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HEPP Report: Infectious Diseases in Corrections, Vol. 6 No. 2

HIV & Hepatitis Education Prison Project

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INFECTIOUS DISEASES IN CORRECTIONS
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HIV & HEPATITIS EDUCATION PRISON PROJECT
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TAKING CONTROL OF TUBERCULOSIS IN CORRECTIONS

By Renee Ridzon, M.D.*

Incarcerated persons are a population long recognized as being at higher risk for tuberculosis (TB) than the general population.[8] Of the 15,989 reported cases of active TB in the U.S. in 2001, 3.3% were in residents of correctional facilities at the time of diagnosis.[6] At the same time, 0.7% of the total U.S. population was incarcerated in a prison or jail.[17] Correctional facilities have been recognized as reservoirs for the spread of *Mycobacterium tuberculosis* infection and TB disease among inmates and communities.[15] The prevalence of HIV infection among inmates is an additional factor leading to higher rates of TB disease and TB infection in prison and jail settings. Control of TB in these high-risk environments is important for the health of inmates, their contacts (once released), and for the continued decrease in the national TB case rate.

Of the 15,989 reported cases of active TB in the U.S. in 2001, 3.3% were in residents of correctional facilities at the time of diagnosis.

MYCOBACTERIUM TUBERCULOSIS

TB is a disease caused by the organism *M. tuberculosis*. In most cases, TB affects the lungs, although the disease can occur in any organ system of the body. Symptoms of TB include fever, weight loss, night sweats, and fatigue. For those with the pulmonary form of the disease, there is usually a productive cough and abnormal chest radiograph. In advanced forms of pulmonary TB, hemoptysis may be present.

M. tuberculosis is transmitted by airborne particles called droplet nuclei that are generated by coughing when a person has pulmonary TB. The particles are an estimated one to five microns in size, and can remain suspended in an enclosed room for periods of 30 minutes or longer. Although not all exposed persons become infected, infection occurs when a susceptible person inhales droplet nuclei containing *M. tuberculosis,* which then reach the alveoli of the lungs. The probability that a person who is exposed to *M. tuberculosis* will become infected depends mainly on the concentration of infectious droplet nuclei in the air, the person's underlying immune status, nutritional state, and the duration of exposure. The concentration of droplet nuclei in the air is determined by characteristics of the contagious patient and environmental factors. These characteristics include the presence of cough, whether the disease is in the lungs, airways, or larynx, whether acid fast bacilli (AFB) are present on smears of sputum specimens, and whether there are pulmonary cavities on the chest radiograph. Environmental factors include exposure in small, enclosed spaces and poor ventilation.[9]

LATENT TB INFECTION (LTBI)

A small proportion of persons who are infected with TB will develop disease within weeks to months after exposure. For most infected persons, within two to 12 weeks, the immune system limits multiplication and spread of the organism. When this occurs, some of the organisms remain dormant in the body but are viable for many years. This condition is referred to as latent TB infection (LTBI). Persons with LTBI have no symptoms of TB disease and are not infectious. A proportion of persons with LTBI will develop TB disease during their lifetime. The risk is greatest during the first several years after infection. Immunocompromised persons with LTBI have a high risk for progression to TB disease; HIV infection is the strongest known risk factor for this progression.[10] Treatment for LTBI greatly reduces the likelihood that TB disease will develop.

Continued on page 2

WHAT'S INSIDE

Taking Control...
(continued from page 1)

The tuberculin skin test (TST) can be useful in the diagnosis of LTBI and TB disease. In most cases of LTBI or disease, the TST is positive. However a negative test by itself should never be used to rule out infection or disease if there is a high clinical suspicion for either of these conditions or there are symptoms consistent with TB disease, especially in HIV-infected patients - where TST can be negative despite active TB disease.

Most cases of TB are caused by organisms susceptible to all antituberculosis medications, and disease cure rates are high when there are at least six months of effective treatment and good adherence. If rifampin is not included in the regimen then the length of treatment is prolonged. Cases caused by organisms with resistance to antituberculosis medications may require longer treatment and therapy that includes less effective second-line agents. Multidrug resistant (MDR) TB, defined as TB caused by organisms demonstrating resistance to at least isoniazid and rifampin (the two most potent antituberculosis medications), is the most difficult form of TB to treat and requires prolonged therapy, the use of less effective, more toxic second-line antituberculosis drugs, and an occasional need for surgery. MDR TB has a high rate of mortality and morbidity, although this has improved in recent years.[2]

Epidemiology in jails and prisons

In both jails and prisons, TB rates among inmates far exceed those of the general U.S. population. In one study from 1995 to 1997 in the Memphis County, Tenn., Jail, the calculated incidence of TB cases was 274 per 100,000, over 35 times the national rate and 20 times that of Memphis County for the corresponding time period.[15] In prisons in New York State during 1993, the reported TB case rate was 139.3 cases per 100,000; for New Jersey prisons the rate reported for 1994 was 91.2 cases per 100,000; and for California prisons in 1991 there were 184 cases per 100,000. In all three states, the TB rates among inmates were six to 10 times that of the state's general population.[8]

Some facilities have seen a marked decline in the number of active TB disease due to diligent TB control programs with mandated screening and directly observed treatment of LTBI. In the New York State DOC the rate of TB disease was 225/100,000 in 1991. By 2001, the rate for new cases of active TB disease decreased to 11/100,000. That rate was comparable to the rate in Manhattan even though nearly one-quarter of all incoming inmates were infected with TB.

