

The TB Challenge

“Partnering to Eliminate TB in African Americans”

A Newsletter from the Division of Tuberculosis Elimination, Field Services and Evaluation Branch

Summer 2009

Pediatric TB Epidemiology: Preventing Cases and Evaluating Health Systems

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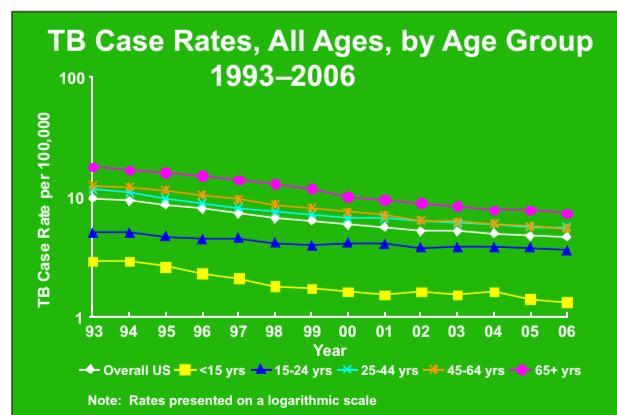
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What does pediatric tuberculosis (TB) tell us about TB control? Pediatric TB cases in a community provide a sensitive indicator of the trends, the successes, or the shortcomings of the healthcare and public health systems. A review of the epidemiologic trends of pediatric TB reveals whether or not TB transmission is being prevented; exploration of each pediatric case opens the way to learning about missed opportunities to prevent transmission by diagnosing TB in adults sooner, to find all high-priority contacts promptly, and to treat latent infections before TB disease develops.

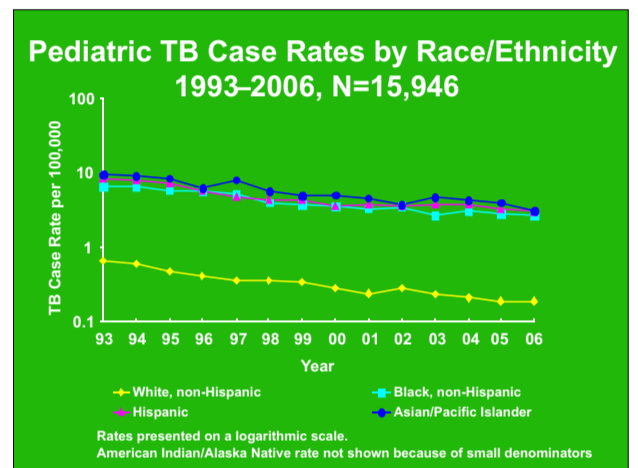
By the fact of their young age, children who have TB must have been recently infected with *Mycobacterium tuberculosis*. Pediatric cases rarely develop into contagious forms of disease; therefore, child-to-child transmission is rare. This is unlike the timeline and contagiousness of TB in adults, who could have been infected a generation earlier, and who are more likely to become contagious. Children who are younger than age 5 years are more likely than adults to have disease instead of just latent infection. When preschool-age children have TB, the cases most often point to prolonged exposures in the household, the extended family, or the close community, for example, at a child day-care center. Brief exposures to strangers who have TB in the wider community are not likely to cause cases.

Pediatric cases always represent recently missed opportunities and gaps in healthcare services or public health systems. If every adult who has TB could be diagnosed before the disease became contagious, or if contact investigations were comprehensive and early enough, all infections and disease in children could be avoided. When children do have advanced TB disease, it shows that contact investigations were incomplete or that cases in adults were discovered too late to prevent transmission and subsequent progression of the infections in contacts. These factors might be different for immigrant children who have TB in the United States, because infection could have happened overseas.

Pediatric TB, defined here as TB in children younger than age 15 years, is uncommon in the United States: 779 pediatric cases out of 13,299 total TB cases in 2007. Nationally the numbers and the rates of reported pediatric TB cases have been decreasing in parallel with the numbers and the rates for older groups.



Dividing pediatric TB cases into the patients' racial groups reveals disparities that are more extreme than those for adults. When non-Hispanic white children are the reference group, the rates for children in the other racial groups are about 15 times greater.



