



Awareness of Blastomycosis in Illinois Needs to Increase

By Stephanie M. Borchardt, Ph.D., M.P.H.

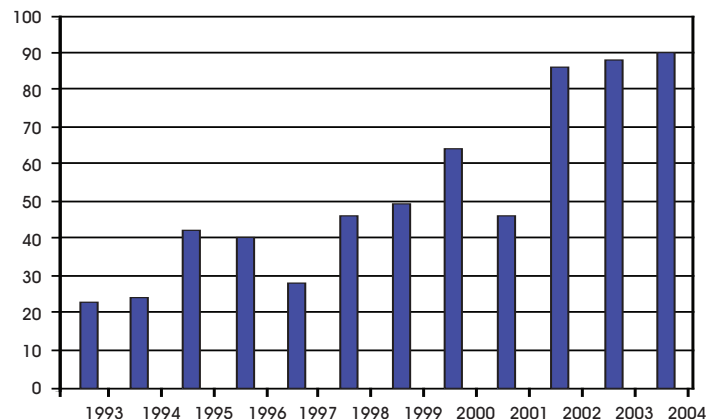
Blastomyces dermatitidis is a dimorphic fungus (i.e. grows as a yeast in tissue and as a mold at room temperature) and causes systemic disease. Initial infection is through the lungs and is often subclinical. Clinical disease most often involves the lungs, skin, bones and genitourinary system. Pulmonary blastomycosis may be acute or chronic. Acute infection is rarely recognized but presents with the sudden onset of fever, cough and a pulmonary infiltrate on chest X-ray. Acute disease may resolve spontaneously after one to three weeks of clinical illness. During or after the resolution of pneumonia, some patients exhibit extrapulmonary infection. More commonly, however, there is an indolent onset that evolves into chronic disease.

Cough and chest discomfort may be mild or absent and patients may present with infection that has already spread to other sites, particularly the skin and less often to bone, prostate or epididymis. Cutaneous lesions begin as red papules that become verrucous, crusted or ulcerated and spread slowly. Most commonly, cutaneous lesions are located on the face and distal extremities. Weight loss, weakness and low-grade fever are often present; pulmonary lesions may cavitate. Untreated disseminated or chronic progressive pulmonary blastomycosis may progress to death.

Definitive diagnosis of blastomycosis requires the growth of the organism from a clinical specimen. A presumptive diagnosis may be made by visualization of the characteristic yeast form in pus, sputum, other secretions or histopathologic sections. In the appropriate clinical setting, visualization of the fungus can prompt the initiation of antimicrobial therapy. Treatment is often successful using an azole compound (e.g. itraconazole) for immunocompetent patients with mild to moderate disease or amphotericin B for patients who are severely immunocompromised or exhibiting life-threatening disease.

Blastomycosis is reportable in Illinois as either growth of *B. dermatitidis* or identification of the characteristic yeast form exhibiting broad-based budding. An immunoassay test for *B. dermatitidis* is available¹ and may have potential utility for diagnosis. A review of surveillance data of blastomycosis cases in Illinois reported during 1993 through 2004 indicates a rise in cases from 24 cases in 1993 to a peak of 91 cases in 2004 (Figure 1). This increase was also observed upon examination of an Illinois hospital discharge database.

Figure 1. Blastomycosis cases reported in Illinois by year of onset, 1993 to 2004 (n=638)