At California Medical Facility in the California Department of Corrections, similar control measures effectively aborted an outbreak of TB in a dedicated HIV housing unit. After 22 cases of TB disease occurred over a five month period in 1995 (a case rate of 21,100/100,000 person years), there have been no new cases of TB disease in the past seven years.[18]

Table 1. Two-step testing

In some persons with LTBI, reaction to tuberculin may wane over years. When these persons are skin tested years after infection, they may have a negative reaction. However, the skin test may stimulate (or "boost") their ability to react to tuberculin, resulting in a positive reaction to a subsequent test. With serial testing, the boosted reaction may be misinterpreted as a newly acquired infection. Two-step testing is used to establish a reliable baseline TST status and reduce the likelihood that a boosted reaction will be misinterpreted as a recent infection. Two-step testing is performed by administering a skin test; if that test result is negative, then a second-step test should be given one to three weeks later. A positive reaction to the second-step test of the two-step test probably represents a boosted reaction. The boosted reaction should not be considered a TST conversion. Two-step testing should be used only for baseline screening and never should be used in a contact investigation.

The role of HIV co-infection

There are a number of factors that contribute to the increased incidence of TB infection and disease among incarcerated populations. These risk factors include HIV infection, substance use and dependence, poor access to health care, and overcrowding and poor ventilation within correctional facilities.[8] The strongest of these risk factors is HIV infection. In 1997 HIV infection was present in an estimated 2.1% of persons incarcerated in state and federal prisons, and the rate of AIDS among prisoners was five times than that of the general population. Concurrent with the increasing number of prisoners in the country, there has been an increase in the number of inmates with HIV infection. From 1991 to 2000 the number of HIV-infected prisoners in state and federal facilities increased from 17,551 to 25,088.[17] The rising number of prisoners within the country has led to overcrowding within many correctional facilities, increasing the risk of transmission of *M. tuberculosis*.

Transmission of *M. tuberculosis* within correctional facilities

There have been several reports of outbreaks of TB within U.S. prisons and jails.[11,12,13,14,15,18,19] In most of these outbreaks transmission of a single strain of *M. tuberculosis* was verified by epidemiology and strain typing. Some of these outbreaks involved multidrug resistant strains of *M. tuberculosis*. In several cases there was transmission to correctional facility staff and members of the communities to which inmates were released. In the investigation of TB cases in Memphis County, 43% of all TB cases reported in 1995 through 1997 were in persons who had previous contact with the jail. This suggests that the jail may have played an important role in contributing to the transmission of *M. tuberculosis* in the community as well as provided a potential location for prevention efforts.[15]

HIV infection was a major factor in most reported correctional outbreaks. Reasons for this include the increased rate of reactivation of LTBI in those infected with HIV, delayed diagnosis in HIV-infected source cases due to atypical presentation of TB disease, and the rapid development of disease in HIV-infected persons who were newly infected with *M. tuberculosis*. In one outbreak that occurred in a housing unit for HIV-infected inmates, extensive transmission was documented.[3] In this outbreak, there were 30 secondary cases of TB disease and documentation of new infection in approximately 70% of the 115 inmates who shared the same side of the dormitory with the source patient. In this outbreak, as in others involving HIV-infected inmates, low CD4 count was a risk for TB disease.

In a number of former Soviet Union countries, there is a serious problem of transmission of *M. tuberculosis* within prisons. Epidemic TB among prisoners, spread of disease from the prisons to the community, and high rates of MDR TB has been documented in many prisons in Russia. Rates of TB in these prisons are among the highest in the world. In 1997 in Tomsk Oblast of Siberia, TB notification rates for the incarcerated population were 4,000 cases per 100,000. The mortality rate from TB among prisoners at that time was 485 per 100,000.[16] MDR TB rates throughout the former Soviet Union are

Continued on page 4

Letter from the Editor

Dear Correctional Colleagues:

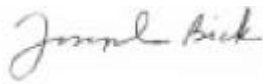
In my infectious diseases referral clinic in a state prison in California, at least once a week I encounter a patient who has a chronic medical condition for which no treatment was pursued prior to incarceration. Whether it is mental illness, HIV, HCV, LTBI, or a myriad of other treatable and/or curable conditions, the reality is that this nation's jails and prisons have become the primary source of medical services for a significant percentage of our fellow citizens. Work by our colleague Rick Altice has demonstrated that for many inmates with HIV infection, the first offer of testing and/or treatment came during incarceration. David Thomas, Dianne Rechtine, and colleagues in Florida were able to show that directly observed therapy in a prison setting can yield remarkable results in the treatment of HIV disease. How can these lessons be applied to this country's strategic plan for the elimination of tuberculosis?