The rates are greatest for Asian and Hispanic children, but these two groups have large fractions of cases among foreign-born children.

On average, the rates for foreign-born children are about 10 times greater than those for US-born children. Until recently, almost all non-Hispanic black children who had TB in the United States were born here. New immigration trends appear to be increasing the fraction of foreign-born children among non-Hispanic black children who have TB.

Children are, in effect, accidental victims when adults have TB. If all adult cases could be prevented, or caught early enough to avoid transmission, then all pediatric cases would be averted. When this cannot be achieved, intensive contact investigations are the next safeguard. Children are listed as high-priority contacts in the recommendations from the National TB Controllers Association (NTCA) and CDC: Guidelines for the Investigation of Contacts of Persons with Infectious Tuberculosis. Most pediatric cases in the United States are found during contact investigations. In very young children, TB is highly lethal unless it is treated in its early stages. Deaths associated with TB are reported for less than 1% of pediatric cases, although the rate of deaths is 2% for children younger than age 1 year. Any death of a child because of TB should provoke an intensive review of missed opportunities.

Tuberculin skin testing is not recommended for all children. The Academy of Pediatrics recommends screening all children with a questionnaire reviewing the indicators of exposure, for example, birth or residence in a country with a large TB incidence rate. Only children who have indicators of exposure should be tested. For children born in the United States, the risks usually depend on the TB risks of adults who share the household. The testing of children who are unlikely to be infected wastes resources and contributes to false-positive results, which cause unintended consequences such as expense, psychological stress, unnecessary treatment, and adverse effects of treatment.

HRSA and CDC Working in Synergy with Partners to Address Health Disparities

Gail Burns-Grant, Team Leader, DTBE/FSEB



Dr. Theresa Watkins-Bryant, MD, FAAP
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Gail Burns-Grant (GBG): Dr. Watkins-Bryant (Dr. W-B), I would like to first thank you for taking the time from your busy schedule to interview with The TB Challenge Newsletter. Can you give our readers a brief overview of your role and responsibilities as the Senior Medical Advisor in the Health Resources and Services Administration's (HRSA) Office of Minority Health and Health Disparities (OMHHD)?

Dr. W-B: HRSA is the primary Federal agency for improving access to health care services for people who are uninsured, isolated or medically vulnerable. The OMHHD serves as the principal advisor and coordinator to HRSA for the health care needs of racial/ethnic minority and medically disadvantaged populations.

The Office of the Chief Medical Officer (CMO) is also located within the HRSA OMHHD. The mission of the CMO is to provide clinical consultation, assistance and policy direction to senior agency officials on clinical and health issues. As Senior Medical Advisor, I serve as a national expert and spokesperson on national and international health care trends, quality improvement models and health care service delivery systems and am responsible for the development, analysis and implementation of policies regarding health disparities in minority populations. I also provide clinical technical support for all OMHHD programs and clinical systems interface between the Office of the Chief Medical Officer, other HRSA bureaus and offices, Federal and private partners. I also represent HRSA on the Secretary's Advisory Council for the Elimination of TB and the Federal TB Taskforce.

GBG: I understand that HRSA and CDC are collaborating on a TB and Hepatitis C health disparities elimination pilot which targets primarily African Americans.

Dr. W-B: Yes. HRSA is currently working with CDC on a health disparities elimination project on TB and Hepatitis C Virus (HCV) targeting African Americans in HRSA funded health centers and CDC funded health departments. As you may know, among U.S. born racial and ethnic groups, the greatest disparity in TB rates is for U.S. born blacks, whose rate is 8.1 times that of non-Hispanic whites (MMWR, March 2009). Regarding HCV, disparities in HCV infection may be related to the prevalence of risk factors in minority populations where HIV and intravenous drug use are major health challenges. The vast majority of African-American patients at risk for TB and/or HCV are in

communities served by HRSA health centers for comprehensive primary health care. Many of these patients, however, may also be receiving TB and/or HCV services at co-located health departments in the same metropolitan statistical areas (MSAs). This pilot seeks to improve health outcomes for both TB infected and/or HCV infected patients by creating and implementing networking systems for coordinating comprehensive health care between HRSA funded health centers and co-located health departments. An additional focus of this project is to provide TB and HCV technical training for clinicians.