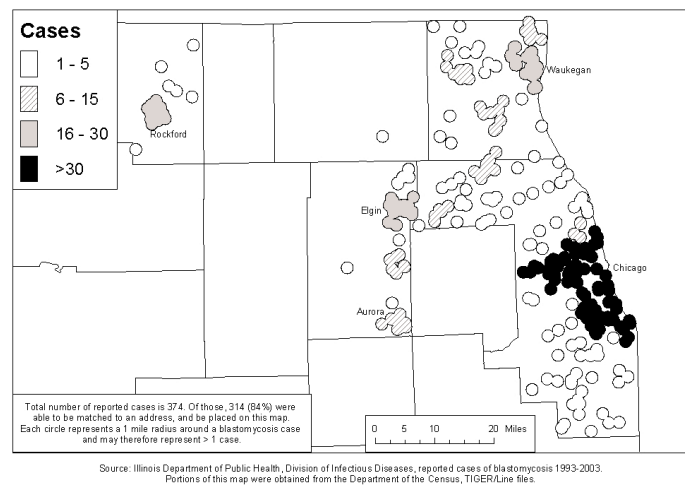
Cook, Kane, Lake and Winnebago counties have had either a high incidence or high absolute number of cases of reported blastomycosis. Analysis of 374 blastomycosis cases reported to Cook, Kane, Lake, and Winnebago counties during 1993 through 2003 indicates a rise in cases similar to that seen in Illinois overall.

The median time from onset of illness to diagnosis has been four months and even longer than a year in some cases. This time period might be shortened if awareness of the disease were increased among healthcare providers especially in areas known to have a relatively high incidence of disease among their residents. A recent examination of surveillance data from the four counties reporting the largest number of cases (Cook, Kane, Lake, and Winnebago) demonstrates that geographic clustering of residence among cases of this disease is apparent (Figure 2).

Physicians practicing in areas with a relatively high incidence should consider blastomycosis when assessing patients with compatible disease.

References

Figure 2. Blastomycosis Reported to Four Illinois Counties (Cook, Kane, Lake and Winnebago), by Site of Residence, 1993-2003



1. Durkin M, Witt J, LeMonte A, Wheat B, Connolly P. 2004. Antigen assay with the potential to aid in diagnosis of blastomycosis. *J. Clin. Microbiol.* 42:4873-4875

County Corner

Local Health Department Reports of Outbreaks, Studies or Prevention Efforts

The Emergence in Chicago of *Shigella flexneri* 3 among Men who have Sex with Men

By John Watson, M.D.,
Chicago Department of Public Health

Shigella flexneri is most often transmitted person-to-person through fecal-oral contamination and has been previously described in other U.S. cities among men who have sex with men (MSM). In Chicago in 2003-2004, reports of *Shigella flexneri* 3 among adult males increased markedly, with a majority identifying themselves as MSM.

Surveillance data from 1995 – 2002 showed 40 (42%) of 95 cases of *S. flexneri* 3 were reported in adult males. However, during January 2003 – September 2004, 30 (83%) of 36 cases of *S. flexneri* 3 reported in Chicago were adult males. Their median age

was 35 years. Twenty (74%) of the 27 adult males available for interview identified themselves as MSM.

The preliminary findings of recent *S. flexneri* 3 infection in Chicago, with the preponderance of cases in adult males of whom a majority report MSM activity, suggests a change in the epidemiology of the disease. Transmission of *S. flexneri* 3 continues in this population, despite ongoing patient education programs stressing safer sex practices intended to prevent the transmission of HIV. Prevention education and other efforts targeting MSM need to better address the risk for non-HIV STDs in this population, and preventive sexual behaviors need to be encouraged to address organisms more easily transmissible than HIV.

Swimming in a Pool of *Cryptosporidium*

By Maria Chudoba, M.D., M.P.H., Communicable Disease Program Coordinator; Michael O. Vernon, DrPH, Director, Communicable Disease Control, Cook County Department of Public Health; and Connie Austin, D.V.M., M.P.H., Ph.D., State Public Health Veterinarian, Illinois Department of Public Health

Background:

On Sept 20, 2004, the Cook County Department of Public Health (CCDPH) Communicable Disease Control Unit received a call from the Illinois Department of Public Health (IDPH) regarding an outbreak of gastrointestinal (GI) illness among a group of children participating in a soccer tournament.

The event was the Palatine Celtic Cup Labor Day Tournament sponsored by the Palatine Celtic Soccer Club, held Sept 3 - 6, 2004. Participants included 284 teams of children ages 11 through 19 years from five states, including Illinois.

