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Depression Among Youth in Primary Care: Screening, Treatment and Resources

Jennifer L. Hughes, PhD

Heather T. Readhead, MD, MPH

Epidemiology

Depressive disorders in youth cause significant morbidity and mortality and remain under-diagnosed and under-treated. Depression is associated with impairment in family, social, and academic functioning, as well as other adverse outcomes, including substance abuse and suicidality.¹ Suicide is the third-leading cause of death among youths aged 10-24 in the United States.²

It is estimated that between 4% and 8% of adolescents have major depressive disorder (MDD), with a lower prevalence of 2% in younger children.¹ Another 5% to 10% of children suffer from subsyndromal depression,¹ and rates of chronic dysthymia range from 0.6% to 8.0% in children and adolescents.¹ Rates of depression are similar across gender during childhood; however, after puberty, females are twice as likely to suffer from depression.¹

Evidence-Based Primary Care

Primary care settings provide an excellent opportunity to identify youths with depressive disorder and/or suicidality, as more than 70% of adolescents are seen in primary care each year in the United States.³ Greater access to primary versus specialty care among youths in the U.S. coupled with the prevalence and serious risks associated with untreated depression and suicidality underscore the value of evidence-guided primary care strategies for these important health conditions.⁴

Enhancing evidence-based depression screening and management in primary care improves patient outcomes. UCLA's Youth Partners in Care Trial developed and tested health information tools and

strategies for exporting evidence-based depression care for youths aged 13-21 in primary care clinics within five diverse health care organizations in California.⁵⁻⁷

Enhancing evidence-based depression care improved depression, functioning, and patient satisfaction outcomes at a 6-month follow-up among youths in the intervention, as compared to those receiving usual care.⁵⁻⁷ An ongoing research collaboration between UCLA's Youth Stress and Mood Program and Kaiser Permanente is examining the impact of primary care interventions focused on addressing depression and suicide and reducing related health risk behaviors. Recent research also supports the feasibility and benefit of addressing suicidality by linking youths to mental health services through primary care.⁸ Building the evidence base for primary care continues to be an important challenge for prevalent conditions such as depression and suicide.

Task Force Recommendations

The United States Preventive Services Task Force (USPSTF) recommends screening all patients 12-18 years of age for major depressive disorder, provided that there is a system in place for appropriate diagnosis, treatment, and follow-up.⁹⁻¹⁰ The Patient Health Questionnaire for Adolescents (PHQ-A) and the Beck Depression Inventory-Primary Care Version (BDI-PC) are recommended screening tools.

Treatment should include psychotherapy (such as cognitive-behavioral or interpersonal) alone or in combination with pharmacotherapy (i.e., selective serotonin reuptake inhibitors [SSRIs] with FDA approval for use in children).

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SSRIs should only be prescribed when the patient can be closely monitored, as these antidepressants are associated with increased agitation and suicidality. The FDA has approved treatment of depression with fluoxetine for children over the age of 8, and escitalopram for children over the age of 12; however, both SSRIs have “Black Box Warnings” for use in pediatric patients. Additional information about treatment options is included in the Interventions section.

The USPSTF advises that there is inadequate evidence to evaluate the benefits and harms of treating younger children for depression; therefore, it does not make a recommendation concerning screening patients 7-11 years old.¹¹ Furthermore, the Task Force states that “screening instruments perform less well in younger children.” Similarly, it does not recommend routine screening specifically for suicidality in the primary care setting, citing a lack of evidence that screening and treatment result in reduced suicide attempts or mortality, and a lack of screening instruments for suicidality that are validated for use in primary care settings.

Screening and Diagnosis

In primary care settings, where providers often have limited time to address multiple patient concerns, self-administered screening tools are useful in identifying youths in need of further evaluation. The PHQ-A is an evidence-based screening and evaluation tool for clinical practice. Ideally, information from rating scales completed by the patient, parent or caregiver, and clinician are used to diagnose the presence and severity of depression. For more information about depression rating scales and scores, refer to the Resources and Tools section.

