USING AN INTEGRATED APPROACH TO ASSESS HEPATITIS B VACCINATION AND IMMUNITY AMONG PEOPLE LIVING WITH HIV

Courtney Smith, MPH
Wyoming Department of Health
People with HIV are at an increased risk of HBV infection
- **Mode of transmission**
  - Chronic infection, e antigen, higher DNA levels, cirrhosis, liver-related death
- Hepatitis B vaccine is the most effective way to prevent infection
  - WHO – eliminate HBV as a public health threat by 2030
  - HHS National Viral Hepatitis Action Plan – 60% reduction in new hepatitis B cases by 2020
  - Advisory Committee on Immunization Practices recommends hepatitis B vaccine for all people with HIV
  - U.S. Department of Health and Human Services guidelines indicate all HIV-positive patients susceptible to HBV should get vaccinated
- How do we assess?
Background

- Medical Monitoring Project - 44.2% of U.S. HIV patients eligible for vaccine
  - Medical record review and patient interview
- Wyoming is not an MMP state
  - 3 HIV providers / HIV case management in every county
    - Private providers
    - Many people travel to surrounding states for care
  - No Ryan White clinics – funding goes to WDH and reimburses providers for services
  - Hard/time consuming to do medical record review of all patients
  - No national hepatitis surveillance or immunization database

Background

- Wyoming rural / low incidence and prevalence
  - Approximately 2% of PLWH in Wyoming are coinfected with HBV
Background

- 2017 hepatitis B in Wyoming
  - 15 cases reported
  - 60% male

- HIV coinfection
  - National estimate is approximately 10%

- Adult Immunization Program
  - Provide free hepatitis vaccines to adults
  - Offered in every county
Background

- Systems used in Wyoming
  - **PRISM** – Surveillance system used for STD and viral hepatitis surveillance and partner services
    - HIV partner services, HIV rapid test data, all HIV cases
  - **CAREWare** – Ryan White case management system
  - **eHARS** – HIV surveillance system
  - **WyIR** – Wyoming Immunization Registry
    - Immunization database for all WY residents
  - **STARLIMS** – public health laboratory system
  - **NEDSS** – electronic laboratory reports
Methods

- HIV cases currently living in Wyoming
  - eHARS
- Cross-sectional analysis of:
  - Vaccination (full or partial)
    - Wyoming Immunization Registry (WyIR), CAREWare
  - Immunity
    - STARLIMS (Public Health Lab), CAREWare, NEDSS
  - Infection
    - PRISM
Methods

- Vaccine-eligible
  - No documentation of vaccination (including partial)
  - No documentation of immunity
  - No documentation of infection
Methods

- Sociodemographic variables
  - Race/ethnicity
  - Age
  - Residence at diagnosis (WY vs everywhere else)
  - Enrolled in Ryan White Services
  - Birth sex
  - Stage 3 (AIDS) status
Methods

- **Analysis**
  - *Frequencies to describe HIV population*
  - *Pearson’s chi-square to assess associations between vaccine eligibility and sociodemographic characteristics*
  - SAS 9.4
# Results

<table>
<thead>
<tr>
<th>Variable</th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Ryan White Participant</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>180</td>
<td>58.3</td>
</tr>
<tr>
<td>No</td>
<td>129</td>
<td>41.7</td>
</tr>
<tr>
<td><strong>Diagnosed while living in Wyoming</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>173</td>
<td>56.0</td>
</tr>
<tr>
<td>No</td>
<td>136</td>
<td>44.0</td>
</tr>
<tr>
<td><strong>Diagnosis of HIV Stage 3 (AIDS)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>170</td>
<td>55.0</td>
</tr>
<tr>
<td>No</td>
<td>139</td>
<td>45.0</td>
</tr>
</tbody>
</table>
Results

Race/Ethnicity

- Hispanic: 15.8%
- Black: 8.7%
- White: 68.9%
- Other: 6.5%

56% of cases were diagnosed in Wyoming

75% were 40 years or older

80% Male
# Results

<table>
<thead>
<tr>
<th>Vaccine/Immunity Status</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Full vaccine series</td>
<td>91 (29.4%)</td>
</tr>
<tr>
<td>Partial vaccine series</td>
<td>24 (7.8%)</td>
</tr>
<tr>
<td>Immunity</td>
<td>29 (9.4%)</td>
</tr>
<tr>
<td>Infection</td>
<td>7 (2.3%)</td>
</tr>
<tr>
<td>No documentation of vaccine, immunity, or infection</td>
<td>158 (51.1%)</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>309 (100%)</strong></td>
</tr>
</tbody>
</table>
## Results