Investigation:

The affected individuals were members of two soccer teams from Wisconsin. Both teams were guests at a hotel located in Elk Grove Village, Illinois. The non-affected soccer teams stayed at other area hotels. A questionnaire was developed, in collaboration with IDPH, and was used to interview members of the two teams affected by the outbreak.

Ten of 13 members of Team A reported GI illness and cited Sept 11 as the date of onset of symptoms. All 13 children reported they swam, as a group, in the two hotel pools (indoor and outdoor) and used the spa on Sept 4. One team member swam in both pools on Sept 3. Three members of Team B reported using the hotel pools and spa on Sept 4; two of whom reported GI illness. Median incubation was seven days (range, 3 to 8 days). Median duration was 8.5 days (range, 2 to 11 days). No adults accompanying children from either team reported use of the pools and spa, or GI illness. Also, no other GI illnesses were reported from other hotel guests.

Of the 10 symptomatic individuals from Team A, stool samples were obtained from three. All three samples tested positive for *Cryptosporidium*. No stool samples were obtained from Team B members.

Representatives from Communicable Disease Control and Environmental Health from CCDPH and IDPH inspected the hotel pools and spa on Sept 21. Water and filter samples were collected and submitted to the U.S. Centers for Disease Control and Prevention (CDC) for identification of *Cryptosporidium*. A total coliform sample taken from an outdoor pool showed a count greater than 200 colonies of coliform bacteria per 100 ml. This indicated a possible malfunction in the disinfection system. Free disinfectant and pH levels in the week leading up to the period of exposure indicated they were within the required water quality ranges. Two of the four environmental samples collected tested positive for *Cryptosporidium*. The hotel management was advised to hyper-chlorinate the pools and spa overnight before resuming normal use by hotel guests. No further reports of cryptosporidiosis from this facility were reported after hyper-chlorination.

In order to determine a possible association between the environmental and clinical *Cryptosporidium* isolates, two of the positive stools were submitted to the CDC for genotyping with the environmental isolates. The genotype of one of the human cases was *C. hominis*. Two separate genotypes (distinct from the human case) were identified from water and environmental samples. Both *C. parvum* and *Cryptosporidium* genotype W15 were found. This indicates conditions were present that allowed for the existence of *Cryptosporidium* in the water.

Conclusions:

This outbreak illustrates the ability of *Cryptosporidium* to be transmitted by recreational water. Since 1996, there have been four *Cryptosporidium* outbreaks in Illinois; three due to recreational water exposures. Two were from water park exposures and one was from a hotel pool. Hyper-chlorination can be an effective technique to use with water suspected of causing an outbreak of cryptosporidiosis, because the organism is resistant to chlorine levels routinely used in swimming pools. To minimize transmission of GI illnesses, such as cryptosporidiosis, it is important to exclude swimmers from pools when they are experiencing diarrheal illness.

