



October 4, 2009

From: **Stop TB USA\***

\*Formerly the National Coalition for Elimination of Tuberculosis (NCEI)

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***Do you have colleagues, policy makers, friends in the press, or other acquaintances who believe the disease is no longer a problem? Share the following reports with them.***

***Most of these TB-related reports (below) from numerous U.S. and Canada were taken from the Centers for Disease Control's TB-Related News and Journal Items Weekly Update and they all occurred in just the past 3 months (July – September, 2009). These are not all the TB reports and articles - just those that were identified. Many of these reports describe problems that present significant challenges for health departments.***

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**PENNSYLVANIA: Crawford County jail to test inmates for tuberculosis:** Meadville Tribune; September 24, 2009; Keith Gushard.

SAEGERTOWN — The Crawford County jail will test inmates for tuberculosis. The Crawford County Prison Board voted Thursday to begin testing inmates at the county jail for the communicable disease. TB is caused by a bacterium called mycobacterium tuberculosis, according to the Centers for Disease Control. The bacteria usually attack the lungs, but can attack any part of the body such as kidneys, spine and brain. If not treated properly, TB can be fatal, according to the CDC. Before the development of a vaccination, TB was a leading cause of death in the U.S. Pennsylvania doesn't mandate jails to test inmates for tuberculosis or TB, but some county jails do test for TB. Crawford County had not. Earlier this year, Dr. Henry DeKruif, a retired physician who has 50 years experience working with TB patients in Pennsylvania, and John LeGuard, a retired state nurse, asked the board to test inmates coming into the jail. They were concerned because the disease is highly communicable and could spread quickly among an enclosed population of inmates and staff. LeGuard had proposed the program to the jail after he had considered working there part-time and learned there was no testing program. The prison board had Warden Tim Lewis gather information on testing. Lewis Thursday recommended that the prison board test inmates for the disease since other jails in the region were testing as well. The testing kits cost \$34.19 for 10 tests, Lewis said. The prison is estimating it will cost approximately \$4,900 per year to test inmates.

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**NORTH CAROLINA: EIGHT test positive for TB;** The Robesonian; Sara Hottman.

LUMBERTON — Seven students and one teacher have tested positive for the tuberculosis bacteria since the Health Department began testing Lumberton High School ninth-graders and teachers last week, Health Director Bill Smith told the Board of Health on Thursday at its regular meeting. But Smith seemed confident that the situation is contained. "We're on top it," Smith told a reporter this morning. "... I would not say that is an alarming number of positive tests. None of them have active TB." A positive test does not mean that a person is ill, just that the patient will require a chest X-ray and possibly preventative medications, Smith said. Once a person is exposed to the respiratory disease, that person will always test positive in tuberculosis skin tests because their bodies have developed antibodies to the bacteria. Health Board members questioned why just 200 people were viewed as a "core group," which included people who came in direct contact with the infected ninth-grader in home room, four classes, or on the school bus. "We're talking about less than two weeks of school," Smith said. He added later that the student was not involved in any extracurricular or church activities, significantly narrowing the number of potentially infected people. "We cast the net farther than normal," Smith said. "Typically we would have stopped at the core group, but because this is a school, we went out much father just to allay their fears." In cases where personal contact is minimal, standard procedure is to conduct skin tests on people with symptoms and who had direct contact with the patient, but because of the school setting — a confined population with more co-mingling and a shared air filtration system — the Health Department went beyond traditional measures and made testing available for the entire ninth-grade wing of the building, Smith said. "It's like throwing a pebble in a pond," Smith said Friday morning. "You just look at the first two rings. If you go farther than that you might be picking up other cases." He told the Health Board that places like homeless shelters, where there is a concentrated number of unhealthy people and a single air system, are usually where tuberculosis outbreaks occur. School nurses were specially trained so they could read

the tests within the 72-hour time frame. Approximately 150 people in the "core group" have been tested so far; 132 students and teachers have tested negative. Of the estimated 200 people who needed testing, Smith said six students could not get parental consent; 15 students were absent from school and so they were not tested; 30 skin tests have been administered but not read; and five students were retested because they were not at school to have the test read. "We had some follow-up tests with the core group that had been tested because there is a very specific 48- to 72-hour time line to read the results," Smith told board members. "If they missed Monday, we have to do the test all over again." He added that the six students whose parents would not allow the skin test "will be home Monday trying to get consent." The Health Department, state Department of Health and Human Services, and the school held an information meeting at Lumberton High School on Sept. 16, and "school people and our people outnumbered the public three-to-one," Smith said. Principal Stephen Gaskins emphasized this morning that the eight who tested positive don't have the disease. "Our students, our parents and our staff have handled the situations very well we will continue to give any information we have," he said. "And the Health Department is working closely with us." Tuberculosis skin tests will be available to ninth-graders outside the core group today at the high school. Letters were sent out Tuesday to give parents notice, as students opting for the skin test will need parental consent. Letters were also sent to 10th-, 11th- and 12th-graders notifying them that the Health Department will be open Saturday from 9 a.m. to 3 p.m. to administer tuberculosis skin tests at no cost. Smith rehashed the Health Department's response time line for the Health Board, beginning with Sept. 10, when sputum smears — the diagnostic TB test — came back "as active as you can get" for a Lumberton High School student. The child will not return to school until the infection is gone. "We learned the patient had come in contact with someone who had TB a year ago," Smith said. "The patient spent every weekend with the kid." Tuberculosis is an infectious disease that can remain latent in the body for years after exposure; it is spread through coughing, sneezing, or speaking. When the disease becomes active, it usually attacks the lungs. Symptoms include coughing lasting over three weeks, coughing up blood, fever, profuse night sweats, decreased appetite, chest pains and difficulty breathing. In the United States, there are about 25,000 cases of tuberculosis annually. Smith said Robeson County reported 20 cases last year and 12 this year — the fourth-highest rate in the state. The Health Department met with school representatives on Sept. 11, and by Sept. 14, letters had been sent to the "core group" of students. That is when the situation grew complicated, Smith said. "Anybody over 12 years old doesn't need parental permission to test for a communicable disease, but it's a different situation on school grounds," Smith said. He said consent paper work had to be correctly completed, which in some cases took several tries, and in six cases, parents did not give consent. The Health Department will be open Saturday from 9 a.m. to 3 p.m. for 10th-, 11th- and 12th-graders who would like free tests.

