to continue to serve existing clients. The ADAP had experienced a 29 percent increase in the number enrolled over the past two years.

Response to the Crisis

As a result of Governor Perdue's support and the efforts of the General Assembly and community, the State's budget has been finalized and is providing a substantial increase in funding for the NC AIDS Drug Assistance Program (ADAP). The new and recurring funding of \$14,177,632 is in addition to the current funding of \$11,365,495 for total funding of \$25,543,127. The NC ADAP

now receives more than half of its entire budget from the State. This clearly shows an ongoing commitment to supporting a critical public health program that provides life-sustaining drugs for those living with HIV disease in North Carolina. Ours is one of a very few states that receives this proportion of funding from their state legislature.

The additional funding enabled ADAP to work immediately to move about 78 percent of the clients on the waiting list - those at 125 percent of the federal poverty level and lower - to an approved status. It also allowed those clients currently enrolled in the program at 300 percent of the federal poverty level and lower (the program's eligibility criterion at the institution of the waiting list) to continue being served. In addition, ADAP will be able to remain open, based on funding availability, to clients at 125 percent of the federal poverty level or lower. Clients at 126-300 percent of the federal poverty level will need to continue accessing various pharmaceutical assistance programs for their medications.

For more information about the NC ADAP visit the website. www.epi.state.nc.us/epi/hiv/adap2.html

Submitted by:

Sally Kohls, NC ADAP Coordinator

Epidemiology Section Employee Recognition Spring 2010

Sandy Mort

Sandy Mort has been recognized for her outstanding service of excellence role for the Badin Lake project. This was a complex study involving state-of-the-art technologies and sophisticated plans. She expertly presented and executed the study plan while balancing a myriad of highly political stakeholders. After completion of the sampling and data analysis, she presented the findings to the community in a professional manner. This project demonstrated Sandy's superb ability to quickly adapt to changing demands.

In addition, Sandy was challenged with the CTS site located in Buncombe County. This site was complex with multiple pathways of exposure. After several reviews (a year later) by the Agency for Toxic Substances and Disease Registry CDC (Centers for Disease Control and Prevention), North Carolina Division of Waste Management, and the Environmental Protection Agency, the health assessment is in final comment stage. She successfully coordinated preliminary findings with numerous stakeholders including the local health department, local county commissioners, and the affected community. Again, Sandy proved to be ready to handle complex assessments in a highly politically-charged environment.



Sandy has recently completed the assessment for naturally occurring asbestos at Sapphire Valley Mine. During this project, she successfully integrated asbestos experts from the Health Hazard Control Unit to help coordinate the response to this issue.

In a little less than two years, Sandy Mort has distinguished herself among the state's risk assessors and toxicologists. Her attention to detail and outstanding scientific competency has resulted in an increase in overall productivity (over 25 percent) for the program and an outstanding evaluation by ATSDR. What makes Sandy a true leader in the unit is her dedication to duty, motivation, and willingness to take on new challenges and responsibilities, and her remarkable wit. She is the quintessential team player and a real asset to the unit, branch, and the section. Sandy's dedication and scientific adeptness will be valuable in helping to secure further funding of the program, safeguarding North Carolinians from exposure to toxic substances and hazardous materials.

Dr. Megan Davies, State Epidemiologist



State of North Carolina | Department of Health and Human Services

Division of Public Health | Epidemiology Section

www.ncdhhs.gov | www.epi.state.nc.us/epi

N.C. DHHS is an equal opportunity employer and provider. 9/10

Epidemiology Section Office	(919) 733-3421
Communicable Disease Branch	(919) 733-3419
HIV/STD Program	(919) 733-7301
Occupational and Environmental Epidemiology Branch	(919) 707-5900
State Laboratory of Public Health	(919) 733-7834
Office of the State Medical Examiner	(919) 966-2253
Public Health Preparedness and Response	(919) 715-0919
Public Health Preparedness and Response Emergency Number 365/7	(888) 820-0520
Rabies Emergency Number Nights, Weekends, Holidays	(919) 733-3419
Emergency Number Nights, Weekends, Holidays	(919) 733-3419