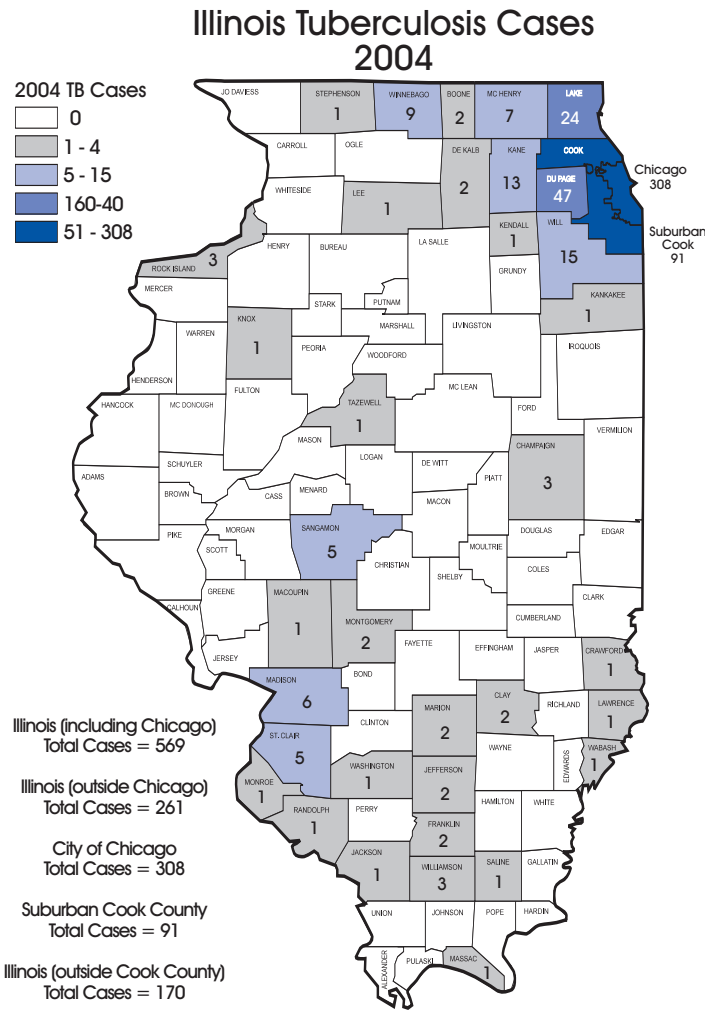
Surveillance is Information for Action: Tuberculosis

By Michael Arbise

Q: What public health action is triggered when a case of tuberculosis is reported to the local health department and what is the epidemiology of tuberculosis in Illinois?

A: Tuberculosis (TB) is a reportable disease in Illinois (suspect and confirmed cases) according to the Illinois Department of Public Health "Control of Tuberculosis Code" (77 IL. Adm. Code 696.170). The sooner cases are reported to the local TB control authority, the sooner its personnel can begin investigations that may interrupt transmission of TB in the community. Delays in reporting may contribute to the spread of TB.

The Illinois Department of Public Health is responsible for statewide surveillance, management of the state's TB case registry, and oversight of prevention and control activities conducted by local TB control authorities. Surveillance data are used to direct efforts to identify high-risk groups and geographic locations. Department staff assist local programs through the provision of directly observed therapy (DOT) grants, assessment and identification of local problems, planning appropriate interventions, assistance with outbreaks; orientation and training of local staff, development of annual surveillance program reports for high incidence jurisdictions, annual site visits with high incidence jurisdictions to monitor program progress, and promoting and facilitating networking with other programs.



Case Definitions

Laboratory Case Definition

- Isolation of MTB complex from clinical specimen

Clinical Case Definition

A case meets all the following criteria:

- A positive tuberculin skin test and;
- Other signs and symptoms compatible with tuberculosis (e.g., abnormal, unstable [i.e., worsening or improving] chest radiographs, or clinical evidence of current disease) and;
- Treatment with two or more anti-tuberculosis medications; and
- Completed diagnostic evaluation

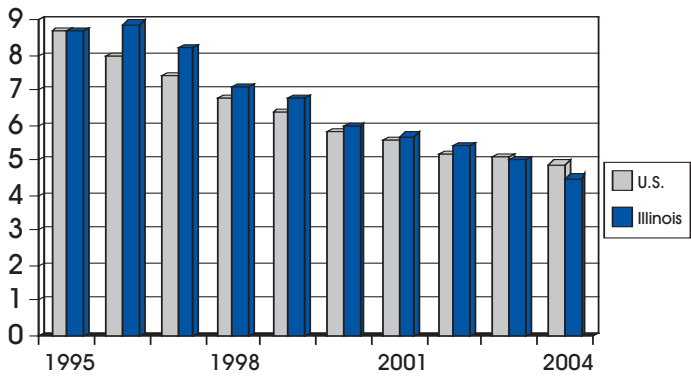
Verified by Provider Diagnosis

- A case based on strong clinical evidence that does not meet the two above case definitions

below are electronically transferred to CDC monthly. If the case does not meet either criteria for laboratory confirmation or clinical case definition, the TB Section reviews case record with local TB control authority to discuss if suspect status should be overwritten in TIMS with "Verified by Provider Diagnosis." Regional TB Section nurse consultants review suspect cases with local TB control authority staff during case review meetings.

