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## Identifying Unknown Risks of Bloodborne Pathogen Transmission to Patients

By Elizabeth Bancroft, MD

Hippocrates said it best: First, do no harm. Despite this commandment, there have been increasing reports of patients being harmed at doctors' offices due to entirely preventable events. The Centers for Disease Control and Prevention (CDC) documented more than 50 outbreaks of hepatitis B and C in the past 11 years associated with unsafe injection practices,<sup>1,2</sup> and most of the outbreaks have been in non-hospital settings.

Outbreaks are increasingly being identified and proven because laboratory techniques are becoming more sophisticated and can prove transmission of single strains of hepatitis in health care settings. Unsafe injection practices are not limited to outbreaks. In a recent study published in the *Journal of the American Medical Association*, two-thirds of ambulatory surgical centers in 2008 had at least one lapse of basic infection control, including unsafe injection practices.<sup>3</sup> In a separate survey, 15% of health care workers admitted to reusing

a syringe to enter a multi-dose vial of medication, with 6% of those admitting to using the multi-dose vial later for other patients.<sup>4</sup>

The intent of this article is to help physicians identify serious breaches in infection control in their practices (so-called "never events") that have been known to result in the transmission of hepatitis B or C.

### Patient Notification

Patient notification is becoming more common as a response to recognition of poor infection control practices. The CDC recommends notifying patients of an increased risk of bloodborne pathogens (BBP) if there has been a documented serious breach in infection control practices (like the use of contaminated multi-dose vials for multiple patients) *even if no outbreak has been proven*.<sup>5</sup> In these situations, health care providers or health departments send letters to patients encouraging them to be tested for bloodborne pathogens (BBP: hepatitis B, hepatitis C, and HIV)

*continued on page 2 >*

## Pertussis Booster Law Countdown: 2 Months

The new pertussis booster school vaccination law takes effect July 1, 2011. Are your adolescent patients vaccinated?

The new California school immunization mandate requires that 7th-12th graders in public and private schools show proof that they received a pertussis booster (Tdap) before starting school this fall.

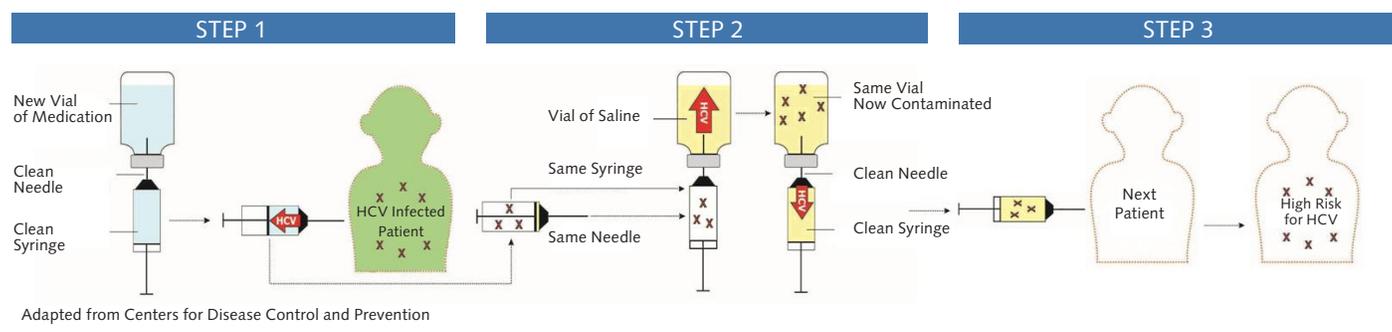
Take the opportunity to vaccinate adolescent patients now with Tdap (not Td) to prevent disease, help them meet the school requirement, and prevent your office from being overwhelmed with vaccination visits during the back-to-school rush. The Advisory Committee on Immunization Practices (ACIP) recommends...

- A Tdap dose for persons aged 11-18 years, preferably at 11-12 years of age, if the recommended DTP/DTaP vaccination series has been completed.
- A Tdap dose for children 7 through 10 years of age who did not complete the recommended DTP/DTaP vaccination series before their 7th birthday.
- No minimum interval between Tdap and prior Td doses.

Visit [www.publichealth.lacounty.gov/ip/school/pertussisforschool.htm](http://www.publichealth.lacounty.gov/ip/school/pertussisforschool.htm) for tips and tools, including links to the ACIP pertussis vaccination recommendations, educational materials, and forms.



**Figure 1. Unsafe Injection Practices and Disease Transmission**



## Injection Practice Dos and Dont's

Physicians may use the following list of “Dos and Don’ts” to review injection practices in their offices to ensure that their staff are following the standard of care. Think of it as a check-up for the practice.

