

**OREGON PUBLIC HEALTH DIVISION • DEPARTMENT OF HUMAN SERVICES**

**HEPATITIS C SURVEILLANCE IN OREGON: THE GOOD, THE BAD, AND THE UGLY**

It has been four long years since our last installment on hepatitis C virus (HCV) infection. In this issue of the *CD Summary*, we review what we have learned from laboratory-based surveillance, special studies in Multnomah County, and a 15-county hepatitis C pilot study targeting injection drug users (IDUs).

**THE UGLY: LABORATORY-BASED CHRONIC HEPATITIS C SURVEILLANCE**

Transmission of HCV occurs mainly through exposure to infected blood, which can occur through injection drug use, blood transfusions before 1992, solid organ or tissue transplants from infected donors, occupational exposures to infected blood, unsafe medical exposures, or birth to an infected mother. Sexual transmission occurs, but is relatively uncommon. Although infection from tattooing, body piercing, or acupuncture is biologically plausible, the data do not demonstrate a significant risk from these procedures.

According to the National Health and Nutrition Examination Survey of 1999–2002, 1.6% of the U.S. population has antibodies to HCV, and nearly 3.2 million Americans are chronically infected.<sup>1</sup> If these national prevalence estimates are applied to Oregon's population, about 48,000 Oregonians are chronically infected — ten times higher than the number of Oregonians living with HIV infection. Nearly 10,000 of these chronically infected Oregonians will develop cirrhosis, and 1,000–2,000 will die from hepatitis C. In 2005, chronic hepatitis C became reportable, and we have since received nearly 17,000 reports of Oregonians with positive HCV tests (antibody assays, RIBA, PCR or genotyping). Oregon public health nurses generally only investigate acute cases of HCV. For this reason, we have no information on

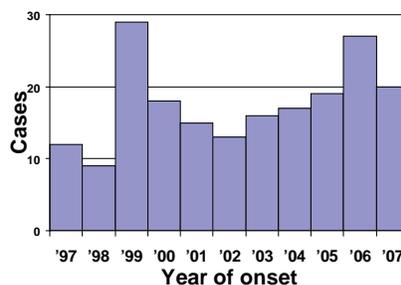
race and ethnicity for >85% and no risk factor data for 95% of reported cases. What, then, do we know about chronic HCV infection in Oregon?

During 2006–2007, 11,619 individuals with a positive HCV test were reported to the Oregon Public Health Division (OPHD). Of these, 6,905 (59%) were male, and 8,052 (69%) were 40–59 years of age. Multnomah County accounted for 1,518 (24%) of the cases reported in 2007. Higher rates are seen along the I-5 corridor and in counties housing correctional facilities, such as Malheur, Umatilla, and Marion.

**THE BAD: ACUTE HEPATITIS C**

The great majority of acute hepatitis C infections are asymptomatic and therefore do not come to medical attention and diagnosis. Acute cases are those with an acute illness, discrete onset of symptoms, serum alanine aminotransferase >400, a positive test for HCV (serology or nucleic acid), and (if done) negative tests for acute hepatitis A and B. The relatively small proportion of cases that are diagnosed as “acute” are investigated, so our data for acute HCV are much prettier. An average of 17 cases have been reported annually in Oregon (Figure).

Figure. Acute HCV, Oregon 1997–2007.



During 2006–2007, 47 acute HCV cases were reported to OPHD and local health departments (LHDs) were able to track down 35 (74%) of

them for interviews. In contrast to our chronic HCV cases, 62% of the acute HCV cases were female, and 62% were 20–39 years of age — likely reflecting differences in the demographics of persons infected recently compared to those who contracted HCV infection 20 years ago. Of cases with race and ethnicity information, 30 (89%) were white and non-Hispanic. Injection drug use was reported by 16 (53%) of the 30 cases interviewed; 3 cases reported high-risk sexual behavior (e.g., multiple sexual partners, treatment for STD). No risk factor was identified for 5 cases.

Our surveillance for acute cases is limited by two facts: 1) most acute cases have no symptoms and so do not come to medical attention; and 2) no lab test reliably distinguishes acute from chronic infection — and the number of positive lab tests reported exceeds our ability to investigate for “acuteness.” For these reasons, physician reporting of acute cases is the *sine qua non* of tracking the epidemiology of hepatitis C.

**THE GOOD: EXPANDED SURVEILLANCE**

Perhaps our best data come from special studies conducted under the auspices of our Emerging Infections Program.