Reports of a suspected or confirmed case of TB are required within seven days of diagnosis by physicians, physician assistants, nurses, dentists, laboratory personnel or the health coordinator of settings serving high-risk groups to the local TB control authority or, in the absence of a local TB control authority, to the TB Control Section of the Department. The local TB control authority is required to report to the TB Control Section of the Department within seven days after receiving notification of a suspected or confirmed case of TB. Reporting of newly diagnosed suspect or active TB cases is reported electronically through the U.S. Centers for Disease Control and Prevention (CDC) Tuberculosis Information Management System (TIMS) to the TB Control Section by high incidence jurisdictions including the city of Chicago, Suburban Cook County TB Sanitarium District and the Sunny Hill TB Clinic of Will County. All other local TB control authorities report using mailed written reports. These written reports are entered into TIMS daily and all TB cases meeting one of the case definitions listed

Figure 1. TB Rates per 100,000 Population

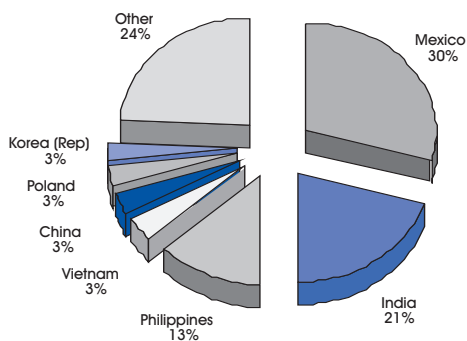


Cases are classified as "Suspect" or "Confirmed." A Suspect Case is an occurrence that is being considered TB disease while diagnostic procedures are being completed, whether or not treatment has been started. A Confirmed Case is an occurrence of TB disease that meets the laboratory case definition or, in the absence of laboratory confirmation, an occurrence that meets the clinical case definition or is verified by provider diagnosis. In 2004, 76 percent

of all TB cases reported in Illinois met the laboratory criteria for case definition, 12.3 percent met clinical case definition and 9.5 percent of cases were verified by provider diagnosis.

In 2004, Illinois ranked fifth in the United States in the total number of reported cases. The incidence of TB reported by local Illinois TB authorities ranges from very low (<1 case per year) in rural counties, to high (>400 cases per year) in the Chicago metropolitan area. In Illinois, 3,332 cases of tuberculosis were

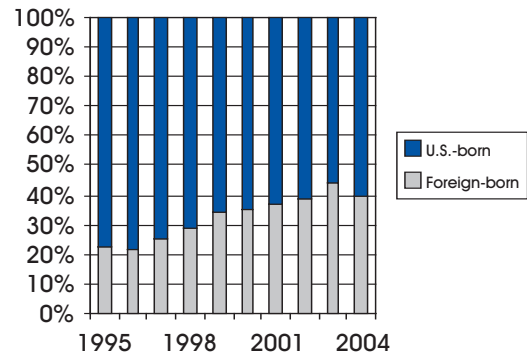
Figure 2. Countries of Birth for Foreign-born TB Cases in Illinois 2000-2004



reported during 2000 through 2004 for an average of 665 cases (range 569-743 cases) annually. There was a net decrease of 192 (23 percent) cases during this time period. In 2004, for the eighth year in a row, the number of tuberculosis cases declined, dropping to 569 cases (4.5 cases per 100,000 population; the 2003 U.S. TB rate was 4.9 cases per 100,000) (Figure 1). The city of Chicago observed the largest decline during this five-year period (27 percent) from 398 cases (16.0 cases per 100,000 population) in 2000 to a low of 308 cases (11.7 cases per 100,000 population) in 2004. Declines in tuberculosis rates are attributed to the successful actions taken as part of the TB surveillance system especially DOT and identification and testing of contacts who may have been infected.

