Epi Notes

North Carolina Department of Health and Human Services ◆ Division of Public Health

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In This Issue:

Call to Action: HIV/AIDS and STDs in the South

Prepared by Evelyn M. Foust, MPH, CPM
Branch Head, HIV/STD Prevention and Care Branch

The impact of the HIV/AIDS epidemic and other sexually transmitted diseases (STDs) in the South – the region estimated to have the greatest number of people living with AIDS in the United States – was the focus of a conference held November 13-15 in Charlotte, N.C. State AIDS directors, legislators, federal health officials and community advocates participated in the two-day summit to discuss critical and unique issues and barriers faced by southern states including future strategies.

Former Surgeon General Dr. David Satcher delivered the keynote address to the "Southern States Summit on HIV/AIDS & STDs," convened by The Kaiser Family Foundation and the National Alliance of State and Territorial AIDS Directors, in partnership with the Southern State AIDS Directors Work Group.

A new background report prepared by the Kaiser Family Foundation for the Summit shows that the South has more people estimated to be living with AIDS than the Northeast, Midwest and Western regions of the United States, and the proportion of people living with AIDS in the South has been increasing. The estimated number of new AIDS cases in the South increased between 2000 and 2001, while other regions experienced declines or relatively stable levels. Eighteen of the top 25 U.S. communities hardest hit by the HIV/AIDS epidemic are in southern states. In addition to HIV, the South also has the highest case rates for syphilis, chlamydia, and gonorrhea in the nation.

The HIV/AIDS epidemic in the South has also disproportionately affected African Americans. More than half (53% in 1999) of

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*(**HIV/AIDS and STDs in the South,** continued from page 1)*

people estimated to be living with AIDS in the South are African Americans, who constitute only 19% of the overall southern population.

The southern region of the U.S., as defined by the Census Bureau, includes 16 states and the District of Columbia. Those participating in the summit are: Alabama, Arkansas, Delaware, the District of Columbia, Florida, Georgia, Kentucky, Louisiana, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, and West Virginia.

Quotes from the two major conference sponsors were as follows:

"The HIV/AIDS epidemic remains a critical health concern for the U.S. as a whole, but is especially troubling for the southern region," said Drew E. Altman, Ph.D., president and CEO of the Kaiser Family Foundation. "By bringing these key groups together to strategize on combating HIV/AIDS and STDs in the southern U.S., we hope to be able to make great strides towards reducing the disproportionate effects of these epidemics on minority Americans."

"NASTAD is hopeful that the Southern States Summit will help focus the nation's attention on the faces of HIV and STDs in the South, on the severe impact of these epidemics on African American communities in particular, and on the urgent need for us to work together at the federal, state and local levels to provide desperately needed prevention, care and treatment services," said Julie Scofield, Executive Director of NASTAD.

Other documents released at the Summit included a state-by-state overview of the financing and care programs available to people living with HIV/AIDS and a review of federal funding for HIV/AIDS available in each of the southern states. In addition, the southern states AIDS directors released a draft of a document they have been working on since June 2002, *Southern States Manifesto: HIV/AIDS and STDs in the South: A Call to Action*. The purpose of the document is to make recommendations to increase public awareness of barriers to the provision of prevention and care services for individuals living with HIV/AIDS and STDs in the South and to provide a plan to reduce barriers. Conference participants were asked to review the document and provide comments to strengthen support for the recommendations. The southern AIDS directors are planning

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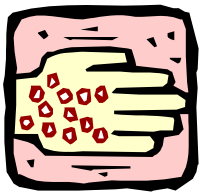
North Carolina Smallpox Vaccination Plan Executive Summary

Prepared by Samara A. Adrian, Planner
Office of Public Health Preparedness & Response

Smallpox vaccination will be conducted in North Carolina



in accordance with the Centers for Disease Control and Prevention's approved North Carolina Smallpox Vaccination Plan (NCSVP). The N.C. plan was developed in cooperation with state local agencies and major organizations vitally concerned with public health preparedness and response in our state. Extensive use was made of guidelines from the CDC and national and international authorities in the field of bioterrorism and public health.

The plan addresses state, regional and local-level voluntary pre-event vaccination, ring vaccination and mass vaccination. Stage One pre-event vaccination will begin within 30 days of delivery of vaccine to our state. Stage Two pre-event vaccinations will occur after additional vaccine is available. Ring and mass vaccination will occur only after identification of either imminent threat or actual confirmation of a smallpox case.

Stage One pre-event vaccination will vaccinate approximately 10,000 state and local personnel and hospital emergency room and isolation room staffs from 60 N.C. facilities identified by size, emergency department volume or geographic location. Stage Two pre-event vaccinations will target smaller hospitals and health care facilities, additional public health personnel, emergency management, law enforcement, paramedics and emergency medical services personnel, and hazardous materials teams. Stage Two would likely involve approximately 285,000 North Carolinians and would occur after additional supplies of vaccine were made available. All vaccinations will be voluntary.