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**MICHIGAN: Nurse on the lookout for disease;** Andy FitzPatrick; The Enquirer; September 21, 2009.

If you've ever gone to Battle Creek Health System with an infectious disease of some kind, chances are Jill Cieslak was keeping track of you. That's because the nurse of 19 years has been an infection preventionist at the hospital for the past seven years, and her job is to protect staff, patients and the community from all kinds of infections.... "We kind of monitor all that to see what's going on in the community, what's going on in the state, and what the (Centers for Disease Control's) recommendations are.... We did have a TB outbreak here in Calhoun County about five or six years ago, and we did see a number of patients. That's a huge amount of work when you have an exposure, because then you have to get your circle of exposure, then you have to get all the people who were exposed and get them tested for TB, and follow up on that. It was very labor-intensive. It is a lot of work.... We work very closely with Calhoun County public health and our employee health; our occupational medicine. So it was kind of a coordinated effort to do all that."

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**PENNSYLVANIA: Former patient recalls experiences at TB center;** Kathy Mellott; The Tribune-Democrat.

CRESSON — Charles Felton contracted tuberculosis as a 17-year-old in his hometown of Towanda in Bradford County. That led to 16 months of treatment at Cresson Sanitorium — the "San" — a health-care community hidden in the trees on the Cresson mountaintop. The Cresson Sanitorium opened in 1913 as one of three state-sponsored sanitoriums developed to battle TB, a disease that was killing one in seven adults. The San was close in 1964 and long forgotten by local residents. The San is now gaining renewed attention thanks to a Web site launched by Felton to draw together those who had suffered from

tuberculosis or who had worked at the Cresson facility to share their experiences. "It was just going to be sort of a personal Web site," Felton, a retired aerospace engineer, said from his home in Lakehills, Texas. "But then I started getting phone calls and e-mails from patients and people who worked there." ... Through the years, the San provided short- and long-term care for thousands of TB patients. Records show that in 1948 alone, the San treated more than 600 patients. Much of the treatment involved drug therapy, rest, fresh air and sunshine. But doctors at the San also conducted hundreds of surgeries. Once one of the two largest TB facilities in the nation, the San also was the site of experimental drugs and procedures.

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**CANADA: Analysis Of TB Treatment Studies Identifies Gaps In Guidelines; RED ORBIT: Tuesday, 15 September 2009.**

International guidelines for treating tuberculosis are due for specific improvements, according to two research papers published this week in the open access journal PLoS Medicine. Public health programs in many countries adhere to World Health Organization (WHO) guidelines as the authoritative recommendations for treating tuberculosis (TB). But do these guidelines reflect the best available evidence? To answer this question, Dick Menzies of McGill University in Montreal and colleagues reviewed all available results from trials of currently recommended treatment regimens, first for initial treatment of TB, and then for individuals who had been previously treated without being cured, or had infections that were resistant to isoniazid, one of the main first-line anti-TB drugs. In the first study, the researchers identified and analyzed 57 randomized, controlled clinical trials including more than 20,000 participants treated for TB. They found that regimens utilizing the drug rifampin for only the first 2 months, which have been recommended in 24 countries with high rates of TB infection, had significantly higher rates of failure, relapse, and acquired drug resistance compared with regimens that used rifampin for at least 6 months. The second study analyzed trials of TB treatment in previously treated individuals, or those with isoniazid-resistant infection. The researchers found no randomized trials comparing the currently recommended WHO retreatment regimen against other approaches. In non-comparative (cohort) studies, failure rates were generally low if participants were infected with strains that were sensitive to all antibiotics in the regimen. However, in studies in which participants were infected with a strain of Mycobacterium tuberculosis resistant to one or more drugs, failure rates ranged from 9% to 45%. The researchers also analyzed the combined results of 33 trials that investigated the effect of various regimens on almost 2,000 patients (some receiving their first treatment for TB, others being retreated) with resistance to isoniazid alone. This meta-analysis found lower relapse, failure and acquired drug resistance rates to be associated with longer duration of rifampin treatment, daily therapy early in treatment, inclusion of the drug streptomycin, and regimens that included a greater number of drugs to which the patient's TB infection was sensitive. Taken together, these findings will inform upcoming revisions of the WHO TB treatment guidelines, and identify an important need for clinical trials to evaluate dosing schedules, detection and management of isoniazid resistance, and the optimal duration of treatment to prevent relapse, as well as more effective approaches to retreatment of tuberculosis.