### Syringe Use

- Never administer medications from the same syringe to more than one patient, even if the needle is changed.
- Never enter a medication vial with a used syringe or needle, even if the syringe was only connected to a patient’s heparin lock, IV tubing, or IV bag.
- Prepare syringes in clean areas, away from patients or patient treatment areas, including patient rooms or procedure rooms. This is to prevent inadvertent contamination through direct or indirect contact with potentially contaminated surfaces or equipment.

### Medication

- Use single-dose vials only for one patient. These do not contain antibiotic or bacteriostatic agents, so once the seal is breached, that vial must be considered contaminated. In July 2010, Medicare issued a revision to its claims processing manual which allows for the reimbursement of used and discarded portions of single-dose vials.
- Use multi-dose vials (MDV) properly.
  - Write the date on the label when an MDV is first opened or accessed. Once it has been opened or accessed, the effective expiration date on the vial is 28 days after first use or less, depending on handling/storage or if the FDA has specified a shorter time period. *This is true even if the actual expiration date has not been met.* If a multi-dose vial has *not* been opened or accessed, it should be discarded when it has met the manufacturer’s expiration date.
  - Assign medication packaged as a multi-dose vial to a single patient whenever possible.
  - Multi-dose vials should not be stored or accessed in patient use or treatment areas (e.g., patient rooms or procedure rooms). This is to prevent inadvertent contamination through direct or indirect contact with potentially contaminated surfaces or equipment.

If a multi-dose vial enters a patient treatment area, it should be dedicated to that one patient only and discarded after use.

- Medication vials should always be discarded whenever sterility is compromised or questionable.
- Do not use bags or bottles of intravenous solution as a common source for more than one patient or medication.

### Blood Glucose Testing

- Patients should use only their own fingerstick equipment: Never use the same equipment, even with a new lancet, on more than one patient.
- If glucometers are used for more than one patient, check to see that the glucometer is licensed for multi-patient use. Ensure that the glucometer is fully disinfected before being used for the next patient to eliminate any possibility of cross contamination. Do not bring used glucometers (unless fully disinfected according to the manufacturer’s guidelines) into patient care areas.

### General Infection Control

- Wear a surgical mask when placing a catheter or injecting material into the spinal canal or subdural space.
- Only physicians, registered nurses, or licensed vocational nurses with a specific certification can insert or administer IV medications in California. Medical assistants, even those trained in other countries, may not prepare or administer IV medications.
- Ensure that you have up-to-date injection safety policies that reflect current standards. For more information about injection safety, go to the CDC’s One and Only Campaign at [www.oneandonlycampaign.org](http://www.oneandonlycampaign.org) or consider hiring an independent infection control consultant who can come and observe practices in your office and offer suggestions. Injection safety policies should include worker safety issues and patient safety issues.

Adapted from [www.oneandonlycampaign.org](http://www.oneandonlycampaign.org) and Siegel JD, Rhinehart E, Jackson M, Chiarello L, and the Healthcare Infection Control Practices Advisory Committee. 2007 Guideline for Isolation Precautions: Preventing Transmission of Infectious Agents in Healthcare Settings, [www.cdc.gov/ncidod/dhqp/pdf/guidelines/isolation2007.pdf](http://www.cdc.gov/ncidod/dhqp/pdf/guidelines/isolation2007.pdf)

because the patients may have been exposed to the blood of other patients or health care workers. The number of letters sent in each situation is often quite large because the unsafe practices may have occurred over months to years, requiring that all patients who had an injection in a clinic or doctor's practice be notified of their risk for BBP. In recent notifications, a median of 2,000 letters were sent to patients,<sup>6</sup> placing a considerable burden on providers and public health departments, not to mention the burden placed on patients' mental health when they receive a letter telling them that they might have been exposed to HIV because of something their doctor did or did not do.

### Department of Public Health Investigations

Doctors and nurses at the Los Angeles County Department of Public Health have investigated many cases of hepatitis B and C that may have been associated with medical care outside of hospitals.<sup>7,8</sup> While they are not always able to prove BBP transmission in these investigations, they often find significant breaches in infection control that could have resulted in patients acquiring hepatitis B or hepatitis C. In most situations, the physicians in charge did not even realize that they, or members of their staff, were performing potentially harmful procedures. When investigators have pointed out the problems in the procedures, some physicians have said, "We have always done it this way" or "I didn't realize my staff was doing that!"

There are several misperceptions that the department's investigators regularly identify, including the following:

- That it is OK to use single-dose vials on more than one patient
- That it is OK to use a single IV bag as a common supply for multiple patients or medications
- That open multi-dose vials (MDV) can be used after the expiration date.

Common poor practices that have been documented include the following:

- Not separating clean and dirty areas for equipment and supplies (especially while performing procedures)
- Not dating MDV when opened
- Poor infection control during blood glucose monitoring.