The DSM-IV diagnostic criteria for youth depression are the same as adult depression; however, the presentation and assessment process in youths differs. For example, children may present with irritable mood without explicit sadness. Children and adolescents usually present with a concerned caregiver, and clinicians use multiple informants (including the youth, parents, caregivers, and teachers) to understand the duration and nature of symptoms. Generally, youths more accurately report the internalizing symptoms and caregivers the behavioral symptoms. Children struggle to report frequency and duration of symptoms; thus, caregiver reports are needed to establish onset dates and course of illness.³ Table 1 presents common symptoms and behaviors seen in youths with depression, and Table 2 presents common medical and psychiatric comorbidities associated with pediatric depression.

Interventions

Once a diagnosis of depression is made, there are several care options. Factors to consider in treatment planning include the course and severity of depressive illness, presence of psychosocial difficulties, medical and/or psychiatric comorbidities, family and cultural factors, and caregiver and patient treatment preferences. The first step in pediatric depression care

Table 1. Depressive Diagnoses and Common Symptoms and Behaviors in Youths

DSM-IV Depressive Diagnoses

- Major Depressive Disorder (MDD)
- Dysthymic Disorder
- Depression – Not Otherwise Specified
- Adjustment Disorder with Depressed Mood

Symptoms of Depression

- Depressed or irritable mood
- Anhedonia
- Sleep disturbance
- Appetite disturbance
- Feelings of worthlessness/excessive guilt
- Decreased concentration
- Psychomotor disturbance
- Fatigue
- Suicidal ideation and/or behavior

Common Symptoms and Behaviors in Youth With Depression

- Irritability (without explicit sadness)
- Little desire to participate in hobbies (e.g., quits all sports teams)
- Failure to meet expected weight gain
- Sudden change in peer group or withdrawal from peers
- Academic difficulties (e.g., drop in grades)
- Increased family conflict or withdrawal from family

usually includes a family consultation for both diagnostic assessment and education regarding the diagnosis and treatment alternatives. The primary care clinician may decide to take a “watchful waiting” approach initially, scheduling more frequent visits with the youth for counseling and to further monitor depressive symptoms.

Youths would likely benefit from referrals for psychotherapeutic intervention, which can be provided by psychologists, social workers, or licensed professional counselors. Psychotherapy—primarily cognitive behavioral therapy (CBT) and interpersonal therapy (IPT)—is effective in the treatment of depression in adolescents, and studies of CBT and family interventions in depressed children have suggested positive response.³ Typically CBT and IPT are individual treatments; however, group and family therapy are common formats when working with youths. The Association for Behavioral and Cognitive Therapies and Society for Clinical Child and Adolescent Psychology have developed a useful website for patients and professionals about evidence-based mental health interventions, at www.effectivechildtherapy.com.

If the depression is deemed to be moderate to severe, the primary care clinician may also choose to begin pharmacological treatment with an FDA-approved SSRI or refer to child psychiatry for specialty care. There are many factors to consider when choosing a medication, and prescribing algorithms have been developed for pediatric depression clinical decision support. Presently, selective serotonin reuptake inhibitors are

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Mental Health Resources for Children and Youth in LA County

LA County Department of Mental Health—Psychiatric Mobile Response Teams (24/7): 1-800-854-7771 or 911

Clinical staff perform on-site assistance for a patient in a psychiatric emergency (danger to self or others or gravely disabled), evaluating the patient for involuntary detentions. The department also provides immediate assistance to law enforcement agencies in situations involving mentally ill, violent or high-risk individuals: LA County Sheriff's Mental Evaluation Team (MET) and the Los Angeles Police Department System-wide Mental Assessment Response Team (SMART).

Mental Health Urgent Care Centers

Patients in urgent psychiatric need may walk in, obtain immediate care, and stay for up to 24 hours. These clinics attempt to stabilize patients without hospitalization.

- **Exodus Recovery-Eastside**
1920 Marengo St., Los Angeles 90033, (323) 276-6400
(For youth 12+ years; adults 18+ years)
- **Exodus Recovery-Westside**
3828 Delmas Ave., Culver City 90232, (310) 253-9494
(For adults 18+ years)
- **La Casa Psychiatric Health Facility**
6060 Paramount, Long Beach 90805, (562) 630-8672
(For adults 18+ years)
- **Valley Care Olive View-UCLA Medical Center**
14445 Olive View, Sylmar 91342, (818) 364-1555
(For adults 18+ years)
- **Olive View Community Mental Health Urgent Care**
14659 Olive View, Sylmar 91342, (818) 485-0888
(For adults 18+ years)

LA County Community Resource Directory

Call 211 or visit <http://crg.lacounty.gov/dmh/>
Locate services in Los Angeles County such as emergency resources, health care, and child care.

