

# Analyzing trends in HSV Western Blot results at a Reference Laboratory

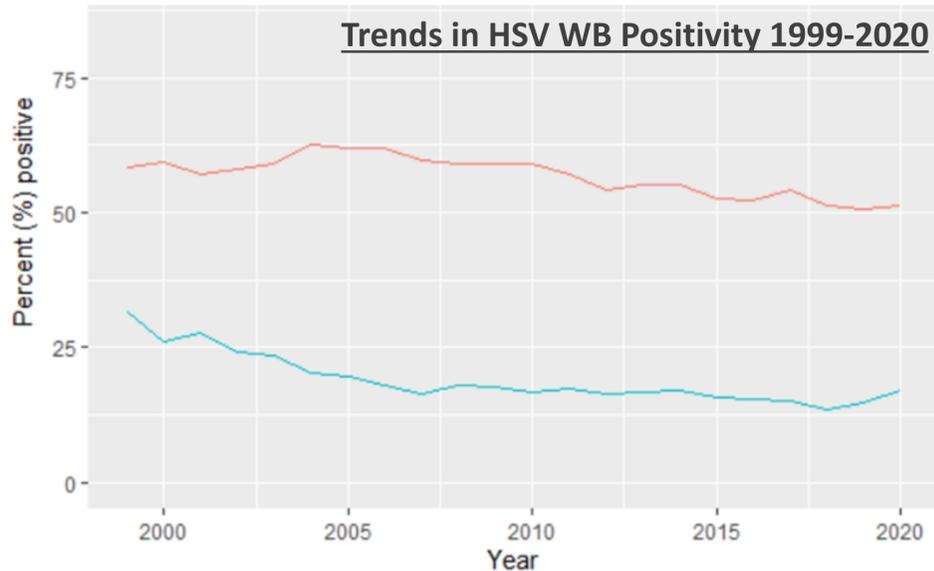
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## BACKGROUND

- ❖ Seroprevalence in the U.S for people age 14-49 for HSV-2 is 11.9% and 47.8% for HSV-1
- ❖ Several FDA approved type-specific HSV IgG assays are commercially available, but the HSV Western Blot (WB) is considered the gold standard test for serologic diagnosis of HSV-1 and HSV-2
- ❖ The University of Washington performs this test as a reference lab for the country
- ❖ A small proportion of HSV Western Blot tests yield an indeterminate result causing frustration for patients and providers
- ❖ Our goal was to better understand HSV Western Blot result trends over time and determine the proportion of WB positivity for HSV-1 and HSV-2 and the proportion of results that are indeterminate

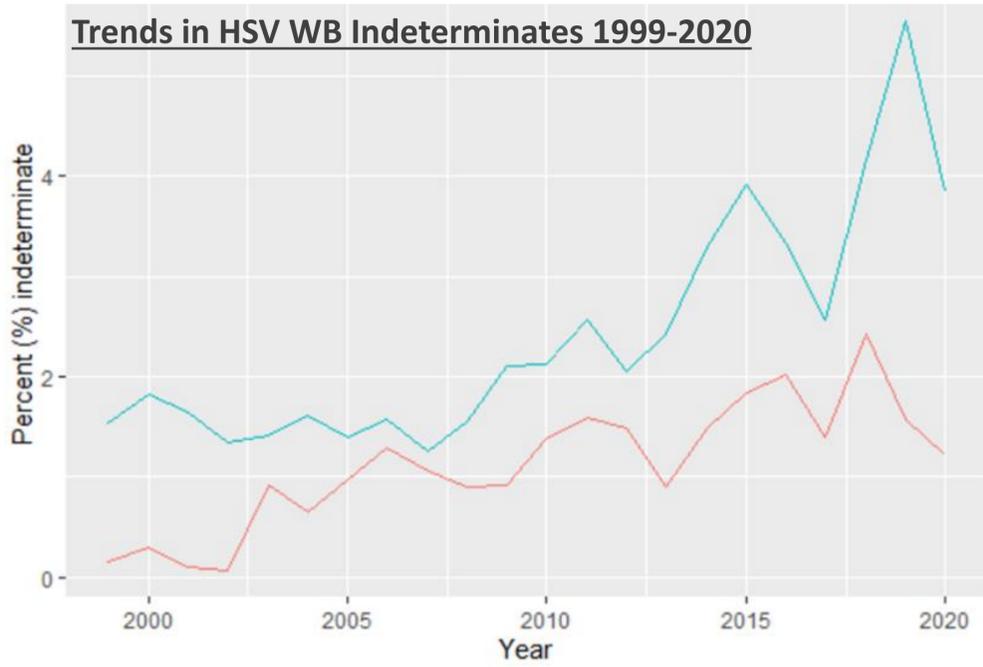
## METHODS

- ❖ Reviewed de-identified HSV Western Blot results of tests performed at the University of Washington Virology Laboratory between 1999-2020 for persons aged 18-99
- ❖ Excluded results of "low level antibody, unable to subtype" and oncology service with the label Seattle Cancer Care Alliance ("SCCA")
- ❖ Assessed proportion of negative, positive, and indeterminate results for both HSV-1 and HSV-2.
- ❖ Used linear regression to assess the trends in positive and indeterminate results over time and the association between indeterminate results and age.



- ❖ Proportion of **HSV-1 positive test results decreased** by 0.45% each year ( $p < 0.001$ )
- ❖ Proportion of **HSV-2 positive test results decreased** by 0.6% annually ( $p < 0.001$ )

- ❖ Proportion of HSV-1 **indeterminate test results increased** by 0.08% each year ( $p < 0.001$ ).
- ❖ Proportion of **HSV-2 indeterminate results increased** by 0.15% each year ( $p < 0.001$ ).



## RESULTS

- ❖ Overall, most people were positive for HSV-1 (68%) and a substantial proportion for HSV-2 (30%)
- ❖ Between 1999-2020, out of 188,342 results, 2,152 (1%) samples were indeterminate for HSV-1 and 4,419 (2%) for HSV-2
- ❖ In the most recent 5-year period, 1,420 (3.8%) tests out of 37,134 resulted indeterminate for either HSV-1 or HSV-2
- ❖ Overall, the highest proportion of HSV-2 indeterminate results was in the 56-65 age group with a total of 3.3% while the lowest proportion was in those 18-25 years of age at 1.7% ( $p < 0.003$ ).

Table 1. Results of HSV serologic tests

TEST TYPE	N (%)
HSV 1 POSITIVE	107,468 (57%)
HSV 2 POSITIVE	35,294 (19%)
HSV 1 AND HSV 2 POSITIVE	20,138 (11%)
HSV 1 AND HSV 2 NEGATIVE	61,533 (33%)
HSV 1 INDETERMINATE	2,152 (1%)
HSV 2 INDETERMINATE	4,419 (2%)
TOTAL # SAMPLES	188,342

## CONCLUSIONS

- ❖ HSV-1 and HSV-2 seropositivity has declined in the last twenty years, in parallel to national trends.
- ❖ The frequency of indeterminate results for both HSV-1 and HSV-2 may be rising which could reflect increased testing in the setting of declining seroprevalence leading to a decrease in the positive predictive value of testing.
- ❖ Overall HSV indeterminate Western Blot results are rare
- ❖ Future studies could involve serial testing in persons who had an indeterminate result and seeing whether they seroconvert or whether they remain stable over time