As noted in the recent report to congress entitled "The Health Status of Soon-To-Be-Released Inmates," we know that inmates are disproportionately burdened by tuberculosis infection and disease. It is estimated that over 500,000 individuals with LTBI are released from jail or prison every year, and that the rate of active tuberculosis in inmates is at least five times that found in persons in the free community. Clearly, many inmates are also struggling with mental illness, alcoholism, substance abuse, poverty, and other problems that impact upon their willingness and ability to faithfully adhere to the long treatment course required for LTBI and TB disease.

Once again, we in correctional/public health are called upon to turn this challenge into an opportunity: to use the period of incarceration of our patients as a time to diagnose, educate, and treat those of our patients who are infected with tuberculosis. By doing so, we not only make an impact on the health of our patients, but also contribute to the nation's public health efforts to eliminate TB.

This month, Dr. Renee Ridzon provides a review of the current status of tuberculosis in corrections, and HEPP Report editors provide a summary of a CDC-sponsored conference held January 25-26 in San Antonio on the management of HCV in corrections. This month's HIV 101 is a useful table to guide the treatment of LTBI.

After reading this issue, you should be familiar with the diagnosis and treatment of MTB in the incarcerated, and have a better understanding of current issues involved in the management of HCV in the correctional setting.



Joseph Bick, M.D.
Co-Chief Editor

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Published monthly and distributed by fax, HEPP Report provides up-to-the-moment information on HIV and hepatitis treatment, efficient approaches to administering treatment in the correctional environment, national and international news related to HIV and hepatitis in prisons and jails, and changes in correctional care that impact HIV and hepatitis treatment.

Taking Control...

(continued from page 2)

also among the highest in the world and in some prisons, up to 23% of isolates from newly-diagnosed cases of TB are MDR. For retreatment cases this proportion is even higher. With the combination of increasing rates of incarceration, especially due to sentences related to injection drug use, and increasing rates of HIV infection among these injection drug users, this problem could become even more serious.

Screening for TB Disease

Correctional facilities are settings where intensive measures for TB screening, control and prevention are needed. Screening activities should include inmates as well as employees. Screening should consist of assessing inmates for TB disease and LTBI or histories of either, with a high priority placed upon the prompt diagnosis and isolation of inmates with suspected infectious pulmonary disease. This is important since transmission of *M. tuberculosis* in correctional facilities can be extensive from persons with undiagnosed, infectious TB.

All newly admitted inmates should be screened for symptoms of TB disease at the time of arrival. If symptoms suggestive of TB disease are present, further diagnostic work-ups should be performed, including a chest radiograph and collection of sputum specimens. If there is any suspicion that the inmate may have pulmonary disease, he or she should be placed in airborne infection isolation as soon as possible to prevent transmission of infection to others in the correctional facility and should remain isolated until there is a determination that the inmate does not have potentially infectious TB. The airborne isolation of the suspected infectious inmate should occur before the initiation of the work-up. If the suspicion is high enough to warrant collection of sputa specimens, especially if HIV co-infection is present, then the inmate should be in isolation.

In addition to screening for symptoms of TB disease upon admission, the index of suspicion for TB should be high for any inmate who presents with cough. In many outbreaks, extensive transmission from undiagnosed cases occurred because TB was not considered as a diagnosis in source cases until late in the course of illness. It is especially important to consider TB early in settings with HIV-infected inmates because of their increased risk of developing disease once infected. In persons with HIV infection, TB may have an atypical clinical and radiographic presentation. There has been extensive transmission documented from HIV-infected source patients who had minimal chest radiograph abnormalities.

Screening for LTBI

Screening for LTBI is important since treatment is an effective prevention tool. This is especially true for incarcerated persons since the risk of reactivation disease is higher than that of the general population due to immune deficiency, drug use, or recent infection. The preferred method of screening for LTBI is the Mantoux method for the TST. Multiple puncture tests are not recommended. Bacille Calmette-Guèrin (BCG) vaccination, pregnancy, or undocumented history of a prior positive skin test are not contraindications to tuberculin skin testing. Because the skin test must be read (always by a trained health care worker) 48 to 72 hours after placement, screening in short-term facilities may be difficult due to high turnover of inmates. In general, 10 mm of induration is defined as a positive skin test, although in special circumstances such as a contact investigation or HIV infection, 5 mm is used to define a positive test.[3] In contact investigations and in persons in whom the suspicion of infection is high, treatment of LTBI is sometimes given even when the skin test is negative (especially in the case of HIV infection).

Isoniazid for nine months is the preferred regimen for treatment of LTBI and should be used whenever possible.