LA County Department of Mental Health Other Resources

- **ACCESS Center Helpline (24/7): 1-800-854-7771**
Staff coordinate crisis intervention, the Psychiatric Mobile Response Team, and mental health referrals.
- **Online Service Locator:** <http://dmh.lacounty.gov/wps/portal/dmh>. Find and map services by address, neighborhood or city. For each mental health provider, detailed information is provided, such as the age group served and available languages.
- **Navigation Teams, Listed by Service Planning Area (SPA)**
These teams help connect providers and patients with mental health resources in their communities (see table below). For more information, including a map and cross-listing with ZIP codes, go to http://file.lacounty.gov/dmh/cms1_178668.doc.
- **Patients' Rights Advocates:** (213) 738-4888 or (213) 738-2524
Advocates protect the constitutional and statutory rights of mental health care recipients.
- **Public Guardian's Office:** (213) 974-0407. To inquire about or to request appointment of a public conservator.

LA County Department of Public Health

- **Children's Medical Services:** (800) 288-4584
This agency serves children with chronic illnesses or disabilities and will address related mental health illness.
- **Substance Abuse Treatment Referrals:** (800) 564-6600.
View a map of outpatient and residential treatment programs for youth at <http://publichealth.lacounty.gov/sapc/resources/YouthTreatmentMap.pdf>, or visit <http://publichealth.lacounty.gov/sapc/findtreatment.htm>.

Professional Organizations and Referrals

American Academy of Child & Adolescent Psychiatry
www.aacap.org. Online search tool to locate psychiatrists, at www.aacap.org/cs/root/child_and_adolescent_psychiatrist_finder/child_and_adolescent_psychiatrist_finder.

LA County Department of Mental Health Navigation Teams, Listed by Service Planning Area (SPA)

SPA/Supervisor	Children (aged 0-15)	Transitional-Aged Youth (aged 16-25)	Adult (aged 26-59)	Older Adult (aged 60+)
1 / J.E. Perkins (661) 223-3800	S. Redding, (661) 223-3816	S. Redding, (661) 223-3816	A. Coleman, (661) 223-3813	V. Quintana, (213) 351-5344
2 / M. Rittel (213) 739-5526	A. Dozortsev, (818) 610-6737	T. Roberts, (213) 923-6459	D. Scholte, (818) 610-6705	V. Quintana, (213) 351-5344
3 / F. Casa-Liese (626) 258-2037	V. Sanchez, (626) 455-4599	S. Ramos, (626) 455-4622	E. Marquez, (626) 471-6535	V. Quintana, (213) 351-5344
4 / N. Weiner (323) 671-2612	S. Umanzor, (323) 671-2625	C. Chung, (323) 671-2622 S. Smith, (323) 671-2618	P. Moore-Hayes, (323) 671-2624	V. Quintana, (213) 351-5344
5 / C. Kaneko (310) 482-6612	K. Chantrprabhvej, (310) 482-6610	J. Lee, (213) 351-5201	C. Kaneko, (310) 482-6612 S. Savafi, (310) 482-6612	V. Quintana, (213) 351-5344
6 / K. Spears (323) 298-3673	D. McDaniel, (323) 290-5828	M. Gooding, (323) 290-5824	P. Cabrera, (323) 290-5826	V. Quintana, (213) 351-5344
7 / J. Ahern (213) 738-2787	L. Prince, (213) 738-2900	A. Caudillo, (213) 738-2529	T. Antoni, (213) 738-6150	V. Quintana, (213) 351-5344
8 / A. Powell (562) 435-2287	A. Hagerty, (562) 435-2078	A. Anderson, (562) 435-3106	A. Powell, (562) 435-2287 J. Nguyen, (562) 435-3037	J. Nguyen, (562) 435-3037

Mental Health Resources for Children and Youth in LA County

UCLA Youth Stress and Mood Program: (310) 825-7773, <http://www.semel.ucla.edu/mood/youth-stress>.

This program serves patients 7-18 years of age with depression, emotional problems, suicidality, and/or self-injurious behavior, focusing on coping skills, stress management and family support. They offer diagnostic evaluations, consultations, referrals for specialized procedures and/or ongoing care, individual and group treatment, family education and treatment, cognitive-behavior therapy, and dialectical behavior therapy skills groups. Clinical services are free if offered as a part of research studies, and eligible participants will instead be financially compensated for participation.