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**USA: Global Health Partners Gather in New York to Honor the Global Fund; Stop TB Partnership, September 22, 2009.**

The Stop TB Partnership, the Roll Back Malaria Partnership (RBM), the Joint United Nations Program on HIV/AIDS, and UNITAID recently hosted a reception to celebrate the millions of lives saved by the work of the Global Fund to Fight AIDS, TB and Malaria. The reception was attended by high-level government representatives from many countries, and heads of UN Agencies. Present were Dr. Lee Reichman, representing Stop TB on behalf of Executive Secretary Dr. Marcos Espinal; Executive Director Dr. Awa Marie Coll-Seck; Executive Director Dr. Michel Sidibe; and Executive Secretary Dr. Jorge Bermudez, represented RBM, UNAIDS, and UNITAID respectively. Dr. Michel Kazatchkine, Executive Director of the Global Fund; Dr. Jorge Sampaio, UN Secretary-General's Special Envoy to Stop TB; and Ray Chambers, UN Secretary-General's Special Envoy for Malaria were also in attendance.

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**NORTH CAROLINA: CDC Revises TB Screening Policy Affecting Internationally Adopted Children; Examiner.com, September 20, 2009, by Cathy Doheny, International Adoption Examiner.**

According to the Joint Council on International Children's Services (JCICS), the Centers for Disease Control and Prevention (CDC) has provided an addendum to the 2007 Technical Instructions for TB Screening and Treatment for Panel Physicians. This TB screening policy, which was being implemented on a country-by-country basis, became effective in Ethiopia on April 1, 2009, and China July 1, 2009. After the policy came into effect, there were media reports of the difficulties faced by families who were adopting children from these countries. The screening instructions were meant to reduce the number of immigrants with TB entering the United States, but it seemed to discriminate against internationally adopted children, as the policy did not apply to children born abroad to US citizens. It was also argued that children diagnosed with TB are rarely contagious. A number of organizations joined with the JCICS to petition CDC to change its stance. As a result, CDC provided an addendum allowing children aged 10 years and younger requiring sputum culture to travel immediately to the United States, while the results of the cultures are still pending.

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**NEW YORK: New Compounds May Destroy TB's Defense Mechanism; Reuters, September 16, 2009, Julie Steenhuisen.**

A research team headed by Carl Nathan of Weill Cornell Medical College, New York, found two compounds that can destroy a defense mechanism in the TB bacterium that allows it to remain dormant in infected cells. *Mycobacterium tuberculosis* (Mtb) is the only known bacterium to have a proteasome, a mechanism that destroys unneeded or damaged proteins. Some people who are infected with TB remain symptom free as the disease is kept in check by the immune system. Scientists believe that the immune system cells produce compounds that damage or destroy Mtb's proteins. If allowed to accumulate the damaged proteins would kill the bacterium, but the proteasome removes them. According to Nathan, finding drugs to disable the proteasome and destroy dormant bacteria provides a new way to fight TB. Of 20,000 compounds studied by the researchers, two were found that block the self-defense mechanism without harming human cells. The study, "Inhibitors Selective for Mycobacterial versus Human Proteasomes," was published online in the journal *Nature*, September 16, 2009.

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**CALIFORNIA: Released Inmates Pose Health Risk; Daily Democrat (Woodland); September 8, 2009.**

If tens of thousands of inmates are released from state prison over the next two years, they'll bring their HIV, hepatitis C and tuberculosis infections with them back to their communities. The state prison system's health care delivery is so bad, it was deemed unconstitutional by federal judges, who could find no other fix than to order the reduction of the prison population. But because of cuts to already-slim services for ex-cons, there's no guarantee.

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**SOUTH CAROLINA: 160 at Greenville High Tested for TB; Greenville News, September 4, 2009, by Liv Osby.**

Health officials said September 3 that TB tests have been administered to about 160 people at Greenville High School, who were exposed to a person there with an active case of the disease between January and May of 2009. Because a person with active TB disease can transmit the disease before he or she decides to seek care, the Department of Health and Environmental Control's investigation covered a three-month period before the patient's symptoms appeared. Principal J.F. Dalton Lucas Jr. sent a letter to all parents to inform them of the situation. A separate letter from DHEC was sent to those persons whose repeated, close contacts with the patient put them at risk of infection. The letters did not disclose whether the patient is a student or a member of the staff.

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**MASSACHUSETTS: Mini-Magnet Test Makes Things Sticky for TB; New Scientist, August 7, 2009.**

TB can now be diagnosed in just 30 minutes, using magnetic nanoparticles that identify *Mycobacterium tuberculosis* in sputum, even at low concentrations. TB is usually diagnosed by spotting the bacteria in sputum under a microscope and then sending the suspected samples away for confirmation. The process involves growing larger visible colonies of the bacteria, which can take up to two weeks. This delays treatment and risks the continued spread of the disease. The new test, which was developed by

Ralph Weissleder of Harvard Medical School, only takes one half hour. In this new test, the sputum is added to a solution containing nanoparticles with an iron core encased in iron oxide. Each nanoparticle is loaded with antibodies that encourage any TB-causing bacteria in the sputum to bind to it. The solution is fed through a lab-on-a-chip that blocks and concentrates the nanoparticles that have bacteria attached to them, but allows the other nanoparticles through. A small magnetic scanner encircling the chip then registers the presence of bacteria-laden nanoparticles.