Stage One will be conducted by the seven Public Health Regional Surveillance Teams (RSTs) in coordination with the state's Public Health Regional Immunization Coordinations on a rotating vaccination schedule. The schedules will be developed between the RSTs and their respective counties. Pre-event vaccination will primarily occur in local health departments. Some hospitals may vaccinate their own personnel.

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Campbell Named Branch Head for the Occupational and Environmental Epidemiology Branch

Prepared by Patsy P. West, Administrative Assistant Epidemilogy Section Office

Douglas Campbell, MD, MPH joined the OEE Branch as Branch Head on November 4, 2002 in a part-time capacity and became full-time on January 1, 2003. He brings to the position many years of experience and expertise in the occupational and environmental epidemiology field.

Dr. Campbell received his undergraduate from Carleton College in Minnesota, his MD Degree from the University of Hawaii and his MPH Degree in Epidemiology from the University of North Carolina at Chapel Hill.

Dr. Campbell previously worked with the OEE Branch for four years as a Public Health Physician and Epidemiologist where he analyzed and responded to health problems related to environmental and occupational factors. Before joining the OEE Branch, he was president of a successful private practice focusing on occupational and environmental medicine.

We are pleased to welcome Dr. Campbell to the public health team.

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***(N.C. Smallpox Vacinnation Plan,** continued from page 2)*

Dry Vax, a FDA-licensed vaccine, will be administered by licensed, trained nurses under standing orders of physicians licensed to practice medicine in our state. In general, these will be the Medical Directors of the local health departments or of the hospitals' occupational health services. Vaccination, tracking, and follow-up will be in accordance with Federal guidelines and procedures overseen by the N.C. State Epidemiologist.

Potential vaccine recipients will be given information regarding the risks and benefits of the vaccine, contraindications, and procedures to protect themselves as well as others. Trained professionals will answer their questions in accordance with federal guidelines.

Care for vaccine adverse events as well as worker's compensation and other workplace-related concerns will be managed in accordance with current laws and regulations, using employees' and employers' existing systems, agreements and contracts. In developing the NCSVP, a key planning assumption is that personnel and institutions carrying out the vaccination program will be protected against liability by federal procedures under the new Homeland Security Act passed in November 2002.

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***(HIV/AIDS and STDs in the South,** continued from page 2)*

to release the final version of the Manifesto by early February.

North Carolina participated in the Summit because we are very concerned about the increasing number of AIDS and STD cases reported in our state and because we simply do not have the resources – federal, state or local – to meet the prevention, care, and treatment needs of people with and at-risk for HIV/AIDS and STDs. For example, North Carolina's ADAP has been closed to new enrollees since December 15, 2001 due to a shortage of funds and despite having the lowest eligibility level in the country–HIV positive persons must be at or below 125% of poverty. North Carolina's state contribution to ADAP makes up over 35% of the total budget and the rest is provided by HRSA Ryan White funds.

For additional information about the conference or the *Southern States Manifesto: HIV/AIDS and STDs in the South: A Call To Action*, you may call Evelyn Foust, North Carolina HIV/STD Branch Head at (919) 733- 9490 or call Beth Scalco, Louisiana AIDS Director at (504) 568-7474.

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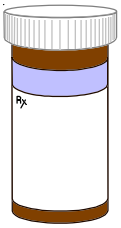
Tuberculosis and Directly Observed Therapy

Carol Dukes Hamilton, M.D., Medical Director
North Carolina TB Control Program



We have made considerable and steady progress towards the elimination of TB in our state. The 2001 rate of tuberculosis in North Carolina was 4.8 per 100,000, the lowest rate in our state's history, though the 2002 figures may not be as favorable. Prompt initiation of effective treatment and completion of an adequate course of therapy lead to the cure of tuberculosis and prevent further spread. The use of directly observed therapy (DOT) to ensure completion of therapy for people with active TB is the standard of care for TB management in North Carolina and in most of the U.S. How did this come about?

The discovery of isoniazid and rifampin, potent TB medications taken orally, changed TB treatment from an 18-24 month stay in a TB sanatorium to a relatively short outpatient treatment regimen. However, by the late 1970s, an estimated 20-30% of TB patients failed to complete treatment within 24 months. Furthermore, DOT was only employed by about 17% of U.S. public health jurisdictions (Bayer, Am J Public Health, 88:1052-1058, 1998). By the early 1990s, the resurgence of TB, including multi-drug resistant TB (MDR-TB), was in full swing and a call-to-action went forth. In 1990, a trial in Denver was published demonstrating that a short-course (6-month) TB regimen, administered twice-weekly by DOT, resulted in more cures and fewer relapses or drug failures than a longer (9-12 month course) of daily therapy, self-administered (Cohen, Ann Int Med, 112:407-415, 1990). Since then, others have shown that a patient-centered approach to TB care that uses DOT is clinically successful and cost-effective (Moore, Am J Respir Crit Care Med, 154:835-6, 1996). Favorable aspects of programs that have universal DOT include more rapid cessation of infectivity, fewer infected contacts, faster and higher completion rates, fewer cases developing MDR-TB, lower relapse and failure rates, and less mortality, compared to self-administered regimens. Furthermore, public health scientists have shown that the kind of DOT matters. Early on, some programs tried using family members to provide DOT, with less success than programs exclusively using members of the health care team, and augmented by "enhancers and enablers" – bus tokens, food coupons, diet supplements.