UCLA Child and Adolescent Psychiatry (private services): 1-800-825-9989, <http://www.semel.ucla.edu/psychiatry/cap>. Psychopharmacology clinic, mood disorders clinic, child OCD clinic, eating disorders program, partial hospitalization or "day treatment" programs for different age groups, inpatient treatment, and forensic services.

USC Child and Adolescent Psychiatry (private services): 1-800-USC-CARE, <http://www.doctorsofusc.com/>. In conjunction with other USC-affiliated hospitals and clinics, offers 24/7 consultation, psychiatric hospitalization, and outpatient services. Special programs address mood disorders, childhood learning disorders and hyperactivity, child abuse, forensic psychiatry, and cross-cultural studies (with multilingual staff).

LAC+USC Child and Adolescent Psychiatry (public services): (323) 226-5751 (outpatient) or (310) 668-8212 (inpatient). This department serves patients under 18 years of age and offers crisis evaluation and emergency consultations in the LAC+USC emergency rooms, a consult and liaison service for all patients on the LAC+USC campus, an inpatient service (at Augustus Hawkins Mental Health Center), and an outpatient clinic (for psychiatric evaluation, medication evaluation, psychological testing, individual and family psychotherapy with or without medication, and cognitive-behavior modification therapy).

Didi Hirsch Mental Health Services: (310) 390-8896, <http://www.didihirsch.org/services/family>. Outpatient services for children are offered at four centers (Metro, Inglewood, Mar Vista and S. Mark Taper Foundation), including individual, group, and family therapy, as well as case management and medication management.

Southern California Psychiatric Society. Online directory of psychiatrists, at <http://www.socalpsych.org/directory.html>.

Counseling California. Online searchable directory of qualified marriage and family therapists (MFTs) and other licensed psychotherapists, at <http://www.counselingcalifornia.com/>.

Westside Regional Center: (310) 258-4000, www.westsideregionalcenter.org/f/r_csa.htm. This organization lists counseling providers, services offered, fees charged, insurance accepted, and languages spoken.

Hotlines

L.A. WARM LINE: (855) 952-9276. Provides evening/overnight backup for several hotlines and should be given out simultaneously with other hotline numbers below.

Teen Line (6 pm-10 pm daily): 1-800-TLC-TEEN (852-8336) or (310) 855-4673. This is a toll-free confidential helpline for teen-

aged callers. TEEN LINE website (<http://teenlineonline.org/>) offers online chat, email help, message boards, resources and information. Text "TEEN" to 839863 between 5:30 pm-9:30 pm to speak with peer counselors.

Trevor Project Lifeline for LGBTQ Youth (24/7): 1-866-488-7386 This is the leading national organization focused on crisis and suicide prevention efforts among lesbian, gay, bisexual, transgender and questioning (LGBTQ) youth: <http://www.thetrevorproject.org>

Los Angeles & Orange County Suicide Prevention Crisis Line (24/7): 1-877-727-4747. This service is run by the Didi Hirsch Community Mental Health Services Suicide Prevention Center (<http://www.didihirsch.org/>). Calls are free and confidential, and callers can call for themselves or for someone they care about.

National Suicide Prevention Lifeline (24/7): 1-800-273-TALK (8255). For military and their families, press 1 for the Crisis Line. Callers will be routed to the nearest crisis line in your area.

Child Protection Hotline (24/7): 1-800-540-4000 or visit <http://dcfs.lacounty.gov/contactus/childabuse.html>. Report possible child abuse and/or neglect to the LA County Dept of Child and Family Services.

Sexual Assault & Rape Hotlines (24/7): 1-800-585-6231 (LA) and (800) 656-HOPE (national), or visit <https://ohl.rainn.org/online/>.

Clinical Practice and Training Resources

GLAD-PC Toolkit for Adolescent Depression in Primary Care www.glad-pc.org. This toolkit addresses screening, diagnosis and treatment of depression in people aged 10-21. It includes evidence-based practice guidelines, clinical assessment and management flowcharts, guidance on referrals, screening and assessment questionnaires in both English and Spanish, forms for monitoring management, and educational materials for both adolescents and their parents.