All of these practices can lead to disease transmission. Anyone can have hepatitis B, hepatitis C, or HIV and not know it. Hepatitis B and C can easily survive in the environment and be passed to other patients due to poor environmental clean-up and cross contamination. Hepatitis C can be viable in syringes for up to 63 days, and hepatitis B can be present on environmental surfaces at concentrations of 10<sup>2-3</sup> virions/mL, in the absence of any visible blood, and still cause transmission.<sup>9,10</sup> Environmental contamination may play a role in the transmission of hepatitis B during fingerstick and blood glucose testing. Reuse of medication syringes has also played a role in outbreaks.<sup>11</sup> When a syringe or a needle is attached to a heparin lock, IV tubing, or IV bag that is attached to a

patient, minute amounts of blood (not visible to naked eye) that contain hepatitis B or C, may backflow from the IV line into the needle or syringe. If those syringes or needles are used to access multi-dose vials of medication, or used for other patients, any diseases from the blood in the IV line might be spread to other patients. See Figure 1 for presumed method of transmission of hepatitis C in a Los Angeles County practice due to this mechanism.

By identifying the risks of bloodborne pathogen transmission to patients and by ensuring that safe injection practices are used, physicians play a key role in minimizing the risk of harm to their patients. 

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### REFERENCES

1. Thompson N, Schaefer M, Sharapov U, Patel P, Perz J. A review of hepatitis B and C virus infection outbreaks in healthcare settings, 2008-2009: opening our eyes to viral hepatitis as a healthcare associated infection. Paper presented at 5th Decennial International Conference on Healthcare-Associated Infections; March 2010; Atlanta, GA. <http://shea.confex.com/shea/2010/webprogram/Paper1744.html> Accessed 3/29/2011.
2. Thompson N, Perz J, Moorman A, Holmberg S. Nonhospital health care-associated hepatitis B and C virus transmission: United States, 1998-2008. *Ann Intern Med* 2009;150(1):33-9.
3. Schaefer MK, Jhung M, Dahl M, Schillie S, Simpson C, Llata E, Link-Gelles R, Sinkowitz-Cochran R, Patel P, Bolvard E, Schulster L, Srinivasan A, Perz JE. Infection control assessment of ambulatory surgical centers. *JAMA*. 2010;303(22):2273-9. <http://jama.ama-assn.org/content/303/22/2273.long> Accessed 3/30/2011.
4. Pugliese G, Gosnell C, Bartley JM, Robinson S. Injection practices among clinicians in U.S. healthcare settings. *Am J Infect Control*. 2010; 38(10):789-98.
5. Patel P, Srinivasan A, Perz J. Developing a broader approach to management of infection control breaches in health care settings. *Am J Infect Control* 2008;36(10):685-90.
6. Guh A, Thompson N, Schaefer M, Perz P. Patient notification for bloodborne pathogen testing due to unsafe injection practices in U.S. healthcare settings, 1999-2009. Paper presented at 5th Decennial International Conference on Healthcare-Associated Infections; March 2010; Atlanta, GA. <http://shea.confex.com/shea/2010/webprogram/Paper1789.html> Accessed 3/29/2011.
7. Bancroft E. Nosocomial hepatitis C: A cryptic source for a cryptic disease. ACDC Special Studies Report 2009. <http://lapublichealth.org/acd/reports/annual/2009SpecialStudies.pdf> Accessed 4/5/2011.
8. Hathaway S, Marquez P, Bancroft E. Hepatitis B in a skilled nursing facility. ACDC Special Studies Report 2008. <http://lapublichealth.org/acd/reports/annual/2008SpecialStudies.pdf> Accessed 4/5/2011.
9. Paintsil E, He H, Peters C, Lindenback BD, Heimer R. Survival of hepatitis C in syringes: implication from transmission among injection drug users. *J Infect Dis*. 2010;202(7):984-90.
10. Advisory Committee on Immunization Practices (ACIP). A comprehensive immunization strategy to eliminate transmission of hepatitis B virus infection in the United States *MMWR* *Recom Rep* 2005; 54; 1-23.
11. CDC. Acute hepatitis C virus infections attributed to unsafe injection practices at an endoscopy clinic—Nevada, 2007. *MMWR*;57(19):513-17. <http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5719a2.htm> Accessed 4/4 2011.

# Prevention and Early Identification of Malaria in the Traveler

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Millions of U.S. residents travel to malaria-endemic regions each year. Malaria is a potentially fatal parasitic disease caused by *Plasmodium* species transmitted via the bite of the female *Anopheles* mosquito. Clinical malaria prevention in travelers, a core component of the pre-travel clinical consultation (see *Rx for Prevention*, Jan. 2011), offers the double benefit of protecting the individual traveler against disease while reducing the risk of introduction of malaria to mosquito populations upon return to the U.S.