All inmates and employees with initial negative skin tests should have periodic skin testing performed. In most cases, this is performed annually. In all populations where periodic screening occurs, two-step testing (see Table 1) should be initially performed to establish a reliable baseline.[8] Periodic screening is an important part of TB control since an unexpected number of positive skin tests or conversions may signal transmission from an undiagnosed case of infectious TB and indicate that an investigation should be initiated.

Treating TB Disease and LTBI

TB disease and LTBI should ideally be treated by someone experienced in the management of TB, or in consultation with someone with such experience. Treatment guidelines have been published (see below), and new treatment guidelines are expected soon.[1,3,4,5,7,10] Treatment for all inmates with TB disease and ideally for LTBI should be directly observed to ensure adherence with and completion of treatment. All cases of suspected TB disease should be promptly reported to the local TB control program and a contact investigation should be initiated if indicated.

Isoniazid has been most commonly used for treatment of LTBI. In 2000, the CDC issued recommendations for use of a short course regimen of two months of rifampin and pyrazinamide for treatment of LTBI. Since that time, there have been reports of 44 cases of severe liver injury (including 10 fatalities) associated with this regimen. As a result, isoniazid for nine months is the preferred regimen for treatment of LTBI and should be used whenever possible (an alternative is the use of four months of rifampin. See HIV 101 for use with protease inhibitors and non-nucleoside reverse transcriptase inhibitors.) The use of rifampin and pyrazinamide should be avoided when possible. If rifampin and pyrazinamide are used, there should be extremely close monitoring for symptoms or abnormalities in levels of serum aminotransferases and bilirubin. Rifampin and pyrazinamide should never be used in persons who have experienced liver injury with prior use of isoniazid, or who are pregnant.[5,6]

Conclusion

Because correctional facilities house populations at higher risk for TB, close attention to TB control is very important. Screening for infection and disease can lead to prompt diagnosis of infection or disease, prevention of transmission, and completion of treatment of either infection or disease. Attempts should be made to coordinate all TB control activities with the local health department. Doing so can enhance overall TB prevention and care, for example by ensuring treatment completion for inmates upon release to the community. Good TB control in correctional facilities will lead to decreased transmission of M. tuberculosis and prevention of cases among inmates as well as in the communities from which the inmates return to upon release.

For more information and publications regarding TB treatment prevention and control, visit the CDC's Division of Tuberculosis Elimination website at http://www.cdc.gov/nchstp/tb/.

***Disclosures:** *Nothing to disclose.*

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References continued on page 6

HIV 101

Treatment of LTBI

At risk: PPD+ (≥5 mm induration) without prior treatment of LTBI

Preferred Regimen	Alternative Regimen**	Special Cases
INH 5mg/kg per day, max dose of 300mg/day + pyridoxine 50 mg/day, x 9 months INH 15 mg/kg up to a dose of 900+ pyridoxine 100 mg 2x/wk, x 9 months	RIF 10 mg/kg up to 600 mg per day mg/day + PZA 15-20 mg/kg/day x 2 months (see CAUTION below) RIF 10 mg/kg up to 600 mg/day x 4 months ***Patients receiving PI or NNRTI should not receive RIF. With some antiretrovirals, rifabutin can be substituted for RIF with an antiretroviral dose adjustment. Consult an expert.*	**INH-resistant strain:** RIF 10 mg/kg up to 600 mg/day x 4 months. RIF 10 mg/kg up to 600 mg per day + PZA 15-20 mg/kg/day x 2 months (see CAUTION below) **INH- and RIF-resistant strain:** Treat in consultation with an expert in MDR TB. **Pregnancy:** Use INH regimen.
***CAUTION:** Cases of severe liver injury, some fatal, have been associated with the use of RIF/PZA for the treatment of LTBI. The RIF/PZA regimen is contraindicated in those with alcoholism and those with liver injury during prior use of INH. Avoid two-month regimens except perhaps in high-risk cases with impending parole or release who are unlikely to continue therapy after release. Full information on recommendations concerning RIF/PZA are available in the August 2001 MMWR 50 (34): 733-735 or at http://www.cdc.gov/mmwr/PDF/wk/mm5034.pdf		
Monitoring: Baseline bilirubin, AST & ALT, add CBC if treated w/RIF or RFB. Repeat tests if baseline tests are abnormal or if there are symptoms of hepatitis. Recipients of INH or RIF alone: symptom review monthly. For those receiving PZA plus RIF or RFB, more careful monitoring to include LFTs at two, four and six weeks.		
EMB = ethambutol, INH = isoniazid, PZA = pyrazinamide, RFB = rifabutin, RIF = rifampin, SM = streptomycin		

Adapted from Bartlett JG, Gallant JE. Medical Management of HIV Infection 2001-2002 Edition.