When an outbreak of MDR-TB occurred in New York City, the successful public health response included few "high tech" components. Clinicians were educated to have a lower threshold for suspecting TB. When TB was suspected, standard 4-drug therapy was instituted until susceptibilities were known. Most importantly, the drugs were given by the public health system, free of charge, using strict and enhanced DOT. Patient non-adherence was met with forced quarantine until treatment was completed.

DOT has been increasingly emphasized by the Centers for Disease Control (CDC) and all U.S. and international TB advisory panels. The high regard for DOT is reflected in increasing emphasis placed on this method of TB treatment by the CDC in the new TB Treatment statement, due for release in January 2003. In addition, the updated North Carolina TB Control manual explicitly states that *"DOT, with rare exceptions, is the Standard of Care for the therapy of active tuberculosis in North Carolina"*. Our TB Medical Advisory Committee has unanimously endorsed this policy.

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Exophiala (Wangiella) dermatitidis Fungal Infection Outbreak

Jeffrey Engel, MD, Head
General Communicable Disease Control Branch

In September 2002, the General Communicable Disease Control (GCDC) Branch was notified of two patients with meningitis caused by a rare fungal pathogen *Exophiala (Wangiella) dermatitidis*. The Infectious Diseases (ID) Division of Duke University Medical Center (DUMC) became aware of the two cases when their mycology lab was evaluating one of the fungal isolates from a patient who died at DUMC, and another isolate from a patient hospitalized with fungal meningitis at Pitt County Memorial Hospital in Greenville.

Initial investigation by the DUMC ID Division revealed that both patients had received epidural (spinal) injections of methylprednisalone within two months of their onset of illness at two separate pain clinics in Pinehurst and Jacksonville. Further inquiry revealed that the methylprednisalone injected into both patients was compounded for sterile injection by a single pharmacy in Spartanburg, South Carolina. The General Communicable Disease Control (GCDC)

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(***Exophila (Wangiella) dermatitidis***, *continued from page 4)*

Branch then notified public health authorities in South Carolina and the CDC to launch a full-scale investigation.

Clinical Disease

As of January 2003, six patients who received pain injections at the two clinics have developed *E. dermatitidis* infections. The first four patients presented with signs and symptoms of subacute meningitis within three months of their epidural injections. Similar to the more common fungal meningitis caused by *Cryptococcus neoformans*, patients developed fever, headache, confusion, backache, and stiff neck over several weeks period of time. Cerebrospinal fluid analysis revealed elevated protein and normal glucose levels and acute inflammatory cells. Bacterial studies were negative and fungal cultures yielded *E. dermatitidis* identified at both DUMC and the State Laboratory of Public Health.

The last two patients developed septic arthritis within six months of injection into joint spaces, the sacroiliac joint and the lumbar disc space. These patients developed a progressive erosive sacroiliitis and lumbar discitis, respectively, seen on magnetic resonance imaging (MRI) scans. The diagnosis was confirmed after *E. dermatitidis* was isolated from biopsy specimens taken from both patients.

All patients had received methylprednisalone injections for chronic pain syndromes. The patients' age ranged from 52 to 77 years (mean, 65); five (83%) were women. Four received injections at the Pinehurst clinic and two at the Jacksonville clinic. Based on *in vitro* susceptibility testing performed at DUMC, all patients were treated with a new FDA-approved antifungal agent, voriconazole. Clinical outcomes to date (median follow-up, 12 weeks) have revealed one death in the first meningitis case. The other five patients required hospitalization but were recovering at home. Final functional outcomes were not known.

The Pharmacy Investigation and Control Measures

The investigation of the compounding pharmacy in Spartanburg was led by the South Carolina Department of Health and Board of Pharmacy with the assistance of the FDA and CDC. The pharmacy was asked to compound sterile methylprednisalone acetate for injection by physicians and clinics in five states (NC, SC, VA, CT, MA) when the usual supplier, Pharmacia-Upjohn, had temporarily ceased production in early 2002 when manufacturing problems were discovered by the FDA. Approximately 1,000 vials were dispensed with 90% being shipped to the two pain clinics in N.C. from February to July 2002.