Fewer than half of U.S. resident travelers to the developing world obtain pre-travel health care; among those who do seek such care, 20%-60% receive incorrect malaria chemoprophylaxis.<sup>1,2</sup> Malaria deaths in U.S. citizens following an inappropriate chemoprophylaxis regime have been reported.<sup>3</sup> Despite these challenges, the primary care physician can effectively manage clinical malaria prevention for most travelers through an organized approach.

## Pre-Travel Clinical Malaria Prevention

Using a malaria prevention checklist (page 5) is a convenient way for the primary care physician to competently provide proper advice. This approach, when paired with the free, on-line CDC “Yellow Book” (Health Information for International Travel 2010, <http://wwwnc.cdc.gov/travel/content/yellowbook/home-2010.aspx>) can rapidly assess malaria risk, determine the need for an appropriate chemoprophylactic, and suggest other topics for patient counseling and education.<sup>4</sup>

The risk of malaria is dependent on the intensity of transmission from mosquitoes at the destination, the duration and type of travel, the prevention measures used, and other individual characteristics.<sup>5</sup> Online CDC resources (page 6) provide country-specific recommendations regarding malaria risk and drug-resistance patterns to assist in determining indications for chemoprophylaxis. There are four medications commonly used for primary chemoprophylaxis: atovaquone/proguanil, doxycycline, mefloquine, and chloroquine. (Other less commonly used medications for primary chemoprophylaxis can be found in the CDC “Yellow Book” section on Malaria.<sup>4</sup>)

The use of chloroquine is now severely restricted due to extensive resistance in *P. falciparum*. An additional agent, primaquine, should be used in individuals with prolonged periods of exposure upon leaving a malaria-endemic region for terminal prophylaxis against the dormant liver stages (hypnozoites) of *P. vivax* and *P. ovale*, the two malaria species that may cause chronic liver infection. Selecting the appropriate



CDC/James Gathany

A female *Anopheles albimanus* mosquito, a vector of malaria predominantly found in Central America, feeds on a human host and becomes engorged with blood.

ate malaria chemoprophylaxis regime requires consideration of destination-specific malaria risk and drug resistance patterns, medical contraindications, common/severe adverse effects, cost and convenience of administration, with further considerations for children and pregnant/lactating women. The malaria checklist addresses all of these considerations.

The approach consists of 3 steps:

1. Assess malaria risk based on travel itinerary and determine if there is indication for chemoprophylaxis.
2. Assess the patient and, if indicated, select appropriate malaria chemoprophylaxis.
3. Counsel and educate the patient regarding mosquito bite prevention, medication compliance and potential adverse effects, symptoms of malaria and advice regarding medical care.

## Early Identification of Malaria in the Returned Traveler to Prevent Morbidity and Mortality

Annually, between 1,000 and 1,500 cases of malaria (with 3-7 deaths) are reported in the United States, with 25-50 of those cases reported in Los Angeles County (LAC).<sup>6</sup> From 2005-2009, only one-third of LAC malaria cases reported any use of prophylaxis. Malaria may be initially misdiagnosed in over 50% of cases, increasing the risk of morbidity and death.<sup>7</sup> Common reasons for initial misdiagnosis include the following:

- Failure to elicit an appropriate travel history
- Provider’s lack of familiarity with malaria diagnostics
- Laboratory staff’s lack of familiarity with malaria microscopy.

When eliciting a travel history, it is important to ask the patient about travel exposures over, at a minimum, the

*continued on page 5 >*

# MALARIA PREVENTION CHECKLIST

**STEP 1. ASSESS MALARIA RISK TO DETERMINE INDICATION FOR CHEMOPROPHYLAXIS**

**A.** Fill in malaria risk information and recommended primary prophylaxis by country from <http://wwwnc.cdc.gov/travel/yellowbook/2010/chapter-2/malaria-risk-information-and-prophylaxis.aspx>

Country	Travel Dates	Areas with Malaria	Drug Resistance	Malaria Species	Recommended Primary Chemoprophylaxis
	Departure ___/___/___  Return ___/___/___		<input type="checkbox"/> None <input type="checkbox"/> Chloroquine <input type="checkbox"/> Mefloquine	___ % <i>P. falciparum</i> ___ % <i>P. vivax</i> ___ % <i>P. malariae</i> ___ % <i>P. ovale</i>	<input type="checkbox"/> Atovaquone/Proguanil <input type="checkbox"/> Doxycycline <input type="checkbox"/> Mefloquine <input type="checkbox"/> Chloroquine

**B.** Will the traveler:  
 Travel to a region with relapsing malaria species (*P. vivax* or *P. ovale*)?  
 Have prolonged exposure to malaria-endemic region (e.g., expatriates, missionaries, Peace Corps volunteers)?  
 If both boxes are checked, consider **Terminal Prophylaxis with primaquine.**