American Academy of Child and Adolescent Psychiatry www.aacap.org

- Clinical practice guidelines for best practices in the assessment and treatment of child mental health: www.aacap.org/cs/root/member_information/practice_information/practice_parameters/practice_parameters.
- Training Toolkit for Systems-Based Practice, addressing the many systems that can be involved in child mental health: Primary Health Care, Mental Health Care, Education, Child Welfare, Juvenile Justice, Developmental Disabilities, Early Childhood Services, and Substance Abuse Treatment Services: www.aacap.org/cs/root/physicians_and_allied_professionals/training_toolkit.
- "Guide to Building Collaborative Mental Health Care Partnerships in Pediatric Primary Care," published June 2010: www.aacap.org/galleries/PracticeInformation/Collaboration_Guide_FINAL_approved_6-10.pdf.
- Online search tool to locate a psychiatrist by name, city/state, ZIP code, languages spoken, and practice interests: www.aacap.org/cs/root/child_and_adolescent_psychiatrist_finder/child_and_adolescent_psychiatrist_finder.

Table 2. Common Medical and Psychiatric Comorbidities**General Medical Conditions Associated with Depression**

- Diabetes mellitus
- Asthma
- Epilepsy
- Brain injury
- Migraine

General Medical Conditions That Can Present With Depressive Symptoms

- Hypothyroidism
- Systemic lupus

Comorbid Psychiatric Disorders in Youth Depression

- Anxiety disorders
- Disruptive Disorders (e.g., oppositional defiant or conduct disorder)
- ADHD
- “Double depression” (MDD and dysthymia)
- Learning Disorders
- Substance Use Disorders

first-line pharmacological treatment, despite concerns regarding the use of these medications in children and adolescents. The FDA “Black Box Warning” indicates that SSRIs may increase the risk of suicidal thinking and behavior in some children and adolescents with MDD, and suggests that youths taking SSRIs should be closely monitored for worsening of depression, suicidality, or agitation, especially during the first 4 weeks of treatment. The National Institute of Mental Health has developed a webpage to assist parents and caregivers in understanding the risks and benefits of treatment with SSRIs, at www.nimh.nih.gov/health/topics/child-and-adolescent-mental-health/antidepressant-medications-for-children-and-adolescents-information-for-parents-and-caregivers.shtml.

The combination of pharmacotherapy and psychotherapy, specifically treatment with SSRIs and CBT, is the preferred treatment for moderate to severe depression in adolescents.¹² Additionally, switching to a second SSRI and adding CBT is the most effective treatment strategy for youths with treatment-resistant depression.¹³ Combination treatment serves to enhance the magnitude of response to treatment, and there is some evidence that CBT plays a protective role against suicidality.

Resources and Tools

A collaborative group of clinicians from family medicine, pediatrics, psychology, and psychiatry developed clinical guidelines and a free online toolkit to assist in the management of adolescent depression in primary care: Guidelines for Adolescent Depression—Primary Care. It can be accessed online at www.glad-pc.org.

The Mental Health Resources for Children and Youth lists local mental health referral options, hotlines to be used by both providers and patients, and clinical practice and training resources. 

Jennifer L. Hughes, PhD, is a clinical psychologist and postdoctoral scholar/clinical instructor in the Youth Stress and Mood Program at UCLA, Department of Psychiatry & Biobehavioral Sciences, Semel Institute for Neuroscience and Human Behavior. **Heather T. Readhead**, MD, MPH, is a clinical preventive services manager, Division of Chronic Disease and Injury Prevention, Los Angeles County Department of Public Health.