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**TENNESSEE: Mini Epidemic of Isoniazid Resistant TB in Rural Tennessee: A Need for Supervised Preventive Therapy;** Mehta, J., et al. Tennessee Medicine; 2009 Aug.

With the resurgence of TB in the late 1980s, multidrug-resistant TB (MDR TB) also became a serious challenge to the TB control programs across the United States (US). While the incidence of TB resumed a downward trend in the mid 1900s, drug-resistant TB continues to be a national and international problem. The researchers reviewed the public health data of drug-resistant TB cases (1996-2002) in Greene County, TN, with a detailed analysis of their contact investigation. Our study included demographic data of age, sex, race, HIV status and other known risk factors for drug-resistant TB. Contact investigation of two patients with isoniazid-resistant active pulmonary TB led to the discovery of two additional cases of active pulmonary TB, one of them being a 14-month-old child. All four of the patients were US-born, had negative HIV tests, and lacked other risk factors for drug-resistant TB. In all four cases, the *Mycobacterium tuberculosis* isolates were resistant to isoniazid, three were streptomycin resistant, and was ethambutol resistant. A total of 65 close contacts were identified, 11 of whom had a positive tuberculin skin test indicating latent TB infection. Based on the American Thoracic Society's recommendations, the contacts with a positive test were prescribed rifampin for chemo-prevention rather than INH. However, one active case was detected from this infected contact who had failed to comply with chemo-preventive therapy. The second active case was a child who developed active pulmonary TB before chemoprevention could be initiated. Drug culture profile and DNA analysis (RFLP) confirmed the same source for TB transmission. The 11/65 (16.5 percent) infection rate among the contacts was comparable to the state average ( $p < 0.05$ ), but the case rate of 4/65 (6.15 percent) was high. In two out of four active cases, who were family members of the known cases, active infection could have been prevented. High prevalence of drug-resistant TB in rural areas without any known risk factors and failure of prevention are crucial findings of our study. Clinicians practicing in a rural setting should be aware of occasional mini-outbreaks of drug-resistant TB. Supervised therapy for rifampin chemo-prophylaxis and other standard public health measures successfully controlled this mini-epidemic. Awareness of drug resistance in family clusters and an urgent need for prompt chemo-preventive measures are important in implementing successful TB control programs.

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**TEXAS: County cuts public-health funding: Reduced funding offsets 'unexpected expenses;** By Erica Molina Johnson; El Paso Times; 09/26/2009.

EL PASO -- The county government drastically cut its public-health funding Friday in an attempt to balance its budget, and in doing so cut services residents have received for a long time. The County Commissioners Court unanimously decided during a special budget hearing to only pay \$600,000 for four services from the city's Department of Public Health. The court fully funded food and restaurant inspection services for \$14,590, and the Women, Infants and Children nutrition program, also known as WIC, for \$404,128. It funded vector control for \$130,000, nearly \$16,000 less than was requested. It gave animal services \$51,282, more than \$690,000 less than was requested. Other programs received no county money, including sexually transmitted disease clinics, dental clinics, immunizations, epidemiology, tuberculosis outreach, bio-terrorism prevention and a child injury protection program. "All the programs are vital in my area, and I was hoping we could keep as much as we could," Commissioner Willie Gandara said. "You never want to cut them, but we're living in tough times. We kept the services we thought were probably most vital to our constituents."

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**TENNESSEE: Misuse of Antibiotic Creating Resistant TB;** Voice of America News, August 25, 2009, by Steve Baragona.

A new study reveals that misuse of a class of antibiotic drugs called fluoroquinolones is creating drug-resistant strains of TB, a bacterial respiratory disease that the World Health Organization (WHO) says kills two million persons worldwide each year. The finding quells hopes that the drug could be used more widely to treat TB. Although TB is curable, treatment necessitates at least six months of continuous

therapy, using several drugs simultaneously. Researchers have been optimistic that fluoroquinolones could help change that. However, Rose Devasia, an infectious disease researcher at Vanderbilt University, says the effectiveness of these safe, easy-to-take drugs has led to the widespread overprescribing for a host of illnesses, sometimes even before it is known what kind of infection is being treated. This can cause problems when patients actually have tuberculosis, says Devasia. "Say they go to an emergency room and they have a cough. The physician thinks, 'Oh, it's probably pneumonia. I'm going to give him a fluoroquinolone.' The fluoroquinolone partially [treats] the TB. He feels good for about 10, 12, 13 days, but then the cough comes back," Devasia says. She further states that the patient goes to another physician, or he goes back to another emergency room and says that he has this cough. He gets another course of fluoroquinolones. According to Devasia, each time a patient with undiagnosed TB is treated with fluoroquinolones for the wrong disease, it increases the risk that he will develop fluoroquinolone-resistant TB. In a study published in the American Journal of Respiratory and Critical Care Medicine, Devasia and colleagues discovered that nearly one in five TB patients had received fluoroquinolones in the year before they were diagnosed with TB. The typical course of fluoroquinolone usage is approximately ten days. For every additional ten days that a patient takes this medication, the odds of developing fluoroquinolone-resistant TB increased by 50 percent. In many developing-world pharmacies, fluoroquinolones are easily available without a prescription, under names such as Cipro and Levaquin, and they are used to treat everything from pneumonia to diarrhea. Devasia states that the results of her study make her hesitant to support using fluoroquinolones as the first choice against TB. Devasia prefers to save them for cases when the usual first-line drugs have failed. Neel Ghandi, Assistant Professor, Albert Einstein College of Medicine, states "To some degree, to me the message from this article is that we need to reconsider how we use fluoroquinolones generally." He further states, "The fluoroquinolones are our next hope in terms of really modifying TB care. And when you see resistance emerge the way it has in this article, I think it is a good reason to pause and say, 'Perhaps we need to re-evaluate how we're using these medications.'"