**STEP 2. ASSESS PATIENT AND, IF INDICATED, SELECT APPROPRIATE CHEMOPROPHYLAXIS<sup>4</sup>**

	Atovaquone/Proguanil (Malarone)	Doxycycline	Mefloquine (Lariam)	Chloroquine	Primaquine
<b>Usage</b>	Prophylaxis in all areas	Prophylaxis in all areas	<b>Restricted in parts of SE Asia due to resistance</b>	<b>Severely restricted due to drug resistance</b>	Terminal Prophylaxis to treat dormant liver forms (hypnozoites) of <i>P. vivax</i> and <i>P. ovale</i> to prevent relapse
<b>Contraindications</b>	<ul style="list-style-type: none"> <li>• Creatine Clearance &lt;30ml/min</li> <li>• Caution in patients on coumadin (warfarin)</li> </ul>	Tetracycline allergy	<ul style="list-style-type: none"> <li>• Anxiety/Depression history</li> <li>• Psychiatric disease</li> <li>• Seizure disorder</li> <li>• Cardiac conduction abnormality</li> <li>• Known hypersensitivity</li> </ul>	Epilepsy and psoriasis	<b>Glucose 6 Phosphate Dehydrogenase (G6PD) deficiency must be ruled out by appropriate lab testing prior to use</b>
<b>Convenience of Administration</b>	Daily Dosing	Daily Dosing	Weekly Dosing	Weekly Dosing	
<b>Start</b>	1-2 days before travel	1-2 days before travel	2 weeks before travel	1-2 weeks before travel	Upon departure from malaria-endemic region
<b>Stop</b>	7 days after return	4 weeks after return	4 weeks after return	4 weeks after return	14 days of daily therapy
<b>Adverse Effects</b>	Very well tolerated. Adverse effects rare. Most common adverse effects reported include: <ul style="list-style-type: none"> <li>• abdominal pain</li> <li>• nausea/vomiting</li> <li>• headache</li> </ul>	Adverse effects include: <ul style="list-style-type: none"> <li>• photosensitivity</li> <li>• vaginal candidiasis</li> <li>• esophagitis</li> <li>• nausea, vomiting</li> </ul>	0.5%-1% risk of mild/moderate neuropsych events such as: <ul style="list-style-type: none"> <li>• sleep disturbance</li> <li>• emotional lability</li> <li>• anxiety</li> <li>• cognitive changes</li> </ul> 1/10000 risk of severe reactions such as: <ul style="list-style-type: none"> <li>• seizures</li> <li>• psychosis</li> <li>• hallucinations<sup>9</sup></li> </ul>	Adverse effects at chemoprophylaxis dosing includes: <ul style="list-style-type: none"> <li>• GI disturbance</li> <li>• headache</li> <li>• dizziness</li> <li>• blurred vision</li> <li>• insomnia</li> <li>• pruritus</li> </ul>	G6PD deficient: potentially fatal hemolysis
<b>Safety in Pregnancy/Lactation</b>	Undetermined / Contraindicated	Contraindicated	Contraindicated in 1st trimester	Undetermined	<b>Contraindicated unless G6PD deficiency has been ruled out in breast-fed infant</b>
<b>Safety in Children</b>	Contraindicated in children <5kg	Contraindicated in children <8 years old	Contraindicated in children <5kg		
<b>Pediatric Dose</b>	Peds tabs contain 62.5mg atovaquone and 25mg proguanil hydrochloride. <ul style="list-style-type: none"> <li>• 5-8kg: 1/2 peds tab daily</li> <li>• 8-10kg: 3/4 peds tab daily</li> <li>• 10-20kg: 1 peds tab daily</li> <li>• 20-30kg: 2 peds tabs daily</li> <li>• 30-40kg: 3 peds tabs daily</li> <li>• &gt;40kg: adult dose</li> </ul>	≥8 years old; 2mg/kg up to adult dose of 100mg	Tabs contain 228mg base (250mg salt) <ul style="list-style-type: none"> <li>• ≤9kg: 4.6mg/kg base (5mg/kg salt) orally once/week</li> <li>• &gt;9-19kg: 1/4 tab once/week</li> <li>• &gt;19-30kg: 1/2 tab once/week</li> <li>• &gt;31-45kg: 3/4 tab once/week</li> <li>• ≥45kg: 1 tab once/week</li> </ul>	5mg/kg base (8.3mg/kg salt) orally once/week, up to maximum adult dose of 300mg base	0.5mg/kg (0.8mg/kg salt) up to adult dose orally daily for 14 days after departure from malaria-endemic area
<b>Adult Dose</b>	1 adult tab orally daily (Adult tabs contain 250mg atovaquone and 100mg proguanil)	100mg orally daily	Tabs contain 228mg base (250mg salt); 1 tab orally once/week	300mg base (500mg salt) orally once/week	30mg base (52.6 mg salt) orally daily for 14 days after departure from the malaria-endemic area
<b>Other Considerations</b>	Pediatric tablets available	Requires pregnancy prevention counseling for women of childbearing age	Most effective, worst reputation	Best used for prolonged trips through Central America	