REFERENCES

1. Emslie GJ, Mayes TM, Kennard BD, & Hughes JL (2006). Pediatric Mood Disorders. In D.J. Stein, D.J. Kupfer, & A.F. Schatzberg (Eds.), *The American Psychiatric Publishing Textbook of Mood Disorders*. American Psychiatric Publishing Inc., Washington, DC, pp. 573-602.
2. Centers for Disease Control and Prevention. Web-based Injury Statistics Query and Reporting System (WISQARS). Leading Causes of Death Reports. Atlanta, GA: National Center for Injury Prevention and Control. Available at <http://www.cdc.gov/injury/wisqars/index.html>. Last accessed 2012 March 09.
3. Newacheck PW, Brindis CD, Cart CU, Marchi K, Irwin CE (1999). Adolescent health insurance coverage: recent changes and access to care. *Pediatrics*, 104(2 Pt 1):195-202.
4. Cheung AH, Zuckerbrot RA, Jensen PS, et al. (2007). Guidelines for adolescent depression in primary care (GLAD-PC): II. Treatment and ongoing management. *Pediatrics*, 120(5):e1313-e1326.
5. Asarnow JR, Jaycox LH, Duan N, et al. (2005). Effectiveness of a quality improvement intervention for adolescent depression in primary care clinics: a randomized controlled trial. *JAMA*, 293(3):311-319.
6. Asarnow JR, Jaycox LH, Tang L, et al. (2009). Long-term benefits of short-term quality improvement interventions for depressed youths in primary care. *American Journal of Psychiatry*, 166(9):1002-1010.
7. Wells KB, Kataoka SH, Asarnow JR (2001). Affective disorders in children and adolescents: addressing unmet need in primary care settings. *Biological Psychiatry*, 49(12):1111-1120.
8. Gardner W, Klima J, Chisolm D, et al. (2010). Screening, triage, and referral of patients who report suicidal thought during a primary care visit. *Pediatrics*, 125(5):945-952.
9. U.S. Preventive Services Task Force. Screening and Treatment for Major Depressive Disorder in Children and Adolescents: Clinical Summary, March 2009: www.uspreventiveservicestaskforce.org/uspstf09/depression/chdeprsum.htm.
10. Williams SB, O'Connor EA, Eder M, Whitlock EP (2009). Screening for child and adolescent depression in primary care settings: a systematic evidence review for the US Preventive Services Task Force. *Pediatrics*, 123(4):e716-735.
11. U.S. Preventive Services Task Force. Screening for Suicide Risk: Recommendation and Rationale, May 2004: www.uspreventiveservicestaskforce.org/3rduspstf/suicide/suiciderr.htm.
12. TADS Team (2004). Fluoxetine, cognitive-behavioral therapy, and their combination for adolescents with depression: Treatment for Adolescents with Depression Study (TADS) randomized controlled trial. *JAMA*, 292(7):807-820.
13. Brent D, Emslie G, Clarke G, et al. (2009). Switching to another SSRI or venlafaxine with or without cognitive behavioral therapy for adolescents with SSRI-resistant depression: The TORDIA randomized controlled trial. *JAMA*, 299(8):901-913.

Murine Typhus Cases Increasing in LA County

Rachel Civen, MD, MPH

Van Ngo, MPH

Emily Beeler, DVM, MPH

Murine typhus (flea-borne typhus fever, endemic typhus) is an infection caused by two bacteria: *Rickettsia typhi* and possibly also by *Rickettsia felis*. These pathogens are transmitted when flea feces are inoculated into flea bites, wounds, or mucous membranes. Since fleas generally defecate near where they feed, self-inoculation usually occurs when a person scratches a bite. Animal hosts for the fleas are predominantly rats, opossums, and feral cats.

Symptoms include fever, severe headache, chills, myalgia, and rash. Most illnesses are mild, but about 10% of patients have a more severe illness and need to be hospitalized. Fatalities occur in less than 1%. Most recover within a few days after treatment with antibiotics.

Between 2000-2009, 7 to 18 confirmed cases were reported in Los Angeles County per year. This number jumped to 31 cases in 2010 and to 38 cases (0.39 per 100,000) in 2011. As of July 31, 2012, 18 cases have already been confirmed, triple the number reported by this time last year. These numbers underestimate the true number of cases since most reported cases are severe; mild cases of typhus often go unreported as patients may not seek medical care and physicians are less likely to order typhus testing.

Information for Physicians

How to diagnose: Typhus has a nonspecific clinical presentation and can mimic many diseases, including West Nile virus fever and viral and bacterial meningitis. Taking a good clinical and exposure history is critical to diagnosis. Questions about pet ownership and exposure to wildlife and fleas are important though people may not remember whether they have been exposed to fleas. It takes 1 to 2 weeks to show symptoms and an additional 1 to 2 weeks after symptom onset before positive serology results can indicate a recent infection.

Treatment: Doxycycline 100 mg PO bid for 3 days past clinical resolution, usually 7 days.

Prevention: Physicians should counsel patients about flea control. Pet owners should discuss flea control practices with their veterinarians. The most common strategy is the monthly application of flea control product on pets, used as directed. Pet bedding should be laundered to remove flea feces. Food and water should not be left outdoors so as to avoid luring wild animals and feral cats (and their fleas) into the proximity of homes.