During September 2005–August 2006, Multnomah County Health Department (MCHD) staff attempted to interview 40% of the 2,262 cases reported to them. They found that these patients are difficult to find: they were able to interview but 199 (25%) of the population sampled. Of those interviewed, 77% were white, 57% were male, and 76% were 41–60 years of age. One-quarter of the cases reported having been homeless in the past year, and 80% declared incomes of <\$30,000 per year. Perhaps not surprisingly, 37% relied on Medicaid, and 24% were uninsured. A history of ever injecting drugs was reported



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by 80%, and 21% reported injecting in the past year. Of concern, only 43% of cases had been vaccinated against hepatitis A and 52% against hepatitis B. Despite knowledge of their diagnosis, 26% reported current alcohol use. More than 60% of cases reported having been diagnosed with or treated for mental health issues. These data highlight the importance of addressing social issues that affect the medical management of HCV infection\* and the need for basic prevention services such as vaccination and help with alcohol cessation.

Starting in January 2007, MCHD has faxed a one-page form to health care providers requesting demographic information, reasons for testing, and risk factors among patients with HCV infection. The provider response rate for the first year was 603 (60%). The most common reasons for testing were history of HCV infection (39%), abnormal LFTs (23%), and risk factors for HCV (23%), with injection drug use being the most common (51%).

The best way to obtain data about persons with HCV infection may be to interview patients at the time of testing. Ultimately, we would like to be able to offer free testing throughout the state for HCV, much as we do for HIV. We began piloting this approach in March 2007 at 10 local health departments. Project staff

\*Alas, we do not have space to address the latest advances of treatment for HCV, but refer readers to the latest guidelines published by the American Association for the Study of Liver Diseases listed in the references.

followed CDC's recommendations for screening of high-risk individuals (see Table). As of May 2008, 10 LHDs submitted 637 anti-HCV tests to Oregon State Public Health Laboratory; of those, 143 (22%) were positive. IDUs (72%) constituted the largest group of persons tested, with 37% reporting having injected drugs within the past year; of IDUs, 28% were anti-HCV-positive.

**Table. Indications for routine HCV screening?**

- Receipt of blood from a donor who later tested positive for HCV
- Injection of illegal drugs (even if only once)
- Receipt of clotting factor concentrates made before 1987
- Receipt of blood transfusion or solid organ transplants before 1992
- History of hemodialysis
- History of liver disease

#### WHAT YOU CAN DO TO MAKE IT "ALL GOOD"

- Screen patients based on their risk for infection as listed in the table above.
- Vaccinate all persons with chronic hepatitis C against hepatitis A and B.
- Discourage HCV-positive patients from taking hepatotoxic drugs (e.g., acetaminophen).
- Encourage HCV-positive patients to limit alcohol intake.
- Report to your local public health department whenever you suspect acute viral hepatitis C infection in a patient (that is, someone who is HCV+ by EIA and reports symptoms of viral hepatitis in the past 6 months).

#### REFERENCES:

1. Armstrong G, Wasley A, Simard E, McQuillan G, et al. The prevalence of hepatitis C virus infection in the United States, 1999 through 2002. *Ann Int Med* 2006;144:705-14.
2. CDC. Recommendations for prevention and control of hepatitis C virus (HCV) infection and HCV-related chronic disease. *MMWR* 1998; 47(RR-19): 1-39.
3. Strader DB, Wright T, Thomas DL, Seeff LB. Diagnosis, management, and treatment of hepatitis C. *Hepatology* 2004;39:1147-71.

#### WNV: 2008 UPDATE

From January-September 2008, states have reported 1108 cases of West Nile virus (WNV) infection to CDC. Of these, 508 (46%) were neuroinvasive (i.e., meningitis or encephalitis), 561 (51%) were reported as West Nile fever, and 39 (4%) were clinically unspecified. This is a significant drop from last year's case count of 3630, 1217 (34%) of which were neuroinvasive. The apparent decline could be explained by testing being more targeted to persons with neuroinvasive disease — with consequent increase in the proportion of reported cases with those conditions.

In Oregon, 16 human cases have been reported. Thirteen were from Malheur County; Baker, Umatilla, and Morrow counties had one case each. No cases were reported in residents west of the Cascades.† The median age of cases was 36 years; 9 were female. All reported fever, weakness and headache; 2 were neuroinvasive.

Eighteen WNV-positive mosquito pools and 2 positive birds have also been reported in Oregon this year.

† or even west of the Ochocos.