**STEP 3. PATIENT COUNSELING AND EDUCATION**

<input type="checkbox"/> Mosquito Bite Prevention <ul style="list-style-type: none"> <li>• Insect repellent (e.g., DEET)</li> <li>• Proper skin-covering clothing</li> <li>• Insecticide-treated bed nets</li> <li>• Minimize outdoor exposures at dusk and dawn</li> </ul> <input type="checkbox"/> Stress Medication Compliance	<input type="checkbox"/> Provide Example Symptoms of Malaria and Advice on When to Seek Immediate Medical Care <ul style="list-style-type: none"> <li>• High fevers</li> <li>• Flu-like illness</li> <li>• Jaundice (Yellow eye and skin discoloration)</li> </ul> <input type="checkbox"/> Review Potential Medication Adverse Effects	<input type="checkbox"/> Educate Regarding Risk of Counterfeit and Substandard Chemoprophylactic Agents Purchased Abroad <input type="checkbox"/> Stress Importance of Travel/Emergency Medical Evacuation Insurance <input type="checkbox"/> Provide Patient with CDC Written Malaria Info. Preventing Malaria in Travelers: A Guide for Travelers to Malaria-Risk Areas. Available at <a href="http://www.cdc.gov/malaria/resources/pdf/travelers.pdf">http://www.cdc.gov/malaria/resources/pdf/travelers.pdf</a>
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preceding 12 months. The incubation period (time from infection to development of disease) for malaria is highly variable and dependent on the malaria species. Individuals infected with *P. falciparum*, the species responsible for the majority of global malaria deaths, present within 30 days of entry to the U.S. in over 90% of cases.<sup>6</sup> Over one-third of individuals infected with *P. vivax* and *P. ovale* present more than 3 months after reentry to the U.S., and may even present with initial symptoms up to 1 or 2 years after exposure.<sup>6</sup>

Fever in the returned traveler should be considered to be due to malaria until proven otherwise. Approximately 1 in 3 returned international travelers, presenting to a specialized travel or tropical medicine clinic, with a systemic febrile illness, has malaria, but 25% of malaria cases are afebrile at the time of presentation.<sup>8</sup> Blood microscopy of thin and thick blood smears is the test of choice for diagnosing malaria; however, it has a low sensitivity for ruling out malaria, especially under the eyes of a U.S.-based microscopist who rarely confronts tropical parasites. As a result, multiple blood smears obtained at several points in time must be ordered to reliably rule out malaria; expert consultation should be considered early. While advanced malaria diagnostics may be more sensitive than blood microscopy, they are of limited utility for the diagnosis of acutely ill patients in the standard health care setting unless they are immediately available.

#### If a diagnosis of malaria is suspected:

- Consult the CDC Webpage on Malaria Diagnosis and Treatment in the U.S. [www.cdc.gov/malaria/diagnosis\\_treatment/index.html](http://www.cdc.gov/malaria/diagnosis_treatment/index.html)
- Consult the Guidelines for Treatment of Malaria in the U.S. [www.cdc.gov/malaria/resources/pdf/treatmenttable.pdf](http://www.cdc.gov/malaria/resources/pdf/treatmenttable.pdf)
- Consider calling the CDC Malaria Hotline: (770) 488-7788, M-F, 5 am to 1:30 pm, Pacific Time (770) 488-7100, after hours, weekends and holidays
- Report the case to LAC Acute Communicable Disease Control within 1 working day of identification  
Hotline: (888) 397-3993; Fax: (888) 397-3778  
The Malaria Case Report form is available at [www.publichealth.lacounty.gov/acd/EpiForms/MalariaCaseRep-CDPH8657.pdf](http://www.publichealth.lacounty.gov/acd/EpiForms/MalariaCaseRep-CDPH8657.pdf).

## Conclusion

Malaria risk in travelers to malaria-endemic regions can be mitigated through the pre-travel health consultation. The primary care physician is well-suited to assess indications for appropriate malaria chemoprophylaxis and to provide malaria prevention advice and counseling for most travelers. The malaria assessment checklist provides a framework for clinical malaria preventive care. The occurrence of fever in a returned traveler should prompt an investigation for malaria as well as other illnesses. 