Local Case Example

A 33-year-old woman presented to an emergency department complaining of 10 days of fever (38°C-40°C), chills, rapid heart rate, severe frontal and occipital headache, and stiff neck. She reported a transient rash that started as “small red bumps on my legs,” and then progressed to a diffuse erythematous rash before resolving. Her physical examination was notable for meningismus, fever (T=39°C), and tachycardia. The patient had a normal CBC, and mild elevations in AST, ALT, and LDH. A CT scan of her head and a CSF sample obtained by lumbar puncture were within normal limits. Additional history revealed the patient lived in an area north of Downtown LA, known to be endemic for typhus. She owned several cats and recalled being bitten by fleas repeatedly. This history led to submission of a serum sample for typhus serology and to immediately starting her on doxycycline 100 mg PO bid. Within 48 hours of antibiotics, her headache had decreased dramatically and the fever was gone. Her typhus IgM serology was strongly positive.

Geographic Spread of the Disease

Within the county, murine typhus also appears to have spread geographically, establishing itself in new areas. While the incidence remains highest in the typhus-endemic area north of Downtown LA, cases are now being reported from the western, southern, and eastern areas as well. Fleas can survive year-round in LA County. Although typhus cases typically peak in late summer and early fall when fleas are most active, cases are documented throughout the year.

The reason for the increase is unknown. Potential contributors include 1) an increase in local climate conditions favoring flea reproduction, 2) a decrease in flea control efforts, 3) relocation of animals hosting infected fleas from endemic areas to new locations, 4) increased testing by physicians, and 5) the introduction of electronic laboratory reporting in 2005, allowing laboratories to report positive serology results directly to the Department of Public Health. Laboratory reports of suspect seropositive results jumped more than 150% between 2000 and 2011.

To view a map of local cases or read more about typhus, go to www.publichealth.lacounty.gov/acd/vectormurine.htm. 

Rachel Civen, MD, MPH, is a medical epidemiologist and **Van Ngo, MPH**, is an epidemiologist, Acute Communicable Disease Control Program; **Emily Beeler, DVM, MPH**, is a veterinarian, Veterinary Public Health and Rabies Control Program, Los Angeles County Department of Public Health.

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West Nile Virus Update 2012

Rachel Civen, MD, MPH

Van Ngo, MPH

The detection of dead birds and mosquito pools positive for West Nile virus (WNV) in Los Angeles County in February marked the beginning of the 2012 WNV season. As of mid-August, 46 dead birds, 53 positive mosquito pools, 12 sentinel chickens, and 2 human cases have been reported compared to 58 dead birds, 180 mosquito pools, 5 sentinel chickens, and 2 human cases as of the same time in 2011. A total of 63 WNV human cases were reported to the LA County Department of Public Health by the end of 2011, including a WNV-infected organ donor and the transplant recipient. This was a nearly 16-fold increase from the number of cases reported in 2010 and the third documented peak occurring in the county since WNV arrived with a single case in 2003. WNV activity has increased throughout California and parts of the United States, reaching or surpassing levels of activity documented in 2004.

Even in years with low case counts, WNV remains enzootic. Cases reported to the Department of Public Health represent only the tip of the iceberg of all WNV infections. Most cases go undetected since approximately 80% of individuals infected with WNV have no symptoms and most of the remainder experience only mild symptoms. Reporting infections helps guide Public Health and the LA County mosquito abatement districts prevent further cases by targeting mosquito abatement services and health education.

Providers should be aware of proper diagnostic procedures, understand the importance of prompt reporting, and educate their patients on how to protect themselves against infection.

West Nile Virus Serological Screening Tests

WNV screening tests are recommended only for patients with signs or symptoms compatible with West Nile fever, aseptic meningitis, encephalitis, or acute flaccid paralysis. Because there is excellent correlation between WNV tests from most commercial labs and subsequent testing at public health laboratories, tests from commercial labs generally do not require confirmation by the LA County Public Health Laboratory. However, it will continue to be available for initial screening diagnostics and confirmation of ambiguous results on serum specimens. Note that this year, the laboratory will no longer test cerebrospinal fluid (CSF) for routine diagnosis of neuroinvasive WNV infection, as the antibody test is not approved for CSF. WNV testing can be requested for CSF under special circumstances (e.g., confirmation of ambiguous serum results) and will be forwarded to the Centers for Disease Control and Prevention.