TAKING CONTROL...*(continued from page 4)*

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Conference Report: Management of Hepatitis C in Corrections

January 25-26, 2003, San Antonio, Texas *By HEPP Report Staff**

A diverse group of correctional health care professionals from prisons and jails, federal representatives, academics, hepatitis C experts, lawyers, and public health advocates gathered recently for a key meeting on managing hepatitis C in prisons ("Management of Hepatitis C in Prisons 2003," January 25-26, 2003, San Antonio, Texas). The official goals of the conference were to describe the prevalence of hepatitis C virus (HCV) in prisons and understand how two recently released federal documents on the diagnosis and treatment of HCV pertain to prison populations.(1,2)

However, as Anne Spaulding, MD, of the Centers for Disease Control (CDC) Division of Viral Hepatitis made clear in her opening statement, the goal of many of the professionals present at the meeting was to establish a new consensus on the treatment of HCV in correctional settings. She described plans to publish the proceedings in a monograph that would help establish national guidelines for the management of HCV in correctional settings.

While it was difficult to reach a consensus, different approaches were shared (and debated) with the goal of better understanding the epidemic facing the nation's prisons and creating effective approaches to managing it. The conference focused on the management of HCV in prisons; adequately discussing management of HCV in jails was thought too large a scope for the meeting.

Background

The first session was devoted to reviews of scientific data on the pathogenesis, and treatment of HCV. Stanley Lemon, MD, of the University of Texas Medical Branch (UTMB) summarized virological aspects and contrasted the prognosis and management of HIV and HCV (Figure 1).

Prevalence

Ted Hammett, PhD, (Abt Associates) presented data from studies supported by the National Commission on Correctional Health Care (NCCHC), the CDC, the National Institute of Justice (NIJ), and the Bureau of Justice Statistics (BJS) on the prevalence of HCV in corrections. He presented revised estimates based on these studies suggesting that 17% to 25% of inmates in the nation's correctional facilities have chronic HCV infection. Based on these data, Dr. Hammett estimated that 1.3 to 1.9 million individuals passing through correctional facilities every year have HCV infection, representing 29% to 42% of the total number of HCV-infected persons in the United States (estimated at 4.5 million). This means that the correctional population provides a remarkable opportunity to diagnose, educate patients, and treat HCV in the United States. He also discussed the "ripple effect" of this blood-borne infection on public health following the return of HCV-infected inmates to their home community.

Testing

Two approaches to testing were discussed: universal and targeted. As discussed by Dean Reiger, MD, of the Indiana Department of Corrections, HCV testing became universal in Indiana prisons in July 2002 despite objections relating to fiscal concerns (there was no additional funding allotted with the legislation). Indiana now performs three separate tests for each offender: HIV, HCV, and syphilis. Initial results show that 13% of inmates in Indiana prisons are HCV-positive.

David Burnett, MD, of the Wisconsin Department of Corrections discussed targeted HCV testing now practiced in Wisconsin. The conclusion of a study commissioned by the Division of Public Health found that targeted testing based on self-identified risk factors as well as routinely available laboratory findings would require testing less than 30% of inmates, but would capture almost 90% of those with HCV infection. Risk factors for targeted screening include a history of IDU, liver disease, elevated ALT, HBV-positive, a history of blood or blood product transfusion, hemodialysis, or organ/tissue transplantation.

Figure 1: Comparing HIV with Hepatitis C*

	HIV	Hepatitis C
Immunopathologic disease	+/-	++/-
Usually fatal if not treated	Yes	No
Highly replicative infection	Yes	Yes
Error-prone RNA transcription	Yes	Yes
High degree of genetic variation	Yes	Yes
Intermediate DNA genome	Yes	No
Can be eradicated following infection	No	Yes
Potential for cure	Low	High

**Chart adapted from Dr. Lemon's presentation by HEPP Report Staff.*

Standard of Care

Dr. Jay Hoofnagle of the National Institute of Diabetes and Digestive and Kidney Diseases reminded the participants that HCV - unlike HIV - can be cured (with combination therapy). Based on available evidence, the best response to therapy occurs when patients are treated early, are relatively young, have low levels of HCV RNA, show less fibrosis on biopsy, and stop drinking before therapy. Hoofnagle advised that the level of the HCV viral RNA alone does not predict the response to therapy. Response to combination therapy using pegylated interferon and ribivarin is generally 42% - 46% for patients who have genotype 1 and 76% - 82% in patients who have genotypes 2 and 3.

There was still some debate about what constitutes the "best" possible care (given the toxicity of treatment and the less-than-optimal response rates in patients with genotype 1). However, for those individuals who meet treatment criteria, Hoofnagle stated that the standard of care is combination therapy with pegylated interferon and ribivarin. Others pointed out that the number of inmates that can be treated with combination therapy while incarcerated is a small percentage of the number testing positive for HCV - and that the real "standard of care" is to make sure that all inmates are properly screened, tested and counseled. Still others objected to establishing a standard of care for HCV treatment in correctional settings without sufficient support in terms of resources and funding from the public health sector.