Among all cases, from 2000 to 2004, 1,280 (38.6 percent) were foreign-born, arriving from 88 countries. Mexico (378 cases), India (265 cases) and the Philippines (173 cases) accounted for 63.8 percent of all foreign-born cases reported (Figure 2). The percentage of foreign-born cases increased from 21 percent in 1995 to 40 percent in 2004 (Figure 3). The largest percentage of foreign-born cases was reported outside of Chicago.

Figure 3. Percentage of Illinois TB Cases Foreign-born vs U.S.-born



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Among all cases reported between 2000 and 2004, the race/ethnicity was 37.3 percent black non-Hispanic, 22.3 percent Hispanic, 20.7 percent Asian, 17.5 percent white non-Hispanic, 0.6 percent American Indian and 1.2 percent unknown. Demographic data show that from 2000 to 2004 the highest percentage of cases, 35.4 percent, were in the 25 to 44 year-old age group, whereas the highest rate per 100,000 population was generally recorded among those older than 65 years of age.

Reports of multi-drug resistant (MDR) cases declined during the five-year period to less than 0.8 percent (5 of 569 tested) in 2004. There was a high of six MDR cases in 2000 and a low of three cases in 2003.

Among the 793 TB cases from 25-44 years of age with reported HIV status, 13.8 percent (N=155) were HIV-positive. Among the 8,697 AIDS cases reported to IDPH during 2000-2004, TB (pulmonary and/or extra-pulmonary) was diagnosed in 274 (3.1 percent) of the cases.

Factoid

Number of laboratory confirmed cases of H5N1 avian influenza in Vietnam, Thailand, and Cambodia 12/26/03-5/13/05: 97 Number of deaths: 53
Highly pathogenic avian influenza A(H5N1) is classified as a select agent and must be worked with under Biosafety Level (BSL) 3+ laboratory conditions. Virus isolation studies on respiratory specimens from patients who meet criteria for avian influenza testing should not be conducted unless stringent BSL 3+ conditions can be met. Initial testing of specimens from patients in Illinois with suspected avian influenza should be performed by IDPH Division of Laboratories, using PCR assays. Local and state health department staff should be consulted prior to sending specimens.

Article Alert

In an effort to keep you updated on recent published infectious disease articles with IDPH authors, please be aware of the following:

Huhn GD, Austin CA, Carr M, Heyer D, Boudreau P, Gilbert G, Eimen T, Lindsley MD, Cali S, Conover CS, Dworkin MS. Two Outbreaks of Occupationally Acquired Histoplasmosis: More than Workers at Risk. *Environmental Health Perspectives*, May 2005 113;5:585-89.

Dworkin MS. Adults are whooping, but are internists listening? *Ann Intern Med* 2005;142:832-5.

Upcoming Events

14th Annual HIV/STD Conference
Renaissance Hotel (now known as the President Abraham Lincoln Hotel and Conference Center, Springfield, Illinois, October 18-20, 2005
For more information: Andrea Danner, 217-524-5983

Kudos

The Will County Health Department is to be commended for their response to three foodborne outbreaks that occurred in rapid succession in December 2004. When IDPH called the communicable disease coordinator at Will County about Outbreak #2, IDPH found out the communicable disease program manager had just been informed of outbreak #1. She said that she had not worked on a foodborne outbreak before, but she rolled up her sleeves and got to work. Outbreak #2 involved a number of large groups eating at the same facility requiring additional interviewing and analyzing. When Outbreak #3 was reported, she brightly said, "Well, we're almost done with outbreaks #1 and #2". Kudos to Will County Health Department for dealing with a difficult series of events.

Contacts

Editor Mark S. Dworkin, M.D., M.P.H. and T.M., State Epidemiologist, Division of Infectious Diseases

Managing Editor Michele McGee, M.P.A.

160 N. LaSalle St. - 7th Floor South
Chicago, IL 60601
Phone 312-814-4846 • Fax 312-814-4844
www.idph.state.il.us

Send Comments and Feedback to:
mmcgee@idph.state.il.us

Web site: www.idph.state.il.us