<table>
<thead>
<tr>
<th>Vaccine/Immunity Status</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Full vaccine series</td>
<td>91 (29.4%)</td>
</tr>
<tr>
<td>Partial vaccine series</td>
<td>24 (7.8%)</td>
</tr>
<tr>
<td>Immunity</td>
<td>29 (9.4%)</td>
</tr>
<tr>
<td>Infection</td>
<td>7 (2.3%)</td>
</tr>
<tr>
<td>No documentation of vaccine, immunity, or infection</td>
<td>158 (51.1%)</td>
</tr>
<tr>
<td>Total</td>
<td>309 (100%)</td>
</tr>
</tbody>
</table>
## Results

<table>
<thead>
<tr>
<th>Variable</th>
<th>Vaccine-Eligible</th>
<th>Ineligible for Vaccine</th>
<th>Pearson’s Chi-Square Test P value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Ryan White Participant</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>77</td>
<td>103</td>
<td>0.0005</td>
</tr>
<tr>
<td>No</td>
<td>81</td>
<td>48</td>
<td></td>
</tr>
<tr>
<td><strong>Diagnosed while living in Wyoming</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>78</td>
<td>95</td>
<td>0.0165</td>
</tr>
<tr>
<td>No</td>
<td>80</td>
<td>56</td>
<td></td>
</tr>
<tr>
<td><strong>Diagnosis of HIV Stage 3 (AIDS)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>99</td>
<td>71</td>
<td>0.0057</td>
</tr>
<tr>
<td>No</td>
<td>59</td>
<td>80</td>
<td></td>
</tr>
<tr>
<td>Variable</td>
<td>Vaccine-Eligible</td>
<td>Ineligible for Vaccine</td>
<td>Pearson’s Chi-Square Test P value</td>
</tr>
<tr>
<td>-------------------</td>
<td>------------------</td>
<td>------------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td><strong>Age Group</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt;40 years</td>
<td>39</td>
<td>46</td>
<td>0.2554</td>
</tr>
<tr>
<td>40+ Years</td>
<td>119</td>
<td>105</td>
<td></td>
</tr>
<tr>
<td><strong>Race/Ethnicity</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hispanic</td>
<td>18</td>
<td>31</td>
<td>0.17</td>
</tr>
<tr>
<td>Black/Not-Hispanic</td>
<td>14</td>
<td>13</td>
<td></td>
</tr>
<tr>
<td>White/Not-Hispanic</td>
<td>116</td>
<td>97</td>
<td></td>
</tr>
<tr>
<td>Other/Not-Hispanic</td>
<td>10</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td><strong>Birth Sex</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>32</td>
<td>32</td>
<td>0.8387</td>
</tr>
<tr>
<td>Male</td>
<td>126</td>
<td>119</td>
<td></td>
</tr>
</tbody>
</table>
Conclusions

- Only 40% of PLWH had documentation of a full vaccine series or immunity
- Over half of those with HIV eligible for vaccine
- Results of Chi-Square are expected
  - RW Status
  - Residence of Diagnosis
  - AIDS status
Limitations

- No medical record review
- Migration
- Getting care out of state
- Vaccination does not equal immunity
Current Efforts and Next Steps

- **Current efforts**
  - Enrollment form
  - Screening Project
  - DIS linkage to care

- **Chart audits**
  - Discrepancy between patient charts and CAREWare

- **Provider and case manager education**

- **Improvement of HAB measures**
The Wyoming Department of Health recommends that all HIV-infected persons be vaccinated for Hepatitis A & B as well as screened for Hepatitis B & C.

Have you been vaccinated against hepatitis A or B?  
Do you have a copy of your vaccination records?  
Date of vaccination #1:  
Date of vaccination #2:  
Date of vaccination #3:  

Would you like to be vaccinated against hepatitis A or B?  

Have you ever been screened for hepatitis C?  
If yes, have you ever been diagnosed with hepatitis C?  
If yes, do you currently receive treatment for hepatitis C?  
If no, would you like to be screened for hepatitis C?  

If the client wishes to be vaccinated or screened for hepatitis, or if the client has hepatitis C, screened for Tuberculosis, needs to see an oral health provider or is pregnant but not in care, provide a supported referral to a medical provider. Integrated counseling, testing, and referral programs offer hepatitis vaccination and screening services, in addition to TB, STD screening and HIV testing.
Thank you!