Inspection of the compounding pharmacy by the South Carolina Board of Pharmacy in September revealed breaches in standard operating procedures for sterile production. The Board issued an immediate "cease and desist" order to the pharmacy for further production of methylprednisalone and the compounding pharmacy issued a recall in early September of all dispensed vials. Unopened vials of methylprednisalone marked sterile were sent to labs at the FDA and CDC which both have subsequently isolated *E. dermatitidis*.

Pending Investigations

The GCDC Branch enlisted the assistance of the NC Statewide Program in Infection Control and Epidemiology (SPICE) at UNC-Chapel Hill to conduct an epidemiologic study of the outbreak. A retrospective cohort study was designed using people who received injections on the same day, but who did not become infected, as controls. SPICE also observed sterile and procedural technique at the clinics. The investigation may be hampered by the fact that neither clinic recorded the lot numbers of the methylprednisalone vials used on the patients or controls.

The DUMC mycology lab performed a genetic analysis of the *E. dermatitidis* isolated from the patients and the unused vials of methylprednisalone. Although no standard genetic fingerprinting technique exists for this fungal species, the preliminary results revealed that all isolates were genetically identical.

Conclusions

Six patients succumbed to infections from a rare fungus *E. dermatitidis* subsequent to receiving pain injections at two clinics in North Carolina. Four cases of meningitis and two cases of septic arthritis developed, with one death and severe morbidity in the others. A single compounding pharmacy in South Carolina, which supplied methylprednisalone to the clinics was found to have dispensed contaminated product after testing revealed an identical strain of *E. dermatitidis* in unused vials of the drug. Inspections of the pharmacy implicated problems with sterile technique.

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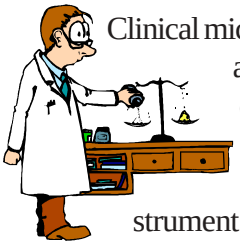
Introducing a New Technology for Bacterial Identification: The OmniLog Analyzer

Prepared by Chris Goforth, Laboratory Medical Technologist II, Special Bacteriology Bioterrorism Team
North Carolina State Laboratory of Public Health



Clinical microbiology has seen dynamic changes in available methods for pathogen identification in recent years. The North Carolina State Laboratory of Public Health (NCSLPH) recently acquired a new instrument to the aid in biochemical identification of difficult or problematic pathogenic bacteria. Utilizing federal funding for bioterrorism preparedness NCLSPH purchased, installed and received training on the Omnilog analyzer, manufactured by Biolog Corporation.

The Omnilog analyzer uses the respiratory reactions of 95 biochemicals as a fingerprint to give reliable identifications of pure bacterial cultures within 24 hours. The overall pattern of positive and negative reactions in each of the 95 wells with biochemicals leads to a preliminary identification. The unique redox chemistry responds to the *process* of metabolism rather than to metabolic by-products, such as acids, in conventional biochemical reactions. The current bacterial identification database for the Omnilog analyzer is approaching 1000 patterns out of the 4×10^{28} theoretically possible patterns derived from a single plate.

With conventional biochemical identifications, several bacterial organisms would remain unidentified due to unknown metabolic variations in different strains of the same bacteria. This meant there was no easy way to generate a "library" of metabolic variations that would allow one to recognize these patterns. The option of building and maintaining a database of the biochemical reactions for identified bacteria has the potential to give faster, more reliable results. The database generated at NCSLPH should allow the visualization of trends of specific organisms based on regional geography, site of infection, or other parameters.

The Omnilog database may supplement DNA sequence data or other nucleic acid information by providing a metabolic fingerprint that can be related to a sequenced strain of bacteria. In the future, this may allow for rapid and precise identification of pathogens.

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(Exophila (Wangiella) dermatitidis *continued from page 5)*

Although product was dispensed in five states, human disease only occurred in N.C. This might be explained by several factors: 90% of the compounded methylprednisalone was dispensed to the two pain clinics in N.C.; clinics in other states returned most recalled vials before they were used; and at least one clinic was not using the methylprednisalone for injection. The retrospective cohort study may reveal other risk factors associated with developing infection.

This outbreak is the latest of many recent incidents traced to injectable steroid contamination at small compounding pharmacies. In California, an outbreak of *Serratia* bacterial meningitis was traced to contaminated betamethasone (a steroid similar to methylprednisalone) used for epidural injections (Contra Costa Health Services, unpublished data, 2002). Similarly, in Michigan, a cluster of *Chryseomonas* meningitis cases were associated methylprednisalone epidural injections (CDC, unpublished data, 2002).

The FDA does not have jurisdiction over compounding pharmacies; the agency only oversees companies involved in drug manufacturing. Whether the Spartanburg pharmacy in this outbreak exceeded its compounding license and was actually manufacturing methylprednisalone is currently under investigation. Further, many states' Boards of Pharmacy do not have adequate resources to regulate the compounding practices of small business operations.