Resources

The question of how to pay for hepatitis C testing, treatment, and education (without sacrificing other essential health services) was discussed at nearly every session. Of the few firm areas of consensus reached, nearly everyone agreed that there isn't currently enough money to screen, treat and educate inmates on HCV - and there is no expectation that this will change anytime soon. Some believe that lawsuits will force the issue - and others suggest that litigation might be the only catalyst large enough to make a change in legislative and public opinion.

In the opinion of many attendees to the breakout session on resources, the public health system, which has not yet begun to adequately fill the need for HCV aftercare, needs to work with correctional health care professionals and legislatures to develop effective ways to deal with HCV and other infectious diseases. Community

Continued on page 7

Prevention and Control of Hepatitis Viruses in Corrections: CDC Guideline Summary

*By Elizabeth Herbert**

The CDC issued new recommendations (available at http://www.cdc.gov/mmwr/preview/ mmwrhtml/rr5201a1.htm) for controlling the spread of viral hepatitis in U.S. correctional facilities. The recommendations, published in the January 24, 2003 "Morbidity and Mortality Weekly Report," call for vaccination against hepatitis B for all inmates and vaccination against hepatitis A for at-risk inmates. Previous recommendations had called for vaccinating only long-term inmates. The report also recommends testing prisoners with a history of injection drug use (IDU) for hepatitis C.

The recommendations also provide guidelines for juvenile and adult correctional systems regarding identification and investigation of acute viral hepatitis; preexposure and postexposure immunization for hepatitis A and hepatitis B; hepatitis C screening, testing and prevention; health education; and release planning.

Hepatitis A vaccination dosages and schedule for adults *(Source: CDC, 2003)*

Vaccine	Dose	Volume (mL)	# of doses	Schedule (mos)
Havrix	1,440 EL.U	1.0	2	0 and 6-12
VAQTA	50 U	1.0	2	0 and 6
Twinrix*	720 EL.U	1.0	3	0,1, and 6

**Also contains hepatitis B vaccine antigen*

Hepatitis B vaccination dosages and schedule for adults *(Source: CDC, 2003)*

	Recombivax HB*		Engerix-B*		Twinrix**	
	mg	mL	mg	mL	mg	mL
Adults	10	1.0	20	1.0	20	1.0
Dialysis patients and other immunocompromised persons	40	1.0***	40	2.0****	-	-

**Both vaccines are routinely administered in a three-dose series, which includes schedules of zero, one, and six months; zero, two, and four months; and zero, two, and six months.*
***Also contains hepatitis A vaccine antigen.*
****Special formulation*
*****Two 1.0mL doses administered at one site, in a four-dose schedule at zero, one-two, and six months.*

Hepatitis A Virus (HAV) Vaccination
Incarcerated groups for whom hepatitis A vaccination is recommended:
- Users of injection and noninjection illegal drugs
- Men who have sex with men
- Persons with chronic liver disease of any etiology (including HCV)
- Persons who receive blood product replacement therapy for clotting factor disorders

The CDC recommends that for persons at risk, the vaccination series should be initiated as soon as possible after incarceration. Jails and prisons should implement tracking systems if not already in place, and should facilitate completion of the second vaccine dose for inmates who are released before the second dose is administered.

Hepatitis B Virus (HBV) Vaccination
The CDC recommends that all adults who receive a medical evaluation in a correctional facility - jail or prison - should be given the hepatitis B vaccine (unless they have proof of completion of the vaccine series or serologic evidence of immunity). This includes inmates entering correctional facilities as well as those who are already incarcerated and have not been previously vaccinated.

For previously unvaccinated inmates with less than a six-month term, the vaccine series should be initiated and completed using a four-month schedule (zero, one-two, and four months).

Although administration of the complete vaccine series should be the goal of all immunization programs, the CDC notes that even a single dose confers protective levels of antibody, and the likelihood of completion of the vaccination series should not be a factor in offering it.

Hepatitis C Virus (HCV) Testing
The CDC recommends that all inmates be asked questions about risk factors for HCV infection upon intake, and that all inmates reporting risk factors for HCV infection be tested. Risk factors include testing inmates who:
- Ever injected illegal drugs
- Received clotting factor concentrate produced before 1987
- Ever were on long-term hemodialysis
- Have evidence of chronic liver disease, including persistently abnormal ALT levels
- Received a blood transfusion or an organ transplant before July 1992.

The CDC also recommends that inmates who test positive for HCV receive further medical evaluation to determine evidence of chronic infection and liver disease; be immunized against HAV and HBV if not previously vaccinated; and be evaluated for candidacy for antiviral therapy.

Elements of Hepatitis Health Education
The CDC recommends that health education programs and curricula include:
- Routes of transmission
- Risk factors for infection
- Disease outcomes, the need for medical management and treatment options
- Methods to prevent infection, including immunization and harm and risk reduction counseling importance of not sharing drug paraphernalia
- The importance of substance abuse treatment, when appropriate
- Sexual precautions including abstinence counseling and condom use
- Resources in the community available to support and sustain a reduction in risk behaviors.