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## REFERENCES

1. Hamer DH, Connor BA. Travel health knowledge, attitudes and practices among United States travelers. *J Travel Med.* 2004;11(1):23-6.
2. Kestone JS, Dismukes R, Sawyer L, Kozarsky PE. Inadequacies in health recommendations provided for international travelers by North American travel health advisors. *J Travel Med.* 1994;1(2):72-8.
3. CDC. Malaria deaths following inappropriate malaria chemoprophylaxis – United States, 2001. *MMWR.* 2001;50(28):597-9.
4. Arguin PM, Steele SF. The Pre-Travel Consultation, Malaria. In: CDC Health Information for International Travel 2010. Atlanta: U.S. Department of Health and Human Services, Public Health Service 2009. <http://wwwnc.cdc.gov/travel/yellowbook/2010/chapter-2/malaria.aspx>. Accessed February 3, 2011
5. Schlagenhauf P, Peterson E. Malaria chemoprophylaxis: strategies for risk groups. *Clin Microbiol Rev.* 2008;21(3):466-72.
6. Malaria surveillance – United States, 2007. *MMWR.* 2009; 58(SS02):1-16.
7. Kain KC et al. Imported malaria: Prospective analysis of problems in diagnosis and management. *Clin Infect Dis.* 1998;27(1):142-9.
8. Wilson et al. Fever in returned travelers: Results from the GeoSentinel Surveillance Network. *Clin Infect Dis.* 2007;44(12):1560-8.
9. Spira AM. Preparing the traveller. *Lancet.* 2003;361(9366):1368-81.

## Continuing Medical Education Courses

The Los Angeles County Department of Public Health is pleased to offer the following free, online CME courses, which have been approved for AMA PRA Category 1 credit:

- Successful Treatment of Tobacco Addiction (1 credit)
- Screening for Alcohol Misuse and Abuse (1 credit)
- Preventing Falls Among Adults Aged 65 Years and Older (1 credit)
- Preventing Cervical Cancer (1 credit)
- Common Causes of Low Vision in Adults Aged 40 Years and Older (1 credit)

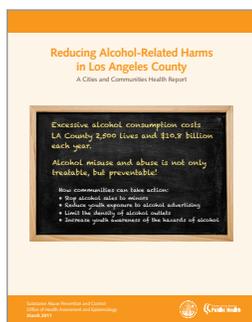
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## Increase in Meningococcal Cases in LA County

On April 19, the Los Angeles County Department of Public Health issued a health advisory, stating that there has been an increase in the number of meningococcal disease cases reported from different parts of Los Angeles County, with 7 cases reported since mid-March. The increase of meningococcal disease in this short period of time is higher than expected. Last year, there were a total of 21 cases. The Department of Public Health is monitoring the cases and is working with affected contacts to limit the spread of disease.

It is recommended that all 11- and 12-year-olds receive a meningococcal conjugate vaccine, along with a booster dose at 16 years of age. Currently, less than 50% of children in this age group are vaccinated. Certain high-risk children from ages 2 to 10 years should also receive the vaccine. High-risk children include those who travel to countries where meningococcal meningitis is hyperendemic or epidemic, and those with complement component deficiency, or functional or anatomic asplenia.

Young adults should get vaccinated if they are planning to live in a college dormitory. Adults requiring immunizations include those who are immunocompromised, microbiologists who are routinely exposed to meningococcal bacteria, U.S. military recruits, or those traveling to countries where the disease is common. The department's advisory to the public recommends that patients check with their health care providers for more information on meningococcal vaccination and that meningococcal disease can be treated with appropriate antibiotics if caught early.



## New Report Examines Relationship Between Alcohol-Outlet Density and Related Harms

Excessive consumption of alcohol is a major public health problem among teenagers and adults in Los Angeles County. According to a report released by the LA County Department of Public Health this month, each year 2,500 people in the county die from alcohol-related causes, with

the loss of approximately 78,000 years of potential life. It is the second-leading cause of premature death and disability in the county.

The report, “Reducing Alcohol-Related Harms in Los Angeles County,” examines the density of alcohol outlets in 117 cities and communities across the county and highlights the relationship between alcohol-outlet density and alcohol-related harms.

“Excessive alcohol consumption, which includes binge drinking and heavy drinking, not only has devastating personal effects, but also takes a tremendous toll on families and communities,” said Jonathan E. Fielding, MD, MPH, Director

of Public Health and Health Officer. “Increased alcohol availability contributes to abuse, leads to serious medical illnesses and impaired mental health. Drinking too much also results in increased motor vehicle crashes and violent crime, family disruptions, and impaired performance at work and school, costing Los Angeles County nearly \$11 billion a year.”

Key findings from the report include the following:

- 16 percent of county adults are binge drinkers, and 1 in 5 Los Angeles-area high-school students reported binge drinking at least once in the past month.
- Communities with a high density of restaurants, bars or stores selling alcohol were much more likely to have increased rates of violent crime.
- Communities with a high density of outlets where alcoholic beverages are sold for consumption elsewhere were 5 times more likely to have increased rates of alcohol-related deaths.

