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## LETTER TO THE EDITOR

### HIGH PREVALENCE OF HEPATITIS A ANTIBODIES AMONG RECYCLABLE WASTE PICKERS, CENTRAL BRAZIL

April 26, 2013

Dear Editor,

In South America, a shift has been observed from high to intermediate endemicity for hepatitis A virus (HAV) infection in several countries, including Brazil, which has generally been explained by improvements in public health programs and sanitary conditions in most parts of these areas<sup>3,13</sup>. A multicentric population-based study conducted in Brazilian capital cities classified the North, Northeast and Central-West regions as having an intermediate endemicity for HAV infection, while South and Southeast regions as having a low endemicity<sup>8</sup>. Furthermore, seroprevalence rates may vary by age, socio-economic status, urbanization level and access to clean water as sanitation facilities<sup>3</sup>.

In Brazil, recyclable waste pickers collect, separate, classify and sell all types of recyclable waste materials. These individuals are autonomous workers who may or may not belong to recyclable cooperatives or associations. In 2002, this job became regulated by the Brazilian Occupational Classification. The number of recyclable waste pickers has increased significantly in urban areas, and it is estimated that there are one million recyclable waste pickers in Brazil<sup>1</sup>. They have a lifestyle that makes this group highly vulnerable to unfavorable socioeconomic and environmental factors. Additionally, their occupation is associated with poor health and high levels of risk of acquiring infectious diseases occupationally<sup>5,9,11,12</sup>. However, the epidemiological status of HAV infection in recyclable waste pickers remains unknown.

A seroprevalence survey for HAV was conducted among recyclable waste pickers in Goiânia City (population 1,300,000), the capital of the state of Goiás, Central Brazil. Since 2008, Goiânia has been engaged in the implementation of the *Programa Goiânia Coleta Seletiva* recycling program. This program focuses on integrating actions between the municipal government that provides collection of recyclables for every household. The rise in household recyclable waste collection has led to the creation of 15 cooperatives.

Between April 2010 and May 2011, 431 individuals from all recycling cooperatives were enrolled. Participation was voluntary. Written informed consent was obtained from all participants prior to the start of the study. Participants were interviewed to collect data on their sociodemographic characteristics, professional information, and other risk behaviors. Blood was collected from all participants and serum samples tested by enzyme-linked immunosorbent assay (ELISA) for the presence of total antibodies against HAV (Eti-Ab-HAVK Plus, Diasorin, Italy). Anti-HAV positive samples were assayed for IgM anti-HAV (Eti-HA-IgMK Plus, Diasorin). The protocol used in the present study was approved by the Ethical Committee of the Federal University of Goiás (No. 002/2010).

Almost all recyclable waste pickers were positive for total anti-HAV antibodies (429/431). By contrast, none were IgM anti-HAV positive, indicating that 99.5% of the study population had previously been exposed to HAV since no participants in this population were vaccinated against HAV. The population ranged in age from 18 to 80 years (mean 36.9 years). There were 269 females (62.4%) and 162 males (37.6%). Most of the participants had low educational (78.7% had received eight years or less of education, corresponding to primary or elementary school level of education) and socioeconomic levels (60% reported an income of  $\leq 1$  Brazilian minimum wage/month, approximately US \$300 or less). Regarding the locations of their residences, 11.2% reported living in waste deposits, 4.1% lived on the streets, and 84.7% either rented or owned their residence in periphery areas where environmental conditions are still poor (crowded conditions and lack of sewage system). The majority of recyclable waste pickers reported consumption of non-filtered water (60%) and had eaten food from the garbage (73.6%). Most participants reported having contact with human stools present on diapers (85.8%) and toilet paper (95.3%), among other wastes, as well as inconsistent glove use (63.6%) and other personal protective equipment.

This letter represents the first investigation designed to estimate the prevalence of HAV in a population of recyclable waste pickers in Brazil. Although no similar reports are available for direct comparison, the anti-HAV prevalence found among recyclable waste pickers was higher than those reported in waste collectors in Greece and Thailand (62.5%, 61% and 89.2%)<sup>2,6,10</sup>. It should be stressed that recyclable waste pickers are in closer contact with garbage than waste collectors who handle waste products using gloves. Furthermore, garbage is kept in a closed plastic bag that is seldom opened by waste collectors. In addition, the prevalence of anti-HAV found in this study was in agreement with other high rates reported in low socioeconomic Brazilian groups<sup>4,7</sup>. Thus, despite a shift in the endemicity of HAV infection in Brazil from high to intermediate or low<sup>8,13</sup>, pockets of highly exposed individuals may co-exist within this country.

In conclusion, a high prevalence for past infection of hepatitis A was found among recyclable waste pickers in Central Brazil. Most of these workers reported having contact with human stools, indicating a potential risk of occupational exposure to HAV infection. These findings highlight

the importance of having a public health policy that addresses this population which should be aimed at improving education, hygiene practice, and safer equipments for collecting selective waste. In addition, vaccination against HAV could also be considered.

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