Finally, this outbreak points to an emerging problem with the manufacturing of generic drugs for sterile injection. Because of low operating margins associated with marketing non-brand name drugs, the pharmaceutical industry will often lower production costs by outsourcing and overseas manufacturing. The FDA has discovered many lapses in quality and has shut down production in certain cases. In this outbreak, the sole producer of methylprednisalone acetate, Pharmacia-Upjohn, temporarily ceased production of its brand DepoMedrol® in 2001 after the FDA had discovered manufacturing problems. This event caused local providers to seek alternative sources of methylprednisalone for sterile injection.

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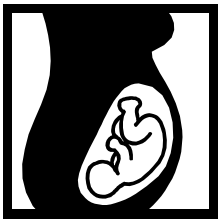
1990-2001 North Carolina Hepatitis B Prevention Program - Summary

Prepared by Patricia Poole, N.C. Hepatitis B Coordinator. N.C. Immunization Branch



Hepatitis B infects approximately 80,000 people each year in the United States; an estimated 4,000 people die from hepatitis B-related cirrhosis and 1,500 die with hepatitis B-related liver cancer. In 1991, the Advisory Committee for Immunization Practices (ACIP) recommended prevention of hepatitis B virus transmission during early childhood through vaccination of infants born to infected mothers and by making hepatitis B vaccine a part of the routine vaccination schedule for infants. Then, in 1995, ACIP added the recommendation to vaccinate adolescents as a second step in the strategy to prevent disease transmission.

North Carolina has implemented two programs aimed at hepatitis B prevention in children and adolescents in an effort to address the challenge of disease prevention. For the past ten years, the North Carolina Perinatal Hepatitis B Prevention Program and the Sixth-Grade School-Site Immunization Initiative have been very successful immunizing infants and adolescents.

North Carolina Perinatal Hepatitis B Prevention Program

From 1997-2000, data from the N.C. Perinatal Hepatitis B Prevention Program indicate a steady increase in the testing of pregnant women for hepatitis B. Local health departments track cases of infants born to hepatitis B surface antigen (HBsAg)-positive mothers to ensure proper infant vaccination and post-vaccination serologic testing.

Each year, increasing numbers of HBsAg-positive mothers, and infants born to them, have been identified. In 2000, there were 68 more cases identified than in 1997, an increase of 59 percent. Seventy-five more infants were tracked in 2000 than in 1997, equivalent to a 69 percent increase. Additionally, data reveal an average of 94 percent of those infants born to HBsAg-positive mothers received proper prophylaxis at birth.

North Carolina Sixth-Grade School-Site Hepatitis B Immunization Initiative

The N.C. Sixth-Grade School-Site Hepatitis B Immunization Initiative, launched in 1995, provides an opportunity to vaccinate adolescents before they reach the age when they are at greatest risk of exposure to hepatitis B. This program centers around clinics, conducted by local health departments, to vaccinate adolescents against the disease.

A study of data from 1995 to 2001 concluded that an average of 69 percent of sixth graders in the state have participated in this program. For the same years, an average of 93 percent of those children participating in the program completed the three-dose series. While many children receive the hepatitis B vaccine at sites other than the school-based clinics, this initiative has offered a unique opportunity to provide protection for approximately 63,000 adolescents each year.

For more information about North Carolina's Hepatitis B Prevention Programs, contact Patricia T. Poole, Hepatitis B coordinator, at (919) 715-6777 or via email at ***patricia.poole@ncmail.net***.

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NCSLPH Awarded CDC Grant to Perform Applied Research on *Listeria monocytogenes*

Prepared by Leslie Wolf, Public Health Scientist State Laboratory of Public Health

North Carolina, like many states, has a significant burden of foodborne illnesses caused by a number of pathogenic bacteria. The most common foodborne bacteria include *Salmonella, Shigella, Escherichia coli* O157:H7, and *Campylobacter*. These bacteria usually cause mild to severe diarrheal illness. A less common foodborne pathogen that typically results in a systemic febrile illness is *Listeria monocytogenes*. This pathogen is particular dangerous for immunocompromised individuals, including the elderly, young children and pregnant women. In the fall of 2000, an outbreak of *L. monocytogenes* in the Hispanic community of Forsyth County brought this less-common foodborne pathogen to the forefront. In this outbreak, 12 patients became ill after consuming homemade, Mexican-style soft cheese. The tragedy was that 10 pregnant women became infected, with 2 infected newborns, 3

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Health Risks From Arsenic in Drinking Water

Prepared by Kenneth Rudo, Ph.D, Toxicologist
Occupational and Environmental Epidemiology Branch

Arsenic is the 20th most abundant element in the earth's crust and can also be found as a by-product of the smelting process for copper, lead, cobalt and gold. Its current primary use is in wood preservatives such as chromated copper arsenate. Arsenic can be used in alloys of brass as well as in the production of solder and ammunition. In the past, its primary uses were as agricultural pesticides in the form of organic and inorganic arsenicals (1). Currently, the primary pathways of human arsenic exposure are through drinking water, diet and occupational processes.

