INTEGRATING HIV AND HCV TESTING
FIGURE 1: LABORATORY MARKERS OF HIV INFECTION

Days Since Infection

Figure adapted from Delaney et al., CID 2017:64 and provided by M. Owen, NCHHSTP, CDC.
### HIV TEST PERFORMANCE

#### HIV TESTS:
MEDIAN WINDOW PERIOD IN DAYS BASED ON PLASMA

<table>
<thead>
<tr>
<th></th>
<th>Laboratory-Based Tests</th>
<th>POC Rapid Tests</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ag/Ab</td>
<td>17.8</td>
<td>19.2</td>
</tr>
<tr>
<td>IgM/IgG</td>
<td>23.1</td>
<td>29.3</td>
</tr>
<tr>
<td>IgG</td>
<td>30.6</td>
<td>31.1</td>
</tr>
</tbody>
</table>

Test sensitivity is **highest** when used with **plasma and serum samples**. Test sensitivity is **lower** with **whole blood**. Test sensitivity is **lowest** when used on **oral fluid**.
FIGURE 2: LABORATORY MARKERS OF HCV INFECTION

Figure provided by S. Kamili, DVH, CDC.
TESTING STRATEGIES

**Laboratory-Based Testing**
- Specimen sent to laboratory for testing
- Sequence of tests performed
  - Laboratory Testing for the Diagnosis of HIV Infection
  - Testing for HCV Infection: An Update of Guidance for Clinicians and Laboratorians
- Earlier detection than possible with POC

**Point-of-Care Rapid Testing**
- Testing where client receives services
- Various supplemental testing methods
## COMPARISON OF TESTING STRATEGIES

<table>
<thead>
<tr>
<th>Comparison Categories</th>
<th>Laboratory-Based Testing (using CDC-recommended serum/plasma algorithms)</th>
<th>Point-of-Care Rapid Testing (using CLIA-waived tests)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>HIV</td>
<td>HCV</td>
</tr>
<tr>
<td>Window period</td>
<td>2-3 weeks</td>
<td>8-11 weeks</td>
</tr>
<tr>
<td>Detect acute infection</td>
<td>✅ Yes</td>
<td>✅ Yes</td>
</tr>
<tr>
<td>Final results</td>
<td>From a single specimen</td>
<td>Negative results from single specimen; Positive results second specimen</td>
</tr>
<tr>
<td>Testing for multiple infections</td>
<td>✅ Yes, multiple tests may be performed on single specimen</td>
<td>✗ No, additional specimens needed for other tests</td>
</tr>
<tr>
<td>Timeframe for delivering results</td>
<td>Several hours to days to final</td>
<td>Negative results delivered same visit/day. Positive results, several hours to days to final</td>
</tr>
<tr>
<td>FDA-approved specimen types</td>
<td>Serum or plasma</td>
<td>Whole blood, serum, or oral mucosal transudate (HIV only)</td>
</tr>
<tr>
<td>Specimen collection</td>
<td>Venipuncture</td>
<td>Varies by test (venipuncture, finger stick, or oral fluid)</td>
</tr>
<tr>
<td>Quality assurance</td>
<td>Limited QA assurance by providers.</td>
<td>Extensive QA by testing providers</td>
</tr>
</tbody>
</table>
## Selecting a Testing Strategy

### Population-Level Factors
- HIV and HCV Prevalence
- HIV and HCV Incidence
- HIV-2 prevalence
- Co-morbidity of HIV and HCV, and/or with other conditions such as STDs and hepatitis B virus (HBV)

### Client-Level Factors
- Likelihood of acute HIV infection
- Likelihood of current HCV infection
- Likelihood that clients will return for results/linkage
- Understanding of the accuracy tests
- Acceptability of the testing strategy
- Appropriateness and relevance to client needs
- Cost to client for testing and treatment
- Readiness to engage in treatment
- Access to treatment

### Program-Level Factors
- Staff capabilities to conduct testing
- Staff perceptions and attitudes about strategy
- Feasibility of introducing strategy into existing workflow
- Laboratory capacity to implement required tests, including CDC-recommended testing algorithms
- Delivery of related prevention and treatment services such as HIV PrEP