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**NEBRASKA: TB Problem in Several States;** Farm Progress, Wallaces Farmer, August 28, 2009.

After ten weeks of testing, the Nebraska Department of Agriculture reported that all tests for bovine tuberculosis have been negative. Between June 15 and August 16, the department tested approximately 10,100 head of cattle. Twenty-two herds in 12 Nebraska counties remain quarantined. The public information officer for the Nebraska Department of Agriculture, Christian Kamm, stated that over 15,000 head of cattle will be tested by the end of the program in early November 2009. The investigation began in early June when a cow from a Rock county (Nebraska) beef herd tested positive for bovine TB. A second cow from that herd later also tested positive for the disease. The epidemiological investigation involved locating cattle that may have been pastured next to the infected herd during the past couple of years, as well as tracing cattle movement into and out of the herd during that time frame. Other states have been investigating bovine TB, and they include California, Minnesota, Michigan, and New Mexico. These states have all identified cattle with the disease. Bovine TB is considered to be untreatable in cattle, so both infected and uninfected animals in a herd usually are killed when bovine TB is found. This has created costly problems for the cattle industry in states where the disease has emerged. However, it appears to be a manageable threat. Cattlemen say it is more of a nuisance.

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**ALABAMA: UAB Study Uncovers How Tuberculosis Agent Survives on Fatty Acids;**

Insciences.organsiation, August 31, 2009

Researchers at the University of Alabama at Birmingham (UAB) have discovered a key mechanism behind the survival instinct of TB. The researchers studied how *Mycobacterium tuberculosis* (Mtb), the causative agent of TB, survives on fatty acids and regulates its metabolism to persist in humans for extended time periods. Understanding Mtb persistence makes it possible to find new drugs and better vaccines to fight TB's drug-resistant latent state, the researchers said. Mtb latency is a global problem that eludes detection and treatment, and contributes to overall TB illness and death. The UAB study discovered a regulatory protein called WhiB3 that allows Mtb to subsist on fatty acids and adjust its metabolism to cope with stresses during infection. The findings are published in PLoS Pathogens, a journal of the nonprofit Public Library of Science. The lead author of the study, Adrie J.C. Steyn, Ph.D., Assistant Professor, Department of Microbiology, UAB, stated, "We identified the master regulatory protein of virulence lipid production: WhiB3." The researchers worked with Mtb cells under biosafe laboratory conditions and found that WhiB3 regulation of lipids helped keep the body's immune system in check.

The UAB team also developed a radio-labeling technique that revealed lipid changes of Mtb while growing in cultured host cells. The findings illuminated how pathogens modify their physiology to adapt to stresses during the course of infection.

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**GEORGIA: Wal-Mart Employee Tests Positive for TB;** Atlanta Journal-Constitution, August 14, 2009, by Katie Leslie.

The news that an employee of the Riverdale, Georgia, Wal-Mart has a confirmed case of TB prompted the screening of 60 to 70 other store workers, health officials said on August 13. The Clayton County Health Department learned of the initial case during the first week of August, said spokesperson Veronda Griffin. A spokesperson for Wal-Mart declined to comment on the condition of the employee with confirmed TB.

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**CANADA: P.E.I. Records 1<sup>st</sup> TB Case in 4 Years;** CBC News, August 19, 2009.

A woman diagnosed with active TB disease this summer was the first person with TB on Prince Edward Island, Canada, in four years. The patient was treated with four different antibiotics and is no longer contagious. To prevent the spread of the disease, 187 contacts were tested, and skin tests showed that fewer than 10 people had been exposed to TB; chest X-rays of those individuals were negative. Dr. Lamont Sweet, Deputy Chief Health Officer of the province, suspects that the patient had contracted the disease many years ago and it developed into an active case recently. He also believed that those who tested positive had been exposed to the bacteria years ago, or that they had received the vaccine. Prince Edward Island has the lowest rate of TB in Canada.

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**MASSACHUSETTS: Draper Device Detects Tuberculosis via Breathalyzer;** Mass High Tech, August 14, 2009, by Julie M. Donnelly.

Researchers at the Charles Stark Draper Laboratory, Inc., Cambridge, Massachusetts, are working on a handheld device for diagnosing TB. According to Jose Trevejo, a principal scientist at the laboratory, the device would detect the "smell" of the gases (metabolites) from the sputum of the patient. A dime-sized sensor would indicate whether the smell was that of TB. In the preliminary version, the patient coughs up phlegm for testing and the test takes ten minutes; however, Trevejo is aiming for a final product that would function like a breathalyzer test for TB, requiring the patient to simply exhale. At the final stage the device is projected to cost about \$1,000 to \$2,000, and the cost to test each sample about \$1.00. The current test costs \$30 for each sample. According to Trevejo, and Carole Mitnick, Assistant Professor of Social Medicine at Harvard Medical School, the challenge would be for the device to determine if the disease is a drug-resistant strain of TB, so that the patient would be treated with the correct antituberculosis drugs from the beginning.