Inorganic arsenic is readily absorbed from the human gastrointestinal tract but is poorly absorbed through skin. In humans, exposure to arsenic is assessed by measuring arsenic levels in blood, urine, and hair. In humans, inorganic arsenic is readily metabolized to organic forms. Until recently, the organic form of arsenic was thought to be a less toxic form of the mineral. However, this idea has recently become controversial with recent data showing exceptions.

Arsenic toxicity in humans is well recognized. Both carcinogenic and non-carcinogenic illnesses have been shown to result from arsenic exposure. The Environmental Protection Agency (EPA) has characterized arsenic as a human carcinogen. Scientific studies have shown that arsenic exposure may increase the risk of skin, bladder, and lung cancer in humans. Other tissues with human carcinogenic potential include liver, kidney, prostate, colon and stomach. Studies in Taiwan have been used to compute maximum contaminant levels (MCLs) in order to determine groundwater standards for arsenic. These studies focus on cancer of the skin, bladder and lung (1).

Non-carcinogenic effects of arsenic in human populations have also been widely studied. Significant non-carcinogenic effects in humans include those of the cardiovascular, gastrointestinal, and neurological systems as well as the skin. A condition known as Blackfoot's Disease, which is characterized by a loss of circulation in the hands and feet, was seen in Taiwan where there were exposures to high arsenic concentrations in drinking water. Hepatic effects, including fibrosis and tenderness of the liver, have been detected after oral exposure to inorganic arsenic. A very common and characteristic effect of inorganic arsenic ingestion is a pattern of skin changes that may include hyperkeratosis and the formation of hyperkeratotic warts or corns on the face, neck, back, hands, and feet. Repeated low-level exposure may result in peripheral neuropathies, which may begin as numbness in the hands and feet and may progress, causing muscle weakness (1).

In North Carolina, the Occupational and Environmental Epidemiology Branch (OEEB) evaluates the risks of arsenic-related diseases from consumption of water by evaluating drinking water sampling data for the concentration of arsenic, as well as the duration of exposure to this drinking water. This is done since both arsenic concentration and duration of exposure contribute to the potential for developing adverse health effects. The sources of arsenic and most other toxic contaminants in drinking water are from man-made sources. When this is the case and historical data is lacking, it is difficult to determine an individual's duration of exposure. In contrast, the concentrations of naturally occurring chemicals may be consistent over time, thus facilitating a more accurate prediction of exposure duration in an individual.

In order to calculate a standard for arsenic in groundwater for protection of private wells, OEEB considered both cancer and non-cancer endpoints as determinants of risk. OEEB used endpoints for skin tumors from the Taiwan studies to calculate a recommended groundwater standard of 0.02 parts per billion (ppb). This standard represents a "one in a million" cancer risk. This is based on the consumption of two liters of water a day over a 70-year lifetime. Using this assumption, an estimated one person out of one million people exposed will develop cancer in his or her lifetime. In comparison, the current EPA MCL of 50 ppb results in a one in 400 lifetime cancer risk (1). In January 2002, the Commission for Health Services set a temporary standard of 10 ppb for arsenic in public drinking water supplies. The Environmental Management Commission is currently considering revising the arsenic groundwater standard to 0.02 ppb.

There are several areas in North Carolina where arsenic occurs naturally in the groundwater, and where contaminated drinking water wells have been identified. In Stanly and Union Counties, over 80% of the drinking water wells sampled for inorganic compounds from June 2000 to Sep-

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*(**Risks from Arsenic in Drinking Water,** continued from page 8)*
tember 2002 have had detectable arsenic contamination. In Dare County, one of the public water system wells had detectable levels of arsenic consistently above 10 ppb. Table 1 lists the extent of arsenic-contamination in private drinking water wells in twelve North Carolina counties from June 2000 to September 2002. Citizens may be drinking arsenic-contaminated water from these systems where the arsenic may be naturally occurring. The duration of these persons' exposures may be 10-20 years or more. Since the latency period for developing cancer following the initial exposure to arsenic is 10-20 years, these persons' exposures may be long enough to induce cancer in a small percentage of these people.