Reporting of Human WNV Cases

Public Health tracks occurrences of West Nile fever, neuroinvasive disease, and asymptomatic blood donors. Physicians and laboratories are required to report all positive laboratory

Submitting Sera for Testing

WNV diagnostic testing is available at the Public Health Lab for individuals with the following signs or symptoms:

- Encephalitis
- Aseptic meningitis (individuals 18 years of age or older)
- Acute flaccid paralysis or atypical Guillain-Barré syndrome
- Febrile illness compatible with West Nile fever syndrome:
 - Case must be evaluated by a health care provider.
 - Symptoms associated with West Nile fever syndrome can be variable and often include headache, fever ($\geq 38^{\circ}\text{C}$), muscle weakness, rash, swollen lymph nodes, eye pain, nausea, or vomiting.

For instructions on sending specimens, go to www.publichealth.lacounty.gov/acd/EpiForms/WNVLabSubForm.pdf.

findings of WNV, whether they are confirmed or not, to the LA County Department of Public Health within 1 working day. A standard Confidential Morbidity Report (CMR) form may be used to report suspected cases. The form is available at www.publichealth.lacounty.gov/acd/reports/CMR-H-794.pdf. Once completed, it may be faxed to Public Health's Morbidity Unit at 1-888-397-3778. During normal business hours, a report may also be phoned in to 1-888-397-3993.

West Nile Virus Prevention

Physicians can share the following "Three Ds" tips on WNV prevention with their patients:

1. **Defend.** Use an EPA-registered insect repellent with DEET, picaridin, oil of lemon eucalyptus, or IR3535 according to label instructions. Repellents keep the mosquitoes from biting. DEET can be used on infants and children 2 months of age and older.
2. **Dawn and dusk.** Mosquitoes that carry WNV bite in the early morning and evening. It is important to use repellent and wear clothing that reduces the risk of skin exposure to mosquito bites during this time. Make sure doors and windows have tight-fitting screens to keep out mosquitoes. Repair or replace screens with tears or holes.
3. **Drain.** Mosquitoes lay their eggs on standing water. Eliminate all sources of standing water around a house or property, including buckets, old car tires, and pet bowls. If there is a pond, use mosquito fish (available from the local mosquito and vector control agency) or commercially available products to eliminate mosquito larvae.

Online patient education materials can be found at:

- www.publichealth.lacounty.gov/acd/VectorWestNile.htm
- www.westnile.ca.gov/
- www.cdc.gov/ncidod/dvbid/westnile/index.htm. 

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 and subscribe to the ListServ for *Rx for Prevention*.

Rx for Prevention

Promoting health through prevention in Los Angeles County

Upcoming Trainings

The LA County Department of Public Health's Immunization Program is offering free inservice trainings on the **2012-2013 Influenza Vaccination Recommendations**.

These 1.5-hour trainings will be held at 9 am and 1:30 pm on **Sept. 5, Sept. 19, Sept. 25, and Oct. 2**, and at 2 pm on **Oct. 10**.

For more information, call (213) 251-7800. To register, go to www.publichealth.lacounty.gov/ip/trainconf.htm.



Office of the Medical Director
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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.

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

Sexually Transmitted Disease

Confidential Morbidity Report

(213) 744-3070

www.publichealth.lacounty.gov/std/providers.htm (web page)

www.publichealth.lacounty.gov/std/docs/STD_CMV.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

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

Tuberculosis Suspects & Cases

Confidential Morbidity Report

Tuberculosis Control (213) 745-0800

www.publichealth.lacounty.gov/tb/forms/cmrv.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

Animal Diseases and Syndrome

Report Form

Veterinary Public Health (877) 747-2243

www.publichealth.lacounty.gov/vet/disintro.htm

Use of trade names and commercial sources in *Rx for Prevention* is for identification only and does not imply endorsement by the Los Angeles County Department of Public Health (LACDPH). References to non-LACDPH sites on the Internet are provided as a service to *Rx for Prevention* readers and do not constitute or imply endorsement of these organizations or their programs by LACDPH. The Los Angeles County Department of Public Health is not responsible for the content of these sites. URL addresses listed in *Rx for Prevention* were current as of the date of publication.