Education can take different forms, including videos, brochures, and formal classroom presentations. However, repeated face-to-face sessions have been determined to be the most effective means of education.

***Disclosures:** Nothing to disclose.*

Conference Report... *(continued from page 6)*

and community-based organizations (CBOs) need to play a role and find ways to educate and treat in collaboration with corrections. With some exceptions, CBOs have been silent on this issue, according to health care professionals at the conference.

A large barrier to effectively treating HCV after release from prison is the lack of an equivalent to the Ryan White CARE Act. The very real epidemic in the U.S. - not just in correctional facilities - needs attention from legislators (and the public) who can work to implement funding and other components of support for managing HCV. Some at the meeting suggest that correctional officials need to work with their legislators and other elected officials to explain the needs and issues facing corrections in order to allocate the necessary funds to correctional health care budgets and ensure effective aftercare in the community.

***Disclosures:** Nothing to disclose.*

References:

1. NIH Consensus Statement
2. MMWR 2003;52 (No. RR-1)

Save the Dates

Management of HIV/AIDS in the Correctional Setting Satellite Videoconference
Hepatitis B & C with HIV Co-infection: A Diagnostic & Treatment Update
March 11, 2003
12:30-3:30 p.m. Eastern Time
CME & Nursing Credits Available
Call: (518) 262-4674
E-mail: ybarraj@mail.amc.edu
Visit: www.amc.edu/Patient/HIV/hivconf.htm

Improving the Management of HIV Disease
March 28, 2003
New York, New York
Email: cme@iasusa.org
Visit: www.iasusa.org/cme/

15th National HIV/AIDS Update Conference
Focusing on the Front Lines: Practical Lessons in Prevention, Treatment, and Care
March 30-April 2, 2003
Miami, Florida
Email: nauc@total.net
Visit: www.amfar.org/nauc

2003 ACHSA Multidisciplinary Training Conference
Health Services and Security Working Together in Harmony
Co-hosted by the CDC and HRSA
April 10-13, 2003
Baltimore, Maryland
Call: 877-918-1842
Email: achsa@mindspring.com
Visit: www.corrections.com/achsa

Clinical Updates in Correctional Health Care
NCCHC Spring Meeting
April 12-15, 2003
Anaheim, California
Call: 773.880.1460
Visit: www.ncchc.org

43rd Interscience Conference on Antimicrobial Agents and Chemotherapy (ICAAC)
September 14-17, 2003
Chicago, Illinois
Call: 202-737-3600
Email: icaac@asmusa.org
Visit: www.icaac.org/ICAAC.asp

The United States Conference on AIDS
Sponsored by the National Minority AIDS Council
September 18-21, 2003
New Orleans, Louisiana
Call: 202-483-6622
Visit: www.nmac.org

Inside News

LA County Jails See Outbreak of Staph Infections
An outbreak of drug-resistant Staphylococcus aureus is spreading throughout the Los Angeles County jail system, affecting more than 1,000 inmates in the last year and causing at least 57 hospitalizations. Federal officials say the outbreak is the largest of its kind in the nation's correctional systems. The infection, which causes boils, deep skin abscesses and widespread surrounding inflammation, was initially misdiagnosed as spider bites. Jail doctors are now administering two antibiotics in tandem and improving hygiene measures such as providing inmates better access to showers and clean laundry. *Los Angeles Times, 1/31/03*

HIV

Rapid HIV Test Extended to More Sites
U.S. Department of Health and Human Services (HHS) has extended the availability of the OraQuick Rapid HIV-1 Antibody Test from the 38,000 laboratories it was initially approved for to more than 100,000 sites including jails, prisons, physician offices, and HIV counseling centers. The test, manufactured by Orasure Technologies and marketed by Abbott Laboratories, uses a fingerstick sample of blood and provides results within 20 minutes. *FDA Press Office, 1/31/03*

Report: "Dangerous" Health Care at Limestone
Prison Commissioner Donal Campbell released a medical consultant¹s report that found "dangerous andextremely poor quality health care" at Limestone Correctional Facility at Capshaw, Alabama. The report, by Chicago-based Jacqueline Moore and Associates, says the death rate from AIDS at Limestone is more than twice the national average in prisons, and that efforts to control infectious and communicable diseases at the facility were not adequately monitored or reported. Medical services in Alabama prisons are provided by NaphCare; NaphCare officials state that some of the comments in the report are "unsubstantiated and misleading." Department of Corrections spokesman Brian corbett said officials were asking NaphCare to follow up on deficiencies based on the audits. *Associated Press, 2/13/03*