Reference: OEEB White Paper – " Health Risk Assessment of Arsenic in Drinking Water " – September 10, 2001

TABLE 1
Arsenic Detected in Drinking Water Wells in 12 Selected N.C. Counties from June 2002 to September 2002

County	Number of Wells Contaminated (above 1 ppb)
Alamance	4
Chatham	5
Currituck	15
Davidson	7
Gaston	8
Lincoln	37
Moore	6
Orange	150
Randolph	4
Rowan	5
Stanly	57
Union	78

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*(**NCSLPH Awarded CDC Grant,** continued from page 7)*
premature births and 5 stillborn babies resulting from *L. monocytogenes* infection. Numerous ready-to-eat food products have also been recalled in 2002 due to the presence of *L. monocytogenes*. Because of the potentially severe outcome when an immunocompromised individual becomes infected with *L. monocytogenes*, listeriosis is now a reportable illness in North Carolina. The North Carolina State Laboratory of Public Health (NCSLPH) requests that all clinical microbiology laboratories in our state submit *L. monocytogenes* isolates for confirmation and subtyping.

In order to follow outbreaks in North Carolina and nationwide, NCSLPH participates in PulseNet, the National Molecular Subtyping Network for Foodborne Pathogens. The laboratory subtypes foodborne bacterial pathogens using pulsed-field gel electrophoresis (PFGE) and results are communicated electronically with other states and CDC. In October 2002, NCSLPH was awarded a grant via Association of Public Health Laboratories from the CDC to perform applied research to develop a DNA sequencing-based subtyping scheme. This award provides resources for a full-time research position, scientific supplies and travel to a planning meeting at CDC. Public health laboratories in Minnesota and Massachussetts were selected to initiate similar research projects for *Salmonella* and *E. coli* O157:H7, respectively, in the fall of 2001. Better discrimination between strains of *L. monocytogenes*, *Salmonella* and *E. coli* O157:H7 will be the result of novel DNA sequencing-based subtyping methods. The goal of the research is to support the national Food Safety Initiative. Not only will North Carolina's citizens benefit from this improved surveillance tool, but also all participating PulseNet laboratories nationwide when the next generation subtyping system is formally adopted.

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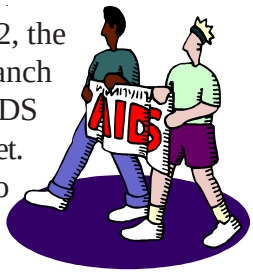
North Carolina World AIDS Day

Prepared by Renita Vega, Public Health Program Consultant and Myra L. Allen, MBA, MHA, Public Health Educator HIV/STD Prevention and Care Branch



On Wednesday, December 11, 2002, the HIV/STD Prevention and Care Branch held its annual Governor's World AIDS Day Volunteer Service Awards Banquet. The purpose of the celebration was to recognize the contributions of individuals and organizations that contribute to the wellbeing of people living with or affected by

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Reported Communicable Diseases, North Carolina, January-December 2002 (by date of report)*

Disease	Year-to-Date (Fourth Quarter)			4th Quarter 2002	Comments / Notes
	2002	2001	Mean (97-2001)		
Brucellosis	**2**	2	2	1	
Campylobacter	**682**	480	516	186	
Chlamydia, laboratory reports	**24738**	22177	21095	6329	
Cryptosporidiosis	**40**	31	-	12	Note 1 & 2
Dengue	**3**	2	2	0	
E. coli O157:H7	**244**	59	97	208	Note 3
Ehrlichiosis, Granulocytic	**1**	0	-	0	Note 1 & 2
Ehrlichiosis, Monocytic	**13**	11	-	6	Note 1 & 2
Encephalitis, California group	**13**	9	-	1	Note 1 & 4
Foodborne, C. perfringens	**1**	0	10	0	
Foodborne, other	**66**	9	31	37	
Foodborne, staphylococcal	**62**	2	20	0	
Gonorrhea	**15361**	16733	18054	3333	
Haemophilus influenzae	**33**	50	31	3	
Hepatitis A	**209**	242	180	27	
Hepatitis B, acute	**228**	221	242	54	
Hepatitis B, chronic	**896**	650	653	186	
Hepatitis C, acute	**29**	22	-	7	Note 1 & 4
HUS-TTP	**2**	2	-	0	Note 1 & 2
HIV/AIDS	**1692**	1609	1552	438	Note 5
Legionellosis	**13**	11	14	4	
Listeriosis	**8**	6	-	3	Note 8
Lyme disease	**137**	41	52	36	
Malaria	**22**	19	28	3	
Meningococcal disease	**34**	63	61	5	
Meningitis, pneumococcal	**39**	51	51	5	
Mumps	**2**	5	9	1	
Q Fever	**2**	0	1	0	
Rabies, animal	**710**	571	604	153	
Rocky Mountain Spotted Fever	**294**	185	104	68	
Salmonellosis	**1595**	1386	1280	553	
Shigellosis	**655**	356	345	377	
Strepto. A, invasive	**122**	147	-	15	Note 1 & 2
Syphilis, total	**616**	941	1287	128	Note 6
Toxoplasmosis, congenital	**1**	0	-	0	Note 1 & 2
Toxic Shock Syndrome	**5**	7	3	2	
Trichinosis	**1**	0	0	0	
Tuberculosis	**434**	397	459	192	
Tularemia	**1**	1	2	0	
Typhoid, acute	**2**	3	3	1	
Vibrio, other	**11**	12	-	4	Note 1 & 7
Vibrio vulnificus	**4**	6	-	2	Note 1 & 2
Vanco. Resistant Enterococci	**531**	559	-	101	Note 1 & 2
Whooping cough	**46**	75		10	