GBG: When was the project kick-off and what was accomplished?

Dr. W-B: We convened last fall to kick off our project. Invitees included HRSA and CDC staff, TB Controllers, Hepatitis Coordinators, Primary Care Associations (PCAs) and state and city health departments from MD, NJ and SC; in addition, Federal staff including the Substance Abuse and Mental Health Services Administration (SAMHSA), selected health centers and other private sector partners. The meeting served as a venue for developing the overarching project vision and goals, for facilitating interface among the participants and for educating each other about our programs.

GBG: Quite a bit was accomplished. What do you credit your success to accomplishing the objectives for this meeting?

Dr. W-B: All participants agreed at the outset to commit to a collaborative and innovative mindset, and each state developed a workplan during our meeting. Everyone was excited about the possibilities for ongoing synergy among stakeholders.

GBG: How are HRSA and CDC using their resources to support this project?

Dr. W-B: In FY2009, HRSA awarded \$50,000 to the state PCA in each of the three targeted sites (NJ, MD and SC) to begin creating and implementing networking systems for coordinating comprehensive care between HRSA health centers and health departments. CDC is providing in-kind support including travel and technical support.

GBG: How did HRSA and CDC select the current project sites?

Dr. W-B: HRSA and CDC collaborated on the selection of three project sites based on the following:

- 1) high rates for both infections among African Americans and resource poor regarding TB and HCV dollars
- 2) proximity to a Regional Training and Medical Consultation Center for TB
- 3) a PCA with extensive experience/training in overseeing clinical and quality initiatives based on the HRSA collaborative model.

GBG: Dr. Watkins-Bryant, we learned that you are a practicing pediatrician in the DC area. Can you tell us about this?

Dr. W-B: I volunteer as an assistant professor of pediatrics in the Department of Pediatrics and Child Health at Howard University Hospital. I teach medical students and residents and see patients in the hospital's clinics. Additional clinical activities include occasionally seeing patients at one of HRSA's health centers in DC.

GBG: You are quite busy. What are the demographics of these children and what, in addition to TB, are some of the other prevalent health issues you are treating?

Dr. W-B: My patients are primarily poor, disadvantaged and disenfranchised African Americans, but Washington, D.C. is also home to other ethnic minorities. Many of the children live in environments where low socioeconomic status, homelessness, substance abuse, the specter of HIV/AIDS, domestic violence and child abuse are confounding factors. Health problems that I see include childhood obesity, asthma, attention-deficit hyperactivity disorder, developmental delay, failure to thrive, and sickle cell disease. Others include diabetes, gastroenteritis, STDs, sports injuries, methicillin-resistant staphylococcus aureus, plus garden variety problems like otitis media (ear infections), eczema and other skin rashes, upper respiratory infections (colds) and immunization issues (many children are either under or over immunized).

GBG: You are caring for patients with a wide spectrum of health and social issues. We know that pediatric TB cases are often the result of a gap in our health care (public and private) systems; one case of TB in a child is one too many. What do you think is needed to close this gap among providers?

Dr. W-B: We believe that the gaping holes in our safety net reflect a systems issue. It is an inability of siloed programs to interface effectively and efficiently, complicated by the absence of TB on the radar screens of most providers. The local health department, health centers, and emergency departments must effectively communicate with each other so that patients don't fall between the cracks. Providers must also be trained so that the diagnosis of TB is not missed.

GBG: It is obvious that you have a passion for your work. How do you balance it all?

Dr. W-B: I enjoy both the health policy and clinical facets of my work. Teaching and seeing patients gives me a real life perspective that keeps me grounded when addressing health policy questions. I do have to work constantly at reassessing and rearranging priorities; however, sometimes I am unable to go to clinic because there is work in OMHHD that takes precedence.

GBG: Dr. Watkins-Bryant, you balance quite well. I would like to thank you again for taking the time to speak with us. Your energy, commitment, and passion should inspire us all.

Dr. W-B: Thank you very much for the opportunity to dialogue with you.