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**KANSAS: KDHE Commends K-State On Effective TB Control Plan;** KAKE Channel 10: Thursday, July 30, 2009

A recent case of tuberculosis (TB) in a student at Kansas State University – and the university's rapid and effective response to the case – demonstrates the need for TB control plans and screening to be required at every university and college in Kansas. KSU has an effective TB control plan. The successful execution of this plan resulted in the rapid identification of the case, and is likely instrumental in preventing further TB cases from occurring. KDHE, KSU and local health department officials are now working together to identify persons who might have had close contact with the student, and are following up with those individuals. Senate Bill 62 (SB 62) was proposed by Senator Vickie Schmidt and supported by the Kansas Department of Health and Environment (KDHE) during the most recent legislative session. The bill would require colleges and universities to develop and implement tuberculosis control plans and screening programs. The plans will include a system for evaluating students at greatest risk of having TB prior to entering the classroom. KDHE would have the responsibility for ongoing monitoring of compliance with the plans, and advising institutions on developing them. Although many higher learning institutions already have these efforts in place, making them mandatory could prevent many more cases of TB, while saving costs on treatment, lost wages and tuition. TB is an infectious disease that is spread when a person with active TB disease coughs or sneezes. Extended close contact in a closed environment is the key to transmission of the disease, which occurs when a person inhales expelled particles into their lungs.

TB can lie dormant indefinitely before symptoms become apparent. It is estimated that up to 10 percent of people infected with TB will actually develop the disease. Individuals with TB who are being properly treated can and usually do carry on normal lives during treatment. While TB rates in Kansas and the United States are very low, TB is still a significant public health challenge. In 2008, there were 57 active TB cases reported in Kansas. With the right tools at its disposal, public health and higher education institutions can more successfully confront the challenge of TB.

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**NORTH CAROLINA: Officials Report 42 TB Cases at NC County Jail;** RockyMount Telegram.com, August 11, 2009

**Brunswick County health officials have reported that 42 individuals tested positive for TB infection at a jail in southeastern North Carolina. Since an outbreak began last month, 650 current and former inmates and workers have been tested. Don Yousey, Health Director, said that two individuals were diagnosed with active TB disease, and another is being examined to determine whether he has the disease.**

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**USA: Clinton Foundation Teams Up with Pfizer and Matrix to Reduce Cost of HIV and TB Drugs;** Stop TB Partnership, August 6, 2009.

Developing countries will be receiving cheaper second-line antiretroviral drugs and the TB drug rifabutin, as the result of an agreement by Pfizer Pharmaceutical Company, Matrix Laboratories, Ltd., and the William J. Clinton Foundation. Pfizer will charge \$1.00 per dose or \$90.00 for the full course of treatment over six months for the TB drug rifabutin in 10 countries. Rifabutin is the best TB drug for people being treated with protease inhibitor second-line ARVs, as it does not interfere with protease inhibitors.

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**NEW YORK CITY: TB Rules Affect Adoptions;** The Wall Street Journal, August 10, 2009.

In 2007, the Centers for Disease Control and Prevention (CDC) issued new TB testing and treatment rules for immigrants older than two years of age entering the United States. As of 2009, immigrants from China and Ethiopia are also subject to the new protocols. Persons adopting children from these two countries and advocates of international adoption have taken issue with the policy. They contend that there is a very low risk of these children transmitting TB, and that the children would receive very good health care in the United States. Also, it is argued that some children adopted by Americans could die in their home countries for lack of medical care. Petitions are being circulated asking the CDC to exempt adopted children from the requirements.

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**New York City: Latent Tuberculosis and Active Tuberculosis Disease Rates among the Homeless:** Emerging Infectious Diseases. 2009 Jul; McAdam, et al.

The researchers conducted a retrospective study to examine trends in latent TB infection (LTBI) and TB disease rates among homeless persons in shelters in New York, NY, 1992-2006. Although TB case rates fell from 1,502/100,000 population to 0, a 31% LTBI rate in 2006 shows the value of identifying and treating TB in homeless persons.

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**MISSISSIPPI: HIV, TB Prompt Hinds Jail Upgrades;** Clarion Ledger (Jackson), July 23, 2009, Heather Civil.