HCV

Roche Reduces Cost of Copegus (ribavirin)
Roche has reduced the list price or wholesale acquisition cost of Copegus (ribavirin) to $5.06 per 200 mg tablet. Roche's Pegasys (peginterferon alfa-2a) and Copegus combination therapy was approved by the FDA in December 2002. *PRNewswire, 1/13/03*

Costs of Testing and Treating HCV in NJ Published
Memos and emails obtained by the *Philadelphia Inquirer* through the state's Open Records Act indicate that the price of testing and treating inmates in New Jersey prisons with the disease could cost $4.5 to $8 million this year. The prison medical provider, Correctional Medical Services (CMS) projected that if just 25% of the state's prison inmates were tested, it would cost $4.5 million a year for treatment and testing in accordance with the Federal Bureau of Prisons guidelines, a standard New Jersey says it will meet. If 75% of the inmates were tested, annual costs could reach $8.4 million, according to CMS documents. *Philadelphia Inquirer, 1/12/03*

ACLU Files Class-Action Lawsuit Against MI Prisons
The American Civil Liberties Union (ACLU) filed a class-action lawsuit in federal district court in January, charging that Michigan prison officials allowed HCV to reach epidemic proportions by failing to adequately test and treat HCV+ inmates. The ACLU claims that state protocols for testing and treatment fall short of accepted medical standards, and that the state sometimes fails to adhere to its own standards. The suit names the Michigan Department of Corrections and Correctional Medical Services as defendants. *ACLU, 1/21/03*

Resources & Websites

The Corrections Demonstration Project
www.sph.emory.edu/HIVCDP/Intro.htm

AIDS Education and Training Centers (AETC) National Resource Center
www.aids-ed.org

CDC Division of HIV/AIDS Prevention
www.cdc.gov/hiv/pubs/guidelines.htm

CDC National Center for Infectious Diseases: Hepatitis C
www.cdc.gov/ncidod/diseases/hepatitis/c/

STD/HIV Prevention Training Center (PTC)
www.stdhivpreventiontraining.org

The PTC is one of a group of federally funded centers specializing in sexual and reproductive health education for medical care providers. The Seattle-based center offers education and skills training in the diagnosis, treatment, and management of STDs.

NATAP HCV and HCV/HIV Handbook, *Version 4*
A 20-page handbook with simply written information on treatment, prevention, transmission, epidemiology, and the latest study data on combination therapy of pegylated interferon plus ribavirin. Available in English and Spanish. For free printed copies (including bulk copies) email NATAP at tommy@natap.org. Available for download at www.natap.org

Health Care and HIV: Nutritional Guide for Providers and Clients, 2002
www.ask.hrsa.gov/detail.cfm?id=HAB00304
Published by the U.S. Department of Health and Human Services.

Self-Assessment Test for Continuing Medical Education Credit

Brown Medical School designates this educational activity for 1 hour in category 1 credit toward the AMA Physician's Recognition Award. To be eligible for CME credit, answer the questions below by circling the letter next to the correct answer to each of the questions. A minimum of 70% of the questions must be answered correctly. This activity is eligible for CME credit through August 31, 2003. The estimated time for completion of this activity is one hour and there is no fee for participation.

1. The condition that occurs when viable M. tuberculosis organisms remain dormant in the body is called:
   (a) MDR TB
   (b) Active TB
   (c) LTBI
   (d) None of the above

2. The safest and most effective treatment for drug-susceptible LTBI is:
   (a) Rifampin and pyrazinamide
   (b) Rifampin
   (c) Isoniazid
   (d) Rifabutin

3. Treatment with the combination of rifampin and pyrazinamide for LTBI is contraindicated in cases of:
   (a) Pregnancy
   (b) Those who have developed liver injury during prior treatment with isoniazid
   (c) Patients who are receiving NNRTIs
   (d) A and B
   (e) All of the above

4. In patients who have symptoms consistent with TB disease, a negative tuberculin skin test is useful in ruling out active TB.
   (a) True
   (b) False

5. The strongest risk factor for progression from TB infection to TB disease is:
   (a) HIV infection
   (b) Injection drug use
   (c) Cancer
   (d) Diabetes

6. If there is suspicion that an individual has pulmonary TB disease, the first action should be to:
   (a) Order a chest radiograph
   (b) Collect sputum specimens
   (c) Place the patient in a negative pressure respiratory isolation room
   (d) Perform two-step skin testing

HEPP Report Evaluation

5 Excellent 4 Very Good 3 Fair 2 Poor 1 Very Poor

1. Please evaluate the following sections with respect to:

	educational value	clarity
Main Article	5 4 3 2 1	5 4 3 2 1
HIV 101	5 4 3 2 1	5 4 3 2 1
Inside News	5 4 3 2 1	5 4 3 2 1
Save the Dates	5 4 3 2 1	5 4 3 2 1

2. Do you feel that HEPP Report helps you in your work? Why or why not?

3. What future topics should HEPP Report address?

4. How can HEPP Report be made more useful to you?

5. Do you have specific comments on this issue?

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