* **Preliminary data, as of 1/14/2003.** Quarters are defined as 13-week periods. Only reportable diseases reported in 2002 are listed in this table. **Notes**: 1. Not reportable in this entire time period; 2. Became reportable 8/1/1998; 3. Became reportable 10/1/1994; 4. Became reportable as such 8/1/1998; previously within other category ("Encephalitis"; "Hepatitis, non A-non B"); 5. Earliest report with HIV infection or AIDS diagnosis; 6. Primary, secondary and early latent syphilis; 7. Became reportable 7/1/1997; 8. Became reportable 7/2001.

*(**N.C. World AIDS Day,** continued from page 9)*

HIV/AIDS. As volunteers, they freely give their time and talent to assist organizations in meeting their HIV prevention and care missions.

World AIDS Day has a special place in the history of the AIDS pandemic. Since 1988, December 1st has been a day bringing messages of compassion, hope, solidarity, and understanding about AIDS to every country in the world. The 2002 theme was to eliminate stigma and discrimination. Unfortunately, twenty years into the pandemic the battles of stigma, discrimination, ignorance, and fear still must be won in order for us to win the war against HIV/AIDS.

John Peebles, Assistant Branch Head, and Pastor Gwendolyn Curry, CEO of Present Day Cares, Inc., were Master and Mistress of Ceremonies respectively. We were privileged to have Representative Bob Etheridge come and offer words of encouragement and appreciation to the attendees. We were also honored to have Robert E. Fullilove, III, Ed.D., Associate Dean for Community and Minority Affairs at the Mailman School of Public Health at Columbia University, serve as the keynote speaker. Dr. Fullilove delivered inspirational and thought-provoking comments related to the HIV/AIDS pandemic and its possible impact on global security if unchecked.

The primary purpose of the event was to honor volunteers in several categories. The categories and winners are as follows: *Youth*—Cindy Flowers, Cullowhee; Resistance Against Pressure, Spring Lake. *Individual*—Brenda Thomas, Kinston; Sonji Pass, Charlotte; Stephen Hutchens, Durham; Louvenia Currence, Gastonia; Gregory Joyce, Fayetteville; Samuel McCormick, Lumberton; Anthony Monds, Lillington. *Organizations*—Person County HIV Task Force, Roxboro; Fayetteville Alumnae Chapter Delta Sigma Theta Sorority, Inc., Fayetteville, NC. *The Marty M. Prairie Award*, a unique award given for innovative and unique intervention strategies and advocacy, was awarded to Ashley Rozier, II, Fayetteville.

In North Carolina, complacency about the need for HIV prevention may be among the strongest barriers that communities face as they plan to meet the next century's prevention needs. The number of people living with HIV infection is growing. This increased prevalence of HIV in the population means that even more prevention efforts are needed, not fewer. For individuals at risk, increased prevalence means that each risk behavior elevates the possibility of infection. The efforts of volunteers such as those recognized at this year's banquet are a major component of ongoing education and prevention efforts.

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Employee Recognition: Employee of the Quarter Portia Reese

Prepared by Patsy P. West, Administrative Assistant
Epidemiology Section

Portia Reese has received the Epidemiology Section's Employee Recognition Award for the winter quarter of 2002. Ms. Reese was nominated in the category of Service Excellence.

Ms. Reese has dedicated 27 years in state government to the service of others. She began her career with the Division of Social Services and later was employed by the Division of Facility Services. In 1999, she joined the HIV/STD Prevention and Care Branch as a PH Program Consultant II in the AIDS Care Unit.

Ms. Reese is a positive role model for her co-workers and everyone who knows her. If a co-worker needs her help, she is always ready to pitch in. Portia has many responsibilities in her PH Program Consultant position such as coordinating services between case management agencies and other care providers, providing technical assistance on Medicaid rules and regulations, conducting trainings and workshops, certifying and re-certifying case management facilities, and locating pediatric services for HIV infected children, just to name a few. HIV/STD Prevention and Care Branch Head, Evelyn Foust said, "Portia is well-known for her commitment to customer service. She actively listens to others and works to find solutions that are viewed by everyone as inclusive and successful."

Even with her heavy workload, Ms. Reese makes time to help others, even outside of work. She is very involved in her church-based community services and other outreach programs.

In addition to receiving the Epidemiology Section's Employee Recognition Award, she will be presented with a gift certificate from the Section Management Team.

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