In a letter sent to Hinds County Sheriff Malcolm McMillin, the Mississippi Department of Health outlined upgrades needed at the county jail to lower infection risk and improve health screenings. Following positive TB diagnoses in two inmates at the jail, the Health Department in June screened some 800 inmates. So far, 41 inmates and one jail staffer have tested positive for latent TB. Six inmates were discovered to have HIV, which had gone undetected by staff. Currently, the jail has 11 medical officers. Staff screen inmates within 14 days of incarceration, a delay that increases the chance of disease transmission. Maj. Ruth Wyatt, health services administrator at the jail, said the county plans to hire five nurses to screen inmates upon booking. Screenings consist of a medical questionnaire and general health check. According to the Health Department's letter, "All inmates confined to the facility should be tested [monthly] for TB, HIV, and syphilis as required by law." The jail does not perform blood tests, and McMillin said it is unlikely the county can afford to administer them to every inmate. However, the jail will

soon begin TB skin-testing, which can reveal latent cases. The Health Department is also asking the jail to install ultraviolet germicidal irradiation lights in all air handling units to reduce TB transmission, as well as to construct two new negative pressure rooms to quarantine inmates with active TB disease. Paying for these upgrades could prove challenging for the county, which had to borrow roughly \$1.5 million from its 911 fund to meet July payroll. "We may be able to use bond funds to address it from the [construction] side," said county Board of Supervisors President George Smith. "But we've got to find the money in operations for hiring staff."

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**TEXAS: Higher Drug Doses Needed to Fight TB, Says Researchers;** Medindia, August 2, 2009.

According to researchers at the University of Texas Southwestern Medical Center, Dallas, the traditional dose of TB medication is too low, based on the size of patients today. Dr. Gumbo, Associate Professor of Internal Medicine at Southwestern Medical Center and lead author of the study, noted that the dose being used was appropriate for people weighing 105 to 110 pounds. The researchers developed a new model using cultured cells to determine the effectiveness and proper dosage of antituberculosis drugs. With this model, researchers can directly test molecules that have potential to shorten therapy, and they can calculate the dose to use in patients. A test of pyrazinamide indicated that the concentration of the drug declined at a rate matching that seen in patients. Based on findings, the researchers concluded that doses traditionally given to TB patients are much too low. The researchers suggest that different doses may be needed in different countries. The study is published in *Antimicrobial Agents and Chemotherapy*, August 2009:53(8) 3197-3204.

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**ALABAMA: No Need for Alarm on TB Tests;** The Huntsville Times, August 4, 2009, David Brewer.

According to the Alabama Department of Public Health, more than 30 of the 60 poultry workers recently tested for TB were found to be positive for latent TB infection (LTBI). The tests were conducted after the company was notified that a worker had been diagnosed with active TB disease. Pam Barrett, Director of the Health Department's Division of TB Control, said there was no need for alarm. Health officials conducted an environmental assessment of the plant and administered the skin tests to 60 persons whom it had determined worked in the same area as the index patient. The 31 persons testing positive for LTBI will receive additional tests, including chest X-rays and blood tests. Mike D'Addieco, spokesperson for the company, said that the company offered TB skin tests to all plant employees, and 450 individuals had volunteered to be tested.

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**CANADA: Tuberculosis Cases on the Decline in Saskatchewan;** Leader Post, July 29, 2009, Anne Kyle.

Dr. Vern Hoepfner, Clinical Director of the TB control program in Saskatchewan, Canada, commented that the province is doing well in its fight against TB. Hoepfner noted that the province has a very aggressive screening and preventive treatment program. New cases are identified and treated early; contact tracing is done; and the province has high rates of treatment completion and low rates of acquired drug resistance. There is a steady decline in the number of TB patients. Saskatchewan reported an average of 177 cases a year for the years 1986 to 1990, and also reported an average of 154 cases a year for the years 1990 to 1995. There has only been an average of 95 cases per year for the last three years. Hoepfner also stated that the number of drug-resistant cases has been waning. Saskatchewan had a total of 36 drug-resistant cases in the years 1986-1990, but had only six drug-resistant cases in 2008. He credits the introduction of DOT for the decrease in drug-resistant TB patients, as the province was able to provide DOT for all patients who tested positive for TB since

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**CANADA: Labrador TB Cases on Rise (Canada);** CBC News, July 27, 2009.

TB cases have increased in Labrador in 2009; there are 14 confirmed cases compared to one-half of that number during the last outbreak in 2006. Dr. Muna ar-Rushdi, Medical Officer of Health for the Labrador-Grenfell Health Authority, commented that most of the TB patients live on the north coast. She stated that to stop the spread of TB, all contacts of the 14 patients must be tested. She said it is difficult to determine exactly how many people have been affected, as people can be infected without showing signs of illness.

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**MISSISSIPPI: More Than 60 Hinds Prisoners Infected with Tuberculosis; WJTV, July 20, 2009, Ross Adama.**

When three inmates at Hinds County Detention Center were recently diagnosed with TB, the state health department examined all the inmates and found 66 persons who tested positive for infection with the disease. State health professionals believe that 41 inmates were already infected with TB before being imprisoned. Sherriff Malcolm McMillin urged county supervisors to approve funds to hire five new nurses to monitor the inmates. The mother of one of the inmates expressed her concern and wondered why the public had not been informed about the situation, and whether her son and the others were at risk.

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**ILLINOIS: Health Department Launches TB Web Site; Lake County News-Sun, July 22, 2009.**

The health department in Lake County, Illinois, has launched a web site providing TB resources for residents of the county and the business community. The site provides information on high-risk groups, screening services, and links to TB information and resources by the Centers for Disease Control and Prevention (CDC). A compact disc containing the same information is available for employers and schools. The health department also encourages members of high-risk groups or persons who have contact with high-risk groups to be screened for TB.

