

## SHORT REPORT: HEPATITIS C VIRUS INFECTION IN SAMOA AND AMERICAN SAMOA

GREGORY L. ARMSTRONG,\* IAN T. WILLIAMS, UTOOFILI ASOFA'AFETAI MAGA, SATUPAITEA VIALI, WENDI L. KUHNERT, AND STEPHEN T. MCGARVEY

*Division of Viral Hepatitis, National Center for Infectious Diseases, Centers for Disease Control and Prevention, Atlanta, Georgia; Department of Health, Government of American Samoa Pago Pago, American Samoa; Tupua Tamasese Meaole Hospital, Ministry of Health, Apia, Samoa; International Health Institute, Brown University, Providence, Rhode Island*

**Abstract.** Little is known about the prevalence of hepatitis C virus (HCV) in Pacific islands. In this study, serum specimens collected in 1985 and 2002 among the general populations of Samoa and American Samoa were tested for antibody to HCV by a third-generation enzyme immunoassay and a recombinant immunoblot assay. Of the 3,466 specimens tested, 8 (0.2%; 95% confidence interval = 0.07–0.4%) were positive for antibody to HCV. Prevalence did not vary by location or demographic characteristic. Thus, HCV is present in the Samoas but at a low prevalence.

An estimated 2.2% of the world's population has been infected with the hepatitis C virus (HCV).<sup>1</sup> Most of these 140 million people positive for antibodies to HCV are chronically infected, making HCV one of the most common chronic blood-borne viral infections in the world. In highly industrialized countries, illicit injection drug use accounts for most infections,<sup>2</sup> whereas in developing countries, most infections are attributable to parenteral exposures in health care settings, particularly unsafe injections.<sup>3</sup> Blood transfusion also accounts for a substantial proportion of cases before screening for surrogate markers and antibodies to HCV. Sexual transmission of HCV occurs but is inefficient and probably accounts for a small proportion of all infections.

Few data have been published on HCV infection in the Pacific Islands, where another form of hepatitis, hepatitis B, is highly endemic. Studies of outpatients and blood donors in the Solomon Islands have found prevalences of antibodies to HCV of 0.2–0.5%.<sup>4,5</sup> In a convenience sample of specimens from Vanuatu, prevalence was less than 1%.<sup>6</sup> Another convenience sample of specimens from Micronesian adults collected in the Northern Mariana Islands, Palau, the Federated States of Micronesia, Guam, and the Republic of the Marshall Islands found an overall prevalence of 0.9% (6 of 635, Centers for Disease Control and Prevention, 2000, unpublished data). Higher prevalences have been recorded in Kiribati (4.8%)<sup>6</sup> and Papua New Guinea (4.1%).<sup>7</sup>

We tested two collections of specimens from the Samoas for antibodies to HCV. The first included specimens collected in 1985 from 99 randomly selected households on Tutuila, the main island of American Samoa, in preparation for the introduction of hepatitis B immunization.<sup>8</sup> Of the 843 original specimens, 818 (97.0%) were available in 2002 for testing. The second collection included 1,289 specimens collected in Samoa (formerly Western Samoa) and 1,359 specimens collected in American Samoa during 2002 as part of a study of obesity genetics. Both sets of specimens were tested anonymously for antibodies to HCV, first by enzyme immunoassay (EIA 3.0; Ortho Diagnostic Systems, Inc., Raritan, NJ) and then, if repeatedly reactive by EIA, by immunoblot assay (recombinant immunoblot assay [RIBA] 3.0; Chiron Corpo-

ration, Emeryville, CA). Specimens positive by RIBA were considered positive for antibodies to HCV. Differences in prevalence rates were compared by the Fisher exact test. Protocols for these studies were reviewed and approved by institutional review boards at the U.S. Centers for Disease Control and Prevention, Brown University, the Samoan Ministry of Health, and the American Samoa Department of Health.

Of 3,466 specimens, 8 (0.2%, 95% confidence interval = 0.07–0.4%) were positive for antibodies to HCV. Of the specimens from American Samoa, 5 (0.6%) of the 818 specimens collected in 1985 were positive while 1 (0.08%) of the 1,359 specimens collected in 2002 were positive ( $P = 0.04$ ). Of the 1,359 specimens collected from Samoa in 2002, 2 were positive (0.15%). There were no statistically significant differences in prevalence of antibodies to HCV by age group, sex, jurisdiction (American Samoa versus Samoa), or housing density (rural versus urban).

These results show that infection with HCV is present but rare in both countries. The low rate of illicit injection drug use in the Samoas is one likely reason for this, as is the lack of informal medical care settings and unsafe injection practices. Tattooing, including by traditional methods, provides one potential avenue for transmission of blood-borne viruses such as HCV. However, the ubiquity of this practice in the Samoas together with the rarity of HCV infection argue against a major role for tattooing in HCV transmission. Nonetheless, the presence of HCV infection in our study emphasizes the importance of maintaining HCV testing as part of routine blood screening practices in Polynesia.

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Authors' addresses: Gregory L. Armstrong, Ian T. Williams, and Wendi L. Kuhnert, Division of Viral Hepatitis, National Center for Infectious Diseases, Centers for Disease Control and Prevention, Mailstop G-37, 1600 Clifton Road, NE, Atlanta, GA 30330, Telephone: 404-371-5345, Fax: 404-371-5221, E-mails: garmstrong@cdc.gov, iwilliams@cdc.gov, and wkuhnert@cdc.gov. Utoofili Asofa'afetai Maga, Department of Health, Government of American Samoa, Pago Pago, American Samoa, E-mail: magaaso@hotmail.com. Satupaitea Viali, Tupua Tamasese Meaole Hospital, Ministry of Health, Apia, Samoa, E-mail: sviali@yahoo.com. Stephen T. McGarvey, International Health Institute, Brown University, Box G-B495, Providence, RI 02912, E-mail: stephen\_mcgarvey@brown.edu.

\* Address correspondence to Gregory L. Armstrong, Division of Viral Hepatitis, National Center for Infectious Diseases, Centers for Disease Control and Prevention, Mailstop G-37, 1600 Clifton Road, NE, Atlanta, GA 30030. E-mail: garmstrong@cdc.gov

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