## What Physicians Can Do to Reduce Alcohol-Related Consequences

The report includes strategies that physicians can use to reduce alcohol-related consequences in LA County:

- **Increase screening and provide treatment for alcohol use and misuse.** The U.S. Preventive Services Task Force recommends screening and behavioral counseling to reduce alcohol misuse by adults, including pregnant women. The 5A's framework may be helpful for behavioral counseling: ASSESS alcohol consumption with a brief screening tool followed by clinical assessment, as needed; ADVISE patients to reduce alcohol consumption to moderate levels; AGREE on individual goals for reducing alcohol use or abstinence, if indicated; ASSIST patients with acquiring the motivations, self-help skills, and supports needed for behavior change; and ARRANGE follow-up support and repeated counseling, including referring dependent drinkers for specialty treatment. In addition, all pregnant women and women contemplating pregnancy should be informed of the harmful effects of alcohol on the fetus. (Note: See *Rx for Prevention*, May-June 2010, “Screening for Alcohol Misuse and Abuse.”)
- **Provide referrals** Physicians and other health care providers who are unable to directly provide substance abuse treatment should refer patients who screen positive for further assessment and treatment services, then follow-up to ensure that the patient received needed services. In LA County, those without health insurance may call the Community Assessment Services Center at (800) 564-6600 to find the nearest appropriate treatment center.

To view a full copy of the report, log on to [www.publichealth.lacounty.gov/sapc](http://www.publichealth.lacounty.gov/sapc).

*Rx for Prevention* is published 10 times a year by the Los Angeles County Department of Public Health. If you would like to receive this newsletter by e-mail, go to [www.publichealth.lacounty.gov](http://www.publichealth.lacounty.gov) and subscribe to the ListServ for *Rx for Prevention*.

# Rx for Prevention

Promoting health through prevention in Los Angeles County

## Upcoming Seminar

### CME Lecture and Dinner *TB Screening, A New Era*

May 18, 2011, 6 pm-7:30 pm

Hollywood Presbyterian Medical Center Auditorium

For details about this event, contact Jennifer Paul, TB Coalition, at (213) 384-5864, x272, or [jpaul@alac.org](mailto:jpaul@alac.org).

At the conclusion of the program, participants will be able to describe the science behind Interferon Gamma Release Assays (IGRAs) and how the tests are performed; understand the CDC's 2010 guidelines for the use of IGRAs; identify how problems with handling or processing specimens can impact the results; and recognize issues with using IGRAs in immunocompromised patients, such as those with HIV/AIDS.

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**Comments or Suggestions?** If so, or if you would like to suggest a topic for a future issue, e-mail Dr. Jeffrey Gunzenhauser, co-editor, at [jgunzenhauser@ph.lacounty.gov](mailto:jgunzenhauser@ph.lacounty.gov).



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## Index of Disease Reporting Forms

All case reporting forms from the LA County Department of Public Health are available by telephone or Internet.

**Reportable Diseases & Conditions  
Confidential Morbidity Report**  
Morbidity Unit (888) 397-3993  
Acute Communicable Disease Control  
(213) 240-7941  
[www.publichealth.lacounty.gov/acd/reports/CMR-H-794.pdf](http://www.publichealth.lacounty.gov/acd/reports/CMR-H-794.pdf)

**Sexually Transmitted Disease  
Confidential Morbidity Report**  
(213) 744-3070  
[www.publichealth.lacounty.gov/std/providers.htm](http://www.publichealth.lacounty.gov/std/providers.htm) (web page)  
[www.publichealth.lacounty.gov/std/docs/H1911A.pdf](http://www.publichealth.lacounty.gov/std/docs/H1911A.pdf) (form)

**Adult HIV/AIDS Case Report Form**  
For patients over 13 years of age at time of diagnosis  
HIV Epidemiology Program  
(213) 351-8196  
[www.publichealth.lacounty.gov/HIV/hivreporting.htm](http://www.publichealth.lacounty.gov/HIV/hivreporting.htm)

**Pediatric HIV/AIDS Case Report Form**  
For patients less than 13 years of age at time of diagnosis

Pediatric AIDS Surveillance Program  
(213) 351-8153  
*Must first call program before reporting*  
[www.publichealth.lacounty.gov/HIV/hivreporting.htm](http://www.publichealth.lacounty.gov/HIV/hivreporting.htm)

**Tuberculosis Suspects & Cases  
Confidential Morbidity Report**  
Tuberculosis Control (213) 744-6160  
[www.publichealth.lacounty.gov/tb/forms/cmr.pdf](http://www.publichealth.lacounty.gov/tb/forms/cmr.pdf)

**Lead Reporting**  
No reporting form. Reports are taken over the phone.  
Lead Program (323) 869-7195

**Animal Bite Report Form**  
Veterinary Public Health (877) 747-2243  
[www.publichealth.lacounty.gov/vet/biteintro.htm](http://www.publichealth.lacounty.gov/vet/biteintro.htm)

**Animal Diseases and Syndrome Report Form**  
Veterinary Public Health (877) 747-2243  
[www.publichealth.lacounty.gov/vet/disintro.htm](http://www.publichealth.lacounty.gov/vet/disintro.htm)

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