Documentation, Codebook, and Frequencies

Surplus Sera Laboratory Component:
Antibody to human herpes virus 8 (Surplus Sera)

Survey Years:
1988 to 1994

SAS Export File:
SSHV8AC.XPT

First Published: May 2006
Last revised: April 2007
Human herpes virus 8 (HHV8) antibody testing of stored sera specimens from NHANES III (1988–1994) was conducted to estimate the seroprevalence of HHV8. HHV8 is also known as Kaposi sarcoma associated herpes virus.

Participants aged 6+ years from of NHANES III with stored sera (N = 18,168).

HHV8 antibody testing was performed using enzyme immunoassays (EIAs) to detect antibodies to the HHV8 K8.1 structural glycoprotein (expressed during lytic viral replication) and orf73 (also known as LANA, a viral regulatory protein expressed during latent infection). Sera were diluted 1:20 for the K8.1 EIA and 1:100 for the orf73 EIA. HHV8 testing was conducted over a period of six months. Quality control criteria determined an acceptable range for variation in the controls, and plates that had control optical density (OD) values outside the acceptable range were repeated. To account for remaining plate-to-plate variability, OD results were adjusted by regressing them against the mean OD of the positive controls on the respective plate. The regression equations were:

\[
OD_{ij} = -0.109 + 0.169 \ O_D_{i \text{positive control}} + R_{ij} \text{ for the K8.1 assay,}
\]

and

\[
OD_{ij} = -0.128 + 0.169 \ O_D_{i \text{positive control}} + R_{ij} \text{ for the orf73 assay,}
\]

where i denotes the plate, j denotes the sample, and the Rij are the residuals from the regressions. A sample’s residual value Rij can be interpreted as the amount that the sample’s OD was above or below the expected value for that plate. For most samples, these residuals clustered in a single peak with low antibody levels, while there were a minority of individuals who had higher reactivity. Cutoffs were chosen for the residuals after visual inspection of histograms (1.20 for the K8.1 assay, 0.70 for the orf73 assay), with subjects whose residuals were...
above the cutoff classified as seropositive. The cutoffs chosen from the regression were highly conservative, to increase the specificity of the EIAs and enhance the positive predictive value of the test results. As a consequence, seroprevalence results may underestimate the true prevalence of HHV8 infection, but comparisons of results across groups should be valid.

Results using alternative cutoffs used previously for these EIAs are also provided: for the K8.1 EIA, the cutoff was $0.75 + \frac{OD_{\text{negative control}}}{OD_{\text{positive control}}}$, and for the orf73 EIA, the cutoff was $0.20 \times OD_{\text{positive control}}$. These cutoffs yielded higher seroprevalence estimates, but did not fully account for the plate-to-plate variability captured by the regression method.

Both K8.1 and orf73 antibodies were measured because some infected individuals, including those with Kaposi sarcoma, make antibodies only to lytic or latent antigens (2). The K8.1 ELISA is estimated to have 91-100% sensitivity and 92-100% specificity (1;3). Sensitivity and specificity of the orf73 ELISA have not been established, although the widely used indirect immunofluorescence assay for LANA antibodies has reasonable but perhaps more variable sensitivity (80-100%) and specificity (57-100%) (1;3).

**Laboratory Quality Control and Monitoring**

Sera were run concomitantly with known positive and negative controls. Plates with anomalous values for these controls were re-run.

**Data Processing and Editing**

Data Access: All data are publicly available.

**Analytic Notes**

There are four variables for human herpes virus 8 antibody measurements:

- SSH8PK: result on K8.1 ELISA (1=positive, 2=negative)
- SSH8POR: result on orf73 ELISA (1=positive, 2=negative)
- SSH8PK2: result on K8.1 ELISA using alternative cutoff (1=positive, 2=negative)
- SSH8POR2: result on orf73 ELISA using alternative cutoff (1=positive, 2=negative)
Please refer to the Analytic Guidelines for further details on the use of sample weights and other analytic issues.

References


Locator Fields

Title: Antibody to human herpes virus 8 (NHANES III Surplus Sera)
Contact Number: 1-866-441-NCHS
Years of Content: 1988-1994
First Published: May 2006
Revised: April 2007
Access Constraints: None
Use Constraints: None
Geographic Coverage: National
Subject: Antibody to human herpes virus 8 (SSHV8AC)
Record Source: NHANES 1988-1994
Survey Methodology: NHANES 1988-1994 is a stratified multistage probability sample of the civilian non-institutionalized population of the U.S.
Medium: NHANES Web site; SAS transport files
National Health and Nutrition Examination Survey
Codebook for Data Production (1988-1994)
(NHANES III)

Antibody to Human Herpes Virus 8 (SSHV8AC)
Person Level Data

First Published: May 2006
Last Revised: April 2007
**Respondent sequence number.**

**K8.1 assay result**

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### Orf73 assay result

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### K8.1 assay result alternative cutoff

**English Text:** K8.1 assay result alternative cutoff

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