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**CALIFORNIA: Phone Gadget to Diagnose Disease; BBC News, July 22, 2009.**

Researchers led by David Breslauer of the University of California, Berkeley, have developed a device that functions as a portable microscope when attached to a mobile phone. The device, called a CellScope, works as a fluorescence microscope and can identify markers of disease. The researchers used a standard mobile phone handset, with a 3.2 megapixel camera. The microscope attachment, which includes a holder for tissue or fluid samples on glass slides, clips to the camera and uses the built-in camera to process the images. It uses cheap commercial light-emitting diodes as the light source -- in place of the high-power, gas-filled lamps used in the laboratory device -- and cheap optical filters to isolate the light coming from the fluorescent tags. Using the device, the team was able to identify TB bacteria in a sample. Breslauer said that the use of the mobile phone also gives access to the computational power of the phone and the mobile communications aspect. It is suggested that this device would be useful in the developing world and rural areas that are distant from hospitals, power, and laboratories, but where mobile infrastructure is well-established. The team is in the process of making a more robust, "field-ready" version for field testing and clinical trials. The research is published in the July 22, 2009 issue of the online journal *PLoS One*.

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**NORTH CAROLINA: 33 TB Cases Logged at Brunswick County Jail; Sun News (Myrtle Beach), July 3, 2009, by Steve Jones.**

A Brunswick County jail inmate has been diagnosed with TB and transferred to a medically secure cell in Raleigh, North Carolina, said officials. Since that case was discovered June 29, screening of 465 inmates and jail personnel has revealed 33 with positive tests. Don Yousey, County Health Director, said those patients have been isolated, and further testing is being conducted. Two of the positive cases are staff, although one of them did not have any contact with prisoners, he noted. Health and jail officials are assessing the situation to determine if transmission was contained to one area of the jail or was more widespread. "We're focusing on the immediate problem right now," said County Manager Marty Lawing.

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**NEW MEXICO: Former Inmate Tests Positive for TB; Portales News-Tribune, July 9, 1009, by Sharna Johnson.**

A contact investigation was launched at the Curry County Detention Center when a former inmate tested positive for active TB after a transfer to another jail. The Curry County facility is working with the state health department to determine who was in contact with the inmate. County Manager Lance Pyle said the man had been held in a pod and may have been in contact with 100 people. Pyle added that the facility does not test all inmates on intake, and that the man was not showing symptoms. Those judged to be at potential risk will be given skin tests, and, if indicated, chest X-rays and drug treatment.

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**MINNESOTA: Ramsey County is Modifying Workhouse to Minimize TB; StarTribune.com, July 11, 2009, by Chris Havens.**

Dr. Robert Greifinger, a former manager of the New York State Department of Corrections, has been studying TB control procedures at the workhouse in Ramsey County, Minnesota, after inmates and two correctional officers were diagnosed with TB last year. The preliminary findings indicate that the county should re-examine the airflow system in the workhouse, and respond more readily to health issues in the corrections department. Julie Kleinschmidt, Ramsey County Manager, stated that more detailed findings will be revealed when the report has been completed; however, the county had requested information on changes that could be made immediately. According to Art Coulson, county spokesperson, workers are already acting on the early recommendations. A class-action suit against the county, claiming that 80 former inmates and 30 employees had TB, is pending in US District Court.

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**NEW YORK CITY: Research Indicates How TB Bacteria Remains Latent and Fights Immunity for Decades; Medindia.com, July 12, 2009.**

According to researchers from Memorial Sloan-Kettering Cancer Center, TB bacteria are able to remain latent in the human body because of CarD, a protein that helps the bacteria resist immune response. Michael Glickman of Memorial Sloan Kettering stated that the mycobacterium tailors its translational machinery in response to stress within the host. CarD has been identified as the critical mediator of the response. The study showed that loss of CarD is fatal to *Mycobacterium tuberculosis* living in cell culture. Without CarD the mycobacterium is sensitive to killing by oxidative stress, starvation, and DNA damage, as it fails to cut its transcription of rRNA. Glickman explained that the scientists were able to show in infected mice that the TB mycobacterium depends on CarD in its early, most active phase of growth, as well as later in the course of infection. He concluded that drugs that target CarD's interaction with RNA polymerase could lead to new TB drugs. It is hoped that this discovery may lead to new drugs that eliminate strains that are resistant to current therapy. The study was published in the journal *Cell*, July 10 2009; 138(1):146-159.

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**CALIFORNIA: Parkinson's Drug Shows Promise against Drug-Resistant TB; All Headline News; July 6, 2009, by David Goodhue.**

According to researchers at the University of California, San Diego, drugs used to treat Parkinson's disease could also be used to treat extensively drug-resistant TB (XDR TB). Philip E. Bourne, a professor of pharmacology at UCSD, said that current drug-resistant TB drugs are highly toxic, and the Parkinson's drugs entacapone and tolcapone are safe and have binding properties that can be used to treat different conditions. Bourne and colleagues used the selective optimization of side activities (SOSA) approach when they identified the two drugs as candidates against TB. SOSA involves using old drugs to fight conditions that they were not originally intended to treat. Since the drugs already have US Food and Drug Administration (USDA) approval, using them saves time and the cost of developing new drugs. The study was published in the July 3, 2009, issue of *PLoS Computational Biology*.

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If you wish to receive the **Stop TB USA** messages at a different e-mail address, or if you no longer wish to receive these messages, please reply to [jseggerson@tbcoalition.com](mailto:jseggerson@tbcoalition.com)

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